

ROAD REPAIR AND ACCOUNTABILITY ACT OF 2017

PROJECT BASELINE AGREEMENT

Ala-680 Ramp Metering and Traffic Operations Systems 04-4G113

Resolution SHOPP-P-1819-01B

(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 *Ala-680 Ramp Metering and Traffic Operations Systems 04-4G113*, effective on, August 15, 2018 (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 D-4*, and the Implementing Agency, *Caltrans D-4*, sometimes collectively referred to as the "Parties".

3. RECITAL

- 3.2 Whereas at its March 22, 2018 meeting the Commission approved the State Highway Operation and Protection Program, and included in this program of projects the *Ala-680 Ramp Metering and Traffic Operations Systems 04-4G113*, 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-18-13, "Adoption of Program of Projects for the State Highway Operation and Protection Program", dated March 22, 2018
 - 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 The Caltrans D-4 agrees to secure funds for any additional costs of the project.
- 4.6 The Caltrans D-4 agrees to report to Caltrans 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 The Caltrans D-4 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

ALA-680 Ramp Metering and Traffic Operation Systems (TOS) Project 4G113

Resolution: STOPP - P - 1819 - 01 B

for James E. Davis

James E. Davis
Acting District Director
California Department of Transportation

7/6/2018
Date

Laurie Berman

Laurie Berman
Director
California Department of Transportation

7-23-18
Date

Susan Bransen

Susan Bransen
Executive Director
California Transportation Commission

8/15/18
Date

State Highway Operation and Protection Program

Alameda County
Document Year 2018, Version Number 4
PPNO: 1463D
(Dollars in Thousands)

DIST: 04	PPNO: EA: 1463D 4G113	CTIPS ID: 106-0000-2518	TCRP NO.:	TITLE (DESCRIPTION): (In and near Fremont, Pleasanton, and Dublin, from 0.3 mile south of Scott Creek Road to 0.3 mile north of Alcosta Boulevard, install ramp meters, ramp High Occupancy Vehicle (HOV) bypass lanes, and Traffic Operations Systems (TOS).)	ELEMENT: SHOPP Major Const.	MPO ID: LAW: 6 16
CT PROJECT ID: 0414000305					SPONSOR: Caltrans	
COUNTY: Alameda County	ROUTE: 680	PM: M R21.9	MPO: Metropolitan Transportation Commission			
					CORRIDOR:	
				PRJ MGR:		
				PHONE:		
				EMAIL:		

ASSEMBLY: 16,20,25	IMPLEMENTING AGENCIES:	PAED	RW
SENATE: 7,10		PSE	CON
CONGRESS: 15,17			

PROJECT VERSION HISTORY *(Printed Version is Shaded)* (Last 9 versions displayed)

Version	Status	Date	Updated By	Change Reason	Amend No.	Vote	Cum Award	Programmed Dollars in Thousands - Total for Project					
								Prog Con	Prog RW	PA & ED	PS & E	RW Sup	Con Sup
3	Official	03/21/2018	GBAINS	Amendment - Cost/Scope/Sch. Change	18H-003	5,700		19,000	800	5,600	100	4,600	
2	Official	08/16/2017	RWHITE	Adoption - Carry Over	FP-17-02	5,700		28,300	800	5,600	100	5,600	
1	Official	08/16/2017	RWHITE	Amendment - New Project	18H-017			28,300	800	5,600	100	5,600	

Fund Source 1 of 1 SHOPP - Mobility

20.XX.201.315 - Transportation Management (TMC's & Field Equipment)

Fund Type
National Hwy System
Funding Agency

VOTE	DATE	AMOUNT
RW_SUP	08/16/2017	100
PSE	08/16/2017	5,600

	PRIOR	18-19	19-20	20-21	21-22	22-23	23-24	FUTURE	TOTAL
PA&ED									
PS&E	5,600								5,600
RW SUP	100								100
CON SUP		4,500							4,500
RW		800							800
CON		19,000							19,000
Total:	5,700	24,300							30,000

HQ Comments:

8/20/16 Made amend official. Changed Perf Measure, Const Supp and Const Cap - GB

***** Version 4 - 06/28/2018 *****

Entered amendment #18H-003 - RW

***** Version 3 - 03/21/2018 *****

Carryover: project from 2016 to 2018 SHOPP.

***** Version 2 - 10/30/2017 *****

Added sequential programming for 2018 SHOPP ? RW

8/21/17 Made COS allocation(s) official. - SL

***** Version 2 - 08/20/2017 *****

Entered COS allocation (PS&E & RW Sup) ? RW

8/18/17 Made amend official. New project - LS

***** Version 1 - 08/16/2017 *****

Entered new 2016 SHOPP project - RW

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 accurate.

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

BASELINE AGREEMENT

Date: 07/05/18 08:34:01 AM

District	EA	Project ID		PPNO	Project Manager
04	4G113	0414000305		1463D	KIAAINA, RON K
County	Route	Begin Postmile	End Postmile	Implementing Agency	
ALA	680	M 0.0	R 21.9	PA&ED	Caltrans
				PS&E	Caltrans
				Right of Way	Caltrans
				Construction	Caltrans

Project Nickname

Ala-680 Ramp Metering (Phase 2B)

Location/Description

In and near Fremont, Pleasanton, and Dublin, from 0.3 mile south of Scott Creek Road to 0.3 mile north of Alcosta Boulevard. Install ramp meters, ramp High Occupancy Vehicle (HOV) bypass lanes, and Traffic Operations Systems (TOS).

Legislative Districts

Assembly: 16, 20, 25 Senate: 07, 10 Congressional: 15, 17

PERFORMANCE MEASURES

Primary Asset	New	Fair to Good	Poor to Good	Total	Unit
2 HOV bypass lanes, 7 CCTV, 2 CMS, & 33 TMS	44			44	Field Elements

Project Milestone

Project Milestone	Actual	Planned
Project Approval and Environmental Document Milestone	11/16/16	
Right of Way Certification Milestone	06/25/18	
Ready to List for Advertisement Milestone	06/29/18	
Begin Construction Milestone (Approve Contract)		01/28/19

FUNDING

Component	Fiscal Year	SHOPP				Total
PA&ED						0
PS&E	17/18	5,600				5,600
RW Support	17/18	100				100
Const Support	18/19	4,500				4,500
RW Capital	18/19	800				800
Const Capital	18/19	19,000				19,000
Total		30,000				30,000

Attachment B

04 - ALA - 680 - PM M0.0/R21.9
4 - 0698 - 4G1111 (04 1200 0630)
Parent EA 153100 (04 0000 0425)
November 2016

PROJECT STUDY REPORT-PROJECT REPORT

To

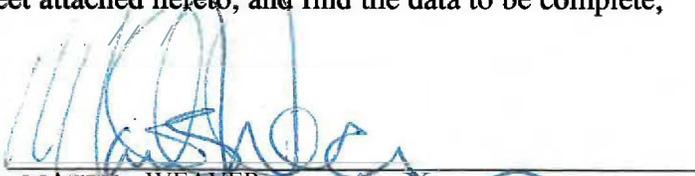
Provide Project Approval

On Route 680 in Alameda County

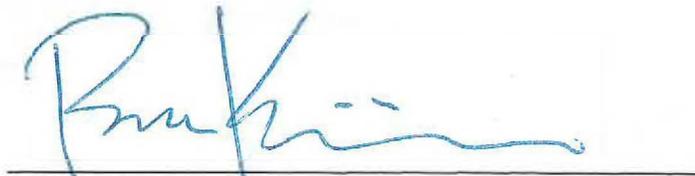
From 0.3 mile south of Scott Creek Road Undercrossing

To 0.3 mile north of Alcosta Boulevard Overcrossing

I have reviewed the right of way information contained in this Project Study Report-
Project Report and the R/W 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:


RONKIAAINA
PROJECT MANAGER

APPROVED:


For BIJAN SARTIPI
DISTRICT DIRECTOR

November 18, 2016
DATE

04 - ALA - 680 - PM M0.0/R21.9
4 - 0698 - 4G1111 (04 1200 0630)
Parent EA 153100 (04 0000 0425)
November 2016



Vicinity Map

On Route 680 in Alameda County

From 0.3 mile south of Scott Creek Road Undercrossing

To 0.3 mile north of Alcosta Boulevard Overcrossing

04 - ALA - 680 - PM M0.0/R21.9
4 - 0698 - 4G1111 (04 1200 0630)
Parent EA 153100 (04 0000 0425)
November 2016

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.



REGISTERED CIVIL ENGINEER

11/16/2016

DAJIE



TABLE OF CONTENTS

1.	INTRODUCTION.....	1
2.	RECOMMENDATION/PROPOSAL.....	2
3.	BACKGROUND.....	2
	3A. PROJECT HISTORY.....	2
	3B. REGIONAL AND SYSTEM PLANNING.....	3
	3C. EXISTING FACILITY.....	3
4.	PURPOSE AND NEED STATEMENT.....	5
5.	DEFICIENCIES.....	6
6.	CORRIDOR AND SYSTEM COORDINATION.....	6
7.	ALTERNATIVES.....	6
	7A. VIABLE ALTERNATIVES.....	7
	7B. NO-BUILD ALTERNATIVES.....	14
8.	CONSIDERATIONS REQUIRING DISCUSSION.....	14
	8A. HAZARDOUS WASTE.....	14
	8B. VALUE ANALYSIS.....	14
	8C. RESOURCE CONSERVATION.....	16
	8D. RIGHT OF WAY.....	16
	8E. NONSTANDARD DESIGN FEATURES.....	16
	8F. TRAFFIC AND ACCIDENT DATA.....	17
	8G. AIR QUALITY CONFORMITY.....	20
	8H. NOISE ABATEMENT.....	20
9.	OTHER CONSIDERATIONS AS APPROPRIATE.....	21
	9A. TRANSPORTATION MANAGEMENT PLAN FOR USE DURING CONSTRUCTION.....	21
	9B. HIGHWAY PLANTING / AESTHETICS.....	21
	9C. HYDRAULICS.....	22
	9D. COOPERATIVE AGREEMENTS.....	22
	9E. PERMITS.....	23
	9F. PUBLIC MEETING PROCESS.....	23
	9G. CONTEXT-SENSITIVE SOLUTIONS.....	23
	9H. COMPLETE STREET AND THE AMERICANS WITH DISABILITIES ACT (ADA).....	24
10.	ENVIRONMENTAL DETERMINATION/DOCUMENTATION.....	24
	10A. WATER QUALITY.....	25
11.	PROGRAMMING.....	26
12.	FUNDING.....	27
	12A. CAPITAL.....	27
	12B. CAPITAL SUPPORT ESTIMATE FOR CALTRANS PERSONNEL.....	28
	12C. SCHEDULE.....	29
13.	REVIEW.....	30
14.	RISKS.....	30
15.	PROJECT PERSONNEL.....	30
16.	FHWA COORDINATION.....	30
17.	ATTACHMENTS.....	30

1. INTRODUCTION

Brief Project Description:

This project proposes the installation of a ramp metering system for sixteen on-ramps and connectors along Route 680 in Alameda County. Twelve on-ramps will be widened utilizing retaining walls as needed to provide for High Occupancy Vehicle (HOV) preferential lanes or additional mixed-flow lanes. The project limits are from 0.3 mile south of Scott Creek Road Undercrossing to 0.3 mile north of Alcosta Boulevard Overcrossing.

The implementation of ramp metering systems will minimize gridlock of the freeway system, decrease travel time and improve mobility through the corridor during the peak hours. This project will complement the existing operational ramp meters that were recently installed on the northbound and southbound Route 680. Within the project limits, eighteen ramp meters have been installed; thirteen of them have been activated.

New Traffic Operation System (TOS) elements will also be installed as part of this project, to fill the gaps in existing TOS coverage in the corridor mentioned above. This deployment will expand Caltrans' freeway traffic operation system and provide the means for the California Highway Patrol (CHP) and the District 4 Transportation Management Center (TMC) to manage freeway traffic effectively. Traffic data accessed via the TOS will be used to monitor traffic flows, detect and/or verify incidents, and to inform the motoring public of adverse traffic conditions and associated traffic delay. The overall effect of the TOS will be a reduction in congestion and the number of incidents and associated traffic delay.

See attachment A, for a Project Vicinity Map.

The project has been designated a Category 5 project, having minimal economic, social, or environmental significance. The estimated cost of the project is \$73,041,000 (\$50,677,000 Capital, and \$22,364,000 Support). This Freeway Performance Initiative (FPI) project is funded with CMAQ and SHOPP funds.

See the Preliminary Cost Estimate (Attachment B) for specific work items included in this project.

Upon completion of the PA&ED phase, the project will proceed as two separate projects (Phase 2A and 2B) due to funding shortfalls. See Section 11 Programming for more detailed information.

Project Limits (Dist., Co., Rte., PM)	04-ALA 680, PM M0.0/R21.9
Number of Alternatives:	1
Alternative Recommended for Programming:	Alternative - Build
Capital Outlay Support:	\$22,364,000
Capital Outlay Construction:	\$50,000,000
Capital Outlay Right of Way:	\$677,000
Funding Source:	CMAQ /SHOPP
Type of Facility (conventional, expressway, freeway):	Freeway
Number of Structures:	6 retaining walls
Anticipated Environmental Determination/Document	Mitigated Negative Declaration (CEQA) Categorical Exclusion (NEPA)
Legal Description	Install Ramp Meters and TOS elements

2. RECOMMENDATION/PROPOSAL

It is recommended that this Project Study Report/Project Report (PSR-PR) be approved and authorization be given for preparation of PS&E.

3. BACKGROUND

3A. PROJECT HISTORY

Ramp Metering has been proven to be an effective traffic operations tool in maximizing the overall efficiency of a transportation corridor. The primary purpose of metering is to reduce the overall travel time to the total traffic stream on the freeways and local streets.

The Bay Area Metropolitan Transportation Commission (MTC's) 2040 Transportation Plan highlights Freeway Performance Initiative (FPI TIP IP #REG090003), as a 25-year \$1.6 billion program developed in partnership with Caltrans. The program aims to maximize performance and reliability using technology and limited expansions at essential locations; includes Traffic Operation System (TOS) infrastructure, TOS maintenance and replacement, arterial coordination and management, and performing monitoring.

Caltrans and MTC's performance analysis shows that this initiative is the most cost effective way of improving mobility and reducing emissions. This project is a part of the FPI program to implement ramp metering throughout the freeway system in District 4.

The Project Study Report-Draft Project Report to release the Draft Environmental Document was approved on November 18, 2013. The public circulation has been completed.

All project development stopped in September 2014 due to lack of funding to complete the PA&ED phase. The project was placed on hold and discussions were held with MTC to provide additional funding to this project and other projects for the FPI program. In June 2016, additional CMAQ funding was provided to the FPI program and this project via Cooperative Agreement Amendment (See Section 9D Cooperative Agreement). With funding restored, project development resumed in July 2016.

3B. REGIONAL AND SYSTEM PLANNING

The Caltrans 2009 Ramp Metering Development Plan recommends corridor-wide metering on Route 680. The regionally adopted 2009 Regional Transportation Plan (T2035) plans for the regional Freeway Performance Initiative program to fund metering projects in these corridors among others in the region. The Reference Number is 230419.

3C. EXISTING FACILITY

Route 680 is the primary north and south transportation corridor between Alameda and Santa Clara counties which serves commuter, commercial, and recreational traffic. Due to the strong job growth in the Silicon Valley, Route 680, especially the southbound direction, had become one of the most congested corridors in the Bay Area.

To reduce traffic congestion along southbound Route 680 during the morning peak hour, the Express Lane project was proposed and constructed recently (2010). This Express lane project converted the southbound HOV lane to a HOT lane in the southbound direction from Route 84 to Route 237 and constructed auxiliary lanes between Washington Boulevard and Jacklin Road.

Route 680 (from PM 6.4 to PM 21.9) is classified as an **Officially Designated State Scenic Highway**. Care is required to retain as much existing vegetation as possible to maintain existing screening of views. The freeway has at least seven lanes (three lanes in the northbound direction, and four lanes including the recently constructed HOT lane in the southbound direction). At various segments, the freeway widens to five lanes in the southbound direction.

The existing configuration of the proposed on-ramps and connectors within the project limits are as follows:

- 1) Scott Creek Road to Northbound Route 680 is a one-lane diagonal on-ramp.
- 2) Mission Boulevard (Route 262) to Northbound Route 680 is a one-lane diagonal on-ramp.
- 3) Vargas Road to Northbound Route 680 is a one-lane loop on-ramp.
- 4) Andrade Road to Northbound Route 680 is a one-lane diagonal on-ramp.
- 5) Southbound Route 84 to Southbound Route 680 is a two-lane diagonal connector with one lane merging to southbound of Route 680.
- 6) Calaveras Road to Northbound Route 680 is a one-lane loop on-ramp.
- 7) Southbound Route 84 to Northbound Route 680 is a one-lane diagonal connector.
- 8) Koopman Road to Northbound Route 680 is a one-lane diagonal on-ramp.
- 9) Sunol Boulevard to Southbound Route 680 is a one-lane loop on-ramp.
- 10) Sunol Boulevard to Northbound Route 680 is a one-lane diagonal on-ramp.
- 11) Bernal Avenue to Southbound Route 680 is a one-lane diagonal on-ramp.
- 12) Bernal Avenue to Northbound Route 680 is a one-lane diagonal on-ramp.
- 13) Stoneridge Drive to Southbound Route 680 is a one-lane diagonal on-ramp.

- 14) Stoneridge Drive to Northbound Route 680 is a one- lane loop on-ramp.
- 15) Stoneridge Drive to Southbound Route 680 is a one- lane loop on-ramp.
- 16) Stoneridge Drive to Northbound Route 680 is a one-lane diagonal on-ramp.
- 17) Eastbound Route 580 to Southbound Route 680 is a one-lane diagonal connector.
- 18) Westbound Route 580 to Southbound Route 680 is a one-lane loop connector.
- 19) Eastbound Route 580 to Northbound Route 680 is a one-lane loop connector.
- 20) Westbound Route 580 to Northbound Route 680 is a one-lane diagonal connector.

4. PURPOSE AND NEED STATEMENT

Route 680 experiences heavy congestion during peak periods. Some of the congestion and breakdown in traffic flow is caused by platoons of vehicles entering at non-metered on-ramps and merging with the mainline traffic. The installation and implementation of ramp metering systems on freeways is an effective operation tool of overall efficiency of a transportation corridor. Therefore, the expansion of the ramp meter program on Route 680 is needed as per Caltrans District 4 Ramp Meter Development Plan (2009).

TOS elements are needed to warn motorists of congestion causing incidents such as accidents, mechanical breakdowns, spills, construction and maintenance activities, weather, or special events. Uninformed motorists are often aggravated when delayed by incident-related or recurrent congestion. When major incidents occur on highways, most motorists on the involved route find themselves waiting in congestion with no information as to what is causing the problem or how long they will be delayed. Adding TOS elements such as CCTVs and TMSs will help to more quickly identify trouble spots soon after they occur and relay this information to motorists.

Incidents can cause a great amount of congestion and increase the potential for secondary accidents. Handling an incident involves:

- Detection and verification of its existence
- Identification and response
- Informing motorists of freeway traffic condition
- Clearing and restoration of the highway to full capacity

Minimizing the time for any of these steps will reduce the impact of incidents in terms of their potential to cause accidents, congestion, and delay.

5. DEFICIENCIES

Although there are existing ramp meters that are currently operating on southbound Route 680 in the corridor, the vast majority of the ramps on northbound Route 680 do not have a ramp metering system in place. These currently non-metered ramps which are saturated with peak hour traffic volumes serve as one of the main constituents for traffic congestion along the corridor. The proposed project will reduce traffic congestion and improve the merge operations with the aid of a complete ramp metering and TOS system.

This project is the second phase of ramp metering and TOS system improvements on Route 680 in Alameda County. The construction of the first phase was completed in June 2013.

6. CORRIDOR AND SYSTEM COORDINATION

This project supports the Caltrans – District 4 Ramp Meter Development Plan (RMDP, 2009), and will facilitate in completing the ramp metering system for sixteen on-ramps and connector on Route 680 in Alameda County.

The proposed project is identified as a Transportation Management Systems (TMS) project, which is consistent with the plan, programs and goals identified in the Regional Mobility Plans, and the Congestion Management Plans for each county in the MTC region. The project is also in the MTC's Regional Management Strategy and Regional Transportation Plan.

7. ALTERNATIVES

Ramp metering and TOS are standardized; therefore, no other acceptable equipment or installation method can provide a better alternative or a more cost effective result leaving only **Build** or **No-Build** alternatives.

7A. VIABLE ALTERNATIVES

➤ Ramp Metering and Traffic Monitoring Station Build Alternative

The project proposes to install ramp metering equipment for sixteen on-ramps/ connectors and Traffic Monitoring Stations for four connectors in the north and southbound direction along Route 680 in Alameda County from Scott Creek Road to Junction 580/680. The following is included:

- Install dual type detector loops for the mainline.
- Install ramp detectors on the on-ramps. These include detectors for passage, demand, and end of queue.
- Install ramp metering striping and markings.
- Install ramp metering controller cabinets.
- Install advance warning signs at the entrances of the on-ramp (“METER ON”).
- Provide widening of on-ramps for additional ramp meter storage or adding HOV preferential lanes.

All design installation features proposed in this project are standardized as per Caltrans Highway Design Manual and the 2000 Ramp Meter Design Guidelines (RMDG).

The proposed design features for all of the on-ramps are listed in the following:

- 1) Scott Creek Road to Northbound Route 680 diagonal on-ramp: Project proposes to install new ramp metering equipment and a new CHP pullout. In addition, this on-ramp will be widened to provide one HOV lane and one mixed-flow lane. The maximum width of the widening is 17 ft from the existing right edge of shoulder (ES). The maximum depth of excavation is 9 ft from the original ground (OG). The hill side on the right shoulder will be shaved to a maximum depth of 6 ft from the OG. The outer limit of the shaving is 55 ft from the existing right ES.
- 2) Mission Boulevard (Route 262) to Northbound Route 680 diagonal on-ramp and collector: Project proposes to install new ramp metering equipment for this on-ramp and a ramp collector. There will be a new CHP pullout for the on-ramp. In addition, the diagonal on-ramp will be widened by utilizing retaining walls to provide two mixed-flow lanes. The maximum width of the impacted area caused by the widening from the existing right ES is 60 ft which includes 43 ft width of the roadway widening and 17 ft width of the retaining wall

footing. The maximum depth of excavation is 11 ft from the OG. The retaining wall is a Standard Wall on Piles. The maximum length of the piles is 50 ft. The retaining wall length is approximately 1110ft. The ramp collector will also be widened to two lanes.

- 3) Vargas Road to Northbound Route 680 loop on-ramp: Project proposes to install new ramp metering equipment.
- 4) Andrade Road to Northbound Route 680 diagonal on-ramp: Project proposes to install new ramp metering equipment.
- 5) Southbound Route 84 to Southbound Route 680 diagonal connector: Project proposes to install new ramp metering and a new CHP pullout. In addition, this connector will be widened to provide one HOV lane and two mixed-flow lanes. The maximum width of the widening is 15 ft from the existing left ES. The maximum depth of excavation is 5 ft from the OG.
- 6) Calaveras Road to Northbound Route 680 loop on-ramp: Project proposes to install new ramp metering and a new CHP pullout. In addition, this on-ramp will be widened by utilizing retaining walls to provide one HOV lane and one mixed-flow lane. The maximum width of the impacted area caused by the widening from the existing right ES is 34 ft which includes 22 ft width of the roadway widening and 12 ft width of the retaining wall footing. The maximum depth of the excavation for the widening is 8 ft from the O.G. The retaining wall is a Standard Wall on Piles. The maximum length of the piles is 30 ft. The retaining wall length is approximately 800 ft.
- 7) Southbound Route 84 to Northbound Route 680 diagonal connector: Project proposes to install new ramp metering and a new CHP pullout. In addition, this connector will be widened by utilizing retaining walls to provide one HOV lane and one mixed-flow lane. The maximum width of the widening is 50 ft from the existing right ES. The maximum depth of excavation is 15 ft from the OG. The retaining wall is a Soil Nail Wall. The horizontal and vertical lengths of the nails are 40 ft and 10 ft respectively. The retaining wall length is approximately 3280 ft.
- 8) Koopman Road to Northbound Route 680 diagonal on-ramp: Project proposes to install new ramp metering and a new CHP pullout. In addition, this on-ramp will be widened by utilizing retaining walls to provide one HOV lane and one mixed-flow lane. The maximum width of the excavation is 20 ft from the existing right ES. The maximum depth of excavation will be 12 ft from the OG. The

retaining wall is a Soldier Pile Wall. The maximum length of the piles is 40ft. The retaining wall length is approximately 800 ft.

- 9) Sunol Boulevard to Southbound Route 680 loop on-ramp: Project proposes to install new ramp metering and a new CHP pullout. In addition, this on-ramp will be widened to provide two mixed-flow lanes. The maximum width of the widening is 16 ft. The maximum depth of the excavation is 10 ft from the OG. The hill side on the right shoulder will be shaved to a maximum depth of 10 ft. The outer limit of the shaving is 110 ft from the existing right ES.
- 10) Sunol Boulevard to Northbound Route 680 diagonal on-ramp: Project proposes to install new ramp metering and a new CHP pullout. In addition, this on-ramp will be widened by utilizing retaining walls to provide one HOV lane and one mixed-flow lane. The maximum width of the impacted area from the existing right ES is 40 ft which includes 24 ft width of the roadway widening and 16 ft of the retaining wall footing. The maximum depth of excavation is 14 ft from the OG. The retaining wall is a Soldier Pile Wall. The maximum length of the piles is 50 ft. The retaining wall length is approximately 850 ft.
- 11) Bernal Avenue to Southbound Route 680 diagonal on-ramp: Project proposes to install new ramp metering and a new CHP pullout. In addition, this on-ramp will be widened by utilizing retaining walls to provide one HOV lane and one mixed-flow lane. The maximum width of the impacted area from the right ES is 45 ft which includes 30 ft width of the roadway widening and 15 ft width of the retaining wall footing. The maximum depth of excavation is 10 ft from the OG. The retaining wall is a Standard Wall on Piles. The maximum length of the piles is 35 ft. The retaining wall length is approximately 1400 ft.
- 12) Bernal Avenue to Northbound Route 680 diagonal on-ramp: Project proposes to install new ramp metering and a new CHP pullout. In addition, this on-ramp will be widened to provide one HOV lane and one mixed-flow lane. The max width of the widening is 15 ft from the existing right ES. The maximum depth of the excavation for the widening is 5 ft from the O.G., and the fill for the widening is 10 ft from the O.G. The outer fill limit is the right of way line.
- 13) Stoneridge Drive to Southbound Route 680 diagonal on-ramp: Project proposes to install new ramp metering and a new CHP pullout. In addition, this on-ramp will be widened to provide one HOV lane and one mixed-flow lane. The maximum width of the widening is 20 ft.

The maximum depth of excavation is 5 ft.

- 14) Stoneridge Drive to Northbound Route 680 loop on-ramp: Project proposes to install new ramp metering equipment.
- 15) Stoneridge Drive to Southbound Route 680 loop on-ramp: Project proposes to install new ramp metering and a new CHP pullout. In addition, this on-ramp will be widened to provide one HOV lane and one mixed-flow lane. The maximum widths of the widening on the right ES and left ES are 15 ft and 13ft respectively. The maximum depth of excavation will be 6 ft.
- 16) Stoneridge Drive to Northbound Route 680 diagonal on-ramp: Project proposes to install new ramp metering equipment.
- 17) Eastbound Route 580 to Southbound Route 680 diagonal connector: Project proposes to install Traffic Monitoring Station.
- 18) Westbound Route 580 to Southbound Route 680 loop connector: Project proposes to install Traffic Monitoring Station.
- 19) Eastbound Route 580 to Northbound Route 680 loop connector: Project proposes to install Traffic Monitoring Station.
- 20) Westbound Route 580 to Northbound Route 680 diagonal connector: Project proposes to install Traffic Monitoring Station.

For the ramps/connectors that are widened, it is recommended that the AC pavement be grinded to a minimum of 0.13 ft and replaced with HMA (A) adjacent to the proposed new ramp widening sections to provide a smooth continuous uniform mat surface across the entire final ramp width. Construct the new pavement section ramp widening so the final 0.13 ft HMA (A) lift will match the final elevation and cross-slope of the 0.13 HMA replacement overlay of the adjacent existing pavement surfacing.

➤ **TOS Build Alternative**

New TOS elements will be installed as part of this project to infill gaps in existing TOS coverage on the freeway segment within the project limits. These elements include thirteen (13) closed circuit television (CCTV) camera, three (3) changeable message signs (CMS), and fifty (50) one-directional traffic monitoring stations (TMS) excluding the four (4) TMS located at the above mentioned connectors of the 580/680

interchange. The CCTVs, CMSs, and TMSs will be installed at the following locations:

Approx. PM	Direction	Type of TOS Element		Approx. PM	Direction	Type of TOS Element
0.92	NB	CMS		13.52	SB	CCTV
1.39	NB	CCTV		13.69	NB	TMS
2.86	NB	TMS		13.69	SB	TMS
2.86	SB	TMS		14.24	NB	TMS
3.33	NB	TMS		14.24	SB	TMS
3.33	SB	TMS		14.49	NB	CCTV
6.89	NB	TMS		14.80	NB	TMS
6.89	SB	TMS		14.80	SB	TMS
7.42	SB	CCTV		15.30	NB	TMS
7.73	NB	TMS		15.33	NB	CCTV
7.73	SB	TMS		15.87	NB	TMS
8.23	NB	TMS		15.87	SB	TMS
8.32	NB	CCTV		16.17	SB	CCTV
8.53	NB	TMS		16.59	NB	TMS
8.53	SB	TMS		17.26	NB	TMS
9.01	SB	CCTV		17.26	SB	TMS
9.09	NB	TMS		17.73	NB	TMS
9.09	SB	TMS		17.73	SB	TMS
9.61	NB	TMS		17.77	NB	CCTV
10.05	NB	TMS		17.79	NB	CMS
10.35	NB	CCTV		18.20	NB	TMS
10.45	NB	TMS		18.20	SB	TMS
10.45	SB	TMS		18.43	NB	CCTV
10.81	SB	CCTV		18.70	NB	TMS
11.65	NB	TMS		18.70	SB	TMS
11.97	NB	TMS		19.19	NB	TMS
11.97	SB	TMS		19.65	SB	TMS
12.49	NB	CCTV		20.0	NB	TMS
12.56	NB	TMS		20.18	NB	TMS
12.56	SB	TMS		20.40	SB	TMS
13.12	NB	TMS		20.67	SB	TMS
13.12	SB	TMS		21.15	NB	TMS (Repair/Replace)
13.48	SB	CMS		21.15	SB	TMS Repair/Replace)

Local power will be provided by PG&E. Telephone services will be provided by leased telephone lines. New General Packet Radio Services (GPRS) wireless modems will provide communications links between the proposed TMS and the Transportation Management Center.

Conduit, cabinets and the other elements comprise the general TOS installation. The conduit relays power, communication, and control wiring between the element, cabinets, and service points.

The CCTV and cabinet will be sited off the shoulder within Caltrans's right-of-way. They will be installed behind the metal beam guardrail or outside of the clear recovery zone (CRZ) at a minimum of thirty feet from the edge of traveled way.

The CCTVs and CMSs will be placed on poles, which will be anchored in a cast-in-drill-hole (CIDH) pile foundation located at a maximum depth of 13 ft and 35 ft having a diameter of 2.5ft and 5ft respectively. The conduit will be enclosed in trenches 1-2 ft wide and to a minimum depth of 30".

Maintenance Vehicle Pullouts are proposed for access to electrical cabinets when possible. The MVPs are approximately at the postmiles listed in the chart below:

Location	PM	Direction (N/S)	Location Description
1	M0.30	NB	NB on-ramp from Scott Creek Rd.
2	M0.95	NB	Mainline
3	M1.38	NB	Mainline
4	M2.49	NB	NB on-ramp from Mission 262
5	M2.88	NB	Mainline
6	M3.33	NB	Mainline
7	R6.86	NB	Mainline
8	R7.13	NB	NB on-ramp from Vargas Rd.
9	R 7.36	SB	Mainline
10	R7.71	SB	Mainline
11	R8.21	NB	Mainline
12	R8.34	NB	Mainline
13	R8.51	NB	Mainline
14	R8.65	NB	NB off-ramp to CHP Truck Scale
15	R9.03	SB	Mainline

16	R9.63	NB	Mainline
17	R9.73	NB	NB on-ramp from Andrade Rd.
18	R10.37	NB	Mainline
19	R 10.39	NB	Mainline
20	R10.83	SB	Mainline
21	R10.95	NB	NB on-ramp from Calaveras Rd.
22	R11.63	NB	Mainline
23	R11.95	NB	Mainline
24	R11.96	NB	NB Route 84 to NB Route 680
25	R12.55	NB	NB on-ramp from Koopman Rd.
26	R13.10	NB	Mainline
27	R13.54	SB	Mainline
28	R14.24	NB	Mainline
29	R14.50	NB	Mainline
30	R14.87	SB	Mainline
31	R15.31	SB	SB on-ramp from Sunol Blvd.
32	R15.41	NB	NB on-ramp from Sunol Blvd.
33	R15.83	NB	Mainline
34	R16.15	SB	Mainline
35	R16.60	NB	Mainline
36	R16.67	SB	SB on-ramp from Bernal Ave.
37	R16.78	NB	NB on-ramp from Bernal Ave.
38	R17.28	SB	Mainline
39	R17.81	NB	Mainline
40	R18.20	SB	Mainline
41	R18.43	NB	Mainline
42	R18.71	SB	Mainline
43	R19.20	NB	Mainline
44	R19.23	SB	SB Diagonal on-ramp from Stoneridge Drive
45	R19.34	SB	SB Loop on-ramp from Stoneridge Drive
46	R19.62	NB	Mainline
47	R20.12	NB	NB 680 off-ramp to WB 580
48	R20.30	SB	SB off-ramp to St Patrick Wy

7B. NO-BUILD ALTERNATIVES

The No-Build alternative is used to determine the relative impacts and benefits of providing the project improvements through a comparative analysis.

If the existing facility remains unimproved, movement of traffic in peak hours will deteriorate on the mainline. There will also be an increase in variable congestion, a dramatic decrease in level of service, and an increase of existing operation and safety deficiencies. If the No-Build alternative was selected, operational and safety complications would not be minimized, therefore the alternative does not meet the desired goals of this project.

The No-Build alternative was not considered since this project is within the policy of the 2009 Ramp Meter Development Plan (District 4). Because ramp metering is standardized, then no other acceptable equipment or installation method can provide a better alternative or a more cost-effective result.

8. CONSIDERATIONS REQUIRING DISCUSSION

8A. HAZARDOUS WASTE

A site investigation that ascertains the presence/absence of chemicals of concern in the project soil and groundwater has been completed. It revealed that the soil at some proposed ramp widening and maintenance vehicle pullout locations contained hazardous waste concentrations of lead, i.e., aerially deposited lead (ADL) from historic leaded-gasoline emissions. Based on the results of the site investigation, the appropriate hazardous waste-related PS&E elements that address proper soil handling and management practices and construction worker health and safety concerns will be included in the construction contract. Hazardous waste handling and disposal costs have been included in the estimated unit price of Roadway Excavation (ADL).

8B. VALUE ANALYSIS

Value Analysis (VA) studies are mandated by federal law (Title 23 USC 106) for all projects on the federal-aid system (Interstate and the National Highway System) with a total project cost (capital and support) of \$25 million or more. The total cost of this project is greater than this amount and so a Value Analysis study was performed for the parent EA 15310 and three other similar FPI projects.

The table below includes the accepted alternatives, for all four RM/TOS projects included in the VA study, and their initial cost savings, life cycle cost (LCC) savings, change in schedule, and performance change that were validated by the Project Development Team (PDT) after the VA study. Only alternatives #2 and #4 are applicable to this project, the reasons are given below.

Alternative No. and Description	Initial Cost Savings	LCC Savings	Change in Schedule	Performance Change
1.0 Prepare a Bridge Site submittal to Structures Design by end of September 2011	\$0	\$0	No change	+7 %
The main reason to implement this alternative is to optimize the choice of the best retaining wall and minimize earthwork.				
2.0 Perform more early site evaluation and exploratory drilling to test for all soil contaminants	\$0	\$0	No change	+5 %
The main benefit of this alternative is to save potential change order costs that could be realized if unknown contamination were found and change orders were needed to remove and dispose of the contamination.				
3.0 Use a reduced structural section in the ramp shoulder area	\$0	\$0	No change	+9 %
The main benefit of this alternative is allowing a method to reduce the possibility of encountering cultural resources.				
4.0 Separate difficult environmental project areas from the main project	\$0	\$0	No change	+2 %
The main benefit of this proposal is to reduce the risk of losing allocated funding for this project because the project would be stopped if the RTL milestone is not met. This concept will allow the project to take advantage of the funding that is currently available. It will keep the project design activities moving forward in a timely manner.				

1. “Prepare a Bridge Site submittal to Structures Design by end of September 2011” is not applicable to this child project.
2. “Perform more early site evaluation and exploratory drilling to test for all soil contaminants” is applicable to this project. The Hazardous Waste office has completed the drilling and made recommendations. See Hazardous Waste (Section 8A)
3. “Use a reduced structural section in the ramp shoulder area” is not applicable to this project. The intent of this suggestion is to clear hurdles associated with the expedited environmental review required for these expedited projects. For this project, certain locations would not clear the

environmental review due to the potential impact on biology and cultural resources.

4. “Separate difficult environmental project areas from the main project” is applicable to the parent project. The parent project is split so child projects without environmental sensitive areas can be delivered early to reduce the risk of losing allocated funding. This child project with environmental sensitive areas is the last project for delivering.

8C. RESOURCE CONSERVATION

By reducing freeway congestion, ramp metering reduces fuel consumption and pollution reduction. Ramp metering with the addition of an HOV bypass lane promotes car pooling, which result in less congestion. Ramp metering helps optimize a freeway capacity without using extra right of way.

8D. RIGHT OF WAY

General

A Right of Way data sheet has been prepared based on the scope of work described in this Project Study Report-Project Report. Estimated cost information is contained in the Right of Way data sheet; see Attachment C of this report. All work will be done within existing right of way and additional right of way is not required for this project.

Railroad

Railroad involvement is not anticipated on this project.

Utilities

Utility owners within the limit of the project are PG&E, AT&T, Comcast, Alameda County Water District, Union Sanitary District, Alameda Flood Control, Department of Water Resources, City of Pleasanton, and Zone 7.

8E. NONSTANDARD DESIGN FEATURES

- Fact Sheet Exception to Mandatory and Advisory Standards—All design features of this project adhere to mandatory and advisory design standards.
- Fact Sheet Exception to Ramp Metering Policy was approved on February 3, 2014.
 1. Due to existing highway geometric constraints, an HOV preferential lane is not provided at the following on-ramps:

- NB diagonal on-ramp from Mission Blvd. (Route 262)
 - SB loop on-ramp from Sunol Blvd.
 - NB loop on-ramp from Stoneridge Dr.
 - ND diagonal on-ramp from Stoneridge Dr.
2. Due to funding shortfalls, the construction for an HOV preferential lane will be delayed until funding becomes available and the work can be programmed in the future under the Phase 2B project for the following on-ramps:
- NB loop on-ramp from Vargas Rd.
 - NB diagonal on-ramp from Andrade Rd.
 - NB loop on-ramp from Calaveras Rd.
 - NB diagonal connector from SB Route 84
 - NB diagonal on-ramp from Koopman Rd.
 - NB diagonal on-ramp from NB Sunol Blvd.

8F. TRAFFIC AND ACCIDENT DATA

The current and forecasted 2035 demand volumes (peak hour) for the on-ramps/connectors are listed as follows:

On-Ramp	Year of 2012		2035 Forecast	
	AM (VPH*)	PM (VPH*)	AM (VPH*)	PM (VPH*)
NB on-ramp from Scott Creek Rd.	260	530	480	970
NB on-ramp from Mission Blvd.	980	1330	1380	1740
NB on-ramp from Vargas Rd.	20	20	40	40
NB on-ramp from Andrade Rd.	100	830	200	1670
SB connector from SB Rte 84	2330	670	3543	1019
NB on-ramp from Calaveras Rd.	180	430	360	870
NB connector from SB Rte 84	20	30	40	60
NB on-ramp from Koopman Rd.	260	300	520	610
SB on-ramp from Sunol Blvd.	850	240	1100	310
NB on-ramp from Sunol Blvd.	280	320	360	420
SB on-ramp from Bernal Ave.	550	300	710	390

NB on-ramp from Bernal Ave.	1180	1170	1520	1510
SB on-ramp (diagonal) from Stoneridge Dr.	170	480	270	620
NB on-ramp (loop) from Stoneridge Dr.	210	790	270	1020
SB on-ramp (loop) from Stoneridge Dr.	310	740	400	960
NB on-ramp (diagonal) from Stoneridge Dr.	710	920	1070	1380
SB on-ramp from EB Rte 580	810	670	1040	870
SB on-ramp from WB Rte 580	1610	1630	2070	2100
NB on-ramp from EB Rte 580	1350	1250	1740	1610
NB on-ramp from WB Rte 580	2000	2290	2570	2950

*Vehicle Per Hour

Below are accident rates for the mainline and ramps from Traffic Accident Surveillance and Analysis System (TASAS) within the project limits between post mile M0.0 and R21.9 for the most recent three-year period from November 1, 2011 to October 31, 2014:

Mainline Total	Accident Rate (accidents/million vehicle miles)					
	Actual			Average		
	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total
PM M0.0/R21.9	0.003	0.15	0.49	0.005	0.24	0.75

Ramp Locations	Accident Rate (accidents/million vehicle miles)					
	Actual			Average		
	Fatal	Fatal + Injury	Total	Fatal	Fatal + Injury	Total
NB on-ramp from Scott Creek Rd.	0.000	0.00	0.00	0.002	0.22	0.63
NB on-ramp from Mission Blvd.	0.000	0.00	0.05	0.001	0.06	0.18
NB on-ramp from Vargas Rd.	0.000	0.00	0.00	0.002	0.21	0.73
NB on-ramp from Andrade Rd.	0.000	0.00	0.42	0.004	0.17	0.53
SB connector from SB Route 84	0.000	0.06	0.06	0.004	0.17	0.51

NB on-ramp from Calaveras Rd.	0.000	0.00	0.26	0.005	0.14	0.44
NB connector from SB Route 84	0.000	0.00	0.00	0.002	0.10	0.29
NB on-ramp from Koopman Rd.	0.000	0.80	0.00	0.002	0.22	0.63
SB on-ramp from Sunol Blvd.	0.000	2.34	2.53	0.003	0.24	0.72
NB on-ramp from Sunol Blvd.	0.000	0.84	1.12	0.002	0.22	0.63
SB on-ramp from Bernal Ave.	0.000	0.43	0.43	0.002	0.22	0.63
NB on-ramp from Bernal Ave.	0.000	0.22	0.44	0.002	0.22	0.63
SB on-ramp (diagonal) from Stoneridge Dr.	0.000	0.00	0.27	0.003	0.18	0.57
NB on-ramp (loop) from Stoneridge Dr.	0.000	0.00	0.00	0.002	0.21	0.73
NB on-ramp (diagonal) from Stoneridge Dr.	0.000	0.13	0.13	0.003	0.18	0.57
SB on-ramp (loop) from Stoneridge Dr.	0.000	0.45	0.45	0.002	0.21	0.73
NB on-ramp from WB Route 580	0.000	0.14	0.69	0.003	0.18	0.57

There were 1694 reported accidents on this mainline segment including ramps, between post mile M0.0 and R21.9 for the most recent three-year period from November 1, 2011 to October 31, 2014. Most of the accidents on this segment are associated with congested conditions. About 29.5% of the accident occurred during the morning peak hours from 5am to 9am. About 35.3% of the accidents occurred during the afternoon peak hours, from 3 pm to 7 pm. Also, about 81.4% of the accidents occurred during weekdays, Monday through Friday.

Of the accidents reported, 53.4% were rear end and 20.3% sideswipe, which are the two most common types of accidents indicative of congested conditions. There were 19.9% or 337 hit object accidents, in which 97 hit median barrier, 54 dike or curb, 51 guardrail, 29 other object on road, 23 over embankment, 18 cut slope or embankment, 12 traffic sign/sign post, 10 end of guardrail, 7 wall (except sound wall), 7 call box, 6 fence, 5 side of bridge railing, 5 light or signal pole, etc.

About two-third of the accidents were attributable to unsafe speed (51.1%) and improper turns (15.7%), which are the two most common collision factors

resulting in rear end and sideswipe accidents in congested conditions. In addition, 22.2% of the accidents were due to other violations, 5.3% influence of alcohol, etc.

Type of Collision	Number of Accident
Head-On	8
Sideswipe	344
Rear End	904
Broadside	32
Hit Object	337
Overturn	49
Auto-Pedestrian	2
Other	13
Not Stated	5

Installing Traffic Operations Systems/Ramp Metering equipment on north and southbound Route 680 will reduce traffic congestion along this freeway corridor.

8G. AIR QUALITY CONFORMITY

The project is located within the San Francisco Bay Area Air Basin, which is designated as a nonattainment area for the national 8-hour ozone and the national 24-hour PM_{2.5} standards. The Bay Area is also a maintenance area for carbon monoxide (CO). The current Regional Transportation Plan (RTP) for the Bay Area is the Transportation 2035 Plan, and the most current conforming Transportation Improvement Program (TIP) is the 2017 TIP. The proposed project, included under the Freeway Performance Initiative (FPI) Program to install ramp metering and Traffic Operations System (TOS) Infrastructure on multiple Bay Area Freeways, was included in the regional emissions analysis conducted by the MTC for the Transportation 2035 Plan (Project Reference No. 230419) and the 2017 TIP (I.D. REG090003). The Transportation 2035 Plan lists the FPI Program cost at \$1,600,000,000, which includes capital, operations, and maintenance costs. The project's design concept and scope have not changed significantly from those described in the TIP and its regional emissions analysis. The project is therefore in conformity with the State Implementation Plan.

8H. NOISE ABATEMENT

A *Noise Impact Report* (July 2011) was prepared for the project. It assessed the traffic noise impact resulting from the installation and implementation of

a ramp metering system and traffic operations system along I-680 in Alameda County. It determined that residential areas and commercial areas are mixed along both sides of I-680 within the proposed project area. The roadway alignment is basically straight with a roadway profile grade being a few meters above the surrounding residential areas.

Existing noise levels ranging from 55.2 to 60.4 dBA Leq (h) were measured at various locations within the project limits. Since it is below the State Noise Abatement Criterion (NAC) of 67 dBA Leq (h), no noise abatement measures are considered for this project.

9. OTHER CONSIDERATIONS AS APPROPRIATE

9A. TRANSPORTATION MANAGEMENT PLAN FOR USE DURING CONSTRUCTION

A Transportation Management Plan (TMP) will be implemented during construction to minimize delays and inconvenience to the traveling public. The project proposes the installation of ramp metering systems, TOS elements, and widening of ramps/connectors that will require lane closures and detours.

It is anticipated that for majority of the proposed work, only the shoulders will be closed during construction while the traveled way will remain open to traffic. Temporary K-Rails will be installed to protect construction workers where needed. Should the construction activities infringe onto the traveled way, such activities will be restricted to off-peak hours or at night, or short-term detour routes will be identified as required. The TMP may include press releases to notify and inform motorists, businesses, community groups, local entities, emergency services, and politicians of upcoming closures or detours. Various TMP elements such as portable Changeable Message Signs and CHP Construction Zone Enhanced Enforcement Patrol (COZEEP) may be utilized to alleviate and minimize delay to the traveling public. The purpose of a TMP is to minimize traffic impacts caused by the construction activities.

The TMP for this project will be developed and refined during PS&E and the final design phase. The TMP Data Sheet is included in Attachment D.

9B. HIGHWAY PLANTING / AESTHETICS

Existing highway planting may be affected at various project locations during construction. In addition, trenching for new electrical conduit to connect the ramp metering equipment could impact existing underground

irrigation pipes and valves. Modification and replacement of existing irrigation systems will be necessary at proposed ramp widening location as needed and at traffic operating system trenching locations. Existing landscaping may be removed and may require some replanting.

Aesthetic treatment for the retaining walls will be context-sensitive and visually consistent with other walls in the vicinity. Architectural surface treatment design will be coordinated between Office of Structures and Office of Landscape Architecture design units. The estimated cost for the architectural treatment of the walls is included into the cost of the retaining walls.

9C. HYDRAULICS

The effects from this project regarding drainage are within State right of way and have been considered by the Hydraulics Branch. Relocations and extensions of highway drainage facility will be required at locations with on-ramp widening. No significant adverse drainage conditions are expected.

9D. COOPERATIVE AGREEMENTS

There is a Local Assistance Contribution Agreement (District Agreement No. 4-2299 between Caltrans and the MTC. The agreement was approved on April 15, 2010 and entered into effect on December 22, 2010 and the parties will do the following:

Caltrans is the Implementing Agency and will take the lead in providing the project management, design, and construction administration. MTC is the Project Sponsor and will fund the Capital Cost and support cost under the Congestion Mitigation and Air Quality (CMAQ). MTC is funding preliminary engineering and right of way costs. Caltrans will maintain, operate, and own the system of ramp meters after construction. See Attachment E for the Cooperative Agreement.

In June 2016, Caltrans and MTC executed Amendment No. 4 to District Agreement No. 4-2299 to add supplemental funding to the FPI program and the Ala-680 FPI project in particular. As part of this agreement, it was determined that MTC would fund the project through PA&ED completion and the PS&E phase for only the Phase 2A project. Caltrans would fund the Construction and R/W phases for Phase 2A. The remaining work, Phase 2B, would be shelved until funding became available. See Section 11 for detailed information on Phases 2A and 2B.

9E. PERMITS

This project will comply with the Department's Statewide NPDES Permit. A Storm Water Data Report (SWDR) has been prepared for this project, summarizing the Department's compliance with this permit. A copy of the signature sheet from the approved SWDR is attached. See Attachment F.

Incident Take Permit will be required to comply with the US Fish and Wildlife Service federal Endangered Species Act.

Groundwater or seepage (i.e. dry weather flows) may be encountered. If the groundwater table in the project area is above the depth of excavation, the Regional Water Quality Control Board's permit for dewatering discharges will be required.

9F. PUBLIC MEETING PROCESS

A Notice of Availability, Opportunity for Public Meeting, and Intent to Adopt a Mitigated Negative Declaration was issued on November 19, 2013 to give the public the opportunity to review the Initial Study with Proposed Mitigated Negative Declaration, provide comments, as well as the opportunity to request a public meeting. Under the California Environmental Quality Act, the Department is required to offer an opportunity for public meeting. The public comment period ended on December 20, 2013. See Chapter 4, Public Comment and Respond, in Attachment G, Environmental Determination, for comments from the public.

During PS&E, an Environmental Re-validation will be done to verify if the environmental commitments have been included.

9G. CONTEXT-SENSITIVE SOLUTIONS

According to Director Policy 22 effective 11/29/2001, the Department uses "Context Sensitive Solutions" as an approach to plan, design, construct, maintain, and operate its transportation system. These solutions use innovative and inclusive approaches that integrate and balance community, aesthetic, historic, and environmental values with transportation safety, maintenance, and performance goals. Context sensitive solutions are reached through a collaborative, interdisciplinary approach involving all stakeholders. This project complies with the context-sensitive policy:

- All the proposed retaining walls will have the same or similar architectural treatment with the existing walls in the same corridor.
- All existing vegetation is required to be retained, as possible, to maintain existing screening of views.
- Project plans will be sent to Cities within project limits for review and comments.

9H. COMPLETE STREET AND THE AMERICANS WITH DISABILITIES ACT (ADA)

According to DD-64-R1, Complete Street is defined as a transportation facility that is planned, designed, operated, and maintained to provide safe mobility for all users, including bicyclists, pedestrians, transit vehicles, truckers, and motorists, appropriate to the function and context of the facility. Complete street concepts apply to rural, suburban, and urban areas. The project design sufficiently accommodates truck turning and motorists in compliance with DD-64-R1. None of the project locations includes bicycle facilities.

Of the project locations only the SB loop on-ramp from Stoneridge Drive has pedestrian facilities that needs to be upgraded to ADA compliance.

10. ENVIRONMENTAL DETERMINATION/DOCUMENTATION

The environmental documentation for this project is an Initial Study with Mitigated Negative Declaration pursuant to the California Environmental Quality Act (CEQA) and Categorical Exclusion with Federal regulations implementing the National Environmental Policy Act (NEPA). This document was approved on September 2, 2016 (See Attachment G.)

Within the project limits several locations are located adjacent to environmentally sensitive areas. Avoidance and minimization measures have been identified that will reduce the potential for effects to wildlife species considered to have a possibility to occur within the Biological Sensitive Areas including: California Tiger Salamander, California Red-Legged Frog, Alameda Whip Snake, Western Burrowing Owl. These measures include:

- Biological monitoring
- Worker environmental awareness training
- Prevention of wildlife entrapment
- Pre-construction surveys
- Prohibition of monofilament plastic
- Work window for activity in suitable habitat

Clearing and grubbing of vegetation should occur outside of the nesting bird season (February 1 to September 1), to the degree possible. When it is necessary to conduct clearing during the nesting season, in accordance with the Migratory Bird Treaty Act (MBTA), preconstruction bird surveys will be required where the removal of trees and shrubs could jeopardize bird nesting. If preconstruction surveys indicate the presence of nests, USFWS/CDFW would be consulted to determine the appropriate buffer area to be established around the nesting site for the duration of the breeding season.

The Department will comply with the federal Endangered Species Act by consulting with US Fish and Wildlife Service. The Department received the Biological Opinion on September 25, 2014 from US Fish and Wildlife Service.

During project design phase, Environmental will review the PS&E package to verify the inclusion of the environmental commitments and provide Environmental Re-validation.

10A. WATER QUALITY

The project will include four different types of Best Management Practices (BMP), Construction Site BMPs, Design Pollution Prevention BMPs, Permanent Treatment BMPs and Maintenance BMPs. A Storm Water Data Report is prepared to summarize all the proposed measures for the project. The approved signature sheet is attached.

The project has a disturbed soil area (DSA) of more than 1 acre. To comply with the conditions of the Caltrans Construction General Permit, and address the temporary water quality impacts resulting from the construction activities in this project, compliance with Storm Water Pollution Prevention Plan Standard specifications is required. This Standard Specification will address the preparation of Storm Water Pollution Prevention Plan (SWPPP) document and the implementation of SWPPP during construction. A risk level determination for construction activities will be performed and depending to construction period and location, the project will be designated as risk level 1, 2 or 3. Risk level 3 would be the highest Water Quality risk.

Best Management Practices need to be implemented to address the temporary water quality impacts resulting from the construction activities in the project. BMPs will include the measures of soil stabilization, sediment control, wind erosion control, tracking control, non-storm water management, and waste management/materials pollution control. Appropriate BMPs and their quantities need to be developed during the PS & E phase. In addition depending on project risk level certain Monitoring and reporting will be required.

Permanent Erosion Control measures will be implemented in the project to stabilize all the disturbed area as a mean of source control. Erosion Control measures may include the deployment of permanent grasses, fiber rolls, netting, compost blanket and mulch. Permanent treatment BMPs will also be constructed to treat storm water.

If significant amount of groundwater will be encountered in the deep excavations, dewatering may be required. Early discussion shall be initiated with the Water Pollution Control Branch. As part of the Hazardous Waste Site Investigation, ground water testing may be required to determine if it is contaminated to develop contract provisions for its handling and disposal during construction.”

11. PROGRAMMING

The project was originally programmed to construct ramp metering and TOS elements on I-680 from Scott Creek Road to Alcosta Boulevard under EA 15310. Due to delays in the environmental process and as recommended by the Value Analysis study, the project was split via Program Change Request (PCR) in May 2012 into Phase 1 and Phase 2 projects. The Phase 1 project (EA 4G100) was delivered in June 2012 and construction was completed in June 2013.

Due to shortfalls in project funding, the Phase 2 project (EA 4G111) will proceed as two separate projects upon completion of PA&ED: Phase 2A and Phase 2B.

The Phase 2A project (EA 4G112) will widen various ramps, install ramp metering, and install TOS elements (SB direction: 1 CMS and 5 CCTVs). The Phase 2A project (EA 4G112) was amended into the 2014 SHOPP in June 2015 and programmed for delivery in FY 15/16. Due to delays securing additional Preliminary Engineering funding via Cooperative Agreement Amendment with MTC, a time extension was processed in June 2016 to delay allocation to FY 2017/2018.

In November 2016, a PCR was approved by HQ Programming to split the Phase 2A project (4G112) and combine with a pavement rehabilitation project (3G602) from PM 0.0/4.0. Both projects have similar delivery schedules and will be under construction at the same time. Combining the FPI project with the pavement rehabilitation work for these post miles will result in fewer construction conflicts, is more efficient, and will minimize construction impacts to public. The remaining Phase 2A project (4G115) from PM 4.0/21.9 will be delivered as a stand-alone project.

As part of the PCR, it is proposed to increase the programmed SHOPP funding by \$6,483,000 (capital and support) to what is shown in Section 12 for Phase 2A.

The additional cost is due to higher costs due to the 2-year delay as well as increased unit prices due to a change from a 1 season to a 2 season construction duration.

The remaining scope will be included in the Phase 2B project (EA 4G113) and includes the installation of on-ramp widening/metering and TOS elements (NB direction: 2 CMSs, 8 CCTVs, and 28 TMS; and 22 TMS in the SB direction).

The widening will be at the following on-ramp locations:

- NB On-ramp from Andrade Rd.
- NB On-ramp from Calaveras Rd.
- SB Connector from SB Route 84
- NB Connector from SB Route 84
- N B On-ramp from Koopman Rd.
- NB On-ramp from Sunol Blvd.

At this time scheduling of the Phase 2B project (EA 04-4G113) is pending funding and programming.

12. FUNDING

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

12A. CAPITAL

Capital Cost Estimate:

The total cost of the project is estimated at \$73,041,000 (\$50,000,000 Construction Capital, \$677,000 R/W Capital, and \$22,364,000 Support). The Phase 2A project cost is estimated at \$32,413,000 (\$22,500,000 Capital, \$647,000 R/W Capital, and \$9,266,000 Support). The Phase 2B project cost is estimated at \$40,628,000 (\$27,500,000 Construction Capital, and \$30,000 R/W Capital, and \$13,098,000 Support)

Funding Source:

State Highway Operations and Protection Program (SHOPP) funds will be used to fund only the Phase 2A project (EA 4G112). In November 2016, a PCR was approved by HQ Programming to increase the funding to the amounts shown below. Due to lack of funding, Phase 2B (4G113) is currently not programmed at this time.

Phase 2A funding:

Fiscal Year	Right of Way Capital*	Construction Capital
FY (2017/2018)	\$703,000	\$22,500,000

Phase 2B funding:

Fiscal Year	Right of Way Capital	Construction Capital
To be determined	\$30,000	\$27,500,000

12B. CAPITAL SUPPORT ESTIMATE FOR CALTRANS PERSONNEL

Funding Source:

Congestion Mitigation and Air Quality Improvement (CMAQ) funds will be used to fund the project for PA&ED. For Phase 2A (EA 4G112), CMAQ funds will be used to fund PS&E and SHOPP funds will be used to fund the R/W and Construction phases. Since there are insufficient funds to fund the entire project, only project 2A will be funded. In November 2016, HQ Programming approved a PCR to increase the funding to the amounts shown below for Phase 2A. Due to lack of funding, Phase 2B (4G113) is currently not programmed at this time.

Phase 2A:

	PROJECT SUPPORT COMPONENTS					
	PA&ED and PS&E		R/W	Construction		Total
	0 and 1 Phase		2 Phase	3 Phase		
	Dist	DES	Dist	Dist	DES	TOTAL
Estimated PY's	12.9	6.5	0.7	11.4	5.6	37.1
Estimated PY\$s (1,000s)	\$3,084	\$1,542	\$140	\$3,000	\$1,500	\$9,266

Phase 2B:

	PROJECT SUPPORT COMPONENTS					Total
	PA&ED and PS&E		R/W	Construction		
	0 and 1 Phase		2 Phase	3 Phase		
	Dist	DES	Dist	Dist	DES	
Estimated PY's	21.2	10.6	0.3	13.9	6.9	52.9
Estimated PY\$s (1,000s)	\$5,032	\$2,516	\$50	\$3,667	\$1,833	\$13,098

12C. SCHEDULE

Phase 2A:

HQ Milestones	Delivery Date (Month, Day, Year)
PA&ED	11/18/2016
PS&E	03/01/2017
Right of Way Certification	03/14/2017
Ready to List	06/01/2017
Approve Contract	12/01/2017
Contract Acceptance	12/01/2019
End Project	07/01/2020

Phase 2B:

HQ Milestones	Delivery Date (Month, Day, Year)
PA&ED	11/18/2016
PS&E	TBD
Right of Way Certification	TBD
Ready to List	TBD
Approve Contract	TBD
Contract Acceptance	TBD
End Project	TBD

The Phase 2B schedule will be determined once funding is programmed.

13. REVIEW

Gordon Brown	HQ Design Reviewer	Date: 08/21/2013
Mario Jerez	D4-Constructability Reviewer	Date: 08/23/2013
Alan Chow	D4-Program Advisor	Date: 09/05/2013

Their comments were incorporated in this report.

14. RISKS

The Risk Register was developed for the project and is shown in Attachment H.

15. PROJECT PERSONNEL

The following are District 4 representatives who may be contacted concerning questions on this Project Study Report/Project Report:

Ron Kiaaina	Project Manager	510-286-4193
Alan Chow	Program Advisor	510-286-4577
Adrian Levy	Senior Engineer-Traffic Systems	510-622-0109
Arlissa Pang	Senior Engineer-Design Special Projects	510-286-4667
Allison Paich	Right of Way Office Chief	510-286-5406
Jamie Ledent	Senior Environmental Planner	510-622-8729

16. FHWA COORDINATION

This project has not been identified as a “Project of Division Interest” or “Project of Corporate Interest,” and no FHWA action is anticipated for this project.

17. ATTACHMENTS:

- A. Project Vicinity Map, Layouts and Typical Cross-Sections
- B. Preliminary Cost Estimate
- C. Right of Way Data Sheet
- D. Transportation Management Plan Data Sheet
- E. Cooperative Agreement
- F. Storm Water Data Report Signature Sheet
- G. Mitigated Negative Declaration/Categorical Exclusion
- H. Risk Management Plan
- I. Standard Plans (Controller Cabinet, Signal Standard)
- J. Material Recommendation

Attachment A

Project Vicinity Map and Title Sheet

04 - ALA - 680 - PM M0.0/R21.9
4 - 0698 - 4G1111 (04 1200 0630)
Parent EA 153100 (04 0000 0425)
March 2014



Vicinity Map

On Route 680 in Alameda County

From 0.3 mile south of Scott Creek Road Undercrossing

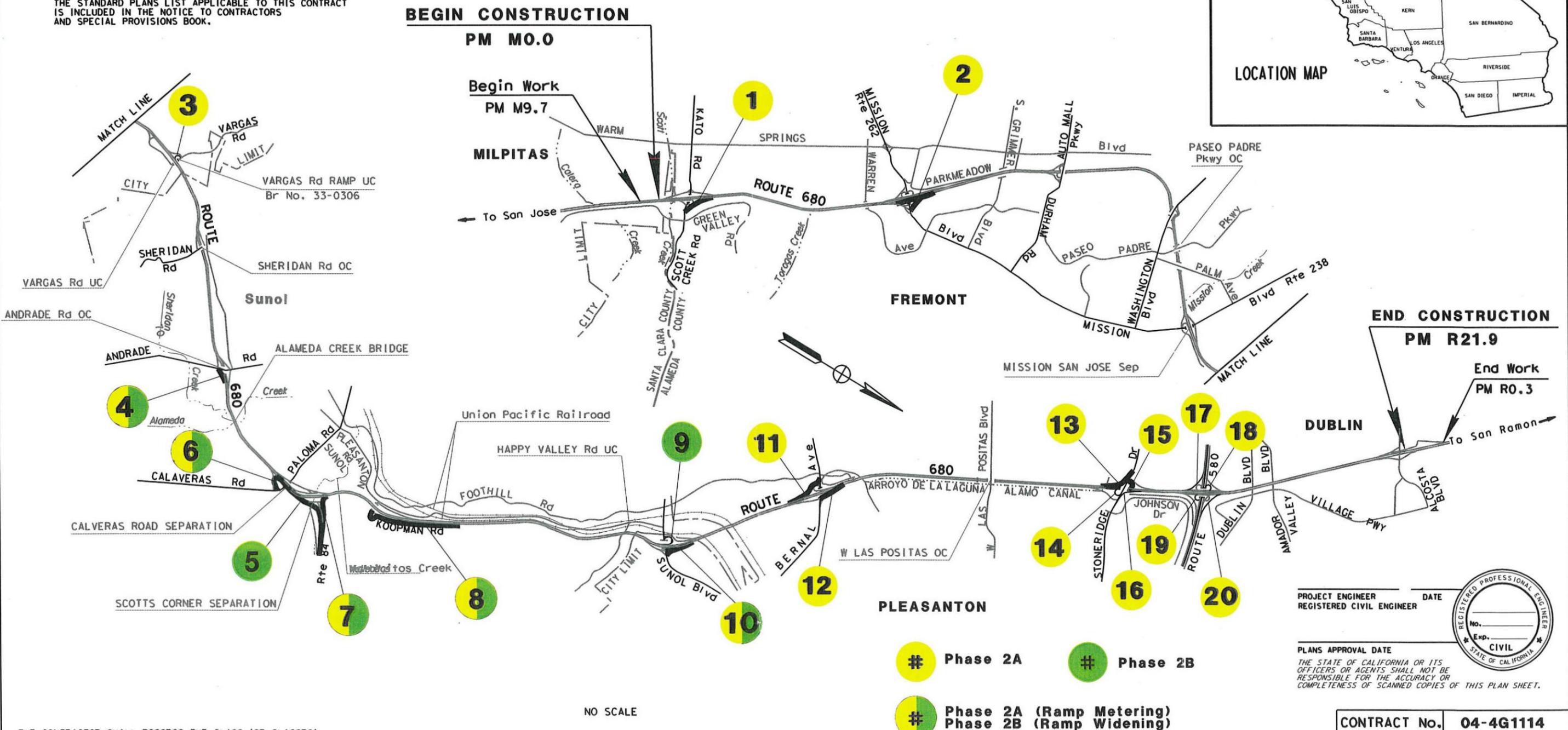
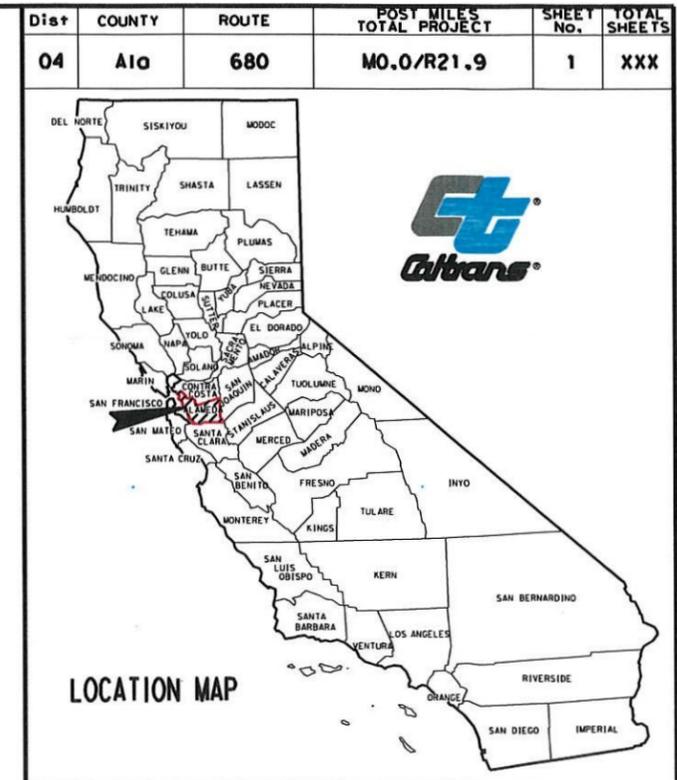
To 0.3 mile north of Alcosta Boulevard Overcrossing

INDEX OF PLANS

SHEET No.	DESCRIPTION
1	TITLE AND LOCATION MAP
2-XX	TYPICAL CROSS SECTIONS
XX	KEY MAP AND LINE INDEX
XX-XX	LAYOUTS
XX-XX	CONSTRUCTION DETAILS
XX-XX	TEMPORARY WATER POLLUTION CONTROL DETAILS
XX-XX	EROSION CONTROL
XX	TEMPORARY WATER POLLUTION CONTROL AND EROSION CONTROL QUANTITIES
XX-XXX	DRAINAGE PLANS, PROFILES, DETAILS AND QUANTITIES
XXX-XXX	UTILITY PLANS AND DETAILS
XXX-XXX	STAGE CONSTRUCTION AND TRAFFIC HANDLING PLANS
XXX-XXX	STAGE CONSTRUCTION QUANTITIES
XXX-XXX	CONSTRUCTION AREA SIGN PLANS AND QUANTITIES
XXX-XXX	PAVEMENT DELINEATION PLANS, DETAILS AND QUANTITIES
XXX-XXX	SUMMARY OF QUANTITIES
XXX-XXX	SIGN PLANS, DETAILS AND QUANTITIES
XXX-XXX	RETAINING WALL PLANS
XXX-XXX	ELECTRICAL PLANS
XXX-XXX	NEW AND REVISED STANDARD PLANS
STRUCTURE PLANS	
XXX-XXX	TBD

THE STANDARD PLANS LIST APPLICABLE TO THIS CONTRACT IS INCLUDED IN THE NOTICE TO CONTRACTORS AND SPECIAL PROVISIONS BOOK.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION
**PROJECT PLANS FOR CONSTRUCTION ON
STATE HIGHWAY**
IN ALAMEDA COUNTY
AT VARIOUS LOCATIONS FROM 0.3 MILE SOUTH OF
SCOTT CREEK ROAD UNDERCROSSING TO 0.3 MILE NORTH OF
ALCOSTA BOULEVARD OVERCROSSING
TO BE SUPPLEMENTED BY STANDARD PLANS DATED 2015



PROJECT MANAGER
RON KIATINA

DESIGN ENGINEER
ARLISSA PANG

PROJECT ENGINEER _____ DATE _____
REGISTERED CIVIL ENGINEER

PLANS APPROVAL DATE _____

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



CONTRACT No.	04-4G1114
PROJECT ID	0412000630

THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO BIDDERS."

NO SCALE

- # Phase 2A
- # Phase 2B
- # Phase 2A (Ramp Metering)
- # Phase 2B (Ramp Widening)

DATE PLOTTED: 11/11/14

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN

REVISOR
 DATE

CHAU NGUYEN
 HAO LAI

CALCULATED-DESIGNED BY
 CHECKED BY

FUNCTIONAL SUPERVISOR

NOTE:

DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO THE TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.

STRUCTURAL SECTION NOTES:

- | | | | | | |
|---|--|---|---|---|--|
| 1 | 0.55' HMA (TYPE A)
0.90' AB (2)
1.25' AS (4) | 2 | 0.60' HMA (TYPE A)
0.60' LCB
1.35' AS (4) | 3 | 0.50' HMA (TYPE A)
0.85' AB (2)
1.10' AS (4) |
| 4 | 0.55' HMA (TYPE A)
0.85' AB (2)
1.15' AS (4) | 5 | 0.85' JPCP
0.40' LCB
0.60' AS (4) | 6 | 0.40' HMA (TYPE A)
0.65' AB (2)
0.85' AS (4) |

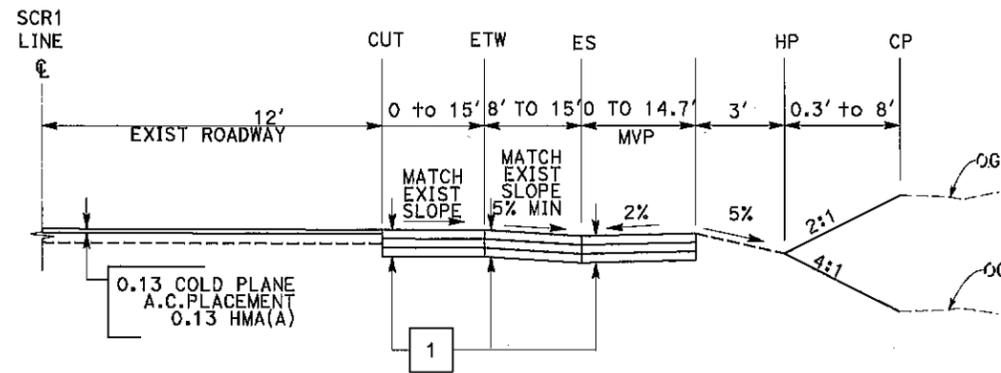
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

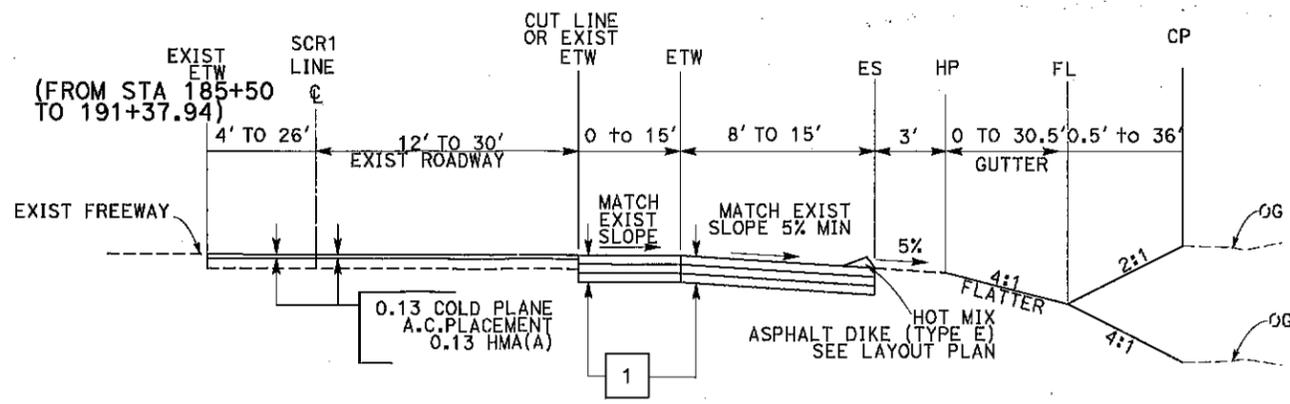
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER
 No. AAAAA
 Exp. 3-31-12
 CIVIL
 STATE OF CALIFORNIA



STA SCR1 179+04.14 TO 179+99.99
 NORTHBOUND 680 DIAGONAL ON-RAMP FROM SCOTT CREEK RD



STA SCR1 169+78.48 TO 179+04.14
 STA SCR1 179+99.99 TO 184+21.58
 STA SCR1 184+21.58 TO 191+37.94
 NORTHBOUND 680 DIAGONAL ON-RAMP FROM SCOTT CREEK RD

TYPICAL CROSS SECTIONS
 NO SCALE

X-1

LAST REVISION DATE PLOTTED => 11-FEB-2014 08-19-13 TIME PLOTTED => 13:42

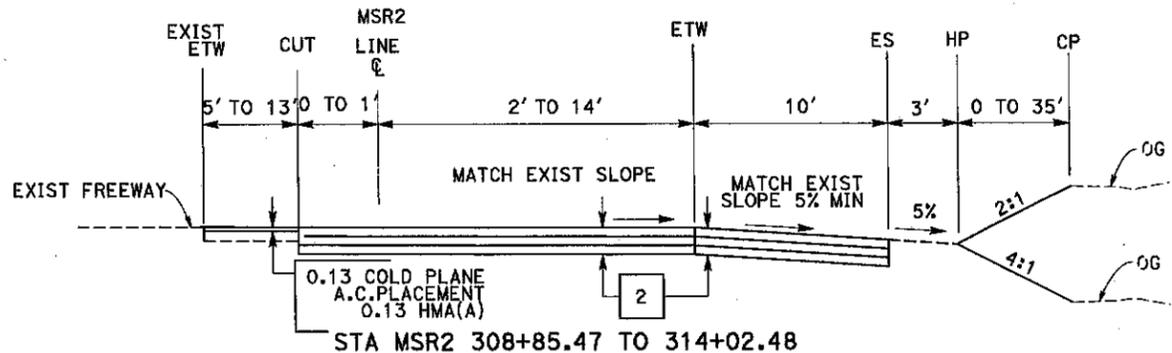
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

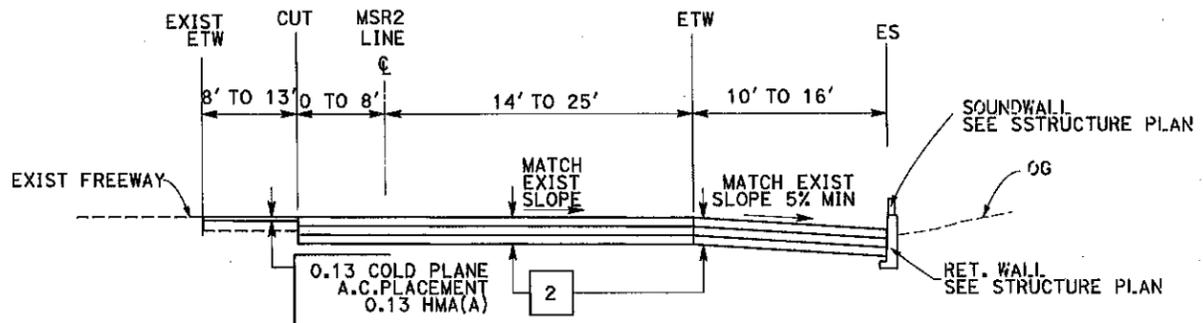
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



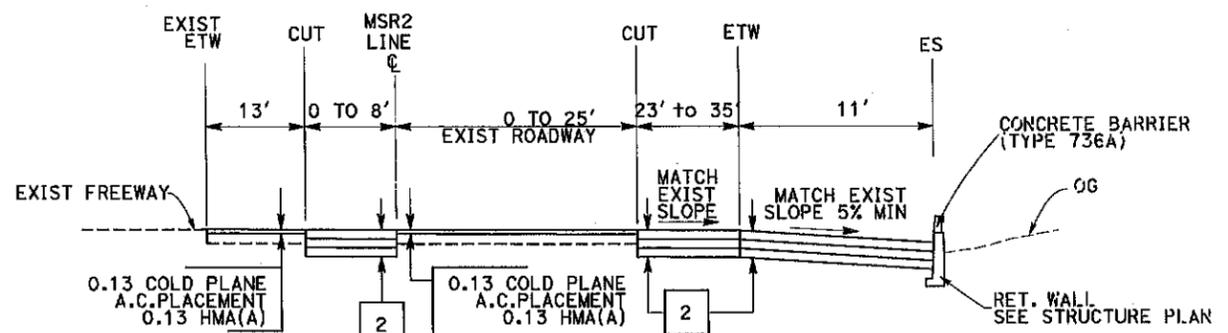
NOTE:
DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO THE TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.



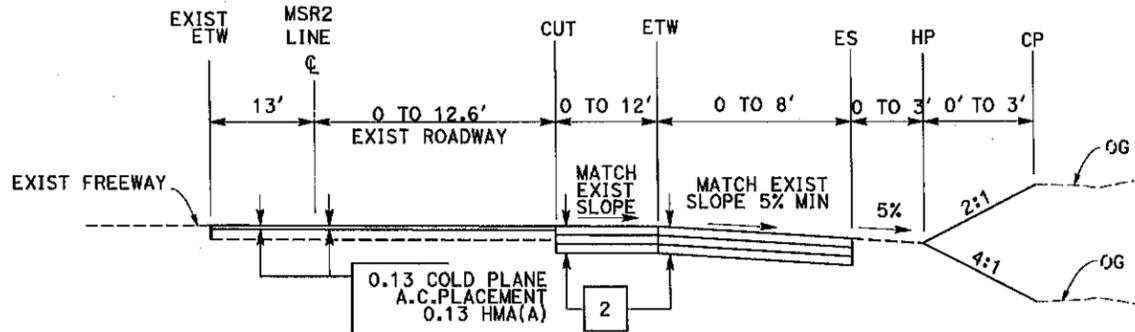
STA MSR2 308+85.47 TO 314+02.48
NORTHBOUND 680 LOOP ON-RAMP FROM MISSION BLVD (RTE 262)



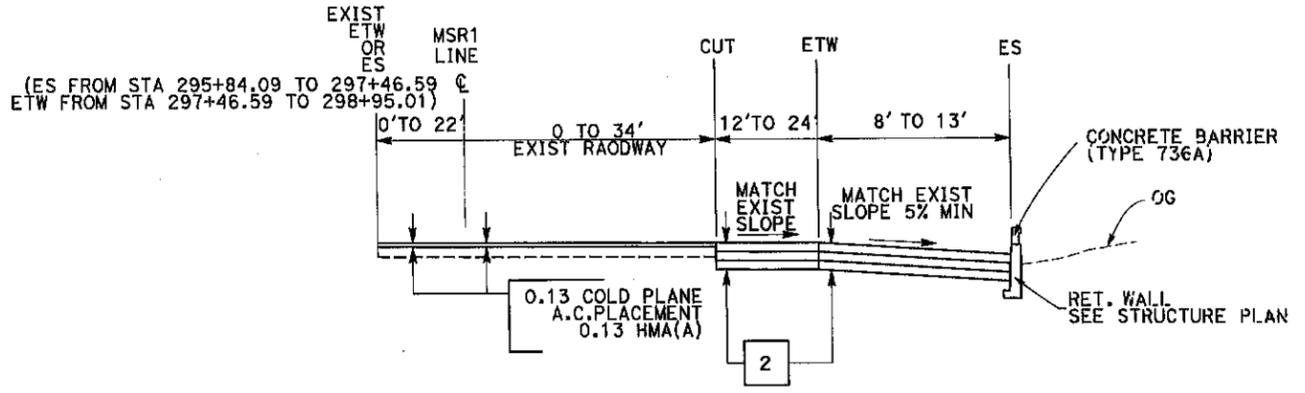
STA MSR2 305+59.72 TO 308+85.47
NORTHBOUND 680 LOOP ON-RAMP FROM MISSION BLVD (RTE 262)



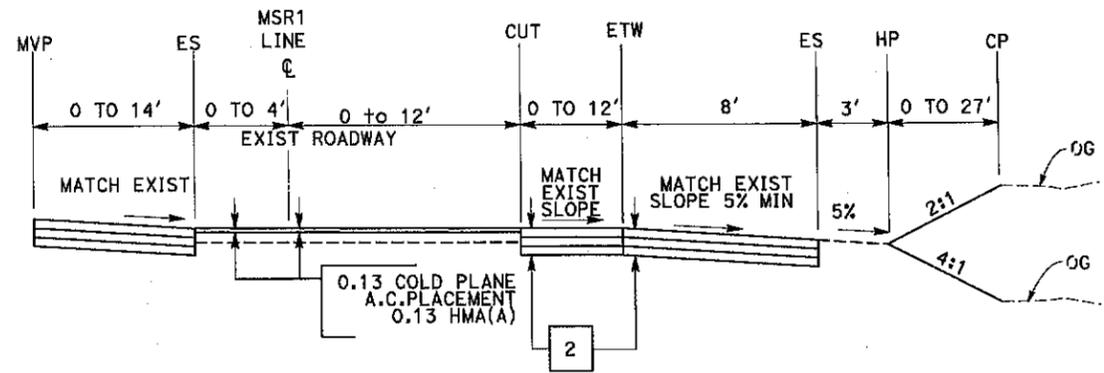
STA MSR2 298+95.01 TO 305+59.72
NORTHBOUND 680 LOOP ON-RAMP FROM MISSION BLVD (RTE 262)



STA MSR2 294+61.41 TO 298+95.01
STA MSR2 314+02.49 TO 318+70.30
NORTHBOUND 680 LOOP ON-RAMP FROM MISSION BLVD (RTE 262)



STA MSR1 295+84.09 TO 298+95.01
NORTHBOUND 680 ON-RAMP FROM MISSION BLVD (RTE 262)



STA MSR1 290+73.38 TO 295+84.09
NORTHBOUND 680 ON-RAMP FROM MISSION BLVD (RTE 262)

TYPICAL CROSS SECTIONS
NO SCALE

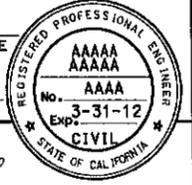
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
DESIGN
CHAU NGUYEN
HAO LAI
REVISOR BY DATE
CALCULATED BY
CHECKED BY
FUNCTIONAL SUPERVISOR

DATE PLOTTED 11-FEB-2014
TIME PLOTTED 13:16
LAST REVISION 08-19-13

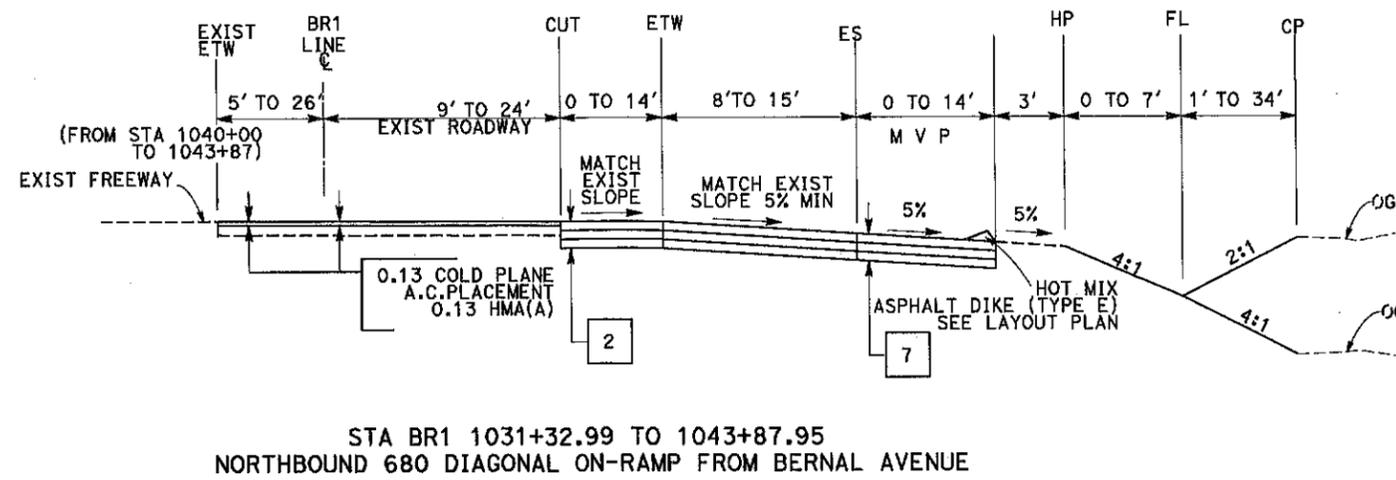
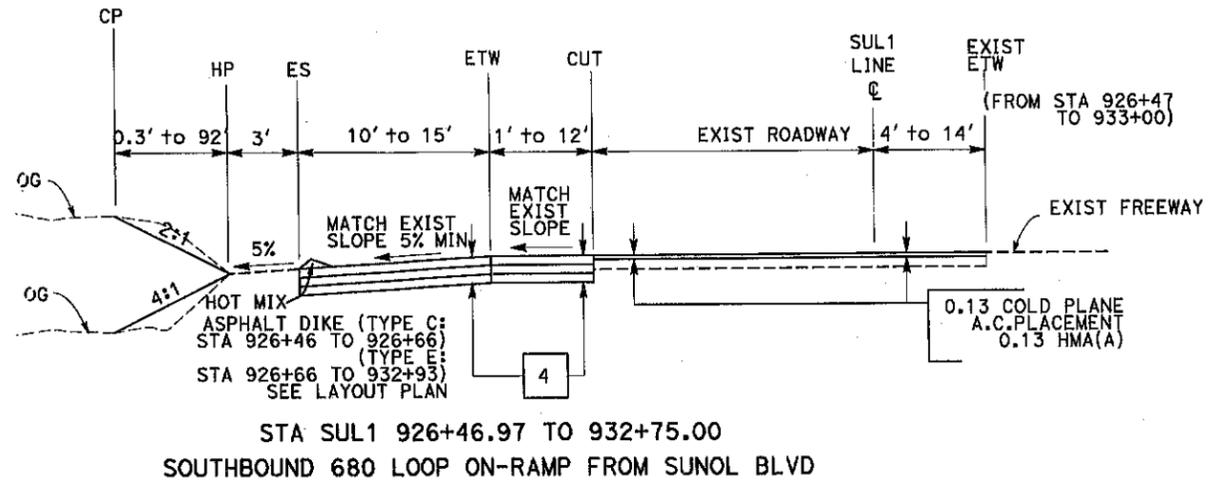
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



NOTE:
 DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO THE TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.



TYPICAL CROSS SECTIONS
 NO SCALE

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	DESIGN
FUNCTIONAL SUPERVISOR	
CALCULATED-DESIGNED BY	CHECKED BY
CHAU NGUYEN	HAO LAI
REVISOR	DATE

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

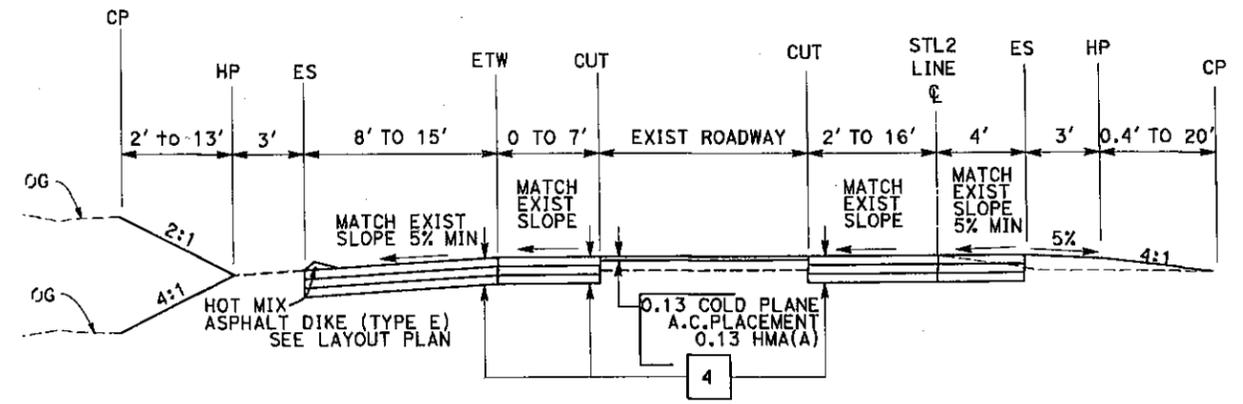
REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

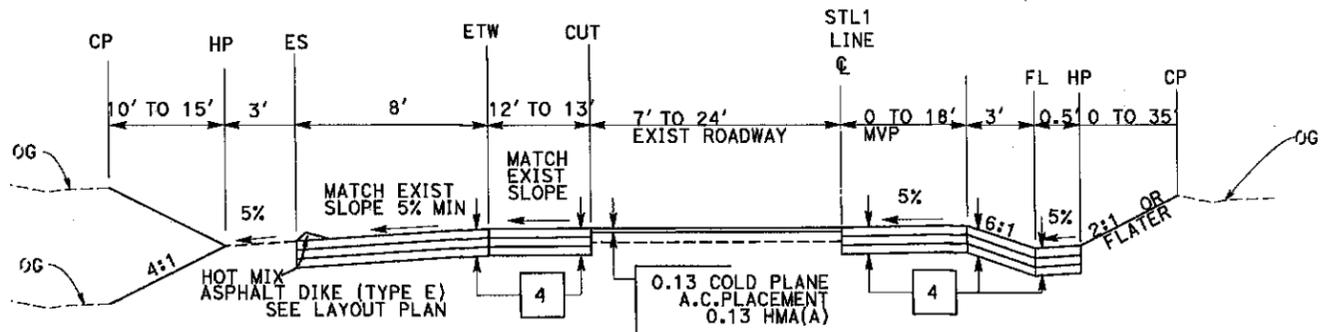


NOTE:
 DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO THE TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.

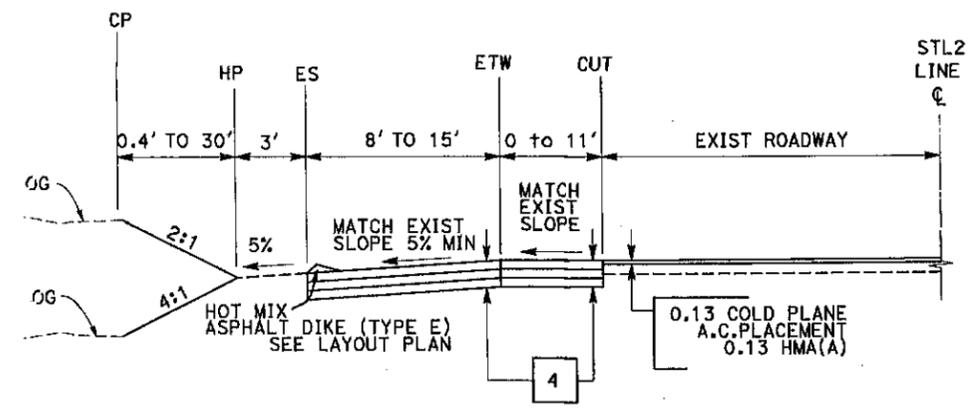
REVISOR: CHAU NGUYEN, HAO LAI
 CHECKED BY: CHAU NGUYEN, HAO LAI
 DESIGNED BY: CHAU NGUYEN, HAO LAI
 CALCULATED BY: CHAU NGUYEN, HAO LAI
 FUNCTIONAL SUPERVISOR: CHAU NGUYEN, HAO LAI
 DEPARTMENT OF TRANSPORTATION DESIGN
 STATE OF CALIFORNIA - CALTRANS



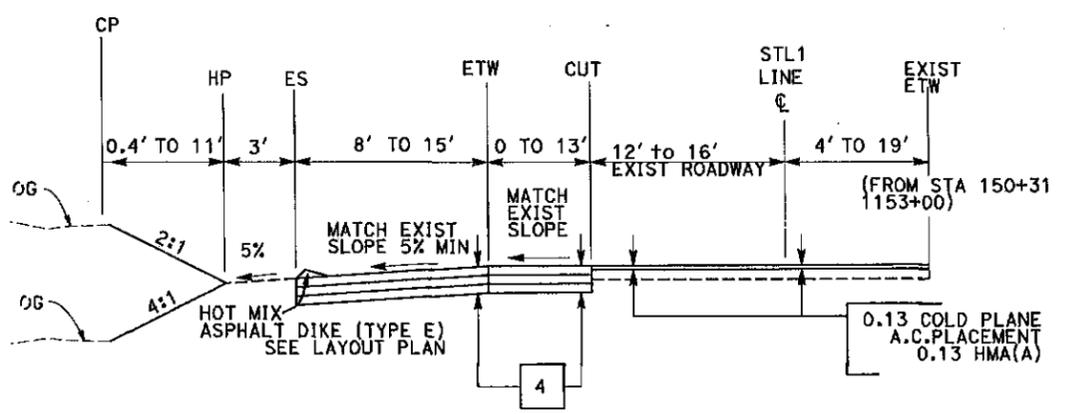
STA STL2 1165+83.44 TO 1172+69.81
 SOUTHBOUND 680 LOOP ON-RAMP FROM STONERIDGE DRIVE



STA STL1 1161+30.61 TO 1162+21.57
 SOUTHBOUND 680 DIAGONAL ON-RAMP FROM STONERIDGE DRIVE



STA STL2 1158+60.66 TO 1165+83.44
 SOUTHBOUND 680 LOOP ON-RAMP FROM STONERIDGE DRIVE



STA STL1 1150+16.20 TO 1161+30.64
 STA STL1 1162+21.57 TO 1166+18.83
 SOUTHBOUND 680 DIAGONAL ON-RAMP FROM STONERIDGE DRIVE

TYPICAL CROSS SECTIONS
 NO SCALE

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET TKT1 0000

PROJECT NUMBER & PHASE

0000000001

USERNAME => 8122818

RELATIVE BORDER SCALE

0 1 2 3

LAST REVISION: 08-19-13
 DATE PLOTTED => 11-FEB-2014
 TIME PLOTTED => 13:17

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans DESIGN

REVISOR BY
 CHAU NGUYEN

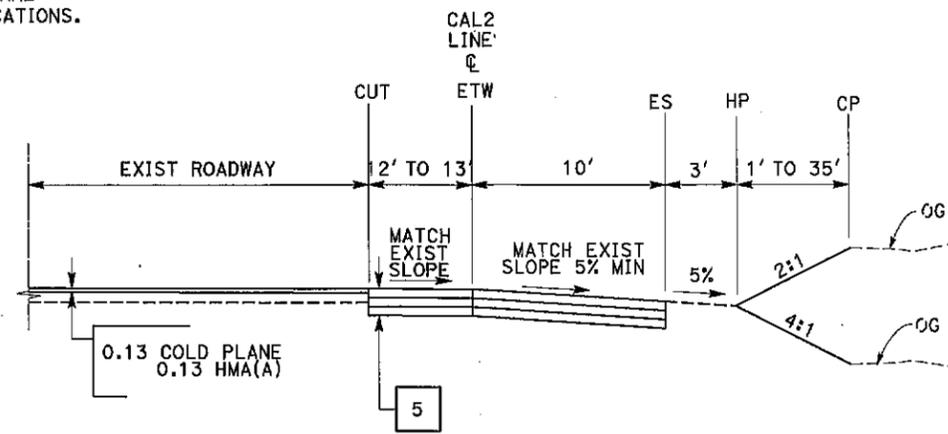
DATE REVISOR
 HAO LAI

CALCULATED-DESIGNED BY
 CHECKED BY

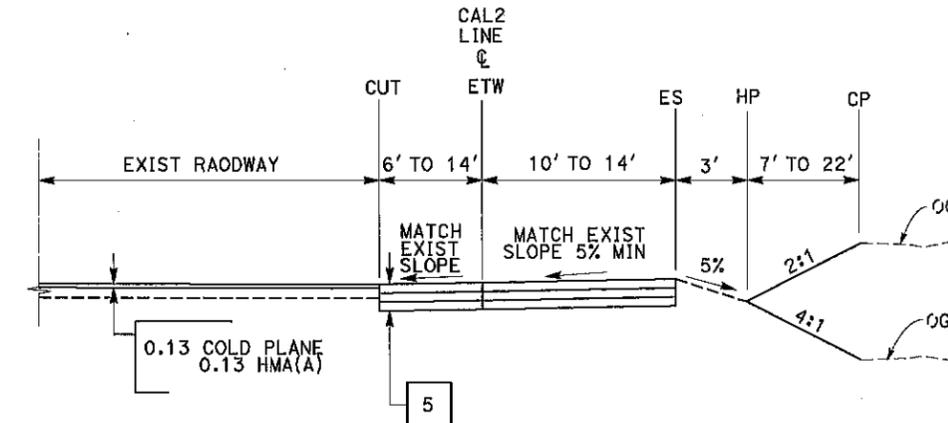
FUNCTIONAL SUPERVISOR

DESIGN

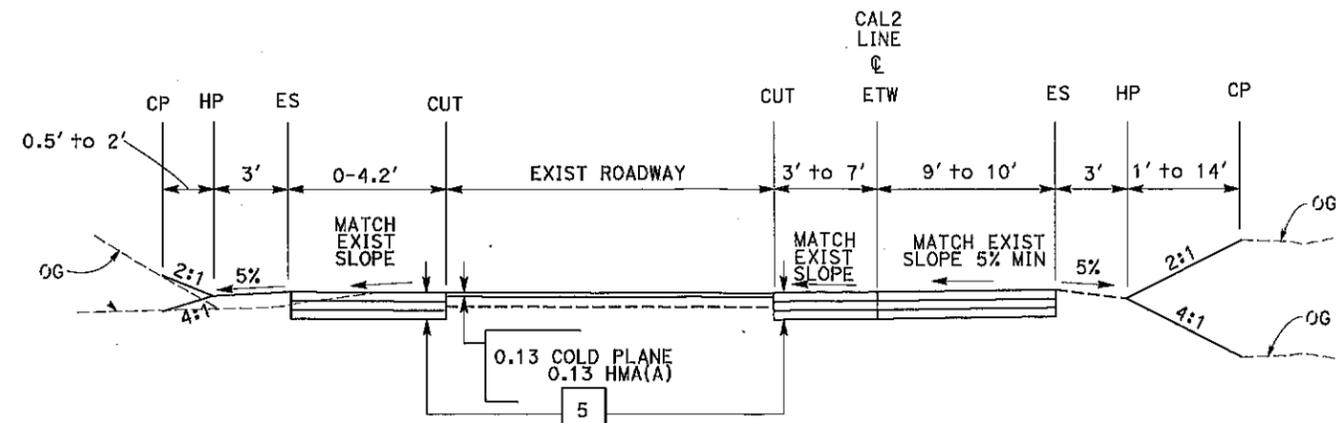
NOTE:
 DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE
 SUBJECT TO THE TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.



STA CAL2 764+49.84 TO 783+46.18
 SOUTHBOUND 680 CONNECTOR FROM SOUTHBOUND ROUTE 84



STA CAL2 758+49.84 TO 764+49.84
 SOUTHBOUND 680 CONNECTOR FROM SOUTHBOUND ROUTE 84



STA CAL2 757+21.20 TO 758+49.84
 SOUTHBOUND 680 CONNECTOR FROM SOUTHBOUND ROUTE 84

TYPICAL CROSS SECTIONS
 NO SCALE

X-6

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____

REGISTERED PROFESSIONAL ENGINEER
 AAAAA
 AAAAA
 No. AAAA
 Exp. 3-31-12
 CIVIL
 STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN

REVISOR: CHAU NGUYEN
 DATE: HAO LAI
 CALCULATED/DESIGNED BY: CHAU NGUYEN
 CHECKED BY: HAO LAI
 FUNCTIONAL SUPERVISOR: [Blank]

NOTE:

DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO THE TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.

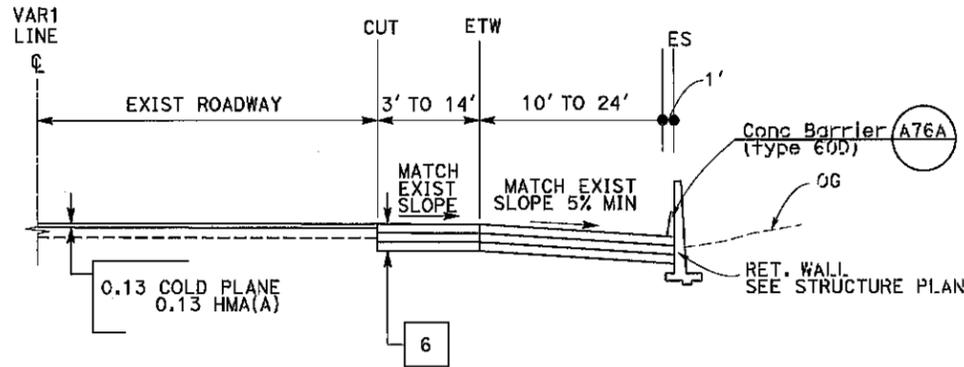
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

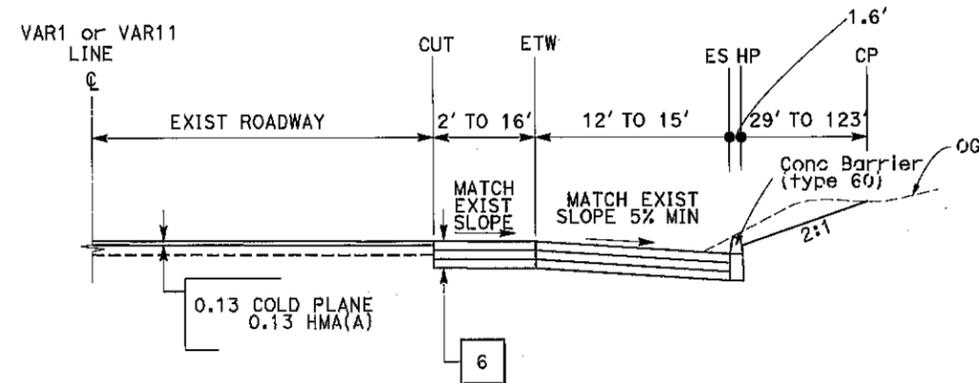
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

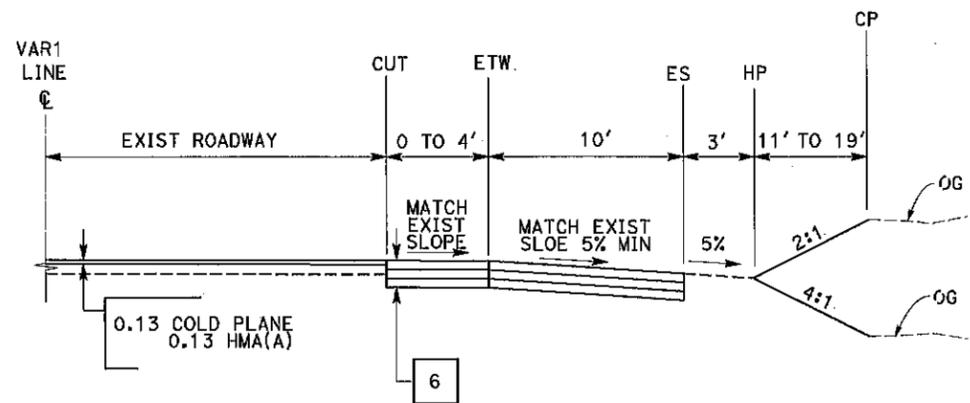
REGISTERED PROFESSIONAL ENGINEER
 No. AAAAA
 Exp. 3-31-12
 CIVIL
 STATE OF CALIFORNIA



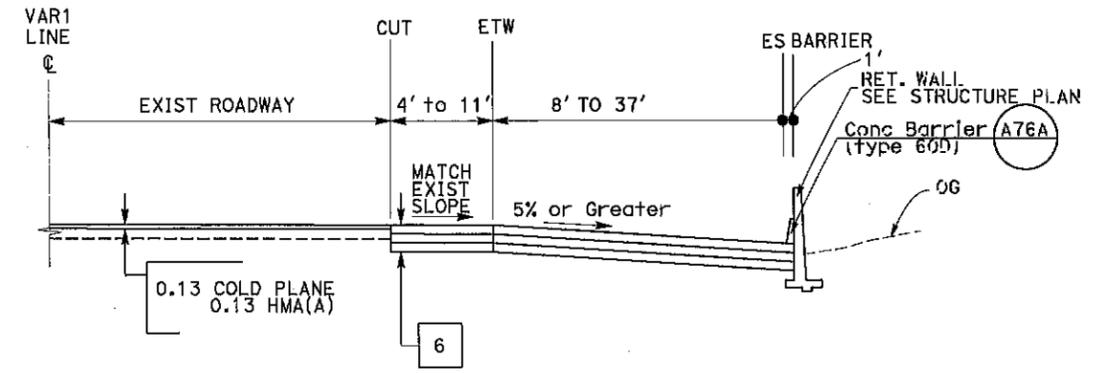
STA VAR1 751+50.00 TO 768+50.00
 STA VAR1 776+00.00 TO 778+11.97
 NORTHBOUND 680 CONNECTOR FROM SOUTHBOUND 84



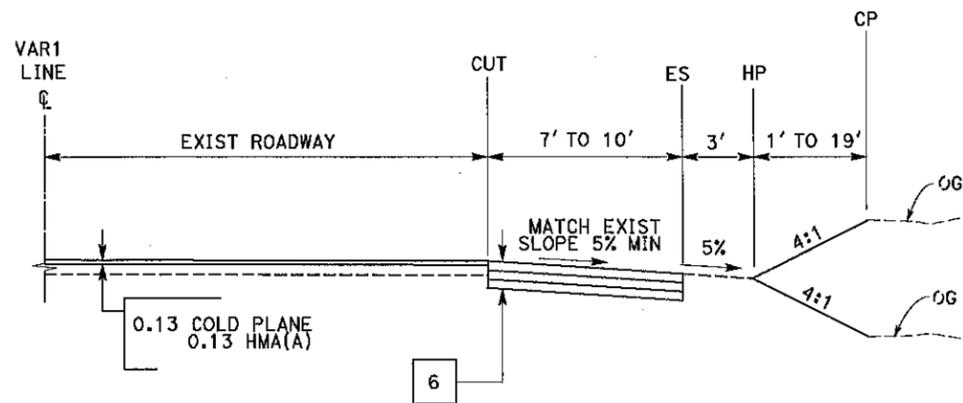
STA VAR1 783+09.63 TO 791+46.13
 NORTHBOUND 680 CONNECTOR FROM SOUTHBOUND 84



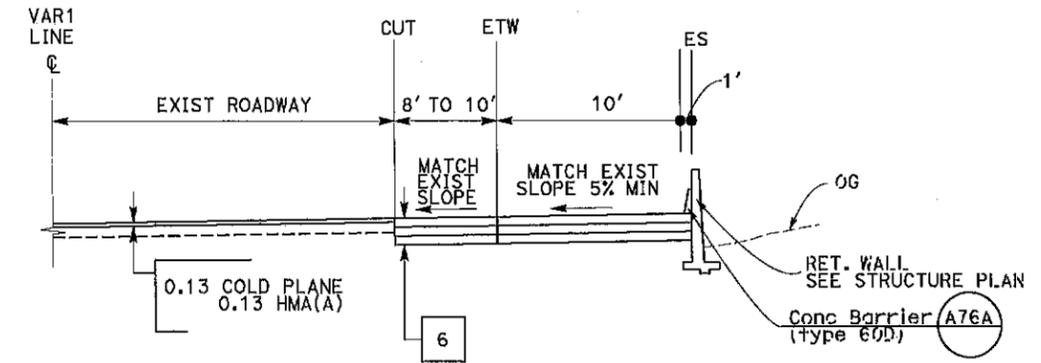
STA VAR1 750+75.00 TO 751+50.00
 NORTHBOUND 680 CONNECTOR FROM SOUTHBOUND 84



STA VAR1 778+11.97 TO 783+09.63
 NORTHBOUND 680 CONNECTOR FROM SOUTHBOUND 84



STA VAR1 750+25.00 TO 750+75.00
 NORTHBOUND 680 CONNECTOR FROM SOUTHBOUND 84



STA VAR1 768+50.00 TO 776+00.00
 NORTHBOUND 680 CONNECTOR FROM SOUTHBOUND 84

TYPICAL CROSS SECTIONS
 NO SCALE

X-7

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN

FUNCTIONAL SUPERVISOR
 CHECKED BY
 CALCULATED/DESIGNED BY
 CHAU NGUYEN
 HAO LAI
 REVISOR BY
 DATE REVISOR

NOTE:

DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO THE TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.

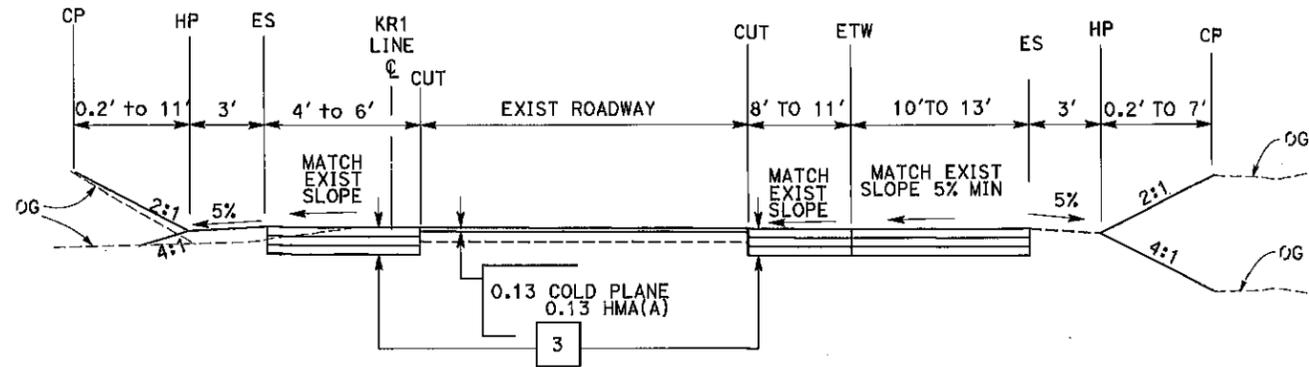
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

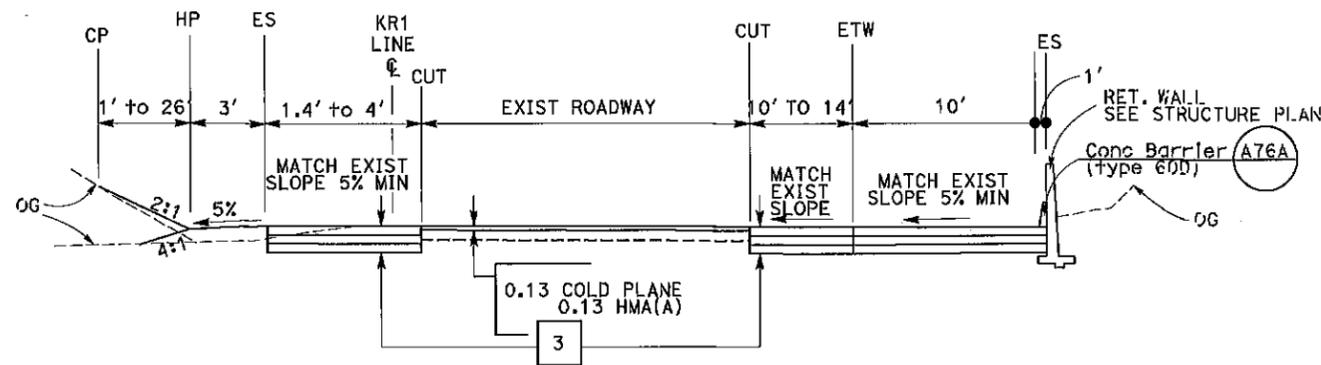
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

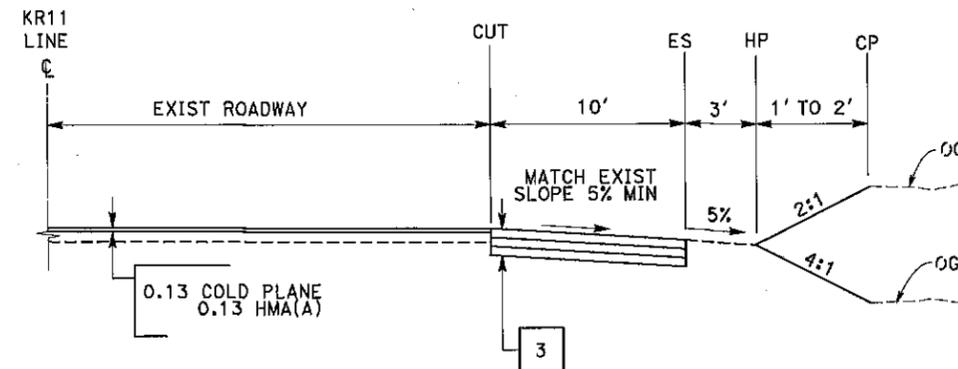
REGISTERED PROFESSIONAL ENGINEER
 No. AAAAA
 Exp. 3-31-12
 CIVIL
 STATE OF CALIFORNIA



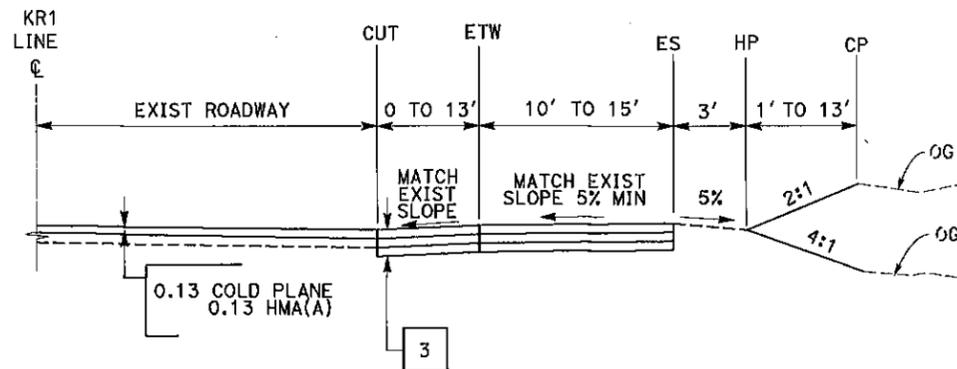
STA KR1 807+25.00 TO 809+02.35
 NORTHBOUND 680 DIAGONAL ON-RAMP FROM KOOPMAN RD



STA KR1 802+75.15 TO 807+25.00
 NORTHBOUND 680 DIAGONAL ON-RAMP FROM KOOPMAN RD



STA KR11 0+02.00 TO 0+76.65
 NORTHBOUND 680 DIAGONAL ON-RAMP FROM KOOPMAN RD



STA KR1 802+24.59 TO 802+75.15
 STA KR1 809+02.39 TO 812+24.89
 NORTHBOUND 680 DIAGONAL ON-RAMP FROM KOOPMAN RD

TYPICAL CROSS SECTIONS
 NO SCALE

X-8

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans DESIGN

REVISOR
 CHAU NGUYEN
 HAO LAI

CALCULATED-DESIGNED BY
 CHECKED BY

FUNCTIONAL SUPERVISOR

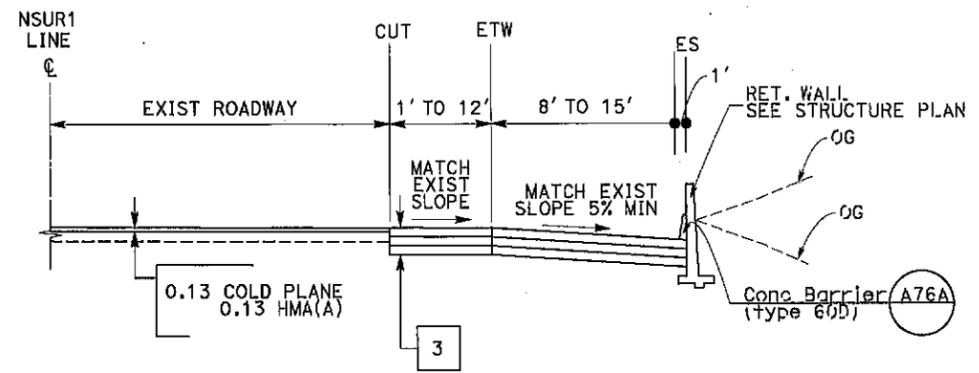
NOTE:
 DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE SUBJECT TO THE TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL SHEETS

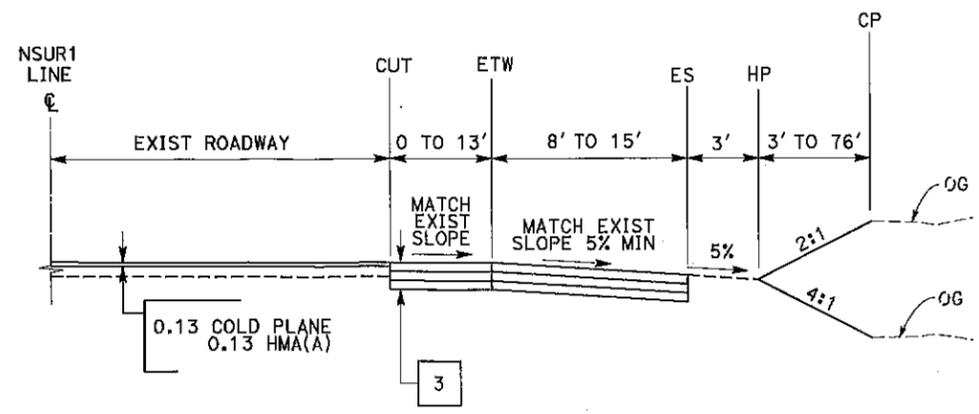
REGISTERED CIVIL ENGINEER DATE _____
 PLANS APPROVAL DATE _____

REGISTERED PROFESSIONAL ENGINEER
 AAAAA
 AAAAA
 No. AAAA
 Exp. 3-31-12
 CIVIL
 STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



STA NSUR1 952+25.00 TO 960+50.00
 NORTHBOUND 680 DIAGONAL ON-RAMP FROM SUNOL BLVD



STA NSUR1 950+50.55 TO 952+25.00
 STA NSUR1 960+50.00 TO 968+90.70
 NORTHBOUND 680 DIAGONAL ON-RAMP FROM SUNOL BLVD

TYPICAL CROSS SECTIONS
 NO SCALE

X-9

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
DESIGN

REVISOR BY
 DATE REVISED

CHAU NGUYEN
 HAO LAI

CALCULATED-
 DESIGNED BY
 CHECKED BY

FUNCTIONAL SUPERVISOR

NOTE:
 DIMENSIONS OF THE PAVEMENT STRUCTURES (STRUCTURAL SECTIONS) ARE
 SUBJECT TO THE TOLERANCES SPECIFIED IN THE STANDARD SPECIFICATIONS.

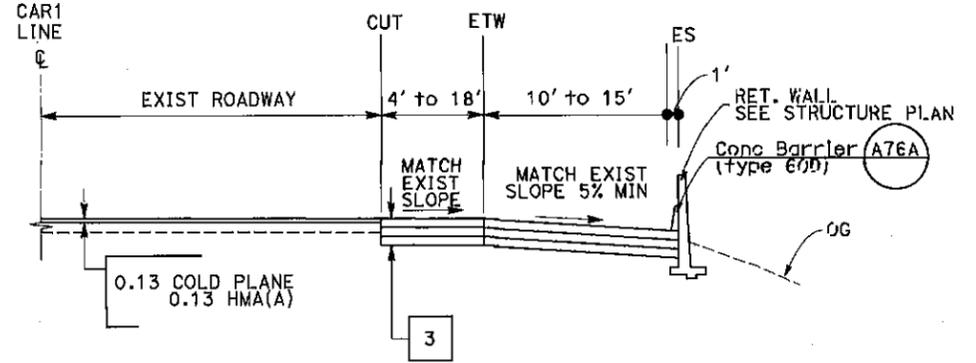
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED CIVIL ENGINEER DATE

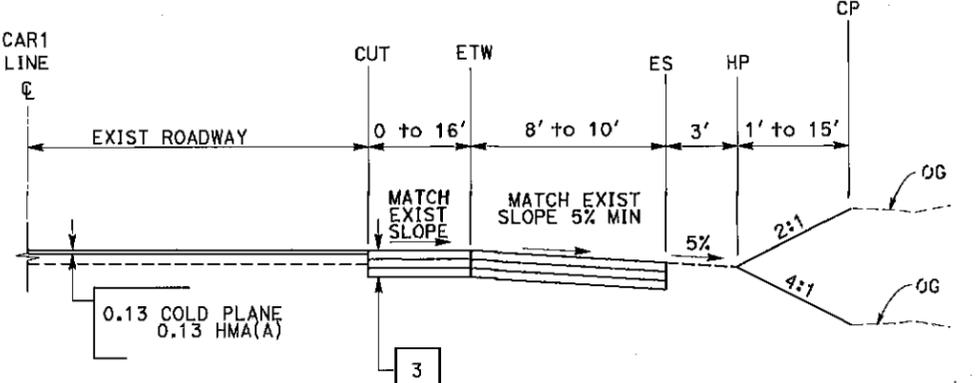
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER
 AAAAA
 AAAAA
 No. AAAA
 3-31-12
 Exp.
 CIVIL
 STATE OF CALIFORNIA



STA CAR1 742+75.00 TO 750+50.00
 NORTHBOUND 680 LOOP ON-RAMP FROM CALAVERAS RD



STA CAR1 742+52.84 TO 742+75.00
 STA CAR1 750+50.00 TO 752+83.63
 NORTHBOUND 680 LOOP ON-RAMP FROM CALAVERAS RD

TYPICAL CROSS SECTIONS
 NO SCALE

X-10

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	680	0.0/R21.9		

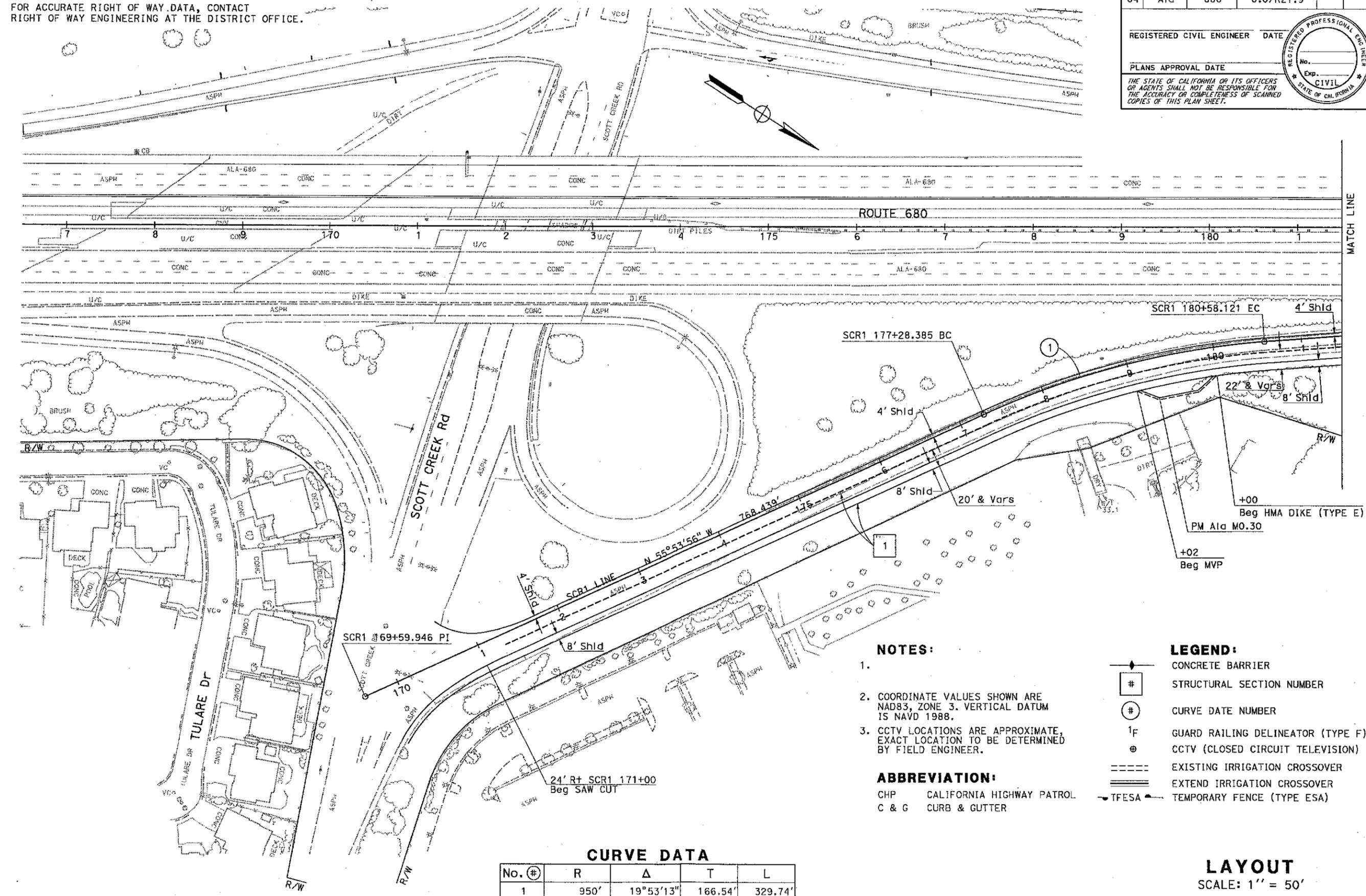
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN
 FUNCTIONAL SUPERVISOR
 CHECKED BY
 CALCULATED-DESIGNED BY
 REVISOR BY
 DATE REVISED



NOTES:

- 1.
2. COORDINATE VALUES SHOWN ARE NAD83, ZONE 3. VERTICAL DATUM IS NAVD 1988.
3. CCTV LOCATIONS ARE APPROXIMATE, EXACT LOCATION TO BE DETERMINED BY FIELD ENGINEER.

ABBREVIATION:

- CHP CALIFORNIA HIGHWAY PATROL
- C & G CURB & GUTTER

LEGEND:

- CONCRETE BARRIER
- STRUCTURAL SECTION NUMBER
- CURVE DATE NUMBER
- GUARD RAILING DELINEATOR (TYPE F)
- CCTV (CLOSED CIRCUIT TELEVISION)
- EXISTING IRRIGATION CROSSOVER
- EXTEND IRRIGATION CROSSOVER
- TEMPORARY FENCE (TYPE ESA)

CURVE DATA

No. (#)	R	Δ	T	L
1	950'	19°53'13"	166.54'	329.74'

LAYOUT
SCALE: 1" = 50'

L-1

DATE PLOTTED => 03-DEC-2013
 TIME PLOTTED => 12:57
 LAST REVISION 12-03-13

NOTE:

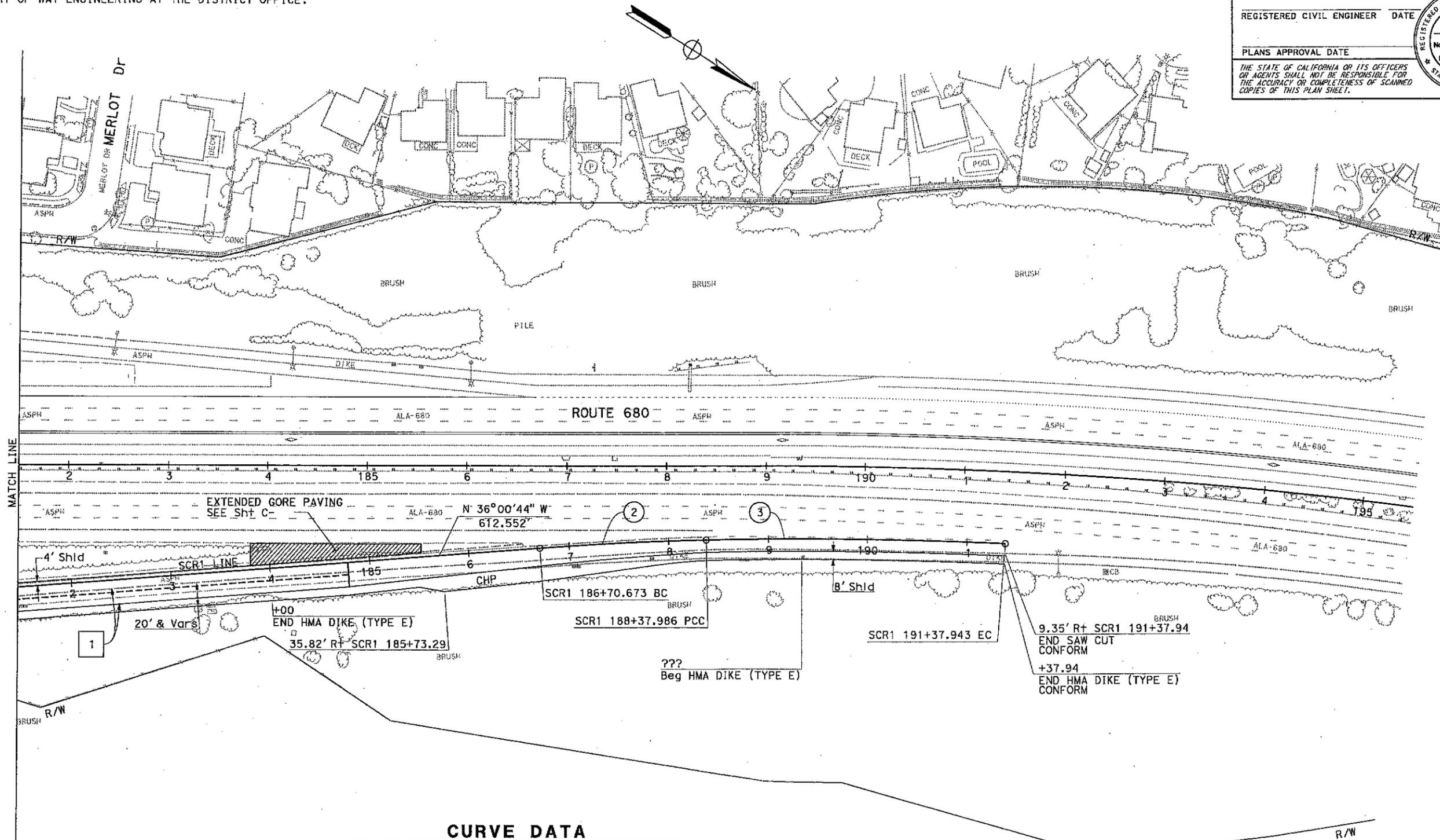
FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	680	0.0/R21.9		

REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

CURVE DATA

No. #	R	Δ	T	L
2	3000'	3°11'44"	83.68'	167.31'
3	4712'	3°38'50"	150.03'	299.96'

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
SCALE: 1" = 50'

L-2

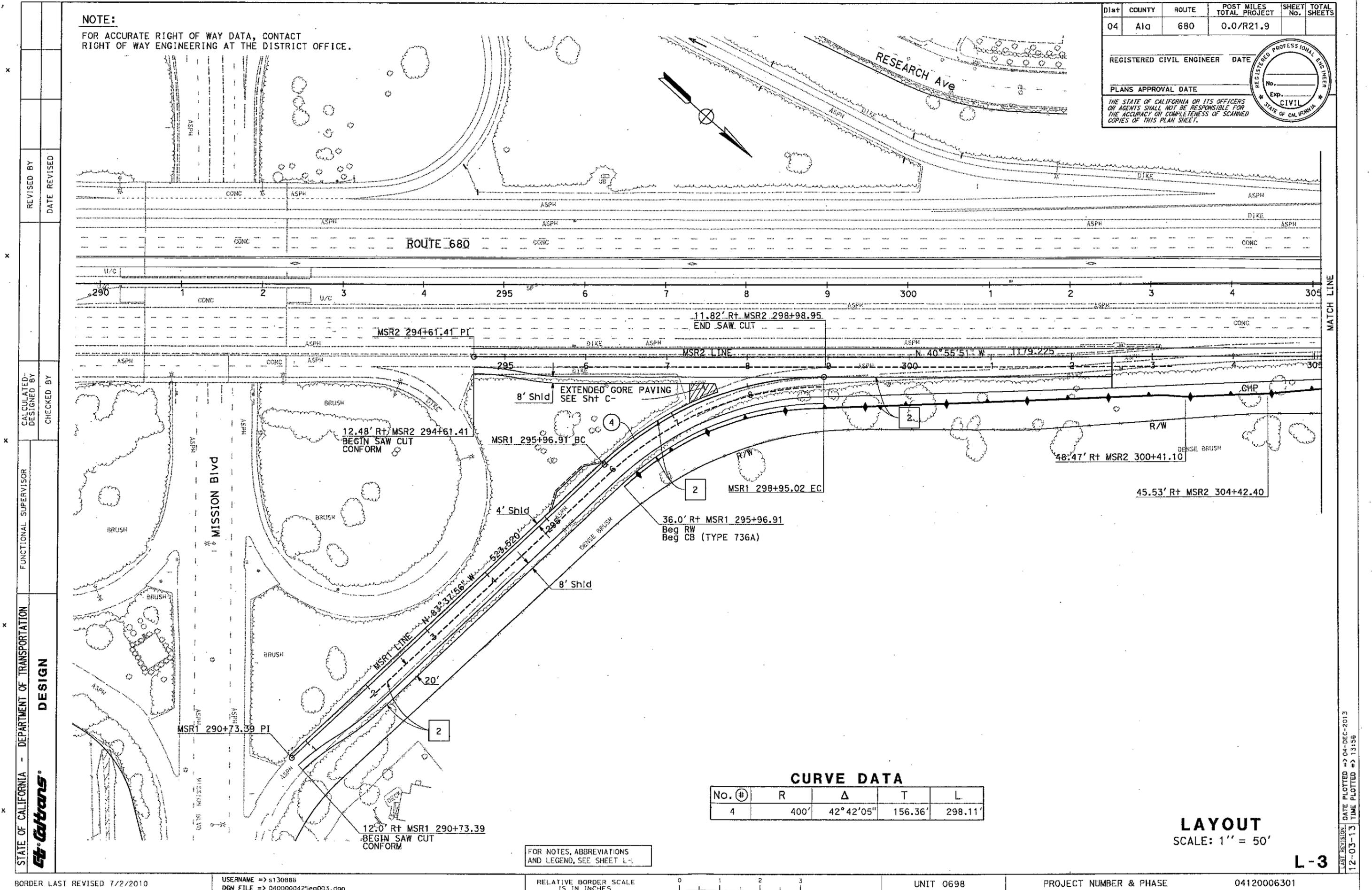


NOTE:
FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Alc	680	0.0/R21.9		

REGISTERED CIVIL ENGINEER DATE _____
PLANS APPROVAL DATE _____

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



CURVE DATA

No. (#)	R	Δ	T	L
4	400'	42°42'05"	156.36'	298.11'

LAYOUT
SCALE: 1" = 50'

L-3

FOR NOTES, ABBREVIATIONS
AND LEGEND, SEE SHEET L-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN
 FUNCTIONAL SUPERVISOR
 CHECKED BY
 CALCULATED/DESIGNED BY
 REVISED BY
 DATE REVISED

NOTE:

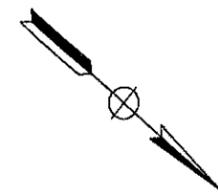
FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	680	0.0/R21.9		

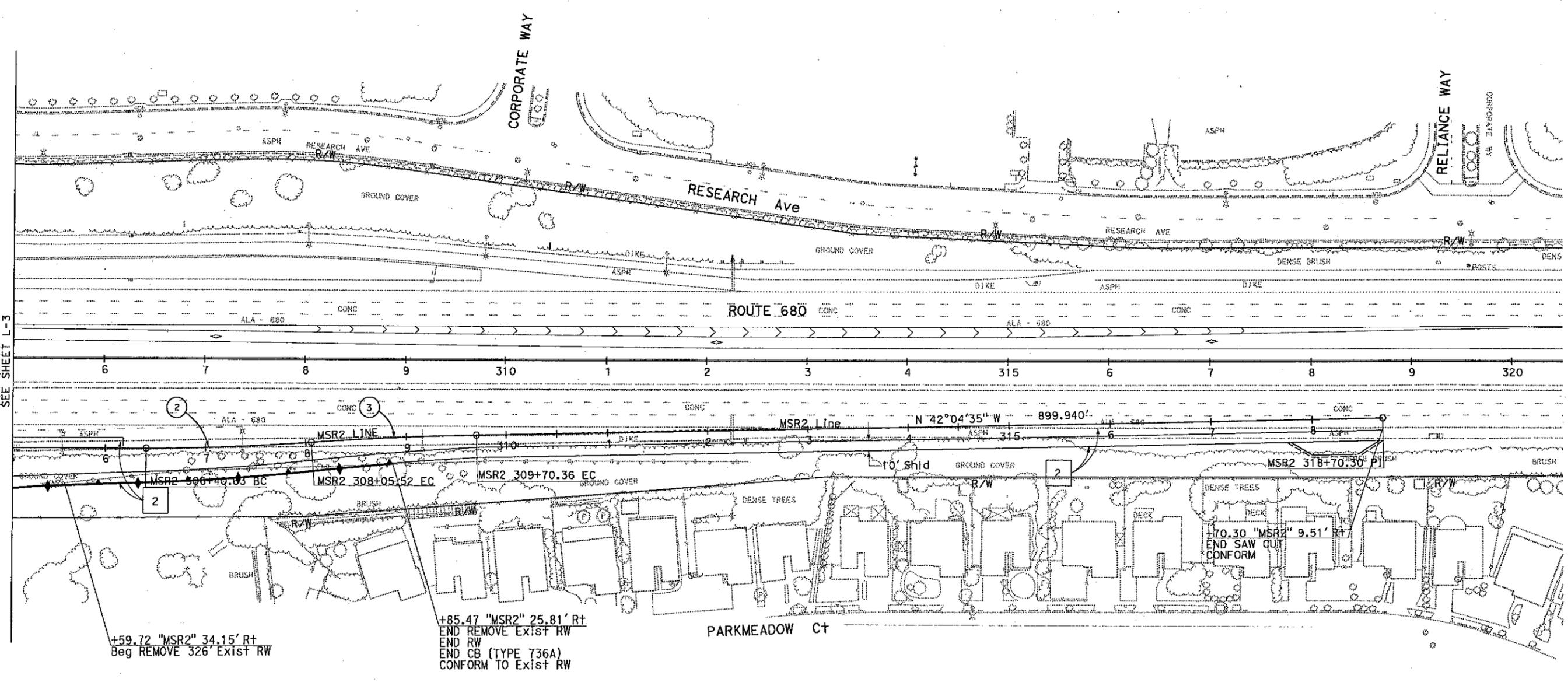
REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



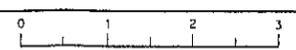
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Caltrans
 DESIGN
 FUNCTIONAL SUPERVISOR
 CALCULATED-DESIGNED BY
 CHECKED BY
 REVISED BY
 DATE REVISED
 SEE SHEET L-3



CURVE DATA

No. ①	R	Δ	T	L
2	2200'	4°17'39"	82.48'	164.88'
3	3000'	3°8'54"	82.45'	164.85'

FOR NOTES, ABBREVIATIONS
AND LEGEND, SEE SHEET L-1



LAYOUT
SCALE: 1" = 50'

L-4

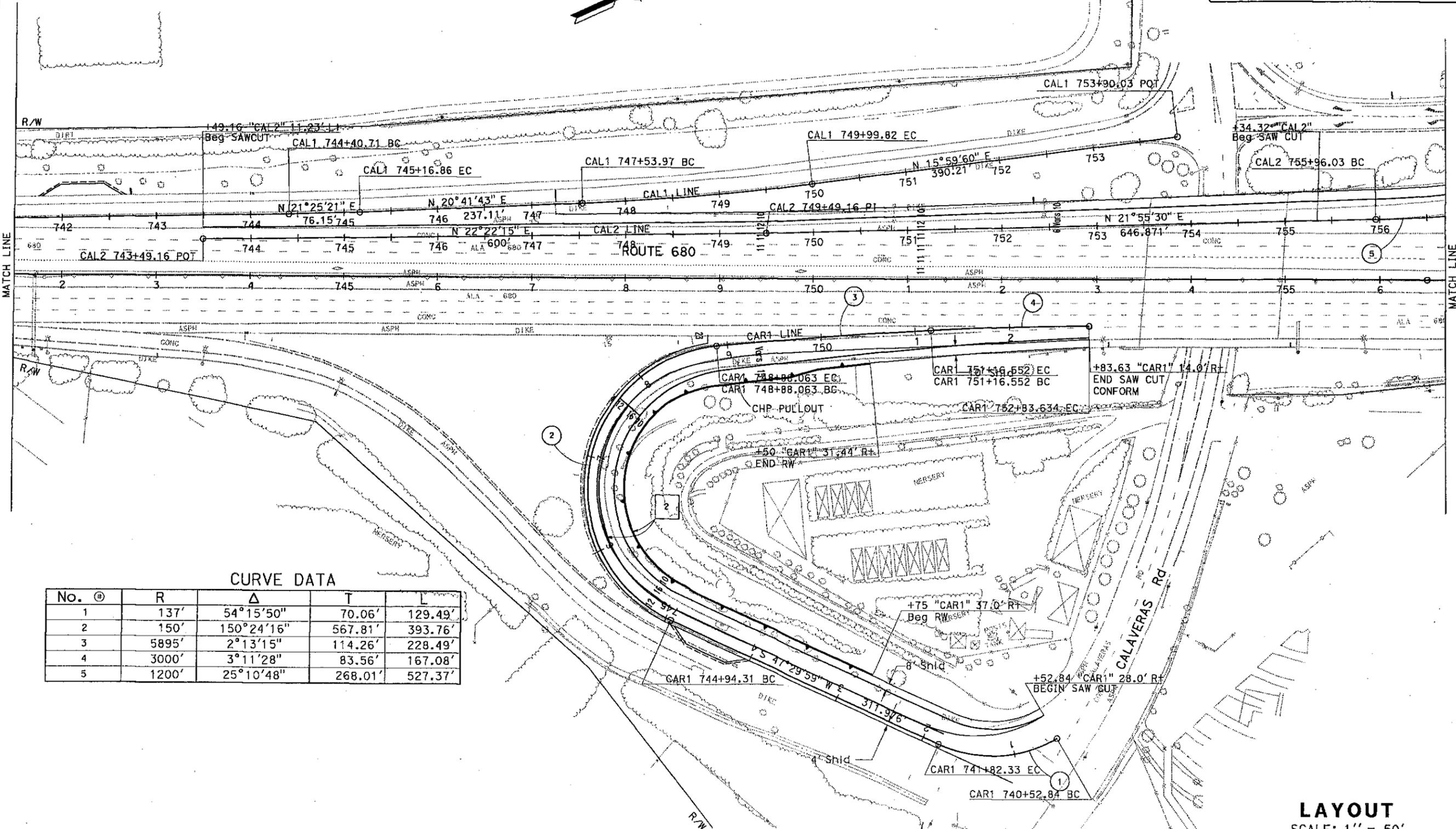
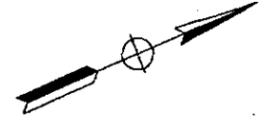
NOTE:
FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	680	0.0/R21.9		

REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



CURVE DATA

No. ①	R	Δ	T	L
1	137'	54°15'50"	70.06'	129.49'
2	150'	150°24'16"	567.81'	393.76'
3	5895'	2°13'15"	114.26'	228.49'
4	3000'	3°11'28"	83.56'	167.08'
5	1200'	25°10'48"	268.01'	527.37'

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
SCALE: 1" = 50'

L-11

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Ed. Gibbons DESIGN

REVISOR BY DATE REVISOR
CALCULATED-DESIGNED BY CHECKED BY

FUNCTIONAL SUPERVISOR

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	680	0.0/R21.9		

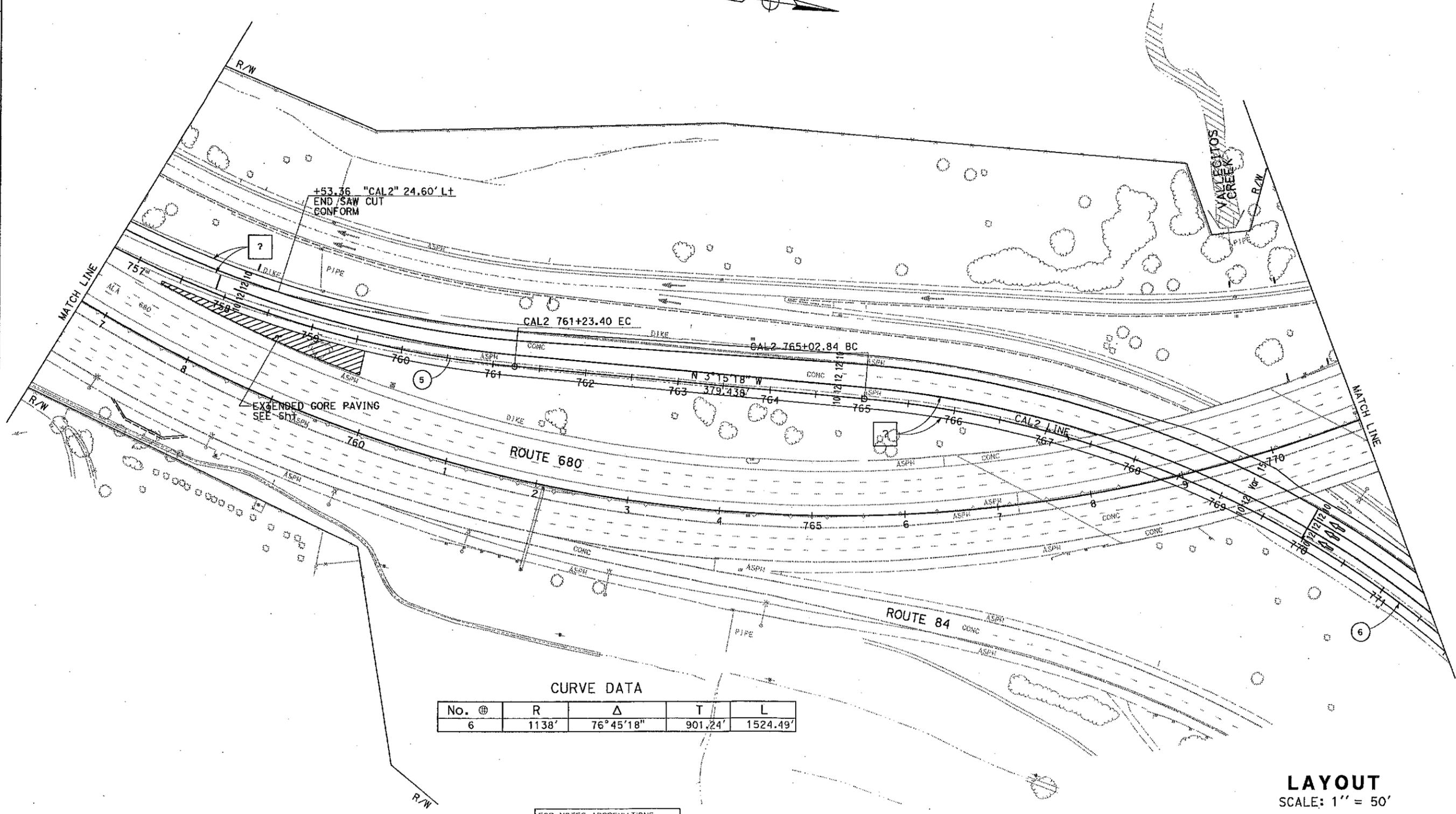
REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



NOTE:
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



CURVE DATA

No.	⊕	R	Δ	T	L
6		1138'	76°45'18"	901.24'	1524.49'

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
SCALE: 1" = 50'

L-11a

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
St. Gobbons
 DESIGN

REVISOR BY
DATE REVISED

CALCULATED BY
DESIGNED BY
CHECKED BY

FUNCTIONAL SUPERVISOR

BORDER LAST REVISED 7/2/2010

USERNAME => s130888
DGN FILE => 0400000425ea011a.dgn

RELATIVE BORDER SCALE
15 IN INCHES



UNIT 0698

PROJECT NUMBER & PHASE

04120006301

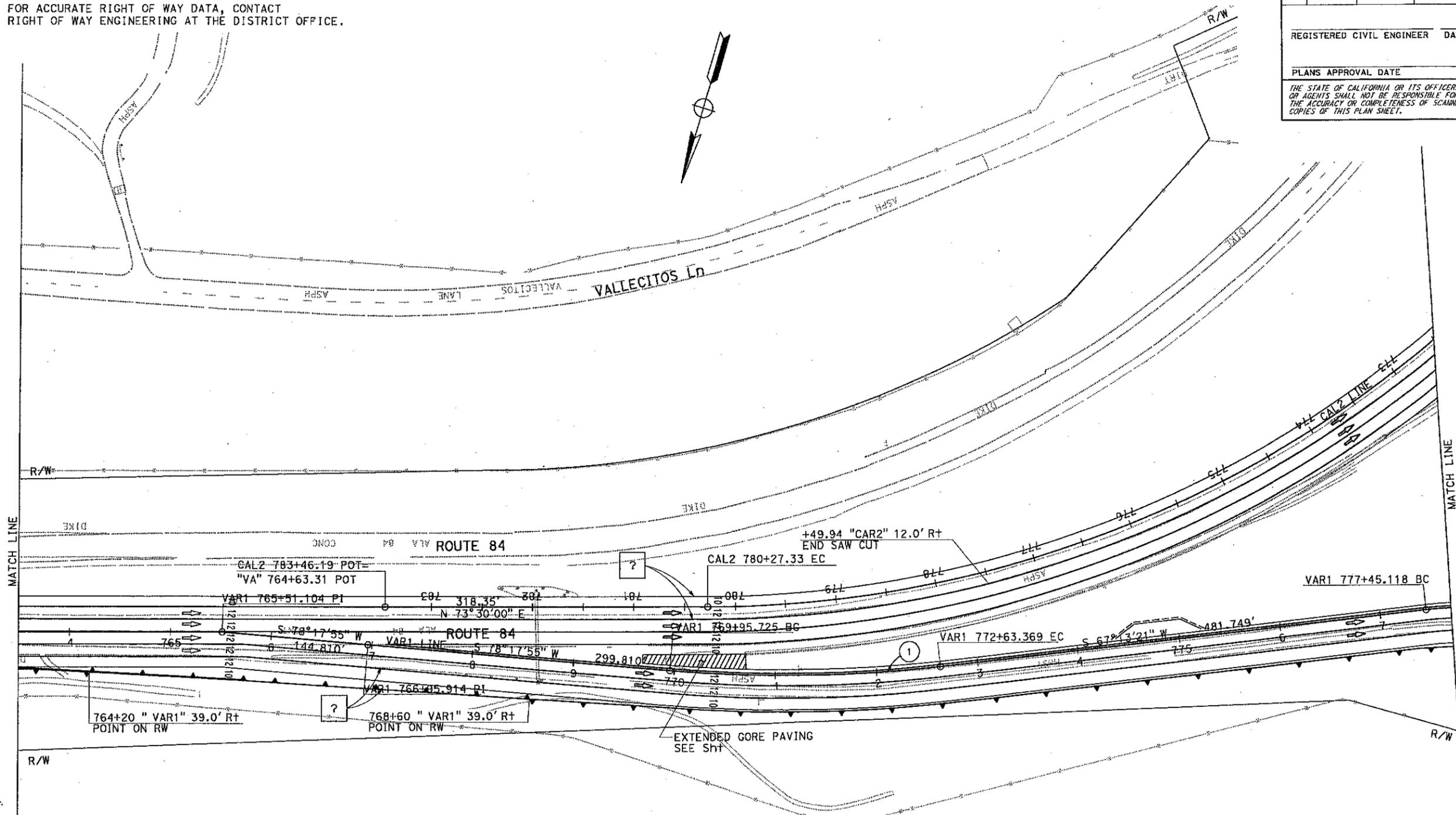
LAST REVISION DATE PLOTTED => 10-DEC-2013
 12-06-13 TIME PLOTTED => 13:29

NOTE:
FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	680	0.0/R21.9		

REGISTERED CIVIL ENGINEER DATE _____
PLANS APPROVAL DATE _____

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



CURVE DATA

No. Ⓢ	R	Δ	T	L	N	E
1	1384'	11°04'34"	134.24'	267.64'	2040739.03	6165674.87

FOR NOTES, ABBREVIATIONS
AND LEGEND, SEE SHEET L-1

LAYOUT
SCALE: 1" = 50'

L-12

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
St. Gobans
DESIGN

REVISOR BY
DATE REVISED

CALCULATED-
DESIGNED BY
CHECKED BY

FUNCTIONAL SUPERVISOR

DESIGN

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
04	Ala	680	0.0/R21.9		

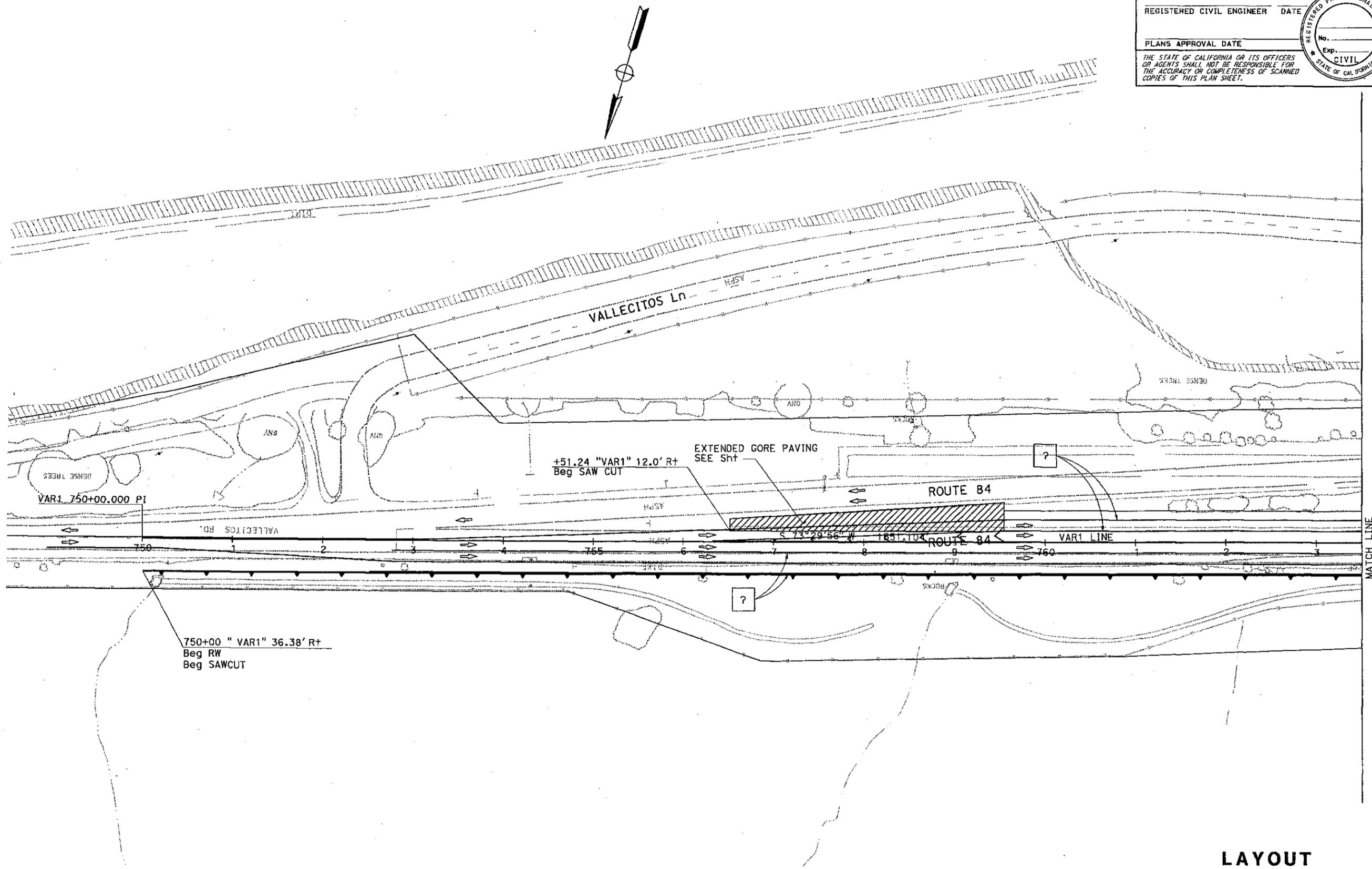
REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

THE STATE OF CALIFORNIA OR ITS OFFICERS
OR AGENTS SHALL NOT BE RESPONSIBLE FOR
THE ACCURACY OR COMPLETENESS OF SCANNED
COPIES OF THIS PLAN SHEET.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
St. Gobans
DESIGN

REVISOR BY
DATE REVISOR

CALCULATED-
DESIGNED BY
CHECKED BY



FOR NOTES, ABBREVIATIONS
AND LEGEND, SEE SHEET L-1

LAYOUT
SCALE: 1" = 50'

L-12a

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	680	0.0/R21.9		

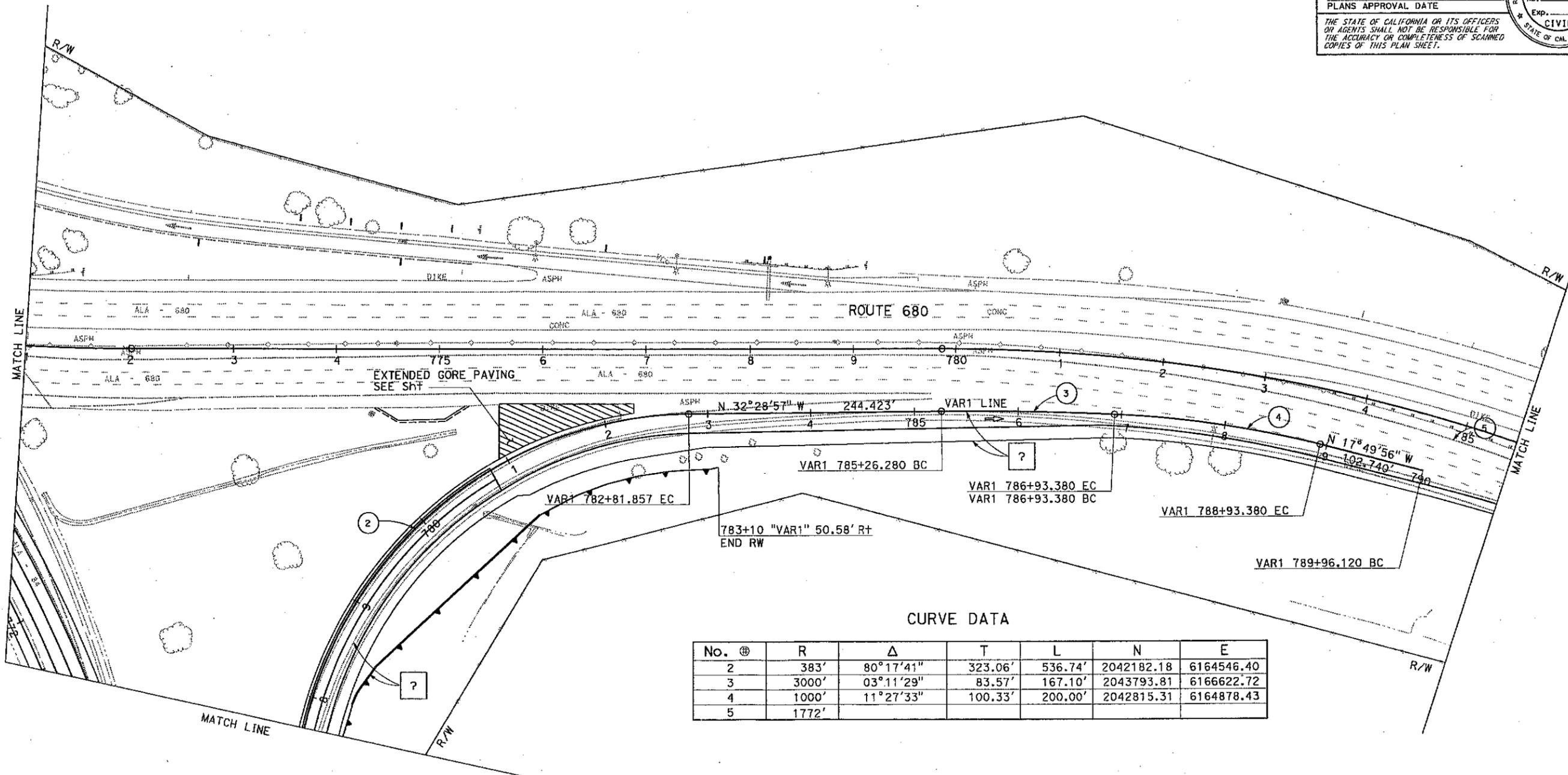
REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS
OR AGENTS SHALL NOT BE RESPONSIBLE FOR
THE ACCURACY OR COMPLETENESS OF SCANNED
COPIES OF THIS PLAN SHEET.



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
St. Gobbons
 DESIGN



CURVE DATA

No. @	R	Δ	T	L	N	E
2	383'	80°17'41"	323.06'	536.74'	2042192.18	6164546.40
3	3000'	03°11'29"	83.57'	167.10'	2043793.81	6166622.72
4	1000'	11°27'33"	100.33'	200.00'	2042815.31	6164878.43
5	1772'					

FOR NOTES, ABBREVIATIONS
AND LEGEND, SEE SHEET L-1

LAYOUT
SCALE: 1" = 50'

L-13

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	680	0.0/R21.9		

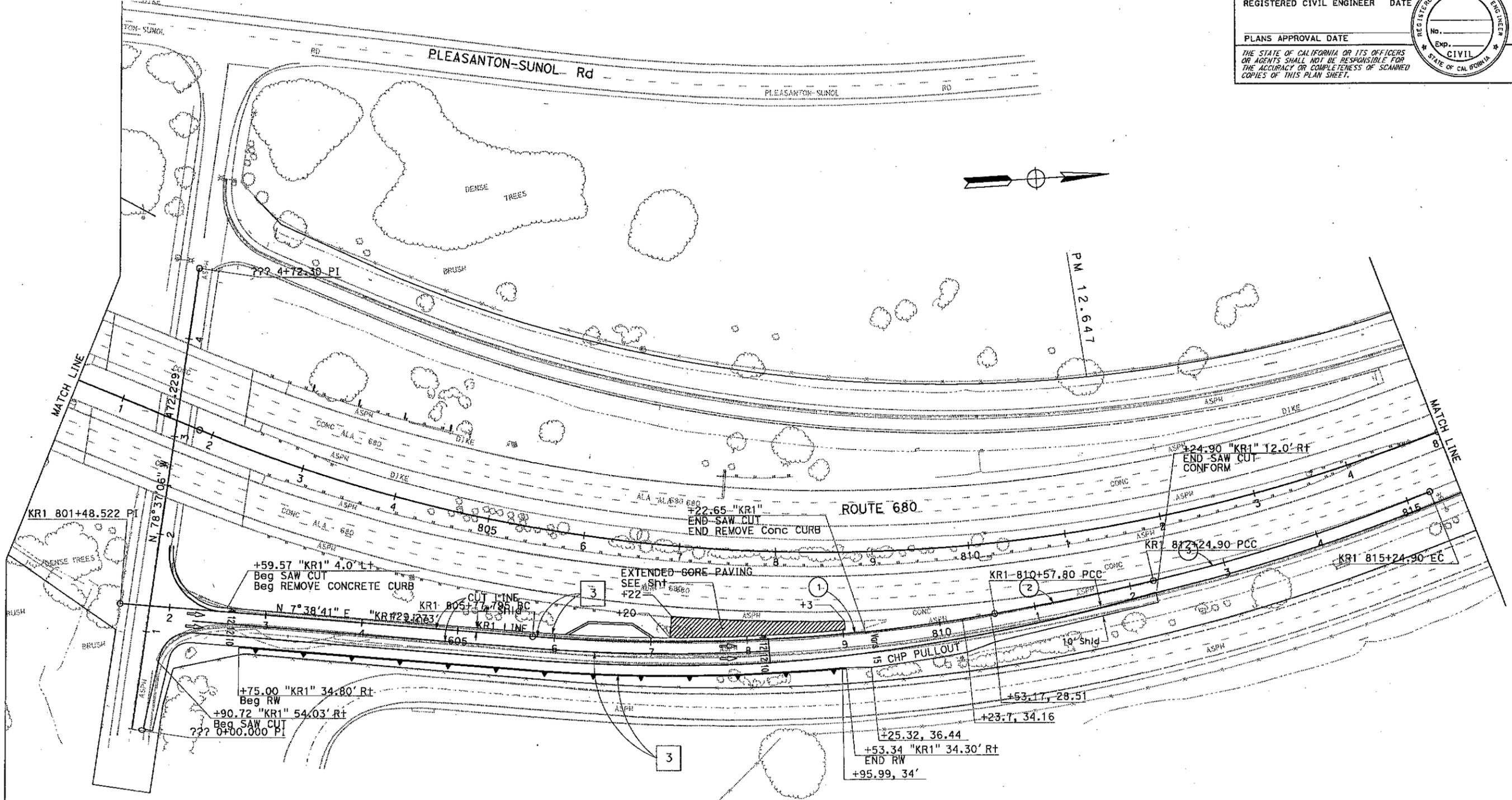
REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
St. Gobans DESIGN



CURVE DATA

No.	⊕	R	Δ	T	L
1		1960'	14°1'54"	241.21'	480.00'
2		3000'	3°11'29"	83.57'	167.10'
3		1900'	9°2'48"	150.31'	300.00'

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
SCALE: 1" = 50'

DATE PLOTTED => 10-DEC-2013 12-06-13 TIME PLOTTED => 13:29

NOTE:

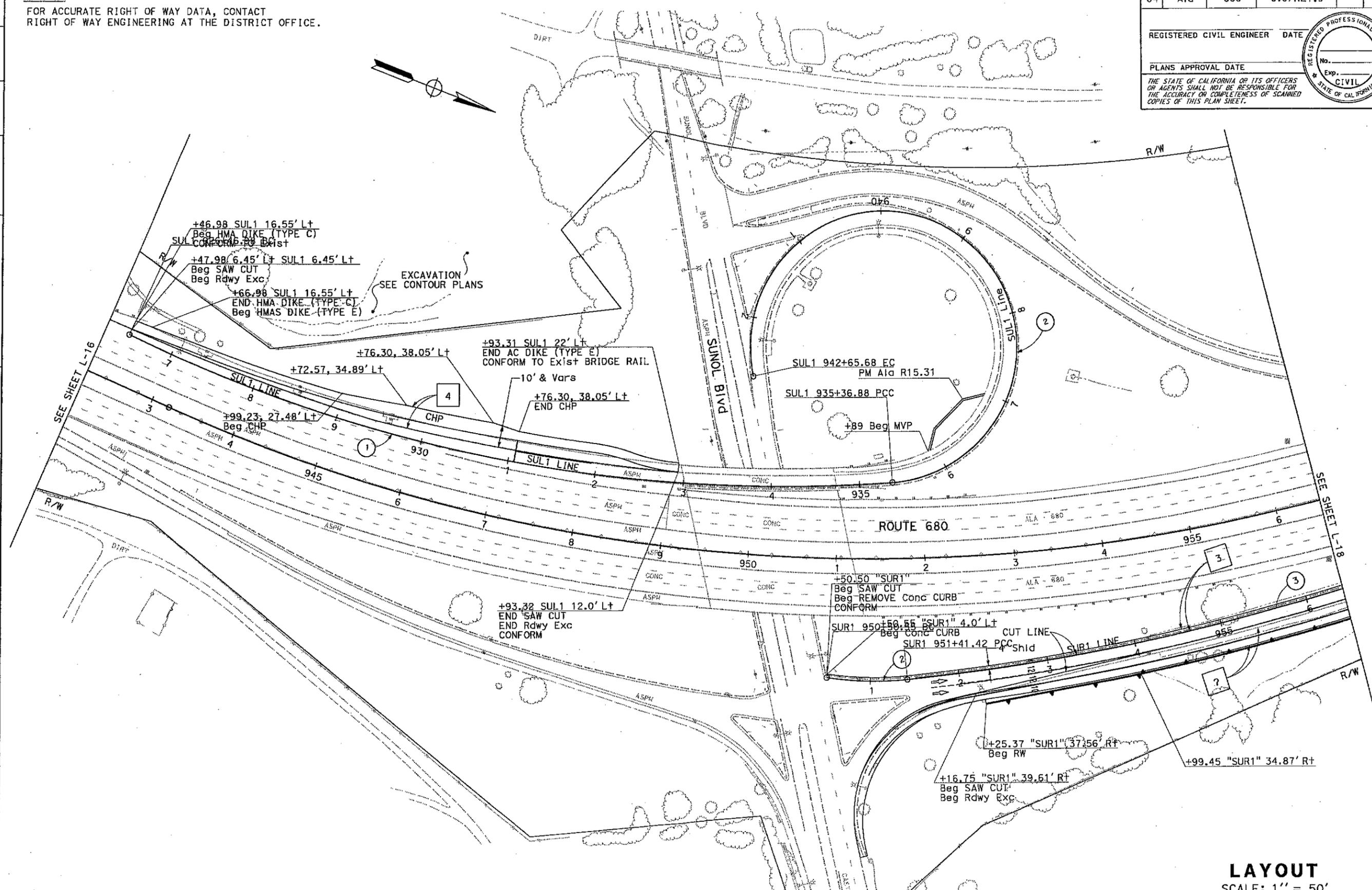
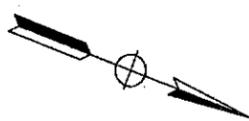
FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	680	0.0/R21.9		

REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
SCALE: 1" = 50'

L-17

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
St. Gobans
DESIGN

REVISOR BY DATE REVISOR

CALCULATED BY CHECKED BY

FUNCTIONAL SUPERVISOR

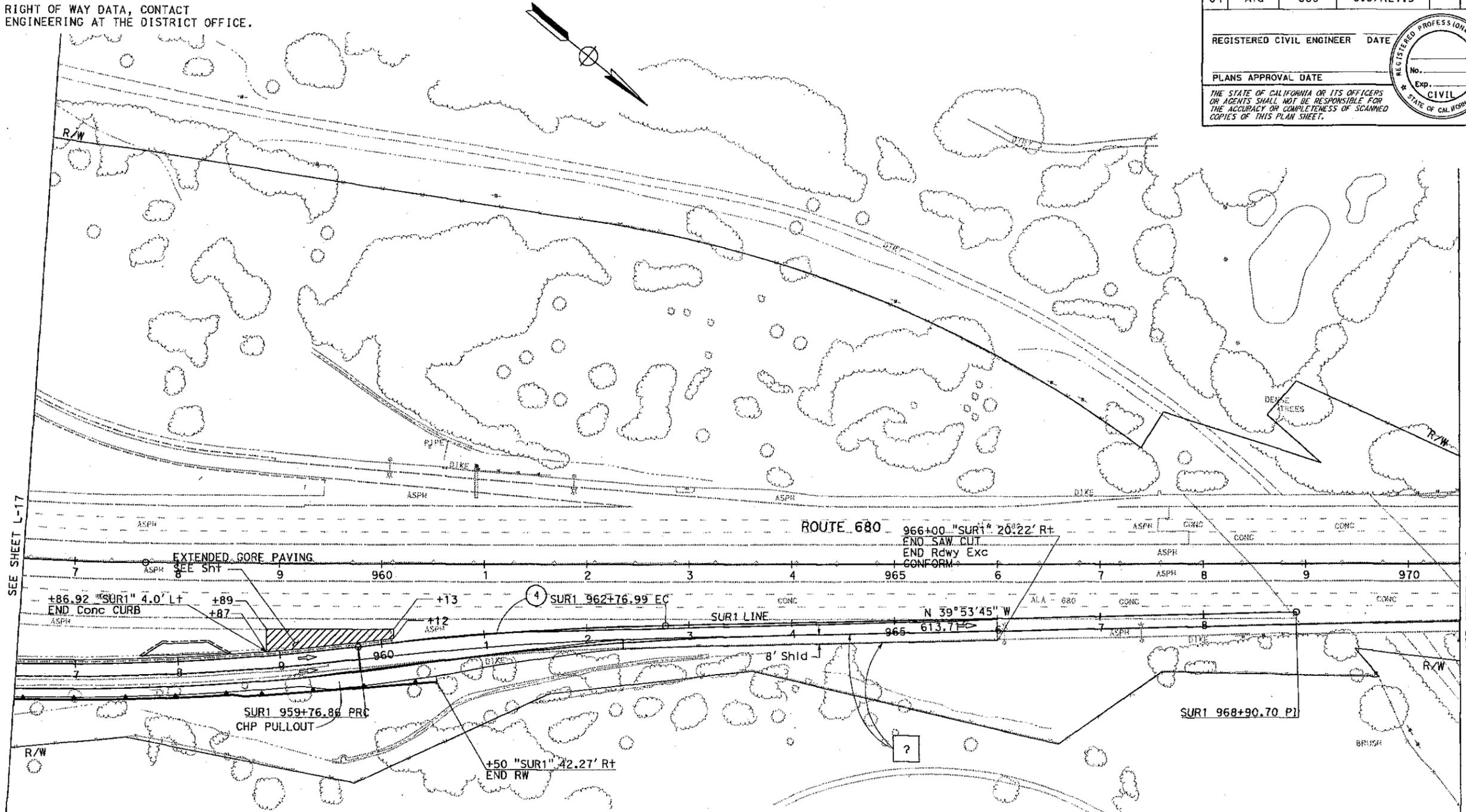
NOTE:
FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	680	0.0/R21.9		

REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.



CURVE DATA

No. @	R	Δ	T	L
2	366'	14°14'02"	45.67'	90.87'
3	2496'	18°56'24"	416.35'	825.10'
4	1000'	4°37'46"	40.42'	80.80'

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
SCALE: 1" = 50'

L-18

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Ed. Gibbons
 DESIGN

REVISED BY
DATE REVISED

CALCULATED-DESIGNED BY
CHECKED BY

FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Ed. Gibbons
 DESIGN

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	680	0.0/R21.9		

REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

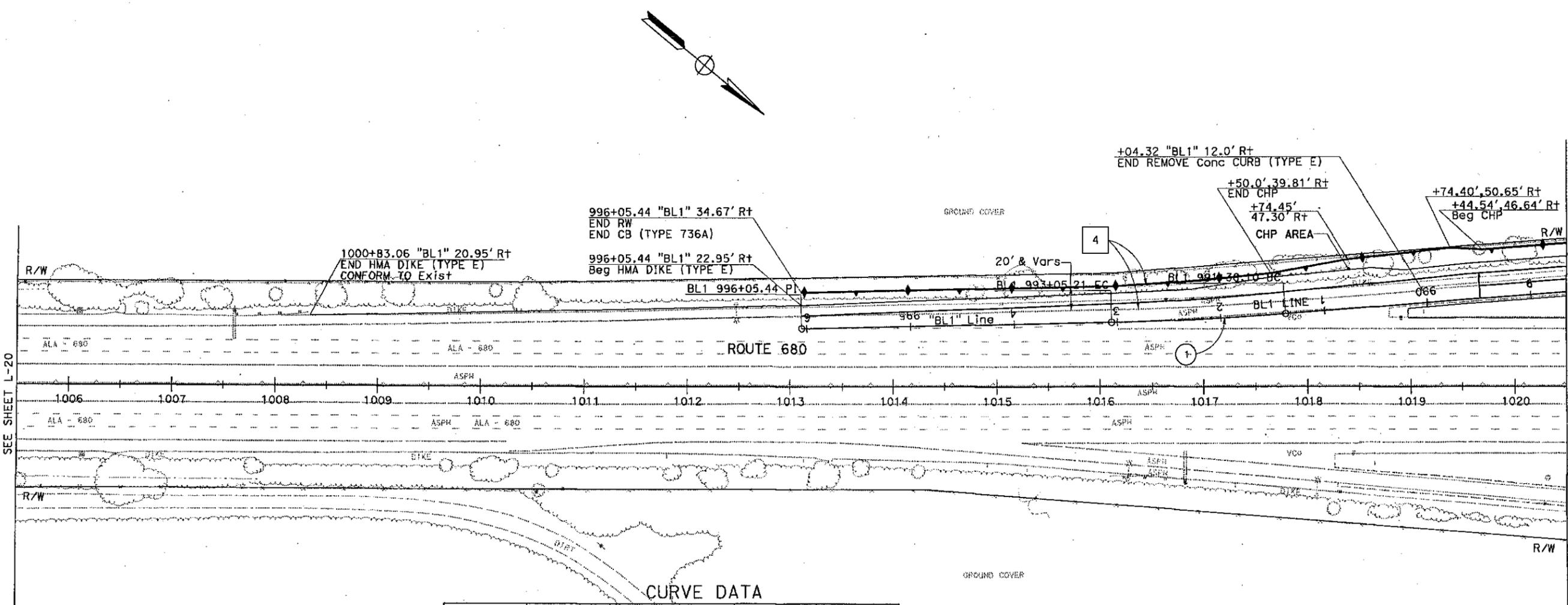


REVISOR BY
DATE REVISOR

CALCULATED-DESIGNED BY
CHECKED BY

FUNCTIONAL SUPERVISOR

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
CDOT DESIGN



CURVE DATA

No. ①	R	Δ	T	L
1	3000'	3°11'28"	83.58'	167.11'

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET L-1

LAYOUT
SCALE: 1" = 50'

L-21

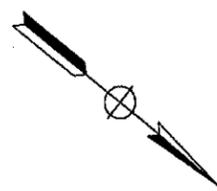
NOTE:
FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	680	0.0/R21.9		

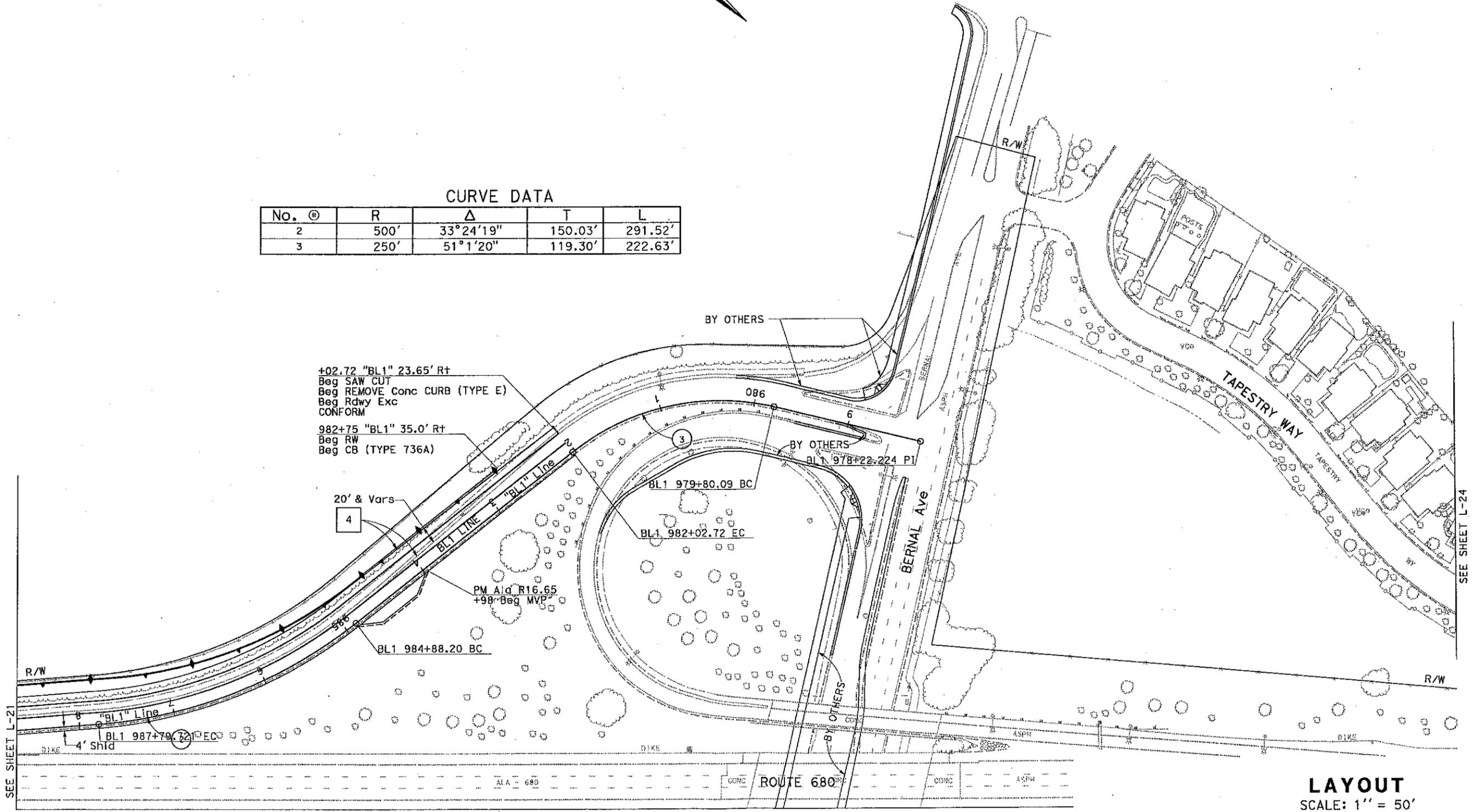
REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

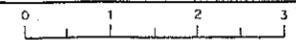
No. ①	R	Δ	T	L
2	500'	33°24'19"	150.03'	291.52'
3	250'	51°1'20"	119.30'	222.63'



+02.72 "BL1" 23.65' Rt
Beg SAW CUT
Beg REMOVE Conc CURB (TYPE E)
Beg Rdwy Exc
CONFORM

982+75 "BL1" 35.0' Rt
Beg RW
Beg CB (TYPE 736A)

FOR NOTES, ABBREVIATIONS
AND LEGEND, SEE SHEET L-1



LAYOUT
SCALE: 1" = 50'

L-22

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Gibson
 DESIGN
 FUNCTIONAL SUPERVISOR
 CHECKED BY
 DESIGNED BY
 REVISIONS: (Grid of X's)
 REVISOR: (Grid of X's)
 DATE: (Grid of X's)

LAST REVISION: 12-03-13 DATE PLOTTED => 10-DEC-2013 TIME PLOTTED => 13:29

NOTE:

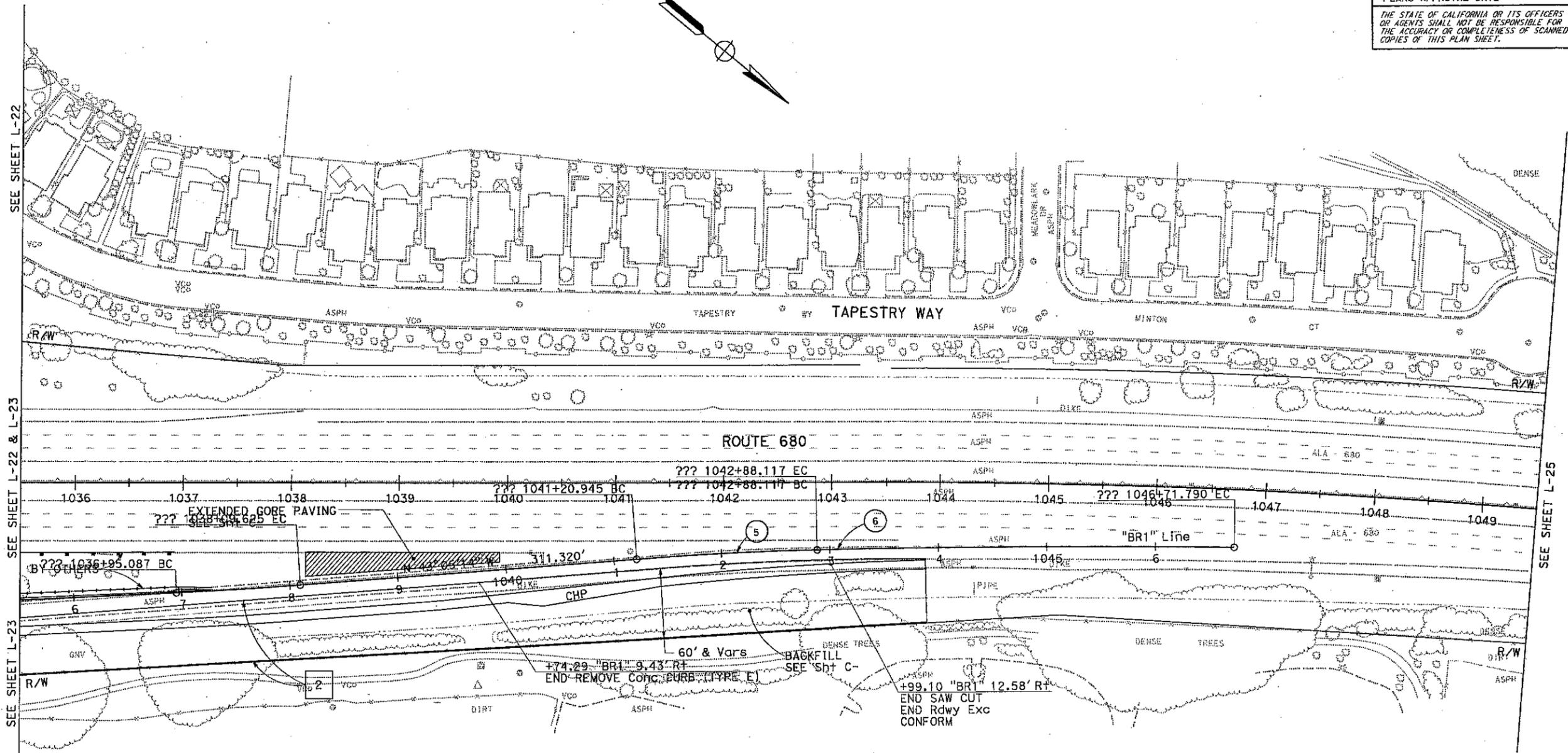
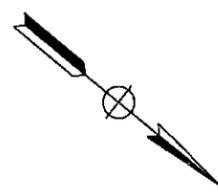
FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	680	0.0/R21.9		

REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

CURVE DATA

No. Ⓢ	R	Δ	T	L
5	3000'	3° 11' 29"	83.57'	167.10'
6	10700'	3° 46' 05"	351.98'	703.70'

FOR NOTES, ABBREVIATIONS
AND LEGEND, SEE SHEET L-1

LAYOUT
SCALE: 1" = 50'

L-24

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Ed. Gibbons
DESIGN

REVISED BY
DATE REVISED

CALCULATED-
DESIGNED BY
CHECKED BY

FUNCTIONAL SUPERVISOR

DESIGN

SEE SHEET L-22
SEE SHEET L-23
SEE SHEET L-23
SEE SHEET L-25

NOTE:

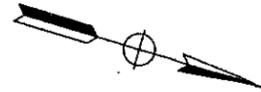
FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	680	0.0/R21.9		

REGISTERED CIVIL ENGINEER DATE

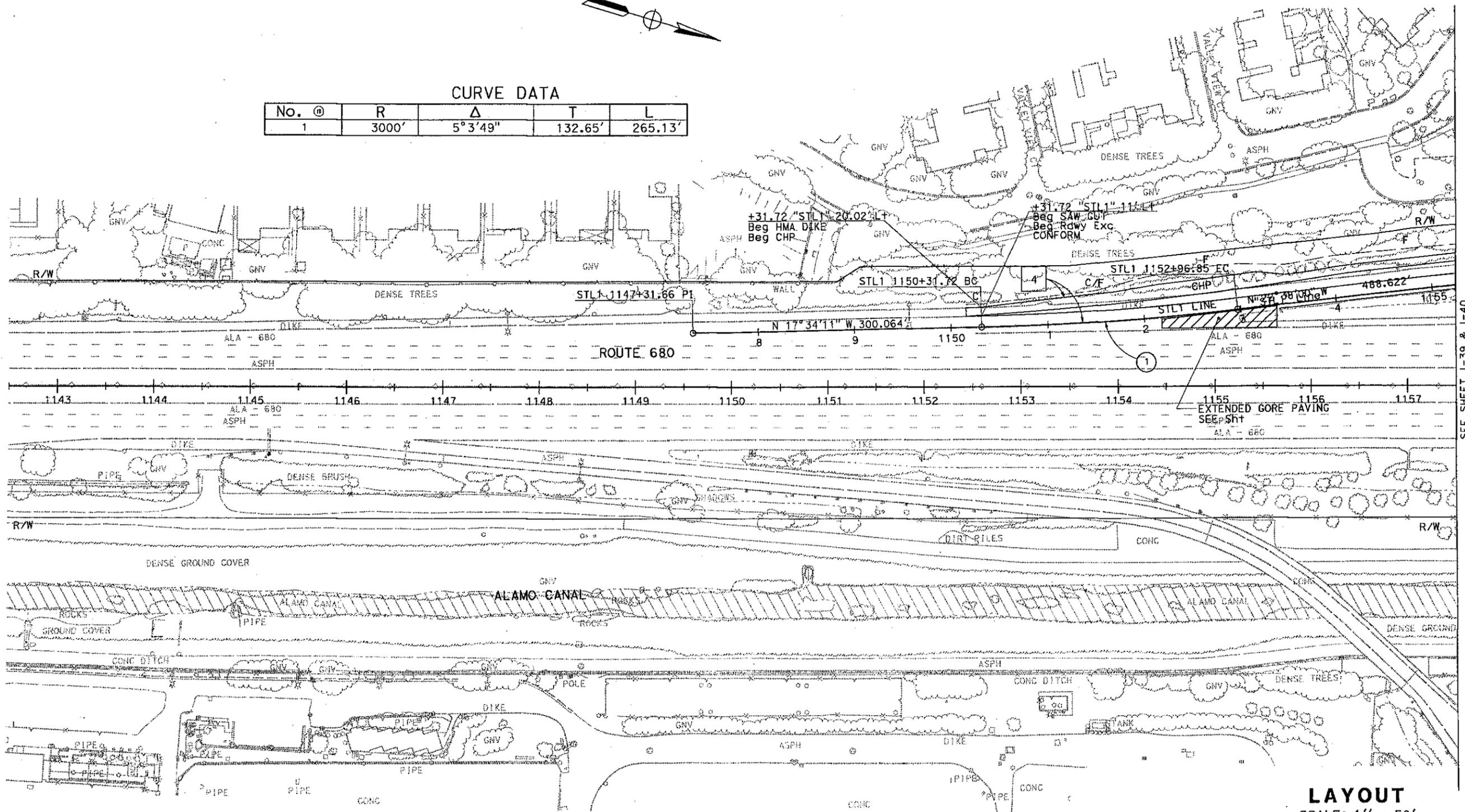
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.

CURVE DATA

No.	@	R	Δ	T	L
1		3000'	5°3'49"	132.65'	265.13'



FOR NOTES, ABBREVIATIONS
AND LEGEND, SEE SHEET L-1

LAYOUT
SCALE: 1" = 50'

L-29

REVISIONS: REVISOR, DATE, REVISIONS, CHECKED BY, CALCULATED/DESIGNED BY, FUNCTIONAL SUPERVISOR, DESIGN, STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION, St. Kittans

NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT
RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
04	Ala	680	0.0/R21.9		

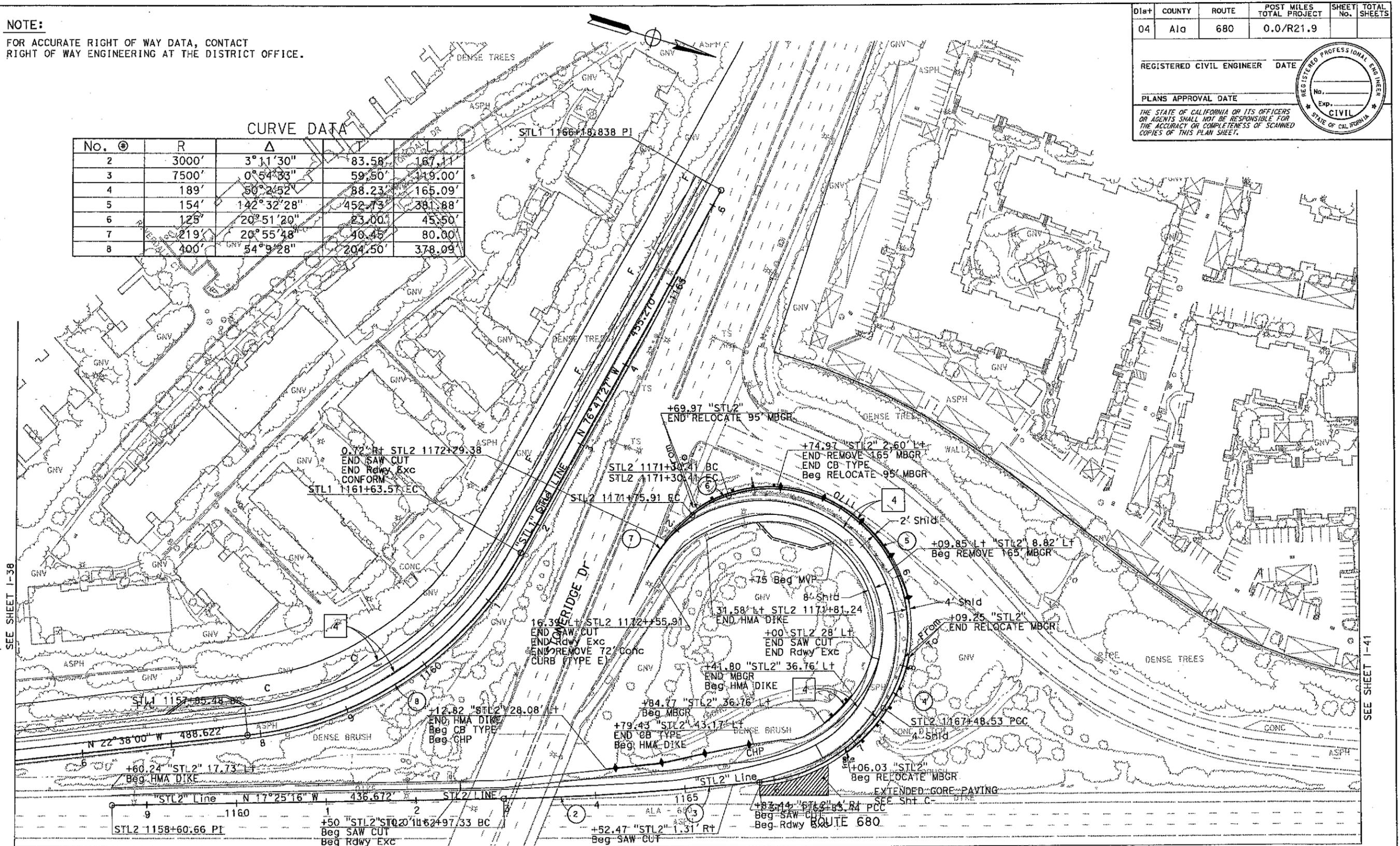
REGISTERED CIVIL ENGINEER DATE _____

PLANS APPROVAL DATE _____

THE STATE OF CALIFORNIA OR ITS OFFICERS
OR AGENTS SHALL NOT BE RESPONSIBLE FOR
THE ACCURACY OR COMPLETENESS OF SCANNED
COPIES OF THIS PLAN SHEET.

CURVE DATA

No. @	R	Δ	T	L
2	3000'	3° 11' 30"	83.58'	167.11'
3	7500'	0° 54' 33"	59.50'	119.00'
4	189'	50° 24' 52"	88.23'	165.09'
5	154'	142° 32' 28"	452.73'	381.88'
6	125'	20° 51' 20"	23.00'	45.50'
7	219'	20° 55' 48"	40.45'	80.00'
8	400'	54° 9' 28"	204.50'	378.09'



SEE SHEET I-38

SEE SHEET I-41

SEE SHEET I-40

FOR NOTES, ABBREVIATIONS
AND LEGEND, SEE SHEET L-1

LAYOUT
SCALE: 1" = 50'

L-30

LAST REVISION: DATE PLOTTED => 10-DEC-2013 10-23-13 TIME PLOTTED => 13:29

REVISOR: _____ DATE: _____
 CALCULATED/DESIGNED BY: _____ CHECKED BY: _____
 FUNCTIONAL SUPERVISOR: _____
 DEPARTMENT OF TRANSPORTATION - DESIGN
 STATE OF CALIFORNIA - **Eaton**

Attachment B

Preliminary Cost Estimate

**PROJECT
PLANNING COST ESTIMATE**

EA: 04-4G111

EA: 04-4G111 PID: 412000630

PID: 412000630

District-County-Route: 04-A/a-680

PM: M0.0 - R21.9

Type of Estimate : For PSR-PR

Program Code : 40 50.201 310

Project Limits : In Alameda County on Route 680 between Scott Creek Road Undercrossing and Alcosta Boulevard Overcrossing.

Project Description: Install Ramp Meters and Traffic Operations Systems (TOS)

Scope : Install Ramp Meters and TOS elements. Widen on-ramps with retaining walls as needed to provide bypass lanes.

Alternative : Alternative #1

SUMMARY OF PROJECT COST ESTIMATE

	<u>Current Year Cost</u>	<u>Escalated Cost</u>
TOTAL ROADWAY COST	\$ 29,508,000	\$ 31,790,498
TOTAL STRUCTURES COST	\$ 16,902,000	\$ 18,209,502
SUBTOTAL CONSTRUCTION COST	\$ 46,410,000	\$ 50,000,000
TOTAL RIGHT OF WAY COST	\$ 677,000	\$ 677,000
TOTAL CAPITAL OUTLAY COSTS	\$ 47,087,000	\$ 50,677,000
PR/ED SUPPORT	\$ 8,724,000	\$ 8,724,000
PS&E SUPPORT	\$ 3,450,000	\$ 3,450,000
RIGHT OF WAY SUPPORT	\$ 190,000	\$ 190,000
CONSTRUCTION SUPPORT	\$ 10,000,000	\$ 10,000,000
TOTAL SUPPORT COST	\$ 22,364,000	\$ 22,364,000

TOTAL PROJECT COST	\$ 69,500,000	\$ 73,041,000
---------------------------	----------------------	----------------------

If Project has been programmed enter Programmed Amount

Month / Year

Date of Estimate (Month/Year) 11 / 2016

Estimated Construction Start (Month/Year) 1 / 2018

Number of Working Days = 240

Estimated Mid-Point of Construction (Month/Year) 7 / 2018

Estimated Construction End (Month/Year) 1 / 2019

Number of Plant Establishment Days N/A

Estimated Project Schedule

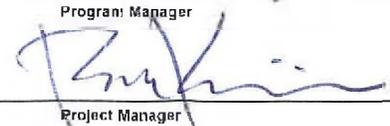
PID Approval	11/18/2013
PA/ED Approval	11/30/2016
PS&E	3/1/2017
RTL	6/1/2017
Begin Construction	3/1/2018

Reviewed by Program Manager

 11/16/16 (510) 286-4577

Program Manager Date Phone

Approved by Project Manager

 11/15/16 (510) 286-4193

Project Manager Date Phone

PROJECT COST ESTIMATE

EA: 04-4G111 PID: 412000630

I. ROADWAY ITEMS SUMMARY

	Section	Cost
1	Earthwork	\$ 2,770,000
2	Pavement Structural Section	\$ 3,510,000
3	Drainage	\$ 650,000
4	Specialty Items	\$ 515,000
5	Environmental	\$ 650,000
6	Traffic Items	\$ 8,403,000
7	Detours	\$ 240,000
8	Minor Items	\$ 1,012,700
9	Roadway Mobilization	\$ 1,775,100
10	Supplemental Work	\$ 516,000
11	State Furnished	\$ 2,360,100.00
12	Time-Related Overhead	\$ 3,324,500.00
13	Roadway Contingency	\$ 3,781,600.00
TOTAL ROADWAY ITEMS		\$ 29,508,000

Estimate Prepared By :

Hoa-Anh Le



11/14/2016

510-286-4749

Project Engineer

Date

Phone

Estimate Reviewed By :

Arlissa Pang



11/14/2016

510-286-4667

Branch Chief

Date

Phone

By signing this estimate you are attesting that you have discussed your project with all functional units and have incorporated all their comments or have discussed with them why they will not be incorporated.

SECTION 1: EARTHWORK

Item code	Unit	Quantity		Unit Price (\$)		Cost
190101	Roadway Excavation	CY	102,000	x	15.00	= \$ 1,530,000
19010X	Roadway Excavation (Type X) ADL	CY	5,200	x	200.00	= \$ 1,040,000
194001	Ditch Excavation	CY		x		= \$ -
19801X	Imported Borrow	CY/TON		x		= \$ -
192037	Structure Excavation (Retaining Wall)	CY		x		= \$ -
193013	Structure Backfill (Retaining Wall)	CY		x		= \$ -
193031	Pervious Backfill Material (Retaining Wall)	CY		x		= \$ -
16010X	Clearing & Grubbing	LS	1	x	200,000.00	= \$ 200,000
170101	Develop Water Supply	LS		x		= \$ -
19801X	Imported Borrow	CY/TON		x		= \$ -
210130	Duff	ACRE		x		= \$ -
XXXXXX	Some Item	Unit				= \$ -

TOTAL EARTHWORK SECTION ITEMS	\$ 2,770,000
--------------------------------------	---------------------

SECTION 2: PAVEMENT STRUCTURAL SECTION

Item code	Unit	Quantity		Unit Price (\$)		Cost
401050	Jointed Plain Concrete Pavement	CY	650	x	780.00	= \$ 506,000
400050	Continuously Reinforced Concrete Pavement	CY		x		= \$ -
404092	Seal Pavement Joint	LF		x		= \$ -
404093	Seal Isolation Joint	LF		x		= \$ -
413117	Seal Concrete Pavement Joint (Silicone)	LF		x		= \$ -
413118	Seal Pavement Joint (Asphalt Rubber)	LF		x		= \$ -
280000	Lean Concrete Base	CY	3,540	x	120.00	= \$ 424,800
280010	Rapid Strength Concrete Base	CY		x		= \$ -
410095	Dowel Bar (Drill and Bond)	EA		x		= \$ -
390132	Hot Mix Asphalt (Type A)	TON	10,460	x	90.00	= \$ 941,400
390137	Rubberized Hot Mix Asphalt (Gap Graded)	TON	6,350	x	115.00	= \$ 731,370
39300X	Geosynthetic Pavement Interlayer (Type X)	SQYD		x		= \$ -
26020X	Class 2 Aggregate Base	CY	9,400	x	40.00	= \$ 376,000
290201	Asphalt Treated Permeable Base	CY		x		= \$ -
250401	Class 4 Aggregate Subbase	CY	19,600	x	24.00	= \$ 470,400
374002	Asphaltic Emulsion (Fog Seal Coat)	TON		x		= \$ -
397005	Tack Coat	TON		x		= \$ -
377501	Slurry Seal	TON		x		= \$ -
3750XX	Screenings (Type XX)	TON		x		= \$ -
374492	Asphaltic Emulsion (Polymer Modified)	TON		x		= \$ -
370001	Sand Cover (Seal)	TON		x		= \$ -
731530	Minor Concrete (Textured Paving)	CY		x		= \$ -
731502	Minor Concrete (Miscellaneous Construction)	CY		x		= \$ -
39407X	Place Hot Mix Asphalt Dike (Type X)	LF		x		= \$ -
150771	Remove Asphalt Concrete Dike	LF		x		= \$ -
420201	Grind Existing Concrete Pavement	SQYD		x		= \$ -
150860	Remove Base and Surfacing	CY		x		= \$ -
390095	Replace Asphalt Concrete Surfacing	CY		x		= \$ -
15312X	Remove Concrete	LF/CY/LS		x		= \$ -
394090	Place Hot Mix Asphalt (Miscellaneous Area)	SQYD		x		= \$ -
153103	Cold Plane Asphalt Concrete Pavement	SQYD	20,000	x	3.00	= \$ 60,000
39405X	Shoulder Rumble Strip (HMA, X-In Indentations)	STA		x		= \$ -
413113	Repair Spalled Joints, Polyester Grout	SQYD		x		= \$ -
420102	Groove Existing Concrete Pavement	SQYD		x		= \$ -
390136	Minor Hot Mix Asphalt	TON		x		= \$ -
394095	Roadside Paving (Miscellaneous Areas)	SQYD		x		= \$ -
XXXXXX	Some Item	Unit		x		= \$ -

TOTAL PAVEMENT STRUCTURAL SECTION ITEMS	\$ 3,510,000
--	---------------------

SECTION 3: DRAINAGE

Item code	Unit	Quantity	Unit Price (\$)	Cost
75000X Storm Drains	LS	1	x 650,000.00 = \$	650,000

TOTAL DRAINAGE ITEMS	\$	850,000
-----------------------------	-----------	----------------

SECTION 4: SPECIALTY ITEMS

Item code	Unit	Quantity	Unit Price (\$)	Cost
080050 Progress Schedule (Critical Path Method)	LS		x = \$	-
160104A Trash Separator	LS	1	x 200,000.00 = \$	200,000
582001 Sound Wall (Masonry Block)	SQFT		x = \$	-
510502 Minor Concrete (Minor Structure)	CY	100	x 1,000.00 = \$	100,000
15325X Remove Sound Wall	LF/LS		x = \$	-
070030 Lead Compliance Plan	LS	1	x 6,000.00 = \$	6,000
141120 Treated Wood Waste	LB		x = \$	-
153221 Remove Concrete Barrier	LF		x = \$	-
150662 Remove Metal Beam Guard Railing	LF		x = \$	-
150668 Remove Flared End Section	EA		x = \$	-
8000XX Chain Link Fence (Type XX)	LF		x = \$	-
80XXXX XX" Chain Link Gate (Type CL-6)	EA		x = \$	-
832001 Metal Beam Guard Railing	LF	600	x 30.00 = \$	18,000
839301 Single Thrie Beam Barrier	LF		x = \$	-
839310 Double Thrie Beam Barrier	LF		x = \$	-
839521 Cable Railing	LF		x = \$	-
8395XX Terminal System (Type CAT)	EA		x = \$	-
839585 Alternative Flared Terminal System	EA	8	x 3,000.00 = \$	24,000
839584 Alternative In-line Terminal System	EA	5	x 3,000.00 = \$	15,000
4906XX CIDH Concrete Piling (Insert Diameter)	LF		x = \$	-
839XXX Crash Cushion (Insert Type)	EA		x = \$	-
839701 Concrete Barrier (Type 60)	LF	650	x 100.00 = \$	65,000
520103 Bar Reinforced Steel (Retaining Wall)	LB		x = \$	-
510060 Structural Concrete, Retaining Wall	CY		x = \$	-
513553 Retaining Wall (Masonry Wall)	SQFT		x = \$	-
511035 Architectural Treatment	SQFT		x = \$	-
598001 Anti-Graffiti Coating	SQFT		x = \$	-
203070 Rock Stain	SQFT		x = \$	-
5136XX Reinforced Concrete Crib Wall (Type X)	SQFT		x = \$	-
731518 Minor Concrete (Brushed Concrete)	CY	400	x 150.00 = \$	60,000
750001 Miscellaneous Iron and Steel	LB	25,000	x = \$	-
83954X Transition Railing (Type X)	EA		x = \$	-
597601 Prepare and Stain Concrete	SQFT		x = \$	-
839561 Rail Tensioning Assembly	EA		x = \$	-
83958X End Anchor Assembly (Type SFT)	EA	4	x 750.00 = \$	3,000
832070 Vegetation Control (Minor Concrete)	SQYD	400	x 60.00 = \$	24,000

TOTAL SPECIALTY ITEMS	\$	515,000
------------------------------	-----------	----------------

SECTION 5: ENVIRONMENTAL

5A - ENVIRONMENTAL MITIGATION

Item code	Unit	Quantity	Unit Price (\$)	Cost
	LS		x = \$	-
130670	LF		x = \$	-
141000	LF	10,000	x 3.00 = \$	30,000
<i>Subtotal Environmental Mitigation</i>				\$ 30,000

5B - LANDSCAPE AND IRRIGATION

Item code	Unit	Quantity	Unit Price (\$)	Cost
20XXXX	LS	1	x 150,000.00 = \$	150,000
20XXXX	LS	1	x 100,000.00 = \$	100,000
204099	LS		x = \$	-
204101	LS		x = \$	-
20XXXX	LS		x = \$	-
150685	LS		x = \$	-
20XXXX	LS		x = \$	-
206400	LS		x = \$	-
21011X	CY/TON		x = \$	-
20XXXX	SQFT/SQYD		x = \$	-
200122	SQYD		x = \$	-
208304	EA		x = \$	-
<i>Subtotal Landscape and Irrigation</i>				\$ 250,000

5C - EROSION CONTROL

Item code	Unit	Quantity	Unit Price (\$)	Cost
210010	EA		x = \$	-
21035X	LS	1	x 150,000.00 = \$	150,000
210360	LF		x = \$	-
2102XX	LS		x = \$	-
21025X	SQFT/ACRE		x = \$	-
210300	SQFT		x = \$	-
210420	SQFT		x = \$	-
210430	SQFT		x = \$	-
210600	SQFT		x = \$	-
210630	SQFT		x = \$	-
<i>Subtotal Erosion Control</i>				\$ 150,000

5D - NPDES

Item code	Unit	Quantity	Unit Price (\$)	Cost
130300	LS	1	x 20,000.00 = \$	20,000
130200	LS		x = \$	-
130100	LS	1	x 40,000.00 = \$	40,000
130330	EA		x = \$	-
130310	EA		x = \$	-
130320	EA	80	x 1,000.00 = \$	80,000
130520	SQYD		x = \$	-
130550	SQYD		x = \$	-
130505	EA		x = \$	-
130640	LF	20,000	x 4.00 = \$	80,000
130900	LS		x = \$	-
130710	EA		x = \$	-
130610	LF		x = \$	-
130620	EA		x = \$	-
130730	LS		x = \$	-
<i>Subtotal NPDES</i>				\$ 220,000

TOTAL ENVIRONMENTAL	\$ 650,000
----------------------------	-------------------

Supplemental Work for NPDES

066595	LS		x = \$	-
066596	LS		x = \$	-
066597	LS		x = \$	-
XXXXXX	LS		x = \$	-
<i>Subtotal Supplemental Work for NDPS</i>				\$ -

*Applies to all SWPPPs and those WPCPs with sediment control or soil stabilization BMPs.

**Applies to both SWPPPs and WPCP projects.

*** Applies only to project with SWPPPs.

SECTION 6: TRAFFIC ITEMS**6A - Traffic Electrical**

Item code	Unit	Quantity	Unit Price (\$)	Cost
860460	Lighting and Sign Illumination	LS	1 x 1,320,000.00 = \$	1,320,000
860201	Signal and Lighting	LS	x = \$	-
860990	Closed Circuit Television System	LS	x = \$	-
86110X	Ramp Metering System (Location X)	LS	1 x 1,750,000.00 = \$	1,750,000
86070X	Interconnection Conduit and Cable	LF/LS	x = \$	-
5602XX	Furnish Sign Structure (Type X)	LB	x = \$	-
5602XX	Install Sign Structure (Type X)	LB	x = \$	-
498040	XX" CIDHC Pile (Sign Foundation)	LF	x = \$	-
86080X	Inductive Loop Detectors	EA/LS	x = \$	-
8609XX	Traffic Monitoring Station (Type X)	LS	1 x 4,160,000.00 = \$	4,160,000
15075X	Remove Sign Structure	EA/LS	x = \$	-
151581	Reconstruct Sign Structure	EA	x = \$	-
152641	Modify Sign Structure	EA	x = \$	-
<i>Subtotal Traffic Electrical</i>				\$ 7,230,000

6B - Traffic Signing and Striping

Item code	Unit	Quantity	Unit Price (\$)	Cost
498052	60" Cast-In-Drilled-Hole Concrete Pile (Sign Found)	LF	50 x 1,500.00 = \$	75,000
566011	Roadside Sign - One Post	EA	x = \$	-
566012	Roadside Sign - Two Post	EA	x = \$	-
560218	Furnish Sign Structure (Truss)	LB	38,000 x 5.00 = \$	190,000
560218	Install Sign Structure (Truss)	LB	38,000 x 1.00 = \$	38,000
566016	Install Sign Panel on Existing Frame	LB	x = \$	-
150712	Remove Painted Pavement Marking	SQFT	x = \$	-
150742	Remove Roadside Sign	EA	50 x 100.00 = \$	5,000
152320	Reset Roadside Sign	EA	x = \$	-
152390	Relocate Roadside Sign	EA	x = \$	-
82010X	Delineator (Class X)	EA	x = \$	-
846012	Thermo Crosswalk and Pav Marking	SQFT	x = \$	-
120090	Construction Area Signs	LS	x = \$	-
<i>Subtotal Traffic Signing and Striping</i>				\$ 308,000

6C - Traffic Management Plan

Item code	Unit	Quantity	Unit Price (\$)	Cost
12865X	Transportation Management Plan	LS	1 x \$ 550,000 = \$	550,000
<i>Subtotal Traffic Management Plan</i>				\$ 550,000

6D - Stage Construction and Traffic Handling

Item code	Unit	Quantity	Unit Price (\$)	Cost
120199	Traffic Plastic Drum	EA	x = \$	-
12016X	Channelizer (Type X)	EA	x = \$	-
120120	Type III Barricade	EA	x = \$	-
129100	Temporary Crash Cushion Module	EA	x = \$	-
120100	Traffic Control System	LS	x = \$	-
129110	Temporary Crash Cushion	EA	15 x 5,000.00 = \$	75,000
129000	Temporary Railing (Type K)	LF	30,000 x 8.00 = \$	240,000
120149	Temporary Pavement Marking (Paint)	SQFT	x = \$	-
82010X	Delineator (Class X)	EA	x = \$	-
<i>Subtotal Stage Construction and Traffic Handling</i>				\$ 315,000

TOTAL TRAFFIC ITEMS	\$ 8,403,000
----------------------------	---------------------

PROJECT COST ESTIMATE

EA: 04-4G111 PID: 412000630

SECTION 7: DETOURS

Includes constructing, maintaining, and removal

Item code	Unit	Quantity	Unit Price (\$)	Cost
190101	Roadway Excavation	CY	x	= \$ -
19801X	Imported Borrow	CY/TON	x	= \$ -
390132	Hot Mix Asphalt (Type A)	TON	x	= \$ -
26020X	Class 2 Aggregate Base	TON/CY	x	= \$ -
250401	Class 4 Aggregate Subbase	CY	x	= \$ -
130620	Temporary Drainage Inlet Protection	EA	150 x 200.00	= \$ 30,000
129000	Temporary Railing (Type K)	LF	x	= \$ -
128601	Temporary Signal System	LS	1 x 170,000.00	= \$ 170,000
120149	Temporary Pavement Marking (Paint)	SQFT	x	= \$ -
130680	Temporary Silt Fence	LF	10,000 x 4.00	= \$ 40,000
XXXXXX	Some Item	Unit	x	= \$ -
TOTAL DETOURS				\$ 240,000

SUBTOTAL SECTIONS 1 through 7 \$ 16,738,000

SECTION 8: MINOR ITEMS

8A - Americans with Disabilities Act Items

ADA Items 0.1% \$ 8,369

8B - Bike Path Items

Bike Path Items 0.0% \$ -

8C - Other Minor Items

Other Minor Items 6.0% \$ 1,004,280

Total of Section 1-7 \$ 16,738,000 x 6.1% = \$ 1,012,649

TOTAL MINOR ITEMS \$ 1,012,700

SECTIONS 9: MOBILIZATION

Item code 999990 Total Section 1-8 \$ 17,750,700 x 10% = \$ 1,775,070

TOTAL MOBILIZATION \$ 1,775,100

SECTION 10: SUPPLEMENTAL WORK

Item code	Unit	Quantity	Unit Price (\$)	Cost
066670	Payment Adjustments For Price Index Fluctuations	LS	1 x 150,000.00	= \$ 150,000
066094	Value Analysis	LS	1 x 20,000.00	= \$ 20,000
066070	Maintain Traffic	LS	1 x 200,000.00	= \$ 200,000
066919	Dispute Resolution Board	LS	1 x 30,000.00	= \$ 30,000
066921	Dispute Resolution Advisor	LS	x	= \$ -
066015	Federal Trainee Program	LS	1 x 16,000.00	= \$ 16,000
066610	Partnering	LS	1 x 100,000.00	= \$ 100,000
066204	Remove Rock and Debris	LS	x	= \$ -
066222	Locate Existing Crossover	LS	x	= \$ -
XXXXXX	Some Item	Unit	x	= \$ -

Cost of NPDES Supplemental Work specified in Section 5D = \$ -

Total Section 1-8 \$ 17,750,700 0% = \$ -

TOTAL SUPPLEMENTAL WORK \$ 516,000

SECTION 11: STATE FURNISHED MATERIALS AND EXPENSES

Item code		Unit	Quantity		Unit Price (\$)	=	Cost
066105	Resident Engineers Office	LS	1	x	400,000.00	=	\$400,000
066063	Traffic Management Plan - Public Information	LS		x		=	\$0
066901	Water Expenses	LS		x		=	\$0
8609XX	Traffic Monitoring Station (X)	LS		x		=	\$0
066841	Traffic Controller Assembly	LS		x		=	\$0
066840	Traffic Signal Controller Assembly	LS		x		=	\$0
066062	COZEEP Contract	LS	1	x	1,250,000.00	=	\$1,250,000
066838	Reflective Numbers and Edge Sealer	LS		x		=	\$0
066065	Tow Truck Service Patrol	LS		x		=	\$0
066916	Annual Construction General Permit Fee	LS		x		=	\$0
XXXXXX	Some Item	Unit		x		=	\$0
Total Section 1-8			\$ 17,750,700	x	4%	=	\$ 710,028

TOTAL STATE FURNISHED	\$2,360,100
------------------------------	--------------------

SECTION 12: TIME-RELATED OVERHEAD

Total of Roadway and Structures Contract Items excluding Mobilization \$33,244,200 (used to calculate TRO)
 Total Construction Cost (excluding TRO and Contingency) \$39,303,900 (used to check if project is greater than \$5 million excluding contingency)

Estimated Time-Related Overhead (TRO) Percentage (0% to 10%) = 10%

Item code		Unit	Quantity		Unit Price (\$)	=	Cost
070018	Time-Related Overhead	LS	1	X	\$3,324,500	=	\$3,324,500

TOTAL TIME-RELATED OVERHEAD	\$3,324,500
------------------------------------	--------------------

Note: If the building portion of the project is greater than 50% of the total project cost, then TRO is not included.

SECTION 13: ROADWAY CONTINGENCY

Recommended Contingency: (Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Total Section 1-11 \$ 25,210,400 x 15% = \$3,781,560

TOTAL CONTINGENCY	\$3,781,600
--------------------------	--------------------

II. STRUCTURE ITEMS

RETAINING WALLS

	3		3		3
DATE OF ESTIMATE	09/15/16		00/00/00		00/00/00
Retaining Walls	6		-		-
Bridge Number	TBD		-		-
Structure Type	-		-		-
Width (Feet) [out to out]	0 LF		0 LF		0 LF
Total Length (Feet)	0 LF		0 LF		0 LF
Total Area (Square Feet)	100800 SQFT		0 SQFT		0 SQFT
Structure Depth (Feet)	0 LF		0 LF		0 LF
Footing Type (pile or spread)	-		-		-
Cost Per Square Foot	\$140		\$0		\$0

Total Cost	\$14,084,000		\$0		\$0
	\$14,084,000.00	\$0.00	\$0.00	\$0.00	\$0.00
	0	0	0	0	0

	3		3		3
DATE OF ESTIMATE	00/00/00		00/00/00		00/00/00
Name	-		-		-
Bridge Number	-		-		-
Structure Type	-		-		-
Width (Feet) [out to out]	0 LF		0 LF		0 LF
Total Length (Feet)	0 LF		0 LF		0 LF
Total Area (Square Feet)	0 SQFT		0 SQFT		0 SQFT
Structure Depth (Feet)	0 LF		0 LF		0 LF
Footing Type (pile or spread)	-		-		-
Cost Per Square Foot	\$0		\$0		\$0

COST OF EACH	\$0		\$0		\$0
---------------------	------------	--	------------	--	------------

TOTAL COST OF BRIDGES	\$14,085,000
------------------------------	---------------------

TOTAL COST OF BUILDINGS	\$0
--------------------------------	------------

Structures Mobilization Percentage	10%	\$1,408,500
------------------------------------	-----	--------------------

Recommended Contingency: (Pre-PSR 30%-50%, PSR 25%, Draft PR 20%, PR 15%, after PR approval 10%, Final PS&E 5%)

Structures Contingency Percentage	10%	\$1,408,500
-----------------------------------	-----	--------------------

TOTAL COST OF STRUCTURES	\$16,902,000
---------------------------------	---------------------

Estimate Prepared By: William Li Wang
 Division of Structures

9/15/16
 Date

III. RIGHT OF WAY

Fill in all of the available information from the Right of Way data sheet.

A)	A1)	Acquisition, including Excess Land Purchases, Damages & Goodwill, Fees	-	0
	A2)	SB-1210	-	0
	A3)	Environmental Mitigation	\$	627,000
B)		Acquisition of Offsite Mitigation	-	0
C)	C1)	Utility Relocation (State Share)	\$	50,000
	C2)	Potholing (Design Phase)	-	0
D)		Railroad Acquisition	-	0
E)		Clearance / Demolition	-	0
F)		Relocation Assistance (RAP and/or Last Resort Housing Costs)	-	0
G)		Title and Escrow	-	0
H)		Environmental Review	-	0
I)		Condemnation Settlements	<u>0%</u>	0
J)		Design Appreciation Factor	<u>0%</u>	0
K)		Utility Relocation (Construction Cost)	-	0

L)	TOTAL RIGHT OF WAY ESTIMATE	\$677,000
----	------------------------------------	------------------

M)	RIGHT OF WAY SUPPORT	\$190,000
----	-----------------------------	------------------

Support Cost Estimate Prepared By Resham Haddox 510-286-5368
Project Coordinator¹ Phone

Utility Estimate Prepared By Dan Asprogerakas 510-286-5343
Utility Coordinator² Phone

RAW Acquisition Estimate Prepared By Lynn White 510-286-5444
Right of Way Estimator³ Phone

Note: Items G & H applied to items A + B

¹ When estimate has Support Costs only

² When estimate has Utility Relocation

³ When R/W Acquisition is required

Attachment C

Right of Way Data Sheet

TO: Special Projects

Date 11 | 3 | 16
Dist 4 Cb ALA Rte 680 PM
M0.0/R21.9Attention: ARLISSA PANG
District Branch Chief

EA 4G111 (04-1200-0630)

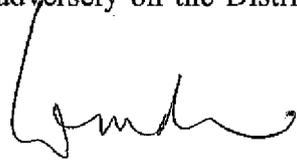
From: ENID LAU
Right of Way Resource ManagerFreeway Performance Initiative
D.S. #6786

Subject: Current Estimated Right of Way Costs

We have completed an estimate of the right of way costs for the above referenced project based on maps we received from you on October 24, 2016 and the following assumptions and limiting conditions.

- 1. The mapping did not provide sufficient detail to determine the limits of the right of way required.
- 2. The transportation facilities have not been sufficiently designed so our estimator could determine the damages to any of the remainder parcels affected by the project.
- 3. Additional right of way requirements are anticipated, but are not defined due to the preliminary nature of the early design requirements.
- 4. This estimate does not include \$ _____ right of way costs previously incurred on the project, which may affect the total project right of way costs for programming purposes.
- 5. We have determined there are no right of way functional involvements in the proposed project at this time, as designed.

Right of Way Lead Time will require a minimum of 6 months after we begin receiving final right of way requirements (PYPSCAN node No. 224), necessary environmental clearance has been obtained, and freeway agreements have been approved. From the date of receipt of final right of way requirements (PYPSCAN node No. 265), we will require a minimum of 4 months prior to the date of certification of the project. Shorter lead times will require either more right of way resources or an increased number of condemnation suits to be filed. Either of these actions may reflect adversely on the District's other programs or our public image generally.



Right of Way Resource Manager

Attachments:

- Right of Way Data Sheet – Page One (always required)
- Right of Way Data Sheet – All Pages (required when interest in real property is being acquired)
- Utility Information Sheet
- Railroad Information Sheet

RIGHT OF WAY DATA SHEET

TO: Special Projects

Date 10/31/2016 D.S. # 6786

Dist. 04 Co. Ala File # 680 PW/WD/R/21.9

EA 4G1110(0412000630)

ATTN: Arlissa Pang

Project Description: Freeway Performance Initiative

SUBJECT: Right of Way Data - Alternate No.

1. Right of Way Cost Estimate:

	Current Value (Future Use)	Escalation Rate	Escalated Value
A. Acquisition, including Excess Lands, Damages, and Goodwill	<u>\$0.00</u>	%	<u>\$0.00</u>
Environmental Mitigation			<u>\$627,000.00</u>
Grantor's Appraisal Cost			<u>\$0.00</u>
B. Utility Relocation (State Share)	<u>\$50,000.00</u>	%	<u>\$50,000.00</u>
C. Railroad (from page 6)			<u>\$0.00</u>
D. Relocation Assistance	<u>\$0.00</u>	%	<u>\$0.00</u>
E. Clearance Demolition	<u>\$0.00</u>	%	<u>\$0.00</u>
F. Title and Escrow Fees	<u>\$0.00</u>	%	<u>\$0.00</u>
G. <u>TOTAL ESCALATED VALUE</u>			<u>\$677,000.00</u>
H. Construction Contract Work	<u>\$0.00</u>		
I. Railroad Phase 4 Costs	<u>\$0.00</u>		

2. Anticipated Date of Right of Way Certification NJ Cert Date in PRSM

3. Parcel Data:

Type	Dual/Appr	Utilities	RR Involvements	
X		U4-1	None	X
A		-2	C&M Agrmt	
B		-3	R/W Agrmt	
C		-4	Design	
D		U5-7 2	Const.	
E	XXXX	-8	Lic/RE/Clauses	
F	XXXX	-9		
Misc R/W Work				
RAP Displ				0
Clear Demo				0
Const. Permits				0
Condemnation				0
Total				0

Areas: Right of Way

No. Excess Parcels Excess

Enter PMCS Screens N/A

By Paul S. [Signature]

4. Are there any major items of construction contract work?
Yes No (If yes, explain)
5. Provide a general description of the right of way and excess lands required(zoning, use, major improvements critical or sensitive parcels, etc.).
No right of way required.
6. Is there an effect on assessed valuation? (If yes explain)
Yes Not Significant No
7. Are utility facilities or rights of way affected? Yes No
If yes, attach Utility Information Sheet Exhibit 01-01-05)
8. Are railroad facilities or rights of way affected? Yes No
If yes, attach Railroad Information Sheet Exhibit 01-01-06)
9. Were any previously unidentified sites with hazardous waste and/or material found?
Yes None evident
(If yes, attach memorandum per Procedural Handbook Volume 1, Section 101.011)
10. Are RAP displacements required? Yes No
(If yes, provide the following information)
- No. of personal property relocations _____
- No. of single family _____ No. of business/non profit _____
- No. of multi-family _____ No. of farms _____
- Based on Draft / Final Relocation Impact Statement / Study dated _____, it is anticipated that sufficient replacement housing will / will not be available without Last Resort Housing.
11. Are material borrow and / or disposal sites required? Yes No
(If yes, explain)
12. Are there potential relinquishments / abandonments? Yes No
(If yes, explain)
13. Are there any existing and/or potential Airspace sites? Yes No
(If yes, explain)

14. Are there Environmental Mitigation costs? Yes No
(If yes, explain)
Per Arlissa Pang, mitigation costs are \$627,000.00 for permanent impact on 17.22 acres of species habitat and an Incidental Take Permit.
15. Indicate the anticipated Right of Way schedule and lead time requirements. (Discuss if District proposes less than PMCS lead time and / or if significant pressures for project advancement are anticipated.)

PYPSCAN lead time (from Regular R/W to project certification) 6 months.

16. Is it anticipated that all Right of Way work be performed by CALTRANS staff?
Yes No (If no, discuss)

Assumptions and Limiting Conditions

- This data sheet was completed without a hazardous waste/materials report.
- Information on this data sheet was based on maps provided by Arlissa Pang on 10/21/2016

Evaluation Prepared By: Lynn White

Right of Way: Name Lynn White Date 10-31-16

Railroad: Name Lynn White For Port Coggin's Date 10-31-16

Utilities: Name RAA Date 10-31-16

Recommended for Approval:

for Allison Spach
Right of Way Capital Cost Coordinator

I have personally reviewed this Right of Way Data Sheet and all supporting information. It is my opinion that the probable Highest and Best Use, estimated values, escalation rates, and assumptions are reasonable and proper subject to the limiting conditions set fourth, and find this Data Sheet complete and current.

Acting For Shawn Malloy
Chief, R/W Appraisal Services
Date 10-31-2016

cc: Program Manager
Project Manger

Right of Way Workplan

Date: 10/31/16

Project ID No: 044-1200A-08810

Project Manager: R. KIAAINA

Programmed RW Support: \$0

PA&ED Date of Transmittal: 10/3/16

RWCO Date: Not in Progress

Prepared by: R. HADDON

EA4G111

Please note that this estimate only contains the hours needed by RW Agents. You must also obtain an estimate from RW Engineering for a complete support cost total for the Office of Right of Way.

100.05	Start Date:	
Phase K	End Date:	
(Data Sheet & PHD)	Hours Needed	
0850 Acq/P&M O.C.		
0856 Proj. Coord.		

150	Start Date:	
Phase K	End Date:	
(Data Sheet & PHD)	Hours Needed	
0850 Acq/P&M O.C.		
0851 Appraisals O.C.		
0856 Proj. Coord.		
0859 Capital Mgmt.		
0860 Appraisals		
0867 Railroad		
0869 Utilities		

160	Start Date:	
Phase 0	End Date:	
(Util. Verifications, RR study, PR, &/or Updated DataSheet)	Hours Needed	
0850 Acq./P&M O.C.		
0851 Appraisal O.C.		
0856 Proj. Coord.		
0859 Capital Mgmt.	20	
0860 Appraisals		
0865 Acquisitions		
0867 Railroad		
0869 Utilities	100	
0876 Rip		
0882 Clerical		

165	Start Date:	
Phase 0	End Date:	
(Permits)	Hours Needed	
0850 Acq./P&M O.C.	0	
0856 Proj. Coord.	0	
0865 Acquisitions	0	
0882 Clerical	0	

185	Start Date:	
Phase 1	End Date:	
(Updated datasheet, if needed)	Hours Needed	
0850 Acq/P&M O.C.	2	
0851 Appraisals O.C.	2	
0856 Proj. Coord.	12	
0859 Capital Mgmt.	52	
0860 Appraisals	25	
0867 Railroad	2	
0869 Utilities	15	

255	Start Date:	
Phase 1	End Date:	
(Certification - PSE)	Hours Needed	
0856 Proj. Coord.	12	
0860 Appraisals		
0865 Acquisitions		
0867 Railroad	2	
0869 Utilities	2	
0876 RRAP		

100.25	Start Date:	10/3/2016
Phase 2	End Date:	
(Project Mgmt)	Hours Needed	
0850 Acq/P&M O.C.	0	
0856 Proj. Coord.	0	
0859 Capital Mgmt.	0	

195	Start Date:	
Phase 2	End Date:	
(Prop Mgmt & Excess Land)	Hours Needed	
0851 Appraisal O.C.		
0856 Proj. Coord.		
0860 Appraisals		
0872 Prop Mgmt		
0875 Excess Lands		
0874 Airspace		
0882 Clerical		

200	Start Date:	10/3/2016
Phase 2	End Date:	
(Utilities)	Hours Needed	
0852 Utilities O.C.	0	
0856 Proj. Coord.		
0859 Capital Mgmt		
0869 Utilities	0	
0882 Clerical	0	

225	Start Date:	10/1/2016
Phase 2	End Date:	
(Pre-Cert Work)	Hours Needed	
0850 Acq/P&M O.C.	0	
0851 Appraisals O.C.	0	
0856 Proj. Coord.		
0859 Capital Mgmt	0	
0860 Appraisals	0	
0865 Acquisitions	0	
0867 Railroad		
0868 Acq. Spec. (R.A.)		
0873 Demolition		
0876 RRAP		
0882 Clerical	0	

245	Start Date:	
Phase 2	End Date:	
(Post-Cert Work)	Hours Needed	
0850 Acq/P&M O.C.		
0851 Appraisals O.C.		
0859 Capital Mgmt	0	
0860 Appraisals		
0865 Acquisitions	0	
0867 Railroad		
0868 Acq. Spec. (R.A.)		
0873 Demolition		
0876 RRAP		
0882 Clerical		

Total hours required (RW Agents Only): 246

Total RW COS (RW Agents Only): \$33,210

Phase 2 only COS (RW Agents Only): \$0

Approved By:



Sunnie Stanton
District Branch Chief
RW Project Coordination

Please contact AJ Burgess for R/W Surveys and R/W Engineering support cost estimates.

Attachment D

Transportation Management Plan Data Sheet

TRANSPORTATION MANAGEMENT PLAN DATA SHEET

(Preliminary TMP Elements and Costs)

Co/Rte/PM ALA/680/M0.0-R21.9 EA 4G1111 Project Engineer Hoa-Anh Le
 ID 0412000630

Project Limit In Alameda County, on Route 680 at various locations from 0.3 mile South of Scott Creek Undercrossing to 0.3 mile North of Alcosta Blvd Overcrossing.

Project Description Installation and implementation of Traffic Operation System equipment which includes 13 closed circuit television (CCTV), 3 changeable message signs (CMS), and 50 one-directional traffic monitoring stations (TMS).

1) Public Information

- a. Brochures and Mailers \$ _____
- b. Press Release \$ _____
- c. Paid Advertising \$ _____
- d. Public Information Center/Kiosk \$ _____
- e. Public Meeting/Speakers Bureau \$ _____
- f. Telephone Hotline \$ _____
- g. Internet, E-mail \$ _____
- h. Notification to impacted groups (i.e. bicycle users, pedestrians with disabilities, others...)
- i. Others As determined by PIO \$ 15,000.00

2) Traveler Information Strategies

- a. Changeable Message Signs (Fixed) \$ _____
- b. Changeable Message Signs (Portable) \$ 250,000.00
- c. Ground Mounted Signs \$ 50,000.00
- d. Highway Advisory Radio \$ _____
- e. Caltrans Highway Information Network (CHIN) \$ _____
- f. Detour maps (i.e. bicycle, vehicle, pedestrian...etc)
- g. Revised Transit Schedules/maps
- h. Bicycle community information
- i. Others \$ _____

3) Incident Management

- a. Construction Zone Enhanced Enforcement Program (COZEEP) \$ 1,250,000.00
- b. Freeway Service Patrol \$ _____
- c. Traffic Management Team \$ _____
- d. Helicopter Surveillance \$ _____
- e. Traffic Surveillance Stations (Loop Detector and CCTV) \$ _____
- f. Others \$ _____

Attachment E

Cooperative Agreement

COOPERATIVE AGREEMENT

This agreement, effective on April 15, 2010, is between the State of California, acting through its Department of Transportation, referred to as CALTRANS, and:

METROPOLITAN TRANSPORTATION COMMISSION, acting as the Bay Area Metropolitan Planning Organization, referred to as MTC.

RECITALS

1. CALTRANS and MTC, collectively referred to as PARTNERS, are authorized to enter into a cooperative agreement for improvements within the SHS right of way per Streets and Highways Code sections 114 and/or 130.
2. This agreement is part of a collaborative effort between MTC and CALTRANS to implement the Freeway Performance Initiative Projects as adopted in MTC's Transportation 2035 Plan. As part of this effort, CALTRANS agreed to contribute an amount of State Highway Operation and Protection Program (SHOPP) as provided hereunder. The first phase was fully funded through the American Recovery and Reinvestment Act of 2009 (ARRA) funds. This cooperative agreement is for the second phase. The estimated support cost for the two phases combined is \$54 Million, and CALTRANS is programming \$27 Million in SHOPP capital as agreed.
3. WORK completed under this agreement contributes toward installation of ramp metering and Traffic Operations Systems (TOS) at various locations identified in the attached PROJECT LIST, within the Counties of Alameda, Santa Clara and Solano, referred to as PROJECT.
4. PARTNERS will cooperate to perform PA&ED, PS&E, R/W and CONSTRUCTION.
5. Prior to this agreement, CALTRANS developed the Project Initiation Document.
6. The estimated date for COMPLETION OF WORK is November 30, 2015.
7. PARTNERS now define in this agreement the terms and conditions under which they will accomplish WORK.

DEFINITIONS

CALTRANS STANDARDS – CALTRANS policies and procedures, including, but not limited to, the guidance provided in the *Guide to Capital Project Delivery Workplan Standards* (previously known as WBS Guide) available at <http://www.dot.ca.gov/hq/projmgmt/guidance.htm>.

CEQA – The California Environmental Quality Act (California Public Resources Code, sections 21000 et seq.) that requires State and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those significant impacts, if feasible.

COMPLETION OF WORK – All PARTNERS have met all scope, cost, and schedule commitments included in this agreement and have signed a COOPERATIVE AGREEMENT CLOSURE STATEMENT.

CONSTRUCTION – The project component that includes the activities involved in the administration, acceptance, and final documentation of a construction contract for PROJECT.

COOPERATIVE AGREEMENT CLOSURE STATEMENT – A document signed by PARTNERS that verifies the completion of all scope, cost, and schedule commitments included in this agreement.

FHWA – Federal Highway Administration.

FHWA STANDARDS – FHWA regulations, policies and procedures, including, but not limited to, the guidance provided at <http://www.fhwa.dot.gov/programs.html>.

FUNDING PARTNER – A partner who commits a defined dollar amount to WORK.

FUNDING SUMMARY - The table in which PARTNERS designate funding sources, types of funds, and the project components in which the funds are to be spent. Funds listed on the FUNDING SUMMARY are "not-to-exceed" amounts for each FUNDING PARTNER.

HM-1 – Hazardous material (including, but not limited to, hazardous waste) that may require removal and disposal pursuant to federal or state law whether it is disturbed by PROJECT or not.

HM-2 – Hazardous material (including, but not limited to, hazardous waste) that may require removal and disposal pursuant to federal or state law only if disturbed by PROJECT.

HM MANAGEMENT ACTIVITIES – Management activities related to either HM-1 or HM-2 including, without limitation, any necessary manifest requirements and disposal facility designations.

IMPLEMENTING AGENCY -- The partner responsible for managing the scope, cost, and schedule of a project component to ensure the completion of that component.

IQA – Independent Quality Assurance – Ensuring that IMPLEMENTING AGENCY’S quality assurance activities result in WORK being developed in accordance with the applicable standards and within an established Quality Management Plan. IQA does not include any work necessary to actually develop or deliver WORK or any validation by verifying or rechecking work performed by another partner.

NEPA – The National Environmental Policy Act of 1969 that establishes a national policy for the environment and a process to disclose the adverse impacts of projects with a federal nexus.

PA&ED (Project Approval and Environmental Document) – The project component that includes the activities required to deliver the project approval and environmental documentation for PROJECT.

PARTNERS – The term that collectively references all of the signatory agencies to this agreement. This term only describes the relationship between these agencies to work together to achieve a mutually beneficial goal. It is not used in the traditional legal sense in which one partner’s individual actions legally bind the other partners.

PROJECT MANAGEMENT PLAN – A group of documents used to guide a project’s execution and control throughout the project’s lifecycle.

PS&E (Plans, Specifications, and Estimate) – The project component that includes the activities required to deliver the plans, specifications, and estimate for PROJECT.

RESIDENT ENGINEER – A civil engineer licensed in the State of California who is responsible for construction contract administration activities. Said engineer shall be independent of the design engineering company and the construction contractor.

R/W (Right of Way) – The project component that includes the activities required to deliver the right of way for PROJECT.

SAFETEA-LU – The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, signed into federal law on August 10, 2005.

SCOPE SUMMARY – The table in which PARTNERS designate their commitment to specific scope activities within each project component as outlined by the *Guide to Capital Project Delivery Workplan Standards* (previously known as WBS Guide) available at <http://www.dot.ca.gov/hq/projmgmt/guidance.htm>.

SHS – State Highway System.

SPONSOR(S) – Any PARTNER that accepts the responsibility to establish scope of WORK, and accepts the obligation to secure financial resources to fund PROJECT. SPONSOR has the right to adjust the scope of WORK with the written recommendation by CALTRANS.

SFM (State Furnished Material) – Any materials or equipment supplied by CALTRANS.

WORK – All scope and cost commitments included in this agreement.

RESPONSIBILITIES

8. MTC is SPONSOR for 100% of all WORK.
9. CALTRANS and MTC are FUNDING PARTNERS for this agreement. Their funding commitments are defined in the FUNDING SUMMARY.
10. CALTRANS is the CEQA lead agency for PROJECT.
11. CALTRANS is the NEPA lead agency for PROJECT.
12. CALTRANS is IMPLEMENTING AGENCY for PA&ED, PS&E, R/W and CONSTRUCTION.

SCOPE

Scope: General

13. All WORK will be performed in accordance with federal and California laws, regulations, and standards.

All WORK will be performed in accordance with FHWA STANDARDS and CALTRANS STANDARDS.
14. IMPLEMENTING AGENCY for a project component will provide a Quality Management Plan for that component as part of the PROJECT MANAGEMENT PLAN.
15. PARTNERS may, at their own expense, have a representative observe any scope, cost, or schedule commitments performed by another partner. Observation does not constitute authority over those commitments.
16. Each partner will ensure that all of their personnel participating in WORK are appropriately qualified to perform the tasks assigned to them.
17. PARTNERS will invite each other to participate in the selection and retention of any consultants who participate in WORK.
18. PARTNERS will conform to sections 1720 – 1815 of the California Labor Code and all applicable regulations and coverage determinations issued by the Director of Industrial Relations if PROJECT work is done under contract (not completed by a partner's own

employees) and is governed by the Labor Code's definition of a "public work" (section 1720(a)(1)).

PARTNERS will include wage requirements in all contracts for "public work" and will require their contractors and consultants to include prevailing wage requirements in all agreement-funded subcontracts for "public work".

19. IMPLEMENTING AGENCY for each project component included in this agreement will be available to help resolve WORK-related problems generated by that component for the entire duration of PROJECT.
20. CALTRANS will issue, upon proper application, at no cost, the encroachment permits required for WORK within SHS right of way.

Contractors and/or agents, and utility owners will not perform WORK without an encroachment permit issued in their name.

21. If unanticipated cultural, archaeological, paleontological, or other protected resources are discovered during WORK, all work in that area will stop until a qualified professional can evaluate the nature and significance of the discovery and a plan is approved for its removal or protection.
22. All administrative draft and administrative final reports, studies, materials, and documentation relied upon, produced, created, or utilized for PROJECT will be held in confidence, and where applicable, Government Code section 6254.5(e) shall protect the confidentiality of such documents in the event said documents are shared between PARTNERS

PARTNERS will not distribute, release, or share said documents with anyone other than employees, agents, and consultants who require access to complete WORK without the written consent of the partner authorized to release them, unless required or authorized to do so by law.

23. If any partner receives a public records request, pertaining to WORK under this agreement, that partner will notify PARTNERS within five (5) working days of receipt and make PARTNERS aware of any transferred public documents.
24. If HM-1 or HM-2 is found during WORK, IMPLEMENTING AGENCY for the project component during which it is found will immediately notify PARTNERS.
25. CALTRANS, independent of PROJECT, is responsible for any HM-1 found within existing SHS right of way. CALTRANS will undertake HM-1 MANAGEMENT ACTIVITIES with minimum impact to PROJECT schedule.
26. If HM-1 is found outside existing SHS right of way, responsibility for such HM-1 rests with the owner(s) of the parcel(s) on which the HM-1 is found. PARTNERS, in concert

with the local agencies having land use jurisdiction over the parcel(s), will ensure that HM-1 MANAGEMENT ACTIVITIES are undertaken with minimum impact to PROJECT schedule.

27. If HM-2 is found within PROJECT limits, the public agency responsible for the advertisement, award, and administration (AAA) of the PROJECT construction contract will be responsible for HM-2 MANAGEMENT ACTIVITIES.
28. CALTRANS' acquisition or acceptance of title to any property on which any HM-1 or HM-2 is found will proceed in accordance with CALTRANS' policy on such acquisition.
29. PARTNERS will comply with all of the commitments and conditions set forth in the environmental documentation, environmental permits, approvals, and applicable agreements as those commitments and conditions apply to each partner's responsibilities in this agreement.
30. IMPLEMENTING AGENCY for each project component will furnish PARTNERS with written monthly progress reports, including schedule and cost, broken out by construction contract, signed by the CALTRANS Deputy District Director or their designee, during the implementation of WORK in that component. PARTNERS will have regularly scheduled status meetings.
31. Upon COMPLETION OF WORK, ownership and title to all materials and equipment constructed or installed as part of WORK within SHS right of way become the property of CALTRANS.
32. IMPLEMENTING AGENCY for a project component will accept, reject, compromise, settle, or litigate claims of any non-agreement parties hired to do WORK in that component.
33. PARTNERS will confer on any claim that may affect WORK or PARTNERS' liability or responsibility under this agreement in order to retain resolution possibilities for potential future claims. No partner shall prejudice the rights of another partner until after PARTNERS confer on claim.
34. CALTRANS shall maintain full and adequate PROJECT books, records, and accounts in accordance with CALTRANS' standard governmental accounting practices. All such books, records, accounts, and any and all work products, materials, and other data relevant to PROJECT performance under this Agreement shall be retained by CALTRANS for a minimum of four (4) years following the fiscal year of the last CALTRANS expenditure for construction costs made under this Agreement.
35. CALTRANS shall permit MTC and its authorized representatives to have, during normal business hours, access to CALTRANS' books, records, accounts, and any and all work products, materials, and other data relevant to this Agreement for the purpose of making an audit, examination, excerpt and transcription during the term of this Agreement and for the

period specified in Section 34 above. Such permission shall extend to books, records, accounts, and any and all work products, materials, and other data relevant to this Agreement of such parties, including third-party contractors. CALTRANS shall not dispose of, destroy, alter, or mutilate said books, records, accounts, work products, materials and data for that period of time.

36. PARTNERS consent to service of process by mailing copies by registered or certified mail, postage prepaid. Such service becomes effective 30 calendar days after mailing. However, nothing in this agreement affects PARTNERS' rights to serve process in any other matter permitted by law.
37. PARTNERS will not incur costs beyond the funding commitments in this agreement. If IMPLEMENTING AGENCY anticipates that funding for WORK will be insufficient to complete WORK. IMPLEMENTING AGENCY shall recommend a solution for re-scoping the PROJECT so that WORK may be completed within the budget specified under FUNDING SUMMARY. The solution shall be submitted to SPONSOR(S), in writing. SPONSOR(S) may either approve the solution or direct IMPLEMENTING AGENCY to make revisions and resubmit for approval.
38. IMPLEMENTING AGENCY has no obligation to perform WORK if funds to perform WORK are unavailable.
39. If WORK stops for any reason, IMPLEMENTING AGENCY will place all facilities impacted by WORK in a safe and operable condition acceptable to CALTRANS.
40. If WORK stops for any reason, PARTNERS are still obligated to implement all applicable commitments and conditions included in the PROJECT environmental documentation, permits, agreements, or approvals that are in effect at the time that WORK stops, as they apply to each partner's responsibilities in this agreement, in order to keep PROJECT in environmental compliance until WORK resumes.
41. Each partner accepts responsibility to complete the activities that they selected on the SCOPE SUMMARY. Activities marked with "N/A" on the SCOPE SUMMARY are not included in the scope of this agreement.

Scope: Project Approval and Environmental Document (PA&ED)

42. CALTRANS is the CEQA lead agency. CALTRANS will determine the type of environmental documentation required and will cause that documentation to be prepared.
43. All partners involved in the preparation of CEQA environmental documentation will follow the CALTRANS STANDARDS that apply to the CEQA process including, but not limited to, the guidance provided in the Standard Environmental Reference available at www.dot.ca.gov/ser.

44. Pursuant to SAFETEA-LU Section 6004 and/or 6005, CALTRANS is the NEPA lead agency for PROJECT and will assume responsibility for NEPA compliance and will prepare any needed NEPA environmental documentation or will cause that documentation to be prepared.
45. All partners involved in the preparation of NEPA environmental documentation will follow FHWA STANDARDS that apply to the NEPA process including, but not limited to, the guidance provided in the FHWA Environmental Guidebook available at www.fhwa.dot.gov/hep/index.htm.
46. CALTRANS will prepare the appropriate environmental documentation to meet CEQA requirements.
47. CALTRANS will prepare the appropriate NEPA environmental documentation to meet NEPA requirements.
48. Any partner preparing any portion of the CEQA environmental documentation, including any studies and reports, will submit that portion of the documentation to the CEQA lead agency for review, comment, and approval at appropriate stages of development prior to public availability.
49. Any partner preparing any portion of the NEPA environmental documentation (including, but not limited to, studies, reports, public notices, and public meeting materials, determinations, administrative drafts, and final environmental documents) will submit that portion of the documentation to CALTRANS for CALTRANS' review, comment, and approval prior to public availability.
50. CALTRANS will prepare, publicize and circulate all CEQA-related public notices and will submit said notices to the CEQA lead agency for review, comment, and approval prior to publication and circulation.
51. CALTRANS will prepare, publicize, and circulate all NEPA-related public notices. CALTRANS will work with the appropriate federal agency to publish notices in the Federal Register.
52. The CEQA lead agency will attend all CEQA-related public meetings.
53. CALTRANS will plan, schedule, prepare materials for, and host all CEQA-related public meetings and will submit all materials to the CEQA lead agency for review, comment, and approval at least 10 working days prior to the public meeting date.
54. The NEPA lead agency will attend all NEPA-related public meetings.
55. CALTRANS will plan, schedule, prepare materials for, and host all NEPA-related public meetings.

56. If a partner who is not the CEQA or NEPA lead agency holds a public meeting about PROJECT, that partner must clearly state their role in PROJECT and the identity of the CEQA and NEPA lead agencies on all meeting publications. All meeting publications must also inform the attendees that public comments collected at the meetings are not part of the CEQA or NEPA public review process.

That partner will submit all meeting advertisements, agendas, exhibits, handouts, and materials to the appropriate lead agency for review, comment, and approval at least 10 working days prior to publication or use. If that partner makes any changes to the materials, that partner will allow the appropriate lead agency to review, comment on, and approve those changes three (3) working days prior to the public meeting date.

The CEQA lead agency maintains final editorial control with respect to text or graphics that could lead to public confusion over CEQA-related roles and responsibilities. The NEPA lead agency has final approval authority with respect to text or graphics that could lead to public confusion over NEPA-related roles and responsibilities.

57. The partner preparing the environmental documentation, including the studies and reports, will ensure that qualified personnel remain available to help resolve environmental issues and perform any necessary work to ensure that PROJECT remains in environmental compliance.
58. CALTRANS will coordinate the following resource agency permits, agreements, and/or approvals: U.S. Army Corps of Engineers Permit (404), U.S. Forest Service Permit(s), U.S. Coast Guard Permit, Department of Fish and Game 1600 Agreement(s), Coastal Zone Development Permit, Waste Discharge (NPDES) Permit, U.S. Fish and Wildlife Service Approval, Regional Water Quality Control Board 401 Permit, and Other Permits.
59. CALTRANS will obtain the following resource agency permits, agreements, and/or approvals: U.S. Army Corps of Engineers Permit (404), U.S. Forest Service Permit(s), U.S. Coast Guard Permit, Department of Fish and Game 1600 Agreement(s), Coastal Zone Development Permit, Waste Discharge (NPDES) Permit, Regional Water Quality Control Board 401 Permit, and Other Permits.
60. CALTRANS will implement the following resource agency permits, agreements, and/or approvals: U.S. Army Corps of Engineers Permit (404), U.S. Forest Service Permit(s), U.S. Coast Guard Permit, Department of Fish and Game 1600 Agreement(s), Coastal Zone Development Permit, Waste Discharge (NPDES) Permit, Regional Water Quality Control Board 401 Permit, and Other Permits.

Scope: Plans, Specifications, and Estimate (PS&E)

61. CALTRANS will ensure that the engineering firm preparing the plans, specifications, and estimate will not be employed by or under contract to the PROJECT construction contractor.

CALTRANS will not employ the engineering firm preparing the plans, specifications, and estimate for construction management of PROJECT.

However, CALTRANS may retain the engineering firm during CONSTRUCTION to check shop drawings, do soil foundation tests, test construction materials, and perform construction surveys.

62. CALTRANS will identify and locate all utility facilities within PROJECT area as part of PS&E responsibilities. All utility facilities not relocated or removed in advance of construction will be identified on the plans, specifications, and estimate for PROJECT.
63. CALTRANS will coordinate the following resource agency permits, agreements, and/or approvals: U.S. Army Corps of Engineers Permit (404), U.S. Forest Service Permit(s), U.S. Coast Guard Permit, Department of Fish and Game 1600 Agreement(s), Coastal Zone Development Permit, Waste Discharge (NPDES) Permit, U.S. Fish and Wildlife Service Approval, Regional Water Quality Control Board 401 Permit and Other Permits.
64. CALTRANS will obtain the following resource agency permits, agreements, and/or approvals: U.S. Army Corps of Engineers Permit (404), U.S. Forest Service Permit(s), U.S. Coast Guard Permit, Department of Fish and Game 1600 Agreement(s), Coastal Zone Development Permit, Waste Discharge (NPDES) Permit, Regional Water Quality Control Board 401 Permit, and Other Permits.
65. CALTRANS will implement the following resource agency permits, agreements, and/or approvals: U.S. Army Corps of Engineers Permit (404), U.S. Forest Service Permit(s), U.S. Coast Guard Permit, Department of Fish and Game 1600 Agreement(s), Coastal Zone Development Permit, Waste Discharge (NPDES) Permit, U.S. Fish and Wildlife Service Approval, Regional Water Quality Control Board 401 Permit, and Other Permits.

Scope: Right of Way (R/W)

66. CALTRANS will provide a land surveyor licensed in the State of California to be responsible for surveying and right of way engineering. All survey and right of way engineering documents shall bear the professional seal, certificate number, registration classification, expiration date of certificate, and signature of the responsible surveyor.
67. CALTRANS will make all necessary arrangements with utility owners for the timely accommodation, protection, relocation, or removal of any existing utility facilities that conflict with construction of PROJECT or that violate CALTRANS' encroachment policy.
68. CALTRANS will perform all right of way activities.
69. CALTRANS will provide a Right of Way Certification prior to PROJECT advertisement.
70. The California Transportation Commission will hear any Resolutions of Necessity.

Scope: CONSTRUCTION

71. For each construction contract identified in the PROJECT LIST, IMPLEMENTING AGENCY shall post on both ends of the construction site(s) signs visible to the public stating that the PROJECT is funded with Federal and State funds.
72. CALTRANS will advertise, open bids, award, and approve the construction contract in accordance with the Public Contract Code and the California Labor Code.

CALTRANS will not advertise the construction contract until CALTRANS completes or accepts the final plans, specifications, and estimate package; CALTRANS approves the Right of Way Certification; and FUNDING PARTNERS fully fund WORK.

By accepting responsibility to advertise and award the construction contract, CALTRANS also accepts responsibility to administer the construction contract.
73. CALTRANS will provide a RESIDENT ENGINEER and construction support staff who are independent of the design engineering company and construction contractor.
74. PARTNERS will implement changes to the construction contract through contract change orders (CCOs). PARTNERS will review and concur on all CCOs over \$20,000. All CCOs affecting public safety or the preservation of property, all design and specification changes, and all major changes as defined in the CALTRANS *Construction Manual* will be approved by CALTRANS in advance of the CCO work to be performed.
75. PARTNERS will use a CALTRANS-approved construction contract claims process, will administer all claims through said process, and will be available to provide advice and technical input in any claims process.
76. If the lowest responsible construction contract bid (plus estimated contingencies, supplemental costs and State Furnished Material costs) is equal to or less than the amount of the Engineer's Estimate, the IMPLEMENTING AGENCY may award the contract. If the lowest responsible construction contract bid is greater than the amount of the Engineer's Estimate, all PARTNERS must be involved in determining how to proceed. If PARTNERS do not agree in writing on a course of action within 15 working days, this agreement will terminate.
77. CALTRANS will require the construction contractor to furnish payment and performance bonds naming CALTRANS as obligee and to carry liability insurance in accordance with CALTRANS specifications.
78. CALTRANS will coordinate the following resource agency permits, agreements, and/or approvals: U.S. Army Corps of Engineers Permit (404), U.S. Forest Service Permit(s), U.S. Coast Guard Permit, Department of Fish and Game 1600 Agreement(s), Coastal Zone Development Permit, Waste Discharge (NPDES) Permit, U.S. Fish and Wildlife Service Approval, Regional Water Quality Control Board 401 Permit, and Other Permits.

79. CALTRANS will obtain the following resource agency permits, agreements, and/or approvals: U.S. Army Corps of Engineers Permit (404), U.S. Forest Service Permit(s), U.S. Coast Guard Permit, Department of Fish and Game 1600 Agreement(s), Coastal Zone Development Permit, Waste Discharge (NPDES) Permit, U.S. Fish and Wildlife Service Approval, Regional Water Quality Control Board 401 Permit, and Other Permits.
80. CALTRANS will implement the following resource agency permits, agreements, and/or approvals: U.S. Army Corps of Engineers Permit (404), U.S. Forest Service Permit(s), U.S. Coast Guard Permit, Department of Fish and Game 1600 Agreement(s), Coastal Zone Development Permit, Waste Discharge (NPDES) Permit, U.S. Fish and Wildlife Service Approval, Regional Water Quality Control Board 401 Permit, and Other Permits.
81. CALTRANS will renew, extend, and/or amend all resource agency permits as necessary.
82. CALTRANS will provide maintenance for those portions of the SHS within WORK limits until COMPLETION OF WORK, after which, CALTRANS assumes full responsibility for maintenance.
83. CALTRANS will provide maintenance for those portions of the SHS within WORK limits until COMPLETION OF WORK and assumes full responsibility for maintenance thereafter.

COST

Cost: General

84. Any change to the funding commitments outlined in this agreement requires an amendment to this agreement.
85. CALTRANS understands the funding deadlines associated with funds provided by MTC and will comply with the applicable provisions and requirements of the Regional Project Funding Delivery Policy (MTC Resolution No. 3606, as revised).
86. Any and all cost saving from the PROJECT will be applied to contingency projects to be selected by MTC, subject to the requirements of law, and agreed to by CALTRANS in writing. All such selected contingency projects shall be added to the SCOPE SUMMARY, PROJECT LIST, and PROJECT SCHEDULE and incorporated herein without need for amending this Agreement.
87. Toll Credits are being used in lieu of all of the required State match for CMAQ funds as authorized by Title 23, US Code, Section 120 (j).
88. If upon opening of bids for the contract to construct PROJECT, it is found that the lowest responsible bid is below the Engineer's Estimate, (A) 100% SHOPP funds shall be

allocated to the PROJECT, and will be fully committed to CAPITAL COST; (B) remaining allocation shall be CMAQ/ CMIA/ RTIP/ LOCAL FUNDS; and (C) the savings between the Engineer's Estimate and the bid award amount shall be credited to CMAQ/ CMIA/ RTIP/ LOCAL FUNDS. Any initial savings will remain available for future CAPITAL COST increases. Any increase in the CAPITAL COST after this savings adjustment shall be from CMAQ/ CMIA/ RTIP/ LOCAL FUNDS.

89. The cost of any awards, judgments, or settlements generated by WORK is a WORK cost.
90. CALTRANS, independent of PROJECT, will pay all costs for HM MANAGEMENT ACTIVITIES related to HM-1 found within existing SHS right of way.
91. Independent of PROJECT, all costs for MANAGEMENT ACTIVITIES related to HM-1 found outside the existing SHS right of way will be the responsibility of the owner(s) of the parcel(s) where the HM-1 is located.
92. HM MANAGEMENT ACTIVITIES costs related to HM-2 are a PROJECT CONSTRUCTION cost.
93. The cost of coordinating, obtaining, complying with, implementing, and if necessary renewing and amending resource agency permits, agreements, and/or approvals is a WORK cost.
94. The cost to comply with and implement the commitments set forth in the environmental documentation is a WORK cost.
95. The cost to ensure that PROJECT remains in environmental compliance is a WORK cost.
96. The cost of any legal challenges to the CEQA or NEPA environmental process or documentation is a WORK cost.
97. Independent of WORK costs, CALTRANS will fund the cost of its own IQA for WORK done within existing or proposed future SHS right of way.
98. Independent of WORK costs, MTC will fund the cost of its own IQA for WORK done outside existing or proposed future SHS right of way.
99. Fines, interest, or penalties levied against any partner will be paid, independent of WORK costs, by the partner whose actions or lack of action caused the levy. That partner will indemnify and defend all other partners.
100. CALTRANS will administer all federal subvention funds identified on the FUNDING SUMMARY.
101. The cost to place PROJECT right of way in a safe and operable condition and meet all environmental commitments is a WORK cost.

102. Because IMPLEMENTING AGENCY is responsible for managing the scope, cost, and schedule of a project component, if there are insufficient funds available in this agreement to place the right of way in a safe and operable condition, the appropriate IMPLEMENTING AGENCY accepts responsibility to fund these activities until such time as PARTNERS amend this agreement.

That IMPLEMENTING AGENCY may request reimbursement for these costs during the amendment process.

103. If there are insufficient funds in this agreement to implement applicable commitments and conditions included in the PROJECT environmental documentation, permits, agreements, and/or approvals that are in effect at a time that WORK stops, the partner implementing the commitments or conditions accepts responsibility to fund these activities until such time as PARTNERS amend this agreement.

That partner may request reimbursement for these costs during the amendment process.

104. PARTNERS will pay invoices within 30 calendar days of receipt.
105. FUNDING PARTNERS accept responsibility to provide the funds identified on the FUNDING SUMMARY.
106. SPONSOR(S) accepts responsibility to ensure full funding for the identified scope of work.

Cost: Project Approval and Environmental Document (PA&ED)

107. The cost to prepare, publicize, and circulate all CEQA and NEPA-related public notices is a WORK cost.
108. The cost to plan, schedule, prepare, materials for, and host all CEQA and NEPA-related public meetings is a WORK cost.
109. CALTRANS will invoice MTC if funding is from sources other than federal funds or STATE funds.

Cost: Right of Way (R/W) Support

110. The cost to positively identify and locate, protect, relocate, or remove any utility facilities whether inside or outside SHS right of way will be determined in accordance with federal and California laws and regulations, and CALTRANS' policies, procedures, standards, practices, and applicable agreements including, but not limited to, Freeway Master Contracts.

111. CALTRANS will invoice MTC if funding is from sources other than federal or State funds.

Cost: CONSTRUCTION Support

112. The cost to maintain the SHS within WORK limits is WORK cost until COMPLETION OF WORK, after which CALTRANS assumes the cost of maintenance.
113. CALTRANS will invoice MTC if funding is from sources other than federal or State funds.

Cost: CONSTRUCTION Capital

114. CALTRANS will fund the cost of STATE-FURNISHED MATERIAL as a CONSTRUCTION capital cost.
115. CALTRANS will invoice MTC if funding is from sources other than federal or State funds.

SCHEDULE

116. PARTNERS will manage the schedule for WORK through the work plan included in the PROJECT MANAGEMENT PLAN.

GENERAL CONDITIONS

117. This agreement will be understood in accordance with and governed by the Constitution and laws of the State of California. This agreement will be enforceable in the State of California. Any legal action arising from this agreement will be filed and maintained in the Superior Court of the county in which the CALTRANS district office signatory to this agreement resides.
118. CALTRANS invoices for support costs including all direct and applicable indirect costs. Applicable indirect costs are determined by the type of funds being used to pay for support. State and federal funds are subject to the Program Functional Rate. Local funds (Measure money, developer fees, special assessments, etc.) are subject to the Program Functional Rate and the Administration Rate. CALTRANS establishes the Program Functional Rate and the Administration Rate annually according to State and Federal regulations.
119. All obligations of CALTRANS under the terms of this agreement are subject to the appropriation of resources by the Legislature, the State Budget Act authority, and the allocation of funds by the California Transportation Commission.

120. Any PARTNER who performs IQA does so for its own benefit, further, that PARTNER cannot be assigned liability due to its IQA activities.
121. Neither MTC nor any officer or employee thereof is responsible for any injury, damage or liability occurring by reason of anything done or omitted to be done by CALTRANS under or in connection with any work, authority, or jurisdiction conferred upon CALTRANS under this agreement.

It is understood and agreed that CALTRANS will fully defend, indemnify, and save harmless MTC and all of its officers and employees from all claims, suits, or actions of every name, kind, and description brought forth under, but not limited to, tortious, contractual, inverse condemnation, or other theories or assertions of liability occurring by reason of anything done or omitted to be done by CALTRANS under this agreement.

122. Neither CALTRANS nor any officer or employee thereof is responsible for any injury, damage, or liability occurring by reason of anything done or omitted to be done by MTC under or in connection with any work, authority, or jurisdiction conferred upon MTC under this agreement.

It is understood and agreed that MTC will fully defend, indemnify, and save harmless CALTRANS and all of its officers and employees from all claims, suits, or actions of every name, kind, and description brought forth under, but not limited to, tortious, contractual, inverse condemnation, or other theories or assertions of liability occurring by reason of anything done or omitted to be done by MTC under this agreement.

123. This agreement is not intended to create a third party beneficiary or define duties, obligations, or rights in parties not signatory to this agreement. This agreement is not intended to affect the legal liability of PARTNERS by imposing any standard of care for completing WORK different from the standards imposed by law.
124. PARTNERS will not assign or attempt to assign agreement obligations to parties not signatory to this agreement.
125. Any ambiguity contained in this agreement will not be interpreted against PARTNERS. PARTNERS waive the provisions of California Civil Code section 1654.
126. A waiver of a partner's performance under this agreement will not constitute a continuous waiver of any other provision. An amendment made to any article or section of this agreement does not constitute an amendment to or negate all other articles or sections of this agreement.
127. A delay or omission to exercise a right or power due to a default does not negate the use of that right or power in the future when deemed necessary.

128. If any partner defaults in their agreement obligations, the non-defaulting partner(s) will request in writing that the default be remedied within 30 calendar days. If the defaulting partner fails to do so, the non-defaulting partner(s) may initiate dispute resolution.
129. PARTNERS will first attempt to resolve agreement disputes at the PROJECT team level. If they cannot resolve the dispute themselves, the CALTRANS district director and the executive officer of MTC will attempt to negotiate a resolution. If no resolution is reached, PARTNERS' legal counsel will initiate mediation. PARTNERS agree to participate in mediation in good faith and will share equally in its costs.

Neither the dispute nor the mediation process relieves PARTNERS from full and timely performance of WORK in accordance with the terms of this agreement. However, if any partner stops WORK, the other partner(s) may seek equitable relief to ensure that WORK continues.

Except for equitable relief, no partner may file a civil complaint until after mediation, or 45 calendar days after filing the written mediation request, whichever occurs first.

Any civil complaints will be filed in the Superior Court of the county in which the CALTRANS district office signatory to this agreement resides. The prevailing partner will be entitled to an award of all costs, fees, and expenses, including reasonable attorney fees as a result of litigating a dispute under this agreement or to enforce the provisions of this article including equitable relief.

130. PARTNERS maintain the ability to pursue alternative or additional dispute remedies if a previously selected remedy does not achieve resolution.
131. If any provisions in this agreement are deemed to be, or are in fact, illegal, inoperative, or unenforceable, those provisions do not render any or all other agreement provisions invalid, inoperative, or unenforceable, and those provisions will be automatically severed from this agreement.
132. This agreement is intended to be PARTNERS' final expression and supersedes all prior oral understanding or writings pertaining to WORK.
133. If during performance of WORK additional activities or environmental documentation is necessary to keep PROJECT in environmental compliance, PARTNERS will amend this agreement to include completion of those additional tasks.
134. PARTNERS will execute a formal written amendment if there are any changes to the commitments made in this agreement.
135. This agreement will terminate upon COMPLETION OF WORK or upon 30 calendar days' written notification to terminate and acceptance between PARTNERS, whichever occurs first.

However, all indemnification, document retention, audit, claims, environmental commitment, legal challenge, and ownership articles will remain in effect until terminated or modified in writing by mutual agreement.

136. The following documents are attached to, and made an express part of this agreement: SCOPE SUMMARY, FUNDING SUMMARY, PROJECT LIST and PROJECT SCHEDULE.
137. Signatories may execute this agreement through individual signature pages provided that each signature is an original. This agreement is not fully executed until all original signatures are attached.

CONTACT INFORMATION

The information provided below indicates the primary contact data for each partner to this agreement. PARTNERS will notify each other in writing of any personnel or location changes. These changes do not require an amendment to this agreement.

The primary agreement contact person for CALTRANS is:

Val Ignacio, Regional Project Manager

111 Grand Avenue

Oakland, California 94612

Office Phone: (510) 286-5086

Email: val.ignacio@dot.ca.gov

The primary agreement contact person for MTC is:

Joy J. Lee, Senior Program Coordinator - Freeway Performance Initiative

101 Eight Street

Oakland, California 94607-4700

Office Phone: (510) 817-5956

Email: jjlee@mtc.ca.gov

SIGNATURES

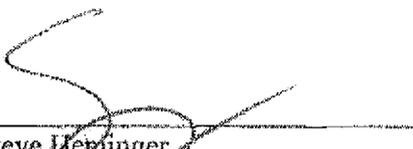
PARTNERS declare that:

1. Each partner is an authorized legal entity under California state law.
2. Each partner has the authority to enter into this agreement.
3. The people signing this agreement have the authority to do so on behalf of their public agencies.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

METROPOLITAN TRANSPORTATION
COMMISSION

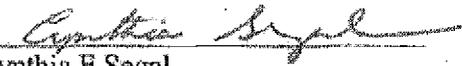
By: 
Helena (Lenka) Culik-Caro
Deputy District Director - Design

By: 
Steve Heninger
Executive Director

CERTIFIED AS TO FUNDS:

APPROVED AS TO FORM AND PROCEDURE

By: 
Cynthia Stratton
District Budget Manager

By: 
Cynthia E Segal
Associate Counsel

04-ALA-92, 238, 580, 680, 880
 04-SOL-80
 04-SCL-85, 101, 680
 EA: 15113, 15270, 15300, 15310, 15320, 15330, 15350
 Federal Funds
 District Agreement 04-2299

SCOPE SUMMARY

WBS Level				Description	CALTRANS	MTC	N/A
4	5	6	7				
2				Project Approval and Environmental Document (PA&ED) - 160, 165, 175, 180, 205	X		
3				Plans, Specifications, and Estimates (PS&E) - 185, 230, 235, 240, 250, 255, 260, 265	X		
4				Right of Way (R/W) - 195, 200, 220, 225, 245, 300	X		
5				Construction (CON) - 270, 285, 290, 295	X		

FUNDING SUMMARY

Funding Source	Funding Partner	Funding Type	Support	Capital	Total
FEDERAL / STATE / LOCAL	MTC	*CMAQ / CMIA / RTIP / LOCAL	\$24,485,000	\$73,957,000	\$98,442,000
STATE	CALTRANS	SHOPP	\$0	\$27,000,000	\$27,000,000
		Subtotals by Component	\$24,485,000	\$100,957,000	\$125,442,000

* Toll Credits are being used in lieu of all of the required State match for CMAQ funds

PROJECT LIST

EA	COUNTY	ROUTES	PM	PROJECT DESCRIPTION
15300	ALA	92 880	0.0/6.4 9.9/10.4	Install ramp metering along EB ALA92, from SM Bridge to Route 880, and at Decoto Road on Route 880.
15420	SCL	85	R18.4/R23.9	Install TOS and ramp metering on SCL85 between Route 280 and Route 101.
15113	ALA	238 580	14.4/16.7 0.0/31.0	Install TOS and ramp metering equipment on ALA238 and ALA580, between Route 880 and the San Joaquin/Alameda County Line.
15320	SCL	680	0.0/9.4	Install TOS and Ramp Metering on SCL680 between the 680/101 Interchange and the Alameda County Line.
15310	ALA	680	M0.0/R21.9	Install TOS and ramp metering on ALA680 between SCL County Line and CRM/TOS on ALA 680, between the Santa Clara County Line and the Contra Costa County Line.
* 15330	SCL	101	0.0/26.4	Install TOS and ramp metering on SCL101 between the San Benito County Line and Route 85/101 Interchange.
15350	SOL	80	0.0/R28.4	Install TOS and ramp metering on SOL80 from Carquinez Bridge to Route 505.

* Capital funding for EA #15330 is contingent upon MTC's approval of second cycle of STP/ CMAQ program.

PROJECT SCHEDULE

EA	Target PA&ED Date	Target PS&E to DOE (65% PS&E)	Target PS&E to HQOE (95% PS&E)	Target RTL date (100% PS&E)	Fund Verification	Advertise	Award
15300	3/5/2011	3/5/2011	8/12/2011	11/25/2011	2/17/2012	3/12/2012	5/16/2012
15420	3/5/2011	3/5/2011	8/12/2011	11/25/2011	2/17/2012	3/12/2012	5/16/2012
15113	4/13/2011	4/13/2011	10/13/2011	2/16/2012	4/30/2012	6/4/2012	8/22/2012
15320	4/13/2011	4/13/2011	10/13/2011	2/16/2012	4/30/2012	6/4/2012	8/22/2012
15310	3/8/2011	9/28/2011	3/28/2012	8/1/2012	10/24/2012	11/19/2012	2/6/2013
15330	3/8/2011	12/8/2011	6/8/2012	11/1/2012	12/31/2012	1/21/2013	4/3/2013
15350	4/13/2011	4/13/2011	10/13/2011	2/16/2012	4/30/2012	6/4/2012	8/22/2012

Date: October 28, 2009
W.I.: 1512
Referred by: PAC
Revised: 12/16/09-C

ABSTRACT

Resolution No. 3925, Revised

This resolution adopts the Project Selection Criteria, policies and programming for the Surface Transportation Authorization Act, following the Safe, Accountable, Flexible and Efficient Transportation Equity Act (SAFETEA), and any extensions of SAFETEA in the interim, for the Cycle 1, Surface Transportation Program (STP) and Congestion Mitigation and Air Quality Improvement (CMAQ) Program. The Project Selection Criteria contains the project categories that are to be funded with FY 2009-10 and FY 2010-11 STP/CMAQ funds to be amended into the currently adopted 2009 Transportation Improvement Program (TIP) and subsequent TIP update.

The resolution includes the following attachments:

- Attachment A – Cycle 1 STP/CMAQ Project Selection Criteria, and Programming Policies
- Attachment B – Cycle 1 Project List

The resolution was revised on December 16, 2009 to add Attachment A and to add \$437 million to Attachment B, the balance of funding to Cycle 1 programs.

Further discussion of the Cycle 1 STP/CMAQ Project Selection Criteria and Program is contained in the memorandum to the Programming and Allocations Committee dated October 14, 2009 and December 9, 2009.

Date: October 28, 2009
W.I.: 1512
Referred By: PAC

RE: New Federal Surface Transportation Act (FY 2009-10, FY 2010-11 and FY 2011-12)
Cycle 1 STP/CMAQ Program: Project Selection Criteria, Policy, Procedures and
Programming

METROPOLITAN TRANSPORTATION COMMISSION
RESOLUTION NO. 3925

WHEREAS, the Metropolitan Transportation Commission (MTC) is the regional transportation planning agency for the San Francisco Bay Area pursuant to Government Code Section 66500 et seq.; and

WHEREAS, MTC is the designated Metropolitan Planning Organization for the nine-county San Francisco Bay Area region (the region) and is required to prepare and endorse a Transportation Improvement Program (TIP) which includes a list of Surface Transportation Planning (STP) and Congestion Mitigation and Air Quality Improvement Program (CMAQ) funded projects; and

WHEREAS, MTC is the designated recipient for regional STP and CMAQ funds for the San Francisco Bay Area; and

WHEREAS, MTC has developed policies and procedures to be used in the selection of projects to be funded with STP and CMAQ funds for the Cycle 1 STP/CMAQ Program (23 U.S.C. Section 133), as set forth in Attachment A of this Resolution, incorporated herein as though set forth at length; and

WHEREAS, using the procedures and criteria set forth in Attachment A of this Resolution, MTC, in cooperation with the Bay Area Partnership, have or will develop a program of projects to be funded with STP and CMAQ funds in Cycle 1 for inclusion in the 2009 Transportation Improvement Program (TIP) including the subsequent TIP update, as set forth in Amendment B of this Resolution, incorporated herein as though set forth at length; and

WHEREAS the 2009 TIP and the subsequent TIP update will be subject to public review and comment; now therefore be it

RESOLVED that MTC approves the Project Selection Criteria, Policies, Procedures and Programming for the New Federal Surface Transportation Act (FY 2009-10, FY 2010-11 and FY 2011-12) Cycle 1 STP/CMAQ funding, as set forth in Attachments A and B of this Resolution; and be it further

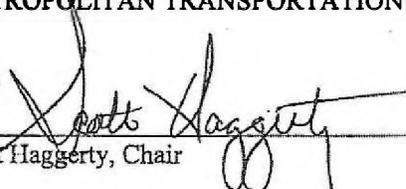
RESOLVED that the regional STP and CMAQ funding shall be pooled and redistributed on a regional basis for implementation of Cycle 1 STP/CMAQ Project Selection Criteria, Policies, Procedures and Programming, consistent with the Regional Transportation Plan (RTP); and be it further

RESOLVED that the projects will be amended into in the 2009 TIP and the subsequent TIP update, subject to the final federal approval; and be it further

RESOLVED that the Executive Director is authorized to revise Attachment B as necessary to reflect the programming of projects as the projects are identified and amended in the TIP; and be it further

RESOLVED that the Executive Director shall make available a copy of this resolution, and such other information as may be required, to the Governor, Caltrans, and to other such agencies as may be appropriate.

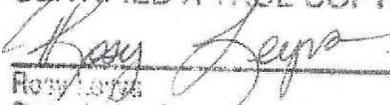
METROPOLITAN TRANSPORTATION COMMISSION



Scott Haggerty, Chair

The above resolution was entered into by the Metropolitan Transportation Commission at the regular meeting of the Commission held in Oakland, California, on October 28, 2009

CERTIFIED A TRUE COPY.



Kay Loya
Commission Secretary

4/14/10

Date

AMENDMENT NO. 4 TO COOPERATIVE AGREEMENT 04-2299

This Amendment No. 4 to Agreement (AMENDMENT 4), effective on 6/21, 2016, is between the State of California, acting through its Department of Transportation, referred to as CALTRANS, and METROPOLITAN TRANSPORTATION COMMISSION, acting as the Bay Area Metropolitan Planning Organization, referred to as MTC.

RECITALS

1. The PARTNERS hereto entered into an Agreement No. 04-2299 (AGREEMENT) on April 15, 2010, defining the terms and conditions for the PA&ED, PS&E, R/W and CONSTRUCTION phases of a project that contributes toward the installation of ramp metering and Traffic Operations Systems (TOS) at various locations within the Counties of Alameda, Santa Clara and Solano, referred to as PROJECT.
2. PARTNERS entered into Amendment No. 1 to AGREEMENT (AMENDMENT 1) on December 22, 2010, to add additional PROJECT locations within the Counties of Contra Costa, Marin and Sonoma and adjust commitments in the FUNDING SUMMARY, PROJECT LIST and PROJECT SCHEDULE.
3. PARTNERS entered into Amendment No. 2 to AGREEMENT (AMENDMENT 2) on September 28, 2012, to add additional PROJECT locations within the Counties of Alameda and Contra Costa and adjust commitments in the FUNDING SUMMARY, PROJECT LIST and PROJECT SCHEDULE.
4. PARTNERS entered into Amendment No. 3 to AGREEMENT (AMENDMENT 3) on November 21, 2013, to (a) split a project located on U.S. 101 in Sonoma County, (b) adjust commitments by revising the FUNDING SUMMARY, PROJECT LIST and PROJECT SCHEDULE and (c) include invoicing and payment articles for an additional Federal Funding Type (STP) identified by, and obligated to, MTC.
5. PARTNERS now wish to enter into AMENDMENT 4 to adjust commitments by revising the FUNDING SUMMARY and to update PROJECT LIST and PROJECT SCHEDULE. Under AMENDMENT 4, CMIA and SHOPP funding contributions are revised to reflect the actual allocation after PROJECT award and to add programmed SHOPP funds. MTC's total contribution to PROJECT is adjusted from that reported in AMENDMENT 3, to reflect actual obligated funds plus the total fixed funding commitment amount of \$20,000,000 per Funding Summary A-4. Upon obligation of the \$20,000,000 by no later than January 31, 2018, this AGREEMENT shall terminate. MTC agrees to ensure the programming in the federal Transportation Improvement Program (TIP), including any cost savings redirected to other allowable uses under this Agreement, until the entire

fixed amount of \$20,000,000 in CMAQ funding is fully expended as shown in the federal Fiscal Management Information System (FMIS).

IT IS THEREFORE MUTUALLY AGREED:

1. Recital 6 of AGREEMENT is deleted in its entirety.
2. Article 135 of AGREEMENT is replaced in its entirety to read as follows:

This AGREEMENT will terminate upon COMPLETION OF WORK or upon 30 calendar days' written notification to terminate and acceptance between PARTNERS, whichever occurs first. Notwithstanding anything to the contrary in this AGREEMENT, upon obligation of \$20,000,000 per Funding Summary A-4 by no later than January 31, 2018, this AGREEMENT shall terminate. MTC agrees to ensure the programming in the TIP, including any cost savings redirected to other allowable uses under this AGREEMENT, until the entire fixed amount of \$20,000,000 in CMAQ funding is fully expended as shown in the FMIS.

However, all indemnification, document retention, audit, claims, environmental commitment, legal challenge, and ownership articles will remain in effect until terminated or modified in writing by mutual agreement.

3. The FUNDING SUMMARY A-3 is replaced in its entirety by FUNDING SUMMARY A-4 attached to and made a part of AMENDMENT 4. Any reference to FUNDING SUMMARY in AGREEMENT is now deemed a reference to FUNDING SUMMARY A-4.
4. The PROJECT LIST A-3 is replaced in its entirety by PROJECT LIST A-4 attached to and made a part of AMENDMENT 4. Any reference to PROJECT LIST in AGREEMENT is now deemed a reference to PROJECT LIST A-4.
5. The PROJECT SCHEDULE A-3 is replaced in its entirety by PROJECT SCHEDULE A-4 attached to and made a part of AMENDMENT 4. Any reference to PROJECT SCHEDULE in AGREEMENT is now deemed a reference to PROJECT SCHEDULE A-4.
6. All other terms and conditions of AGREEMENT, as amended under AMENDMENT 3, shall remain in full force and effect.
7. AMENDMENT 4 is included in, and made a part of AGREEMENT.

04-ALA-84 92 238, 560, 590, 880

04-CC-4/242

04-MRM-101, 580

04-SCL-85 101 680

04-SOL-80

04-SON-101

EA: 15113 15143, 15180, 15270, 15300, 15310, 15320, 15330, 15350, 15420

Federal Funds

District Agreement Q4-229S-A2

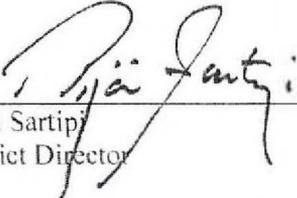
SIGNATURES

PARTNERS declare that:

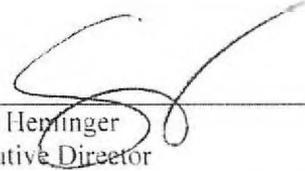
1. Each PARTNER is an authorized legal entity under California state law.
2. Each PARTNER has the authority to enter into AMENDMENT 4.
3. The people signing this Amendment to Agreement 04-2299-A4 have the authority to do so on behalf of their public agencies.

STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

METROPOLITAN TRANSPORTATION
COMMISSION

By: 

Bijan Sartip
District Director

By: 

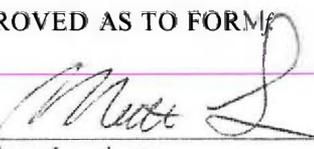
Steve Heminger
Executive Director

CERTIFIED AS TO FUNDS:

APPROVED AS TO FORM:

By: 

Jeffrey Armstrong
District Budget Manager

By: 

Matthew Lavrinets
Senior Counsel

FUNDING SUMMARY A-4

Row #	Funding Source	Funding Partner	Funding Type	Support	Capital	Total
1	FEDERAL	MTC	CMAQ/STP	\$49,517,000 ¹	\$15,226,000 ¹	\$64,743,000
2	FEDERAL /STATE/ LOCAL	MTC	CMAQ			\$20,000,000 ²
3	STATE	CALTRANS	SHOPP	\$2,650,000	\$55,739,000	\$58,389,000
4	STATE	CALTRANS	CMIA (PPNO 0024)	7,953,000	28,104,000	36,057,000
5	STATE	CALTRANS	CMIA (PPNO 0521J)	1,000,000	5,673,000	6,673,000
			Totals	\$61,120,000	104,742,000	\$185,862,000

- 1) MTC CMAQ/STP funding amounts for Support and Capital components are actual obligated funds.
- 2) MTC CMAQ funding of \$20,000,000 can be directed towards Support and/or Capital components. This amount consists of \$8.373 million in currently obligated bid savings and \$4,808,000 obligated to federal project 6204(124) in April, 2016 and \$6,819,000 in currently un-obligated CMAQ funds that must be obligated no later than January 31, 2018.

PROJECT LIST A-4

No.	EA	PROJECT #	COUNTY	ROUTES	PM	PROJECT DESCRIPTION
1	15300	0400020302	ALA	92 880	4.1/6.0 10.0/33.9	Install ramp metering along on Route 92, from Clawiter Road to Hesperian Blvd. and on Route 880 at Decoto Road on-ramp, and TOS along Rte 880 in Alameda County.
2	15420	0400020481	SCL	85	R18.0/R23.9	Install TOS and ramp metering on Route 85 from Route 280 to Route 101 in Santa Clara County.
3	15113	0400020743	ALA	580 238	9.5/31.0 14.4/16.1	Install TOS and ramp metering on Route 238 and Route 580 in Alameda County, from Route 880 to Vasco Rd IC.
4	15320	0400000426	SCL	680	0.0/9.9	Install TOS and ramp metering on Route 680 between the 680/101 Interchange and the Alameda County line.
5	4G100	0412000528	ALA	680	M3.6/R6.5	Install TOS and ramp metering on Route 680 between Mission Blvd. (Route 238) to south of Auto Mall Parkway.
6	15330	0400020304	SCL	101	0.0/26.7	Install TOS and ramp metering on Route 101 between San Benito County Line and Route 85/101 Interchange.
7	15350	0400020739	SCL	80	0.0/R28.4	Install TOS and ramp metering on Route 80 in Solano County from the Contra Costa County line to the Route 80/505 Junction.
8	15161	0414000446	MRN	101	0.0/9.0	Install TOS and ramp metering on Route 101 from north of Golden Gate Bridge to north of Sir Francis Drake Blvd.
9	15162	0414000447	MRN	101 580	0.0/27.6 2.4/4.5	Install TOS and ramp metering on Route 101 from San Francisco County line to Sonoma County line and on Route 580 from San Rafael Bridge to Route 101.
10	2G290	0400020806	SCL	80	R28.4/R44.7	Install TOS and ramp metering on Route 80 in Solano County from 180/505 Jct to Yolo County line.
11	15272	0412000628	CC	4 242	R8.0/25.0 0.0/3.4	Install TOS and ramp metering on CC-4 from west of Alhambra Ave to Loveridge Road in Contra Costa County and on CC-242 from I-680 to SR4.
12	15148	0400000421	ALA	880 92 84	0.0/24.1 2.6/6.4 3.2/6.1	Install TOS and ramp metering on I-880 from Santa Clara County line to Route 112/Davis Street, on SR-92 from San Mateo Bridge Toll Plaza to I-880, and on SR-84 from Dumbarton Bridge Toll Plaza.
13	2G312	0413000383	SON	101	0.0/R56.2	Install TOS and ramp metering on Route 101 between Marin County line and Mendocino County line.
14	4G190	0412000348	ALA ALA SJ	580	0.0/8.1 22.0/30.3 13.5/15.4	Install TOS and ramp metering on Route 580 in Alameda County from the San Joaquin County line to Greenville Rd IC and from San Ramon Rd to Strohbridge Ave; and in San Joaquin County from Patterson Pass Rd OC to the Alameda County line.
15	4G112	0414000304	ALA	680	M0.0/R21.8	Install TOS and ramp metering on Route 680 from south of Scott Creek Rd to north of Alcosta Blvd - Phase 2A.
16	4G113	0414000305	ALA	680	M0.0/R21.8	Install TOS and ramp metering on Route 680 from south of Scott Creek Rd to north of Alcosta Blvd - Phase 2B.
17	2G311	0413000382	SON	101	13.9/31.0	Repair existing ramp meters on Route 101 from Rohnert Park Expressway to Arata Lane.
18	15271	0412000629	CC	4 242	13.9/23.2 0.0/3.4	Repair existing ramp meters on Route 4 between Railroad Ave and Port Chicago Hwy. and on Route 242 from I-680 to Route 4.

- Projects #1 through #7, #14, #15 and #16. Toll Credits are being used in lieu of all of the required State match for CMAQ funds only for these Projects.
- Projects #8 through #13, #17 and #18. No match is required for CMAQ funds for these Projects.
- CC 4, 242 EA# 15271 and EA# 15272 (Projects #18 and #11) were split from parent EA# 15270.
- SON 101 EA# 2G311 and EA# 2G312 (Projects #17 and #13) were split from parent EA# 2G310.
- Mrn 101 EA# 15161 and EA #15162 (Projects 8 and 9) were split from parent EA# 15160.
- Ala 680 corridor split into EA# 4G100, EA# 4G112, and EA# 4G113 (Projects #5, #15 and #16).
- Ala 238, 580 corridor split into EA# 15113 and EA# 4G190 (Projects #3 and #14).

PROJECT SCHEDULE A-4

No.	EA	CO-Rte	PROJECT #	Target PA&ED Date	Target PS&E to HQOE	Target RTL date	Fund Verification		Advertise	Award
							CTC Vote	Fed e-76		
1	15300	ALA 92, 880	0400020302	08/01/11 (A)	01/19/12 (A)	04/10/12 (A)	04/25/12 (A)	-	06/18/12 (A)	10/15/12 (A)
2	15420	SCL 85	0400020481	08/08/11 (A)	01/03/12 (A)	04/04/12 (A)	04/25/12 (A)	-	06/04/12 (A)	08/28/12 (A)
3	15113	ALA 580, 238	0400020743	08/01/11 (A)	01/23/12 (A)	05/01/12 (A)	05/23/12 (A)	-	07/16/12 (A)	10/24/12 (A)
4	15320	SCL 680	0400000426	10/03/11 (A)	02/17/12 (A)	05/17/12 (A)	05/23/12 (A)	-	07/23/12 (A)	11/26/12 (A)
5	4G100	ALA 680	0412000528	05/01/12 (A)	05/02/12 (A)	06/20/12 (A)	06/27/12 (A)	-	07/30/12 (A)	09/29/12 (A)
6	15330	SCL 101	0400020304	03/19/12 (A)	12/03/12 (A)	05/17/13 (A)	08/06/13 (A)	-	11/25/13 (A)	04/02/14 (A)
7	15350	SOL 80	0400020739	09/29/11 (A)	03/05/12 (A)	03/05/12 (A)	05/23/12 (A)	-	06/18/12 (A)	08/31/12 (A)
8	15161	MRN 101	0414000446	05/07/14 (A)	TBD	TBD	TBD	TBD	TBD	TBD
9	15162	MRN 101, 580	0414000447	05/07/14 (A)	TBD	TBD	TBD	TBD	TBD	TBD
10	2G290	SOL 80	0400020806	TBD	TBD	TBD	TBD	TBD	TBD	TBD
11	15272	CC 4, 242	0412000628	07/05/12 (A)	01/13/14 (A)	01/15/14 (A)	N/A	03/07/14 (A)	04/28/14 (A)	08/12/14 (A)
12	15148	ALA 880, 92, 84	0400000421	06/05/14 (A)	TBD	TBD	TBD	TBD	TBD	TBD
13	2G312	SON 101	0413000383	TBD	TBD	TBD	TBD	TBD	TBD	TBD
14	4G190	ALA, SJ 580	0412000348	08/05/14 (A)	TBD	2015/16 FY	TBD	TBD	TBD	TBD
15	4G112	ALA 680	0414000304	TBD	TBD	TBD	TBD	TBD	TBD	TBD
16	4G113	ALA 680	0414000305	TBD	TBD	TBD	TBD	TBD	TBD	TBD
17	2G311	SON 101	0413000382	08/09/13 (A)	01/10/14 (A)	01/10/14 (A)	N/A	12/31/13 (A)	12/01/13 (A)	02/21/14 (A)
18	15271	CC 4, 242	0412000629	05/07/12 (A)	06/11/12 (A)	10/01/12 (A)	N/A	08/30/12 (A)	10/18/12 (A)	12/14/12 (A)

Notes:

- (A) Actual Dates. All other dates are estimates and subject to change without the need to amend the Cooperative Agreement.

Attachment F

Storm Water Data Report Signature Sheet

(04-ALA-680), (0.0/21.9)
(EA4G1110)

Long Form - Stormwater Data Report
(September 2016)



Dist-County-Route:04-ALA-680
Post Mile Limits:0.0/21.9
Type of Work: Freeway Performance Initiative
Project ID (EA):4G1110
Program Identification:
Phase: PID PA/ED
PS&E

Regional Water Quality Control Board(s):Region 2 San Francisco, Region 5 Central Valley

Total Disturbed Soil Area:15.1 Acres Post Construction Treatment Area:13.1 Acres

Alternative Compliance (acres):TBD

Estimated Const. Start Date:10/01/2017 Estimated Const. Completion Date:05/31/2020

Risk Level: RL 1 RL 2 RL 3 WPCP Other: _____

Is the Project within a TMDL watershed? Yes No

TMDL Compliance Units (acres):TBD

Notification of ADL reuse (if yes, provide date): Yes Date: _____ No

This Report has been prepared under the direction of the following Licensed Person. The Licensed Person attests to the technical information contained herein and the date upon which recommendations, conclusions, and decisions are based. Professional Engineer or Landscape Architect stamp required at PS&E.

Hoa-Anh Le, Registered Project Engineer

09/07/2016
Date

I have reviewed the stormwater quality design issues and find this report to be complete, current and accurate:

Ron Kiaaina, Project Manager

9/7/16
Date

Bob Braga, Designated Maintenance Representative

9/12/16
Date

David Yam, Designated Landscape Architect Representative

9/13/16
Date

Jonathan Wellen, District/Regional Design SW Coordinator

09/07/2016
Date

[Stamp Required at PS&E only]

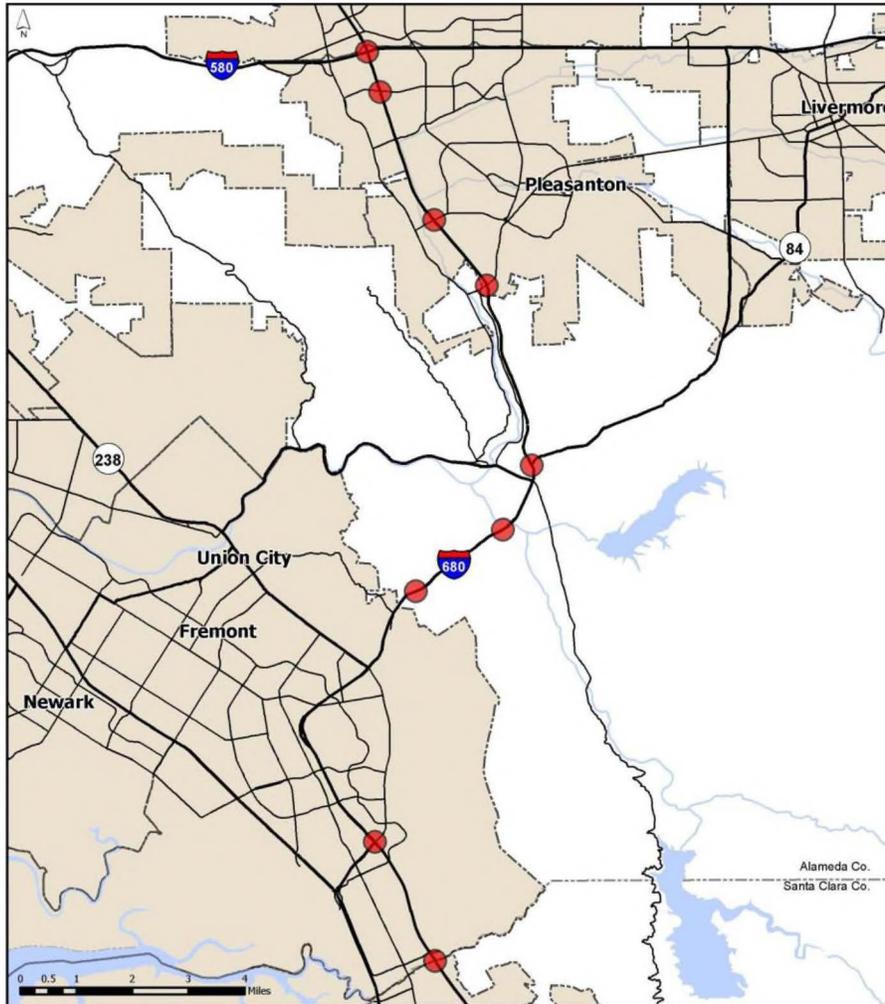
Attachment G

Environmental Determination

Freeway Performance Initiative Interstate 680 in Alameda County

Alameda County, California
District 4-ALA 680 (P.M. 0.0/21.9)
EA443111 / Project ID 040000425

Initial Study with Mitigated Negative Declaration



Prepared by the
State of California Department of Transportation
August 2016



THIS PAGE INTENTIONALLY LEFT BLANK

Installation of ramp metering system for sixteen on-ramps/connectors along Interstate 680 in Alameda County from Scott Creek Road Undercrossing in the City of Fremont to Alcosta Boulevard Overcrossing in the City of Dublin.

INITIAL STUDY with Mitigated Negative Declaration

Submitted Pursuant to: (State) Division 13, California Public Resources Code

THE STATE OF CALIFORNIA
Department of Transportation

Responsible Agencies: California Transportation Commission and California Department of Fish and Wildlife

9/2/16

Date of Approval



MELANIE BRENT
Deputy District Director
District 4
California Department of Transportation
CEQA Lead Agency

For more information about this document please contact Caltrans, Attn: Noray-Ann Spradling, P.O. Box 23660, MS 8-B, Oakland, CA 94623-0660 or call (510) 286-4444; To obtain a copy in Braille, in large print, on computer disk, or on audiocassette, please contact the California Relay Service TTY number, 711.

THIS PAGE INTENTIONALLY LEFT BLANK

Mitigated Negative Declaration

Pursuant to: Division 13, Public Resources Code

Project Description

This project proposes the installation of a ramp metering system for sixteen on-ramps/connectors along Interstate 680 in Alameda County from Scott Creek Road Undercrossing in the City of Fremont to Alcosta Boulevard Overcrossing in the City Dublin. These on-ramps/connectors will be widened to provide for High Occupancy Vehicle (HOV) preferential lanes and/or additional mixed-flow lanes. There will be six retaining walls used for the widening. The project also proposes the installation of traffic monitoring stations for four connectors in the corridor.

Determination

The Department has prepared an Initial Study for this project, and following public review, has determined from this study that the project would not have a significant effect on the environment for the following reasons:

The project would have no effect on Air Quality, Agriculture and Forest Resources, Hazards and Hazardous Materials, Hydrology/Water Quality, Mineral Resources, Land Use/Planning, Noise, Population and Housing, Public Services, Recreation, Transportation/Traffic, and Utilities/Service Systems.

In addition, the proposed project would have a less than significant effect on Geology and Soils.

With the following mitigation measures incorporated, the proposed project would have less than significant effects on Biological, Paleontological, Visual and Cultural Resources:

- Water quality protection measures will be implemented to protect all aquatic and wetland species habitats
- Pre-construction surveys of biological resources will be completed
- Species monitoring will be conducted during construction
- Construction windows will be implemented
- Avoidance, minimization, and/or mitigation measures will be implemented for species of concern
- A Paleontological Monitoring Plan (PMP) will be in place
- Replacement planting, aesthetic wall treatments, concrete safety-shaped barriers, and cable safety railing will be incorporated into the project to minimize Visual impacts
- A Memorandum of Agreement (MOA) with the State Historic Preservation Officer (SHPO) will be implemented



Melanie Brent

Deputy District Director

District 4

California Department of Transportation

9/2/16
Date

THIS PAGE INTENTIONALLY LEFT BLANK

Table of Contents

Table of Contents vii

Chapter 1 Proposed Project..... 1

Project Description..... 1

Alternatives 1

Purpose and Need 8

Permits Needed 10

Chapter 2 - CEQA Environmental Checklist..... 11

I. AESTHETICS/VISUAL: 11

II. AGRICULTURE AND FOREST RESOURCES: 13

III. AIR QUALITY:..... 13

IV. BIOLOGY: 20

V-1. CULTURAL RESOURCES:..... 38

V-2. PALEONTOLOGY 39

VI. GEOLOGY AND SOILS 42

VII. GREENHOUSE GAS EMISSIONS: 43

VIII. HAZARDS AND HAZARDOUS MATERIALS:..... 43

IX. HYDROLOGY AND WATER QUALITY: 44

X. LAND USE AND PLANNING:..... 46

XI. MINERAL RESOURCES:..... 47

XII. NOISE: 47

XIII. POPULATION AND HOUSING:..... 49

XIV. PUBLIC SERVICES: 49

XV. RECREATION: 49

XVI. TRANSPORTATION/TRAFFIC:	49
XVII. UTILITIES AND SERVICE SYSTEMS:	50
XVIII. MANDATORY FINDINGS OF SIGNIFICANCE	51
Chapter 3 – Climate Change	53
Chapter 4 – Public Review and Comment	63
Appendices.....	Error! Bookmark not defined.

Chapter 1 Proposed Project

Project Description

This project proposes the installation of a ramp metering system for sixteen on-ramps/connectors along Interstate 680 (I-680) in Alameda County from Scott Creek Road Undercrossing in the City of Fremont to Alcosta Boulevard Overcrossing in the City of Dublin (See Figure 1 – Project Location). These on-ramps/connectors will be widened to provide for High Occupancy Vehicle (HOV) preferential lanes and/or additional mixed-flow lanes. There will be six retaining walls used for the widening. The project also proposes the installation of traffic monitoring stations for four connectors in the corridor.

All design installation features proposed in this project are standardized as per Caltrans Highway Design Manual and the 2000 Ramp Meter Design Guidelines (RMDG).

Alternatives

Build Alternative

The project proposes to install ramp metering equipment on sixteen on-ramps/connectors along I-680 in Alameda County from Scott Creek Road Undercrossing in the City of Fremont to Alcosta Boulevard Overcrossing in the City of Dublin. This project proposes to include the following:

- Install dual type detector loops for the mainline
- Install ramp detectors on the on-ramps. These include detectors for passage, demand, and end of queue.
- Install ramp metering striping and markings
- Install ramp metering controller cabinets
- Install advance warning signs at the entrances of the on-ramp (“METER ON”)
- Provide widening of on-ramps for additional ramp meter storage or adding HOV preferential lanes

New Traffic Operations System (TOS) elements will be installed as part of this project to infill gaps in existing TOS coverage on the freeway segment within the project limits. These elements include thirteen (13) closed circuit television (CCTV) cameras, three (3) changeable message signs (CMS), and fifty (50) one-directional traffic monitoring stations (TMS), excluding the four (4) TMS located at the previously mentioned connectors. The CCTVs, CMSs, and TMSs will be installed at the locations listed in Table 1.

Maintenance Vehicle Pullouts (MVPs) will also be installed as part of this project. The locations are listed in Table 2.

Project Elements

- 1) Scott Creek Road to Northbound I-680 diagonal on-ramp: Project proposes to install new ramp metering equipment and a new California Highway Patrol (CHP) pullout. This on-ramp is currently one mix flow lane. It will be widened to provide one HOV lane and one mixed-flow lane. The maximum width of the widening is 17 feet (ft) from the existing right edge of shoulder (ES). The maximum depth of excavation is 9 ft from the original ground (OG). The hill side on the right shoulder will be shaved to a maximum depth of 6 ft from the OG. The outer limit of the shaving is 55 ft from the existing right ES.
- 2) Mission Boulevard (Route 262) to Northbound I-680 diagonal on-ramp and collector: Project proposes to install new ramp metering equipment for this on-ramp and a ramp collector. There

will be a new CHP pullout for the on-ramp. This on-ramp is currently one mixed-flow lane. It will be widened by utilizing a retaining wall to provide two mixed-flow lanes. The maximum width of the impacted area caused by the widening from the existing right ES is 60 ft which includes 43 ft width of the roadway widening and 17 ft width of the retaining wall footing. The maximum depth of excavation is 11 ft from the OG. The retaining wall is a Standard Wall on Piles. The maximum length of the piles is 50 ft. The retaining wall length is approximately 1110 ft. The ramp collector will also be widened to two lanes.

- 3) Vargas Road to Northbound I-680 loop on-ramp: Project proposes to install new ramp metering equipment.
- 4) Andrade Road to Northbound I-680 diagonal on-ramp: Project proposes to install new ramp metering equipment.
- 5) Southbound Route 84 to Southbound I-680 diagonal connector: Project proposes to install new ramp metering and a new CHP pullout. This on-ramp is currently two mix flow lanes. The connector will be widened to provide one HOV lane and two mixed-flow lanes. The maximum width of the widening is 15 ft from the existing left ES. The maximum depth of excavation is 5 ft from the OG.
- 6) Calaveras Road to Northbound I-680 loop on-ramp: Project proposes to install new ramp metering and a new CHP pullout. This on-ramp is currently one mixed-flow lane. This on-ramp will be widened by utilizing a retaining wall to provide one HOV lane and one mixed-flow lane. The maximum width of the impacted area caused by the widening from the existing right ES is 34 ft which includes 22 ft width of the roadway widening and 12 ft width of the retaining wall footing. The maximum depth of the excavation for the widening is 8 ft from the OG. The retaining wall is a Standard Wall on Piles. The maximum length of the piles is 30 ft. The retaining wall length is approximately 800 ft.
- 7) Northbound Route 84 to Northbound I-680 diagonal connector: Project proposes to install new ramp metering and a new CHP pullout. This on-ramp is currently one mixed-flow lane. This connector will be widened by utilizing a retaining wall to provide one HOV lane and one mixed-flow lane. The maximum width of the widening is 50 ft from the existing right ES. The maximum depth of excavation is 15 ft from the OG. The retaining wall is a Soil Nail Wall. The horizontal and vertical lengths of the nails are 40 ft and 10 ft respectively. The retaining wall length is approximately 3280 ft.
- 8) Koopman Road to Northbound I-680 diagonal on-ramp: Project proposes to install new ramp metering and a new CHP pullout. This on-ramp is currently one-mixed flow lane. This on-ramp will be widened by utilizing a retaining wall to provide one HOV lane and one mixed-flow lane. The maximum width of the excavation is 20 ft from the existing right ES. The maximum depth of excavation will be 12 ft from the OG. The retaining wall is a Soldier Pile Wall. The maximum length of the piles is 40 ft. The retaining wall length is approximately 800 ft.
- 9) Sunol Boulevard to Southbound I-680 loop on-ramp: Project proposes to install new ramp metering and a new CHP pullout. This on-ramp is currently one mixed-flow lane. This on-ramp will be widened to provide two mixed-flow lanes. The maximum width of the widening is 16 ft. The maximum depth of the excavation is 10 ft from the OG. The hill side on the right shoulder will be shaved to a maximum depth of 10 ft. The outer limit of the shaving is 110 ft from the existing right ES.
- 10) Sunol Boulevard to Northbound I-680 diagonal on-ramp: Project proposes to install new ramp metering and a new CHP pullout. This on-ramp is currently one-mixed flow lane. This on-ramp will be widened by utilizing a retaining wall to provide one HOV lane and one mixed-flow lane. The maximum width of the impacted area from the existing right ES is 40 ft which includes 24 ft width of the roadway widening and 16 ft of the retaining wall footing. The maximum depth of

excavation is 14 ft from the OG. The retaining wall is a Soldier Pile Wall. The maximum length of the piles is 50 ft. The retaining wall length is approximately 850 ft.

- 11) Bernal Avenue to Southbound I-680 diagonal on-ramp: Project proposes to install new ramp metering and a new CHP pullout. This on-ramp is currently one mixed-flow lane. This on-ramp will be widened by utilizing a retaining wall to provide one HOV lane and one mixed-flow lane. The maximum width of the impacted area from the right ES is 45 ft which includes 30 ft width of the roadway widening and 15 ft width of the retaining wall footing. The maximum depth of excavation is 10 ft from the OG. The retaining wall is a Standard Wall on Piles. The maximum length of the piles is 35 ft. The retaining wall length is approximately 1400 ft.
- 12) Bernal Avenue to Northbound I-680 diagonal on-ramp: Project proposes to install new ramp metering and a new CHP pullout. This on-ramp is currently one mixed-flow lane. This on-ramp will be widened to provide one HOV lane and one mixed-flow lane. The maximum width of the widening is 15 ft from the existing right ES. The maximum depth of the excavation for the widening is 5 ft from the OG, and the fill for the widening is 10 ft from the OG. The outer fill limit is the right of way line.
- 13) Stoneridge Drive to Southbound I-680 diagonal on-ramp: Project proposes to install new ramp metering and a new CHP pullout. This on-ramp is currently one-mixed flow lane. This on-ramp will be widened to provide one HOV lane and one mixed-flow lane. The maximum width of the widening is 20 ft. The maximum depth of excavation is 5 ft.
- 14) Stoneridge Drive to Northbound I-680 loop on-ramp: Project proposes to install new ramp metering equipment.
- 15) Stoneridge Drive to Northbound I-680 diagonal on-ramp: Project proposes to install new ramp metering equipment.
- 16) Stoneridge Drive to Southbound I-680 loop on-ramp: Project proposes to install new ramp metering and a new CHP pullout. This on-ramp is currently one mixed-flow lane. This on-ramp will be widened to provide one HOV lane and one mixed flow-lane. The maximum widths of the widening on the right ES and left ES are 15 ft and 13ft respectively. The maximum depth of excavation will be 6 ft.
- 17) Eastbound I-580 to Northbound I-680 loop connector: Project proposes to install Traffic Monitoring System (TMS).
- 18) Westbound I-580 to Northbound I-680 diagonal connector: Project proposes to install TMS.
- 19) Westbound I-580 to Southbound I-680 loop connector: Project proposes to install TMS.
- 20) Eastbound I-580 to Southbound I-680 diagonal connector: Project proposes to install TMS.

Figure 1 – Project Location

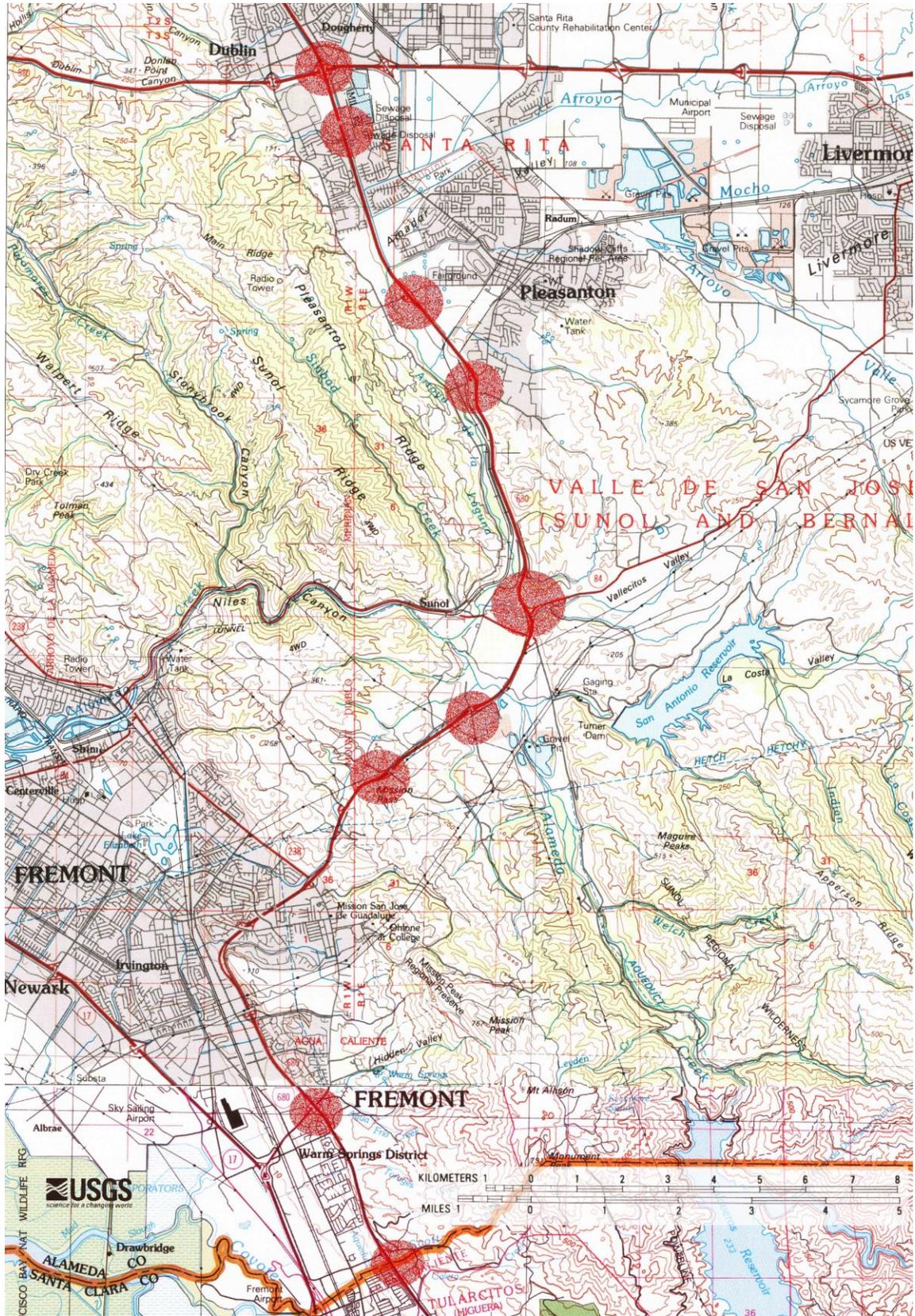


Table 1: TOS Element Locations

County	Route	Approx. P.M.	Direction	Type of TOS element
ALA	680	0.92	NB	CMS (Before Rte 262)
ALA	680	1.39	NB	CCTV
ALA	680	2.86	NB	TMS
ALA	680	2.86	SB	TMS
ALA	680	3.33	NB	TMS
ALA	680	3.33	SB	TMS
ALA	680	6.89	NB	TMS
ALA	680	6.89	SB	TMS
ALA	680	7.42	SB	CCTV(Vargas Rd I/C)
ALA	680	7.73	NB	TMS
ALA	680	7.73	SB	TMS
ALA	680	8.23	NB	TMS
ALA	680	8.32	NB	CCTV(Sheridan Rd I/C)
ALA	680	8.53	NB	TMS
ALA	680	8.53	SB	TMS
ALA	680	9.01	SB	CCTV
ALA	680	9.09	NB	TMS
ALA	680	9.09	SB	TMS
ALA	680	9.61	NB	TMS
ALA	680	10.05	NB	TMS
ALA	680	10.35	NB	CCTV
ALA	680	10.45	NB	TMS
ALA	680	10.45	SB	TMS
ALA	680	10.81	SB	CCTV(Rte 85 West I/C)
ALA	680	11.65	NB	TMS
ALA	680	11.97	NB	TMS
ALA	680	11.97	SB	TMS
ALA	680	12.49	NB	CCTV (Koopman Rd Half I/C)
ALA	680	12.56	NB	TMS
ALA	680	12.56	SB	TMS
ALA	680	13.12	NB	TMS
ALA	680	13.12	SB	TMS
ALA	680	13.50	SB	CMS (Before 84/680 I/C)
ALA	680	13.52	SB	CCTV
ALA	680	13.69	NB	TMS
ALA	680	13.69	SB	TMS
ALA	680	14.24	NB	TMS
ALA	680	14.24	SB	TMS
ALA	680	14.49	NB	CCTV
ALA	680	14.80	NB	TMS
ALA	680	14.80	SB	TMS
ALA	680	15.30	NB	TMS

County	Route	Approx. P.M.	Direction	Type of TOS element
ALA	680	15.33	NB	CCTV (Sunol Rd I/C)
ALA	680	15.87	NB	TMS
ALA	680	15.87	SB	TMS
ALA	680	16.17	SB	CCTV
ALA	680	16.59	NB	TMS
ALA	680	17.26	NB	TMS
ALA	680	17.26	SB	TMS
ALA	680	17.73	NB	TMS
ALA	680	17.73	SB	TMS
ALA	680	17.77	NB	CCTV
ALA	680	17.79	NB	CMS (Before 580/680 I/C)
ALA	680	18.20	NB	TMS
ALA	680	18.20	SB	TMS
ALA	680	18.43	NB	CCTV (W. Las Positas)
ALA	680	18.70	NB	TMS
ALA	680	18.70	SB	TMS
ALA	680	19.19	NB	TMS
ALA	680	19.65	SB	TMS
ALA	680	20.18	NB	TMS
ALA	680	20.40	SB	TMS
ALA	680	20.67	SB	TMS
ALA	680	21.15	NB	TMS (Repair/Replace)
ALA	680	21.15	SB	TMS (Repair/Replace)
ALA	680	20.0	NB	TMS

Local power will be provided by Pacific Gas & Electric (PG&E). Telephone services will be provided by leased telephone lines. General Packet Radio Services (GPRS) wireless modems will provide communications links between the proposed TMS and the Transportation Management Center (TMC).

Conduit, cabinets and the other elements comprise the general TOS installation. The conduit relays power, communication, and control wiring between the element, cabinets, and service points.

The CCTVs, CMSs, and cabinet will be sited off the shoulder within Caltrans's right-of-way. They will be installed outside of the clear recovery zone (CRZ) at minimum of thirty feet from the edge of traveled way.

The CCTVs and CMSs will be placed on poles, which will be anchored in a cast-in-drill-hole (CIDH) pile foundation located at an approximate depth of 13 ft and 35 ft having a diameter of 2.5ft and 5ft respectively. The conduit will be enclosed in trenches 1-2 ft wide and to a minimum depth of 30 inches.

The maximum width and depth for the excavation of the ramp meters are 2 ft and 5ft respectively. When there are 3 lanes in the on-ramp/connector, it is required that a ramp meter and a Signal Standard be installed at the limit line. The diameter and the depth of the CIDH pile foundation for the Signal Standard

are 3.5 ft and 13 ft respectively.

The loops for TMS are installed in the pavement at a maximum depth of 6 inches. The maximum width and depth of the Controller Cabinet foundation are 6 ft and 3.5ft respectively.

Maintenance Vehicle Pull-outs (MVPs)

Maintenance vehicle pull-outs (MVPs) will be built as part of the project. The MVPs will be approximately 85 ft long and 12 ft wide. The proposed locations of the MVPs are listed in the table below (Table 2).

Table 2: Maintenance Vehicle Pull-out Locations

Location	P.M.	Direction (N/S)	Location Description
1	M0.30	NB	NB on-ramp from Scott Creek Rd.
2	M0.95	NB	Mainline
3	M1.38	NB	Mainline
4	M2.49	NB	NB on-ramp from Mission 262
5	M2.88	NB	Mainline
6	M3.33	NB	Mainline
7	R6.86	NB	Mainline
8	R7.13	NB	NB on-ramp from Vargas Rd.
9	R 7.36	SB	Mainline
10	R7.71	SB	Mainline
11	R8.21	NB	Mainline
12	R8.34	NB	Mainline
13	R8.51	NB	Mainline
14	R8.65	NB	NB off-ramp to CHP Truck Scale
15	R9.03	SB	Mainline
16	R9.63	NB	Mainline
17	R9.73	NB	NB on-ramp from Andrade Rd.
18	R10.37	NB	Mainline
19	R 10.39	NB	Mainline
20	R10.83	SB	Mainline
21	R10.95	NB	NB on-ramp from Calaveras Rd.
22	R11.63	NB	Mainline
23	R11.95	NB	Mainline
24	R11.96	NB	NB Route 84 to NB I-680
25	R12.55	NB	NB on-ramp from Koopman Rd.
26	R13.10	NB	Mainline
27	R13.54	SB	Mainline
28	R14.24	NB	Mainline
29	R14.50	NB	Mainline

Location	P.M.	Direction (N/S)	Location Description
30	R14.87	SB	Mainline
31	R15.31	SB	SB on-ramp from Sunol Blvd.
32	R15.41	NB	NB on-ramp from Sunol Blvd.
33	R15.83	NB	Mainline
34	R16.15	SB	Mainline
35	R16.60	NB	Mainline
36	R16.67	SB	SB on-ramp from Bernal Ave.
37	R16.78	NB	NB on-ramp from Bernal Ave.
38	R17.28	SB	Mainline
39	R17.81	NB	Mainline
40	R18.20	SB	Mainline
41	R18.43	NB	Mainline
42	R18.71	SB	Mainline
43	R19.20	NB	Mainline
44	R19.23	SB	SB Diagonal on-ramp from Stoneridge Drive
45	R19.34	SB	SB Loop on-ramp from Stoneridge Drive
46	R19.62	NB	Mainline
47	R20.12	NB	NB I-680 off-ramp to WB I-580
48	R20.30	SB	SB off-ramp to St Patrick Way

No-Build Alternative

The No-Build alternative is used to determine the relative impacts and benefits of providing the project improvements through a comparative analysis. If the existing facility remains unimproved, movement of traffic in peak hours will deteriorate on the mainline. There will also be an increase in variable congestion, a dramatic decrease in level of service, and an increase of existing operation and safety deficiencies. If the No-Build alternative is selected, operational and safety complications would not be minimized, therefore the No-Build alternative does not meet the desired goals of this project.

Preferred Alternative

The Build alternative was selected as the preferred alternative by the project's Project Development Team (PDT) on January 28, 2014 as it meets the purpose and need of the project. The PDT is comprised of the Project Manager, and representatives from various functional units that are involved in the project development process. This includes but is not limited to representatives from the project design group, environmental, traffic, construction, surveys, right-of-way, and representatives from the Metropolitan Transportation Commission.

The No-Build does not meet the purpose and need, therefore was not selected as the preferred alternative.

Purpose and Need

The Bay Area is the second-most congested region in the nation. Opportunities to relieve traffic congestion to any meaningful degree are limited, owing to a number of key factors. Bay Area freeways are basically a mature system, with capacity increases possible at only a limited number of locations.

Finances in today's economy are constrained, and adequate funding for large transportation projects is often not available due to competing needs and rising construction costs. There is a need to maximize system performance through innovative, cost effective strategies, and thereby reduce the need for new, large-scale capital investments. Ramp metering is needed to maintain the freeway near its maximum efficiency.

Need

I-680 experiences heavy congestion during peak periods (5AM-9AM and 3PM-7PM). Some of the congestion and breakdown in traffic flow on I-680 is caused by platoons of vehicles entering at unmeted on-ramps and merging with the mainline traffic. Since installation and implementation of a ramp metering system on freeways is a proven, effective operation tool for the overall efficiencies of a transportation corridor, the expansion of the ramp metering program on eastbound and westbound I-680 is needed as per Caltrans' Ramp Metering Development Plan (2011).

Purpose

Caltrans is committed to implementing state of the art TOS on California's congested freeways, including ramp metering. The purpose of this project is to improve traffic operations by completing the installation and implementation of ramp metering and TOS elements on eastbound and westbound I-680 in Alameda County. The goal of this project is to improve traffic mobility and safety by mitigating associated traffic conflicts due to weaving and merging maneuvers along I-680 in Alameda County.

Congestion problems are expected to increase significantly over the next few years as traffic growth exceeds the capacity of existing freeway facilities. When vehicle demand exceeds the freeway's capacity, congestion develops, speeds drop, and incidents increase in number. Lack of traffic carrying capacity in the Bay Area freeways has resulted in worsening the daily delays and recurrent congestion along the highway system. In addition, incidents such as accidents or mechanical breakdowns can cause lane closures and significant delays in the freeway system. Similarly, construction and maintenance activities, as well as special events and daily congestion, can cause incidents and delays when motorists are unprepared for them. Handling an incident involves:

- Detection and verification of its existence
- Identification and response
- Informing motorists of the highway condition
- Clearing and restoration of the highway to full capacity

Minimizing the duration of any of these elements will reduce the impact of incidents in terms of their potential to cause accidents, congestion, and delay. With the implementation of TOS, incidents are detected automatically by an analysis of data collected from the TMS which measures vehicle speed, traffic volume, and freeway density (vehicles/lane-mile) – the essential elements of system performance.

CCTV cameras are used to identify the nature of the incidence once it has been detected. Whereas TMS will reduce the time to detect an incident, CCTV reduces the time of verification. TMC personnel, upon verification that an actual incident has occurred, will be able to determine the basic type of response needed. Verification of incidents is necessary so that the type of response initiated will be appropriate to the incident and thereby improving efficiency of traffic control.

CMS allow the TMC operator to advise motorists of adverse traffic or road conditions ahead in real time, so that alternative routes may be anticipated at different points of the road, thereby reducing congestion and overall delay.

Installation of the TOS elements on westbound I-680 is a necessary step toward the future development of a complete TOS in the Bay Area.

Permits Needed

Permit	Agency	Acquired
Incidental Take Permit (ITP)	California Department of Fish and Wildlife (CDFW)	Will be acquired during the design phase of the project.
Biological Opinion (BO)	US Fish and Wildlife Service (USFWS)	Permit Number: 08ESMF00-2013-F-0362-1
Memorandum of Agreement (MOA)	State Historic Preservation Officer (SHPO)	Received from SHPO on February 26, 2014

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project. Please see Chapter 2 for additional information.

<input checked="" type="checkbox"/>	Aesthetics	<input type="checkbox"/>	Agriculture and Forestry	<input type="checkbox"/>	Air Quality
<input checked="" type="checkbox"/>	Biological Resources	<input checked="" type="checkbox"/>	Cultural Resources	<input type="checkbox"/>	Geology/Soils
<input type="checkbox"/>	Greenhouse Gas Emissions	<input type="checkbox"/>	Hazards and Hazardous Materials	<input type="checkbox"/>	Hydrology/Water Quality
<input type="checkbox"/>	Land Use/Planning	<input type="checkbox"/>	Mineral Resources	<input type="checkbox"/>	Noise
<input type="checkbox"/>	Population/Housing	<input type="checkbox"/>	Public Services	<input type="checkbox"/>	Recreation
<input type="checkbox"/>	Transportation/Traffic	<input type="checkbox"/>	Utilities/Service Systems	<input type="checkbox"/>	Mandatory Findings of Significance

Chapter 2 - CEQA Environmental Checklist

This checklist identifies physical, biological, social and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects indicate no impacts. A NO IMPACT answer in the last column reflects this determination. Where there is a need for clarifying discussion, the discussion is included either following the applicable section of the checklist or is within the body of the environmental document itself. The words "significant" and "significance" used throughout the following checklist are related to California Environmental Quality Act (CEQA), not National Environmental Policy Act (NEPA), impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

I. AESTHETICS/VISUAL:

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Affected Environment

A *Visual Impact Assessment for the Ala 680 TOS Improvement Project* (June 2013) was prepared for the proposed project. The technical report assessed the visual effects of the proposed project.

Interstate 680, within the proposed project limits, is an officially designated State Scenic Highway. It is a six-lane split profile freeway that traverses in a north/south direction. The regional landscape is characterized by both flat linear stretches and large rolling hills with stands of mature trees, shrubs and grass. Land use within the highway corridor has a primarily suburban character. It includes residential, commercial, office and recreational uses. However, both the hilly topography and the mature vegetation throughout the corridor greatly minimize views of development. As a result, the corridor appears much less developed than it actually is in views from the highway. The project corridor is defined as the area of land that is visible from, adjacent to, and outside, the highway right-of-way, and is determined by topography, vegetation, and viewing distance.

Environmental Consequences

Visual impacts are determined by assessing changes to the visual resources and predicting viewer response to those changes. During construction, work crews and equipment would be visible along the roadside and on the slopes where ramp widening occurs. Immediately following construction, the new walls and loss of adjacent trees and shrubs would be evident to freeway users and neighbors.

For retaining walls visible to neighbors and/or highway users, applying an aesthetic treatment of color, pattern and/or texture would reduce the visual impact to less than significant levels. The treatment would also reduce glare and help to deter graffiti.

Cable railing for upslope cut walls would consist of 2 inches metal pipes spaced a maximum 10 ft apart, with three rows of ¼ inch galvanized cable strung between, spaced 12 inches from the top of pipe. Due to the viewers' ability to see through the railing, visual impacts are anticipated to be low.

Concrete safety barrier mounted on top of down slope-facing retaining walls could be sand blasted to reduce glare. Since this type of barrier is used throughout the corridor, visual impact would be considered less than significant.

Removal of trees and shrubs would have minimal visual impacts to neighbors as the vegetation to remain would still provide screening. Also, the existing rolling topography of some areas will continue to provide view screening even with tree removal.

TOS equipment would be viewed mainly by highway users. Freeway signage and light poles currently exists within the project area. The proposed CMS arrays, RMS signals and CCTV cameras would blend in with the existing equipment along the corridor. Traffic monitoring systems are proposed at various locations and consist of sensors imbedded into and under the roadway surface of each traffic lane to relay traffic information to a central location. These sensors would not be noticeable to the motorist and would be virtually invisible to freeway users.

The visual impact of the proposed project improvements is anticipated to be low to moderate-low for reasons discussed above.

If the project were not to be approved, resulting in the no-build alternative, no visual change would be reasonably expected to occur in the foreseeable future. Trees and shrubs and rolling hills would continue to screen views of the freeway.

The project would not substantially affect any scenic vistas, would not substantially degrade visual character or scenic quality, would not damage or remove any identified scenic resources, and would not result in a substantial new source of light and glare with mitigation measures implemented.

Avoidance, Minimization, and/or Mitigation Measures

Avoidance or minimization measures have been identified and can lessen visual impacts caused by the project. Also, the inclusion of aesthetic features in the design previously discussed can help generate public acceptance of the project. This section describes additional avoidance and/or minimization measures to address specific visual impacts. These will be designed and implemented with concurrence of the Caltrans District Landscape Architect.

The following measures to avoid, minimize and/or mitigate visual impacts will be incorporated into the project:

1. Replacement Planting – Where proper setback exists, and where feasible, replacement planting could be implemented to help reduce views of the retaining walls facing neighbors. Other trees removed as part of the project would be replaced as per Caltrans' policy regarding tree removal. Over time, the initial tree loss will be compensated by the replacements, and the overall drop in visual quality will increase to current or above levels with planting. It is estimated that approximately one linear mile of existing planting will be removed and require replacement. If the estimated cost of replacement can be kept at or below \$300K, then planting can be included as part of the roadway contract, with a one-year plant establishment period. If the estimate goes over \$300K, then planting will need to be completed as a separate contract, funded from the parent roadway contract, and include a 3-year plant establishment period.

2. Aesthetic Wall Treatments – Aesthetic treatments consisting of color, pattern and/or texture would be utilized to reduce visual impacts, glare and the likelihood of graffiti. Treatments would be context-sensitive to the wall’s location and help blend it into the environment. If concrete drainage ditches are required behind the top of retaining walls, they will be stained to match the overall wall color.
3. Concrete safety-shaped barriers – Sand blasting to a medium finish would reduce glare and deter graffiti. Barriers at the bottom of retaining walls can be stained to match the overall wall color if deemed appropriate by the Office of Landscape Architecture during the design phase.
4. Cable safety railing - Where required, railing can be treated with black or brown color application to reduce their appearance and help them blend visually into the environment.

II. AGRICULTURE AND FOREST RESOURCES:

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

The project will not affect any agricultural lands or forest resources therefore no avoidance, minimization, and/or mitigation measures is needed.

III. AIR QUALITY:

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Expose sensitive receptors to substantial pollutant concentrations? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Create objectionable odors affecting a substantial number of people? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Affected Environment

Air quality of a region is determined by the climatological conditions, topography, and the types and amounts of emitted pollutants. An air basin generally has similar meteorological and geographic conditions throughout. California is divided geographically into 15 air basins. The proposed project is located within the San Francisco Bay Area Air Basin, which is characterized by complex terrain consisting of coastal mountain ranges, inland valleys and bays. This project passes through populated areas where automobiles are sources of carbon monoxide, particulate and photochemical air pollution. In the southern portion of the project, potential of air quality pollution is somewhat diminished due to wind fields and the narrow range of temperature created by the moderating marine air. The air pollution potential is higher in the northern portion of the project, especially for photochemical pollutants, where the conditions are transitioning into the pattern exists in the Livermore Valley. The Valley not only traps locally generated pollutants but can be the receptor of ozone and ozone precursors from San Francisco, Alameda, Contra Costa and Santa Clara counties. Sensitive receptors are locations where people susceptible to the effects of air pollutants may stay for an extended period of time, which include land uses or facilities such as residences, schools, playgrounds, childcare centers and hospitals. There are residential developments, schools, parks, schools, and recreational trails within close vicinity of the project.

The Bay Area Air Quality Management District (BAAQMD) maintained monitoring stations collect ambient air quality data around the Bay Area on a continuous basis. Data of recent years collected at two closest monitoring stations can be used to characterize the existing conditions near the project area. They are listed in the following table (Table 3).

Table 3: Ambient Air Quality Data

Pollutants	Category	Monitoring Stations					
		Livermore – 793 Rincon			Fremont – Chapel Way		
		2007	2008	2009	2007	2008	2009
Ozone	Nat. 8-hr Max. (ppm)	<u>0.091</u>	<u>0.11</u>	<u>0.086</u>	0.068	0.064	0.062
	State 8-hr Max. (ppm)	<u>0.091</u>	<u>0.111</u>	<u>0.086</u>	0.068	0.064	0.063
	State 1-hr Max. (ppm)	<u>0.12</u>	<u>0.141</u>	<u>0.113</u>	0.079	0.086	0.092
CO	Nat. 8-hr Avg. (ppm)	1.83	1.43	1.31	1.57	1.63	1.99
	State 8-hr Avg. (ppm)	1.83	1.43	1.31	1.57	1.63	1.99
PM10	Nat. 24-hr Max. (ig/m3)	71.4	46.3	-	57.5	-	-
	State 24-hr Max. (ig/m3)	<u>74.8</u>	46.8	-	<u>60.6</u>	-	-
	State Annual Avg. (ig/m3)	19.8	-	-	19.6	-	-
PM2.5	Nat. 24-hr Max. (ig/m3)	<u>54.9</u>	<u>38.6</u>	<u>45.7</u>	<u>51.2</u>	30.1	<u>36.3</u>
	Nat. Annual Avg. (ig/m3)	8.9	10	9.1	8.7	9.4	9.2
	State Annual Avg. (ig/m3)	9	10.1	9.2	8.7	9.5	-
NO2	Nat./State 1-hr Max (ppm)	0.052	0.058	0.052	0.058	0.07	0.062
	Nat./State Annual Avg. (ppm)	0.013	0.013	0.012	0.014	0.015	0.014

Note: Underlined figures “xxx” denote exceedances of either the NAAQS or the CAAQS.

The table below (Table 4) lists the attainment statuses of the BAAQMD for air pollutant under the state standards.

Table 4: California Ambient Air Quality Standards & Attainment Statuses

Pollutant	Averaging Time	California Standards	
		Concentration	Attainment Status
Ozone	8 Hour	0.070 ppm (137 ig/m3)	N
	1 Hour	0.09 ppm (180 ig/m3)	N
Carbon Monoxide	8 Hour	9.0 ppm (10 mg/m3)	A
	1 Hour	20 ppm (23 mg/m3)	A
Nitrogen Dioxide	Annual Arithmetic Mean	0.030 ppm (57 ig/m3)	n/a
	1 Hour	0.18 ppm (339 ig/m3)	A
Sulfur Dioxide	24 Hour	0.04 ppm (105 ig/m3)	A
	1 Hour	0.25 ppm (655 ig/m3)	A
Particulate Matter (PM ₁₀)	Annual Arithmetic Mean	20 ig/m3	N
	24 Hour	50 ig/m3	N
Particulate Matter - Fine (PM _{2.5})	Annual Arithmetic Mean	12 ig/m3	N
	24 Hour	-	-
Sulfates	24 Hour	25 ig/m3	A
Lead	Calendar Quarter	-	-
	30 Day Average	1.5 ig/m3	A
Hydrogen Sulfide	1 Hour	0.03 ppm (42 ig/m3)	U

Pollutant	Averaging Time	California Standards	
		Concentration	Attainment Status
Vinyl Chloride (chloroethene)	24 Hour	0.010 ppm (26 µg/m ³)	U
Visibility Reducing particles	8 Hour (1000 to 1800 PST)	-	U
A=Attainment N=Nonattainment U=Unclassified			
mg/m ³ =milligrams per cubic meter			
ppm=parts per million			
µg/m ³ =micrograms per cubic meter			
Source: BAAQMD			

Project Level Analysis

Carbon Monoxide (CO)

Carbon monoxide (CO) is a colorless, odorless, poisonous gas. CO is emitted directly from traveling vehicles. A product of incomplete burning of hydrocarbon-based fuels, CO consists of a carbon atom and an oxygen atom linked together. It enters the bloodstream through the lungs and forms carboxyhemoglobin, a compound that inhibits the blood's capacity to carry oxygen to organs and tissues. Persons with heart disease are especially sensitive to carbon monoxide poisoning and may experience chest pain if they breathe the gas while exercising. Infants, elderly persons, and individuals with respiratory diseases are also particularly sensitive. CO can affect healthy individuals, impairing exercise capacity, visual perception, manual dexterity, learning functions, and the ability to perform complex tasks.

The CO analysis for this project adheres to the December 1997 "Transportation Project-Level Carbon Monoxide Protocol" prepared by the Institute of Transportation Studies, University of California at Davis and approved by the US EPA for use in the Bay Area. Since the Bay Area was designated a maintenance area for CO on June 1, 1988, the protocol indicates that an analysis by comparison is appropriate for this project. This involves a comparison of the proposed project with an existing facility within the air district that has the potential of creating higher CO concentrations at the time of attainment demonstration. In this study, comparisons are made between the existing Route 101 at Tully Road in San Jose and the proposed project at its junction with I-580 where the traffic volume is the highest of all the project's ramp widening locations (See Table 5).

Table 5: Comparison of Mainline Conditions

	Parameters	I- 680 – Build at I-580 Junction	Route 101 – Existing at Tully Rd. San Jose
A	Receptor Distance	80 ft	20 ft
B	Roadway Geometry	6 lanes + 2 auxiliary lanes	8 lanes + 2 auxiliary lanes
C	Worst case Meteorology	Coastal Valley	Coastal Valley
D	ADT Volumes	178,000 (2009) 192,000 (2015) 226,600 (2035)	243,000 (2009)
E	Hot/Cold Starts	10/50 EB 10/50 WB	10/50 NB 10/50 SB
F	Percent Heavy Duty Gasoline (HDG) Trucks	1.8%	2.20%
G	8 Hr. Background CO	1.5 ppm (2007-2009)	2.6 ppm (2007-2009)

Environmental Consequences

Since all conditions in items A through G listed in Table 5 are satisfied, there is no reason to expect higher CO concentrations at the project location than existed at Route 101 at Tully Road in San Jose in Santa Clara County. The project therefore will not cause exceedances of state CO standards.

Avoidance, Minimization, and/or Mitigation Measures

The project will not cause exceedances of state CO standards and therefore no avoidance, minimization, and/or mitigation measures are required.

Particulate Matters (PM₁₀ and PM_{2.5})

Particulate Matters (PM₁₀ and PM_{2.5}) refer to airborne particles that are less than 10 microns in diameter (PM₁₀) or less than 2.5 microns in diameter (PM_{2.5}). Transportation related particulate matters are both a regional and a project-level issue. The coarser particulate matters, PM₁₀, are typically formed by earth-based material that enters the air through a variety of actions including “entrainment” into the atmosphere by windblown dust. Particles from brake and tire wear, from pavement wear, and from other vehicle degenerative processes also contribute to this PM size. However, the greatest contribution from this size category has “natural” rather than “man-made” origins. PM_{2.5} is thought to be more of a product of combustion sources. This material is believed to penetrate deeper into the lungs and remain lodged there rather than exhaled, causing negative impacts on health.

Environmental Consequences

The project is not a new freeway or a highway expansion project. It does not significantly increase the volume or percentage of diesel vehicles. The proposed Ramp Metering and TOS Projects are non-capacity increasing projects.

The project does not affect intersections with Level of Service (LOS) of D, E, or F (See Figure 2) that have a significant number of diesel vehicles. The truck percentages are low on the ramps. The ramp meters will be in operation only during the AM and/or PM peak periods when diesel truck traffic may be limited due to congested freeways and local arterials. Queues at metered on-ramps will be confined to the on-ramps or on dedicated lanes on the local streets without impact to local streets through movements. If queues start spilling onto local street intersections the metering system will adjust by metering at a higher rate without affecting the local streets with the use of end-of-queue detectors (installed at the entrance of on-ramps). The freeway mainline with the metering system implemented should either perform as it is currently without the metering system or better, by breaking up platoons and metering for bottlenecks along the freeway corridors.

Figure 2: Level of Service

LEVELS OF SERVICE for Freeways			
Level of Service	Flow Conditions	Operating Speed (mph)	Technical Descriptions
A		70	Highest quality of service. Traffic flows freely with little or no restrictions on speed or maneuverability. No delays
B		70	Traffic is stable and flows freely. The ability to maneuver in traffic is only slightly restricted. No delays
C		67	Few restrictions on speed. Freedom to maneuver is restricted. Drivers must be more careful making lane changes. Minimal delays
D		62	Speeds decline slightly and density increases. Freedom to maneuver is noticeably limited. Minimal delays
E		53	Vehicles are closely spaced, with little room to maneuver. Driver comfort is poor. Significant delays
F		<53	Very congested traffic with traffic jams, especially in areas where vehicles have to merge. Considerable delays

Avoidance, Minimization, and/or Mitigation Measures

It was determined that the project did not fit the definition of a project of air quality concern as defined by 40 CFR 93.126(b) (1) or 40 CFR 93.128 and therefore is not subject to PM2.5 project level conformity requirement. This Air Quality Conformity Determination was acquired in May 2011.

No avoidance, minimization, and/or mitigation measures are identified.

Ozone

Ozone is an indirect pollutant. Ozone precursors are converted into ozone by photochemical reactions some distance downwind, over several hours.

Environmental Consequences

Since ozone precursors are converted into ozone by photochemical reactions some distance downward, over several hours, it is therefore impossible for most transportation projects to create a localized ozone “hot spot”. The traffic on a highway contributes to the regional ozone precursor emissions, and analysis of such emissions and their impact is normally done for regional planning.

Avoidance, Minimization, and/or Mitigation Measures

If a project can be shown, through a regional conformity analysis as part of a regional transportation plan, then its individual impact on ozone would not be an issue. To be part of a regional transportation plan the project must contribute to annual emission reductions. The proposed project was included in the regional emissions analysis conducted by MTC for the Transportation 2.35 Plan and the 2011 TIP, therefore this project’s individual impact on ozone should not be of concern.

Nitrogen Dioxides

Nitrogen dioxide (NO₂) is one of a group of highly reactive gasses known as "nitrogen oxides (NO_x)."
Other nitrogen oxides include nitrous acid and nitric acid. The National Ambient Air Quality Standards (NAAQS) set national levels for acceptable concentrations of specific pollutants in outdoor air known as “criteria pollutants”. While the NAAQS covers this entire group of NO_x, NO₂ is the component of greatest interest and the indicator for the larger group of nitrogen oxides. NO₂ forms quickly from emissions from cars, trucks and buses, power plants, and off-road equipment. In addition to contributing to the formation of ground-level ozone, and fine particle pollution, NO₂ is linked with a number of adverse effects on the respiratory system.

On January 22, 2010, US EPA established a new 1-hour NO₂ standard in the NAAQS at the level of 100 parts per billion (ppb). US EPA expects to designate areas as attaining or not attaining the new standard two years after establishing the new NO₂ standard. There is no approved regulatory model for roadway-related NO₂ hot-spot analysis at this time.

Environmental Consequences

There is no approved regulatory model for roadway-related NO₂ hot-spot analysis at this time; therefore project related impacts are unable to be determined.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are identified.

Construction Impacts

The proposed project would generate air pollutants during the construction period, which is expected to last at one location or another for a total of 2 years. Trucks and construction equipment emit hydrocarbons, oxides of nitrogen, carbon monoxide and particulates. Most pollution will consist of wind-blown dust generated by excavation, grading, hauling and various other activities. The impacts from the

above activities would vary from day to day as construction progresses. No hot-spot analysis was conducted for the construction emissions of the project.

Recent studies have raised significant concerns about the health risks associated with emissions from diesel construction equipment. For PM₁₀, PM_{2.5} or air toxics, there currently are no micro scale requirements that are applicable at the project level for the temporary impacts in the construction phase. To minimize air quality impacts from construction activities, control measures will be implemented as specified in the Environmental Stewardship section of Caltrans Standard Specifications - Section 14-9.01 Air Pollution Control and Section 14-9.02 Dust Control.

IV. BIOLOGY:

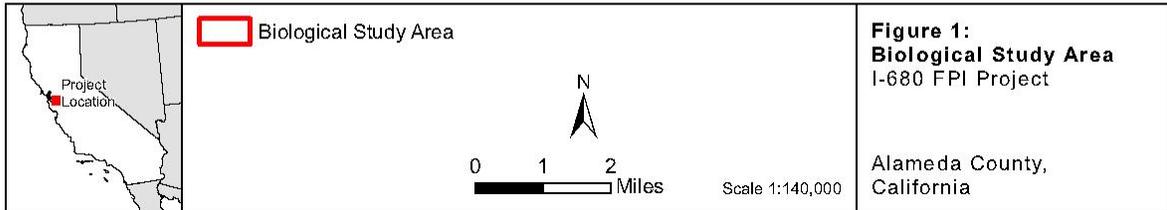
Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Wetlands and Water Features

Affected Environment

The preliminary determination of jurisdictional waters (April 2014) identified 1.435 acres of potential waters of the U.S. within the Biological Study Area (BSA), including six wetland features totaling 0.154 acre, and six other water features totaling 1.264 acre.

Based on criteria as described in 33 Code of Federal Regulations (CFR) 328.3, only a subset of these wetlands may be jurisdictional. The jurisdiction of individual features as discussed in the NES has not yet been verified by the United States Army Corp. of Engineers (USACE).



Environmental Consequences

There are no wetland or water features located within permanent or temporary impact zones. No impacts to jurisdictional features will occur as a result of this project.

Avoidance, Minimization, and/or Mitigation Measures

The avoidance and minimization measures listed in the General Avoidance, Minimization, and/or Mitigation Measures section will reduce the potential for effects to jurisdictional water features during project construction. These measures include biological monitoring (Measure #3), worker environmental awareness training (Measure #4), water quality inspection (Measure #11), and Caltrans Standard BMPs (Measure #18), and the proper treatment and storage of concrete waste (Measure #20).

Plant Species

Affected Environment

Based on initial habitat mapping conducted in February and March, 2012, fourteen special-status plant species were considered to have at least some potential to occur within the BSA. To complete the protocol-level surveys, biologists conducted three iterations of field surveys between March 30 and August 9, 2012 to correspond to the flowering period of each of the potentially occurring special-status plant species. Protocol-level surveys were completed within the majority of the natural vegetation type portions of the BSA.

Transects could not be conducted for approximately seven acres of the natural vegetation type portions of the BSA because of safety issues. These areas are of cut slopes with steep grades and have little shoulder access. They were surveyed from a vehicle and/or adjacent areas with binoculars. No federally or state-listed plants, or plants with California Rare Plant Ranks (RPR), were observed in the 62 acres of the BSA in which protocol-level surveys were completed. Based on the results of these surveys, no special-status plant species are expected to occur within the BSA.

Avoidance, Minimization and/or Mitigation Measures

No special-status plant species were observed or are expected to occur within the BSA. Therefore no avoidance, minimization, and/or mitigation measures are identified.

Animal Species

Affected Environment

Based on literature and database searches, and familiarity with the region, a total of 61 wildlife species were initially considered to have potential to occur within the BSA. A wildlife habitat assessment was conducted within the BSA in late 2011, and 32 of these species were dropped from consideration based on a lack of suitable habitat. Those species dropped from consideration are not discussed further, and the remaining 29 species are:

- California Tiger Salamander (*Ambystoma californiense*)
- California Red-Legged Frog (*Rana draytonii*)
- Alameda Whipsnake (*Masticophis lateralis euryxanthus*)
- San Joaquin Kit Fox (*Vulpes macrotis mutica*)
- Western Burrowing Owl (*Athene cunicularia hypugaea*)

- Western Pond Turtle (*Emys marmorata*)
- American Badger (*Taxidea taxus*)
- San Francisco Dusky-footed Woodrat (*Neotoma fuscipes annectens*)
- Bat Species
 - Pallid Bat (*Antrozous pallidus*)
 - Townsend's Big-eared Bat (*Corynorhinus townsendii*)
 - Western Mastiff Bat (*Eumops perotis californicus*)
 - Western Red Bat (*Lasiurus blossevillii*)
 - Hoary Bat (*Lasiurus cinereus*)
 - Long-eared Myotis (*Myotis evotis*)
 - Fringed Myotis (*Myotis thysanodes*)
 - Yuma Myotis (*Myotis yumaensis*)
- Migratory Bird Species
 - Cooper's hawk (*accipiter cooperii*)
 - Sharp-shinned hawk (*Accipiter striatus*)
 - Tri-colored blackbird (*Agelaius tricolor*)
 - Golden eagle (*Aquila chrysaetos*)
 - Burrowing owl (*Athene cunicularia*)
 - Ferruginous hawk (*Buteo regalis*)
 - Northern harrier (*Circus cyaneus*)
 - Yellow warbler (*Dendroica petechia brewsteri*)
 - White-tailed kite (*Elanus leucurus*)
 - California horned lark (*Eremophila alpestris actia*)
 - Prairie falcon (*Flaco mexicanus*)
 - American peregrine falcon (*Falco peregrinus anatum*)
 - Loggerhead shrike (*Lanius ludovicianus*)

California Tiger Salamander

The Central California Distinct Population Segment of California tiger salamander was listed as federally threatened in 2004, and as threatened under the California Endangered Species Act, on May 20, 2010.

Affected Environment

Critical habitat was designated for the Central California Distinct Population Segment of California tiger salamander in 2005. There is no designated critical habitat within the BSA. The nearest critical habitat is East Bay Region Unit 3, located on the east side of Calaveras Reservoir, approximately five miles east of the BSA.

None of the aquatic features identified within the BSA are suitable breeding habitat for California tiger salamanders, because they are too shallow and/or ephemeral to support breeding. Suitable upland habitat is present in grassland and oak woodland habitats within the BSA. California ground squirrel burrows are relatively abundant on the grassy hillsides within and adjacent to the Caltrans right of way along I-680, and these could be utilized as upland refugia. There are numerous ponds visible on aerial imagery in the surrounding hills north of SR 238 which could also contain suitable breeding habitat and are within 1.3 miles of the BSA. Of particular note is a stock pond located just 0.03 mile (approximately 175 feet) from the BSA, in the vicinity of the Vargas Road exit. An adult female California tiger salamander was unearthed within the current BSA during the widening of the I-680 bridge over Vargas Road in 2009 (CNDDDB Occurrence #1059), and this pond, being the closest potentially suitable breeding pond to that area, is the most likely breeding habitat from which this adult originated. Adults and juveniles originating from this pond or any of the other ponds within the 1.3-mile dispersal range may use the BSA for upland

refuge. As such, California tiger salamanders have potential to occur in grassland and oak woodland habitats in two sections of the BSA:

- Between Bernal Avenue and North Mission Boulevard (SR 238)
- Between South Mission Boulevard (SR 262) and Scott Creek Road

California tiger salamanders are not expected to occur within the BSA outside of these areas due to urban development on both sides of I-680. I-680 north of SR 238 represents a major barrier to dispersal of California tiger salamanders. The paved surface of I-680 is not considered to be a viable dispersal corridor for California tiger salamanders, because heavy traffic likely causes high mortality of individuals attempting to cross.

There are several natural and artificial wildlife crossings within the BSA that could potentially be used by dispersing California tiger salamanders to cross under I-680, including the Alameda Creek corridor, underpasses for lightly-used roads such the ones at Vargas Road, Calaveras Boulevard, Koopman Road, and culverts carrying streams and drainage channels under the freeway. However, I-680 remains a largely impermeable barrier to movement despite the presence of these crossings, because there are few of them relative to the length of the freeway. Individual California tiger salamanders entering the BSA from adjacent areas are much more likely to encounter the traffic lanes of I-680 than a viable crossing point. No dispersal corridors exist within the BSA south of SR 238 or north of Bernal Avenue due to urban development immediately adjacent on one or both sides of I-680 in those areas.

Environmental Consequences

California tiger salamander within the proposed construction area may suffer direct harassment, harm, injury or mortality as a result of construction activities, including initial site preparation, during use of heavy equipment for excavation and backfill, during handling of stockpiles and stored materials, and during construction of retaining walls, TOS elements, and electrical trenching. The avoidance and minimization measures are intended to reduce the likelihood of direct take during project activities.

The six proposed retaining walls at ramp widening locations between Bernal Avenue and SR 238 may impede the movement of individual California tiger salamanders travelling within the BSA. The total length of the six retaining walls on the project will be approximately 8,440 feet (approximately 1.6 miles). California tiger salamanders may be exposed to direct injury or mortality during earthwork within the construction area. Excavation, fill, and other construction activities will impact a total of 9.91 acres of grassland and oak woodland habitats which provide potential upland, foraging, and dispersal habitat for California tiger salamander. Temporary impacts will total 6.77 acres, and permanent impacts will total 3.14 acres. The habitat within the construction area is considered to be of marginal quality because of the high levels of roadside disturbance associated with I-680. However, construction of the project will push this zone of roadside disturbance further outward into less disturbed habitat, particularly at ramp widening locations, causing further degradation of habitat due to edge effects. A conclusion may be drawn that the proposed modifications to California tiger salamander habitat within the BSA may have a potential adverse impact on the behavioral patterns of some individuals of this species, including foraging, migration, and aestivation. There is no adverse impact to breeding behavior because no breeding habitat is located within the construction area.

Avoidance, Minimization, and/or Mitigation Measures

The avoidance and minimization measures listed in the General Avoidance, Minimization, and/or Mitigation Measures section will reduce the potential for effects to California tiger salamander during project construction. These measures include biological monitoring (Measure #3), worker environmental awareness training (Measure #4), prevention of wildlife entrapment (Measure #5), wildlife exclusion fencing (Measure #6), pre-construction surveys (Measure #8), a April 15-October 15 work window for activity in suitable habitat (Measure #9), proper materials storage (Measure # 15), and the prohibition of monofilament plastic (Measure #24).

Caltrans proposes that the temporary impacts of 6.77 acres will be mitigated through on-site restoration at a ratio of 1:1 and 3.14 acres of permanent impacts will be mitigated at a ratio of 3:1 for 9.42 acres as off-site compensation. The mitigation proposal is based on the current estimate of impacts to suitable habitat within the range of the species. Caltrans proposes this compensatory mitigation for California tiger salamander to meet the requirements of California FGC Section 2081 for obtaining an Incidental Take Permit. Caltrans anticipates that the avoidance and minimization measures, in conjunction with the proposed compensatory mitigation, will reduce potential adverse effects to a negligible level. This mitigation may be used to satisfy the conditions of multiple agencies and jurisdictions including the Federal Endangered Species Act (FESA), CESA, and the California Environmental Quality Act (CEQA) process. The final mitigation proposal will be subject to modification during the agency consultation and permitting processes.

California Red-Legged Frog

Affected Environment

Critical habitat was designated for the California red-legged frog in 2010, but none was designated within the BSA. The nearest designated California red-legged frog critical habitat (Unit ALA-2) is located approximately 1.4 miles southeast of the BSA, in the vicinity of San Antonio Reservoir. There are numerous ponds and streams visible on aerial imagery within one mile of the BSA which could contain suitable breeding habitat. Adults and juveniles originating from these ponds and streams may potentially use the BSA for upland refuge. As such, California red-legged frog have potential to occur in grassland, oak woodland, riparian woodland, freshwater marsh, and creek channel habitats within the BSA north of SR 238. South of SR 238, they may potentially occur in the undeveloped grassland between the BSA and the Avalon Heights residential development in Fremont (between the SR 262 and Scott Creek Road exits).

I-680 north of SR 238 represents a major barrier to dispersal of California red-legged frogs. The paved surface of I-680 is not considered to be a viable dispersal corridor for California red-legged frogs, because heavy traffic likely causes high mortality of individuals attempting to cross. There are several natural and artificial wildlife crossings within the BSA that could potentially be used by dispersing California red-legged frogs to cross under I-680, including the Alameda Creek corridor, underpasses for lightly-used roads such the ones at Vargas Road, Calaveras Boulevard, Koopman Road, and culverts carrying streams and drainage channels under the freeway.

However, I-680 remains a largely impermeable barrier to movement despite the presence of these crossings, because there are few of them relative to the length of the freeway. Individual California red-legged frogs entering the BSA from adjacent areas are much more likely to encounter the traffic lanes of I-680 than a viable crossing point.

No dispersal corridors exist within the BSA south of SR 238 or north of Bernal Avenue due to urban development immediately adjacent on one or both sides of I-680.

Environmental Consequences

California red-legged frogs within the PCA may be exposed to direct harassment, harm, injury or mortality as a result of construction activities, including initial site preparation, during use of heavy equipment for excavation and backfill, during handling of stockpiles and stored materials, and during construction of retaining walls, TOS elements, and electrical trenching. The avoidance and minimization measures detailed in the General Avoidance, Minimization, and/or Mitigation Measures section below are intended to reduce the likelihood of direct take during project activities.

The six proposed retaining walls at ramp widening locations between Bernal Avenue and SR 238 may impede the movement of individual California red-legged frogs travelling within the BSA. The total length of the six retaining walls on the project will be approximately 8,440 feet (approximately 1.6 miles).

California red-legged frogs may be exposed to direct injury or mortality during earthwork within the BSA. Excavation, fill, and other construction activities will impact a total of 9.91 acres of grassland and oak woodland habitats, which provide potential aestivation, foraging, and dispersal habitat for California red-legged frog. Temporary impacts will total 6.77 acres, and permanent impacts will total 3.14 acres. No impacts to riparian woodland, freshwater marsh or creek channel habitats will occur as a result of this project. The traffic lanes of I-680 already present a complete passage barrier to California red-legged frog, and any individuals dispersing from nearby ponds and streams onto the freeway surface are almost certainly struck by vehicles. The habitat within the construction area is considered to be of marginal quality because of the high levels of roadside disturbance associated with I-680. The habitat within the construction area is considered to be of marginal quality because of the high levels of roadside disturbance associated with I-680. However, construction of the project will push this zone of roadside disturbance further outward into less disturbed habitat, particularly at ramp widening locations, causing further degradation of habitat due to edge effects. A conclusion may be drawn that the proposed modifications to California red-legged frog habitat within the BSA may have a potential adverse impact on the essential behavioral patterns of the species, including foraging, migration, and aestivation. There is no adverse impact to breeding behavior because no breeding habitat is located within the construction area.

Avoidance, Minimization, and/or Mitigation Measures

The avoidance and minimization measures listed in the General Avoidance, Minimization, and/or Mitigation Measures section will reduce the potential for effects to California red-legged frog during project construction. These measures include biological monitoring (Measure #3), worker environmental awareness training (Measure #4), prevention of wildlife entrapment (Measure #5), wildlife exclusion fencing (Measure #6), pre-construction surveys (Measure #8), proper materials storage (Measure # 15), and the prohibition of monofilament plastic (Measure #24).

Caltrans proposes that the temporary impacts of 6.77 acres will be mitigated through on-site restoration at a ratio of 1:1 and 3.14 acres of permanent impacts will be mitigated at a ratio of 3:1 for 9.42 acres as off-site compensation. The mitigation proposal is based on the current estimate of impacts to suitable habitat within the range of the species. Caltrans proposes this compensatory mitigation for California red-legged frog to meet the requirements of the Federal Endangered Species Act (FESA). The final mitigation proposal will be subject to modification during the agency consultation and permitting process.

Alameda Whipsnake

Affected Environment

Critical habitat was designated for the Alameda whipsnake in 2006, but there are no critical habitat areas designated within the BSA. The nearest designated Alameda whipsnake critical habitat (Unit 3-Hayward/Pleasanton Ridge) is located approximately 175 feet to the west. This critical habitat unit generally includes all of the undeveloped hills west of I-680, north of Niles Canyon Road, and south of I-580. The closest area to the BSA is along an approximately one half-mile stretch between PM 13.4 and 14.1, located roughly one mile north of the Koopman Road exit.

Due to the high mobility of this species, the presence of known populations and critical habitat in the region, and the presence of dispersal corridors on site, Alameda whipsnakes have potential to occur in grassland, oak woodland, and riparian woodland habitats in two sections of the BSA:

- Between Bernal Avenue and North Mission Boulevard (SR 238)
- Between Scott Creek Road and South Mission Boulevard (SR 262)

Alameda whipsnakes are not expected to occur within the BSA outside of these areas due to urban development on both sides of I-680.

Environmental Consequences

Alameda whipsnakes within the construction area may be exposed to direct harassment, harm, injury or mortality as a result of construction activities, including initial site preparation, during use of heavy equipment for excavation and backfill, during handling of stockpiles and stored materials, and during construction of retaining walls, TOS elements, and electrical trenching. The avoidance and minimization measures detailed in the General Avoidance and Minimization Measures section below are intended to reduce the likelihood of direct take during project activities.

The six proposed retaining walls at ramp widening locations between Bernal Avenue and SR 238 may impede the movement of individual Alameda whipsnakes travelling within the BSA. The total length of the six retaining walls on the project will be approximately 8,440 feet (approximately 1.6 miles). Excavation, fill, and other construction activities will impact a total of 9.91 acres of grassland and oak woodland habitats which provide potential foraging and dispersal habitat for Alameda whipsnake. Temporary impacts will total 6.77 acres, and permanent impacts will total 3.14 acres. The habitat within the construction area is considered to be of marginal quality because of the high levels of roadside disturbance associated with I-680. However, construction of the project will push this zone of roadside disturbance further outward into less disturbed habitat, particularly at ramp widening locations, causing further degradation of habitat due to edge effects. A conclusion may be drawn that the proposed modifications to Alameda whipsnake habitat within the BSA may have a potential adverse impact on the essential behavioral patterns of the species, including foraging, migration and hibernation.

Typical breeding habitat, rocky outcrops and scrub habitats are not present within the construction area, and thus breeding behavior is not expected to be impacted. The project will not alter any of the existing crossings under I-680 which could be used by Alameda whipsnakes, such as the Alameda Creek crossing, the Vargas Road underpass, and the Koopman Road underpass. Therefore the project is not expected to contribute to further fragmentation of Alameda whipsnake populations. These factors result in a

conclusion that the proposed modifications to Alameda whipsnake habitat within the BSA may have a potential impact on the essential behavioral patterns of the species, including foraging and migration.

Avoidance, Minimization, and/or Mitigation Measures

The avoidance and minimization measures listed in the General Avoidance, Minimization, and/or Mitigation Measures section will reduce the potential for effects to Alameda whipsnake during project construction. These measures include biological monitoring (Measure #3), worker environmental awareness training (Measure #4), prevention of wildlife entrapment (Measure #5), wildlife exclusion fencing (Measure #6), pre-construction surveys (Measure #8) a June 15-October 15 work window for activity in suitable habitat (Measure #9), proper materials storage (Measure # 15), and the prohibition of monofilament plastic (Measure #24).

Caltrans proposes that 6.77 acres of temporary impacts will be mitigated at a 1:1 ratio as on-site restoration and 3.14 acres of permanent impacts will be mitigated at a 3:1 ratio for 9.42 acres of off-site compensation. The mitigation proposal is based on the current estimate of impacts to suitable habitat within the range of the species. Caltrans proposes this compensatory mitigation for Alameda whipsnake to meet the requirements of California FGC Section 2081 for obtaining an Incidental Take Permit. Caltrans anticipates that the avoidance and minimization measures, in conjunction with the proposed compensatory mitigation, will reduce potential adverse effects to a negligible level. This mitigation may be used to satisfy the conditions of multiple agencies and jurisdictions including the FESA, CESA, and CEQA process. The final mitigation proposal will be subject to modification during the agency consultation and permitting processes.

San Joaquin Kit Fox

Affected Environment

There are two recorded occurrences of San Joaquin kit fox within five miles of the BSA. Both are located near the northern end of the BSA, the first approximately 2.4 miles to the east in Tassajara Creek Regional Park (Occurrence #1031), and the other approximately 4.4 miles to the north near Blackhawk (Occurrence #544). These occurrences were recorded in 1975 and 1989, respectively, and are isolated from the BSA by urban development in San Ramon and Dublin. No critical habitat has been designated for San Joaquin kit fox.

This species is rare and sparsely distributed within the northern part of its range, including Alameda County, although the presence of suitable habitat suggests that San Joaquin kit foxes may be present in the region. The BSA is at the periphery of the species' range, and the potential is low. Although friable soils are present, it is unlikely that San Joaquin kit foxes would dig or use dens within the BSA due to constant disturbance from I-680 and other intersecting roads. However, San Joaquin kit foxes may use grassland, oak woodland, and riparian woodland habitats within the BSA between SR 238 and Bernal Avenue for dispersal. They are not expected to occur in urbanized areas.

Environmental Consequences

Since this project will occur on the margins of the known current range of San Joaquin kit fox, and because avoidance and minimization measures will be implemented to protect any transient individuals that may enter the BSA, the potential for effects to San Joaquin kit fox is negligible. The limited number of observations of San Joaquin kit fox reported in the area, and a general consensus that the BSA is outside the typical range of the species, supports a conclusion that if the species does occur, it occurs sporadically and in low numbers. By following the avoidance and minimization efforts outlined in the General Avoidance, Minimization, and/or Mitigation Measures section, direct harm or injury from

construction equipment and activities would be avoided. Following the minimization efforts in regard to vehicle traffic, light and noise, and den-like structures on-site will be effective in minimizing potential impacts. No direct impact to suitable habitat for the San Joaquin kit fox through the destruction of foraging or denning habitats is anticipated. Indirect impacts will be avoided through buffers outlined in the avoidance and minimization measures.

Avoidance, Minimization, and/or Mitigation Measures

The avoidance and minimization measures listed in the General Avoidance, Minimization, and/or Mitigation Measures section will reduce the potential for effects to San Joaquin kit fox during project construction. These measures include biological monitoring (Measure #3), worker environmental awareness training (Measure #4), prevention of wildlife entrapment (Measure #5), wildlife exclusion fencing (Measure #6), pre-construction surveys (Measure #8) a June 15-October 15 work window for activity in suitable habitat (Measure #9), and proper materials storage (Measure # 15).

Western Burrowing Owl

Affected Environment

There are 41 occurrences of burrowing owl recorded in the CNDDDB within five miles of the BSA. Of these 41 occurrences, six are within one mile. Most of these occurrences are located south of SR 238, either along the shore of San Francisco Bay or in open areas such as vacant lots, golf courses, and San Jose International Airport, in heavily urbanized areas of Newark, Fremont, Milpitas, and San Jose. There are also several occurrences in the hills north of Pleasanton. Despite the presence of apparently suitable undeveloped grassland habitat, there are no occurrences of burrowing owl documented in the open hills between Fremont and Pleasanton.

Grasses and ruderal vegetation within the BSA are tall and thick throughout much of Caltrans' right of way, making the habitat generally unsuitable for burrowing owls. Although individuals may occasionally forage within the BSA, the potential is low.

Environmental Consequences

Direct impacts to occupied burrows are not expected as a result of the project. Any active burrowing owl burrows detected during initial occupancy surveys within or adjacent to the construction area will be avoided per the measures outlined in the Staff Report on Burrowing Owl Mitigation. Burrowing owls may be indirectly affected by noise, light, and visual disturbance; however, since the construction area is already highly disturbed due to existing roadway traffic, these effects are expected to be negligible.

Avoidance, Minimization, and/or Mitigation Measures

The avoidance and minimization measures listed in the General Avoidance, Minimization, and/or Mitigation Measures section will reduce the potential for effects to western burrowing owl during project construction. Species specific measures from CDFW's Staff Report on Burrowing Owl Mitigation (CDFG 2012) include occupancy surveys (Measure # 13). If burrowing owls are found to occupy habitat in or adjoining the construction area, avoidance and minimization measures will be determined in consultation with CDFW.

Western Pond Turtle

Affected Environment

There are 12 occurrences of western pond turtle recorded in the CNDDDB within five miles of the BSA, three of which are within one mile. These occurrences are all located in ponds and streams in relatively undeveloped areas.

Suitable aquatic habitat is present within the BSA at creek crossings at Arroyo de la Laguna, Laguna Creek, and Alameda Creek. The portions of Laguna Creek and Alameda Creek within the BSA are generally too shallow to harbor resident populations of western pond turtles, but could be used as movement corridors between areas of deeper water habitat. Individuals travelling into uplands for nesting or dispersal from other streams or ponds in the vicinity may use grassland, oak woodland, riparian woodland, or freshwater marsh habitats within the BSA. Western pond turtles may occur within these habitats between I-580 and SR 238. They are not expected to occur in more urbanized areas, though they may occur between Bernal Avenue and I-580 because suitable aquatic habitat is present in Arroyo de la Laguna, which is immediately adjacent to I-680 along this stretch.

Environmental Consequences

Direct impacts to western pond turtle may result from earth-moving activities. Indirect impacts may result from habitat exclusion, and construction activities could include water quality degradation from erosion or sediment loading. The water quality impacts are unlikely, given the proposed avoidance and minimization measures and Caltrans BMPs.

Avoidance, Minimization, and/or Mitigation Measures

The avoidance and minimization measures listed in the General Avoidance, Minimization, and/or Mitigation Measures section, including wildlife exclusion fencing (Measure #6), pre-construction surveys (Measure #8), and Caltrans standard BMPs (Measure #23), will reduce the potential for effects to western pond turtle during project construction.

American Badger

Affected Environment

There are five occurrences of American badger recorded in the CNDDDB within five miles of the BSA, all of which are located in the hills north of Pleasanton. Because American badgers are cryptic, nocturnal, and relatively sparsely distributed within their range, they may still be present elsewhere within the region despite a lack of documented occurrences.

Suitable habitat is present in grassland, oak wood land, and riparian woodland habitats within the BSA, although the habitat is of marginal quality due to continual human disturbance associated with I-680. If any American badgers do occur within the BSA, they are likely to be foraging or dispersing rather than establishing permanent dens. They are also not expected to occur in urbanized habitats.

Environmental Consequences

By following the general avoidance and minimization efforts listed in the General Avoidance, Minimization, and/or Mitigation Measures section, harm or injury from construction equipment and activities would be avoided.

Avoidance, Minimization, and/or Mitigation Measures

As part of the general avoidance and minimization measures, a qualified biologist will conduct a preconstruction survey of those portions of the BSA where American badgers may occur to examine the site for species presence (Measure #8). The preconstruction survey will be conducted prior to initial site disturbance.

San Francisco Dusky-footed Woodrat

Affected Environment

There are two occurrences of San Francisco dusky-footed woodrat recorded in the CNDDDB within five miles of the BSA. One of them was recorded in 2006 approximately 1.5 miles northwest of the BSA, along Alameda Creek near the eastern end of Niles Canyon. The other was recorded in 2006 approximately 4.9 miles west of the BSA, south of I-580 in Dublin Canyon. Project biologists observed three woodrat nests during field reconnaissance on December 20, 2011, in the riparian corridor of Vallecitos Creek, immediately adjacent to the Caltrans right of way at the SR 84/I-680 Interchange. San Francisco dusky-footed woodrats may occur in oak woodland and riparian woodland habitats within the BSA.

Environmental Consequences

Riparian and oak woodland habitats within the BSA provide habitat for woodrats. Nests located in permanent impact areas will have to be removed and/or relocated. If any nests are located in the zone of temporary impact, they may not need to be removed depending on the type of project activities that will occur, but construction could disturb the woodrats enough to cause nest abandonment.

Avoidance, Minimization, and/or Mitigation Measures

The avoidance and minimization measures listed in the General Avoidance, Minimization, and/or Mitigation Measures section, including woodrat surveys (Measure #14), will reduce the potential for effects to San Francisco duskyfooted woodrat during project construction.

Bat Species

Pallid Bat

The pallid bat (*Antrozous pallidus*) is a medium-sized bat that occurs throughout much of California. They may occur in a wide variety of grasslands, shrublands, and woodlands, though they are generally found in dry, open areas at lower elevations. They typically fly low while foraging for prey insects, many of which are caught on the ground or gleaned off of foliage. Prey species include beetles, orthopterans, homopterans, moths, spiders, scorpions, and solpugids. The species is capable of taking heavy-bodied insects such as June beetles and Jerusalem crickets as well. Pallid bats make day roosts within caves, crevasses, mines, and occasionally in hollow trees or buildings. Night roosts may be in more open areas such as under porches and open buildings. Pallid bats are particularly sensitive to disturbance from humans at roost sites. There are two occurrences of pallid bat recorded within five miles of the BSA. One occurrence was recorded in Dublin in 2003, approximately 0.25 mile to the west. The second was recorded in 2001, but this occurrence is considered sensitive, and its specific locality is suppressed by the

CNDDDB. The occurrence is located somewhere within the La Costa Valley quad, which includes the San Antonio Reservoir and Sunol Regional Park areas.

Townsend's Big-eared Bat

Townsend's big-eared bat (*Corynorhinus townsendii*) is found throughout California except at high elevations. Maternity colonies have been found in caves, mines, and buildings, and they will hibernate during the winter in roosts which are cold, but not below freezing. Townsend's big-eared bats feed primarily on small moths, though beetles and other insects may be taken as well. They capture prey in flight by echolocation and by gleaning from foliage. This species is highly sensitive to disturbance at roost sites. There is one occurrence of Townsend's big-eared bat within five miles of the BSA. This occurrence was recorded in 1987 approximately 4.8 miles east of the BSA, in a mine tunnel at the Calaveras Dam.

Western Mastiff Bat

The western mastiff bat (*Eumops perotis californicus*) is found primarily within southern California, with scattered populations present within the Coast Ranges south of San Francisco and the Sierra Nevada Mountains north to Butte County. They may occur in a variety of grassland, scrub, and woodland habitats if there are suitable roost features in the vicinity. Roosts are made within crevasses in cliffs, boulders, caves, and buildings. Their main food source is moths which are caught in flight, although beetles, orthopterans, and hymenopterans may also be taken. There are no recorded occurrences of western mastiff bat in the CNDDDB within five miles of the BSA.

Western Red Bat

The western red bat (*Lasiurus blossevillii*) is widely distributed throughout California and known to occur in a variety of habitats, including forested canyons, riparian zones and arid areas where they primarily roost in trees. This noncolonial species roosts almost exclusively in foliage, under overhanging leaves. Western red bats have been either observed or detected acoustically at the time of emergence in cottonwood/sycamore and willow riparian habitats, and in fruit orchards. There are no recorded occurrences of western red bat in the CNDDDB within five miles of the BSA.

Hoary Bat

The hoary bat (*Lasiurus cinereus*) is a widespread species found in a variety of habitats throughout California. This solitary bat's range includes Canada (near the limit of trees) to South America. They are most commonly found in association with forested habitats near water. Roosting sites are generally in dense foliage of both coniferous and deciduous trees, at the ends of branches 10-40 feet above the ground, and with open flying space below. Moths are the primary food source for hoary bats. Females give birth to young in mid-May through early July. There is one recorded occurrence of hoary bat in the CNDDDB within five miles of the BSA. This occurrence was recorded in 1941 approximately 5 miles east of the BSA, near Lake Del Valle.

Long-eared Myotis

The long-eared myotis (*Myotis evotis*) can be found throughout California except in the Central Valley and southern deserts. They may occur in all brush, woodland, and forest habitats, though coniferous woodlands and forests seem to be preferred. Roosts are made in buildings, crevices, under tree bark, and in snags. This species roosts singly or in small groups, with nursery colonies ranging from 12-30 individuals. Long-eared myotis prey on a variety of insects and other small arthropods, which are

captured in the air, gleaned from foliage, or occasionally taken from the ground. There are no recorded occurrences of long-eared myotis in the CNDDDB within five miles of the BSA.

Fringed Myotis

The fringed myotis (*Myotis thysanodes*) occurs throughout California except for the Central Valley and southern deserts. They may occur in a wide variety of habitats, although pinyon-juniper, valley foothill hardwood, and hardwood-conifer habitats are apparently preferred. Caves, mines, buildings, and crevices are all used for roosting, and maternity colonies can contain up to 200 individuals. Fringed myotis feed mostly on beetles, but other insects and arthropods are also taken. They feed over water, over open areas, and by gleaning from foliage. There are no recorded occurrences of fringed myotis in the CNDDDB within five miles of the BSA.

Yuma Myotis

The Yuma myotis (*Myotis yumanensis*) is common throughout California except for the arid Mojave and Colorado Desert regions. They feed on a variety of small insects, and generally forage over water sources such as rivers, lakes, ponds, and stock tanks, most often in open woodland or forest areas. Roosting habitat includes caves, crevasses, mines, buildings, and large trees, which may contain maternity roosts consisting of thousands of individuals during the breeding season. Temporary night roosts may be located in more open areas. There are two occurrences of Yuma myotis recorded within five miles of the BSA. One was recorded in 2006 approximately 1.4 miles northwest of the BSA, in an area just south of Niles Canyon.

The other was recorded in 2002 approximately five miles southeast of the BSA, just south of Calaveras Reservoir.

Affected Environment

Biologists conducted a habitat assessment for bat species within the BSA. Surveyors inspected all underpasses (bridges which carry I-680 above surface streets, waterways, or other open areas) within the BSA. Overpasses (bridges which carry roads above I-680), were only assessed if they also went over a waterway running parallel to I-680, such as the Alamo Canal in Pleasanton. If no waterways were present, then overpasses were considered to be unsuitable due to excessive traffic on the freeway below. Bridges included six perennial stream crossings, three crossings over small ephemeral drainages, and eighteen road crossings. The habitat assessment consisted of an inspection of the exterior of the bridges, and would not be considered sufficient to confirm the presence or absence of day-roosting bats within the interior of the bridges.

No bats were observed, but all of the bridges within the BSA were found to have suitable day roost and night roost habitat. Confirmed night roosts were observed at ten bridges, as evidenced by urine staining and guano deposits. Based on examination of the guano, species or genus-level identifications could be made at eight of the night roost locations. Two common bat species, the Mexican free-tailed bat (*Tadarida brasiliensis*) and the big brown bat (*Eptesicus fuscus*), were confirmed night roosting within the BSA based on examination of guano deposits. Bats in the genus *Myotis* were also identified, but species within this genus are not distinguishable from one another by guano.

Design elements of the bridges within the BSA could be used by bats as day roosting habitat. The bridges are of a box-girder construction, which leaves a hollow interior space below the roadbed in the center of the bridge structure. Weep holes designed for drainage could also make this interior space accessible to bats. In addition, some of the larger bridges also had expansion joints, which are lateral seams in the concrete that sometimes leave gaps suitable for bat roosting. Active night roosts were found in the

understructure of bridges in recessed, protected areas that are high enough above the ground to provide a flyway for bats. Most night roosts were found in closure pours, which are wide, longitudinal troughs in the underside of a bridge. Heavily used night roosts were often found where closure pours were interrupted by a lateral section of concrete, creating a space protected on three sides. Night roosts were generally found closer to bridge abutments rather than the center of a bridge. Based on the amount of urine staining and size of guano deposits, some night roosts appeared to be routinely used by many bats simultaneously, while others appeared to be used only occasionally by single bats or small groups. The most heavily used night roosts were located at the bridges over Arroyo de la Laguna, Calaveras Road, Alameda Creek, and Vargas Road.

Environmental Consequences

There will be no work on bridges or impacts to riparian woodland habitats where bats are likely to roost, so impacts to roosting bats are not anticipated and are considered highly unlikely.

Avoidance, Minimization, and/or Mitigation Measures

Implementation of the avoidance and minimization measures listed in the General Avoidance, Minimization, and/or Mitigation Measures section will ensure that project activities avoid and/or minimize potential effects to roosting bats within the BSA.

Migratory Bird Species

Under the federal Migratory Bird Treaty Act (MBTA) and California Fish and Game Code Sections 3505, 3513, and 3800, migratory birds, their nests, and eggs are protected from disturbance or destruction. Removal or disturbance of active nests would be in violation of these regulations. All birds are protected under the MBTA and California Fish and Game Code except for two non-native species, the European starling (*Sternums vulgarism*) and the house sparrow (*Passer domestics*). In addition to common bird species, several special-status bird species have at least some potential to nest and/or forage within the BSA, including:

- Cooper's hawk (*Accipiter cooperii*), included on CDFW's Special Animals List
- Sharp-shinned hawk (*Accipiter striatus*), included on CDFW's Special Animals List
- Tri-colored blackbird (*Agelaius tricolor*), a California Species of Special Concern
- Golden eagle (*Aquila chrysaetos*), a Fully Protected Species
- Burrowing owl (*Athene cunicularia*), a California Species of Special Concern
- Ferruginous hawk (*Buteo regalis*), included on CDFW's Special Animals List
- Northern harrier (*Circus cyaneus*), a California Species of Special Concern
- Yellow warbler (*Dendroica petechia brewsteri*), a California Species of Special Concern
- White-tailed kite (*Elanus leucurus*), a Fully Protected Species
- California horned lark (*Eremophila alpestris actia*), included on CDFW's Special Animals List
- Prairie falcon (*Falco mexicanus*), included on CDFW's Special Animals List
- American peregrine falcon (*Falco peregrinus anatum*), a Fully Protected Species
- Loggerhead shrike (*Lanius ludovicianus*), a California Species of Special Concern

Affected Environment

In general, habitat within the BSA is of marginal quality due to continual human disturbance from I-680. However, all land cover types within the BSA except for paved roads and open water may be used by one or more bird species for nesting. Raptors and smaller bird species may nest in the trees comprising the woodland areas of the BSA, and many other birds may nest among grassland land cover types. Urban

areas may also provide suitable nesting habitat in street trees and landscape plantings. Riparian areas such as those found at Alameda Creek, Laguna Creek, and Arroyo de la Laguna are particularly attractive for nesting birds.

Bridges on I-680 provide habitat for several cliff and cavity-nesting bird species. During a habitat assessment for roosting bats, project biologists observed cliff swallow (*Petrochelidon pyrrhonota*) mud nests attached to the undersides of several of the bridges in the BSA. In some bridges, northern rough-winged swallows (*Stelgidopteryx serripennis*) were observed flying into the weep holes which allow drainage from the interior of box-girder bridges, and were presumably nesting inside.

White-throated swifts (*Aeronautes saxatalis*), a crevice-nesting species which is commonly found nesting in freeway overpasses, were observed and heard at several bridges within the BSA. All of these bird species and their nests are protected under the MBTA and California Fish and Game Code. Nesting material such as dry grass and twigs was visible in many of the weep holes within the BSA, though some of these may have been nests of non-protected European starlings.

Environmental Consequences

The proposed project could result in temporary loss or disturbance of habitats that are used by nesting migratory birds. During the road widening, common migratory bird species may be temporarily displaced from habitat alteration or disturbed by noise from construction equipment. Because of implementation of the proposed avoidance and minimization measures, no mortality of migratory birds is anticipated. The proposed project may potentially remove or disturb a small amount of unoccupied habitat used by nesting or foraging migratory birds. This impact would be temporary in nature and limited to a relatively small area in relationship to the extensive nesting and foraging habitat adjacent to the BSA.

Avoidance, Minimization, and/or Mitigation Measures

The avoidance and minimization measures listed in the General Avoidance, Minimization, and/or Mitigation Measures section, including a work window (Measure #10), pre-construction surveys (Measure #11), and non-disturbance buffers (Measure 12), will reduce the potential for effects to nesting birds during project construction.

General Avoidance, Minimization, and/or Mitigation Measures

To avoid and minimize effects to special-status species and their habitats within the BSA, Caltrans will implement the following measures:

1. **Biological Opinion.** Caltrans will include a copy of the biological opinion within the construction bid package of the proposed project. The Resident Engineer or their designee will be responsible for implementing the *Conservation Measures* and *Terms and Conditions* of the USFWS, biological opinion and the CDFW, Incidental Take Permit.
2. **Biological Monitor Approval.** Caltrans will submit the names and qualifications of the biological monitor(s) for USFWS approval prior to initiating construction activities for the proposed project.
3. **Biological Monitoring.** The agency-approved biologist(s) will be onsite during initial ground-disturbing activities, and thereafter as needed to fulfill the role of the approved biologist as specified in project permits. The biologist(s) will keep copies of applicable permits in their possession when onsite. Through the Resident Engineer or their designee, the agency-approved biologist(s) shall be given the authority to communicate either verbally, by telephone, email or hardcopy with all project personnel to ensure that take of special-status species is minimized and permit requirements are fully implemented. Through the Resident Engineer or their designee, the

agency approved biologist(s) shall have the authority to stop project activities to minimize take of special-status species or if he/she determines that any permit requirements are not fully implemented. If the agency-approved biologist(s) exercises this authority, the agencies shall be notified by telephone and email within 48 hours.

4. **Worker Environmental Awareness Training.** All construction personnel will attend a mandatory environmental education program delivered by an agency-approved biologist prior to working on the project.
5. **Prevention of Wildlife Entrapment.** To prevent inadvertent entrapment of special-status species during construction excavated holes or trenches more than one foot deep with walls steeper than 30 degrees will be covered at the close of each working day by plywood or similar materials. Alternatively, an additional 4-foot high vertical barrier, independent of exclusionary fences, will be used to further prevent the inadvertent entrapment of special-status species. If it is not feasible to cover an excavation or provide an additional 4-foot high vertical barrier, independent of exclusionary fences, one or more escape ramps constructed of earth fill or wooden planks will be installed. Before such holes or trenches are filled, they will be thoroughly inspected for trapped animals. If at any time a trapped listed animal is discovered, the onsite biologist will immediately place escape ramps or other appropriate structures to allow the animal to escape or the USFWS will be contacted by telephone for guidance. The USFWS will be notified of the incident by telephone and electronic mail within 48 hours.
6. **Wildlife Exclusion Fencing.** The limits of ramp widening construction zones within suitable habitat for special-status species will be delineated with high visibility wildlife exclusion fencing at least four feet in height to prevent wildlife from accessing the construction footprint. The fencing will be removed only when all construction equipment is removed from the site. No project activities will occur outside the delineated project construction area. Wildlife exclusion fencing is not required for construction activities occurring outside of suitable habitat for special-status species, or for the installation of TOS elements or maintenance vehicle pullouts installed independently of ramp widening.
7. **Listed Species On Site.** The Resident Engineer will immediately contact the agency-approved project biologist(s) in the event that an Alameda whipsnake, California red-legged frog, California tiger salamander, or San Joaquin kit fox is observed within a construction zone. The Resident Engineer will suspend construction activities within a 50-foot radius of the animal until the animal leaves the site voluntarily or an agency approved-protocol for removal has been established.
8. **Pre-Construction Surveys.** Prior to any ground disturbance, pre-construction surveys will be conducted by an agency-approved biologist for special-status species. These surveys will consist of walking surveys of the project limits and, if possible, accessible adjacent areas within at least 50 feet of the project limits. The biologist(s) will investigate all potential cover sites. This includes thorough investigation of mammal burrows, rocky outcrops, appropriately sized soil cracks, and debris. Native vertebrates found in the cover sites within the project limits will be documented and relocated to an adequate cover site in the vicinity. The entrances and other refuge features within the project limits will be collapsed or removed following investigation.
9. **Work Window for California Tiger Salamander.** All work within suitable habitat for California tiger salamander will occur between April 15 and October 15, when the species is unlikely to be active and there is less potential for an individual to enter the work area.
10. **Work Window for Nesting Birds.** To the extent practicable, clearing and grubbing activities will be conducted during the non-nesting season, from April 15 to October 15.
11. **Pre-construction Surveys for Nesting Birds.** Pre-construction surveys for nesting birds will be conducted by a qualified biologist no more than 72 hours prior to the start of construction for activities occurring during the breeding season (February 1 to August 31).
12. **Non-Disturbance Buffer for Nesting Birds.** If work is to occur within 100 feet of active raptor nests or 50 feet of active passerine nests, a non-disturbance buffer will be established at a distance sufficient to minimize disturbance based on the nest location, topography, cover, the species' sensitivity to disturbance, and the intensity/type of potential disturbance.

13. **Occupancy Surveys for Western Burrowing Owl.** Occupancy surveys, as defined in the Staff Report on Burrowing Owl Mitigation (CDFG 2012), shall be conducted by a qualified biologist prior to ground-disturbing activity. If burrowing owls are found to occupy habitat in or adjoining the PCA, avoidance and minimization measures will be determined in consultation with CDFW.
14. **Dusky-Footed Woodrat Surveys.** A qualified biologist will conduct a preconstruction survey of the BSA prior to the start of construction in woodland areas to determine if woodrat nests are present within areas of temporary and permanent impact. The need for nest dismantling and relocation will be determined by Caltrans in coordination with CDFW.
15. **Material Storage.** California tiger salamanders, California red-legged frogs, Alameda whipsnakes, and San Joaquin kit foxes are attracted to cavity-like structures such as pipes, and may seek refuge under construction equipment or debris. They may become trapped or injured if such materials are moved. All construction pipes, culverts, or similar structures, construction equipment or construction debris left overnight within the work area will be inspected by the agency-approved biological monitor prior to being moved.
16. **Water Quality Inspection.** Water quality inspector(s) will inspect the site after a rain event to ensure that the stormwater Best Management Practices (BMPs) are adequate.
17. **Vehicle Use.** Project employees will be required to comply with guidance governing vehicle use, speed limits on unpaved roads, fire prevention, and other hazards.
18. **Night Work.** To the extent practicable, nighttime construction will be minimized.
19. **Night Lighting.** Artificial lighting of the proposed construction area during nighttime hours will be minimized to the maximum extent practicable.
20. **Trash Control.** All food-related trash items such as wrappers, cans, bottles, and food scraps will be disposed of in closed containers and removed at least once a day from the work area.
21. **Firearms.** No firearms will be allowed in the action area except for those carried by authorized security personnel, or local, State, or Federal law enforcement officials.
22. **Pets.** To prevent harassment, injury or mortality of sensitive species, no pets will be permitted on the project site.
23. **Caltrans Standard BMPs.** The potential for adverse effects to water quality will be avoided by implementing temporary and permanent BMPs outlined in Section 7-1.01G of the Caltrans' Standard Specifications. Caltrans erosion control BMPs will be used to minimize any wind or water-related erosion. The State Water Resources Control Board has issued a National Pollution Discharge Elimination System Statewide Storm Water Permit to Caltrans to regulate storm water and non-storm water discharges from Caltrans facilities. A SWPPP will be developed for the project, as one is required for all projects that have at least 1.0 acre of soil disturbance. The SWPPP complies with the Caltrans Storm Water Management Plan (SWMP). The SWMP includes guidance for Design staff to include provisions in construction contracts to include measures to protect sensitive areas and to prevent and minimize storm water and non-storm water discharges.

The SWPPP will reference the Caltrans Construction Site BMPs Manual. This manual is comprehensive and includes many other protective measures and guidance to prevent and minimize pollutant discharges and can be found at the following website: <http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm>

Protective measures will be included in the contract, including, at a minimum:

- No discharge of pollutants from vehicle and equipment cleaning are allowed into the storm drain or water courses.
- Vehicle and equipment fueling and maintenance operations must be at least 50 feet away from water courses.
- Concrete wastes are collected in washouts and water from curing operations is collected and disposed of and not allowed into water courses.
- Dust control will be implemented, including use of water trucks and tackifiers to control dust in excavation and fill areas, rocking temporary access road entrances and exits, and covering temporary stockpiles when weather conditions require.

- Coir rolls will be installed along or at the base of slopes during construction to capture sediment and temporary organic hydromulching will be applied to all unfinished disturbed and graded areas.
 - Work areas where temporary disturbance has removed the pre-existing vegetation will be restored and re-seeded with a native seed mix.
 - Graded areas will be protected from erosion using a combination of silt fences, fiber rolls along toe of slopes or along edges of designated staging areas, and erosion-control netting (such as jute or coir) as appropriate.
 - A Revegetation Plan will be prepared for restoration of temporary work areas. Pavement and base will be removed; topography blended with the surrounding area; and topsoil will be salvaged from the new alignment area to be placed over the restored area, which will then be revegetated with native grassland species. The Revegetation Plan will be submitted to the USFWS for review and approval.
24. **Monofilament Erosion Control.** Plastic mono-filament netting (erosion control matting) or similar material will not be used for the project because Alameda whipsnakes, California red-legged frogs, and California tiger salamanders may become entangled or trapped in it. Acceptable substitutes include coconut coir matting or tackified hydroseeding compounds.
25. **Concrete Waste.** All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of habitat and at a minimum of 150 feet from any aquatic habitat, culvert, or drainage feature.
26. **Vegetation Removal.** Vegetation will only be removed where necessary and will be cut above the soil level, except in areas that will be excavated. Removal of woody vegetation will be done using hand tools or light construction equipment, such as backhoes. Cleared vegetation will be removed from the project site to prevent attracting animals.
27. **Revegetation Following Construction.** All areas that are temporarily affected during construction will be revegetated with an assemblage of native grass, shrub, and trees. Invasive, exotic plants will be controlled within the construction area to the maximum extent practicable, pursuant to Executive Order 13112.

V-1. CULTURAL RESOURCES:

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Affected Environment

The Caltrans Office of Cultural Resource Studies prepared three reports for the project: the Historic Property Survey Report (HPSR) (Bright and Darko 2013), the Archaeological Survey Report (ASR) (Darko 2013), and a Finding of Effect (Darko 2013). The studies identified two archaeological properties, both of which were previously determined eligible for the NRHP, within the project’s Area of Potential Effects (APE). One of the identified archaeological properties is within an area of direct project impacts.

Environmental Consequences

The finding for the project is Adverse Effect to a Historic Property. Consultation with the State Historic Preservation Officer (SHPO) has been initiated, and concurrence on this finding was received on October 4, 2013.

Avoidance, Minimization, and/or Mitigation Measures

To mitigate for the adverse effect, a Memorandum of Agreement (MOA) has been established between Caltrans and the SHPO to provide for data recovery within the adversely affected portions of the archeological property. The MOA was signed on February 26, 2014. Environmentally Sensitive Areas (ESA) and Archaeological Monitoring Areas (AMA) will be created to avoid additional and unanticipated effects to the archeological properties within the project APE.

V-2. PALEONTOLOGY

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Affected Environment

The majority of the locations of construction will occur in Quaternary Alluvium, which can further be broken up into Holocene and Pleistocene. The Holocene Alluvium is alluvium deposited in fan, terrace, or basin environments. The surface is generally planar and smooth with little to no dissection. This unit is mapped where separate types of alluvial deposits could not be delineated either due to complex interfingering of depositional environments or the small size of the area. Typically, undifferentiated alluvium is mapped in relatively flat, smooth valley bottoms of small to medium-sized drainages. Deposits probably are intercalated sand, silt, and gravel that are poorly to moderately sorted. While the Pleistocene deposits are mapped on gently sloping to level alluvial fan or terrace surfaces, the late Pleistocene age deposits are indicated by a slight dissection, and a lack of historical flooding.

In addition to the above mentioned Quaternary deposits, five more are encountered within the project area. These five are highly sensitive paleontological units that are only located in the San Francisco Bay Area. These units are:

- Great Valley Group – Sedimentary units ranging from shale to conglomerate lithologies. Interbedded carbonaceous-biotite wacke, white-micacarbonaceous sandstone, greenish-gray mudstone and shale, laminated fine-grained sandstone and gray shale, carbonaceous siltstone, black shale, and fine-grained mica-wacke. Complex series of massive sandstone and turbidite deposits. Contains fossil foraminifers of both Albian and Campanian age.
- Monterey Formation – Highly siliceous, a result of organic deposition (microorganisms such as diatoms) and inorganic depositions (volcanic ash).
- San Pablo Group – Consists of three formations: Briones (Middle and late Miocene), Cierbo, Neorly. Sandstone, siltstone, conglomerate and fossil shell breccias bedrock.
- Irvington Gravels (Pliocene (?) and Pleistocene) – Poorly to well consolidated distinctly bedded pebbles and cobbles, gray pebbly sand, and gray, coarse-grained, cross-bedded sand. Cobbles and pebbles are well to sub-rounded, and as much as 25 centimeter (cm) and consist of about 60 percent micaceous sandstone, 35 percent metamorphic and volcanic rocks and chert probably derived from the Franciscan complex, and 5 percent black laminated chert and cherty shale derived from the Claremont Formation. A large suite of early Pleistocene vertebrate fossils from this unit was described by Savage (1951).
- Livermore gravels (Pliocene and Pleistocene) – Poorly to moderately consolidated, indistinctly bedded, cobble conglomerate, gray conglomeratic sandstone, and gray coarse-grained sandstone. Also includes some siltstone and claystone. Clasts contain mostly greywacke, chert, and metamorphic rocks probably derived from the Franciscan complex.

Bedrock units that underlay the superficial deposits are comprised from Tice Shale (middle Miocene) a brown siliceous shale, Oursan Sandstone (middle Miocene) a greenish gray, medium- grained sandstone with calcareous concretions, and the Briones Formation (middle and late Miocene), which is sandstone, siltstone, conglomerate, shell breccias, and a tuffaceous layer.

Irvington Gravels

The Irvington Gravels is the type locality for the “Irvingtonian North American Land Mammal Age,” according to the North American Land Mammal Ages chronology, and is typically set from 1,800,000 to 240,000 years ago. This stage was named after an assemblage of fossils from the Irvington district of Fremont, California. Most of the fossil mammals are large grazing animals and carnivores that are now extinct.

Livermore Gravels

The Livermore Gravels, unlike the Irvington Gravels, does not have the recognition as a major fossil bearing formation. The two gravel units are separated by a series of hills, but many of the same flora and fauna fossils are found in both. This makes the Livermore Gravels an abundant resource of Pleistocene fossils.

Briones Formation

The Briones formation (middle and late Miocene) consists of sandstone, siltstone, conglomerate and shell breccia. With the presence of the shell breccia this formation is also considered to be a fossil-bearing unit. Other Miocene formations are located within the project vicinity and should be considered fossil bearing.

Environmental Consequences

There are various locations within the project area that have the potential for paleontological resources. Construction activities at any of the feature locations can include ground disturbance. The potential of any ground disturbance to affect paleontological resources will depend on the geological features of the specific site.

Avoidance, Minimization, and/or Mitigation Measures

This project extends over a large distance, and has the opportunity to expose many geologic formations that were deposited in periods ranging from the Holocene to the Crataceous. As a rule of thumb, anything older than the Pleistocene epoch (about 126,000 years ago) has the potential to yield scientifically important fossils. Where applicable, TOS elements should be moved to avoid known fossil-bearing units. Should avoidance not be possible, mitigation measures, such as those described below, should be employed.

Mitigation measures are the best route to work within known paleontological localities. Mitigation procedures include some, but not all, of the actions listed below:

- A project-specific Paleontological Mitigation Plan has been prepared by qualified principal paleontologist.
- The qualified principal paleontologist will be present at pre-construction meetings to train contractors on paleontological identification during ground-disturbance activities.

- Paleontological monitors, under the direction of the qualified principal paleontologist, will be onsite to inspect excavations for fossils at all times during original ground disturbance involving sensitive geologic formations.
 - Monitoring should be conducted full-time during augering or trenching in sedimentary rocks of the Great Valley, Monterey, and San Pablo Groups; and Pleistocene Formations and deposits. If, after 50% of the project's excavations in a particular rock unit is completed, it can be demonstrated that the level of monitoring should be reduced (few or no fossils are discovered), the qualified principal paleontologist shall amend the mitigation program accordingly.
 - Monitoring should be conducted for the initial ground disturbance for each section of trenching associated with installation of electrical conduit, ramp meter installation, and High-Occupancy Vehicle bypass lane installation taking place in sedimentary rocks of the Great Valley, Monterey, and San Pablo Groups, and Pleistocene deposits. The level of monitoring effort required may be reduced, modified or suspended at the discretion of the paleontological monitor, in consultation with the qualified principal paleontologist based on field conditions and rock units identified.
 - Monitoring has been identified in the Dublin/Western Pleasanton portion of the project. During the pre-construction paleontological training, construction personnel will be specifically instructed about the kinds of material that may be encountered during excavation.
 - A need for a single paleontologist monitor has been identified. Should additional monitors be needed, the qualified principal paleontologist will make the determination during construction.
 - Paleontological monitoring field work will take place only when earth-moving and/or excavation are occurring during project construction. Fieldwork shall cease when all excavation work has been completed and when significant fossils, if any, are properly recovered and treated for transport to a laboratory for further processing.
- When fossils are discovered, the paleontologist (or paleontological monitor) will recover them.
 - Macrofossils
 - When uncovered during excavation operations, a representative sample of well-preserved and identifiable remains will be recovered. Poorly preserved and/or unidentifiable remains may not be recovered, at the discretion of the qualified principal paleontologist and/or paleontological monitor. If unidentifiable remains are recovered, further processing will only be done if dictated by the research design for that particular geologic formation. A research design is an outline of research methods which differs depending on fossil type. If fossils are microscopic, such as algae, foraminiferans, or radiolarians, the research design would involve microscope work and the necessary laboratory items required for that style of research.
 - When vertebrate macrofossils are uncovered during excavation operations, all well-preserved and identifiable remains will be recovered. Poorly preserved and/or unidentifiable remains may not be recovered, at the discretion of the qualified principal paleontologist and/or paleontological monitor. If unidentifiable remains are recovered, further processing will only be done if directed by the research design for that particular geologic formation.
 - When plant macrofossils are uncovered during excavation operations, a representative sample of well-preserved and identifiable remains will be recovered. Poorly preserved and/or unidentifiable remains may not be recovered, at the discretion of the qualified principal paleontologist and/or paleontological monitor. If unidentifiable remains are recovered, further processing will only be done if directed by the research design for that particular geologic formation.
 - Microfossils

- When marine microfossils are discovered (or their presence suspected based on site conditions) during excavation operations, it may be necessary to collect stratigraphically controlled matrix samples as directed by the research design for that particular geologic formation. Such samples should be taken at reasonable stratigraphic intervals (based on overall stratigraphic thickness) and should consist of standard hand samples. If initial processing of such samples shows them to be barren or sparsely fossiliferous, the qualified principal paleontologist may authorize suspension of further processing of the sample, and the sample may be discarded.
 - When vertebrate microfossils are discovered (or their presence suspected based on site conditions) during excavation operations, it may be necessary to collect stratigraphically controlled bulk matrix samples (up to 6,000 pounds) for processing. The decision to collect such samples will be made if relatively well-preserved vertebrate microfossils are observed in hand samples in the field or if processing of a 100-pound test sample yields more than five identifiable microvertebrate fossils.
 - If during processing of a bulk matrix sample, too few identifiable microvertebrate fossils are recovered, the qualified principal paleontologist may suspend further processing of the sample and the sample may be discarded. The following criteria must be met to suspend sample processing:
 - No or few identifiable microvertebrate fossils are recovered after processing 200 pounds.
 - Recovered fossils are too poorly preserved to be identified.
 - Recovered fossils.
- Construction in these areas may be halted or diverted by the Resident Engineer to allow the prompt recovery of fossils.
 - Fossils collected during the monitoring and salvage portion of the mitigation program will be prepared to the point of identification, sorted, and cataloged.
 - Prepared fossils, along with copies of all pertinent field notes, photos, and maps, will be deposited in a scientific institution with paleontological collections.
 - A Paleontological Mitigation Report will be completed that outlines the results of the mitigation program.

Where feasible, selected road cuts or large finished slopes in areas where critically interesting paleontological features may be left so they can serve as important educational and scientific features. This may be possible if no substantial adverse visual or safety impacts result.

VI. GEOLOGY AND SOILS:

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- | | | | | |
|--|--------------------------|--------------------------|--------------------------|-------------------------------------|
| c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Any proposed engineering design will be carried out in accordance with Caltrans Seismic Design Criteria and Standard Construction Practices.

VII. GREENHOUSE GAS EMISSIONS: Would the project:

- a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?
- b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

An assessment of the greenhouse gas emissions and climate change is included in Chapter 3. While Caltrans has included this good faith effort in order to provide the public and decision-makers as much information as possible about the project, it is Caltrans determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct and indirect impact with respect to climate change. Caltrans does remain firmly committed to implementing measures to help reduce the potential effects of the project. These measures are outlined in the body of the environmental document.

VIII. HAZARDS AND HAZARDOUS MATERIALS:

Would the project:

- a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?
- b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?
- c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?
- d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?
- e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?
- f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?
- g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

There are no known hazardous waste sites within or near the project limits that could negatively affect this project. Aerially deposited lead from historic leaded-gasoline emissions likely exists in the roadside shallow soils of the project. The soil investigation that ascertains the level of lead and other potential chemicals of concern will be conducted during the design phase. Based on the investigation results, appropriated special provisions dealing with proper soil handling and management practices and construction worker health and safety concerns will be included in the contract documents.

IX. HYDROLOGY AND WATER QUALITY:

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Affected Environment

The project is located within the jurisdiction of the San Francisco Bay RWQCB (Region 2) and the Central Valley RWQCB (Region 5) which are responsible for implementation and enforcement of State and Federal laws and regulations concerning water quality.

The project lies in Hydrological Sub Areas 205.20 and 204.30. The stretch of I-680 in the project limits crosses Scott Creek, Torogas Creek, Mission Creek, and Alameda Creek. Calera Creek is near the project limits and is listed on the 303(d) list of impaired water bodies. Under section 303(d) of the CWA, states, territories, and authorized tribes are required to develop lists of impaired waters which identify waters

where required pollution controls are not sufficient to attain or maintain applicable water quality standards. The law requires that states establish a prioritized schedule for waters on the lists, and develop Total Maximum Daily Loads (TMDLs) for the identified waters based on the severity of the pollution and sensitivity of uses to be made of the waters. The Alameda Creek is also listed on the 303d list of impacted water bodies and has a Total Maximum Daily Load (TMDL) pending for Diazinon.

The Region 2 and Region 5 Basin Plans establish beneficial uses for waterways and water bodies within the region. Beneficial Uses include: Agricultural Supply (AGR), Areas of Special Biological Significance (ASBS), Municipal and Domestic Supply (MUN), Freshwater Replenishment (FRSH), Groundwater Recharge (GWR), Industrial Service Supply (IND), Industrial Process Supply (PRO), Commercial and Sport Fishing (COMM), Shellfish Harvesting (SHELL), Cold Freshwater Habitat (COLD), Estuarine Habitat (EST), Marine Habitat (MAR), Fish Migration (MIGR), Preservation of Rare and Endangered Species (RARE), Fish Spawning (SPWN), Warm Freshwater Habitat (WARM), Wildlife Habitat (WILD), Contact/Non-Contact Water Recreation (REC1/REC2), and Navigation (NAV). The beneficial uses for Temescal Creek include: COLD, WARM, WILD, REC-1 and REC-2. The beneficial uses for San Francisco Bay – Central include: IND, PRO, COMM, SHELL, EST, MIGR, RARE, SPWN, WILD, REC-1, REC-2, AND NAV.

Additionally, the Basin Plan includes Beneficial Uses of wetland areas throughout Region 2. The Emeryville Crescent tidal flats (salt-type wetland) include the following beneficial uses: EST, RARE, REC-1, REC-2, SPWN, and WILD.

Based on available Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panels for all ramp widening locations, all ramp widening locations are not located within Federal Emergency Management Agency (FEMA) Base Floodplain.

Climatography

The project is located in a Mediterranean climate region characterized by warm summers and mild wet winters, with the rainy season between October 15 and April 15 (Statewide Stormwater Management Plan 2003).

Topography and Soil Characteristics

The surrounding land varies in site topography and surrounding land use. A stretch of the project is sandwiched between the basin to the lower San Francisco Bay and the mountains in the southwest portion of the East San Francisco Bay. This area is mixed with residential areas, commercial and light industry. A second portion of the project bends east and runs into the mountains. This portion of the project is wilderness.

From the National Resources Conservation Service (NRCS) Web Soil Survey tool, the Hydrologic Soil Group (HSG) varies containing soils of hydrologic drainage classes: A, B, C, and D. Groups A and B soils are well drained and have a high infiltration rate, and drainage categories C and D are poorly drained and have a low infiltration and hydraulic conductivity

Environmental Consequences

The Department has performed many studies to monitor and characterize stormwater run-off from highway facilities throughout the State. Pollutants of Concern (POCs) identified in the "Final Report of the Caltrans Best Management Practice (BMP) Retrofit Pilot Program" were: phosphorus, nitrogen, copper, lead, zinc, sediments, general metals (unspecified metals), and litter. Some sources of these

pollutants are natural erosion, phosphorus from tree leaves, combustion products from fossil fuels, trash and falling debris from motorists, and the wearing of brake pads.

Potential temporary impacts to existing water quality would result from the staging and active construction areas, which could result in the release of fluids, sediment, and litter beyond the perimeter of the site.

Potential long-term impacts to existing water quality are the same for the existing facility; the deposition and transport of vehicular-related pollutants, as stated above.

Avoidance, Minimization, and/or Mitigation

Best Management Practices (BMPs) will be incorporated to reduce/prevent the potential discharge of pollutants, during, and post-, construction, to the Maximum Extent Practicable (MEP).

In general, BMPs fall into three main categories:

1. Design Pollution Prevention BMPs: These BMPs are permanent measures to improve storm water quality by reducing erosion, stabilizing disturbed soil areas, and maximizing vegetated surfaces. Design Pollution Prevention BMPs are anticipated to be incorporated as part of this project.
2. Temporary Construction Site BMPs: These BMPs are implemented throughout the duration of construction activities, in order to reduce pollutant loads in potential stormwater/non-stormwater discharges. Construction Site BMP strategies, applicable to this project, may include the following:
 - Sediment Control: run-on or run-off control, and storm drain inlet protection;
 - Tracking Controls: stabilized construction entrance and exit, stabilized construction roadway, and street sweeping;
 - Wind Erosion Controls; hydraulic mulch, hydroseeding, and temporary covers;
 - Non-Stormwater Management: vehicle and equipment operations (fueling, cleaning and maintenance), concrete operations, and material and equipment use;
 - Waste Management and Materials Pollution Control: material delivery and storage, material use, stockpile management, spill prevention and control, solid and concrete waste management, hazardous waste and contaminated soil management, and liquid waste management.
3. Permanent Treatment BMPs: These BMPs are permanent water quality controls used to remove pollutants from stormwater runoff prior to being discharged from Department R/W. This project will require treatment BMPs. Bio strips and bio infiltration swales will be used.

The project will have a DSA of more than 1.0 acre, a SWPPP will be required. The SWPPP, prepared by the Contractor and approved by the Department, presents the strategy of Temporary Construction Site BMP implementation.

X. LAND USE AND PLANNING:

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?
- c) Conflict with any applicable habitat conservation plan or natural community conservation plan?

Affected Environment

Interstate 680 runs north-south through the study area and serves both local and regional traffic in the area. The I-680 corridor is surrounded by a diverse mix of land uses as it traverses the cities of Milpitas, Fremont and the East Bay hills. The southern portion of the corridor, from State Route 237 in Milpitas to the Alameda County line, is surrounded by residential, commercial, office, and public facility uses. Through the City of Fremont, the corridor is surrounded by a mix of commercial, industrial, institutional, residential, parks and open space uses. The northeastern Fremont hills and north through the community of Sunol in unincorporated Alameda County, land uses are predominantly large parcel agriculture and water management open space outside the urban growth boundary.

Environmental Consequences

The proposed project will not change or alter the current land use and therefore will not have any conflict with current land use plans, policies, or regulations within the project area.

Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measure is required as there are no impacts to land use or planning identified.

XI. MINERAL RESOURCES:

Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

There are no mineral resources within the project area. No avoidance, minimization, and/or mitigation are needed.

XII. NOISE:

Would the project result in:	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

Affected Environment

A *Noise Impact Report* (July 2011) was prepared for the project. It assessed the traffic noise impact resulting from the installation and implementation of a ramp metering system and traffic operations system along I-680 in Alameda County. It determined that residential areas and commercial areas are mixed along both sides of I-680 within the proposed project area. The roadway alignment is basically straight with a roadway profile grade being a few meters above the surrounding residential areas.

Existing noise levels ranging from 55.2 to 60.4 dBA Leq (h) were measured at various locations within the project limits. Since it is below the State Noise Abatement Criteria (NAC) of 67 dBA Leq (h), no noise abatement measures are considered for this project.

Environmental Consequences

The predicted future noise levels at the project area range from 55.5 to 60.7 dBA Leq (h). Existing and predicted noise levels do not exceed the Noise Abatement Criteria (NAC) of 67 dBA Leq (h). The project will not increase noise levels in the project area.

Avoidance, Minimization and/or Mitigation Measures

The project will not cause a permanent increase in noise levels above the existing, or baseline condition. No avoidance, minimization and/or mitigation measures needed.

Construction Noise

It is possible that the high levels of noise generated by construction equipment may be heard by nearby residents but it will likely be short-lived at each location. Construction equipment should be required to conform to the provisions in Section 14-8.02 Noise Control, of the latest Caltrans Standard Specifications. These requirements are meant to minimize the impact from short duration construction noise.

In addition to the aforementioned Standard Specifications, construction noise impacts can be minimized by implementing some or all of the following measures:

- Avoiding construction activities during the nighttime and on weekends.
- Constructing noise barriers as the first order of work.
- Using stockpiled dirt as eath berms where possible.
- Keeping noisy equipment and haul roads away from sensitive receptors.

Keeping the community informed of upcoming especially noisy construction activities and establish a field office to handle noise complaints.

XIII. POPULATION AND HOUSING: Would the project:

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
--------------------------------	---------------------------------------	------------------------------	-----------

- a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?
- b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?
- c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?

While the project is expected to improve the efficiency of the highway system, it is not projected to have any growth-inducing effects.

XIV. PUBLIC SERVICES:

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
--------------------------------	---------------------------------------	------------------------------	-----------

- a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:
 Fire protection?
 Police protection?
 Schools?
 Parks?
 Other public facilities?

The project is not expected to have any effects to public services. A Traffic Management Plan will be prepared during the design phase to ensure that public service vehicle access is not affected during construction.

XV. RECREATION:

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
--------------------------------	---------------------------------------	------------------------------	-----------

- a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?
- b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

The proposed project would improve the efficiency of the highway system by implementing the TOS elements. It is anticipated that no changes will occur in traffic patterns and thus will not likely increase the use of existing neighborhood or other recreational facilities within the project area. The project will have no affect to any recreational facilities.

XVI. TRANSPORTATION/TRAFFIC:

Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
--------------------------------	---------------------------------------	------------------------------	-----------

Would the project:

- | | | | | |
|---|--------------------------|--------------------------|--------------------------|-------------------------------------|
| a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Result in inadequate emergency access? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f) Conflict with adopted policies, plans or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

The proposed project does not have any conflict with any plans, congestion management programs, or ordinances. The proposed project would improve the efficiency of the highway system by implementing the TOS elements. It is anticipated that no changes will occur in traffic patterns. The project will not create an inadequate access to emergency services as it will increase the efficiency of the highway system.

XVII. UTILITIES AND SERVICE SYSTEMS:

- | | Potentially Significant Impact | Less Than Significant with Mitigation | Less Than Significant Impact | No Impact |
|---|--------------------------------|---------------------------------------|------------------------------|-------------------------------------|
| a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | Potentially Significant Impact | Less Than Significant with Mitigation | Less Than Significant Impact | No Impact |
| f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| g) Comply with federal, state, and local statutes and regulations related to solid waste? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

The proposed project will have no impact to utilities or service systems.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE

	Potentially Significant Impact	Less Than Significant with Mitigation	Less Than Significant Impact	No Impact
--	--------------------------------	---------------------------------------	------------------------------	-----------

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

The project has minimal impact on potential habitat for special-status species. Please see Section IV. Biological Resources.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

The proposed project's impacts were taken into consideration with regards to other projects that have occurred, or will occur within the proposed project's area. It was determined that the proposed project's impacts to the following environmental factors do not contribute to cumulative effects with those projects:

- Special status species
- Archaeological resources
- Paleontological resources
- Geology and Soils

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

The proposed project proposes to improve the efficiency of the highway system by metering the ramps, and installing traffic operation system elements. These elements will not have any impacts which will cause any adverse effect on human beings either directly or indirectly.

THIS PAGE INTENTIONALLY LEFT BLANK

Chapter 3 – Climate Change

Climate Change

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas (GHG) emissions, particularly those generated from the production and use of fossil fuels.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988 has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity including carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF₆), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light-duty trucks, other trucks, buses, and motorcycles make up the largest source of GHG-emitting sources. The dominant GHG emitted is CO₂, mostly from fossil fuel combustion.

There are typically two terms used when discussing the impacts of climate change: “Greenhouse Gas Mitigation” and “Adaptation.” “Greenhouse Gas Mitigation” is a term for reducing GHG emissions to reduce or “mitigate” the impacts of climate change. “Adaptation” refers to the effort of planning for and adapting to impacts resulting from climate change (such as adjusting transportation design standards to withstand more intense storms and higher sea levels)¹.

There are four primary strategies for reducing GHG emissions from transportation sources: 1) improving the transportation system and operational efficiencies, 2) reducing travel activity, 3) transitioning to lower GHG-emitting fuels, and 4) improving vehicle technologies/efficiency. To be most effective, all four strategies should be pursued cooperatively².

Regulatory Setting

State

With the passage of several pieces of legislation including State Senate and Assembly bills and Executive Orders, California launched an innovative and proactive approach to dealing with GHG emissions and climate change.

Assembly Bill 1493 (AB 1493), Pavley, Vehicular Emissions: Greenhouse Gases, 2002: This bill requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year.

¹ http://climatechange.transportation.org/ghg_mitigation/

² http://www.fhwa.dot.gov/environment/climate_change/mitigation/

Executive Order (EO) S-3-05 (June 1, 2005): The goal of this EO is to reduce California's GHG emissions to 1) year 2000 levels by 2010, 2) year 1990 levels by 2020, and 3) 80 percent below the year 1990 levels by 2050. In 2006, this goal was further reinforced with the passage of Assembly Bill 32.

Assembly Bill 32 (AB 32), Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 sets the same overall GHG emissions reduction goals as outlined in EO S-3-05, while further mandating that ARB create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases."

Executive Order S-20-06 (October 18, 2006): This order establishes the responsibilities and roles of the Secretary of the California Environmental Protection Agency (Cal/EPA) and state agencies with regard to climate change.

Executive Order S-01-07 (January 18, 2007): This order set forth the low carbon fuel standard for California. Under this EO, the carbon intensity of California's transportation fuels is to be reduced by at least 10 percent by 2020.

Senate Bill 97 (SB 97) Chapter 185, 2007, Greenhouse Gas Emissions: This bill required the Governor's Office of Planning and Research (OPR) to develop recommended amendments to the California Environmental Quality Act (CEQA) Guidelines for addressing GHG emissions. The amendments became effective on March 18, 2010.

Senate Bill 375 (SB 375), Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires the California Air Resources Board (CARB) to set regional emissions reduction targets from passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop a "Sustainable Communities Strategy" (SCS) that integrates transportation, land-use, and housing policies to plan for the achievement of the emissions target for their region.

Senate Bill 391 (SB 391) Chapter 585, 2009 California Transportation Plan: This bill requires the State's long-range transportation plan to meet California's climate change goals under AB 32.

Project Analysis

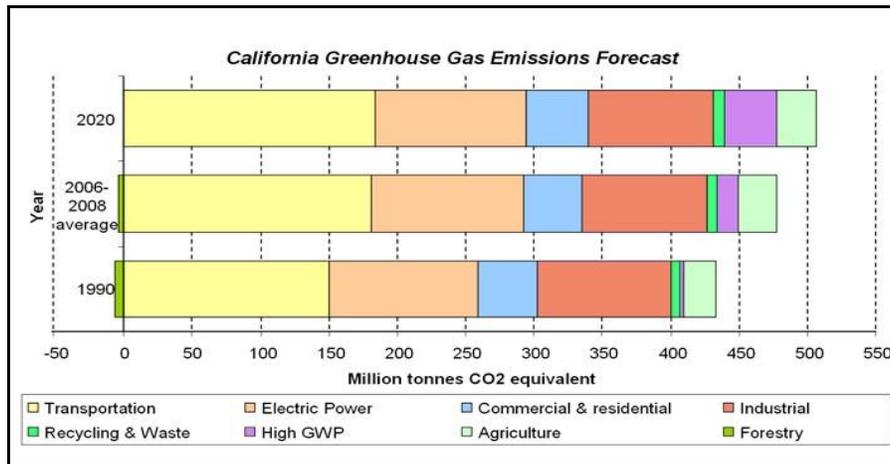
An individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its *incremental* change in emissions when combined with the contributions of all other sources of GHG.³ In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines Sections 15064(h) (1) and 15130). To make this determination, the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects to make this determination is a difficult, if not impossible, task.

The AB 32 Scoping Plan mandated by AB 32 includes the main strategies California will use to reduce GHG emissions. As part of its supporting documentation for the Draft Scoping Plan, the ARB released the GHG inventory for California (forecast last updated: October 28, 2010). The forecast is an estimate of the emissions expected to occur in 2020 if none of the foreseeable measures included in the Scoping

³ This approach is supported by the AEP: *Recommendations by the Association of Environmental Professionals on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), as well as the South Coast Air Quality Management District (Chapter 6: The CEQA Guide, April 2011) and the U.S. Forest Service (Climate Change Considerations in Project Level NEPA Analysis, July 13, 2009).

Plan were implemented. The base year used for forecasting emissions is the average of statewide emissions in the GHG inventory for 2006, 2007, and 2008.

Figure 4 California Greenhouse Gas Forecast



Source: <http://www.arb.ca.gov/cc/inventory/data/forecast.htm>

The Department and its parent agency, the Transportation Agency, have taken an active role in addressing GHG emission reduction and climate change. Recognizing that 98 percent of California’s GHG emissions are from the burning of fossil fuels and 40 percent of all human made GHG emissions are from transportation, the Department has created and is implementing the Climate Action Program at Caltrans that was published in December 2006.⁴

The purpose of this project is to improve traffic operations by completing the installation and implementation of ramp metering and TOS elements on northbound and southbound I-80 in Alameda County. The goal of this project is to improve traffic mobility and safety by mitigating associated traffic conflicts due to weaving and merging maneuvers along I-680 in Alameda County. Under the project, any queues that develop beyond dedicated lanes and spill onto local roads as a result of the ramp metering activity are to be adjusted by the metering frequency. Although the proposed project will not increase roadway capacity via changes to the number of lanes on the mainline system, any GHG reductions that may be reduced through improved traffic flow on the mainline through ramp metering are likely to be negated by the emissions resulting from queuing associated with ramp metering⁵. Additionally, operation of new ramp meter lights will result in a small increase in electricity use, causing indirect emissions from electricity generation. Use of energy efficient LEP ramp metering lights and solar panels will help to offset these emissions.

The project is included in the current Regional Transportation Plan (the MTC Transportation 2035⁶ plan: project reference number: 22991). While the ramp metering themselves are expected to generate a small

⁴ Caltrans Climate Action Program is located at the following web address: http://www.dot.ca.gov/hq/tpp/offices/ogm/key_reports_files/State_Wide_Strategy/Caltrans_Climate_Action_Program.pdf

⁵ Shaheen and Lipman, “Reducing Greenhouse Gas Emissions and Fuel Consumption: Sustainable Approaches for Surface Transportation”. June 2007. <http://tsrc.berkeley.edu/reduceghgs>

⁶ http://www.mtc.ca.gov/planning/2035_plan/

amount of indirect GHG emissions through electricity used in powering the ramp meters, the project which includes HOV priority lanes, supports the Plan's goals to improve mobility in the region as well as reducing emissions by promoting transit and ridesharing. The Final EIR for the Transportation 2035 Plan addresses climate change and finds that the projects proposed under the RTP, including this one, will not have cumulatively considerable impacts as they relate to climate change.

Construction Emissions

Greenhouse gas emissions for transportation projects can be divided into those produced during construction and those produced during operations. Construction GHG emissions include emissions produced as a result of material processing, emissions produced by on-site construction equipment, and emissions arising from traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be mitigated to some degree by longer intervals between maintenance and rehabilitation events.

CEQA Conclusion

While construction the project will result in a slight increase in GHG emissions during construction, it is anticipated that the project will not result in an overall increase in operational GHG emissions. While it is Caltrans determination that in the absence of further regulatory or scientific information related to GHG emissions and CEQA significance, it is too speculative to make a significance determination regarding the project's direct impact and its contribution on the cumulative scale to climate change, Caltrans is firmly committed to implementing measures to help reduce GHG emissions. These measures are outlined in the following section.

Greenhouse Gas Reduction Strategies



Figure 5: Mobility Pyramid

The Department continues to be involved on the Governor's Climate Action Team as the ARB works to implement Executive Orders S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. Many of the strategies the Department is using to help meet the targets in AB 32 come from then-Governor Arnold Schwarzenegger's Strategic Growth Plan for California. The Strategic Growth Plan targeted a significant decrease in traffic congestion below 2008 levels and a corresponding reduction in GHG emissions, while accommodating growth in population and the economy. The Strategic Growth Plan relies on a complete systems approach to attain CO₂ reduction goals: system monitoring and evaluation, maintenance and preservation, smart land use and demand management, and operational improvements as shown in Figure 5: The Mobility Pyramid.

The Department is supporting efforts to reduce vehicle miles traveled by planning and implementing smart land use strategies: job/housing proximity, developing transit-oriented communities, and high-density housing along transit corridors. The Department works closely with local jurisdictions on planning activities, but does not have local land use planning authority. The Department assists efforts to improve the energy efficiency of the transportation sector by increasing vehicle fuel economy in new cars, light and heavy-duty trucks; the Department is doing this by supporting ongoing research efforts at universities, by supporting legislative efforts to increase fuel economy, and by participating on the Climate Action Team. It is important to note, however, that control of fuel economy standards is held by the U.S. EPA and ARB.

The Department is also working towards enhancing the State's transportation planning process to respond to future challenges. Similar to requirements for regional transportation plans under Senate Bill (SB) 375 (Steinberg 2008), SB 391(Liu 2009) requires the State's long-range transportation plan to meet California's climate change goals under Assembly Bill (AB) 32.

The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce greenhouse gas (GHG) emissions. The CTP defines performance-based goals, policies, and strategies to achieve our collective vision for California's future, statewide, integrated, multimodal transportation system.

The purpose of the CTP is to provide a common policy framework that will guide transportation investments and decisions by all levels of government, the private sector, and other transportation stakeholders. Through this policy framework, the CTP 2040 will identify the statewide transportation system needed to achieve maximum feasible GHG emission reductions while meeting the State's transportation needs.

Table 6 summarizes the Departmental and statewide efforts that the Department is implementing to reduce GHG emissions. More detailed information about each strategy is included in the [Climate Action Program at Caltrans](#) (December 2006).

Table 6 Climate Change/CO₂ Reduction Strategies

Strategy	Program	Partnership		Method/Process	Estimated CO ₂ Savings Million Metric Tons (MMT)	
		Lead	Agency		2010	2020
Smart Land Use	Intergovernmental Review (IGR)	Caltrans	Local governments	Review and seek to mitigate development proposals	Not Estimated	Not Estimated
	Planning Grants	Caltrans	Local and regional agencies & other stakeholders	Competitive selection process	Not Estimated	Not Estimated
	Regional Plans and Blueprint Planning	Regional Agencies	Caltrans	Regional plans and application process	0.975	7.8
Operational Improvements & Intelligent Transportation System (ITS) Deployment	Strategic Growth Plan	Caltrans	Regions	State ITS; Congestion Management Plan	0.07	2.17
Mainstream Energy & GHG into Plans and Projects	Office of Policy Analysis & Research; Division of Environmental Analysis	Interdepartmental effort		Policy establishment, guidelines, technical assistance	Not Estimated	Not Estimated
Educational & Information Program	Office of Policy Analysis & Research	Interdepartmental, CalEPA, ARB, CEC		Analytical report, data collection, publication, workshops, outreach	Not Estimated	Not Estimated
Fleet Greening & Fuel Diversification	Division of Equipment	Department of General Services	Fleet Replacement			0.0065
			B20		0.0045	0.045
			B100			0.0225
Non-vehicular Conservation Measures	Energy Conservation Program	Green Action Team		Energy Conservation Opportunities	0.117	0.34
Portland Cement	Office of Rigid Pavement	Cement and Construction Industries	2.5 % limestone cement mix		1.2	4.2
			25% fly ash cement mix		0.36	3.6
			> 50% fly ash/slag mix			
Goods Movement	Office of Goods Movement	Cal EPA, ARB, BT&H, MPOs		Goods Movement Action Plan	Not Estimated	Not Estimated
Total					2.72	18.18

Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012): is intended to establish a Department policy that will ensure coordinated efforts to incorporate climate change into Departmental decisions and activities.

Caltrans Activities to Address Climate Change (April 2013)⁷ provides a comprehensive overview of activities undertaken by Caltrans statewide to reduce greenhouse gas emissions resulting from agency operations.

The following measure will also be included in the project to reduce the GHG emissions and potential climate change impacts from the project:

- The project would incorporate the use of energy-efficient lighting, such as LED traffic signals. LED bulbs cost \$60 to \$70 each, but last five to six years, compared to the one-year average lifespan of the incandescent bulbs previously used. The LED bulbs themselves consume 10 percent of the electricity of traditional lights, which will also help reduce the project's CO₂ emissions.⁸
- According to the Department's Standard Specifications, the contractor must comply with the local air pollution control rules, ordinances, and regulations applicable to work performed under the contract.

Adaptation Strategies

“Adaptation strategies” refer to how the Department and others can plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and intensity, and the frequency and intensity of wildfires. These changes may affect the transportation infrastructure in various ways, such as damage to roadbeds from longer periods of intense heat; increasing storm damage from flooding and erosion; and inundation from rising sea levels. These effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. There may also be economic and strategic ramifications as a result of these types of impacts to the transportation infrastructure.

At the federal level, the Climate Change Adaptation Task Force, co-chaired by the White House Council on Environmental Quality (CEQ), the Office of Science and Technology Policy (OSTP), and the National Oceanic and Atmospheric Administration (NOAA), released its interagency task force progress report on October 28, 2011⁹, outlining the federal government's progress in expanding and strengthening the Nation's capacity to better understand, prepare for, and respond to extreme events and other climate change impacts. The report provides an update on actions in key areas of federal adaptation, including: building resilience in local communities, safeguarding

⁷ http://www.dot.ca.gov/hq/tpp/offices/orip/climate_change/projects_and_studies.shtml

⁸ Knoxville Business Journal, “LED Lights Pay for Themselves,” May 19, 2008 at <http://www.knoxnews.com/news/2008/may/19/led-traffic-lights-pay-themselves/>.

⁹ <http://www.whitehouse.gov/administration/eop/ceq/initiatives/adaptation>

critical natural resources such as freshwater, and providing accessible climate information and tools to help decision-makers manage climate risks .

Climate change adaptation must also involve the natural environment as well. Efforts are underway on a statewide-level to develop strategies to cope with impacts to habitat and biodiversity through planning and conservation. The results of these efforts will help California agencies plan and implement mitigation strategies for programs and projects.

On November 14, 2008, then-Governor Arnold Schwarzenegger signed EO S-13-08, which directed a number of state agencies to address California's vulnerability to sea level rise caused by climate change. This EO set in motion several agencies and actions to address the concern of sea level rise.

In addition to addressing projected sea level rise, the California Natural Resources Agency (Resources Agency) was directed to coordinate with local, regional, state and federal public and private entities to develop The California Climate Adaptation Strategy (Dec 2009)¹⁰, which summarizes the best-known science on climate change impacts to California, assesses California's vulnerability to the identified impacts, and then outlines solutions that can be implemented within and across state agencies to promote resiliency.

The strategy outline is in direct response to EO S-13-08 that specifically asked the Resources Agency to identify how state agencies can respond to rising temperatures, changing precipitation patterns, sea level rise, and extreme natural events. Numerous other state agencies were involved in the creation of the Adaptation Strategy document, including the California Environmental Protection Agency; Business, Transportation and Housing; Health and Human Services; and the Department of Agriculture. The document is broken down into strategies for different sectors that include: Public Health; Biodiversity and Habitat; Ocean and Coastal Resources; Water Management; Agriculture; Forestry; and Transportation and Energy Infrastructure. As data continues to be developed and collected, the state's adaptation strategy will be updated to reflect current findings.

The National Academy of Science was directed to prepare a Sea Level Rise Assessment Report¹¹ to recommend how California should plan for future sea level rise. The report was released in June 2012 and included:

- Relative sea level rise projections for California, Oregon and Washington taking into account coastal erosion rates, tidal impacts, El Niño and La Niña events, storm surge and land subsidence rates.
- The range of uncertainty in selected sea level rise projections.
- A synthesis of existing information on projected sea level rise impacts to state infrastructure (such as roads, public facilities and beaches), natural areas, and coastal and marine ecosystems.
- A discussion of future research needs regarding sea level rise.

¹⁰ <http://www.energy.ca.gov/2009publications/CNRA-1000-2009-027/CNRA-1000-2009-027-F.PDF>

¹¹ *Sea Level Rise for the Coasts of California, Oregon, and Washington: Past, Present, and Future* (2012) is available at http://www.nap.edu/catalog.php?record_id=13389.

In 2010, interim guidance was released by The Coastal Ocean Climate Action Team (CO-CAT) as well as Caltrans as a method to initiate action and discussion of potential risks to the states infrastructure due to projected sea level rise. Subsequently, CO-CAT updated the Sea Level Rise guidance to include information presented in the National Academies Study.

All state agencies that are planning to construct projects in areas vulnerable to future sea level rise are directed to consider a range of sea level rise scenarios for the years 2050 and 2100 to assess project vulnerability and, to the extent feasible, reduce expected risks and increase resiliency to sea level rise. Sea level rise estimates should also be used in conjunction with information on local uplift and subsidence, coastal erosion rates, predicted higher high water levels, storm surge and storm wave data.

All projects that have filed a Notice of Preparation as of the date of EO S-13-08, and/or are programmed for construction funding from 2008 through 2013, or are routine maintenance projects may, but are not required to, consider these planning guidelines. The proposed project is outside the coastal zone and direct impacts to transportation facilities due to projected sea level rise are not expected.

Executive Order S-13-08 also directed the Business, Transportation, and Housing Agency to prepare a report to assess vulnerability of transportation systems to sea level rise affecting safety, maintenance and operational improvements of the system, and economy of the state. The Department continues to work on assessing the transportation system vulnerability to climate change, including the effect of sea level rise.

Currently, the Department is working to assess which transportation facilities are at greatest risk from climate change effects. However, without statewide planning scenarios for relative sea level rise and other climate change effects, the Department has not been able to determine what change, if any, may be made to its design standards for its transportation facilities. Once statewide planning scenarios become available, the Department will be able review its current design standards to determine what changes, if any, may be needed to protect the transportation system from sea level rise.

Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system from increased precipitation and flooding; the increased frequency and intensity of storms and wildfires; rising temperatures; and rising sea levels. The Department is an active participant in the efforts being conducted in response to EO S-13-08 and is mobilizing to be able to respond to the National Academy of Science Sea Level Rise Assessment Report.

THIS PAGE INTENTIONALLY LEFT BLANK

Chapter 4 – Public Review and Comment

Summary

This chapter describes the public review and comment process for the draft environmental document (DED) and responds to public comments. The DED described two possible alternatives, the build and no-build. Of the two alternatives presented in the DED, the project development team selected the build alternative on January 28, 2014.

Organizations and Individuals Contacted

A newspaper announcement informing the public of the availability of the Initial Study with Proposed Mitigated Negative Declaration and the opportunity to request for a public meeting for the project was placed in the Bay Area Newsgroup newspapers on November 20, 2013. In addition to the newspaper announcement, postcards were sent to individuals who owned property within 500 feet of the project location. The addresses were obtained from public records. Letters were also sent to elected officials and business/organizations as listed in Appendix F.

Circulation of Draft Environmental Document

The Initial Study with Proposed Mitigated Negative Declaration for the project was circulated from November 19, 2013 to December 20, 2013. During the circulation of the DED, two comments were received. The comments and their respective responses are in the section below.

Public Comments and Responses

Comment 1:

Dear Ms. Garcia,

Thank you for the notification for the opportunity to comment on the IS document related to the above subject line.

I am a resident that lives off of Scott Creek Road. As stated in the IS document the commute traffic is heavy. Often it is difficult to leave the residential streets to enter into Scott Creek Road. I am concerned that Section XVI Transportation/Traffic states there will be no change to the traffic in the area. Has the potential for backup onto Scott Creek Road due to metering lights been taken into consideration? If Scott Creek Road becomes even more congested then it will be next to impossible to leave or enter the residential streets during commute hours. Has Caltrans run the simulations to see how side road traffic would be affected entering and exiting Scott Creek Road?

I know that residents in the past have asked the City of Fremont to consider installing a traffic signal at Zinfandel and Scott Creek Road. Has Caltrans considered discussing this with the City of Fremont? This may be a joint effort that could also act as a metering light (if considered).

Please provide additional information regarding how traffic may be affected or provide the backup documentation for why Caltrans believes that traffic will not change.

Thank you again for the opportunity to provide comments. We hope that our question and suggestions will be considered.

Sincerely,

Jaclyn Yee

Scott Creek Road resident

Response 1:

The project has implementation features that will prevent backup onto the city streets. The project will widen the northbound I-680 Scott Creek Road on-ramp to add a new HOV bypass lane to the existing mixed flow lane and add ramp metering equipment. Our traffic forecasting for year 2035 estimates that the peak hour demand (the highest volume of traffic in a one hour period) is approximately 970 vehicles/hr. The peak hour demand for year 2012 was 530 vehicles/hr. Based upon these traffic volumes and the additional capacity provided by the added HOV bypass lane, we do not anticipate backups to queue to Scott Creek Road on a typical basis. Additionally, detectors placed at the upstream end of the onramp will be able to detect any queues that may be extending to the street. This will initiate a command for the ramp meter to cycle more quickly. If queues were to back up to Scott Creek Road more frequently, the metering could be changed to allow 2 cars per green signal or even to a solid green signal to minimize backup to the city street.

The Scott Creek/Zinfandel intersection is within the city of Fremont's jurisdiction. A signal at this location would probably facilitate local traffic entry to Scott Creek Road, but would not affect or be affected by the project. Your comment has been forwarded to the City of Fremont for their review and consideration of installing a signal at the Scott Creek/Zinfandel intersection.

Comment 2:

Sheryl

I got the notice for comments for the 680 project. Was wondering why I didn't get a notice for the project that added signals and HOV lanes at Washington Blvd in Fremont that was COMPLETED earlier this year? Considering that project was less than a mile from my residence. And since that addition was the same as what is being proposed and is within the boundaries of the upcoming project, why was it done separately?

Bruce Onken

Response 2:

Ramp metering projects are going on all over the Bay Area. The Metropolitan Transportation Commission and Caltrans separated this Bay Area-wide program into separate segments that are of reasonable size to analyze, design, and construct. The project that included the added signals and HOV lanes at Washington Blvd. in Fremont was part of another project. That project was cleared under the California Environmental Quality Act (CEQA) Categorical Exemption (CE)

and National Environmental Policy Act (NEPA) Categorical Exclusion (CE). It was determined based on the technical studies that were completed as part of that project that it would have no significant effect on the environment. Under a CEQA CE and a NEPA CE, a public comment period is not required. A Notice of Exemption (NOE) must be filed with the State Clearinghouse when completing a CE (CEQA Guidelines Section 15062). The NOE serves as the public notice that a project that is exempt from CEQA has been approved. The NOE for that project was filed on May 24, 2012.

The proposed I-680 Freeway Performance Initiative Project that you received a notice for comments is undergoing a higher level of environmental review. It has some potential impacts to the environment and thus required an Initial Study under CEQA. CEQA regulations require that a lead agency must provide notice of the intent to adopt a negative declaration or mitigated negative declaration to the public, responsible agencies, trustee agencies, and the county clerk of each county within which the proposed project is located (CEQA Guidelines §15072). Because your address was identified as being close to this project, you received a notification of this project's comment period.

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix A

Acronyms

AB	Assembly Bill
ADL	Aerially Deposited Lead
ALA	Alameda
AMA	Archaeological Monitoring Areas
APE	Area of Potential Effect
ARB	Air Resource Board
ASR	Archaeological Survey Report
BAAQMD	Bay Area Air Quality Management District
BMP	Best Management Practice
BSA	Biological Study Area
CA	California
CAA	California Clean Air Act
CCTV	Closed Circuit Television
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CGP	Construction General Permit
CHP	California Highway Patrol
CIDH	Cast-In-Drill-Hole
CMS	Changeable Message Signs
CNPS	California Native Plant Society
Co	County
CO	Carbon Monoxide
CRZ	Clear Recovery Zone
CTP	California Transportation Plan
CWA	Clean Water Act
dba	Decibel
DSA	Disturbed Soil Area
EA	Expenditure Authorization
EO	Executive Order
ES	Edge of Shoulder
ESA	Environmentally Sensitive Areas
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map

ft.	Feet
GANDA	Garcia and Associates
GHG	Greenhouse Gas
GPRS	General Packet Radio Service
H ₂ S	Hydrogen Sulfide
HOV	High Occupancy Vehicle
HPSR	Historic Property Survey Report
HSG	Hydrologic Soil Group
I-580	Interstate 580
I-680	Interstate 680
ig/m ³	micrograms per cubic meter
IPCC	Intergovernmental Panel on Climate Change
LOS	Level of Service
mg/m ³	milligrams per cubic meter
MND	Mitigated Negative Declaration
MOA	Memorandum of Agreement
MPO	Metropolitan Planning Organization
MTC	Metropolitan Transportation Commission
MVPs	Maintenance Vehicle Pullouts
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NES	Natural Environment Study
NHPA	National Historic Preservation Act
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRCS	National Resource Conservation System
NRHP	National Register of Historic Places
O ₃	Ozone
OG	Original Ground
OSTP	Office of Science and Technology Policy
PA	Programmatic Agreement
Pb	Lead
PCA	Project Construction Area
PG&E	Pacific Gas and Electric
P.M.	Post Mile
PM	Particulate Matter
PMP	Paleontological Monitoring Plan
ppb	parts per billion

ppm	parts per million
RMDG	Ramp Meter Design Guidelines
RMS	Ramp Metering System
RWQCB	Regional Water Quality Control Board
PRC	Public Resources Code
Rte	Route
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO ₂	Sulfur Dioxide
SR	State Route
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resource Control Board
TCM's	Transportation Control Measures
TIP	Transportation Improvement Plan
TMC	Traffic Management Center
TMDL	Total Maximum Daily Load
TMS	Traffic Monitoring Stations
TOS	Traffic Operations System
U.S. EPA	United States Environmental Protection Agency
US DOT	United State Department of Transportation
USC	United States Code
USFWS	United States Fish and Wildlife Service
WDR	Waste Discharge Requirement
WPCP	Water Pollution Control Program

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix B

Technical Studies

Visual Impact Assessment, Ala 680 TOS Improvement Project, District 4 Office of Landscape Architecture, June 2013

Noise Impact Report, Freeway Performance Initiative on Route 680 Between Santa Clara County Line and Contra Costa County Line In Alameda County, District 4 Office of Environmental Engineering, July 2011

Air Quality Study Report, Freeway Performance Initiative on Route 680 Between Santa Clara County Line and Alcosta Road In Alameda County, District 4 Office of Environmental Engineering, July 2011

Water Quality Report, District 4 Office of Water Quality Program, September 2013

Natural Environment Study, Interstate 680 Freeway Performance Initiative Project, District 4 Office of Biological Science and Permits, September 2013

2013 Archaeological Survey Report for the Proposed Freeway Performance Initiative Project along I-680 in Alameda County, California, PM M0.0/R21.9, EA 4G111, District 4 Office of Cultural Resources, September 2013

2013 Historic Property Survey Report for the Proposed Freeway Performance Initiative Project along I-680 in Alameda County, California, PM M0.0/R21.9, EA 4G111, District 4 Office of Cultural Resources, September 2013

2013 Finding of Effect for the Proposed Freeway Performance Initiative Project along I-680 in Alameda County, California, PM M0.0/R21.9, EA 4G111, District 4 Office of Cultural Resources, September 2013

2013 Environmentally Sensitive Area (ESA) and Archaeological Monitoring Area (AMA) Action Plan for the Proposed Freeway Performance Initiative Project along I-680 in Alameda County, California, PM M0.0/R21.9, EA 4G111, District 4 Office of Cultural Resources, September 2013

Biological Opinion on the Effects of the Proposed Interstate 680 Freeway Performance Initiative Phase II Project, Alameda County, California (Caltrans EA 4G111), United States Department of the Interior, September 2014.

The legal authority to restrict cultural resource information can be found in California Government Code sections 6254.10 and 6254(r); California Code of Regulations Section 15120(d); and Section 304 of the National Historic Preservation Act of 1966.

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix C

List of Preparers

Keith Suzuki, Landscape Associate, Office of Landscape Architecture

Susan Lindsay, Caltrans Senior Landscape Architect, Office of Landscape Architecture

Sheryl Garcia, Associate Environmental Planner, Office of Environmental Analysis

Alex Choi, Engineer, Office of Environmental Engineering

Shiang Yang, Engineer, Office of Environmental Engineering

Glenn Kinoshita, District Branch Chief, Office of Environmental Engineering

Craig Tomimatsu, District Branch Chief, Office of Hydraulics

Emily Darko, Archaeologist, Office of Cultural Resources

Douglas Bright, Architectural Historian, Office of Cultural Resources

Christopher States, District Branch Chief, Office of Biological Sciences and Permits

Matthew Gaffney, Engineering Geologist, Office of Geotechnical Design - West

Elizabeth White, Associate Environmental Planner, Office of Environmental Analysis

Noray-Ann Spradling, Associate Environmental Planner, Office of Environmental Analysis

Denis Coghlan, District Biologist, Office of Biological Sciences and Permits

THIS PAGE INTENTIONALLY LEFT BLANK

Commitments						
Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date
PS&E/Before RTL						
Biology						
A re-vegetation plan will be included in the contract bid package to restore all disturbed areas with native species appropriate for the region and habitat communities on site.	BO	SSP	Caltrans Erosion Control & Caltrans Biology			
Required Environmental Awareness Training for construction personnel will be included in Section 14 of the contract bid package.	BO	SSP	Project Engineer & Caltrans Biologist			
Specifications for the location, fencing materials, installation specifications, and monitoring and repair criteria for Wildlife Exclusion Fencing (WEF) shall be included in the final bid package.	BO	SSP	Project Engineer & Caltrans Biology			
The final project plans will depict all locations where Environmentally Sensitive Area (ESA) fencing will be installed and will provide standard specifications for the installation, maintenance, and materials to be used.	BO	SSP	Project Engineer & Caltrans Biologist			
Noise						
Construction equipment should be required to conform to the provisions in Section 14-8.02 Noise Control, of the latest Caltrans Standard Specifications. These requirements are meant to minimize the impact from short duration construction noise.	Env Doc	SSP	Design/Env. Engineering			

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date
Paleontology						
A project-specific Paleontological Mitigation Plan will be prepared by qualified principal paleontologist once adequate project design information regarding subsurface disturbance location, depth and lateral extent is available.	Env Doc		Design/Geotech			
Visual Resources						
Aesthetic Wall Treatments – Aesthetic treatments consisting of color, pattern and/or texture would be utilized to reduce visual impacts, glare and the likelihood of graffiti. Treatments would be context-sensitive to the wall's location and help blend it into the environment. If concrete drainage ditches are required behind the top of retaining walls, they will be stained to match the overall wall color.	Env Doc		Design/Landscape Architecture			
Cable safety railing - Where required, railing can be treated with black or brown color application to reduce their appearance and help them blend visually into the environment.	Env Doc		Design/Landscape Architecture			
Concrete safety-shaped barriers – Sand blasting to a medium finish would reduce glare and deter graffiti. Barriers at the bottom of retaining walls can be stained to match the overall wall color if deemed appropriate by the Office of Landscape Architecture during the design phase.	Env Doc		Design/Landscape Architecture			
Replacement Planting – Where proper setback exists, and where feasible, replacement planting could be implemented to help reduce views of the retaining walls facing neighbors. Other trees removed as part of the project would be replaced as per Caltrans' policy regarding tree removal. Over time, the initial tree loss will be compensated by the replacements, and the overall drop in visual quality will increase to current or above levels with planting. It is estimated that approximately one linear mile of existing planting will be removed and require replacement. If the estimated cost of replacement can be kept at or below \$200K, then planting can be included as part of the roadway contract, with a one-year plant establishment period. If the estimate goes over \$200K, then planting will need to be completed as a separate contract, funded from the parent roadway contract, and include a 3-year plant establishment period.	Env Doc		Design/Landscape Architecture			

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date
Water Quality						
<p>Best Management Practices (BMPs) will be incorporated to reduce/prevent the potential discharge of pollutants, during, and post-, construction, to the Maximum Extent Practicable (MEP).</p> <p>In general, BMPs fall into three main categories:</p> <p>1. Design Pollution Prevention BMPs: These BMPs are permanent measures to improve storm water quality by reducing erosion, stabilizing disturbed soil areas, and maximizing vegetated surfaces. Design Pollution Prevention BMPs are anticipated to be incorporated as part of this project.</p> <p>2. Temporary Construction Site BMPs: These BMPs are implemented throughout the duration of construction activities, in order to reduce pollutant loads in potential stormwater/non-stormwater discharges. Construction Site BMP strategies, applicable to this project, may include the following:</p> <ul style="list-style-type: none"> • Sediment Control: run-on or run-off control, and storm drain inlet protection; • Tracking Controls: stabilized construction entrance and exit, stabilized construction roadway, and street sweeping; • Wind Erosion Controls; hydraulic mulch, hydroseeding, and temporary covers; • Non-Stormwater Management: vehicle and equipment operations (fueling, cleaning and maintenance), concrete operations, and material and equipment use; • Waste Management and Materials Pollution Control: material delivery and storage, material use, stockpile management, spill prevention and control, solid and concrete waste management, hazardous waste and contaminated soil management, and liquid waste management. <p>3. Permanent Treatment BMPs: These BMPs are permanent water quality controls used to remove pollutants from stormwater runoff prior to being discharged from Department R/W. This project will require treatment BMPs. Bio strips and bio infiltration swales will be used.</p>	Env Doc	SSP	Design/Water Quality			
Pre-Construction						

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date
Biology						
A qualified biologist will conduct an Environmental Awareness Training for construction personnel. Upon completion of the program, personnel will sign a form stating that they attended the program and understand all of the avoidance and minimization measures and implication of the Endangered Species Act. The RE will retain a copy of this signature sheet on-site at all times.	BO	SSP	Resident Engineer & Qualified Biologist			
ESA fencing will be installed according to Caltrans Standard Specifications in the locations designated on the project plan sheets. Construction personnel, activities, equipment staging, and storage will not be allowed within the areas designated as ESA.	BO	SSP	Resident Engineer			
Pre-Construction Surveys: Nesting Bird - Between February 1st and August 31st, any areas that will be cleared of vegetation will first be surveyed by a qualified biologist. The survey area will be the area to be disturbed including a perimeter buffer of 100 ft for passerines and 500 ft for raptors.	BO	SSP	Qualified Biologist			
The re-vegetation plan, with success criteria, will be submitted to the U.S. Fish & Wildlife Service for review and approval.	BO	n/a	Caltrans Biology			
WEF will be placed around all construction areas where Alameda whipsnake, California red-legged frogs, or Central California tiger salamanders could enter the construction area. The RE and biologist will determine where the fencing shall be placed, in cooperation with the U.S. Fish & Wildlife Service, prior to the start of staging or surface disturbing activities.	BO	SSP	Resident Engineer & Service Approved Biologist			
Cultural Resources						
Archaeological Data Recovery: Prior to construction, at the southbound Bernal Avenue on-ramp location, archaeological data recovery will be conducted within project impact areas to resolve adverse effects the project will have on an archaeological site eligible to the National Register of Historic Places.	Section 106 MOA	n/a	Emily Darko, Project Archaeologist			
ESA: An ESA exists at the southbound Bernal Avenue on-ramp location (PM 16.65-16.75).	Section 106 MOA	SSP	Emily Darko, Project			

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date
Archaeologist						
<p>Before start of work, Temporary Fence (Type ESA) will be installed along western edge of Caltrans right-of-way along the southbound Bernal Avenue diagonal on-ramp and along the southern edge of pavement of Bernal Avenue, and the ESA will extend to West Lagoon Road and travel south on West Lagoon Road 800 feet south of the intersection of West Lagoon Road and Bernal Avenue. This is between I-680 postmiles 16.65 to 16.75.</p> <p>The Resident Engineer will be responsible for notifying District 4 Office of Cultural Resource Studies and the Project Archaeologist (510-622-1673) two weeks prior to construction. The ESA parameters will be delineated in the field by the Project Archaeologist prior to the start of work.</p> <p>No project related activities may occur within the ESA.</p>						
<p>ESA: An ESA exists at the northbound Mission Boulevard/SR-262 location (PM 2.26-2.40).</p> <p>Before start of work, Temporary Fence (Type ESA) will be installed along southeast edge of pavement of Mission Boulevard from the I-680 overcrossing to Curtner Road, and the fencing will extend to include the entire southeast quadrant of the intersection from postmiles 2.3 to 2.4, within Caltrans right-of-way</p> <p>The Resident Engineer will be responsible for notifying District 4 Office of Cultural Resource Studies and the Project Archaeologist (510-622-1673) two weeks prior to construction. The ESA parameters will be delineated in the field by the Project Archaeologist prior to the start of work.</p> <p>No project related activities may occur within the ESA.</p>	Section 106 MOA	SSP	Emily Darko, Project Archaeologist			
Paleontology						
<p>The qualified principal paleontologist will be present at pre-construction meetings to train contractors on paleontological identification during ground-disturbance activities.</p>	Env Doc	SSP	Resident Engineer/Paleo ntologist			
Construction						

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date
Biology						
All excavated, steep-walled holes will either be completely covered or installed with an escape ramp at the end of each work day. The biologist shall inspect all holes and trenches at the beginning of each workday and before such holes are filled. Similarly, all pipes, culverts, or similar structures will be inspected by the biologist before being capped, moved, or buried.	BO	SSP	Resident Engineer & Service Approved Biologist			
Caltrans will comply with Executive Order 13112 to reduce the spread of Invasive Species.	BO	n/a	Resident Engineer & Service Approved Biologist			
Seasonal Avoidance: Nesting Bird - between April 15th and October 15th, all ground-disturbing activities will be conducted. However, construction of retaining walls and associated ramp widening activities may continue after Oct. 15th.	BO	SSP	Resident Engineer			
The biologist will be present during all vegetation clearing and grubbing activities. Prior to vegetation removal, the biologist will survey the area for California red-legged frog and Central Coast California tiger salamanders.	BO	SSP	Service Approved Biologist			
The ESA fencing will remain in place for the duration of the project and be regularly inspected and maintained.	BO	SSP	Resident Engineer & Service Approved Biologist			
The WEF will be maintained throughout the duration of construction and will be regularly inspected and fully maintained. Repairs to the WEF will be made within 24 hours of discovery.	BO	SSP	Resident Engineer & Service Approved Biologist			
Vegetation will only be cleared where necessary for construction. Vegetation will only be cut above the soil, except in areas that will be excavated for road construction elements. Woody vegetation will be removed by hand or using light construction equipment. Cleared vegetation will be removed from the project footprint. The contractor will be responsible for obtaining all permits, licenses, and	BO	SSP	Resident Engineer			

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name	Task Completed Date	Remarks/Due Date
agreements for properly disposing of such material.							
Cultural Resources							
Archaeological Monitoring Area (AMA): An AMA exists at the southbound Bernal Avenue on-ramp location (PM 16.43 to 16.8).	Section 106 MOA	SSP	Emily Darko, Project Archaeologist				
<p>The Resident Engineer will be responsible for notifying District 4 Office of Cultural Resource Studies and the Project Archaeologist (510-622-1673) two weeks prior to construction. The AMA parameters will be delineated in the field by the Project Archaeologist prior to the start of work.</p> <p>Resident Engineer will be responsible for notifying the Project Archaeologist 5 business days before any work is planned within the AMA so that an Archaeological Monitor can be arranged to monitor ground disturbing work within the AMA.</p>							
Noise							
Construction noise impacts can be minimized by implementing some or all of the following measures:	Env Doc	SSP	Design/Resident Engineer				
<ul style="list-style-type: none"> • Avoiding construction activities during the nighttime and on weekends. • Constructing noise barriers as the first order of work. • Using stockpiled dirt as earth berms where possible. • Keeping noisy equipment and haul roads away from sensitive receptors. 							
Paleontology							
A Paleontological Mitigation Report will be completed that outlines the results of the mitigation program.	Env Doc	SSP	Resident Engineer/Paleontologist/Design				
<p>Paleontological monitors, under the direction of the qualified principal paleontologist, will be onsite to inspect excavations for fossils at all times during original ground disturbance involving sensitive geologic formations.</p> <ul style="list-style-type: none"> o Monitoring should be conducted full-time during augering or trenching in sedimentary rocks of the Great Valley, Monterey, and San Pablo Groups; and Pleistocene 							

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date
<p>differs depending on fossil type. If fossils are microscopic, such as algae, foraminiferans, or radiolarians, the research design would involve microscope work and the necessary laboratory items required for that style of research.</p> <p>? When vertebrate macrofossils are uncovered during excavation operations, all well-preserved and identifiable remains will be recovered. Poorly preserved and/or unidentifiable remains may not be recovered, at the discretion of the qualified principal paleontologist and/or paleontological monitor. If unidentifiable remains are recovered, further processing will only be done if directed by the research design for that particular geologic formation.</p> <p>? When plant macrofossils are uncovered during excavation operations, a representative sample of well-preserved and identifiable remains will be recovered. Poorly preserved and/or unidentifiable remains may not be recovered, at the discretion of the qualified principal paleontologist and/or paleontological monitor. If unidentifiable remains are recovered, further processing will only be done if directed by the research design for that particular geologic formation.</p> <p>o Microfossils</p> <p>? When marine microfossils are discovered (or their presence suspected based on site conditions) during excavation operations, it may be necessary to collect stratigraphically controlled matrix samples as directed by the research design for that particular geologic formation. Such samples should be taken at reasonable stratigraphic intervals (based on overall stratigraphic thickness) and should consist of standard hand samples. If initial processing of such samples shows them to be barren or sparsely fossiliferous, the qualified principal paleontologist may authorize suspension of further processing of the sample, and the sample may be discarded.</p> <p>? When vertebrate microfossils are discovered (or their presence suspected based on site conditions) during excavation operations, it may be necessary to collect stratigraphically controlled bulk matrix samples (up to 6,000 pounds) for processing. The decision to collect such samples will be made if relatively well-preserved vertebrate microfossils are observed in hand samples in the field or if processing of a 100-pound test sample yields more than five</p>						
<p>Where feasible, selected road cuts or large finished slopes in areas where critically interesting paleontological features may be left so they can serve as important educational and</p>	Env Doc	SSP	Resident Engineer/Paleo- ntologist			

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date
scientific features. This may be possible if no substantial adverse visual or safety impacts result.						
Water Quality						
WPCP will be required. The WPCP, prepared by the Contractor and approved by the Department, presents the strategy of Temporary Construction Site BMP implementation.	Env Doc	SSP	Resident Engineer/Contr actor			
Post-Construction						
Biology						
The WEF will be completely removed and properly disposed of after all construction activities have been completed.	BO	SSP	Resident Engineer & Service Approved Biologist			

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix E

Title VI Policy Statement

DEPARTMENT OF TRANSPORTATION
OFFICE OF THE DIRECTOR
P.O. BOX 942873, MS-49
SACRAMENTO, CA 94273-0001
PHONE (916) 654-5266
FAX (916) 654-6608
TTY 711
www.dot.ca.gov



*Flex your power!
Be energy efficient!*

March 2013

NON-DISCRIMINATION POLICY STATEMENT

The California 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, religion, sexual orientation, 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.

For information or guidance on how to file a complaint based on the grounds of race, color, national origin, sex, disability, religion, sexual orientation, or age, please visit the following web page: http://www.dot.ca.gov/hq/bep/title_vi/t6_violated.htm.

Additionally, if you need this information in an alternate format, such as in Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, 1823 14th Street, MS-79, Sacramento, CA 95811. Telephone: (916) 324-0449, TTY: 711, or via Fax: (916) 324-1949.

A handwritten signature in blue ink, appearing to read "Malcolm Dougherty".

MALCOLM DOUGHERTY
Director

"Caltrans improves mobility across California"

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix F

Distribution List

Elected Officials

United States Senate

The Honorable Dianne Feinstein
United States Senate
One Post Street, Suite 2450
San Francisco, CA 94104

The Honorable Barbara Boxer
United States Senate
70 Washington Street, Suite 203
Oakland, CA 94607

United States Congress

The Honorable Eric Swalwell
United States Congress, District 15
5075 Hopyard Road, Suite 220
Pleasanton, CA 94588

The Honorable Mike Honda
United States Congress, District 17
900 Lafayette, Suite 206
Lafayette, CA 95050

California State Senate

The Honorable Steve Glazer
California State Senate, 7th District
1350 Treat Blvd, Suite 240
Walnut Creek, CA 94597

The Honorable Bob Wieckowski
California State Senate, 10th District
39510 Paseo Padre Parkway, Suite 280
Fremont, CA 94538

California State Assembly

The Honorable Catharine Baker
California State Assembly, 16th District
2440 Camino Ramon, Suite 345
San Ramon, CA 94583

The Honorable Bill Quirk
California State Assembly, 20th District
22320 Foothill Blvd, Suite 540
Hayward, CA 94541

The Honorable Kansen Chu
California State Assembly, 25th District
1313 N. Milpitas Blvd, Suite 255
Milpitas, CA 95035

Local Officials

Jose Esteves
Mayor, City of Milpitas
455 East Calaveras Boulevard
Milpitas, CA 95035

Bill Harrison
Mayor, City of Fremont
3300 Capitol Ave.
Fremont, CA 94538

Jerry Thorne
Mayor, City of Pleasanton
200 Old Bernal Avenue
Pleasanton, CA 94566

Federal Agencies

US Army Corps of Engineers, Sacramento
ATTN: Regulatory Branch
1325 J Street, Room 1480
Sacramento, CA 95814

U.S. Fish and Wildlife Service
2800 Cottage Way W-2605
Sacramento, CA 95825

State Agencies

State Clearinghouse
Attn: Executive Officer
P.O. Box 3044
Sacramento, CA 95812-3044

Bay Area Air Quality Management District
Jack Broadbent
Executive Officer
375 Beale Street, Suite 600
San Francisco, CA 94105

California Air Resources Board
P.O. Box 2815
Sacramento, CA 95812

California Department of Conservation
801 K Street, MS 24-01
Sacramento, CA 95814

California Department of Fish & Wildlife
Region 3
7329 Silverado Trail
Napa, CA 94558

California Highway Patrol,
P.O. Box 942898
Sacramento, CA 92298

California Office of Historic Preservation
Julianne Polanco
State Historic Preservation Officer
1416 Ninth Street, Room 1442
Sacramento, CA 95814

California Public Utilities Commission
505 Van Ness Avenue
San Francisco, CA 94102

Department of Toxic Substances Control
P.O. Box 806
Sacramento, CA 95812

Native American Heritage Commission
Cynthia Gomez
Executive Secretary
1550 Harbor Blvd, Suite 100
West Sacramento, CA 95691

Regional Water Quality Control Board
District 2
1515 Clay Street, Suite 1400
Oakland, CA 94612

California Department of Housing and
Community Development
2020 West El Camino
Sacramento, CA 95833

California Office of Emergency Services

3650 Schriever Avenue
Mather, CA 95655

Regional Agencies

Association of Bay Area Governments
Hing Wong
Senior Planner
375 Beal Street, Suite 700
Oakland, CA 94105

Metropolitan Transportation Commission
Ken Kirkey
Planning Director
375 Beal Street, Suite 800
Oakland, CA 94105

East Bay Regional Park District
Chris Barton
Environmental Programs Manager
2950 Peralta Oaks Court
Oakland, CA 94605

San Francisco Public Utilities Commission
Neal Fujita
Alameda & Tuolumne Watershed
Resources Manger
505 Paloma Way
Sunol, CA 94586

Dublin San Ramon Services District
Wastewater Treatment Plan
7051 Dublin Blvd.
Dublin, CA 94568

County Agencies

Alameda County
Daniel Woldensenbet
Director & County Engineer
399 Elmhurst Street
Hayward, CA 94544

Alameda County Planning Commission,
District 1
Dawn P. Argula
Chief of Staff, Operations
4501 Pleasanton Avenue
Pleasanton, CA 94566

Alameda County Planning Commission
District 2
Chris Miley
Deputy Chief of Staff

24301 Southland Drive, Suite 101
Hayward, CA 94545

Alameda County Planning Commission
District 4
Eileen Ng
Deputy Chief of Staff
20980 Redwood Road, Suite 250

Alameda County Flood Control, Zone 7
Jill Duerig
General Manger
100 North Canyons Parkway
Livermore, CA 94551

Alameda County Water District
Water Quality Office
43885 South Grimmer Blvd
Fremont, CA 94538

Local Agencies

City of Pleasanton
Steve Kirkpatrick,
Director of Engineering
P.O. Box 520
Pleasanton, CA 94566

City of Livermore
Cheri Sheets
City Engineer
1052 South Livermore Avenue
Livermore, CA 94550

City of Fremont
Hans Larsen
Public Works Director
39550 Liberty St.
Fremont, CA 94538

THIS PAGE INTENTIONALLY LEFT BLANK

Appendix G

Biological Opinion



In Reply Refer to:
08ESMIF00-2014-F-
0362-2

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Suite W-2605
Sacramento, California 95825-1846



Ms. Melanie Brent, Office Chief
Caltrans District 4 Environmental Analysis
California Department of Transportation
P.O. Box 23660
Oakland, California 94623-0660

SEP 25 2014

Subject: Biological Opinion on the Effects of the Proposed Interstate 680 Freeway
Performance Initiative Phase II Project, Alameda County, California (Caltrans EA
4G111)

Dear Ms. Brent:

This letter responds to a letter from the California Department of Transportation (Caltrans), dated July 3, 2013, which requested formal consultation for the proposed Interstate 680 (I-680) Freeway Performance Initiative Phase II Project, Alameda County, California. Your letter was received by the U.S. Fish and Wildlife Service (Service) on September 18, 2013 (Caltrans EA 4G111). This document represents the Service's biological opinion on the effects of the project on the threatened Alameda whipsnake (*Masticophis lateralis eryxanthus*), threatened California red-legged frog (*Rana draytonii*), threatened Central California Distinct Population Segment (DPS) of the California tiger salamander (*Ambystoma californiense*) (Central California tiger salamander), and endangered San Joaquin kit fox (*Vulpes macrotis mutica*). This letter issued under the authority of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act).

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) legislation (23 U.S.C. 327) allows the Secretary of the U.S. Department of Transportation acting through the Federal Highway Administration (FHWA) to establish a Surface Transportation Project Delivery Pilot Program, whereby a State may assume the FHWA responsibilities under the National Environmental Policy Act (NEPA) for environmental review, agency consultation and other action pertaining to the review or approval of a specific project. Caltrans assumed these responsibilities for the FHWA on July 1, 2007 through a Memorandum of Understanding (MOU) within the State of California (http://www.dot.ca.gov/ser/downloads/MOU's/nepa_delegation/sec6005mou.pdf).

The Service has reviewed the submitted project as described in the September 2013 biological assessment, the July 13, 2013 site visit, supporting documentation, and evaluation of project effects, and concurs with the determination that the project as described is not likely to adversely affect the San Joaquin kit fox, as the effects will be discountable. The Service concurs that the proposed action is not likely to adversely affect the San Joaquin kit fox based on the following: (1) the action area occurs along the westernmost extent of the species recorded range; (2) construction activities, including staging, laydown and vehicle parking, will predominately occur within paved areas, and a small, disturbed area of grassland habitat immediately adjacent to I-680; (3) Caltrans will implement construction and erosion control Best Management Practices (BMPs); (4) areas adjacent to sensitive

habitat will be clearly demarked with temporary high-visibility fencing; (5) all on-site personnel will attend environmental awareness training prior to beginning project activities; and (6) Service-approved biological monitors will conduct preconstruction surveys prior to ground disturbing activities and remain on-site to monitor construction activities adjacent to San Joaquin kit fox habitat.

Designated critical habitat has been designated for the Alameda whipsnake, California red-legged frog, and Central California tiger salamander; however, the project does not occur within these designated areas. The remainder of this biological opinion is on the effects of the project on Alameda whipsnake, California red-legged frog, and Central California tiger salamander. This biological opinion is based on: (1) the Interstate 680 Freeway Performance Initiative Project, Biological Assessment dated September 2013; (2) letter from Caltrans to the Service dated September 13, 2013; (3) the July 13, 2013 field meeting; (4) miscellaneous correspondence and electronic mail concerning the proposed action between Caltrans and the Service; and (5) other information available to the Service.

Consultation History

July 13, 2013	The Service attended a site meeting with Caltrans to discuss potential project effects on listed species and determine what areas posed risks based on on-site habitat suitability.
September 18, 2013	The Service received a letter requesting the initiation of formal consultation dated September 13, 2013, and a Biological Assessment for the I-680 Freeway Performance Initiative Phase II Project.
June 30, 2014	The Service reviewed the project description, biological assessment, species determinations, and supplemental material submitted as part of the consultation package and determined your consultation package was complete.
September 15, 2014	The Service issued the draft biological opinion.
September 19, 2014	The Service received comments from Caltrans on the draft biological opinion.
July 13, 2013 - September 23, 2014	Electronic and phone correspondence between Caltrans and the Service.

BIOLOGICAL OPINION

Description of the Proposed Action

The following project description, inclusive of the proposed compensation and proposed conservation measures, was provided by Caltrans and is an excerpt from the September 2013 Biological Assessment with minor modifications for reasons of clarity and accuracy provided by the Service.

Project History

The San Francisco Bay Area is the second-most congested region in the nation. Opportunities to relieve congestion to any meaningful degree are limited, owing to a number of key factors. Bay Area freeways are basically a mature system, with capacity increases possible at only a limited number of

locations. There is a need to maximize system performance through innovative, cost effective strategies, and thereby reduce the need for new, large-scale capital investments. Ramp metering is needed to maintain the freeway near its maximum efficiency.

I-680 experiences heavy congestion during peak periods. Some of the congestion and breakdown in traffic flow on I-680 is caused by platoons of vehicles entering at unmeted on-ramps and merging with the mainline traffic. Since installation and implementation of ramp metering systems on freeways is a proven, effective operation tool for the overall efficiencies of a transportation corridor, the expansion of the ramp metering program on northbound and southbound I-680 is needed as per Caltrans' 2009 District 4 Ramp Meter Development Plan. Caltrans is committed to implementing state of the art Traffic Operation Systems (TOS) on California's congested freeways, including ramp metering. The purpose of this project is to improve traffic operations by completing the installation and implementation of ramp metering and TOS elements on northbound and southbound I-680 in Santa Clara and Alameda counties. The goal of this project is to improve traffic mobility and safety by mitigating associated traffic conflicts due to weaving and merging maneuvers along I-680 in Alameda County from Scott Creek Road to the I-580/I-680 interchange.

Minimizing the duration of traffic delaying elements will reduce the impact of incidents in terms of their potential to cause accidents, congestion, and delay. With the implementation of TOS, incidents are detected automatically by an analysis of data collected from the Traffic Monitoring Stations (TMS) which measures vehicle speed, traffic volume, and freeway density (vehicles/lane-mile) – the essential elements of system performance. Closed-Caption Television (CCTV) cameras are used to identify the nature of an incident once it has been detected. Whereas TMS will reduce the time to detect an incident, CCTV reduces the time of verification. TMS personnel, upon verification that an actual incident has occurred, will be able to determine the basic type of response needed. Verification of incidents is necessary so that the type of response initiated will be appropriate to the incident and thereby improving efficiency of traffic control. Changeable Message Signs allow the Traffic Monitoring Center operator to advise motorists of adverse traffic or road conditions in real time, so that alternative routes may be identified at different points of the road, thereby reducing congestion and overall delay.

Project Description

Ramp Widening and Metering

This project proposes the installation of ramp metering systems for 20 on-ramps and connectors along I-680 in Alameda County from the Santa Clara County border to the Contra Costa County border. Seven of these on-ramps and connectors will be widened utilizing retaining walls to provide for High Occupancy Vehicle (HOV) preferential lanes or additional mixed-flow lanes. The proposed design features and approximate post miles for all of the on-ramps are listed below:

Scott Creek Road PM 0.41

Scott Creek Road to Northbound I-680 diagonal on-ramp: Project proposes to install new ramp metering equipment and a new California Highway Patrol (CHP) pullout. In addition, this on-ramp will be widened to provide two mixed-flow lanes. The maximum width of the widening will be 17 feet from the existing right edge of shoulder. The maximum depth of excavation will be nine feet from the original ground. The hillside on the right shoulder will be shaved to a maximum depth of six feet from the original ground. The outer limit of the shaving will be 55 feet from the existing right edge of shoulder.

South Mission Boulevard (SR-262) PM 2.53

South Mission Boulevard (State Route 262 [SR-262]) to Northbound I-680 diagonal on-ramp and collector: Project proposes to install new ramp metering equipment for this on-ramp and a ramp collector. There will be a new CHP pullout for the on-ramp. In addition, this on-ramp will be widened by utilizing a retaining wall to provide two mixed-flow lanes. The ramp collector will also be widened to two lanes. The retaining wall length will be approximately 1,110 feet. The maximum width of the impacted area caused by the widening from the existing right edge of shoulder will be 60 feet, which includes the 43-foot width of the roadway widening and the additional 17-foot width of the retaining wall footing. The maximum depth of excavation will be 11 feet from the original ground. The retaining wall will be a standard wall on piles. The maximum length of the piles will be 50 feet.

Vargas Road PM 7.19

Vargas Road to Northbound I-680 loop on-ramp: Project proposes to install new ramp metering equipment.

Andrade Road PM 9.84

Andrade Road to Northbound I-680 diagonal on-ramp: Project proposes to install new ramp metering equipment.

SR-84 (Scotts Corner) PM 11.62

Southbound SR-84 to Southbound I-680 diagonal connector: Project proposes to install new ramp metering and a new CHP pullout. In addition, this connector will be widened to provide three mixed-flow lanes. The maximum width of the widening will be 15 feet from the existing left edge of shoulder. The maximum depth of excavation will be five feet from the original ground.

Northbound SR-84 to Northbound I-680 diagonal connector: Project proposes to install new ramp metering and a new CHP pullout. In addition, this connector will be widened by utilizing retaining walls to provide two mixed-flow lanes. The maximum width of the widening will be 50 feet from the existing right edge of shoulder. The maximum depth of excavation will be 15 feet from the original ground. The retaining wall will be a soil nail wall. The horizontal and vertical lengths of the nails are 40 feet and 10 feet, respectively. The retaining wall length will be approximately 3,280 feet.

Calaveras Road PM 10.97

Calaveras Road to Northbound I-680 loop on-ramp: Project proposes to install new ramp metering and a new CHP pullout. In addition, this on-ramp will be widened by utilizing retaining walls to provide two mixed-flow lanes. The maximum width of the impacted area caused by the widening from the existing right edge of shoulder will be 34 feet, which includes the 22-foot width of the roadway widening and the additional 12-foot width of the retaining wall footing. The maximum depth of the excavation for the widening will be eight feet from the original ground. The retaining wall will be a standard wall on piles. The maximum length of the piles will be 30 feet. The retaining wall length will be approximately 800 feet.

Koopman Road PM 12.61

Koopman Road to Northbound I-680 diagonal on-ramp: Project proposes to install new ramp metering and a new CHP pullout. In addition, this on-ramp will be widened by utilizing retaining walls to two mixed-flow lanes. The maximum width of the excavation will be 20 feet from the existing right edge of shoulder. The maximum depth of excavation will be 12 feet from the original ground. The retaining wall will be a soldier pile wall. The maximum length of the piles will be 40 feet. The retaining wall length will be approximately 800 feet.

Sunol Boulevard PM 15.25

Sunol Boulevard to Southbound I-680 loop on-ramp: Project proposes to install new ramp metering and a new CHP pullout. In addition, this on-ramp will be widened by utilizing retaining walls to provide two mixed-flow lanes. The maximum width of the widening will be 16 feet. The maximum depth of the excavation will be 10 feet from the original ground. The hillside on the right shoulder will be shaved to a maximum depth of 10 feet. The outer limit of the shaving will be 110 feet from the existing right edge of shoulder.

Sunol Boulevard to Northbound I-680 diagonal on-ramp: Project proposes to install new ramp metering and a new CHP pullout. In addition, this on-ramp will be widened by utilizing retaining walls to provide two mixed-flow lanes. The maximum width of the impacted area from the existing right edge of shoulder will be 40 feet, which includes the 24-foot width of the roadway widening and the additional 16-foot width of the retaining wall footing. The maximum depth of excavation will be 14 feet from the original ground. The retaining wall will be a soldier pile wall. The maximum length of the piles will be 50 feet. The retaining wall length will be approximately 850 feet.

Bernal Avenue PM 16.56

Bernal Avenue to Southbound I-680 diagonal on-ramp: Project proposes to install new ramp metering and a new CHP pullout. In addition, this on-ramp will be widened by utilizing retaining walls to provide two mixed-flow lanes. The maximum width of the impacted area from the right edge of shoulder will be 45 feet, which includes the 30-foot width of the roadway widening and the additional 15-foot width of the retaining wall footing. The maximum depth of excavation will be 10 feet from the original ground. The retaining wall will be a standard wall on piles. The maximum length of the piles will be 35 feet. The retaining wall length will be approximately 1,400 feet.

Bernal Avenue to Northbound I-680 diagonal on-ramp: Project proposes to install new ramp metering and a new CHP pullout. In addition, this on-ramp will be widened by utilizing retaining walls to provide two mixed-flow lanes. The maximum width of the widening will be 15 feet from the existing right edge of shoulder. The maximum depth of the excavation for the widening will be five feet from the original ground, and the fill for the widening will be 10 feet from the original ground. The outer fill limit will be at the right of way line.

Stoneridge Drive PM 19.30

Stoneridge Drive to Southbound I-680 diagonal on-ramp: Project proposes to install new ramp metering and a new CHP pullout. In addition, this on-ramp will be widened to provide two mixed-flow lanes. The maximum width of the widening will be 20 feet. The maximum depth of excavation will be five feet.

Stoneridge Drive to Northbound I-680 loop on-ramp: Project proposes to install new ramp metering equipment.

Stoneridge Drive to Northbound I-680 diagonal on-ramp: Project proposes to install new ramp metering equipment.

Stoneridge Drive to Southbound I-680 loop on-ramp: Project proposes to install new ramp metering and a new CHP pullout. In addition, this on-ramp will be widened to two mixed-flow lanes utilizing retaining walls. The maximum widths of the widening on the right and left edges of shoulder are 15 feet and 13 feet, respectively. The maximum depth of excavation will be 16 feet. The retaining wall will be a soldier pile wall with tiebacks. The horizontal and vertical length of the tiebacks will be 60 feet and 20 feet, respectively. The maximum length of the piles will be 30 feet. The retaining wall length will be approximately 200 feet.

I-580/I-680 Interchange PM 20.05

Eastbound I-580 to Northbound I-680 loop connector: Project proposes to install TMS.

Westbound I-580 to Northbound I-680 diagonal connector: Project proposes to install TMS.

Westbound I-580 to Southbound I-680 loop connector: Project proposes to install TMS.

Eastbound I-580 to Southbound I-680 loop connector: Project proposes to install TMS.

The locations and characteristics of the proposed retaining walls described above are summarized in Table 1 below. Seven retaining walls totaling 8,440 feet in length will be constructed.

Table 1. Locations and Descriptions of Proposed Retaining Walls

Location	Direction	Approximate PM	Cut or Fill	Length (ft)	Average Height (ft)
South Mission Boulevard (SR-262) diagonal on-ramp and collector	NB	2.53	Fill	1,110	10
Calaveras Road loop on-ramp	NB	10.97	Fill	800	7
Northbound SR-84 diagonal connector	NB	12.02	Cut	500	12
			Fill	2,780	8
Koopman Road diagonal on-ramp	NB	12.61	Cut	800	9
Sunol Boulevard diagonal on-ramp	NB	15.25	Cut	180	12
			Fill	670	8
Bernal Avenue diagonal on-ramp	SB	16.56	Fill	1,400	10
Stoneridge Drive loop on-ramp	SB	19.30	Cut	200	15

Traffic Opening System Elements

New TOS elements will be installed as part of this project to infill gaps in existing TOS coverage on the freeway segment within the project limits. These elements include thirteen C.C.T.W. cameras, three changeable message signs (CMS), and 51-directional TMS. The C.C.T.W.s, CMSs, and TMSs will be installed at the locations listed in Table 2.

Table 2. Locations of TOS Elements

Approximate PM	Direction	Type of TOS Element	Approximate PM	Direction	Type of TOS Element
0.92	NB	CMS	13.52	SB	CCTV
1.39	NB	CCTV	13.69	NB	TMS
2.86	NB	TMS	13.69	SB	TMS
2.86	SB	TMS	14.24	NB	TMS
3.33	NB	TMS	14.24	SB	TMS
3.33	SB	TMS	14.49	NB	CCTV
6.89	NB	TMS	14.80	NB	TMS
6.89	SB	TMS	14.80	SB	TMS
7.42	SB	CCTV	15.30	NB	TMS
7.73	NB	TMS	15.33	NB	CCTV
7.73	SB	TMS	15.87	NB	TMS
8.23	NB	TMS	15.87	SB	TMS
8.32	NB	CCTV	16.17	SB	CCTV
8.53	NB	TMS	16.59	NB	TMS
8.53	SB	TMS	17.26	NB	TMS
9.01	SB	CCTV	17.26	SB	TMS
9.09	NB	TMS	17.73	NB	TMS
9.09	SB	TMS	17.73	SB	TMS
9.61	NB	TMS	17.77	NB	CCTV
10.05	NB	TMS	17.79	NB	CMS
10.35	NB	CCTV	18.20	NB	TMS
10.45	NB	TMS	18.20	SB	TMS
10.45	SB	TMS	18.43	NB	CCTV
10.81	SB	CCTV	18.70	NB	TMS
11.65	NB	TMS	18.70	SB	TMS
11.97	NB	TMS	19.19	NB	TMS
11.97	SB	TMS	19.65	SB	TMS
12.49	NB	CCTV	20.0	NB	TMS
12.56	NB	TMS	20.18	NB	TMS
12.56	SB	TMS	20.40	SB	TMS
13.12	NB	TMS	20.67	SB	TMS
13.12	SB	TMS	21.15	NB	TMS (Repair/Replace)
13.50	SB	CMS	21.15	SB	TMS (Repair/Replace)

Local power will be provided by Pacific Gas & Electric Company (PG&E). Telephone services will be provided by leased telephone lines. General Packet Radio Services (GPRS) wireless modems will provide communications links between the proposed TMS and the Transportation Management Center. Conduit, cabinets, and the other elements comprise the general TOS installation. The conduit relays power, communication, and control wiring between the element, cabinets, and service points. The CCTVs, CMSs, and cabinets for TMSs will be sited off the shoulder within Caltrans's right-of-way. Where possible, they will be installed outside of the clear recovery zone at a minimum of 30 feet from the edge of the traveled way. When conditions require that they be placed closer than 30 feet, they will be protected with metal-beam guardrails.

The CCTVs and CMSs will be placed on poles, which will be anchored in a cast-in-drill-hole (CIDH) pile foundation located at an approximate depth of seven feet and 18 feet, having a diameter of two feet and four feet respectively. The actual depth of a CMS is dependent on soil conditions and is determined during project design. Electrical conduits will be enclosed in trenches 1-2 feet wide with a minimum depth of 30 inches. The maximum width and depth for the excavation of the ramp meters are two feet and five feet, respectively. When there are three lanes in the on-ramp or connector, it is required that a ramp meter and a signal standard be installed at the limit line. The diameter and the depth of the CIDH pile foundation for the signal standard are 3.5 feet and 13 feet, respectively. The loops for TMS are installed in the pavement at a maximum depth of six inches. The maximum width and depth of the controller cabinet foundation are six feet and 3.5 feet, respectively.

Maintenance Vehicle Pullouts

Maintenance Vehicle Pullouts (MVPs) will be constructed at all TOS elements to provide safe parking areas for maintenance crews. To construct an MVP, the pavement on the highway shoulder is widened by 12 feet for a length of 85 feet. An additional two feet around the perimeter of the MVP is required for shoulder backing, for total dimensions of 89 feet by 14 feet. A total of 48 MVPs will be constructed at the locations detailed in Table 3.

Table 3. Maintenance Vehicle Pullouts

Location Description	Direction	Approximate PM	Location Description	Direction	Approximate PM
NB on-ramp from Scott Creek Road	NB	0.30	NB on-ramp from Koopman Road	NB	12.55
Mainline	NB	0.95	Mainline	NB	13.10
Mainline	NB	1.38	Mainline	SB	13.54
NB on-ramp from Mission 262	NB	2.49	Mainline	NB	14.24
Mainline	NB	2.88	Mainline	NB	14.50
Mainline	NB	3.33	Mainline	SB	14.87
Mainline	NB	6.86	SB on-ramp from Sunol Boulevard	SB	15.31
NB on-ramp from Vargas Road	NB	7.13	NB on-ramp from Sunol Boulevard	NB	15.41
Mainline	SB	7.36	Mainline	NB	15.83
Mainline	SB	7.71	Mainline	SB	16.15
Mainline	NB	8.21	Mainline	NB	16.60
Mainline	NB	8.34	SB on-ramp from Bernal Avenue	SB	16.67
Mainline	NB	8.51	NB on-ramp from Bernal Avenue	NB	16.78
NB off-ramp to CHP Truck Scale	NB	8.65	Mainline	SB	17.28
Mainline	SB	9.03	Mainline	NB	17.81
Mainline	NB	9.63	Mainline	SB	18.20
NB on-ramp from Andrade Road	NB	9.73	Mainline	NB	18.43
Mainline	NB	10.37	Mainline	SB	18.71
Mainline	NB	10.39	Mainline	NB	19.20

Location Description	Direction	Approximate PM	Location Description	Direction	Approximate PM
Mainline	SB	10.83	SB Diagonal on-ramp from Stoneridge Drive	SB	19.23
NB on-ramp from Calaveras Road	NB	10.95	SB Loop on-ramp from Stoneridge Drive	SB	19.34
Mainline	NB	11.63	Mainline	NB	19.62
Mainline	NB	11.95	NB I-680 off-ramp to WB I-580	NB	20.12
NB SR 84 to NB I-680	NB	11.96	SB off-ramp to St. Patrick Way	SB	20.30

Proposed Conservation Measures

Proposed Compensation

To offset permanent effects to Alameda whipsnake, California red-legged frog, and Central California tiger salamander, suitable habitat for each species, or suitable multi-species habitat in coordination with the Service, will be created, restored, or set aside in perpetuity at a ratio of 3:1 for permanent effects and 1:1 for temporary effects (Table 4). Alternatively, credits will be purchased at a Service-approved conservation bank. Compensation plans will be subject to review and approval by the Service. On-site restoration of temporarily affected areas may qualify as compensation at a 1:1 ratio once conditions are verified by the Service.

Table 4: Proposed Compensation for Temporary and Permanent Effects

Species	Effects						Total Compensation
	Temporary (acres)			Permanent (acres)			
	Impact	Compensation		Impact	Compensation		
	Ratio	Need	Impact	Ratio	Need		
Alameda whipsnake	6.77	1:1	6.77	3.14	3:1	9.42	16.19
California red-legged frog	6.77	1:1	6.77	3.14	3:1	9.42	16.19
California tiger salamander	6.77	1:1	6.77	3.14	3:1	9.42	16.19

General Conservation Measures

To reduce potential effects to sensitive biological resources, Caltrans proposes to incorporate construction BMPs and avoidance and minimization measures into the proposed roadway construction project. These measures will be communicated to the contractor through the use of special provisions included in the contract bid solicitation package. These measures include the following:

1. **Seasonal Avoidance.** Construction actions will be scheduled to minimize effects on listed species and habitats. Except for limited vegetation clearing necessary to minimize effects to nesting birds, all ground-disturbing activities in species habitat will be conducted between April 15 and October 15. Construction of retaining walls and associated ramp widening activities will continue after October 15; however, all clearing and grubbing activities and erection of Environmentally Sensitive Area and wildlife exclusion fencing will be fully installed prior to October 15.
2. **Environmental Awareness Training.** Prior to the start of construction, a qualified biologist will conduct an educational training program for all construction personnel

Location Description	Direction	Approximate PM	Location Description	Direction	Approximate PM
Mainline	SB	10.83	SB Diagonal on-ramp from Stoneridge Drive	SB	19.23
NB on-ramp from Calaveras Road	NB	10.95	SB Loop on-ramp from Stoneridge Drive	SB	19.34
Mainline	NB	11.63	Mainline	NB	19.62
Mainline	NB	11.95	NB I-680 off-ramp to WB I-580	NB	20.12
NB SR 84 to NB I-680	NB	11.96	SB off-ramp to St. Patrick Way	SB	20.30

Proposed Conservation Measures

Proposed Compensation

To offset permanent effects to Alameda whipsnake, California red-legged frog, and Central California tiger salamander, suitable habitat for each species, or suitable multi-species habitat in coordination with the Service, will be created, restored, or set aside in perpetuity at a ratio of 3:1 for permanent effects and 1:1 for temporary effects (Table 4). Alternatively, credits will be purchased at a Service-approved conservation bank. Compensation plans will be subject to review and approval by the Service. On-site restoration of temporarily affected areas may qualify as compensation at a 1:1 ratio once conditions are verified by the Service.

Table 4: Proposed Compensation for Temporary and Permanent Effects

Species	Effects						Total Compensation
	Temporary (acres)			Permanent (acres)			
	Impact	Compensation		Impact	Compensation		
	Ratio	Need	Impact	Ratio	Need		
Alameda whipsnake	6.77	1:1	6.77	3.14	3:1	9.42	16.19
California red-legged frog	6.77	1:1	6.77	3.14	3:1	9.42	16.19
California tiger salamander	6.77	1:1	6.77	3.14	3:1	9.42	16.19

General Conservation Measures

To reduce potential effects to sensitive biological resources, Caltrans proposes to incorporate construction BMPs and avoidance and minimization measures into the proposed roadway construction project. These measures will be communicated to the contractor through the use of special provisions included in the contract bid solicitation package. These measures include the following:

1. **Seasonal Avoidance.** Construction actions will be scheduled to minimize effects on listed species and habitats. Except for limited vegetation clearing necessary to minimize effects to nesting birds, all ground-disturbing activities in species habitat will be conducted between April 15 and October 15. Construction of retaining walls and associated ramp widening activities will continue after October 15; however, all clearing and grubbing activities and erection of Environmentally Sensitive Area and wildlife exclusion fencing will be fully installed prior to October 15.
2. **Environmental Awareness Training.** Prior to the start of construction, a qualified biologist will conduct an educational training program for all construction personnel

including contractors and subcontractors. The training will include, at a minimum, a description of the Alameda whipsnake, California red-legged frog, and Central California tiger salamander, and their habitat within the action area; an explanation of the status of these species and protection under state and federal laws; the avoidance and minimization measures to be implemented to reduce take of these species; communication and work stoppage procedures in case a listed species is observed within the action area; and an explanation of the Environmentally Sensitive Areas (ESAs) and Wildlife Exclusion Fencing (WEF) and the importance of maintaining these structures. A fact sheet conveying this information will be prepared and distributed to all construction personnel. Upon completion of the program, personnel will sign a form stating that they attended the program and understand all the avoidance and minimization measures and implications of the Act.

3. **Environmentally Sensitive Areas.** Prior to the start of construction, ESAs – defined as areas containing sensitive habitats adjacent to or within construction work areas for which physical disturbance is not allowed – will be clearly delineated using high visibility orange fencing. Construction work areas include the active construction site and all areas providing support for the proposed action including areas used for vehicle parking, equipment and material storage and staging, access roads, etc. The ESA fencing will remain in place throughout the duration of the proposed action, while construction activities are ongoing, and will be regularly inspected and fully maintained at all times. The final project plans will depict all locations where ESA fencing will be installed and will provide installation specifications. The bid solicitation package special provisions will clearly describe acceptable fencing material and prohibited construction-related activities including vehicle operation, material and equipment storage, access roads and other surface-disturbing activities within ESAs.
4. **Wildlife Exclusion Fencing.** Prior to the start of construction, WEF will be installed at the edge of the project footprint in all areas where Alameda whipsnakes, California red-legged frogs, or Central California tiger salamanders could enter the construction area including retaining walls, ramp widening areas, CHP/MVP pullouts, and TOS elements. WEF is not required for trenching activities associated with electrical conduit. The location of the fencing shall be determined by the Resident Engineer and Service-approved biologist in cooperation with the Service prior to the start of staging or surface disturbing activities. A conceptual fencing plan shall be submitted to the Service for review and approval prior to WEF installation. The location, fencing materials, installation specifications, and monitoring and repair criteria shall be approved by the Service prior to start of construction. Caltrans shall include the WEF specifications on the final project plans. Caltrans shall include the WEF specifications including installation and maintenance criteria in the bid solicitation package special provisions. The WEF shall remain in place throughout the duration of the project and shall be regularly inspected and fully maintained. Repairs to the WEF shall be made within 24 hours of discovery. Upon project completion the WEF shall be completely removed, the area cleaned of debris and trash, and returned to natural conditions.
5. **Avoidance of Entrapment.** To prevent inadvertent entrapment of animals during construction, all excavated, steep-walled holes or trenches more than one foot deep will be covered with plywood or similar materials at the close of each working day or provided with one or more escape ramps constructed of earth fill or wooden planks. The Service-approved biologist shall inspect all holes and trenches at the beginning of each workday and

before such holes or trenches are filled. All replacement pipes, culverts, or similar structures stored in the action area overnight will be inspected before they are subsequently moved, capped, and/or buried. If at any time a listed species is discovered, the Resident Engineer and Service-approved biologist will be notified immediately and the Service-approved biologist shall implement the species observation and handling protocol outlined below.

6. **Best Management Practices.** The potential for adverse effects to water quality will be avoided by implementing temporary and permanent BMPs outlined in Section 7-1.01G of the Caltrans' Standard Specifications. Caltrans erosion control BMPs will be used to minimize any wind or water-related erosion. The State Water Resources Control Board has issued a National Pollution Discharge Elimination System Statewide Storm Water Permit to Caltrans to regulate storm water and non-storm water discharges from Caltrans facilities. A Storm Water Pollution Prevention Plans (SWPPP) will be developed for the project, as one is required for all projects that have at least 1.0 acre of soil disturbance. The SWPPP complies with the Caltrans Storm Water Management Plan (SWMP). The SWMP includes guidance for Design staff to include provisions in construction contracts to include measures to protect sensitive areas and to prevent and minimize storm water and non-storm water discharges. The SWPPP will reference the Caltrans Construction Site BMPs Manual. This manual is comprehensive and includes many other protective measures and guidance to prevent and minimize pollutant discharges and can be found at the following website: <http://www.dot.ca.gov/hq/construc/stormwater/manuals.htm>. Protective measures will include, at a minimum:
 - a. No discharge of pollutants from vehicle and equipment cleaning is allowed into any storm drains or watercourses.
 - b. Vehicle and equipment fueling and maintenance operations must be at least 50 feet away from watercourses, except at established commercial gas stations or established vehicle maintenance facility.
 - c. Concrete wastes are collected in washouts and water from curing operations is collected and disposed. Neither will be allowed into watercourses.
 - d. Spill containment kits will be maintained onsite at all times during construction operations and/or staging or fueling of equipment.
 - e. Dust control will be implemented, including the use of water trucks and tackifiers to control dust in excavation and fill areas, rocking temporary access road entrances and exits, and covering of temporary stockpiles when weather conditions require.
 - f. Coir rolls or straw wattles that do not contain plastic or synthetic monofilament netting will be installed along or at the base of slopes during construction to capture sediment and temporary organic hydromulching will be applied to all unfinished disturbed and graded areas.
 - g. Graded areas will be protected from erosion using a combination of silt fences, fiber rolls, etc. along toes of slopes or along edges of designated staging areas, and erosion control netting (such as jute or coir) as appropriate on sloped areas. No erosion control materials that use plastic or synthetic monofilament netting will be used.

- h. Permanent erosion control measures such as bio-filtration strips and swales to receive storm water discharges from the highway, or other impervious surfaces will be incorporated to the maximum extent practicable.
 - i. All grindings and asphaltic-concrete waste will be stored within previously disturbed areas absent of habitat and at a minimum of 50 feet from any aquatic habitat, culvert, or drainage feature.
7. **Construction Site Management Practices.** The following site restrictions will be implemented to avoid or minimize effects on listed species and their habitats:
- a. A speed limit of 15 miles per hour (mph) in the project footprint in unpaved areas will be enforced to reduce dust and excessive soil disturbance.
 - b. Construction access, staging, storage, and parking areas, will be located within the project Caltrans right-of-way (ROW) outside of any designated ESA or outside of the Caltrans ROW in areas environmentally cleared by the contractor. Access routes and the number and size of staging and work areas will be limited to the minimum necessary to construct the proposed project. Routes and boundaries of roadwork will be clearly marked prior to initiating construction or grading.
 - c. To the maximum extent practicable, any borrow material will be certified to be non-toxic and weed free.
 - d. All food and food-related trash items will be enclosed in sealed trash containers and properly disposed of off-site.
 - e. No pets from project personnel will be allowed anywhere in the action area during construction.
 - f. No firearms will be allowed on the project site except for those carried by authorized security personnel, or local, State or Federal law enforcement officials.
 - g. A Spill Response Plan will be prepared. Hazardous materials such as fuels, oils, solvents, etc. will be stored in sealable containers in a designated location that is at least 50 feet from hydrologic features.
 - h. All equipment will be properly maintained and free of leaks. Servicing of vehicles and construction equipment including fueling, cleaning, and maintenance will occur at least 50 feet from any hydrologic features unless it is an existing gas station.
8. **Vegetation Removal.** Any vegetation that is within the cut and fill line or growing in locations where permanent structures will be placed (e.g., road alignment, shoulder widening, soil nail walls, etc.) will be cleared. Vegetation will be cleared only where necessary and will be cut above soil level except in areas that will be excavated for roadway construction. This will allow plants that reproduce vegetatively to resprout after construction. All clearing and grubbing of woody vegetation will occur by hand or using light construction equipment such as backhoes. If clearing and grubbing occurs between February 1 and August 31, a qualified biologist(s) will survey for nesting birds within the area(s) to be disturbed including a perimeter buffer of 100 feet for passerines and 500 feet for raptors before clearing activities begin. All nest avoidance requirements of the Migratory Bird Treaty Act and California Fish and Game Code Sections 3503 and 3503.5 will be observed. All cleared

vegetation will be removed from the project footprint to prevent attracting animals to the project site. The contractor will be responsible for obtaining all permits, licenses, and environmental clearances for properly disposing of such materials. A Service-approved biologist will be present during all vegetation clearing and grubbing activities. Prior to vegetation removal, the Service-approved biologist shall thoroughly survey the area for California red-legged frogs and Central California tiger salamanders. Once the Service-approved biologist has thoroughly surveyed the area, clearing and grubbing may continue without further restrictions on equipment; however, the Service-approved biologist shall remain onsite to monitor for California red-legged frogs and Central California tiger salamanders until all clearing and grubbing activities are complete. After project completion, all temporarily affected areas shall be returned to original grade and contours to the maximum extent practicable, protected with proper erosion control materials, and revegetated with native species appropriate for the region and habitat communities on site.

9. **Reduce Spread of Invasive Species.** To reduce the spread of invasive non-native plant species and minimize the potential decrease of palatable vegetation for wildlife species, Caltrans will comply with Executive Order 13112. This order is provided to prevent the introduction of invasive species and provide for their control in order to minimize the economic, ecological, and human health impacts. In the event that high- or medium-priority noxious weeds, as defined by the California Department of Food and Agriculture or the California Invasive Plant Council, are disturbed or removed during construction-related activities, the contractor will contain the plant material associated with these noxious weeds and dispose of it in a manner that will not promote the spread of the species. The contractor will be responsible for obtaining all permits, licenses, and environmental clearances for properly disposing of materials. Areas subject to noxious weed removal or disturbance will be replanted with fast-growing native grasses or a native erosion control seed mixture. If seeding is not possible, the area should be covered to the extent practicable with heavy black plastic solarization material until the end of the project.
10. **Replant, Reseed, and Restore Disturbed Areas.** All slopes or unpaved areas affected by the proposed action will be restored to natural conditions. Slopes and bare ground will be reseeded with native grasses and shrubs characteristic of the floristic region and native local habitats to stabilize soils and prevent erosion. Where disturbance includes the removal of trees or plants, native species will be replanted and maintained until they become established. A revegetation plan with success criteria will be submitted to the Service for review and approval. Temporary effects comprise areas denuded, manipulated, or otherwise modified from their existing, pre-project conditions, thereby removing one or more essential components of a listed species' habitat as a result of project activities that include, but are not limited to, construction, staging, storage, lay down, vehicle access, parking, etc. Temporary effects must be restored to baseline habitat values or better within one year following initial disturbance. Areas subject to ongoing operations and maintenance are not considered temporary even if they are restored within one year following initial disturbance. Affected areas not fulfilling these criteria are considered permanent.

Action Area

The action area is defined in 50 CFR § 402.02, as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." For the purposes of the effects assessment, the action area encompasses 793 acres extending 21.9 miles from PM 0.0 to PM

21.9 in Alameda County from the border of Contra Costa County south to the border with Santa Clara County. The action area encompasses the project footprint, equipment staging areas, access routes, Caltrans Right-of-Way limits, and adjacent lands that will be subjected to noise, light, and vibration disturbance. Habitat within the action area comprises paved roadways and shoulders, urbanized/landscaped, California annual grasslands, oak woodland, riparian woodland, freshwater marsh, and creek channel vegetation communities.

Analytical Framework for the Jeopardy Determinations

Jeopardy Determination

In accordance with policy and regulation, the jeopardy analyses in this biological opinion relies on four components: (1) the *Status of the Species*, which evaluates the Alameda whipsnake, California red-legged frog, and Central California tiger salamander range-wide condition, the factors responsible for that condition, and its survival and recovery needs; (2) the *Environmental Baseline*, which evaluates the condition of the Alameda whipsnake, California red-legged frog, and Central California tiger salamander in the action area, the factors responsible for that condition, and the relationship of the action area to the survival and recovery of the Alameda whipsnake, California red-legged frog, and Central California tiger salamander; (3) the *Effects of the Action*, which determines the direct and indirect impacts of the proposed Federal action and the effects of any interrelated or interdependent activities on the Alameda whipsnake, California red-legged frog, and Central California tiger salamander; and (4) *Cumulative Effects*, which evaluates the effects of future, non-Federal activities in the action area on the Alameda whipsnake, California red-legged frog, and Central California tiger salamander.

In accordance with policy and regulation, the jeopardy determination is made by evaluating the effects of the proposed Federal action in the context of the Alameda whipsnake, California red-legged frog, and Central California tiger salamander current status, taking into account any cumulative effects, to determine if implementation of the proposed action is likely to cause an appreciable reduction in the likelihood of both the survival and recovery of these species in the wild.

The jeopardy analyses in this biological opinion places an emphasis on consideration of the range-wide survival and recovery needs of the Alameda whipsnake, California red-legged frog, and Central California tiger salamander and the role of the action area in the survival and recovery of the Alameda whipsnake, California red-legged frog, and Central California tiger salamander as the context for evaluating the significance of the effects of the proposed Federal action, taken together with cumulative effects, for purposes of making the jeopardy determination.

Status of the Species and Environmental Baseline

Alameda whipsnake

Listing Status: The Alameda whipsnake was federally listed as threatened on December 5, 1997 (Service 1997). Approximately 406,598 acres within Contra Costa, Alameda, Santa Clara, and San Joaquin counties were previously designated critical habitat for the Alameda whipsnake on October 3, 2000 (Service 2000). The final rule was vacated and remanded on May 9, 2003. Critical habitat was re-proposed on October 18, 2005, and a final rule on critical habitat was released on October 2, 2006 (Service 2006a). A draft recovery plan was published in November 2002 (Service 2002a).

Description: The Alameda whipsnake is described as a slender, fast-moving, diurnal snake with a narrow neck and a relatively broad head with large eyes. The dorsal surface is colored sooty black with a distinct yellow-orange stripe down each side. The anterior portion of the ventral surface is orange-rufous colored, the midsection is cream colored, while the posterior and tail are pinkish. Adults range in length from 3 to 4 feet (Service 1997). The Alameda whipsnake is one of two subspecies of the California whipsnake (*Masticophis lateralis*). The Alameda whipsnake is distinguished from the chaparral whipsnake (*M. l. lateralis*) by its sooty black dorsum, by wider yellow-orange stripes that run laterally down each side, the lack of a dark line across the rostral, an uninterrupted light stripe between the rostral and eye, and the virtual absence of spotting on the venter of the head and neck.

Status and Natural History: Alameda whipsnakes retreat into winter hibernacula in November and emerge in March. The species breeds from March through June, with mating appearing to occur near the hibernacula of the female (Swaim 1994). During the mating season females remain near their retreat sites while males disperse throughout their home ranges. Swaim (1994) found the mean home range size for four males was 13.6 acres, and 8.4 acres for 2 females. Alameda whipsnakes lay a clutch of 6 to 11 eggs in May through July, and the young hatch and emerge in the late-summer to early-fall (Stebbins 2003, Swaim 1994). The Alameda whipsnake holds its head high off the ground to peer over grass or rocks for potential prey and is an active diurnal predator. Its diet includes lizards, skinks, frogs, small mammals, snakes, and nesting birds. The open habitat in which the Alameda whipsnake occurs may afford prey-viewing opportunities, perhaps aiding this sight-hunting snake when it forages (Swaim 1994). Small mammal burrows, rock outcrops, and talus provide shelter from predators, egg-laying sites, over-night retreats, and winter hibernacula (Swaim 1994) and are associated with increased numbers of lizards. Lizards, especially the western fence lizard, appear to be the most important prey item for the Alameda whipsnake (Stebbins 2003, Swaim 1994).

The Alameda whipsnake is known to inhabit chemise-redshank chaparral, mixed chaparral, coastal scrub, annual grassland, blue oak-foothill pine, blue oak woodland, coastal oak woodland, valley oak woodland, eucalyptus, redwood, and riparian communities (Mayer and Laudenslayer, Jr. 1988). McGinnis (1992) has documented Alameda whipsnakes using oak woodland/grassland habitat as a corridor between stands of northern coastal scrub. Grassland habitats were used by male Alameda whipsnakes most extensively during the spring mating season (Swaim 1994). Females used these areas most extensively after mating, possibly looking for egg-laying sites, or dispersing to scrub habitat (Swaim 1994, Swaim pers. comm. 2002). Egg-laying sites have been found close to scrub communities in grassland with scattered shrubs (Swaim 1994) and in true scrub communities which indicates that rock outcrops, talus, and burrows (mating habitats) need to be within dispersal range of scrub and grassland habitat (egg-laying habitats) (Swaim pers. comm. 2002). Swaim (1994) also observed Alameda whipsnakes mating in rock outcrops.

Scrub and chaparral habitat communities are essential for providing space, food, and cover necessary to sustain all life stages of the Alameda whipsnake. This habitat consists of Diablan sage scrub, coyote brush scrub, and chemise chaparral (Swaim 1994), also classified as coastal scrub, mixed chaparral, and chemise-redshank chaparral (Mayer and Laudenslayer, Jr. 1988). Swaim (1994) found that core areas (areas of concentrated use by Alameda whipsnakes, based on telemetry and trapping data) had the greatest occurrences on east, southeast, south or southwest facing slopes and were characterized by open or partially-open canopy or grassland within 500 feet of scrub. However, grassland and oak woodland habitat independent of chaparral habitat may also be important for Alameda whipsnake populations. A recent examination of recorded whipsnake observations

revealed that the species has been found 32% of the time in grassland or woodland habitats on slopes of varying aspects (Alvarez 2006). Additional data on habitat use gathered from incidental observations of free-ranging Alameda whipsnakes and recapture data from trapping surveys showed regular use of these habitats at distances greater than 600 feet from scrub and chaparral and included observations of the species more than 3.7 miles from scrub and chaparral communities (Swaim pers. comm. 2004).

Urban development has fragmented the originally continuous range of the Alameda whipsnake into five primary populations. These populations include (1) Sobrante Ridge, Tilden/Wildcat Regional Parks to the Briones Hills, in Contra Costa County (Tilden-Briones population); (2) Oakland Hills, Anthony Chabot area to Las Trampas Ridge, in Contra Costa County (Oakland-Las Trampas population); (3) Hayward Hills, Palomares area to Pleasanton Ridge, in Alameda County (Hayward-Pleasanton Ridge population); (4) Mount Diablo vicinity and the Black Hills, in Contra Costa County (Mount Diablo-Black Hills population); and (5) Wauhab Ridge, Del Valle area to the Cedar Mountain Ridge, in (Sunol-Cedar Mountain population) (Service 1997). However, additional, yet undiscovered populations may also exist.

Fragmentation of habitat throughout the range of the Alameda whipsnake, presently allows for little or no genetic exchange to occur between the five core populations. Interchange between Alameda whipsnakes in the Tilden-Briones, Oakland-Las Trampas, and Hayward-Pleasanton Ridge populations depends on dispersal over the Caldecott Tunnel in Contra Costa County and under the Highway 580 in Alameda County at the Eden Canyon interchange, the Dublin Boulevard undercrossing, or where San Lorenzo Creek passes under the highway (Service 1997). Interchange between the Hayward-Pleasanton Ridge and Sunol-Cedar Mountain populations depends on dispersal along Alameda Creek in Alameda County and crossing under I-680 where the creek passes under the highway, or crossing under the highway at Scott's Corner along Vallecitos Creek, or where two unnamed tributaries to Arroyo de la Laguna cross under I-680 north of Scott's Corner (Service 1997). The Mount Diablo-Black Hills population has no path for dispersal to any of the other populations (Service 1997).

The past and ongoing fragmentation of Alameda whipsnake habitat makes some populations of this species more vulnerable to extinction. Long rectangular habitat patches with high ratios of edge to interior are known to provide less value for some species than round or square patches provide (Jimerson and Hoover 1991; Saunders *et al.* 1991). In fragmented habitats, species most prone to extinction are those that depend on native vegetation, require combinations of different habitat types, require large territories, and exist at low densities (Saunders *et al.* 1991). Alameda whipsnakes have been shown to be associated with native Diablan sage scrub, to forage in adjacent grasslands, and to migrate long distances along riparian corridors and over upland habitat. Few individuals have been captured during trapping studies conducted over thousands of trap days, indicating that Alameda whipsnakes may be sparse even in suitable habitat (Swaim 1994). These factors may combine to cause Alameda whipsnakes to be vulnerable to extinction in small habitat patches resulting from habitat fragmentation.

The breeding of closely related individuals can cause genetic problems in small populations, particularly the expression of deleterious genes (known as inbreeding depression). Alameda whipsnakes tend to be relatively rare even in suitable habitat as indicated by trapping studies that show low capture rates and relatively high recapture rates (about 3 captures, 1 recapture per 1,000 trap days) (Swaim 1994). Individuals and populations possessing deleterious genetic material are less able to adapt to changes in environmental conditions, even relatively minor changes. Further, small

populations are vulnerable to the effects of genetic drift (the loss of genetic variability). This phenomenon also reduces the ability of individuals and populations to successfully respond to environmental stresses. Overall, these factors influence the survivability of smaller, genetically isolated populations.

A number of native and exotic mammals and birds are known or likely to be predators of the Alameda whipsnake including the California kingsnake, raccoon, striped skunk, opossum, coyote, gray fox, and hawks. Urbanization can lead to increased numbers and access to habitat by native predators, leading to increased levels of predation on native fauna (Goodrich and Buskirk 1995). The recent introduction of the red fox, a species not native to this region of the State, poses an additional threat to the Alameda whipsnake. In situations where Alameda whipsnake habitat has become fragmented, isolated, and otherwise degraded by human activities, increased predatory pressure may become excessive, especially where alien species, such as rats, feral pigs, and feral and domestic cats and dogs are introduced. These additional threats become particularly acute where urban development immediately abuts Alameda whipsnake habitat. A growing movement to maintain feral cats in parklands is an additional potential threat from predation on wildlife (Coleman *et al.* 1997; Roberto 1995). Although the actual impact of predation on Alameda whipsnakes under such situations has not been studied, feral cats are known to prey on reptiles, including yellow racers (Hubbs 1951), a fast, diurnal snake closely related to the Alameda whipsnake (Stebbins 2003).

McGinnis (1992) has suggested that grazing has impacted the habitat of the Alameda whipsnake in many areas east of the Coast Range. Overgrazing by livestock that significantly reduces or eliminates shrub and grass cover can be detrimental to this snake, and is suspected of being a primary cause in the reduction of several core populations. Many snake species, including the Alameda whipsnake, avoid such open areas because of the increased danger from predators and the lack of prey (McGinnis 1992). Non-native plants may also replace native vegetation in areas that have been overgrazed or otherwise degraded. This may reduce the habitat suitability for the Alameda whipsnake by precluding the traditional prey base or altering canopy structure. Radiotelemetry data indicate that Alameda whipsnakes tend to avoid dense stands of eucalyptus (Swaim 1994).

The Alameda whipsnake is threatened directly and indirectly by the effects of historical and current fire suppression activities. Fire suppression exacerbates the effects of wildfires through the buildup of fuel (underbrush and woody debris) and the development of a closed scrub canopy, creating, over time, conditions for slow-moving, hot fires (Parker 1987; Rundel *et al.* 1987). These accumulated fuels can be ignited in a number of ways, including well-meaning prescribed burns that get out of manager's control, resulting in catastrophic wildland fires that can destroy many acres of habitat. The highest intensity fires occur in the summer and early fall when accumulated fuel is abundant and dry. During this period, hatchling and adult Alameda whipsnakes are above ground (Swaim 1994), and populations are likely to sustain the heaviest losses from fires.

The alteration of open chaparral or grassland habitats to an increased closed canopy structure due to fire suppression can also lead to the creation of relatively cool temperatures on the soil surface. Alameda whipsnakes have a higher mean active body temperature (92.1 degrees Fahrenheit) and a higher degree of body temperature stability (stenothermy) than has been documented in any other species of snake under natural conditions (Swaim 1994). Alameda whipsnakes can maintain this high, stable body temperature by using open and partially open and/or low growing shrub communities that provide cover from predators while providing a mosaic of sunny and shady areas between which Alameda whipsnakes can move to regulate their body temperatures (Swaim 1994).

Tall, shaded stands of vegetation, such as poison oak, coyote brush, or other vegetation may not provide the optimum temperature gradient for Alameda whipsnakes. Survey data show that Alameda whipsnakes are less likely to be found where these plant species create a closed canopy (Swaim 1994). Hammerson (1979) observed Alameda whipsnakes emerging from burrows in the morning, basking in the sun, and retreating into burrows when the soil surface temperatures began to fall.

Many of the native coastal scrub and chaparral plant species require periodic fires to stimulate new sprouting, seedling recruitment, and seed dispersal (Parker 1987; Keeley 1987). The natural fire frequency necessary to provide this stimulus in this habitat type is debated by scientists but ranges from 10 to 30 years (Keeley 1987; Rundel *et al.* 1987). Therefore, depending on the rate of fuel accumulation, prescribed burns can be conducted in areas where fires have been suppressed with a frequency of 10 to 30 years. Encroaching urban development and the fear of potential escaped wildfires however has necessitated the implementation of rigorous fire suppression practices in and around suitable habitat areas for the Alameda whipsnake by land management agencies in order to protect people and property.

All five remaining populations of the Alameda whipsnake are threatened by a variety of factors. Each of these populations consists of several to numerous subpopulations with varying degrees of connectivity between them. In the western portion of the species' range, the Tilden-Briones population is threatened by a high potential for catastrophic wildfire and urban development. However, the remaining habitat, regional parklands, and municipal watersheds within this area overlap to the extent that a regional preserve may be possible. The Oakland-Las Trampas population is threatened by a high potential for catastrophic wildfire and the negative effects associated with habitat fragmentation and urban development. The Hayward-Pleasanton Ridge population may be the most susceptible to extirpation. This population is scattered in distribution and is, therefore, more vulnerable to the effects of development and subsequent habitat fragmentation. The Mount Diablo-Black Hills population, in the eastern portion of the species' range, is threatened by a high potential for catastrophic wildfire, development and its associated impacts, and inappropriate grazing practices. If threats associated with urbanization can be controlled, this population is a good candidate for recovery, due to the inclusion of public lands and the potential for improved fire and grazing management on parklands. The Sunol-Cedar Mountain population is threatened by development and inappropriate grazing practices. Overall, the Oakland-Las Trampas and Hayward-Pleasanton Ridge populations are the most immediately imperiled with habitat fragmentation becoming prevalent enough to compromise its long-term viability.

California Red-legged Frog

Listing Status: The California red-legged frog was listed as a threatened species on May 23, 1996 (61 FR 25813) (Service 1996). Critical habitat was designated for this species on April 13, 2006 (71 FR 19244) (Service 2006b) and revisions to the critical habitat designation were published on March 17, 2010 (75 FR 12816) (Service 2010). At this time, the Service recognized the taxonomic change from *Rana aurora draytonii* to *Rana draytonii* (Shaffer *et al.* 2010). A recovery plan was published for the California red-legged frog on September 12, 2002 (Service 2002b).

Description: The California red-legged frog is the largest native frog in the western United States (Wright and Wright 1949), ranging from 1.5 to 5.1 inches in length (Stebbins 2003). The abdomen and hind legs of adults are largely red, while the back is characterized by small black flecks and larger irregular dark blotches with indistinct outlines on a brown, gray, olive, or reddish background color. Dorsal spots usually have light centers (Stebbins 2003), and dorsolateral folds are prominent on the

back. Larvae (tadpoles) range from 0.6 to 3.1 inches in length, and the background color of the body is dark brown and yellow with darker spots (Storer 1925).

Distribution: The historic range of the California red-legged frog extended from the vicinity of Elk Creek in Mendocino County, California, along the coast inland to the vicinity of Redding in Shasta County, California, and southward to northwestern Baja California, Mexico (Fellers 2005; Jennings and Hayes 1985; Hayes and Krempels 1986). The species was historically documented in 46 counties but the taxa now remains in 238 streams or drainages within 23 counties, representing a loss of 70 percent of its former range (Service 2002b). California red-legged frogs are still locally abundant within portions of the San Francisco Bay area and the central California coast. Isolated populations have been documented in the Sierra Nevada, northern coast, and northern Transverse Ranges. The species is believed to be extirpated from the southern Transverse and Peninsular Ranges, but is still present in Baja California, Mexico (CDFW 2014).

Status and Natural History: California red-legged frogs predominately inhabit permanent water sources such as streams, lakes, marshes, natural and manmade ponds, and ephemeral drainages in valley bottoms and foothills up to 4,921 feet in elevation (Jennings and Hayes 1994, Bulger *et al.* 2003, Stebbins 2003). However, they also inhabit ephemeral creeks, drainages, and ponds with minimal riparian and emergent vegetation. California red-legged frogs breed from November to April, although earlier breeding records have been reported in southern localities. Breeding generally occurs in still or slow-moving water often associated with emergent vegetation, such as cattails, tules, or overhanging willows (Storer 1925, Hayes and Jennings 1988). Female frogs deposit egg masses on emergent vegetation so that the egg mass floats on or near the surface of the water (Hayes and Miyamoto 1984).

Habitat includes nearly any area within 1-2 miles of a breeding site that stays moist and cool through the summer including vegetated areas with coyote brush, California blackberry thickets, and root masses associated with willow and California bay trees (Fellers 2005). Sheltering habitat for California red-legged frogs potentially includes all aquatic, riparian, and upland areas within the range of the species and includes any landscape feature that provides cover, such as animal burrows, boulders or rocks, organic debris such as downed trees or logs, and industrial debris. Agricultural features such as drains, watering troughs, spring boxes, abandoned sheds, or haystacks may also be used. Incised stream channels with portions narrower and depths greater than 18 inches also may provide important summer sheltering habitat. Accessibility to sheltering habitat is essential for the survival of California red-legged frogs within a watershed, and can be a factor limiting frog population numbers and survival.

California red-legged frogs do not have a distinct breeding migration (Fellers 2005). Adults are often associated with permanent bodies of water. Some individuals remain at breeding sites year-round, while others disperse to neighboring water features. Dispersal distances are typically less than 0.5 mile, with a few individuals moving up to 1-2 miles (Fellers 2005). Movements are typically along riparian corridors, but some individuals, especially on rainy nights, move directly from one site to another through normally inhospitable habitats, such as heavily grazed pastures or oak-grassland savannas (Fellers 2005).

In a study of California red-legged frog terrestrial activity in a mesic area of the Santa Cruz Mountains, Bulger *et al.* (2003) categorized terrestrial use as migratory and non-migratory. The latter occurred from one to several days and was associated with precipitation events. Migratory movements were characterized as the movement between aquatic sites and were most often

associated with breeding activities. Bulger *et al.* (2003) reported that non-migrating frogs typically stayed within 200 feet of aquatic habitat 90 percent of the time and were most often associated with dense vegetative cover, *i.e.*, California blackberry, poison oak, and coyote brush. Dispersing frogs in northern Santa Cruz County traveled distances from 0.25 mile to more than 2 miles without apparent regard to topography, vegetation type, or riparian corridors (Bulger *et al.* 2003).

In a study of California red-legged frog terrestrial activity in a xeric environment in eastern Contra Costa County, Tatarian (2008) noted that 57 percent of frogs fitted with radio transmitters in the Round Valley study area stayed at their breeding pools, whereas 43 percent moved into adjacent upland habitat or to other aquatic sites. Her study reported a peak seasonal terrestrial movement occurring in the fall months associated with the first 0.2 inch of precipitation and tapering off into spring. Upland movement activities ranged from 3 to 233 feet, averaging 80 feet, and were associated with a variety of refugia including grass thatch, crevices, cow hoof prints, ground squirrel burrows at the base of trees or rocks, logs, and under man-made structures; others were associated with upland sites lacking refugia (Tatarian 2008). The majority of terrestrial movements lasted from 1 to 4 days; however, one adult female was reported to remain in upland habitat for 50 days (Tatarian 2008). Upland refugia closer to aquatic sites were used more often and were more commonly associated with areas exhibiting higher object cover, *e.g.*, woody debris, rocks, and vegetative cover. Subterranean cover was not significantly different between occupied upland habitat and non-occupied upland habitat.

California red-legged frogs are often prolific breeders, laying their eggs during or shortly after large rainfall events in late winter and early spring (Hayes and Miyamoto 1984). Egg masses containing 2,000 - 5,000 eggs are attached to vegetation below the surface and hatch after 6 - 14 days (Storer 1925, Jennings and Hayes 1994). In coastal lagoons, the most significant mortality factor in the pre-hatching stage is water salinity (Jennings *et al.* 1992). Eggs exposed to salinity levels greater than 4.5 parts per thousand resulted in 100 percent mortality (Jennings and Hayes 1990). Increased siltation during the breeding season can cause asphyxiation of eggs and small larvae. Larvae undergo metamorphosis 3.5 - 7 months following hatching and reach sexual maturity at 2 - 3 years of age (Storer 1925; Wright and Wright 1949; Jennings and Hayes 1985, 1990, 1994). Of the various life stages, larvae probably experience the highest mortality rates, with less than 1 percent of eggs laid reaching metamorphosis (Jennings *et al.* 1992). California red-legged frogs may live 8 to 10 years (Jennings *et al.* 1992). Populations can fluctuate from year to year; favorable conditions allow the species to have extremely high rates of reproduction and thus produce large numbers of dispersing young and a concomitant increase in the number of occupied sites. In contrast, the animal may temporarily disappear from an area when conditions are stressful (*e.g.*, during periods of drought, disease, etc.).

The diet of California red-legged frogs is highly variable and changes with the life history stage. The diet of the larvae is not well studied, but is likely similar to that of other ranid frogs, feeding on algae, diatoms, and detritus by grazing on the surface of rocks and vegetation (Fellers 2005; Kupferberg 1996a, 1996b, 1997). Hayes and Tennant (1985) analyzed the diets of California red-legged frogs from Cañada de la Gaviota in Santa Barbara County during the winter of 1981 and found invertebrates (comprising 42 taxa) to be the most common prey item consumed; however, they speculated that this was opportunistic and varied based on prey availability. They ascertained that larger frogs consumed larger prey and were recorded to have preyed on Pacific chorus frogs, threespine stickleback, and, to a limited extent, California mice, which were abundant at the study site (Hayes and Tennant 1985, Fellers 2005). Although larger vertebrate prey was consumed less frequently, it represented over half of the prey mass eaten by larger frogs suggesting that such prey

may play an energetically important role in their diets (Hayes and Tennant 1985). Juvenile and subadult/adult frogs varied in their feeding activity periods; juveniles fed for longer periods throughout the day and night, while subadult/adults fed nocturnally (Hayes and Tennant 1985). Juveniles were significantly less successful at capturing prey and all life history stages exhibited poor prey discrimination, feeding on several inanimate objects that moved through their field of view (Hayes and Tennant 1985).

Threats: Habitat loss, non-native species introduction, and urban encroachment are the primary factors that have adversely affected the California red-legged frog throughout its range. Several researchers in central California have noted the decline and eventual local disappearance of California and northern red-legged frogs in systems supporting bullfrogs (Jennings and Hayes 1990, Twedt 1993), red swamp crayfish, signal crayfish, and several species of warm water fish including sunfish, goldfish, common carp, and mosquitofish (Moyle 1976; Barry 1992; Hunt 1993; Fisher and Schaffer 1996). This has been attributed to predation, competition, and reproduction interference. Twedt (1993) documented bullfrog predation of juvenile northern red-legged frogs, and suggested that bullfrogs could prey on subadult California red-legged frogs as well. Bullfrogs may also have a competitive advantage over California red-legged frogs. For instance, bullfrogs are larger and possess more generalized food habits (Bury and Whelan 1984). In addition, bullfrogs have an extended breeding season (Storer 1933) during which an individual female can produce as many as 20,000 eggs (Emlen 1977). Furthermore, bullfrog larvae are unpalatable to predatory fish (Kruse and Francis 1977). Bullfrogs also interfere with California red-legged frog reproduction by eating adult male California red-legged frogs. Both California and northern red-legged frogs have been observed in amplexus (mounted on) with both male and female bullfrogs (Jennings and Hayes 1990, Jennings 1993, Twedt 1993). Thus bullfrogs are able to prey upon and out-compete California red-legged frogs, especially in sub-optimal habitat.

The urbanization of land within and adjacent to California red-legged frog habitat has also affected the threatened amphibian. These declines are attributed to channelization of riparian areas, enclosure of the channels by urban development that blocks dispersal, and the introduction of predatory fishes and bullfrogs. Diseases may also pose a significant threat, although the specific effects of disease on the California red-legged frog are not known. Pathogens are suspected of causing global amphibian declines (Davidson *et al.* 2003). Chytridiomycosis and ranaviruses are a potential threat because these diseases have been found to adversely affect other amphibians, including the listed species (Davidson *et al.* 2003; Lips *et al.* 2006). Mao *et al.* (1999 cited in Fellers 2005) reported northern red-legged frogs infected with an iridovirus, which was also presented in sympatric threespine sticklebacks in northwestern California. Non-native species, such as bullfrogs and non-native tiger salamanders that live within the range of the California red-legged frog have been identified as potential carriers of these diseases (Garner *et al.* 2006). Human activities can facilitate the spread of disease by encouraging the further introduction of non-native carriers and by acting as carriers themselves (*i.e.*, contaminated boots, waders, or fishing equipment). Human activities can also introduce stress by other means, such as habitat fragmentation, that results in the listed species being more susceptible to the effects of disease.

Recovery Plan: The recovery plan for the California red-legged frog identifies eight recovery units (Service 2002b). The establishment of these recovery units is based on the determination that various regional areas of the species' range are essential to its survival and recovery. The status of the California red-legged frog was considered within the small-scale recovery units as opposed to their overall range. These recovery units are delineated by major watershed boundaries as defined by U.S. Geological Survey hydrologic units and the limits of its range. The goal of the recovery plan is

to protect the long-term viability of all extant populations within each recovery unit. Within each recovery unit, core areas have been delineated and represent contiguous areas of moderate to high California red-legged frog densities that are relatively free of exotic species such as bullfrogs. The goal of designating core areas is to protect metapopulations. Thus when combined with suitable dispersal habitat, will allow for the long-term viability within existing populations. The management strategy identified within the Recovery Plan will allow for the recolonization of habitats within and adjacent to core areas that are naturally subjected to periodic localized extinctions, thus assuring the long-term survival and recovery of California red-legged frogs.

Central California Tiger Salamander

Listing Status: On May 23, 2003, we proposed to list the Central California DPS of the California tiger salamander as threatened. At that time, we also proposed reclassification of the Santa Barbara County DPS and Sonoma County DPS from endangered to threatened (Service 2003). In the same notice, we also proposed a special rule under section 4(d) of the Act to exempt take for routine ranching operations for the Central California DPS and, if reclassified to threatened, for the Santa Barbara and Sonoma County DPSs (Service 2003). On August 4, 2004, after determining that the listed Central California population of the California DPS of the California tiger salamander was threatened (Service 2004), we determined that the Santa Barbara and Sonoma County populations were threatened as well, and reclassified the California tiger salamander as threatened throughout its range (Service 2004), removing the Santa Barbara and Sonoma County populations as separately listed DPSs (Service 2004). In this notice, we also finalized the special rule to exempt take for routine ranching operations for the California tiger salamander throughout its range (Service 2004).

On August 18, 2005, as a result of litigation of the August 4, 2004, final rule on the reclassification of the California tiger salamander DPSs (*Center for Biological Diversity et al. v. United States Fish and Wildlife Service et al.*, C 04-04324 WHA (N.D. Cal. 2005)), the District Court of Northern California sustained the portion of the 2004 rule pertaining to listing the California tiger salamander as threatened with a special rule, but vacated the portion of the 2004 rule that re-classified the Santa Barbara and Sonoma DPSs to threatened status thereby reinstating their status as endangered. On August 31, 2011, the List of Endangered and Threatened Wildlife in part 17, subchapter B of Chapter I, title 50 of the Code of Federal Regulations (CFR) was amended to reflect the vacatures contained in the 2005 court order, classifying the Santa Barbara DPS and the Sonoma DPS of the California tiger salamander as endangered, and the Central DPS of the California tiger salamander as threatened with a special rule to exempt routine ranching operations from take (Service 2011).

Species Description: The California tiger salamander is a large, stocky, terrestrial salamander with a broad, rounded snout. Recorded adult measurements have been as much as 8.2 inches long (Petranka 1998; Stebbins 2003). California tiger salamanders exhibit sexual dimorphism (differences in body appearance based on gender) with males tending to be larger than females. The coloration of the adults generally consists of random white or yellowish markings against a black body. The markings tend to be more concentrated on the lateral sides of the body; whereas other salamander species tend to have brighter yellow spotting that is heaviest on the dorsal surface.

Distribution: The Central California tiger salamander is endemic to California and historically inhabited the low-elevation grassland and oak savanna plant communities of the Central Valley, adjacent foothills, and Inner Coast Ranges (Jennings and Hayes 1994; Storer 1925; Shaffer *et al.* 1993). The species has been recorded from near sea level to approximately 3,900 feet in the Coast Ranges and to approximately 1,600 feet in the Sierra Nevada foothills (Shaffer and Trenham 2004). Along the Coast Ranges, the species occurred from the Santa Rosa area of Sonoma County, south to

the vicinity of Buellton in Santa Barbara County. The historic distribution in the Central Valley and surrounding foothills included northern Yolo County southward to northwestern Kern County and northern Tulare County.

The Central California tiger salamander occupies the Bay Area (central and southern Alameda, Santa Clara, western Stanislaus, western Merced, and the majority of San Benito counties), Central Valley (Yolo, Sacramento, Solano, eastern Contra Costa, northeastern Alameda, Calaveras, San Joaquin, Stanislaus, Merced, and northwestern Madera counties), southern San Joaquin Valley (portions of Madera, central Fresno, and northern Tulare and Kings Counties), and the Central Coast Range (southern Santa Cruz, Monterey, northern San Luis Obispo, and portions of western San Benito, Fresno, and Kern counties).

Life History: The California tiger salamander has an obligate biphasic life cycle (Shaffer *et al.* 2004). Although the larvae develop in the vernal pools and ponds in which they were born, the species is otherwise terrestrial and spend most of their post-metamorphic lives in widely dispersed underground retreats (Shaffer *et al.* 2004; Trenham *et al.* 2001). Because they spend most of their lives underground, the animals rarely are encountered even in areas where California tiger salamanders are abundant. Subadult and adult California tiger salamanders typically spend the dry summer and fall months in the burrows of small mammals, such as California ground squirrels and Botta's pocket gopher (Storer 1925; Loredo and Van Vuren 1996; Petraska 1998; Trenham 1998a). Although ground squirrels have been known to eat these amphibians, the relationship with their burrowing hosts is primarily commensal (an association that benefits one member while the other is not affected) (Loredo *et al.* 1996; Semonsen 1998).

California tiger salamanders may also use landscape features such as leaf litter or desiccation cracks in the soil for upland refugia. Burrows often harbor camel crickets and other invertebrates that provide likely prey for the amphibians. Underground refugia also provide protection from the sun and wind associated with the dry California climate that can cause excessive drying of amphibian skin. Although California tiger salamanders are members of a family of "burrowing" salamanders, they are not known to create their own burrows. This may be due to the hardness of soils in the California ecosystems in which they are found. California tiger salamanders depend on persistent small mammal activity to create, maintain, and sustain sufficient underground refugia for the species. Burrows are short lived without continued small mammal activity and typically collapse within approximately 18 months (Loredo *et al.* 1996).

Upland burrows inhabited by California tiger salamanders have often been referred to as aestivation-sites. However, "aestivation" implies a state of inactivity, while most evidence suggests that the animals remain active in their underground dwellings. One study has found that salamanders move, feed, and remain active in their burrows (Van Hattem 2004). Because the adults arrive at breeding ponds in good condition and are heavier when entering the pond than when leaving, researchers have long inferred that they are feeding while underground. A number of direct observations have confirmed this (Trenham 2001; Van Hattem 2004). Thus, "upland habitat" is a more accurate description of the terrestrial areas used by California tiger salamanders.

California tiger salamanders typically emerge from their underground refugia at night during the fall or winter rainy season (November-May) to migrate to their breeding ponds (Stebbins 2003; Shaffer *et al.* 1993; Trenham *et al.* 2000). The breeding period is closely associated with the rainfall patterns in any given year with less adults migrating and breeding in drought years (Loredo and Van Vuren 1996; Trenham *et al.* 2000). Male California tiger salamander are typically first to arrive and generally

remain in the ponds longer than females. Results from a 7-year study in Monterey County suggested that males remained in the breeding ponds for an average of 44.7 days while females remained for an average of only 11.8 days (Trenham *et al.* 2000). Historically, breeding ponds were likely limited to vernal pools, but now include livestock stock ponds. Ideal breeding ponds are typically fishless, free of non-native predators, and seasonal or semi-permanent (Barry and Shaffer 1994; Petranka 1998).

While in the ponds, adult California tiger salamanders mate and then the females lay their eggs in the water (Twitty 1941; Shaffer *et al.* 1993; Petranka 1998). Egg laying typically reaches a peak in January (Loredo and Van Vuren 1996; Trenham *et al.* 2000). Females attach their eggs singly, or in rare circumstances, in groups of two to four, to twigs, grass stems, vegetation, or debris (Storer 1925; Twitty 1941). Eggs are often attached to objects, such as rocks and boards in ponds with no or limited vegetation (Jennings and Hayes 1994). Clutch sizes from a Monterey County study had an average of 814 eggs (Trenham *et al.* 2000). Seasonal pools may not exhibit sufficient depth, persistence, or other necessary parameters for adult breeding during times of drought (Barry and Shaffer 1994). After breeding and egg laying is complete, adults leave the pool and return to their upland refugia (Loredo *et al.* 1996; Trenham 1998a). Adult California tiger salamanders often continue to emerge nightly for approximately the next two weeks to feed amongst their upland habitat (Shaffer *et al.* 1993).

California tiger salamander larvae typically hatch within 10 to 24 days after eggs are laid (Storer 1925). The larvae are totally aquatic and range in length from approximately 0.45 to 0.56 inches (Petranka 1998). They have yellowish gray bodies, broad fat heads, large, feathery external gills, and broad dorsal fins that extend well up their back. The larvae feed on zooplankton, small crustaceans, and aquatic insects for about six weeks after hatching, after which they switch to larger prey (J. Anderson 1968). Larger larvae have been known to consume the tadpoles of Pacific tree frogs, western spadefoot toads, and California red-legged frogs (J. Anderson 1968; P. Anderson 1968). California tiger salamander larvae are among the top aquatic predators in seasonal pool ecosystems. When not feeding, they often rest on the bottom in shallow water but are also found throughout the water column in deeper water. Young California tiger salamanders are wary and typically escape into vegetation at the bottom of the pool when approached by potential predators (Storer 1925).

The California tiger salamander larval stage is typically completed in 3 to 6 months with most metamorphs entering upland habitat during the summer (Petranka 1998). In order to be successful, the aquatic phase of this species' life history must correspond with the persistence of its seasonal aquatic habitat. Most seasonal ponds and pools dry up completely during the summer. Amphibian larvae must grow to a critical minimum body size before they can metamorphose (change into a different physical form) to the terrestrial stage (Wilbur and Collins 1973). Larval development and metamorphosis can vary and is often site-dependent. Larvae collected near Stockton in the Central Valley during April varied between 1.88 to 2.32 inches in length (Storer 1925). Feaver (1971) found that larvae metamorphosed and left breeding pools 60 to 94 days after eggs had been laid, with larvae developing faster in smaller, more rapidly drying pools. Longer ponding duration typically results in larger larvae and metamorphosed juveniles that are more likely to survive and reproduce (Pechmann *et al.* 1989; Semlitsch *et al.* 1988; Morey 1998; Trenham 1998b). Larvae will perish if a breeding pond dries before metamorphosis is complete (P. Anderson 1968; Feaver 1971). Pechmann *et al.* (1989) found a strong positive correlation between ponding duration and total number of metamorphosing juveniles in five salamander species. In Madera County, Feaver (1971) found that only 11 of 30 sampled pools supported larval salamanders, and five of these dried before metamorphosis could occur. Therefore, out of the original 30 pools, only 6 (20 percent) provided

suitable conditions for successful reproduction that year. Size at metamorphosis is positively correlated with stored body fat and survival of juvenile amphibians, and negatively correlated with age at first reproduction (Semlitsch *et al.* 1988; Scott 1994; Morey 1998).

Following metamorphosis, juvenile California tiger salamanders leave their pools and move to upland habitat. This emigration can occur in both wet and dry conditions (Loredo and Van Vuren 1996; Loredo *et al.* 1996). Wet conditions are more favorable for upland travel but summer rain events seldom occur as metamorphosis is completed and ponds begin to dry. As a result, juveniles may be forced to leave their ponds on rainless nights. Under dry conditions, juveniles may be limited to seeking upland refugia in close proximity to their aquatic larval pool. These individuals often wait until the next winter's rains to move further into more suitable upland refugia. The peak emergence of these metamorphs in ponds is typically between mid-June and mid-July (Loredo and Van Vuren 1996; Trenham *et al.* 2000). Juveniles remain active in their upland habitat, emerging from underground refugia during rainfall events to disperse or forage (Trenham and Shaffer 2005). Depending on location and other development factors, metamorphs will not return as adults to aquatic breeding habitat for 2 to 5 years (Loredo and Van Vuren 1996; Trenham *et al.* 2000).

Reproductive success for the California tiger salamander is low. Results from one study suggest that the average female bred 1.4 times over their lifespan and produced 8.5 young per reproductive effort that survived to metamorphosis (Trenham *et al.* 2000). This resulted in the output of roughly 11 metamorphic offspring over a breeding female's lifetime. The primary reason for low reproductive success may be that this relatively short-lived species requires two or more years to become sexually mature (Shaffer *et al.* 1993). Some individuals may not breed until they are 4 to 6 years old. While Central California tiger salamanders may survive for more than 10 years, many breed only once, and in one study, less than 5 percent of marked juveniles survived to become breeding adults (Trenham 1998b). With such low recruitment, isolated populations are susceptible to unusual, randomly occurring natural events as well human-caused factors that reduce breeding success and individual survival. Factors that repeatedly lower breeding success in isolated pools can quickly extirpate a population.

Dispersal and migration movements made by California tiger salamanders can be grouped into two main categories: (1) breeding migration; and (2) interpond dispersal. Breeding migration is the movement of salamanders to and from a pond from the surrounding upland habitat. After metamorphosis, juveniles move away from breeding ponds into the surrounding uplands, where they live continuously for several years. At a study in Monterey County, it was found that upon reaching sexual maturity, most individuals returned to their natal/birth pond to breed, while 20 percent dispersed to other ponds (Trenham *et al.* 2001). After breeding, adult California tiger salamanders return to upland habitats, where they may live for one or more years before attempting to breed again (Trenham *et al.* 2000).

California tiger salamanders are known to travel long distances between breeding ponds and their upland refugia. Generally it is difficult to establish the maximum distances traveled by any species, but salamanders in Santa Barbara County have been recorded dispersing up to 1.3 miles from their breeding ponds (Sweet 1998). As a result of a 5-year capture and relocation study in Contra Costa County, Orloff (2007) estimated that captured California tiger salamanders were traveling a minimum of 0.5 miles to the nearest breeding pond and that some individuals were likely traveling more than 1.3 miles to and from breeding ponds. California tiger salamanders are also known to travel between breeding ponds. One study found that 20 to 25 percent of the individuals captured at one pond were recaptured later at other ponds approximately 1,900 and 2,200 feet away (Trenham

et al. 2001). In addition to traveling long distances during juvenile dispersal and adult migration, salamanders may reside in burrows far from their associated breeding ponds.

Although previously cited information indicates that California tiger salamanders can travel long distances, they typically remain close to their associated breeding ponds. A trapping study conducted in Solano County during the winter of 2002/2003 suggested that juveniles dispersed and used upland habitats further from breeding ponds than adults (Trenham and Shaffer 2005). More juvenile California tiger salamanders were captured at traps placed at 328, 656, and 1,312 feet from a breeding pond than at 164 feet. Approximately 20 percent of the captured juveniles were found at least 1,312 feet from the nearest breeding pond. The associated distribution curve suggested that 95 percent of juvenile California tiger salamanders were within 2,099 feet of the pond, with the remaining 5 percent being found at even greater distances. Preliminary results from the 2003-04 trapping efforts at the same study site detected juvenile California tiger salamanders at even further distances, with a large proportion of the captures at 2,297 feet from the breeding pond (Trenham 1998a). Surprisingly, most juveniles captured, even those at 2,100 feet, were still moving away from ponds. In Santa Barbara County, juvenile Santa Barbara County DPS California tiger salamanders have been trapped approximately 1,200 feet away while dispersing from their natal pond (Science Applications International Corporation, unpublished data). These data show that many California tiger salamanders travel far while still in the juvenile stage. Post-breeding movements away from breeding ponds by adults appear to be much smaller. During post-breeding emigration from aquatic habitat, radio-equipped adult California tiger salamanders were tracked to burrows between 62 to 813 feet from their breeding ponds (Trenham 2001). These reduced movements may be due to adult California tiger salamanders exiting the ponds with depleted physical reserves, or drier weather conditions typically associated with the post-breeding upland migration period.

California tiger salamanders are also known to use several successive burrows at increasing distances from an associated breeding pond. Although previously cited studies provide information regarding linear movement from breeding ponds, upland habitat features appear to have some influence on movement. Trenham (2001) found that radio-tracked adults were more abundant in grasslands with scattered large oaks, than in more densely wooded areas. Based on radio-tracked adults, there is no indication that certain habitat types are favored as terrestrial movement corridors (Trenham 2001). In addition, captures of arriving adults and dispersing new metamorphs were evenly distributed around two ponds completely encircled by drift fences and pitfall traps. Thus, it appears that dispersal into the terrestrial habitat occurs randomly with respect to direction and habitat types.

Threats: The Central California tiger salamander is imperiled throughout its range due to a variety of human activities (Service 2004). Current factors associated with declining Central California tiger salamander populations include continued habitat loss and degradation due to agriculture and urbanization; hybridization with the non-native eastern salamander (Fitzpatrick and Shaffer 2004; Riley *et al.* 2003); and predation by introduced species. Central California tiger salamander populations are likely threatened by multiple factors but continued habitat fragmentation and colonization of non-native salamanders may represent the most significant current threats. Habitat isolation and fragmentation within many watersheds have precluded dispersal between sub-populations. Other threats include predation and competition from introduced exotic species; possible commercial over-utilization; diseases; various chemical contaminants; road kill; and certain mosquito and rodent control operations. Currently, these various primary and secondary threats are largely not being offset by existing Federal, State, or local regulatory mechanisms. The Central California tiger salamander is also prone to chance environmental or demographic events to which small populations are particularly vulnerable.

Due to the extensive losses of vernal pool complexes and their limited distribution in the Bay Area region, many Central California tiger salamander breeding sites consist of artificial water bodies. Overall, 89 percent (124) of the identified water bodies are stock, farm, or berm ponds used by cattle grazing and/or as a temporary water source for small farm irrigation (CDFW 2014). This places the Central California tiger salamander at great risk of hybridization with non-native tiger salamanders, especially in Santa Clara and San Benito counties. Without long-term maintenance, the longevity of artificial breeding habitats is uncertain relative to naturally occurring vernal pools that are dependent on the continuation of seasonal weather patterns (Shaffer in litt. 2003).

Status of the Species: Thirty-one percent (221 of 711 records and occurrences) of all Central California tiger salamander records and occurrences are located in Alameda, Santa Clara, San Benito (excluding the extreme western end of the County), southwestern San Joaquin, western Stanislaus, western Merced, and southeastern San Mateo counties. Of these counties, most of the records are from eastern Alameda and Santa Clara counties (Buckingham in litt. 2003; Service 2004; CDFW 2014). The California Department of Fish and Wildlife (2014) now considers 13 of these records from the Bay Area region as extirpated or likely to be extirpated.

Of the 140 reported Central California tiger salamander localities where wetland habitat was identified, only 7 percent were located in vernal pools (CDFW 2014). The Bay Area is located within the Central Coast and Livermore vernal pool regions (Keeler-Wolf et al. 1998). Vernal pools within the Coast Range are more sporadically distributed than vernal pools in the Central Valley (Holland 2003). This rate of loss suggests that vernal pools in these counties are disappearing faster than previously reported (Holland 2003). Most of the vernal pools in the Livermore Region in Alameda County have been destroyed or degraded by urban development, agriculture, water diversions, poor water quality, and long-term overgrazing (Keeler-Wolf et al. 1998). During the 1980s and 1990s, vernal pools were lost at a 1.1 percent annual rate in Alameda County (Holland 1998).

Due to the extensive losses of vernal pool complexes and their limited distribution in the Bay Area region, many Central California tiger salamander breeding sites consist of artificial water bodies. Overall, 89 percent (124) of the identified water bodies are stock, farm, or berm ponds used by cattle grazing and/or as a temporary water source for small farm irrigation (CDFW 2-14). This places the Central California tiger salamander at great risk of hybridization with non-native tiger salamanders, especially in Santa Clara and San Benito counties. Without long-term maintenance, the longevity of artificial breeding habitats is uncertain relative to naturally occurring vernal pools that are dependent on the continuation of seasonal weather patterns (Shaffer in litt. 2003).

Environmental Baseline

Alameda whipsnake

The action area is not within designated critical habitat for the Alameda whipsnake; however, it abuts the Hayward-Pleasanton Ridge critical habitat unit (Unit 3). The proposed action is located within three recovery units: Hayward-Pleasanton Ridge Unit (Unit 3), Sunol-Cedar Mountain Unit (Unit 5), and Niles Canyon/Sunol Corridor Unit (Unit 7) (Service 2002a). The Hayward Pleasanton Ridge Unit has the least contiguous lands in open space or conservation, and is under intense development pressure. According to the recovery plan, recovery of this unit will require: (1) immediate minimization of habitat fragmentation and isolation; (2) strategic protection of habitat;

and (3) land management actions that promote Alameda whipsnake distribution, abundance, and dispersal. The Sunol-Cedar Mountain Unit is the most southern recovery unit and is important because it is the interface between chaparral whipsnake and the Alameda whipsnake. Although this unit has not had the same degree of habitat loss and fragmentation experienced by other units, the pressure for housing is increasing, particularly in the Pleasanton/Livermore area as is vehicular traffic through Corral Hollow. According to the recovery plan, in this unit: (1) long-term protection should be sought for all open space lands; (2) there should be focus on connecting the Sunol Regional Park population center with the Niles Canyon-Sunol Corridor, and other populations; and (3) more survey and research data is needed. The Niles Canyon/Sunol Corridor Unit includes open space or public trust lands but not all the land is habitat that would promote connectivity with other units and populations. According to the recovery plan: (1) land management plans for this unit need to address health and possible restoration of chaparral/scrub habitats, fire management, grazing, and incompatible land uses such as mining and agriculture; (2) there should be habitat enhancement within the Alameda Creek floodplain; and (3) additional safe passage should be established across Niles Canyon Road.

The California Natural Diversity Database includes records for Alameda whipsnakes at approximately 1 mile and 2.1 miles from the action area (CDFW 2014). Pleasanton Ridge, immediately west of the action area is within Alameda whipsnake critical habitat and is managed for the species in large part by East Bay Regional Park District. The action area is crossed by Alameda Creek and Vallecitos Creeks and other drainages that are critical movement corridors for interchange between the Hayward Pleasanton Ridge and Sunol-Cedar Mountain Alameda whipsnake populations (Service 1997). Based on the habitat located within and adjacent to the action area, the proximity of critical habitat, the inclusion within three recovery units, the biology and ecology of the Alameda whipsnake, including its dispersal behavior, and the nearby records of the listed species, the Service has concluded it is likely Alameda whipsnake utilizes the action area for foraging, resting, mating, and other essential behaviors.

There is no scrub habitat within the action area; however, grassland, oak woodland, and riparian woodland habitats are present and provide suitable foraging, refugia, dispersal habitat. The action area includes the critical movement corridors for interchange between the Hayward Pleasanton Ridge and Sunol-Cedar Mountain in addition to other potential crossings including underpasses at Vargas Road, Calaveras Boulevard, and Koopman Road, as well as various culverts and drainage channels under I-680. Alameda whipsnakes have the potential to occur in grassland, oak woodland, and riparian woodland habitats between Bernal Avenue and North Mission Boulevard (SR-238) and between Scott Creek Road and South Mission Boulevard (SR-262).

California Red-legged Frog

The action area is located within the East San Francisco Bay Core Area (Alameda Creek Hydrologic Sub-Area) and the South and East Bay Recovery Unit (Service 2002b, 2006b). The recovery action guidelines provide recommendations for minimizing the effects of various land and water uses, non-native species/predators, and air and water contamination in addition to outlining recommendations for habitat preservation. These recommendations assist in the conservation and recovery of the species, protect high quality habitat within core areas and priority watersheds, increase opportunities for dispersal, population expansion, and recolonization, and provide connectivity between core areas and occupied watersheds. The conservation needs for the East San Francisco Bay Core Area are: (1) protect existing populations; (2) control non-native predators; (3) study the effects of grazing in riparian corridors, ponds and uplands; (4) reduce impacts associated with livestock grazing; (5) protect habitat connectivity; (6) minimize effects of recreation and off-road vehicle use, e.g. Corral

Hollow watershed; (7) avoid and reduce impacts of urbanization; and (8) protect habitat buffers from nearby urbanization.

There are numerous ponds and streams visible on aerial imagery within one mile of the action area which provide suitable breeding and non-breeding aquatic habitat. Based on the proximity of these aquatic features to the action area, California red-legged frogs may use grasslands, oak woodland, and riparian woodland for upland foraging, refugia, and dispersal. Caltrans determined that California red-legged frogs have potential to occur in upland habitat and freshwater marsh and stream channel habitats between Bernal Avenue and North Mission Boulevard (SR 238) and between South Mission Boulevard (SR 262) and Scott Creek Road. California red-legged frogs are not expected to occur within the action area outside of these areas due to urban development on both sides of I-680.

Surveys conducted by Caltrans in 2012 from Koopman Road in the north to Scott Creek Road documented California red-legged frogs at two locations (Caltrans 2013). Several adults were observed within a stock pond approximately 0.03-mile from the action area near the Vargas Road exit, and a single juvenile was observed in a stream approximately 0.02-mile from the action area, along the Sunol Grade between the Sheridan Road and Andrade Road exits. In addition, 49 occurrences have been recorded within five miles of the action area (CDFW 2014).

I-680 north of SR 238 represents a major barrier to dispersal of California red-legged frogs. The paved surface of I-680 is not considered to be a viable dispersal corridor for California red-legged frogs due to the heavy traffic volume and landscape barriers impeding individuals attempting to cross. There are several natural and artificial wildlife crossings within the action area that may facilitate dispersal of California red-legged frogs under I-680, including the Alameda Creek corridor, underpasses for surface streets such as the ones at Vargas Road, Calaveras Boulevard, and Koopman Road, and culverts carrying streams and drainage channels under the freeway.

Aquatic features and upland and dispersal habitat within the action area are important to the conservation and recovery of the species based on the following: 1) they are located within the known range of the species and within the East San Francisco Bay Core Area; 2) they provide suitable habitat for juvenile and adult life history stages of the species; 3) they provide connectivity with occupied watersheds across I-680 and those to the north and south; and 4) they provide opportunities for dispersal, population expansion and recolonization. For these reasons, the Service has determined there is a reasonable potential for juvenile and adult California red-legged frogs to inhabit, forage, seek refuge or disperse within and through the action area.

Central California Tiger Salamander

There are 69 occurrences of Central California tiger salamander recorded within five miles of the action area, 17 of which are within the species' known 1.3-mile dispersal range (CDFW 2014). One of these occurrences (Occ. #1095) was documented within the action area at the Vargas Road undercrossing. Most are located among the undeveloped grassy hills flanking the action area northeast of SR-238, in the vicinity of San Antonio Reservoir, Sunol Regional Wilderness, the town of Sunol, and the area south of Pleasanton. Occurrences are present in the area south of SR-238 as well, with some present near the bayshore at the Don Edwards National Wildlife Refuge in Fremont, and others are located in the undeveloped hills between the action area and the Avalon Heights residential development in Fremont.

No aquatic features identified within the action area are suitable breeding habitat for Central California tiger salamanders based on their shallow depth and/or ephemeral nature. Suitable upland habitat is present in grassland and oak woodland habitats within the action area. California ground squirrel burrows are abundant on the grassy hillsides within and adjacent to the Caltrans right of way along I-680, and these could be utilized as upland foraging and refuge. There are numerous ponds in the surrounding hills north of SR-238 within 1.3 miles, which may provide suitable breeding habitat. A stock pond located just 0.03-mile (approximately 175 feet) from the action area, in the vicinity of the Vargas Road exit. An adult female was unearthed within the current action area during the widening of the I-680 bridge over Vargas Road in 2009 (CNDDDB Occurrence #1059), and this pond, being the closest potentially suitable breeding pond to that area, is the most likely breeding habitat from which this adult originated. Adults and juveniles originating from this pond or any of the other ponds within the 1.3-mile dispersal range may use the action area for upland foraging and refuge. Central California tiger salamanders have potential to occur in grassland and oak woodland habitats between Bernal Avenue and North Mission Boulevard (SR 238) and between South Mission Boulevard (SR 262) and Scott Creek Road.

California tiger salamanders are not expected to occur within the action area outside of these areas due to urban development on both sides of I-680. I-680 north of SR-238 represents a significant barrier to dispersal of Central California tiger salamanders due to the heavy traffic volume and landscape barriers impeding individuals attempting to cross. There are several natural and artificial wildlife crossings within the action area that could potentially be used by dispersing Central California tiger salamanders to cross under I-680, including the Alameda Creek corridor, underpasses for surface streets such the ones at Vargas Road, Calaveras Boulevard, and Koopman Road, and culverts carrying streams and drainage channels under the freeway.

Aquatic features and upland and dispersal habitat within the action area are important to the conservation and recovery of the species based on the following: (1) it is located within the known range of the species; (2) it provides suitable upland habitat for juvenile and adult life history stages of the species; and (3) it serves as refugia, foraging and aestivation habitat for individuals moving in between habitats across I-680 and those to the north and south. For these reasons and the prevalence of Central California tiger salamanders adjacent to the action area, the Service has determined there is a reasonable potential for Central California tiger salamanders to inhabit, forage, aestivate and disperse through the action area.

Effects of the Action

Alameda Whipsnake, California Red-legged Frog, and Central California Tiger Salamander

The proposed project will likely adversely affect the Alameda whipsnake, California red-legged frog, and Central California tiger salamander by killing, injuring, harming, and/or harassing juveniles and adults inhabiting suitable upland and dispersal habitat within the action area. The aspects of the proposed action most likely to affect the Alameda whipsnake, California red-legged frog, and Central California tiger salamander are confined to the construction phase of the project associated with the construction of the maintenance vehicle pullouts, ramp widening and metering, and traffic operating system elements.

Construction noise, vibration, and increased human activity may interfere with normal behaviors – feeding, sheltering, movement between refugia and foraging grounds, and other essential behaviors of the Alameda whipsnake, California red-legged frog, and Central California tiger salamander –

resulting in avoidance of areas that have suitable habitat but intolerable levels of disturbance. Short-term temporal effects will occur when vegetative cover and subterranean upland habitat is removed during project construction. Caltrans proposes to minimize these effects, in part, by locating construction staging, storage and parking areas outside of sensitive habitat; clearly marking construction work boundaries to prevent crews from affecting more habitat than is absolutely necessary, and revegetating all unpaved areas disturbed by project activities. Additionally, Caltrans will avoid wetland habitat and will install ESA fencing to ensure workers and equipment does not affect the habitat.

The proposed construction activities could result in the introduction of chemical contaminants to the site. Alameda whipsnakes, California red-legged frogs, and Central California tiger salamanders using these areas could be exposed to any contaminants that are present at the site. Exposure pathways could include inhalation, dermal contact, direct ingestion, or secondary ingestion of contaminated soil, plants, or prey species. Exposure to contaminants could cause short- or long-term morbidity, possibly resulting in reduced productivity or mortality. Caltrans proposes to minimize these risks by implementing a Storm Water Pollution Prevention Plan, erosion control BMPs, and a Spill Response Plan, which will consist of refueling, oiling or cleaning of vehicles and equipment a minimum of 100 feet from aquatic resources; installing coir rolls, straw wattles and/or silt fencing to capture sediment and prevent runoff or other harmful chemicals from entering the wetland; and locating staging, storage and parking areas away from aquatic habitats.

Preconstruction surveys and the relocation of individual California red-legged frogs and Central California tiger salamanders by a Service-approved biologist will minimize the likelihood of serious injury or mortality; however, capturing and handling frogs may result in stress and/or minor injury during handling, containment, and transport. Death and injury of individuals could occur at the time of relocation or later in time subsequent to their release. Although survivorship for translocated amphibians has not been estimated, survivorship of translocated wildlife, in general, is low because of intraspecific competition, lack of familiarity with the relocation site with regard to breeding, feeding, and sheltering habitats, risk of contracting disease in foreign environment, and increased risk of predation. These effects will be minimized by using qualified Service-approved biologists, limiting the duration of handling, and relocating amphibians to suitable nearby habitat.

Biologists and construction workers traveling to the action area from other project sites may transmit diseases by introducing contaminated equipment. The chance of a disease being introduced into a new area is greater today than in the past due to the increasing occurrences of disease throughout amphibian populations in California and the United States. It is possible that chytridiomycosis, caused by chytrid fungus (*Batrachochytrium dendrobatidis*), may exacerbate the effects of other diseases on amphibians or increase the sensitivity of the amphibian to environmental changes (e.g., water pH) that reduce normal immune response capabilities (Bosch et al. 2001, Weldon et al. 2004). Implementing proper decontamination procedures prior to and following aquatic surveys and handling of frogs and salamanders will minimize the risk of transferring diseases through contaminated equipment or clothing.

Temporary effects comprise areas denuded, manipulated, or otherwise modified from their existing, pre-project conditions, thereby removing one or more essential components of a listed species' habitat as a result of project activities that include, but are not limited to, construction, staging, storage, lay down, vehicle access, parking, etc. Temporary effects must be restored to baseline habitat values or better within one year following initial disturbance. Areas subject to ongoing operations and maintenance are not considered temporary even if they are restored within one year

following initial disturbance. Affected areas not fulfilling these criteria are considered permanent. The proposed action would result in the permanent loss and/or degradation of 3.14 acres of Alameda whipsnake, California red-legged frog, and Central California tiger salamander upland and dispersal habitat; and the temporary loss and/or degradation of 6.77 acres of Alameda whipsnake, California red-legged frog, and Central California tiger salamander upland and dispersal habitat. Caltrans has proposed a compensatory habitat conservation measure at a ratio of 3:1 (acres of compensation to acres of habitat loss) for permanent effects and 1:1 for temporary effects.

These effects will be further minimized by installing environmentally sensitive area fencing to keep workers from straying into otherwise undisturbed habitat; erecting wildlife exclusion fencing to deter frogs and salamanders from wandering onto the construction site; implementing storm water and erosion BMP's; educating workers about the presence of Alameda whipsnake, California red-legged frog, and Central California tiger salamander, their habitat, identification, regulatory laws, and avoidance and minimization measures; and requiring a Service-approved biologist(s) to be present to monitor project activities within or adjacent to suitable habitat.

Cumulative Effects

Cumulative effects include the effects of future State, Tribal, local or private actions that are reasonably certain to occur in the action area considered in this biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. No other State, Tribal, local or private actions are anticipated in the action area within the foreseeable future.

The global average temperature has risen by approximately 0.6 degrees centigrade during the 20th Century (International Panel on Climate Change 2001, 2007; Adger et al 2007). There is an international scientific consensus that most of the warming observed has been caused by human activities (International Panel on Climate Change 2001, 2007; Adger et al. 2007), and that it is "very likely" that it is largely due to increasing concentrations of greenhouse gases (carbon dioxide, methane, nitrous oxide, and others) in the global atmosphere from burning fossil fuels and other human activities (Cayan 2005, EPA Global Warming webpage <http://yosemite.epa.gov>; Adger et al. 2007). Eleven of the twelve years between 1995 and 2006 rank among the twelve warmest years since global temperatures began in 1850 (Adger et al. 2007). The warming trend over the last fifty years is nearly twice that for the last 100 years (Adger et al. 2007). Looking forward, under a high emissions scenario, the International Panel on Climate Change estimates that global temperatures will rise another four degrees centigrade by the end of this Century; even under a low emissions growth scenario, the International Panel on Climate Change estimates that the global temperature will go up another 1.8 degrees centigrade (International Panel on Climate Change 2001). The increase in global average temperatures affects certain areas more than others. The western United States, in general, is experiencing more warming than the rest of the Nation, with the 11 western states averaging 1.7 degrees Fahrenheit warmer temperatures than this region's average over the 20th Century (Saunders et al. 2008). California, in particular, will suffer significant consequences as a result of global warming (California Climate Action Team 2006). In California, reduced snowpack will cause more winter flooding and summer drought, as well as higher temperatures in lakes and coastal areas. The incidence of wildfires in the Golden State also will increase and the amount of increase is highly dependent upon the extent of global warming. No less certain than the fact of global warming itself is the fact that global warming, unchecked, will harm biodiversity generally and cause the extinction of large numbers of species. If the global mean temperatures exceed a warming of two to three degrees centigrade above pre-industrial levels, twenty to thirty percent of plant and

animal species will face an increasingly high risk of extinction (International Panel on Climate Change 2001, 2007). The mechanisms by which global warming may push already imperiled species closer or over the edge of extinction are multiple. Global warming increases the frequency of extreme weather events, such as heat waves, droughts, and storms (International Panel on Climate Change 2001, 2007; California Climate Action Team 2006; Lenihan et al. 2003). Extreme events, in turn may cause mass mortality of individuals and significantly contribute to determining which species will remain or occur in natural habitats. Ongoing global climate change (Anonymous 2007; Inkley et al. 2004; Adger et al. 2007; Kanter 2007) likely imperils the Alameda whipsnake, California red-legged frog, Central California tiger salamander, and the resources necessary for their survival. Since climate change threatens to disrupt annual weather patterns, it may result in a loss of their habitats and/or prey, and/or increased numbers of their predators, parasites, and diseases. Where populations are isolated, a changing climate may result in local extinction, with range shifts precluded by lack of habitat.

Conclusion

After reviewing the current status of the Alameda whipsnake, California red-legged frog, and Central California tiger salamander; the environmental baseline for the action area; the effects of the proposed I-680 Freeway Performance Initiative Phase II Project and the cumulative effects; it is the Service's biological opinion that the project, as proposed, is likely to adversely affect all three species, but is not likely to jeopardize their continued existence. This determination is based on our opinion that the magnitude of the effects of this action does not appreciably reduce the likelihood of both the survival and recovery of these species in the wild.

INCIDENTAL TAKE STATEMENT

Section 9(a)(1) of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened fish and wildlife species without special exemption. Take is defined as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harass is defined by the Service as an intentional or negligent act or omission which creates the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. Harm is defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by impairing behavioral patterns including breeding, feeding, or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with this Incidental Take Statement.

The measures described below are non-discretionary, and must be implemented by Caltrans so that they become binding conditions of any grant or permit issued to Caltrans, as appropriate, in order for the exemption in section 7(o)(2) to apply. Caltrans has a continuing duty to regulate the activity covered by this incidental take statement. If Caltrans (1) fails to require Caltrans to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit or grant document, and/or (2) fails to retain oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

Amount or Extent of TakeAlameda Whipsnake

The Service expects that incidental take of the Alameda whipsnake may be difficult to detect or quantify because this animal may range over a large territory and the finding of an injured or dead individual is unlikely because they may seek refuge in burrows or other underground refugia. Due to the difficulty in quantifying the number of Alameda whipsnakes that will be taken as a result of the proposed action, the Service is quantifying take incidental to the proposed action as the mortality/injury of no more than one Alameda whipsnake and the harassment of all Alameda whipsnakes inhabiting or utilizing the 793-acre action area. The Service anticipates that take of juvenile and adult life history stages may be killed, harmed or harassed as a result of habitat loss/degradation, or construction-related disturbance. Upon implementation of the following Reasonable and Prudent Measures, all juvenile and adult Alameda whipsnakes within the action area in accordance with the amount and type of take outlined above will become exempt from the prohibitions described under section 9 of the Act. No other forms of take are authorized under this opinion.

California Red-Legged Frog

The Service anticipates that incidental take of the California red-legged frog may be difficult to detect due to their cryptic nature and wariness of humans. Losses of this species may also be difficult to quantify due to a lack of baseline survey data and seasonal/annual fluctuations in their numbers due to environmental or human-caused disturbances. Due to the difficulty in quantifying the number of California red-legged frogs that will be taken as a result of the proposed action, the Service is quantifying take incidental to the proposed action as the mortality/injury of no more than one California red-legged frogs and the harassment of all California red-legged frogs inhabiting or utilizing the 793-acre action area. The Service anticipates that take of juvenile and adult life history stages may be killed, harmed or harassed as a result of habitat loss/degradation, construction-related disturbance, or capture and relocation efforts. Upon implementation of the following Reasonable and Prudent Measures, all juvenile and adult California red-legged frogs within the action area in accordance with the amount and type of take outlined above will become exempt from the prohibitions described under section 9 of the Act. No other forms of take are authorized under this opinion.

Central California Tiger Salamander

The Service anticipates that incidental take of the California tiger salamander will be difficult to detect due to their cryptic nature, subterranean lifestyle, and predominately nocturnal behavior. Losses of this species may also be difficult to quantify due to seasonal/annual fluctuations in their numbers due to environmental or human-caused disturbances. Due to the difficulty in quantifying the number of Central California tiger salamanders that will be taken as a result of the proposed action, the Service is quantifying take incidental to the proposed action as the mortality/injury of one Central California tiger salamanders and harassment of all Central California tiger salamanders inhabiting or utilizing the 793-acre action area. The Service anticipates that take of juvenile or adult Central California tiger salamanders may result from habitat loss/degradation, construction-related disturbance, or capture and relocation efforts. Upon implementation of the following Reasonable and Prudent Measures, all juvenile and adult Central California tiger salamanders within the action area in accordance with the amount and type of take outlined above will become exempt from the prohibitions described under section 9 of the Act. No other forms of take are authorized under this opinion.

Effect of the Take

In the accompanying biological opinion, the Service determined that the level of anticipated take is not likely to jeopardize the Alameda whipsnake, California red-legged frog, or Central California tiger salamander.

Reasonable and Prudent Measures

The Service has determined that the following reasonable and prudent measure is necessary and appropriate to minimize impacts of incidental take of Alameda whipsnake, California red-legged frog, or Central California tiger salamander:

1. Minimize the effects to the Alameda whipsnake, California red-legged frog, and Central California tiger salamander by implementing the proposed action as described and the following terms and conditions.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, Caltrans must comply with the following terms and conditions, which implement the reasonable and prudent measure, described above and outline required reporting/monitoring requirements. These Terms and Conditions are nondiscretionary. The following Terms and Conditions implement the Reasonable and Prudent Measure number 1:

1. **Compliance with Biological Opinion.** Caltrans shall include Special Provisions that include the Conservation Measures and the Terms and Conditions of this biological opinion in the solicitation for bid information for all contracts for the project that are issued by them to all contractors. Caltrans shall require all contractors and subcontractors to comply with the Act in the performance of the proposed action and shall perform the action as outlined in the Project Description of this biological opinion as provided by Caltrans in the Biological Assessment dated September 2013, and all other supporting documentation submitted to the Service in support of the action. Changes to the Project Description or performance of work outside the scope of this biological opinion are subject to the requirements of reinitiation of formal consultation.
2. **Implementation of Biological Opinion.** Caltrans shall ensure the Resident Engineer or their designee shall have full authority to implement and enforce all Conservation Measures and Terms and Conditions of this biological opinion. The Resident Engineer or his/her designee shall maintain a copy of this biological opinion onsite whenever construction is in progress. Their name(s) and telephone number(s) shall be provided to the Service at least 30 calendar days prior to groundbreaking at the project.
3. **Proposed Compensation.** The compensation measures proposed by Caltrans and outlined in Table 4 will minimize the effects of harm on the Alameda whipsnake, California red-legged frog and Central California tiger salamander. Habitat considered for compensation shall comprise high quality breeding, foraging, sheltering, migration, and/or dispersal habitat. Caltrans shall comply with all applicable CDFW regulations pertaining to mitigation for

species designated as fully protected and/or listed by the State. Compensation shall be implemented in accordance with the Selected Review Criteria for Section 7 Off-Site Compensation provided in Appendix A. If conservation banking credits are to be purchased, Caltrans shall submit a conceptual compensation plan to the Service for review and approval prior to the purchase of credits. If the proposed compensation scheme is not fully implemented, Caltrans shall provide an alternative compensation scheme to be reviewed and approved by the Service. On-site restoration of temporarily affected areas may qualify as compensation at a 1:1 ratio if it is restored within one calendar year following project completion and the conditions are verified by the Service. All compensation will be acquired prior to the beginning of earthmoving for the project.

4. **Biological Monitor Approval and Stop Work Authority.** The qualifications of all proposed Service-approved biological monitors shall be presented to the Service for review and written approval at least 30 calendar days prior to project initiation. The Service-approved biological monitors shall keep a copy of this biological opinion in his/her possession when onsite. Through the Resident Engineer or his/her designee, the Service-approved biological monitors shall be given the authority to communicate verbally, by telephone, email, or hardcopy with Caltrans personnel, construction personnel or any other person(s) at the project site or otherwise associated with the project to ensure that the terms and conditions of this biological opinion are met. The Service-approved biologist(s) through communication with the Resident Engineer or his/her designee shall have oversight over implementation of the Terms and Conditions in this Biological Opinion, and shall have the authority to stop project activities if they determine any of the requirements associated with these Terms and Conditions are not being fulfilled. If the Service-approved biologist(s) exercises this authority, the Service shall be notified by telephone and email within 24 hours. The Service contact is Coast-Bay/Forest Foothills Division Chief of the Endangered Species Program, Sacramento Fish and Wildlife Office at telephone (916) 414-6600.
5. **Biological Monitoring Records.** The Service-approved biologist(s) shall maintain monitoring records that include: (1) the beginning and ending time of each day's monitoring effort; (2) a statement identifying the listed species encountered, including the time and location of the observation; (3) the time the specimen was identified and by whom and its condition; and (4) a description of any actions taken. The Service-approved biologist(s) shall maintain complete records in their possession while conducting monitoring activities and shall immediately surrender records to the Service, CDFW, and/or their designated agents upon request. If requested, all monitoring records shall be provided to the Service within 30 of the completion of monitoring work.
6. **Agency Access.** If verbally requested through the Resident Engineer or Construction Inspector, before, during, or upon completion of ground breaking and construction activities, Caltrans shall ensure the Service or their designated agents can immediately and without delay, access and inspect the project site for compliance with the proposed project description, conservation measures, and terms and conditions of this Biological Opinion, and to evaluate project effects to the Alameda whipsnake, California red-legged frog, and Central California tiger salamander and their habitat.
7. **Proper Use of Erosion Control Devices.** To prevent Alameda whipsnakes, California red-legged frogs and Central California tiger salamanders from becoming entangled, trapped, or injured, erosion control materials that use plastic or synthetic monofilament netting will not

be used within the action area. This includes products that use photodegradable or biodegradable synthetic netting, which can take several months to decompose. Acceptable materials include natural fibers such as jute, coconut, twine or other similar fibers.

8. **Biological Monitoring.** A Service-approved biologist(s) shall be onsite during all activities that may result in take of Alameda whipsnakes, California red-legged frogs, or Central California tiger salamanders as determined by the Service. A minimum of one Service-approved biologist shall be on-site or available by phone to respond in a timely manner throughout the project duration. Caltrans shall coordinate with the Service to determine which locations will require the presence with Service-approved biological monitors. The Service will consider the implementation of specific project activities without the oversight of an on-site Service-approved biologist on a case-by-case basis.
9. **Preconstruction and Daily Surveys.** Preconstruction surveys shall be conducted by a Service-approved biologist immediately prior to the initiation of any ground disturbing activities and vegetation clearing that may result in take of Alameda whipsnakes, California red-legged frogs, and Central California tiger salamanders as determined by the Service. All suitable aquatic and upland habitat including refugia habitat such as dense vegetation, small woody debris, refuse, burrows, etc., shall be thoroughly inspected. The Service-approved biologist(s) shall conduct clearance surveys at the beginning of each day and regularly throughout the workday when construction activities are occurring that may result in take of Alameda whipsnakes, California red-legged frogs, and Central California tiger salamanders as determined by the Service. If an Alameda whipsnake is observed within the action area, the individual(s) should not be captured or handled without authorization from the Service and CDFW, and should be monitored until it leaves the action area on its own accord, unless the situation poses an imminent risk of injury or mortality to the individual(s). If a California red-legged frog or Central California tiger salamander is observed, the Service-approved biologist shall implement the species observation and handling protocol outlined below.
10. **Protocol for Species Observation and Handling.** If an Alameda whipsnake, California red-legged frog, or Central California tiger salamander is encountered in the action area, work activities within 50 feet of the individual shall cease immediately and the Resident Engineer and Service-approved biologist shall be notified. Based on the professional judgment of the Service-approved biologist, if project activities can be conducted without harming or injuring the Alameda whipsnake, California red-legged frog, or Central California tiger salamander, it may be left at the location of discovery and monitored by the Service-approved biologist. All project personnel shall be notified of the finding and at no time shall work occur within 50 feet of the Alameda whipsnake, California red-legged frog, or Central California tiger salamander without a Service-approved biologist present. The Alameda whipsnake shall not be captured or handled without authorization from the Service and CDFW, and shall be monitored until it leaves the action area on its own accord, unless the situation poses an imminent risk of injury or mortality to the individual(s). If it is determined by the Service-approved biologist that relocating the California red-legged frog or Central California tiger salamander is necessary, the following steps shall be followed:
 - a. Prior to handling and relocation, the Service-approved biologist will take precautions to prevent introduction of amphibian diseases in accordance with the *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog* (Service 2005) and *Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative*

Finding of the California Tiger Salamander (Service 2003). Disinfecting equipment and clothing is especially important when biologists are coming to the action area to handle amphibians after working in other aquatic habitats.

- b. California red-legged frogs and Central California tiger salamanders shall be captured by hand, dipnet, or other Service-approved methodology, transported and relocated to nearby suitable habitat outside of the work area and released as soon as practicable the same day of capture. Holding/transporting containers and dipnets shall be thoroughly cleaned, disinfected, and rinsed with freshwater prior to use within the action area. The Service shall be notified within 24 hours of all capture, handling, and relocation efforts.

Reporting Requirements

In order to monitor whether the amount or extent of incidental take anticipated from implementation of the project is approached or exceeded, Caltrans shall adhere to the following reporting requirements. Should this anticipated amount or extent of incidental take be exceeded, Caltrans must reinitiate formal consultation as per 50 CFR 402.16.

1. The Service must be notified within one (1) working day of the finding of any injured or dead listed species or any unanticipated damage to its habitat associated with the proposed project. Notification will be made to the Coast-Bay/Forest Foothills Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at (916) 414-6600, and must include the date, time, and precise location of the individual/incident clearly indicated on a U.S. Geological Survey 7.5 minute quadrangle or other maps at a finer scale, as requested by the Service, and any other pertinent information. When an injured or dead individual of the listed species is found, Caltrans shall follow the steps outlined in the Disposition of Individuals Taken section below.
2. Other pertinent reporting information such as monitoring reports (if not included as a term and condition), notification of project completion/implementation, etc. including when this information is due to the Service.

Disposition of Individuals Taken

Injured listed species must be cared for by a licensed veterinarian or other qualified person(s), such as the Service-approved biologist. Dead individuals must be sealed in a resealable plastic bag containing a paper with the date and time when the animal was found, the location where it was found, and the name of the person who found it, and the bag containing the specimen frozen in a freezer located in a secure site, until instructions are received from the Service regarding the disposition of the dead specimen. The Service contact persons are the Coast-Bay/Forest Foothills Division Chief of the Endangered Species Program at the Sacramento Fish and Wildlife Office at (916) 414-6600; and the Resident Agent-in-Charge of the Service's Office of Law Enforcement, 5622 Price Way, McClellan, California 95562, at (916) 569-8444.

CONSERVATION RECOMMENDATIONS

Section 7(a)(1) of the Act directs Federal agencies to utilize their authorities to further the purposes of the Act by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat, to help implement recovery plans, or to develop information. The Service recommends the following actions:

1. Caltrans District 4 should work with the Service to develop a conservation strategy that would identify the current safe passage potential along Bay Area highways and the areas where safe passage for wildlife could be enhanced or established.
2. Caltrans should assist the Service in implementing recovery actions identified in the *Recovery Plan for the California Red-legged Frog* (Service 2002b), the *Draft Recovery Plan for Chaparral and Scrub Community Species East of San Francisco Bay, California* (Service 2003), *Draft Recovery Plan for Chaparral and Scrub Community Species East of San Francisco Bay, California* (Service 2002a), and the *Recovery Plan for Upland Species of the San Joaquin Valley, California* (Service 1998).
3. Caltrans should consider participating in the planning for a regional habitat conservation plan for the Central California tiger salamander, California red-legged frog, San Joaquin kit fox, other listed species, and sensitive species.
4. Caltrans should consider establishing functioning preservation and creation conservation banking systems to further the conservation of the California red-legged frog, Central California tiger salamander, and other appropriate species. Such banking systems also could possibly be utilized for other required mitigation (i.e., seasonal wetlands, riparian habitats, etc.) where appropriate. Efforts should be made to preserve habitat along roadways in association with wildlife crossings.
5. Roadways can constitute a major barrier to critical wildlife movement. Therefore, Caltrans should incorporate culverts, tunnels, or bridges on highways and other roadways that allow safe passage by the Central California tiger salamander, California red-legged frog, Alameda whipsnake, San Joaquin kit fox, other listed animals, and wildlife. Photographs, plans, and other information into the BAs if “wildlife friendly” crossings are incorporated into projects. Efforts should be made to establish upland culverts designed specifically for wildlife movement rather than accommodations for hydrology. Transportation agencies should also acknowledge the value of enhancing human safety by providing safe passage for wildlife in their early project design.

In order for the Service to be kept informed of actions minimizing or avoiding adverse effects or benefiting listed species or their habitats, the Service requests notification of the implementation of any conservation recommendations.

REINITIATION--CLOSING STATEMENT

This concludes formal consultation on the I-680 Freeway Performance Initiative Phase II Project. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of

Ms. Melanie Brent

40

the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any additional take will not be exempt from the prohibitions of section 9 of the Act, pending reinitiation.

If you have any questions regarding this biological opinion on the proposed I-680 Freeway Performance Initiative Phase II Project, Alameda County, California, contact Jerry Roe or Ryan Olah at the letterhead address or at (916) 414-6600.

Sincerely,

A handwritten signature in blue ink, appearing to read "J. Norris", with a long horizontal flourish extending to the right.

Jennifer M. Norris
Field Supervisor

cc:
Melissa Escaron, California Department of Fish and Wildlife, Napa, California

LITERATURE CITED

- Adger, N., P. Aggarwal, S. Agrawala, J. Alcamo, A. Allali, O. Anisimov, N. Arnell, M. Boko, O. Canziani, T. Carter, G. Cassa, U. Confalonieri, R. Cruz, E. de Alba Alcaraz, W. Eastreling, C. Field, A. Fischlin, B. Fitzharris, C.G. Garcia, C. Hanson, H. Harasawa, K. Hennessy, S. Huq, R. Jones, L. K. Bogataj, D. Karoly, R. Klein, Z. Kundzewicz, M. Lal, R. Lasco, G. Love, X. Lu, G. Magrin, L.J. Mata, R. McLean, B. Menne, G. Midgley, N. Mimura, M.Q. Mirza, J. Moreno, L. Mortsch, I. Niang-Diop, R. Nichols, B. Novaky, L. Nurse, A. Nyon, M. Oppenheimer, J. Palutikof, M. Parry, A. Patwardhan, P. R. Lankao, C. Rosenzweig, S. Schneider, S. Semenov, J. Smith, J. Stone, J. van Ypersele, D. Vaughan, C. Vogel, T. Wilbanks, P. Wong, S. Wu, and G. Yohe. 2007. Working Group II Contribution to the Intergovernmental Panel on Climate Change Fourth Assessment Report. Climate Change 2007: Climate Change Impacts, Adaptation and Vulnerability. Brussels, Belgium.
- Alvarez, J.A. 2006. *Masticophis lateralis euryxanthus*. Herpetological review 37(2): 233.
- Anderson, J. D. 1968. Comparison of the Food Habits of *Ambystoma macrodactylum sigillatum*, *Ambystoma macrodactylum croceum*, and *Ambystoma tigrinum californiense*. Herpetologica 24(4): 273-284.
- Anderson, P. R. 1968. The Reproductive and Developmental History of the California Tiger Salamander. Masters thesis, Department of Biology, Fresno State College, Fresno, California. 82 pages.
- Anonymous. 2007. Global Warming is Changing the World. Science 316:188-190.
- Barry, S. 1992. Letter to Marvin L. Plenert, Regional Director, U.S. Fish and Wildlife Service, Portland, Oregon, regarding proposed listing.
- Barry, S. J. and H. B. Shaffer. 1994. The Status of the California Tiger Salamander (*Ambystoma californiense*) at Lagunita: A 50-year update. Journal of Herpetology 28(2): 159-164.
- Bosch J, I. Martínez-Solano, M. García-París. 2001. Evidence of a Chytrid Fungus Infection Involved in the Decline of the Common Midwife Toad (*Alytes obstetricans*) in Protected Areas of Central Spain. Biological Conservation 97:331-337.
- Buckingham, J. 2003. Biological Resources Studies Conducted for Carnegie State Vehicle Recreation Area in 2003. In litt.
- Bulger, J. B., N. J. Scott Jr., and R. B. Seymour. 2003. Terrestrial Activity and Conservation of Adult California Red-Legged Frogs *Rana aurora draytonii* in Coastal Forests and Grasslands. Biological Conservation 110:85-95.
- Bury, R.B and J.A. Whelan. 1984. Ecology and Management of the Bullfrog. Fish and Wildlife Service/Resource Publication 155.
- California Climate Action Team. 2006. Climate Action Team Report to Governor Schwarzenegger and the Legislature. California Environmental Protection Agency, Sacramento, California.
- California Department of Fish and Wildlife (CDFW). 2014. RAREFIND. California Natural Diversity Data Base, Natural Heritage Division, Sacramento, California.
- California Department of Transportation (Caltrans). 2013. Interstate 680 Freeway Performance Initiative Project, Caltrans District 4, Alameda County, California. September.
- Cayan, D. 2005. Northern Hemisphere Spring Warming During the Past Five Decades: Links to Snow Cover Losses. Presented at 16th Conference on Climate Variability and Change. Scripps Institute of Oceanography, University of California, San Diego. January 13, 2005.

- Coleman, J.S., S.A. Temple, and S.R. Craven. 1997. Cats and Wildlife: a Conservation Dilemma. Cooperative Extension Publication. Madison, Wisconsin.
- Davidson, E. W., M. Parris, J. P. Collins, J. E. Longcore, A. P. Pessier, J. Brunner. 2003. Pathogenicity and transmission of *Chytridiomycosis* in tiger salamanders (*Ambystoma tigrinum*). *Copeia* 2003(3):601–607.
- Emlen, S. T. 1977. “Double Clutching” and its Possible Significance in the Bullfrog. *Copeia* 1977(4):749-751.
- Feaver, P. E. 1971. Breeding Pool Selection and Larval Mortality of Three California Amphibians: *Ambystoma tigrinum californiense* Gray, *Hyla regilla* Baird and Girard and *Scaphiopus hammondi hammondi* Girard. Master’s thesis, Department of Biology, Fresno State College, Fresno California. 58 pages.
- Fellers, G. 2005. *Rana draytonii* Baird and Girard, 1852b California Red-Legged Frog. Pages 552-554 in M. Lannoo (editor). Amphibian Declines: The Conservation Status of United States Species. University of California Press. Berkeley, California.
- Fisher, R. N., and H. B. Schaffer. 1996. The Decline of Amphibians in California’s Great Central Valley. *Conservation Biology* 10(5):1387-1397.
- Fitzpatrick, B. M. and H. B. Shaffer. 2004. Environmental-Dependent Admixture Dynamics in a Tiger Salamander Hybrid Zone. *Evolution* 58(6): 1282-1293.
- Garner, T. W. J., M. W. Perkins, P. Govindarajulu, D. Seglie, S. Walker, A. A. Cunningham, and M. C. Fisher. 2006. The Emerging Amphibian Pathogen *Batrachochytrium dendrobatidis* Globally Infects Introduced Populations of the North American Bullfrog, *Rana catesbeiana*. *Biology Letters* 2:455-459.
- Goodrich, J.M. and S.W. Buskirk. 1995. Control of abundant native vertebrates for conservation of endangered species. *Conservation Biology* 9:1357-1364.
- Hammerson, G.A. 1979. Thermal ecology of the striped racer *Masticophis lateralis*. *Herpetologica* 35:267-273.
- Hayes, M. P., and M. R. Jennings. 1988. Habitat Correlates of Distribution of the California Red-Legged Frog (*Rana aurora draytonii*) and the Foothill Yellow-Legged Frog (*Rana boylei*): Implications for Management. Pages 144-158 in R. Sarzo, K. E. Severson, and D. R. Patton (technical coordinators). Proceedings of the Symposium on the Management of Amphibians, Reptiles, and Small Mammals in North America. United States Department of Agriculture, Forest Service, Rocky Mountain Range and Experiment Station, Fort Collins, Colorado. General Technical Report (RM-166): 1-458.
- Hayes, M. P. and D. M. Krempels. 1986. Vocal Sac Variation among Frogs of the Genus *Rana* from Western North America. *Copeia* 1986(4):927-936.
- Hayes, M. P. and M. M. Miyamoto. 1984. Biochemical, Behavioral and Body Size Differences between *Rana aurora aurora* and *R. a. draytonii*. *Copeia* 1984(4):1018-1022.
- Hayes, M. P., and M. R. Tennant. 1985. Diet and Feeding Behavior of the California Red-Legged Frog, *Rana aurora draytonii* (Ranidae). *Southwestern Naturalist* 30(4): 601-605.
- Hubbs, E.L. 1951. Food habits of feral house cats in the Sacramento Valley. California Department of Fish and Game. 37:177-189.
- Hunt, L. 1993. Letter to Marvin L. Plenert, Regional Director, U.S. Fish and Wildlife Service, Portland, Oregon, regarding proposed listing.
- Inkley, D.B., M.G. Anderson, A.R. Blaustein, V.R. Burkett, B. Felzer, B. Griffith, J. Price and T.L. Root. 2004. Global Climate Change and Wildlife in North America. Technical Review 04-2, The Wildlife Society, Bethesda, Maryland.

- International Panel on Climate Change. 2001. Climate Change 2001: The Scientific Basis. Contribution of Working Group I to the Third Assessment Report of the Intergovernmental Panel on Climate Change [Houghton, J.T., Y. Ding, D.J. Griggs, M. Noguer, P.J. van der Linden, X. Dai, K. Maskell, and C.A. Johnson (editors)]. Cambridge University Press, Cambridge, United Kingdom and New York, New York. 881 pp. Available at <http://www.ipcc.ch/>
- . 2007. Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Alley, R., T. Berntsen, N.L. Bindoff, Z. Chen, A. Chidthaisong, P. Friedlingstein, J. Gregory, G. Hegerl, M. Heimann, B. Hewitson, B. Hoskins, F. Joos, J. Jouzel, V. Kattsov, U. Lohmann, M. Manning, T. Matsuno, M. Molina, N. Nicholls, J. Overpeck, D. Qin, G. Raga, V. Ramaswamy, J. Ren, M. Rusticucci, S. Solomon, R. Somerville, T.F. Stocker, P. Stott, R.F. Stouffer, P. Whetton, R.A. Wood, D. Wratt. 21 pp. Available at <http://www.ipcc.ch/>.
- Jennings, M. R. 1993. Letter to Peter C. Sorensen, U.S. Fish and Wildlife Service, Sacramento, California.
- Jennings, M. R., and M. P. Hayes. 1985. Pre-1900 Overharvest of California Red-Legged Frogs (*Rana aurora draytonii*): The Inducement for Bullfrog (*Rana catesbeiana*) Introduction. *Herpetological Review* 31(1):94-103.
- . 1990. Final Report of the Status of the California Red-Legged Frog (*Rana aurora draytonii*) in the Pescadero Marsh Natural Preserve. Final report prepared for the California Department of Parks and Recreation, Sacramento, California, through Agreement (4-823-9018). Department of Herpetology, California Academy of Sciences, Golden Gate Park, San Francisco, California. 30 pages.
- . 1994. Amphibian and Reptile Species of Special Concern in California. Report prepared for the California Department of Fish and Game, Inland Fisheries Division, Rancho Cordova, California. 255 pages.
- Jennings, M. R., M. P. Hayes, and D. C. Holland. 1992. A Petition to the U.S. Fish and Wildlife Service to Place the California Red-Legged Frog (*Rana aurora draytonii*) and the Western Pond Turtle (*Clemmys marmorata*) on the List of Endangered and Threatened Wildlife and Plants. 21 pages.
- Jimerson, T. and L. Hoover. 1991. Old-growth forest fragmentation: Changes in amount, patch size and edge as a result of logging. Pages 168-174 in: Proceedings of the symposium on biodiversity of northwestern California. October 28-30, 1991, Santa Rosa, California.
- Kanter, J. 2007. Scientists Detail Climate Changes, Poles to Tropics. *New York Times*. April 10, 2007.
- Keeler-Wolf T, Evens JM, Solomeshch AI, Holland VL, Barbour MG. 2007. Community classification and nomenclature. In: Stromberg MR, Corbin JD, D'Antonio CM, editors. California grasslands: ecology and management. Berkeley, Los Angeles, London: University of California Press. p 21-34.
- Keeley, J.E. 1987. Role of fire in seed germination of woody taxa in California chaparral. *Ecology* 68(2):434-443.
- Kruse, K. C. and M. G. Francis. 1977. A Predation Deterrent in Larvae of the Bullfrog, *Rana catesbeiana*. *Transactions of the American Fisheries Society* 106(3):248-252.
- Kupferberg, S. J. 1996a. Hydrologic and Geomorphic Factors Affecting Conservation of a River-Breeding Frog (*Rana boylei*). *Ecological applications* 6: 1322-1344.
- . 1996b. The Ecology of Native Tadpoles (*Rana boylei* and *Hyla regilla*) and the Impacts of Invading Bullfrogs (*Rana catesbeiana*) in a Northern California River. PhD dissertation. University of California, Berkeley, California.

- . 1997. Bullfrog (*Rana catesbeiana*) invasion of a California river: the role of larval competition. *Ecology* 78(6):1736-1751.
- Lenihan, J., R. Drapek, D. Bachelet, and R. Neilson. 2003. Climate Change Effects on Vegetation Distribution, Carbon, and Fire in California. *Ecological Applications* 13(6) 1667-1681.
- Lips, K. R., F. Brem, R. Brenes, J. D. Reeve, R. A. Alford, J. Voyles, C. Carey, L. Livo, A. P. Pessier, and J. P. Collins. 2006. Emerging infectious disease and the loss of biodiversity in a neotropical amphibian community. *Proceedings of the National Academy of Sciences* 103(9):3165-3170.
- Loredo, I., and D. Van Vuren. 1996. Reproductive Ecology of a Population of the California Tiger Salamander. *Copeia* 4:895-901.
- Loredo, I., D. Van Vuren and M. L. Morrison. 1996. Habitat Use and Migration Behavior of the California Tiger Salamander. *Journal of Herpetology* 30(2): 282-285.
- Mao, J., D. E. Green, G. M. Fellers, and V. G. Chincar. 1999. Molecular Characterization of Iridoviruses Isolated from Sympatric Amphibians and Fish. *Virus Research* 6: 45-52. California Department of Fish and Game, Sacramento, California.
- Mayer, K. E., and W. F. Laudenslayer. 1988. *A Guide to Wildlife Habitats of California*. California Department of Forestry and Fire Protection. Sacramento, California. 166 pages.
- McGinnis, S.M. 1992. Habitat requirements, distribution, and current status of the Alameda whipsnake (*Masticophis lateralis euryxanthus*). California State University, Hayward, California. 27 pages.
- Morey, S. R. 1998. Pool Duration Influences Age and Body Mass at Metamorphosis in the Western Spadefoot Toad: Implications for Vernal Pool Conservation. Pages 86-91 *in* Witham, C.W., E.T. Bauder, D. Belk, W.R. Ferren Jr., and R. Ornduff (editor). *Ecology, Conservation, and Management of Vernal Pool Ecosystems - Proceedings from a 1996 Conference*. California Native Plant Society. Sacramento, California. 1998.
- Moyle, P. B. 1976. Fish Introductions in California: History and Impact on Native Fishes. *Biological Conservation* 9(1):101-118.
- Parker, V.T. 1987. Can native flora survive prescribed burns? *Fremontia* 14(4):3-6.
- Pechmann, J. H. K., D. E. Scott, J. W. Gibbons, and R. D. Semlitsch. 1989. Influence of Wetland Hydroperiod on Diversity and Abundance of Metamorphosing Juvenile Amphibians. *Wetlands Ecology and Management* 1(1):3-11.
- Petranka, J. W. 1998. *Salamanders of the United States and Canada*. Smithsonian Institution Press, Washington, D.C.
- Riley, S. P. D., H. B. Shaffer, S. R. Voss, and B. M. Fitzpatrick. 2003. Hybridization Between a Rare, Native Tiger Salamander (*Ambystoma californiense*) and its Introduced Congener. *Biological Applications* 13(5): 1263-1275.
- Roberto, P. 1995. The cat rescue movement vs. wildlife defenders. *California Coast and Ocean* 11(2):31-40.
- Rundel, P. W., G. A. Baker, D. J. Parsons, and T. J. Stohlgren. 1987. Postfire demography of resprouting and seedling establishment by *Adenostoma fasciculatum* in the California chaparral. In J. D. Tenhunen, F. M. Catarino, P. L. Lange, and W. C. Oechel, W.C. [eds.], *Plant response to stress*, 575-596. Springer-Verlag, Berlin.
- Saunders, D.A., R.J. Hobbs, and C.R. Margules. 1991. Biological consequences of ecosystem fragmentation: a review. *Conservation Biology* 5:18-32.
- Saunders, S., C. Montgomery, and T. Easley. 2008. *Hotter and Drier The West's Changing Climate*. Rocky Mountain Climate Organization, Denver, Colorado.

- Scott, D. E. 1994. The Effect of Larval Density on Adult Demographic Traits in *Ambystoma opacum*. *Ecology* 75:1383-1396.
- Semlitsch, R. D., D. E. Scott, and J. H. K. Pechmann. 1988. Time and Size at Metamorphosis Related to Adult Fitness in *Ambystoma talpoideum*. *Ecology* 69: 184-192.
- Semonsen, V. J. 1998. *Ambystoma californiense* (California tiger salamander) Survey Technique. *Herpetological Review* 29:96.
- Shaffer, H. B. and P. C. Trenham. 2004. *Ambystoma californiense* Gray, 1853. California tiger salamander. Pages 605 in Lannoo, M.(editor). *Amphibian declines: The Conservation Status of United States Species*. University of California Press, Berkeley, California. 2005.
- Shaffer, H.B., G.B. Pauly, J.C. Oliver, and P.C. Trenham. 2004. The Molecular Phylogenetics of Endangerment: Cryptic Variation and Historic Phylogeography of the California Tiger Salamander, *Ambystoma californiense*. *Molecular Ecology* 13: 3033-3049.
- Shaffer, H.B., G.M. Fellers, S.R. Voss, C. Oliver, and G.B. Pauley. 2010. Species boundaries, phylogeography, and conservation genetics of the red-legged frog (*Rana aurora/draytonii*) complex. *Molecular ecology* 13: 2667-2677.
- Shaffer, H.B., R.N. Fisher, and S.E. Stanley. 1993. Status Report: the California Tiger Salamander (*Ambystoma californiense*). Final report for the California Department of Fish and Game. 36 pages plus figures and tables.
- Stebbins, R. C. 2003. *A Field Guide to Western Reptiles and Amphibians*. Houghton Mifflin Company, Boston, Massachusetts.
- Storer, T. I. 1925. A Synopsis of the Amphibia of California. University of California Publications in Zoology 27:1-1-342.
- . 1933. Frogs and their Commercial Use. California Department of Fish and Game 19(3)203-213.
- Swaim, K.E. 1994. Aspects of the ecology of the Alameda whipsnake, *Masticophis lateralis euryxanthus*. Masters Thesis, California State University, Hayward, California. 140 pages.
- Sweet, S. 1998. Letter to Dwight Harvey, U.S. Fish and Wildlife Service with a report titled "Vineyard Development Posing an Imminent Threat to *Ambystoma californiense* in Santa Barbara County, California." University of California, Santa Barbara, California.
- Tatarian, P. J. 2008. Movement Patterns of California Red-Legged Frogs (*Rana draytonii*) in an Inland California Environment. *Herpetological Conservation and Biology* 3(2):155-169. November.
- Trenham, P. 1998a. Radio Tracking Information. University of California, Davis, California.
- . 1998b. Demography, Migration, and Metapopulation Structure of Pond Breeding Salamanders. Ph.D. dissertation. University of California, Davis, California.
- . 2001. Terrestrial Habitat Use by Adult California Tiger Salamanders. *Journal of Herpetology* 35(2):343-346.
- Trenham, P. C., and H. B. Shaffer. 2005. Amphibian Upland Habitat Use and its Consequences for Population Viability. *Ecological Applications* 15:1158–1168.
- Trenham, P. C., H. B. Shaffer, W. D. Koenig and M. R. Stromberg. 2000. Life History and Demographic Variation in the California Tiger Salamander (*Ambystoma californiense*). *Copeia* 2000(2): 365-377.
- Trenham, P. C., W. D. Koenig, and H. B. Shaffer. 2001. Spatially Autocorrelated Demography and Interpond Dispersal in the Salamander *Ambystoma californiense*. *Ecology* 82: 3519-3530.

- Twedt, B. 1993. A Comparative Ecology of *Rana aurora* Baird and Girard and *Rana catesbeiana* Shaw at Freshwater Lagoon, Humboldt County, California. Unpublished. Master of Science thesis. Humboldt State University, Arcata, California. 53 pages plus appendix.
- Twitty, V. C. 1941. Data on the Life History of *Ambystoma tigrinum californiense* Gray. *Copeia* 1941 (1):1-4.
- U. S. Fish and Wildlife Service (Service). 1996. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the California Red-Legged Frog. *Federal Register* 61:25813-25833.
- _____. 1997. Endangered and threatened wildlife and plants; determination of endangered status for the callippe silverspot butterfly and the Behren's silverspot butterfly and threatened status for the Alameda whipsnake. *Federal Register* 62(234):64306-64320.
- _____. 1998a. Final Recovery Plan for Upland Species of the San Joaquin Valley, California. Portland, Oregon.
- _____. 2000. Endangered and threatened wildlife and plants; final determination of critical habitat for the Alameda whipsnake (*Masticophis lateralis euryxanthus*). *Federal Register* 65: 58933-58962.
- _____. 2002a. Draft Recovery Plan for Chaparral and Scrub Community Species East of San Francisco Bay, California. Region 1, Portland, Oregon. xvi + 306 pages.
- _____. 2002b. Recovery Plan for the Red-Legged Frog (*Rana aurora draytonii*). Portland, Oregon. 173 pages.
- _____. 2003. Interim Guidance on Site Assessment and Field Surveys for Determining Presence or a Negative Finding of the California Tiger Salamander. Sacramento Field Office, Sacramento, California.
- _____. 2004. Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the California Tiger Salamander; and Special Rule Exemption for Existing Routine Ranching Activities; Final Rule. **Federal Register** 69: 47212-47248.
- _____. 2005. Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog. Sacramento Field Office, Sacramento, California.
- _____. 2006a. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Alameda Whipsnake, final rule. *Federal Register* 71:58176-58231.
- _____. 2006b. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the California Red-legged Frog (*Rana aurora draytonii*), and Special Rule Exemption Associated with Final Listing for Existing Routine Ranching Activities; Final Rule. **Federal Register** 71(71):19244-19346. April 13.
- _____. 2010. Endangered and Threatened Wildlife and Plants; Revised Designation of Critical Habitat for the California Red-Legged Frog. *Federal Register* 75:12816-12959.
- Van Hatten, M. G. 2004. Underground Ecology and Natural History of the California Tiger Salamander. Master of Science thesis. San Jose State University, San Jose, California.
- Weldon, C., L.H. du Preez, R. Muller, A.D. Hyatt, and R. Speare. 2004. Origin of the Amphibian Chytrid Fungus. *Emerging Infectious Diseases* 10:2100-2105.
- Wilbur, H. M. and J. P. Collins. 1973. Ecological Aspects of Amphibian Metamorphosis. *Science* (n.s.) 182(4119): 1305-1314.
- Wright, A. H. and A. A. Wright. 1949. Handbook of Frogs and Toads of the United States and Canada. Comstock Publishing Company, Inc., Ithaca, New York. 640 pages.

APPENDIX A
Sacramento Fish and Wildlife Office
Review Criteria for Section 7 Compensation
Revised January 30, 2014

Property Assurances and Conservation Easement

- Title Report [preliminary at proposal, and Final Title Insurance at recordation]; no older than six months;
- Property Assessment and Warranty;
- Subordination Agreement [include if any outstanding debts or liens on the property; may be needed for existing easements];
- Legal Description and Parcel Map;
- Conservation Easement [use the current SFWO standardized CE template]; or
- Non-Template Conservation Easement [this requires additional review]

Site Assessment and Development

- Phase I Environmental Site Assessment;
- Habitat Development Plan [include if habitat will be constructed, restored, or enhanced];
- Construction Security Analysis [applicable if habitat is being constructed/enhanced/restored];
- Performance Security Analysis [applicable if there are performance standards];

Site Management

- Interim Management Plan;
- Interim Management Security Analysis and Schedule;
- Long-Term Management Plan;
- Endowment Fund Analysis and Schedule;
- Endowment Funding Agreement or Trust Agreement or Declaration of Trust [DFW calls this a "mitigation agreement"]

Guidelines

Real Estate Assurances and Conservation Easement (CE)

Title Report

1. Who holds fee title to property?
2. Exceptions to title. Are there any liens or encumbrances (existing debts, leases, or easements) on the property? Note that any existing exceptions to title will have priority over a conservation easement for the mitigation project.
 - a. Review Preliminary Title Report to evaluate liens and encumbrances (see Property Assessment and Warranty, below).
 - b. Could any of these exceptions to title potentially interfere with either biological habitat values or ownership? If existing easements can potentially interfere with the conservation values/habitat of the property, those portions of the land should be deducted from the total compensation acreage available on the site.
 - c. Split estates. Have the water or mineral rights been severed from title? If so, property owner should be encouraged to re-acquire those rights, or at least to acquire the surface-entry rights to remove or limit access for mineral exploration/development.

Property Assessment and Warranty

1. Property owner should submit a Property Assessment and Warranty, which discusses every exception to title listed on the Preliminary Title Report and Final Title Insurance Policy, evaluating any potential impacts to the conservation values that could result from the exceptions to title (see below).
2. The Property Assessment and Warranty should include a summary and full explanation of all exceptions remaining on the title, with a statement that the owner/Grantor accepts responsibility for all lands being placed under the CE as available for the primary purposes of the easement, as stated in the easement, and assures that these lands have a free and clear title and are available to be placed under the CE.

Subordination Agreement

1. A Subordination Agreement is necessary if there is any outstanding debt on the property; it could also be used to subordinate liens or easements. Review Subordination Agreement language for adequacy—the lending bank or other lien or rights holder must agree to fully subordinate each lien, encumbrance, or easement under the CE.

Legal Description and Parcel Map

1. Ensure accuracy of map, and location and acreage protected under the CE.
2. Both the map and the legal description should explain the boundaries of the individual project compensation site. The site should *not* have 'leftover' areas for later use.
3. Ask for an easement map to be prepared (if applicable), showing all easements on the property.

Conservation Easement from Template

1. Who will hold the easement?
 - a. Conservation easements require third-party oversight by a qualified non-profit or government agency (=easement holder or Grantee). Minimum qualifications for an easement holder include:
 - i. Maintaining accreditation by the Land Trust Accreditation Commission <http://www.landtrustaccreditation.org/home>.
 - ii. Organized under IRS 501(c)(3);
 - iii. Qualified under CA Civil Code § 815;
 - iv. Bylaws, Articles of Incorporation, and biographies of Boards of Directors on file at;
 1. Must meet requirements of SFWO, including 51% disinterested parties on the Board of Directors;
 - v. Approved by SFWO
 2. Project Applicant should submit a redline version showing all of their proposed revisions in track changes or other editable electronic format, along with an explanation of all deviations from the template.

Non-Template Conservation Easement

1. If not using the CE template, the Project Applicant should specify objections they have to the template. This may substantially delay processing as the non-template CE will require review by the Solicitor's Office. Alternate CEs are subject to SFWO approval prior to being granted and recorded.
2. The Project Applicant must either 1) add SFWO as a third-party beneficiary, or 2) add language throughout the document, in all appropriate places, that will assure SFWO the right to enforce, inspect, and approve any and all uses and/or changes under the CE prior to occurrence (including land use, biological management or ownership).
3. Include, at a minimum, language to:
 - a. Reserve all mineral, air, and water rights under the CE as necessary to maintain and operate the site in perpetuity;
 - b. Ensure all future development rights are forfeited;
 - c. Ensure all prohibited uses contained in the CE template are addressed; and
 - d. Link the CE, Management Plan, and the Endowment Fund within the document (e.g., note that each exists to support the others, and where each of the documents can be located if a copy is required).
4. Insert necessary language, particularly, but not exclusively, per: (can compare to CE template):
 - a. Rights of Grantee
 - b. Grantee's Duties
 - c. Reserved Rights
 - d. Enforcement
 - e. Remedies
 - f. Access
 - g. Costs and Liabilities
 - h. Assignment and Transfer
 - i. Merger
 - j. Notices
5. Include a signature block for USFWS to sign "approved as to form".

Site Assessment and Development

Phase I Environmental Site Assessment

1. The Phase I ESA must show that the compensation site is not subject to any recognized environmental conditions as defined by the American Society for Testing and Materials (ASTM) Standard E1527-05 "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process, available at <http://www.astm.org/Standards/E1527.htm>, (i.e., the presence or likely presence of any Hazardous Substances or petroleum products).
2. If the Phase I ESA identifies any recognized environmental conditions, the Project Applicant must represent and warrant to the SFWO that all appropriate assessment, clean-up, remediation, or removal action has been completed.
3. If the Phase I ESA identifies any recognized environmental conditions, a Phase II ESA may be needed for sampling and laboratory analysis.

Restoration or Habitat Development Plan [not required if the site is preservation only]

1. The overall plan governing construction and habitat establishment activities required to be conducted on the Property, including, without limitation, creation, restoration, and enhancement of habitat.
 - a. This plan should include the baseline conditions of the Property including biological resources, geographic location and features, topography, hydrology, vegetation, past, present, and adjacent land uses, species and habitats occurring on the property, a description of the activities and methodologies for creating, restoring, or enhancing habitat types, a map of the approved modifications, overall habitat establishment goals, objectives and Performance Standards, monitoring methodologies required to evaluate and meet the Performance Standards, an approved schedule for reporting monitoring results, a discussion of possible remedial actions, and any other information deemed necessary by the SFWO.
2. Any permits and other authorizations needed to construct and maintain the site shall be included and in place prior to the start of construction of the habitat.
3. Full construction plans for any habitat construction are subject to SFWO approval and must be *SFWO-approved prior* to the start of construction of the habitat.

Construction Security

1. Construction Security in the amount of 100% of a reasonable third party estimate or contract to create, restore, or enhance habitats on the property in accordance with the Restoration or Habitat Development Plan.
2. Construction Security can be drawn on should the project proponent default.
3. The Construction Security should be in the form of an irrevocable standby letter of credit or a cashier's check.
 - a. LOC: issued for a period of at least one year, and provide that the expiration date will be automatically extended for at least one year on each successive expiration date unless, until extension is no longer necessary.
 - b. Beneficiary: a third party subject to approval by the SFWO.
 - c. Language in a draft letter of credit subject to approval by the SFWO.

Performance Security [only necessary if habitat if performance standards have been identified]

1. Performance Security in the amount of 20% of the Construction Security.
2. Performance Security can be drawn on should the Performance Standards not be met, if remedial action becomes necessary.
3. The Performance Security in the form of an irrevocable standby letter of credit or a cashier's check.
 - a. LOC: issued for a period of at least one year, and provide that the expiration date will be automatically extended for at least one year on each successive expiration date unless, until extension is no longer necessary.
 - b. Beneficiary: a third party who is subject to approval by the SFWO.
 - c. Language in a draft letter of credit is subject to SFWO approval.

Site ManagementInterim Management Plan

1. The Interim Management Plan should identify the short-term management, monitoring, and reporting activities to be conducted from the time construction ends until the Endowment Fund has been fully funded for three years and all the Performance Standards in the Development Plan have been met. This may be the same as the Long-term Management Plan.

Interim Management Security Analysis and Schedule

The purpose of the Interim Management Security is to allow the endowment to grow for at least three years without any disbursements, and is a safeguard to ensure that there will be enough funds in the endowment to pay for future management costs. The period can be longer than three years; a 5 year period is recommended by many land trusts.

1. Interim Management Security (in the form of a standby letter of credit) in the amount equal to the estimated cost to implement the Interim Management Plan during the first three years of the Interim Management Period, as set for in the Interim Management Security Analysis and Schedule.
2. The Interim Management Security Analysis and Schedule should be in the form of a table and/or spreadsheet that shows all of the tasks (management, monitoring, reporting), task descriptions, labor (hours), cost per unit, cost frequency, timing or scheduling of the tasks, the total annual funding necessary for each task, and any associated assumptions for each task required by the Interim Management Plan. The total annual expenses should include administration and contingency costs.
3. The Interim Management Security:
 - a. Held by a qualified, non-profit organization or government agency, subject to SFWO approval [see requirements under CE above], and
 - b. Held according to minimum standards for assuring maximum success in earning potential, and will include assurances to safeguard against loss of principle.
 - c. Instructions for disbursements or releases from the fund must be outlined in the Endowment Management Agreement/Trust Agreement/Declaration of Trust.

Long-Term Management Plan (LTMP)

1. The LTMP template identifies the long-term management, monitoring and reporting activities to be conducted.
2. The LTMP should include at minimum:
 - a. Purpose of the Project and purpose of the LTMP;
 - b. A baseline description of the setting, location, history, and types of land use activities, geology, soils, climate, hydrology, habitats present (once project meets Performance Standards), and species descriptions;
 - c. Overall management, maintenance and monitoring goals; specific tasks and timing of implementation; and discussion of any constraints, which may affect goals;
 - d. The Endowment Fund Analysis and Schedule (see below);
 - e. Discussion of Adaptive Management actions for reasonably foreseeable events and possible thresholds for evaluating and implementing Adaptive Management;
 - f. Rights of access to the Property and prohibited uses of the Property as provided in the CE; and
 - g. Procedures for Property transfer, land manager replacement, amendments, and notices.
3. The LTMP must be incorporated by reference in the CE.
4. The LTMP is considered a living document and may be revised as necessary upon agreement of the land manager, easement holder, and SFWO.

Endowment Fund Analysis and Schedule

1. Can use a PAR or PAR-like analysis and must be based upon the final LTMP, subject to SFWO approval.
 - The analysis should be developed with input by the land manager and conservation easement holder.
2. The analysis and schedule should be in the form of a table and/or spreadsheet that shows, at a minimum:
 - all of the tasks (management, monitoring, reporting)
 - task descriptions, with tasks numbers cross-referenced in management plan(s)
 - labor (hours)
 - materials
 - cost per unit (hr., linear feet, each, etc.).
 - cost frequency
 - timing or scheduling of the tasks,
 - the total annual funding necessary for each task, and
 - the assumptions required for each task by the Management Plan.
3. The total annual expenses should include administration and contingency costs (contingency can be included on each line item – identify the percentage). Unless there is a separate endowment for the purpose of monitoring and reporting on the CE conditions, then, the analysis should also include costs of
 - Monitoring and reporting CE conditions;
 - Defending the CE; and
 - Liability insurance.

4. The Endowment Fund:
 - Held by a qualified, SFWO-approved, non-profit organization or government agency [see requirements under CE above],
 - Held according to minimum standards for assuring maximum success in earning potential, and should include assurances for no loss of principle.
 - Disbursements or releases from the fund must be for documented expenditures, as they occur.

Endowment Funding Agreement

1. This is the agreement between the endowment holder and the Project Applicant, as to how the endowment is to be funded, held and disbursed;
2. USFWS is not signatory to this agreement, but there should be a signature block on the agreement for SFWO to sign “approved as to form”;
3. USFWS has approval authority over the language in the document, and it must state that modifications or transfer of the endowment to another holder are subject to USFWS approval;
4. This agreement can also be called: “Trust Agreement”, “Declaration of Trust”
5. When the CA Dept. of Fish and Wildlife is involved, this is called “Mitigation Agreement”

CATEGORICAL EXEMPTION/CATEGORICAL EXCLUSION DETERMINATION FORM

04-ALA-680	0.0 / 21.9	04-4G111	04-0000-0425
Dist.-Co.-Rte. (or Local Agency)	P.M./P.M.	E.A.	Project No.

PROJECT DESCRIPTION: (Briefly describe project including need, purpose, location, limits, right-of-way requirements, and activities involved in this box. Use Continuation Sheet, if necessary.)

This project proposes the installation of a ramp metering system for sixteen on-ramps/connectors along Interstate 680 in Alameda County from Scott Creek Road Undercrossing in the City of Fremont to Alcosta Boulevard Overcrossing in the City Dublin. These on-ramps/connectors will be widened to provide for High Occupancy Vehicle (HOV) preferential lanes and/or additional mixed-flow lanes. There will be six retaining walls used for the widening. The project also proposes the installation of traffic monitoring stations for four connectors in the corridor. All work will occur within Caltrans' right of way. Environmental Analysis must be notified of any project changes. See attached Environmental Commitments Record (ECR) for conditions.

CEQA COMPLIANCE (for State Projects only)

Based on an examination of this proposal and supporting information, the following statements are true and exceptions do not apply (See 14 CCR 15300 et seq.):

- If this project falls within exempt class 3, 4, 5, 6 or 11, it does not impact an environmental resource of hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law.
- There will not be a significant cumulative effect by this project and successive projects of the same type in the same place, over time.
- There is not a reasonable possibility that the project will have a significant effect on the environment due to unusual circumstances.
- This project does not damage a scenic resource within an officially designated state scenic highway.
- This project is not located on a site included on any list compiled pursuant to Govt. Code § 65962.5 ("Cortese List").
- This project does not cause a substantial adverse change in the significance of a historical resource.

CALTRANS CEQA DETERMINATION (Check one)

Not Applicable – Caltrans is not the CEQA Lead Agency Not Applicable – Caltrans has prepared an Initial Study or Environmental Impact Report under CEQA

Exempt by Statute. (PRC 21080[b]; 14 CCR 15260 et seq.)
Based on an examination of this proposal, supporting information, and the above statements, the project is:

Categorically Exempt Class (PRC 21084; 14 CCR 15300 et seq.)

Categorically Exempt. General Rule exemption. [This project does not fall within an exempt class, but it can be seen with certainty that there is no possibility that the activity may have a significant effect on the environment (CCR 15061[b][3].)]

N/A	N/A
Print Name: Senior Environmental Planner or Environmental Branch Chief	Print Name: Project Manager
_____ Signature	_____ Signature
_____ Date	_____ Date

NEPA COMPLIANCE

In accordance with 23 CFR 771.117, and based on an examination of this proposal and supporting information, the State has determined that this project:

- does not individually or cumulatively have a significant impact on the environment as defined by NEPA, and is excluded from the requirements to prepare an Environmental Assessment (EA) or Environmental Impact Statement (EIS), and
- has considered unusual circumstances pursuant to 23 CFR 771.117(b).

CALTRANS NEPA DETERMINATION (Check one)

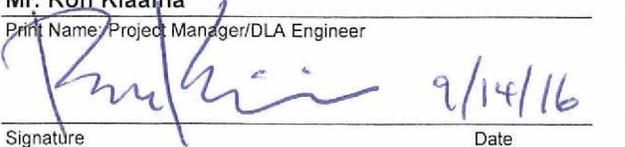
23 USC 326: The State has determined that this project has no significant impacts on the environment as defined by NEPA, and that there are no unusual circumstances as described in 23 CFR 771.117(b). As such, the project is categorically excluded from the requirements to prepare an EA or EIS under the National Environmental Policy Act. The State has been assigned, and hereby certifies that it has carried out the responsibility to make this determination pursuant to Chapter 3 of Title 23, United States Code, Section 326 and a Memorandum of Understanding dated May 31, 2016, executed between the FHWA and the State. The State has determined that the project is a Categorical Exclusion under:

23 CFR 771.117(c): activity (c)(21)

23 CFR 771.117(d): activity (d)()

Activity ___ listed in Appendix A of the MOU between FHWA and the State

23 USC 327: Based on an examination of this proposal and supporting information, the State has determined that the project is a Categorical Exclusion under 23 USC 327.

Mr. Jamie Le Dent	Mr. Ron Kiaaina
Print Name: Senior Environmental Planner or Environmental Branch Chief	Print Name: Project Manager/DLA Engineer
 Signature	 Signature
_____ Date	_____ Date

Date of Categorical Exclusion Checklist completion: _____ **Date of ECR or equivalent:** 9/9/2016

Environmental Commitments Record for EA 04-4G111_ / ID 0412000630

Last updated 9/9/2016

WIDEN RAMPS AND CONSTRUCT RAMP

EP: Noray Spradling

510-286-5961

ALA-680-0/21.9

CL:

Current Project Phase:

RE:

Permits

Permit	Agency	Date Submitted	Date Received	Expiration	Requirements Completed Name	Requirements Completed Date	Comments
BO (FWS)	US Fish and Wildlife	9/13/13	9/25/14				

Commitments

Task and Brief Description	Source	SSP/ N SSP	Responsible Staff	Action to Comply	Task Completed Name	Task Completed Date	Remarks/Due Date
----------------------------	--------	------------	-------------------	------------------	---------------------	---------------------	------------------

PS&E/Before RTL

Biology

A re-vegetation plan will be included in the contract bid package to restore all disturbed areas with native species appropriate for the region and habitat communities on site.	BO	SSP	Caltrans Erosion Control & Caltrans Biology				
Required Environmental Awareness Training for construction personnel will be included in Section 14 of the contract bid package.	BO	SSP	Project Engineer & Caltrans Biologist				
Specifications for the location, fencing materials, installation specifications, and monitoring and repair criteria for Wildlife Exclusion Fencing (WEF) shall be included in the final bid package.	BO	SSP	Project Engineer & Caltrans Biology				
The final project plans will depict all locations where Environmentally Sensitive Area (ESA) fencing will be installed and will provide standard specifications for the installation, maintenance, and materials to be used.	BO	SSP	Project Engineer & Caltrans Biologist				

Noise

Construction equipment should be required to conform to the provisions in Section 14-8.02 Noise Control, of the latest Caltrans Standard Specifications. These requirements are meant to minimize the impact from short duration construction noise.	Env Doc	SSP	Design/Env. Engineering				
--	---------	-----	----------------------------	--	--	--	--

Environmental Commitments Record for EA 04-4G111_ / ID 0412000630

Last updated 9/9/2016

WIDEN RAMPS AND CONSTRUCT RAMP

ALA-680-0/21.9

Current Project Phase:

EP: Noray Spradling

510-286-5961

CL:

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date
Paleontology						
A project-specific Paleontological Mitigation Plan will be prepared by qualified principal paleontologist once adequate project design information regarding subsurface disturbance location, depth and lateral extent is available.	Env Doc		Design/Geotec h			
Visual Resources						
Aesthetic Wall Treatments – Aesthetic treatments consisting of color, pattern and/or texture would be utilized to reduce visual impacts, glare and the likelihood of graffiti. Treatments would be context-sensitive to the wall's location and help blend it into the environment. If concrete drainage ditches are required behind the top of retaining walls, they will be stained to match the overall wall color.	Env Doc		Design/Landsc ape Architecture			
Cable safety railing - Where required, railing can be treated with black or brown color application to reduce their appearance and help them blend visually into the environment.	Env Doc		Design/Landsc ape Architecture			
Concrete safety-shaped barriers – Sand blasting to a medium finish would reduce glare and deter graffiti. Barriers at the bottom of retaining walls can be stained to match the overall wall color if deemed appropriate by the Office of Landscape Architecture during the design phase.	Env Doc		Design/Landsc ape Architecture			
Replacement Planting – Where proper setback exists, and where feasible, replacement planting could be implemented to help reduce views of the retaining walls facing neighbors. Other trees removed as part of the project would be replaced as per Caltrans' policy regarding tree removal. Over time, the initial tree loss will be compensated by the replacements, and the overall drop in visual quality will increase to current or above levels with planting. It is estimated that approximately one linear mile of existing planting will be removed and require replacement. If the estimated cost of replacement can be kept at or below \$200K, then planting can be included as part of the roadway contract, with a one-year plant establishment period. If the estimate goes over \$200K, then planting will need to be completed as a separate contract, funded from the parent roadway contract, and include a 3-year plant establishment period.	Env Doc		Design/Landsc ape Architecture			

Environmental Commitments Record for EA 04-4G111_ / ID 0412000630

Last updated 9/9/2016

WIDEN RAMPS AND CONSTRUCT RAMP

ALA-680-0/21.9

Current Project Phase:

EP: Noray Spradling

510-286-5961

CL:

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name	Date	Remarks/Due Date
Water Quality							
<p>Best Management Practices (BMPs) will be incorporated to reduce/prevent the potential discharge of pollutants, during, and post-, construction, to the Maximum Extent Practicable (MEP).</p> <p>In general, BMPs fall into three main categories:</p> <p>1. Design Pollution Prevention BMPs: These BMPs are permanent measures to improve storm water quality by reducing erosion, stabilizing disturbed soil areas, and maximizing vegetated surfaces. Design Pollution Prevention BMPs are anticipated to be incorporated as part of this project.</p> <p>2. Temporary Construction Site BMPs: These BMPs are implemented throughout the duration of construction activities, in order to reduce pollutant loads in potential stormwater/non-stormwater discharges. Construction Site BMP strategies, applicable to this project, may include the following:</p> <ul style="list-style-type: none"> • Sediment Control: run-on or run-off control, and storm drain inlet protection; • Tracking Controls: stabilized construction entrance and exit, stabilized construction roadway, and street sweeping; • Wind Erosion Controls; hydraulic mulch, hydroseeding, and temporary covers; • Non-Stormwater Management: vehicle and equipment operations (fueling, cleaning and maintenance), concrete operations, and material and equipment use; • Waste Management and Materials Pollution Control: material delivery and storage, material use, stockpile management, spill prevention and control, solid and concrete waste management, hazardous waste and contaminated soil management, and liquid waste management. <p>3. Permanent Treatment BMPs: These BMPs are permanent water quality controls used to remove pollutants from stormwater runoff prior to being discharged from Department R/W. This project will require treatment BMPs. Bio strips and bio infiltration swales will be used.</p>	Env Doc	SSP	Design/Water Quality				
Pre-Construction							

Environmental Commitments Record for EA 04-4G111_ / ID 0412000630

Last updated 9/9/2016

WIDEN RAMPS AND CONSTRUCT RAMP

ALA-680-0/21.9

Current Project Phase:

EP: Noray Spradling

510-286-5961

CL:

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name	Date	Remarks/Due Date
Biology							
A qualified biologist will conduct an Environmental Awareness Training for construction personnel. Upon completion of the program, personnel will sign a form stating that they attended the program and understand all of the avoidance and minimization measures and implication of the Endangered Species Act. The RE will retain a copy of this signature sheet on-site at all times.	BO	SSP	Resident Engineer & Qualified Biologist				
ESA fencing will be installed according to Caltrans Standard Specifications in the locations designated on the project plan sheets. Construction personnel, activities, equipment staging, and storage will not be allowed within the areas designated as ESA.	BO	SSP	Resident Engineer				
Pre-Construction Surveys: Nesting Bird - Between February 1st and August 31st, any areas that will be cleared of vegetation will first be surveyed by a qualified biologist. The survey area will be the area to be disturbed including a perimeter buffer of 100 ft for passerines and 500 ft for raptors.	BO	SSP	Qualified Biologist				
The re-vegetation plan, with success criteria, will be submitted to the U.S. Fish & Wildlife Service for review and approval.	BO	n/a	Caltrans Biology				
WEF will be placed around all construction areas where Alameda whipsnake, California red-legged frogs, or Central California tiger salamanders could enter the construction area. The RE and biologist will determine where the fencing shall be placed, in cooperation with the U.S. Fish & Wildlife Service, prior to the start of staging or surface disturbing activities.	BO	SSP	Resident Engineer & Service Approved Biologist				
Cultural Resources							
Archaeological Data Recovery: Prior to construction, at the southbound Bernal Avenue on-ramp location, archaeological data recovery will be conducted within project impact areas to resolve adverse effects the project will have on an archaeological site eligible to the National Register of Historic Places.	Section 106 MOA	n/a	Emily Darko, Project Archaeologist				
ESA: An ESA exists at the southbound Bernal Avenue on-ramp location (PM 16.65-16.75).	Section 106 MOA	SSP	Emily Darko, Project				

Environmental Commitments Record for EA 04-4G111_ / ID 0412000630

Last updated 9/9/2016

WIDEN RAMPS AND CONSTRUCT RAMP

ALA-680-0/21.9

Current Project Phase:

EP: Noray Spradling

510-286-5961

CL:

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date
Archaeologist						
<p>Before start of work, Temporary Fence (Type ESA) will be installed along western edge of Caltrans right-of-way along the southbound Bernal Avenue diagonal on-ramp and along the southern edge of pavement of Bernal Avenue, and the ESA will extend to West Lagoon Road and travel south on West Lagoon Road 800 feet south of the intersection of West Lagoon Road and Bernal Avenue. This is between I-680 postmiles 16.65 to 16.75.</p> <p>The Resident Engineer will be responsible for notifying District 4 Office of Cultural Resource Studies and the Project Archaeologist (510-622-1673) two weeks prior to construction. The ESA parameters will be delineated in the field by the Project Archaeologist prior to the start of work.</p> <p>No project related activities may occur within the ESA.</p>						
<p>ESA: An ESA exists at the northbound Mission Boulevard/SR-262 location (PM 2.26-2.40).</p> <p>Before start of work, Temporary Fence (Type ESA) will be installed along southeast edge of pavement of Mission Boulevard from the I-680 overcrossing to Curtner Road, and the fencing will extend to include the entire southeast quadrant of the intersection from postmiles 2.3 to 2.4, within Caltrans right-of-way</p> <p>The Resident Engineer will be responsible for notifying District 4 Office of Cultural Resource Studies and the Project Archaeologist (510-622-1673) two weeks prior to construction. The ESA parameters will be delineated in the field by the Project Archaeologist prior to the start of work.</p> <p>No project related activities may occur within the ESA.</p>	Section 106	SSP MOA	Emily Darko, Project Archaeologist			
Paleontology						
<p>The qualified principal paleontologist will be present at pre-construction meetings to train contractors on paleontological identification during ground-disturbance activities.</p>	Env Doc	SSP	Resident Engineer/Paleo ntologist			
Construction						

Environmental Commitments Record for EA 04-4G111_ / ID 0412000630

Last updated 9/9/2016

WIDEN RAMPS AND CONSTRUCT RAMP

ALA-680-0/21.9

Current Project Phase:

EP: Noray Spradling

510-286-5961

CL:

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date
Air Quality						
Caltrans will insure that control measures will be implemented by the contractor as specified in the Environmental Stewardship section of Caltrans Standard Specifications - Section 14-9.01 Air Pollution Control and Section 14.9.02 Dust Control.	Air Quality Study Report	SSP	Resident Engineer			
Biology						
All excavated, steep-walled holes will either be completely covered or installed with an escape ramp at the end of each work day. The biologist shall inspect all holes and trenches at the beginning of each workday and before such holes are filled. Similarly, all pipes, culverts, or similar structures will be inspected by the biologist before being capped, moved, or buried.	BO	SSP	Resident Engineer & Service Approved Biologist			
Caltrans will comply with Executive Order 13112 to reduce the spread of Invasive Species.	BO	n/a	Resident Engineer & Service Approved Biologist			
Seasonal Avoidance: Nesting Bird - between April 15th and October 15th, all ground-disturbing activities will be conducted. However, construction of retaining walls and associated ramp widening activities may continue after Oct. 15th.	BO	SSP	Resident Engineer			
The biologist will be present during all vegetation clearing and grubbing activities. Prior to vegetation removal, the biologist will survey the area for California red-legged frog and Central Coast California tiger salamanders.	BO	SSP	Service Approved Biologist			
The ESA fencing will remain in place for the duration of the project and be regularly inspected and maintained.	BO	SSP	Resident Engineer & Service Approved Biologist			
The WEF will be maintained throughout the duration of construction and will be regularly inspected and fully maintained. Repairs to the WEF will be made within 24 hours of discovery.	BO	SSP	Resident Engineer & Service Approved Biologist			

Environmental Commitments Record for EA 04-4G111_ / ID 0412000630

Last updated 9/9/2016

WIDEN RAMPS AND CONSTRUCT RAMP

EP: Noray Spradling

510-286-5961

ALA-680-0/21.9

CL:

Current Project Phase:

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date
Vegetation will only be cleared where necessary for construction. Vegetation will only be cut above the soil, except in areas that will be excavated for road construction elements. Woody vegetation will be removed by hand or using light construction equipment. Cleared vegetation will be removed from the project footprint. The contractor will be responsible for obtaining all permits, licenses, and agreements for properly disposing of such material.	BO	SSP	Resident Engineer			

Cultural Resources

Archaeological Monitoring Area (AMA): An AMA exists at the southbound Bernal Avenue on-ramp location (PM 16.43 to 16.8).
 Section 106 SSP
 MOA
 Emily Darko,
 Project
 Archaeologist

The Resident Engineer will be responsible for notifying District 4 Office of Cultural Resource Studies and the Project Archaeologist (510-622-1673) two weeks prior to construction. The AMA parameters will be delineated in the field by the Project Archaeologist prior to the start of work.

Resident Engineer will be responsible for notifying the Project Archaeologist 5 business days before any work is planned within the AMA so that an Archaeological Monitor can be arranged to monitor ground disturbing work within the AMA.

Noise

Construction noise impacts can be minimized by implementing some or all of the following measures:
 Env Doc SSP Design/Resident Engineer
 • Avoiding construction activities during the nighttime and on weekends.
 • Constructing noise barriers as the first order of work.
 • Using stockpiled dirt as earth berms where possible.
 • Keeping noisy equipment and haul roads away from sensitive receptors.

Paleontology

A Paleontological Mitigation Report will be completed that outlines the results of the mitigation program.
 Env Doc SSP Resident
 Engineer/Paleo
 tologist/Design

Environmental Commitments Record for EA 04-4G111_ / ID 0412000630

Last updated 9/9/2016

WIDEN RAMPS AND CONSTRUCT RAMP

ALA-680-0/21.9

Current Project Phase:

EP: Noray Spradling

510-286-5961

CL:

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date
<p>Paleontological monitors, under the direction of the qualified principal paleontologist, will be onsite to inspect excavations for fossils at all times during original ground disturbance involving sensitive geologic formations.</p> <ul style="list-style-type: none"> o Monitoring should be conducted full-time during augering or trenching in sedimentary rocks of the Great Valley, Monterey, and San Pablo Groups; and Pleistocene Formations and deposits. If, after 50% of the project's excavations in a particular rock unit is completed, it can be demonstrated that the level of monitoring should be reduced (few or no fossils are discovered), the qualified principal paleontologist shall amend the mitigation program accordingly. o Monitoring should be conducted for the initial ground disturbance for each section of trenching associated with installation of electrical conduit, ramp meter installation, and High-Occupancy Vehicle bypass lane installation taking place in sedimentary rocks of the Great Valley, Monterey, and San Pablo Groups, and Pleistocene deposits. The level of monitoring effort required may be reduced, modified or suspended at the discretion of the paleontological monitor, in consultation with the qualified principal paleontologist based on field conditions and rock units identified. o Monitoring has been identified in the Dublin/Western Pleasanton portion of the project. During the pre-construction paleontological training, construction personnel will be specifically instructed about the kinds of material that may be encountered during excavation. o A need for a single paleontologist monitor has been identified. Should additional monitors be needed, the qualified principal paleontologist will make the determination during construction. o Paleontological monitoring field work will take place only when earth-moving and/or excavation are occurring during project construction. Fieldwork shall cease when all excavation work has been completed and when significant fossils, if any, are properly recovered and treated for transport to a laboratory for further processing. 	Env Doc	SSP	Resident Engineer/Paleo ntologist			
<p>When fossils are discovered, the paleontologist (or paleontological monitor) will recover them.</p> <ul style="list-style-type: none"> o Macrofossils ? When uncovered during excavation operations, a representative sample of well-preserved and identifiable 	Env Doc	SSP	Resident Engineer/Paleo ntologist			

Environmental Commitments Record for EA 04-4G111_ / ID 0412000630

Last updated 9/9/2016

WIDEN RAMPS AND CONSTRUCT RAMP

EP: Noray Spradling

510-286-5961

ALA-680-0/21.9

CL:

Current Project Phase:

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name Date	Remarks/Due Date
<p>remains will be recovered. Poorly preserved and/or unidentifiable remains may not be recovered, at the discretion of the qualified principal paleontologist and/or paleontological monitor. If unidentifiable remains are recovered, further processing will only be done if dictated by the research design for that particular geologic formation. A research design is an outline of research methods which differs depending on fossil type. If fossils are microscopic, such as algae, foraminiferans, or radiolarians, the research design would involve microscope work and the necessary laboratory items required for that style of research.</p> <p>? When vertebrate macrofossils are uncovered during excavation operations, all well-preserved and identifiable remains will be recovered. Poorly preserved and/or unidentifiable remains may not be recovered, at the discretion of the qualified principal paleontologist and/or paleontological monitor. If unidentifiable remains are recovered, further processing will only be done if directed by the research design for that particular geologic formation.</p> <p>? When plant macrofossils are uncovered during excavation operations, a representative sample of well-preserved and identifiable remains will be recovered. Poorly preserved and/or unidentifiable remains may not be recovered, at the discretion of the qualified principal paleontologist and/or paleontological monitor. If unidentifiable remains are recovered, further processing will only be done if directed by the research design for that particular geologic formation.</p> <p>o Microfossils</p> <p>? When marine microfossils are discovered (or their presence suspected based on site conditions) during excavation operations, it may be necessary to collect stratigraphically controlled matrix samples as directed by the research design for that particular geologic formation. Such samples should be taken at reasonable stratigraphic intervals (based on overall stratigraphic thickness) and should consist of standard hand samples. If initial processing of such samples shows them to be barren or sparsely fossiliferous, the qualified principal paleontologist may authorize suspension of further processing of the sample, and the sample may be discarded.</p> <p>? When vertebrate microfossils are discovered (or their presence suspected based on site conditions) during excavation operations, it may be necessary to collect stratigraphically controlled bulk matrix samples (up to 6,000</p>						

Environmental Commitments Record for EA 04-4G111_ / ID 0412000630

Last updated 9/9/2016

WIDEN RAMPS AND CONSTRUCT RAMP

ALA-680-0/21.9

Current Project Phase:

EP: Noray Spradling

510-286-5961

CL:

RE:

Task and Brief Description	Source	SSP/ NSSP	Responsible Staff	Action to Comply	Task Completed Name	Date	Remarks/Due Date
----------------------------	--------	--------------	----------------------	------------------	------------------------	------	------------------

pounds) for processing. The decision to collect such samples will be made if relatively well-preserved vertebrate microfossils are observed in hand samples in the field or if processing of a 100-pound test sample yields more than five

Where feasible, selected road cuts or large finished slopes in areas where critically interesting paleontological features may be left so they can serve as important educational and scientific features. This may be possible if no substantial adverse visual or safety impacts result.

Env Doc SSP Resident Engineer/Paleontologist

Water Quality

WPCP will be required. The WPCP, prepared by the Contractor and approved by the Department, presents the strategy of Temporary Construction Site BMP implementation.

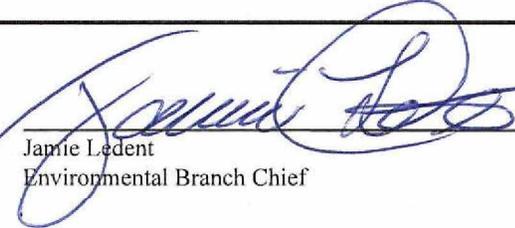
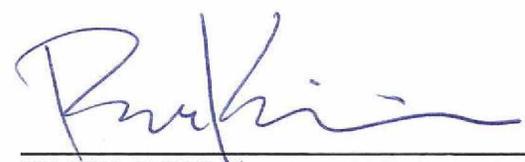
Env Doc SSP Resident Engineer/Contractor

Post-Construction

Biology

The WEF will be completely removed and properly disposed of after all construction activities have been completed.

BO SSP Resident Engineer & Service Approved Biologist

 Jamie Ledent Environmental Branch Chief	9/14/16 Date	 KIAAINA, RON K Project Manager	9/14/16 Date
Hoa-Anh Le Project Engineer ^	Date		
 Resident Engineer	Date		

Attachment H

Risk Management Plan

RISK REGISTER LEVEL	3		PROJECT NAME	ALA 680 Ramp Metering Project (FPI - 2A & 2B)			DIST- EA	04-4G111	PROJECT MANAGER	Ron Kiaaina		D4 RISK MANAGER	Patrick Treacy/Pradeep Narra/ Daniel Y. Chang			TOTAL COST (Capital +Support)		\$59,744,000.00					
PROJECT PHASE	PA&ED		PDT MEMBERS	Design: [Anh Le]; Electrical Design: [Pierre Lassalle]; Biology: [Denis Coghlan]; Cultural Resource: [Emily Castano]; Water Quality: [Norman Gonslaves] ; Construction: [Mario Jerez]; Right of Way: [Resham Haddox/ Dan Asprogerakas]			RISK ASSESSMENT										TOTAL DAYS (Construction + Initial review (30days)+ Closeout (60 days))		740				
Risk Identification						Probability		Cost Impact (\$)				Time Impact (days)				P1/P3	C/S	Rationale		Risk Response			
Status	ID #	Category	Title	Risk Statement	Current status/assumptions	Prob Low	Prob High	Cost Low	Cost Most likely	Cost High	Cost Probable	Low	Most likely	High	Time Probable	P1/P3	C/S	Rationale	Strategy	Response Actions	Risk Owner	Updated	
Active	1	PM	Scoop Creep	Project's capital cost may increase over the programmed amount due to scope changes resulting to funding shortfall.	Potential changes in design standards. PDT often proposes to add or modify the scope based on best engineering practices after the PID and PA&ED phase. Also, Project will be split into two smaller projects which may affect capital cost. 4G112 is the child project of 4G111. Although the master project is split	10	25	\$ 1,000,000	\$ 3,000,000	\$ 5,000,000	\$525,000	30	60	90	11	P1	C	Based on previous CT projects.	Mitigate	PDT to minimize scope increases by adhering to scoping document as much as possible. Process PCR if additional funding is needed before program year starts. Otherwise, scope will need to be cut to stay within 120% of the budget or request Supplemental Funding from CTC.	Ron Kiaaina (PM) / Anh Le (Designer)	10/10/2016	
Active	2	PM	Support Cost (Construction)	Programmed support cost may be insufficient during the life of the project leading to incomplete design work owith support cost shortfall in construction resulting to additional COS cost to the project.	Based on past CT projects, support cost may likely to exceed programmed amounts. Project will be split into two smaller projects which may affect support cost.	15	50	\$ -			\$0	60	90	120	29	P3	S	Based on previous CT projects.	Mitigate	Monitor expenditure monthly to ensure expenditures remain within budget. Construction will work closely with the PM to monitor the COS cost during construction. Process PCR to increase budget in advance or document project overruns over 120% of budget.	Ron Kiaaina (PM)	10/10/2016	
Active	3	Construction	Coordination Issues With Concurrent Projects	This project, if not properly coordinate may logistically conflict with other ongoing construction projects within the project limit resulting to right of way delays and additional project cost.	The FPI project was designed to go to construction first, but due to funding delays the FPI will be in construction at the same time with 2 other projects within the project limit. Overlap with NB Express Lane project (4G050), Rehab project (3G602), and FPI ramp metering project (4G112) may create potential conflicts during construction with multiple contractors in the same area that could lead to schedule delays or conflict in work.	40	60	\$ 100,000	\$ 200,000	\$ 500,000	\$133,333	90	180	270	90	P3	C	Based on previous CT projects.	Mitigate	To avoid conflicts, projects will be staged with work window restrictions so construction can proceed forward first on the Express (4G050) project. The FPI and Rehab (3G602) projects will be excluded from the Express limits. This will minimize the risk of delays and due to work areas not being available. The FPI (4G112) will be staged to start construction north of SR-84; The area south of SR-84 to Scott Creek Rd will be constructed after 4G050 and 3G602 to reduce the risk of project's conflict.	Ron Kiaaina (PM)	10/10/2016	
Active	4	Design	Electrical Systems Inconsistency (Future)	Due to future site condition, Contract Change Order(CCO) and design error, New Electrical systems may have been designed incorrectly to the future condition leading to an increase construction project cost and Support Cost, both in Design and in Construction.	Late identification of specialty electrical items may impact design package / environmental assessment, thereby impacting project execution. Past project known to miss electrical SFM or existing electrical system may not be reflected on project plans.	30	60	\$ -	\$ 15,000	\$ 30,000	\$6,750	20	30	100	23	P1	C	Based on previous CT projects.	Avoid	Coordinate with electrical and signing group for early identification.	Pierre Lassalle (Electrical Design)	10/10/2016	
Active	5	Design	Electrical Service points from outside of R/W may require amending permits or environmental revalidation.	Depending on the location of the power service drops provided by PG&E, it may require trenching that could lead to environmental impacts resulting to additional environmental studies and permits.	At some instance PG&E engineering application has continued into construction. Service drops are usually not yet identified due to current PG&E policy to provide location after Environmental Clearance.	40	70	\$ 50,000	\$ 200,000	\$ 500,000	\$137,500	20	45	80	27	P1	C	Based on previous CT projects.	Mitigate	Meet with PG&E early on in PS&E to determine service connection locations. Modify design to avoid environmental impacts as much as possible.	Pierre Lassalle (Electrical Design)	10/10/2016	
Active	6	ROW	Permit To Enter	The local city may delay issuing the permits for project activities outside of state right of way or city related infrastructure improvements resulting to project delays and additional project cost.	The PG&E service drops are not identified until PS&E phase (Electrical design). If the pull boxes or other infrastructure improvement are required to be installed outside of state right of way an easement would be necessary and is the preferred route where the state would need to obtain rights through a Section 83. The easement which must be appraised and acquired from the City will need to go before the City's board, which realistically may take about 2 years.	10	25	\$ 5,000	\$ 5,000	\$ 10,000	\$1,167	30	45	500	34	P1	C	Based on previous CT projects.	Mitigate	Request Electrical Design to identify service connection locations early in the PS&E phase and meet with PG&E. Modify design to minimize R/W impacts as much as possible.	Resham Haddox (Right of Way) / Pierre Lassalle (Electrical Design)	10/10/2016	

RISK REGISTER LEVEL		3	PROJECT NAME	ALA 680 Ramp Metering Project (FPI - 2A & 2B)			DIST- EA	04-4G111	PROJECT MANAGER	Ron Kiaaina		D4 RISK MANAGER	Patrick Treacy/Pradeep Narra/ Daniel Y. Chang			TOTAL COST (Capital +Support)		\$59,744,000.00				
PROJECT PHASE		PA&ED	PDT MEMBERS	Design: [Anh Le]; Electrical Design: [Pierre Lassalle]; Biology: [Denis Coghlan]; Cultural Resource: [Emily Castano]; Water Quality: [Norman Gonslaves] ; Construction: [Mario Jerez]; Right of Way: [Resham Haddox/ Dan Asprogerakas]			RISK ASSESSMENT											TOTAL DAYS (Construction + Initial review (30days)+ Closeout (60 days))		740		
Risk Identification						Probability		Cost Impact (\$)				Time Impact (days)				P1/P3	C/S	Rationale	Risk Response			
Status	ID #	Category	Title	Risk Statement	Current status/assumptions	Prob Low	Prob High	Cost Low	Cost Most likely	Cost High	Cost Probable	Low	Most likely	High	Time Probable	P1/P3	C/S	Rationale	Strategy	Response Actions	Risk Owner	Updated
Active	7	Environmental	Delay To Environmental Permits	The project requires environmental permits from various agency (BCDC, Water Board, and Army Corps of Engineer) and may require a longer lead time leading to issuance of required permit in a non timely manner resulting to project delivery delays.	Environmental permit approval delays are one of the main sources of delivery delays. This Project requires ITP and possibly a 1602 permit for impacts to endangered species. This timeline takes 6-8 months for permit approvals, which could impact delivery of project. Submission of ITP would be done after PA&ED which to occur on 10/15/2016 and require 7 month time.	25	50	\$ -	\$ -	\$ -	\$0	30	90	120	30	P1	S	Based on previous CT projects.	Mitigate	PDT to submit permit application just after PA&ED to minimize risk of RTL delay.	Denis Coghlan (Biology)	10/10/2016
Active	8	Construction	Geotechnical risks	Risk of cost increases during construction due to subsurface risks associated with retaining wall foundation construction.	Due to uncertainties with subsurface conditions, there are frequent claims of differing site conditions that result in a change in the foundation construction that increases costs and delays the project. Project location where widening of the ramp is required. Subsurface soil condition will be explored in the PS&E phase according to PM	15	60	\$ 50,000	\$ 500,000	\$ 1,000,000	\$193,750	10	30	60	13	P3	C	Risk occurs on most of Caltrans projects with retaining walls.	Accept	Geotechnical testing is done during PS&E, but risks continue to occur. Accept risk and consider increasing the project contingency to account for geotechnical risks.	Mahmood Momenzadeh (Design)	10/10/2016
Active	9	Environmental	Paleontological resources	Potential discovery of unforeseen paleontological resources would impact schedule and possibly require mitigation at additional cost.	Several known significant sites exist through out the corridor with the potential discovery of cultural resources on the project site.	0	20	\$ 10,000	\$ 50,000	\$ 300,000	\$12,000	0	20	100	4	P1	C	Based on previous CT projects.	Accept	If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find. Delays would be paid through the project contingency.	Emily Castano (Cultural Resource)	10/10/2016
Active	10	Environmental	Federally Listed Species	If federally listed species are observed at work site during construction, work would have to stopped, leading to delays.	According to the project's environmental documents, the construction site location may contains the following listed species: California Red Legged Frog (CRLF), California Tiger Salamander (CTS) and Alameda Whip Snake.	0	20	\$ 10,000	\$ 25,000	\$ 50,000	\$2,833	10	20	30	2	P1	C	Based on previous CT projects.	Mitigate	Avoidance and minimization measures were implemented and documented in the Biological Opinion and MND. During PS&E, Special Provisions will be developed to address endangered species procedures in order to minimize delays during construction.	Denis Coghlan (Biology)	10/10/2016
Active	11	Environmental	Protected Species In Work Zone	Agencies may change work season limits or protected species might enter the work zone, which would cause the work to cease until they vacate the area, leading to right of way delay costs.	Cal Fish and Wildlife required additional mitigation beyond that required by USFWS in the BO. The B.O. has been received by the PDT team however the risk of additional mitigation added by the agency in future phase.	60	80	\$ 100,000	\$ 280,000	\$ 400,000	\$182,000	0	0	5	1	P1	C	Based on previous CT projects.	Accept	Accept risk and keep in communication with Cal Fish and Wildlife to determine CDFW's mitigation requirements.	Denis Coghlan (Biology)	10/10/2016
Active	12	Construction	Bird Nesting Season	Nesting birds, protected from harassment under the Migratory Bird Treaty Act, may require additional construction activity work around during the bird nesting season resulting to additional project cost and schedule delays	The project limit contains minimal trees and shrubs within the construction area. Project scope does not anticipate any vegetation removal for the work to be completed. Risk is limited to the amount of vegetation however may still be plausible	10	20	\$ 5,000	\$ 10,000	\$ 20,000	\$1,750	20	40	60	6	P1	C	Based on previous CT projects.	Mitigate	Specify minimization and avoidance measures in SSP's. Conduct pre-construction surveys. Bio monitor will be present during construction.	Denis Coghlan (Biology)	10/10/2016
Active	13	Environmental	Impacts to wetlands and/or Waters of US	Potential impacts to wetlands and/or waters of US from unanticipated drainage improvements may lead to delay in delivery.	Additional drainage improvements may be identified during PS&E that were unaccounted for during PA&ED.	0	15	\$ 10,000	\$ 20,000	\$ 40,000	\$1,750	10	40	60	3	P1	C	Based on previous CT projects.	Mitigate	Avoidance and minimization measures to wetlands/Waters were implemented during PA&ED and documented in MND. Minimize any additional impacts during PS&E as much as possible.	Denis Coghlan (Biology)	10/10/2016
Active	14	Environmental	Hazardous Materials	Unanticipated Hazardous material encounter during the construction project may require mitigation, removal and disposal resulting in additional costs to the project.	Project site construction limit contains roadside ADL. Hazardous Materials will be further investigated in the PS&E phase.	10	20	\$ 20,000	\$ 100,000	\$ 300,000	\$21,000	20	60	80	8	P3	C	Based on previous CT projects.	Mitigate	Completed Phase 1 ISA during PA&ED. Conduct Phase 2 sampling early in PS&E. (Note: No issues identified on prior projects in study area)	Chris Wilson (Hazardous Materials)	10/10/2016
Active	15	Environmental	Off-site Water Quality treatment.	On-site water quality treatment may not be feasible due to traffic concerns and habitat impacts leading to Off-site mitigation resulting to additional cost to the project.	Project constructions site area is limited. If water treatment facilities are needed during construction off-site water treatment maybe necessary.	10	25	\$ 20,000	\$ 50,000	\$ 100,000	\$9,917	0	10	20	2	P3	C	Based on previous CT projects.	Mitigate	PDT to determine off-site treatment costs as soon as possible.	Norman Gonslaves (Water Quality)	10/10/2016

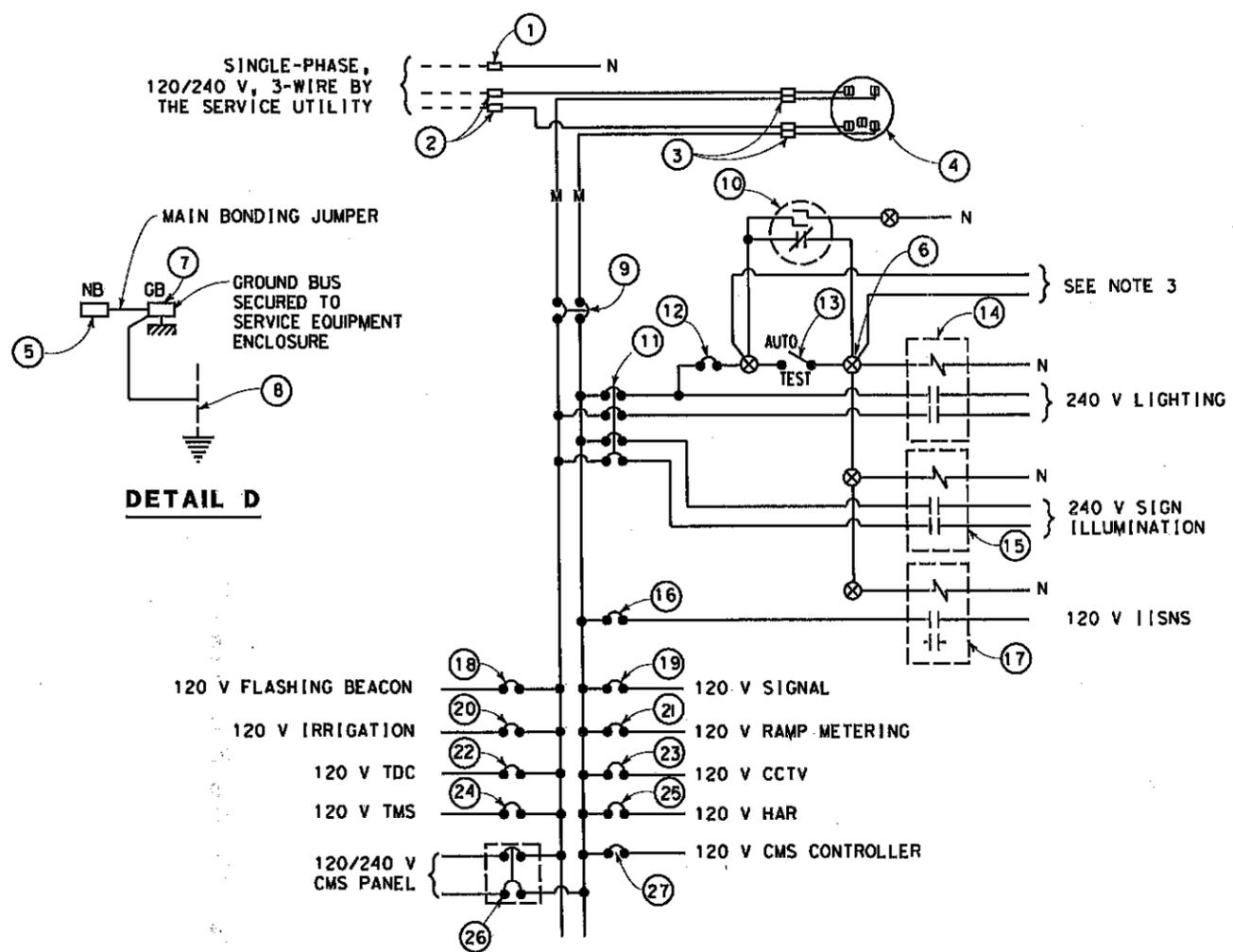
RISK REGISTER LEVEL	3	PROJECT NAME	ALA 680 Ramp Metering Project (FPI - 2A & 2B)			DIST- EA	04-4G111	PROJECT MANAGER	Ron Kiaaina		D4 RISK MANAGER	Patrick Treacy/Pradeep Narra/ Daniel Y. Chang			TOTAL COST (Capital +Support)			\$59,744,000.00				
PROJECT PHASE	PA&ED	PDT MEMBERS	Design: [Anh Le]; Electrical Design: [Pierre Lassalle]; Biology: [Denis Coghlan]; Cultural Resource: [Emily Castano]; Water Quality: [Norman Gonslaves] ; Construction: [Mario Jerez]; Right of Way: [Resham Haddox/ Dan Asprogerakas]			RISK ASSESSMENT												TOTAL DAYS (Construction + Initial review (30days)+ Closeout (60 days))		740		
Risk Identification					Probability		Cost Impact (\$)				Time Impact (days)				P1/P3	C/S	Rationale	Risk Response				
Status	ID #	Category	Title	Risk Statement	Current status/assumptions	Prob Low	Prob High	Cost Low	Cost Most likely	Cost High	Cost Probable	Low	Most likely	High	Time Probable	P1/P3	C/S	Rationale	Strategy	Response Actions	Risk Owner	Updated
Active	16	Construction	Tight weather window for paving	Any delay in start of construction that's planned for summer can result in project delays resulting in additional costs and time.	PDT assumes delays in construction could push the paving work into the winter periods, where low temperature for HMA will delay paving to the spring season	20	40	\$ 50,000	\$ 100,000	\$ 200,000	\$35,000	30	100	180	31	P3	C	Based on PDT's input.	Accept	This risk will be covered through contingency and contractor will be given weather days. Hence, no TRO costs.	Mario Jerez (Construction)	10/10/2016
Active	17	Construction	New Service Turn On	Complication between CT and utility companies prioritizing the schedule of work may cause delay to turning on service leading to delay in state electrical facilities resulting to additional project cost and schedule delay	PG&E prioritize their work schedule pending on first come basis. New service application can be stuck in engineering before PG&E coordinator receive the Preconstruction drawing prior to service turn on. If there is rework in the PG&E preconstruction drawing, it may lead to delays exceeding the project working days resulting to incomplete service turn on.	30	60	\$ 50,000	\$ 80,000	\$ 100,000	\$34,500	30	120	180	50	P3	C	PG&E and/or AT&T has a past history of schedule of work issue and may not responsive due to overload workload.	Avoid	Utility coordinator to follow up regularly with PG&E and update Project Manager	Dan Asprogerakas (Right of Way for Utilities)	10/10/2016
Active	18	Construction	Electrical Theft	Electrical theft on highway during and after construction may lead to rework with permanent prevention mitigation feature resulting additional project costs.	Electrical theft has been known to be a big problem during construction and after construction. Recent project implemented permanent measure that may not be accounted for in the project scope or Caltrans policy have changed to implement addition prevention measure not accounted for in the original scope.	25	75	\$ 10,000	\$ 30,000	\$ 60,000	\$16,667	0	10	20	5	P3	C	Based on previous CT projects. Based on purchasing new wires and paying the extra installation costs to the contractor.	Avoid	The electrical work at each location should not be accepted in a piecemeal manner. Rather, accept the contract when all of the electrical work is finished.	Mario Jerez (Construction)	10/10/2016
Active	19	Construction	Unidentified Utility Conflicts	Unknown utility conflict may arise from Underground facilities (City Sewer, City Water, Reclaimed Water, AT&T /Sprint/Comcast, PG&E) and/or Overhead facilities (PG&E, AT&T) which may result in project delays and relocation / modification of construction work and/or Utility relocation leading to extra cost and time to the project.	The data provided by utility companies may not be accurate. The project is spread over the entire 21.9 miles and so the risk of missing utility information is greater.	16	40	\$ 34,000	\$ 66,762	\$ 117,143	\$20,113	30		180	29	P3	C	The dollar amount and time frame used in calculation are based on department's recent experienced with utility companies.	Accept	During construction if utilities are discovered, coordinate with the utility company to expedite the review process.	Mario Jerez (Construction)	10/10/2016
Active	20	Construction	Buried Man Made Objects	Unanticipated buried man-made objects encounter during construction may require mitigation, removal and disposal resulting in additional costs to the project.	Project involves conduit crossing and foundation installation. New installation of electrical facilities may encounter unanticipated BMMO within the project limit.	15	39	\$ 35,000	\$ 64,565	\$ 110,036	\$19,072	10	20	30	5	P3	C	Based on previous CT projects.	Mitigate	Include a Supplemental Work item to cover this risk.	Mario Jerez (Construction)	10/10/2016
Retired	21	Environmental	Cultural resources	Delay in SHPO concurrence and signature on MOA and Mitigation Plan may delay PA&ED	Consultation with SHPO and MOA signing may exceed the PA&ED milestone date	40	60	\$ -	\$ -	\$ -	\$0	30	45	90	28	P1	S	Based on time constraints	Accept	Push out PAED date..	Kathryn Rose	9/13/2016
Retired	22	Environmental	Cultural resources	Delay in execution of MOA and Mitigation/Data Recovery (Excavation) at Bernal Ave location may delay construction	Consultation with SHPO and MOA signing may exceed the PA&ED milestone date. Work with consultant may take more time than anticipated.	0	20	\$ -	\$ -	\$ -	\$0	30	45	90	6	P1	S	Based on time constraints	Accept	Push out PAED date.	Kathryn Rose	9/13/2016
Retired	23	Environmental	Biological Opinion	Delay in receiving the BO may cause delay PA&ED.	Late submittal of BA	20	40	\$ -	\$ -	\$ -	\$0	15		30	7	P1	S	Agency has 135 days to respond.	Accept	Elevate the concerns, if required, to achieve the PA&ED.	Chris States	9/13/2016
Active	24	PM	Support Cost (Design)	Programmed support cost may be insufficient during the life of the project leading to incomplete design work resulting to additional project COS cost.	Based on past CT projects, support cost may likely to exceed programmed amounts. Project will be split into two smaller projects which may affect support cost. The programmed FPI is already at PS&E 95%, PM consider the risk is still feasible prior to RTL.	5	10	\$ 50,000	\$ 500,000	\$ 150,000	\$17,500	0			0	P1	S	Based on previous CT projects.	Mitigate	Monitor expenditure monthly to ensure expenditures remain within budget. Process PCR to increase budget in advance or document project overruns over 120% of budget. Risk is based on the project restart as of 07/2016 where 4G111 project will be split into two child projects where 4G112 is programmed and at 95% PS&E	Ron Kiaaina (PM)	10/12/2016
Active	25	Construction	Allocation for unidentified risks	Contingency needs to be allocated (based on industry practice) for issues that are missed when identifying uncertain events.	Industry accepted practical recommendations for including "unknown unknowns" into probabilistic cost and schedule risk models are used.	80	100	\$ 216,550	\$ 433,100	\$ 866,200	\$454,755					P3	C	Size of "unknown unknown" allowances is dependent on the novelty of the project, stage of development of the project and type of industry.	Accept	Industry recommends that a standard project (i.e. low degree of novelty), should carry a 1% of capital cost allowance for unidentified risks, during the construction phase.		

RISK REGISTER LEVEL	3	PROJECT NAME	ALA 680 Ramp Metering Project (FPI - 2A & 2B)			DIST- EA	04-4G111	PROJECT MANAGER	Ron Kiaaina		D4 RISK MANAGER	Patrick Treacy/Pradeep Narra/ Daniel Y. Chang			TOTAL COST (Capital +Support)		\$59,744,000.00					
PROJECT PHASE	PA&ED	PDT MEMBERS	Design: [Anh Le]; Electrical Design: [Pierre Lassalle]; Biology: [Denis Coghlan]; Cultural Resource: [Emily Castano]; Water Quality: [Norman Gonslaves] ; Construction: [Mario Jerez]; Right of Way: [Resham Haddox/ Dan Asprogerakas]													RISK ASSESSMENT		TOTAL DAYS (Construction + Initial review (30days)+ Closeout (60 days))	740			
Risk Identification						Probability		Cost Impact (\$)				Time Impact (days)				P1/P3	C/S	Rationale	Risk Response			
Status	ID #	Category	Title	Risk Statement	Current status/assumptions	Prob Low	Prob High	Cost Low	Cost Most likely	Cost High	Cost Probable	Low	Most likely	High	Time Probable	P1/P3	C/S	Rationale	Strategy	Response Actions	Risk Owner	Updated
Active	26	Construction	Support Costs Due to weather days	When contractor is allocated a weather day. COS costs will be incurred to the department. This risk is to cover all COS incurred to the Department. There are no delay costs.	No weather days were anticipated by the design team.	80	100	\$0	\$281,081	\$562,162	\$252,973					P3	S	Based on Caltrans historical data .	Accept	Based on CT historical data. Projects with similar working days have an average of 0%- 10% of weather days allocated.	Mario Jerez (Construction)	
Active	27	Design	COS costs due to delay	Additional support costs will be needed if the project is delayed during design phase. Cumulative costs of all Design risks.	These are Unanticipated COS costs expended by the design team due to changes and delays to the project.	100	100	\$0	\$213,636	\$427,273	\$213,636					P1	S	This is cumulative of all the active risks with "P1" in column R	Accept	See individual responses to the various design risks that have schedule impacts.	Anh Le (Designer)	
Active	28	Design	Indirect costs of Project Design/RTL Delay: (Mostly Escalation Costs)	If the project gets delayed in Design phase, RTL will be delayed resulting in Escalation of project costs. This is cumulative of all costs due to delay of RTL.	Escalation costs of 0-5%/year is assumed for projects that get delayed in design phase.	100	100	\$0	\$410,968	\$1,643,872	\$684,947					P1	C	This is cumulative of all the active risks with "P1" in column R	Accept	See individual responses to the various design risks that have schedule impacts.	Anh Le (Designer)	
Active	29	Construction	COS costs due to delay	Cumulative costs of additional Construction COS needed due to delays in construction phase.	These are Unanticipated COS costs expended by the Construction team due to changes and delays to the project.	100	100	\$0	\$1,510,631	\$3,021,261	\$1,510,631					P3	S	This is cumulative of all the active risks with "P3" in column R	Accept	See individual responses to the various construction risks that have schedule impacts.	Mario Jerez (Construction)	
Active	30	Construction	Indirect costs of Project Construction: (TRO & TRO+ & Escalation)	Cumulative costs of delays due to any of the other risk items occurring in construction phase. these are the indirect costs associated with occurrence of any of identified risks causing a construction delay.	Has CO delay costs (TRO, TRO+ and Escalation Costs) Escalation = 0-5%/Year, TRO=10% of Capital Costs/Year TRO+ = 5% of Capital Costs/year	100	100	\$0	\$2,509,369	\$6,546,023	\$3,018,464					P3	C	This is cumulative of all the active risks with "P3" in column R	Accept	See individual responses to the various construction risks that have schedule impacts.	Mario Jerez (Construction)	

Attachment I

Standard Plans (Controller Cabinet, Signal
Standard)

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
REGISTERED ELECTRICAL ENGINEER			DATE		
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.</small>					



120/240 V SERVICE WIRING DIAGRAM (TYPICAL)
DETAIL C

NOTES: (FOR THIS SHEET ONLY)

- VOLTAGE RATINGS OF SERVICE EQUIPMENT SHALL CONFORM TO THE SERVICE VOLTAGES INDICATED ON THE PLANS.
- UNLESS OTHERWISE INDICATED ON THE PLANS, SERVICE EQUIPMENT ITEMS SHALL BE PROVIDED FOR EACH SERVICE EQUIPMENT ENCLOSURE AS SHOWN.
- CONNECT TO REMOTE TEST SWITCH MOUNTED ON SIGN POST OR STRUCTURE WHEN REQUIRED.
- ITEM NO. ① AND ⑤ SHALL BE ISOLATED FROM THE CABINET.
- METER SOCKETS SHALL MEET SERVICE UTILITY REQUIREMENTS.
- THE LANDING LUG SHALL BE SUITABLE FOR MULTIPLE CONDUCTORS.
- PHOTOELECTRIC CONTROL SHALL BE TYPE II.
- SERVICE UTILITY WILL INSTALL THE TIME-OF-USE METER IF APPLICABLE.
- UNLESS OTHERWISE NOTED, THE MAXIMUM NUMBER OF SINGLE-POLE CIRCUIT BREAKER SPACES IN THE ENCLOSURE IS FOURTEEN.
- SEE STANDARD PLANS ES-2D FOR OTHER DETAILS.

TYPE III-A SERVICE EQUIPMENT ENCLOSURE LEGEND (120/240 V)

ITEM No.	COMPONENT	NAMEPLATE DESCRIPTION	ITEM No.	COMPONENT	NAMEPLATE DESCRIPTION
①	NEUTRAL LUG		⑮	30 A, 2P, NO CONTACTOR	
②	LANDING LUG		⑯	15 A, 120 V, 1P, CB	IISNS
③	TEST BYPASS FACILITY		⑰	30 A, 2P, NO CONTACTOR	
④	METER SOCKET AND SUPPORT		⑱	15 A, 120 V, 1P, CB	FLASHING BEACON
⑤	NEUTRAL BUS		⑲	50 A, 120 V, 1P, CB	SIGNALS
⑥	TERMINAL BLOCK		⑳	20 A, 120 V, 1P, CB	IRRIGATION
⑦	GROUND BUS		㉑	30 A, 120 V, 1P, CB	RAMP METERING
⑧	GROUNDING ELECTRODE		㉒	20 A, 120 V, 1P, CB	TELEPHONE DEMARCATION CABINET
⑨	100 A, 240 V, 2P, CB	MAIN BREAKER	㉓	30 A, 120 V, 1P, CB	CCTV
⑩	PHOTOELECTRIC UNIT (NOTE 7)		㉔	30 A, 120 V, 1P, CB	TMS
⑪	30 A, 240 V, 4P, CB	LIGHTING AND SIGN ILLUMINATION	㉕	30 A, 120 V, 1P, CB	HAR
⑫	15 A, 120 V, 1P, CB	LIGHTING AND SIGN ILLUMINATION CONTROL	㉖	30 A, 240 V, 2P, CB	CMS PANEL
⑬	15 A, 120 V, 1P, TEST SWITCH	TEST SWITCH	㉗	30 A, 120 V, 1P, CB	CMS CONTROLLER
⑭	60 A, 2P, NO CONTACTOR				

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1

THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY.

THIS DRAWING IS STORED ON CAD5 ON SV04501: 1\SING\ONKAR\CADD\LIBRARY\CADD\LIBENGLISH\STDDETAILS

ELECTRICAL DETAILS
(SERVICE EQUIPMENT ENCLOSURE AND TYPICAL WIRING DIAGRAM, TYPE III-A SERIES)

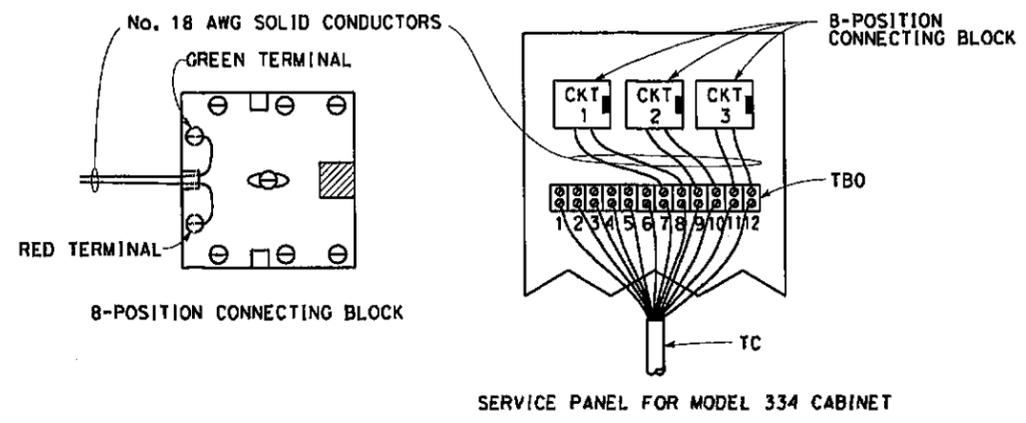
NO SCALE

REVISOR: [] DATE: []
DESIGNER: [] CHECKED BY: []
SUPERVISING ENGINEER: []
STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

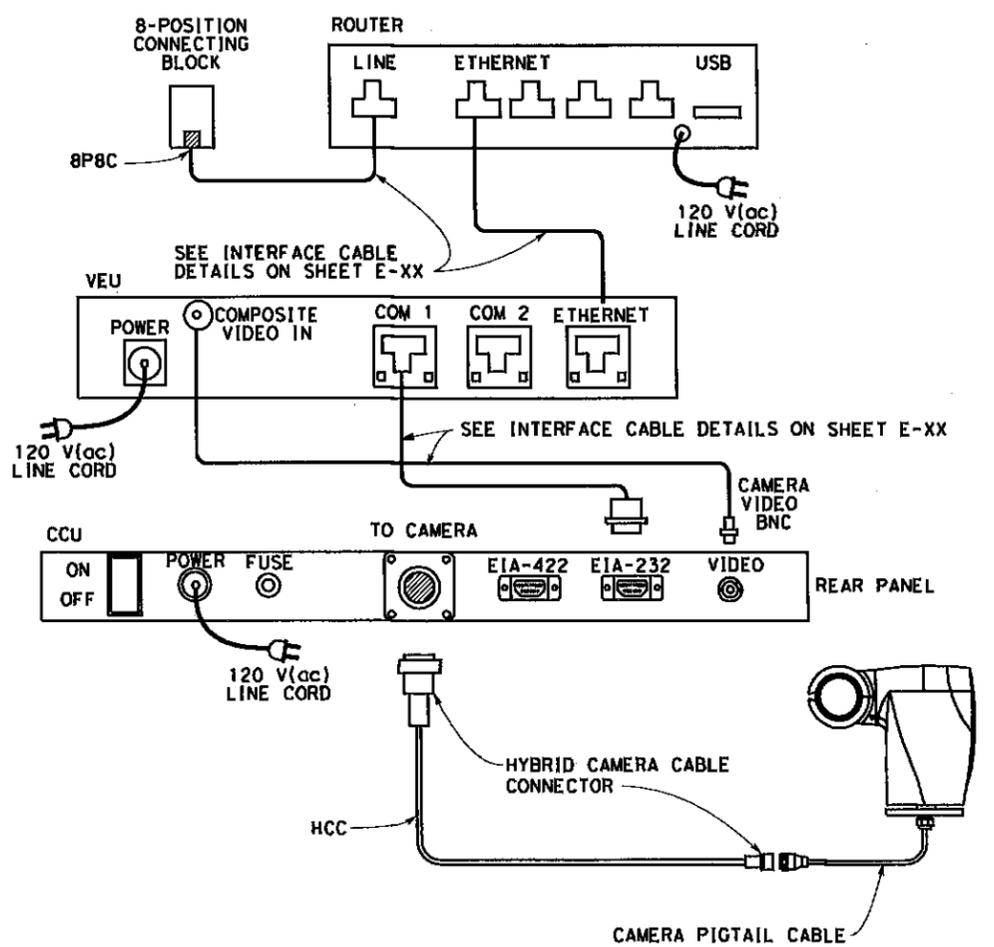

DATE PLOTTED => 8/21/11
TIME PLOTTED => 8:11 AM
10-23-13

8-POSITION CONNECTING BLOCK	No. 18 AWG SOLID CONDUCTOR COLOR	TBO POSITION ASSIGNMENT
CIRCUIT 1	GREEN TERMINAL	7
	RED TERMINAL	8
CIRCUIT 2	GREEN TERMINAL	9
	RED TERMINAL	10
CIRCUIT 3	GREEN TERMINAL	11
	RED TERMINAL	12

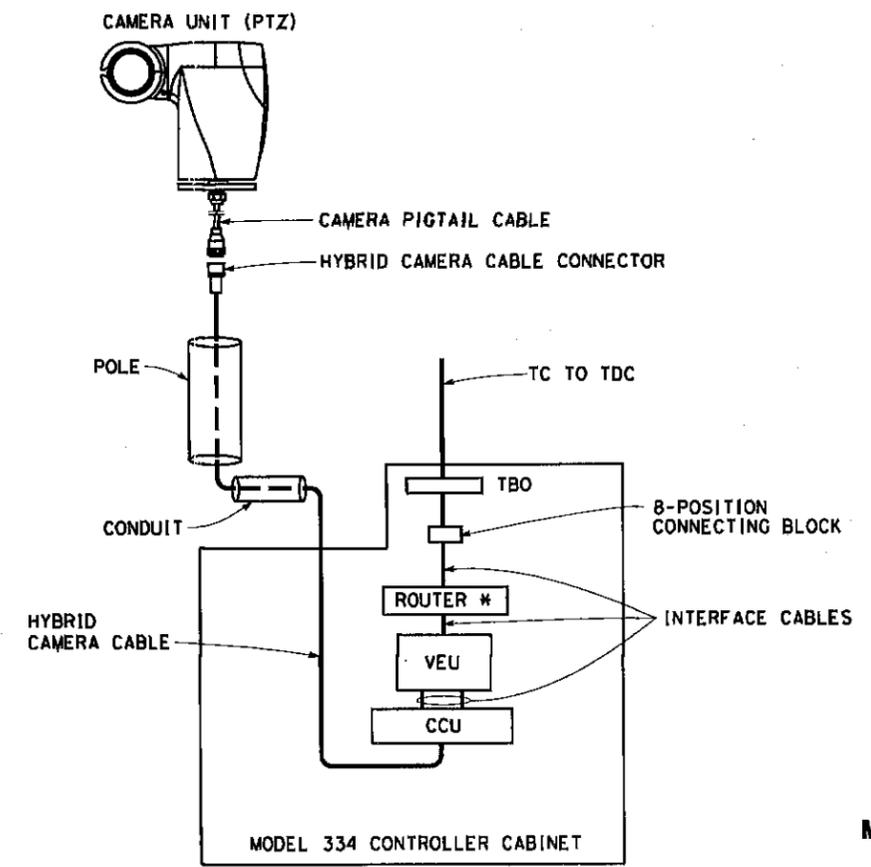
NOTES:
 USE ONE CONNECTING BLOCK FOR EACH REQUIRED CIRCUIT FOR EACH LOCATION.



WIRING DETAIL FOR TELEPHONE CABLE INSIDE CONTROLLER CABINET

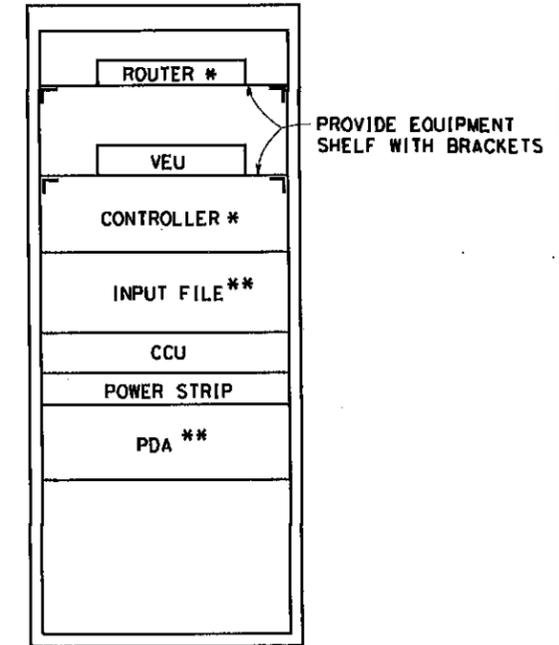


CCTV SYSTEM LAYOUT



CCTV SYSTEM BLOCK DIAGRAM

- TC - TELEPHONE CABLE
- HCC - HYBRID CAMERA CABLE
- TBO - TERMINAL BLOCK 0
- PDA - POWER DISTRIBUTION ASSEMBLY
- CCU - CAMERA CONTROL UNIT
- VEU - VIDEO ENCODER UNIT



MODEL 334 CONTROLLER CABINET LAYOUT (FRONT VIEW)

* STATE-FURNISHED
 ** PDA AND INPUT FILE WILL BE INCLUDED ONLY WITH STATE-FURNISHED CONTROLLER CABINET.

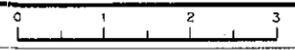
ELECTRICAL DETAILS (CCTV WITH TELEPHONE SERVICE)
 NO SCALE

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 ELECTRICAL
 FUNCTIONAL SUPERVISOR
 CALCULATED-DESIGNED BY
 CHECKED BY
 REVISED BY
 DATE REVISED
 BORDER LAST REVISED 3/1/2007

RELATIVE BORDER SCALE IS IN INCHES



USERNAME => \$USER
 DGN FILE => \$REQUEST

CU 00000

EA 000000 **M-TOS 04**

LAST REVISION: 02-14-12
 DATE PLOTTED: 02-14-12
 TIME PLOTTED: 02:11:00
 E-

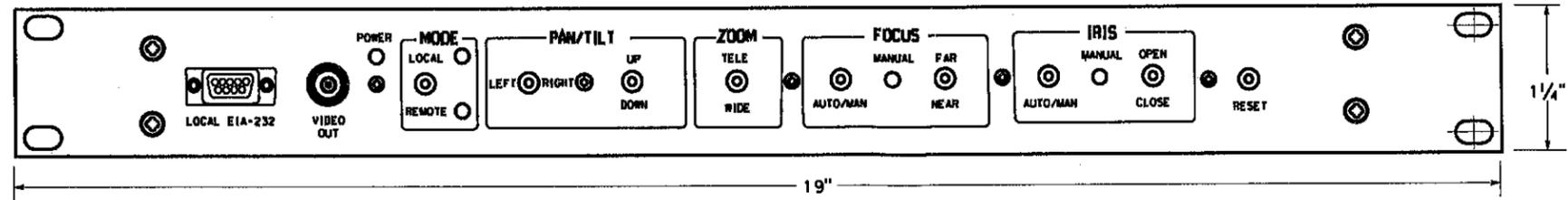
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET TOTAL No. SHEETS
04				

REGISTERED ELECTRICAL ENGINEER

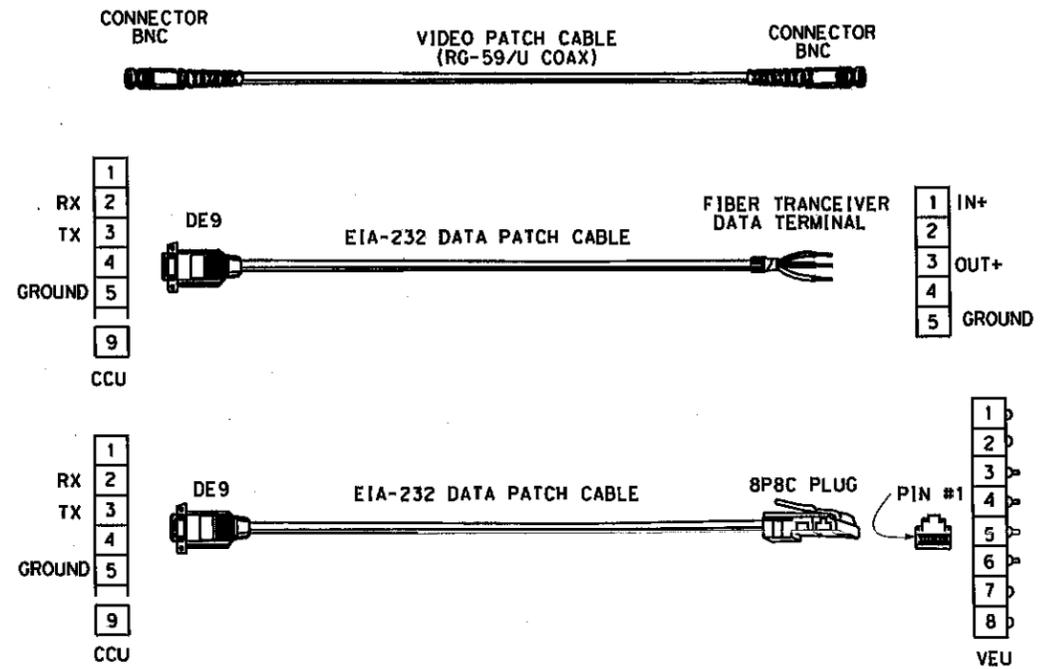
PLANS APPROVAL DATE

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

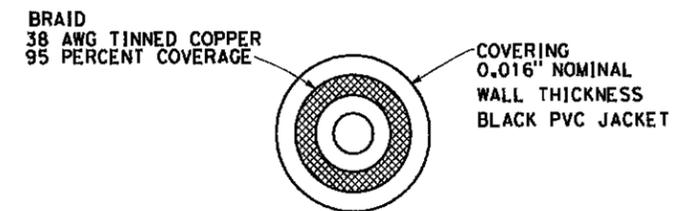
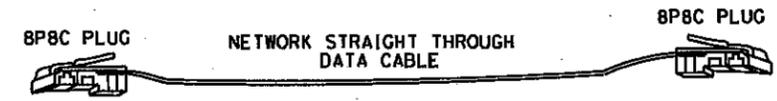
REGISTERED PROFESSIONAL ENGINEER
M.P. Lee
No. 13435
Exp. 9-30-10
ELECT
STATE OF CALIFORNIA



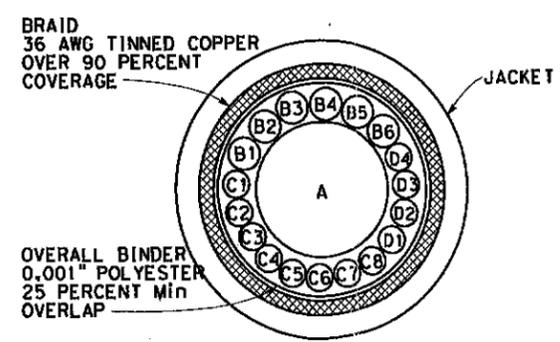
CCU FRONT PANEL LAYOUT



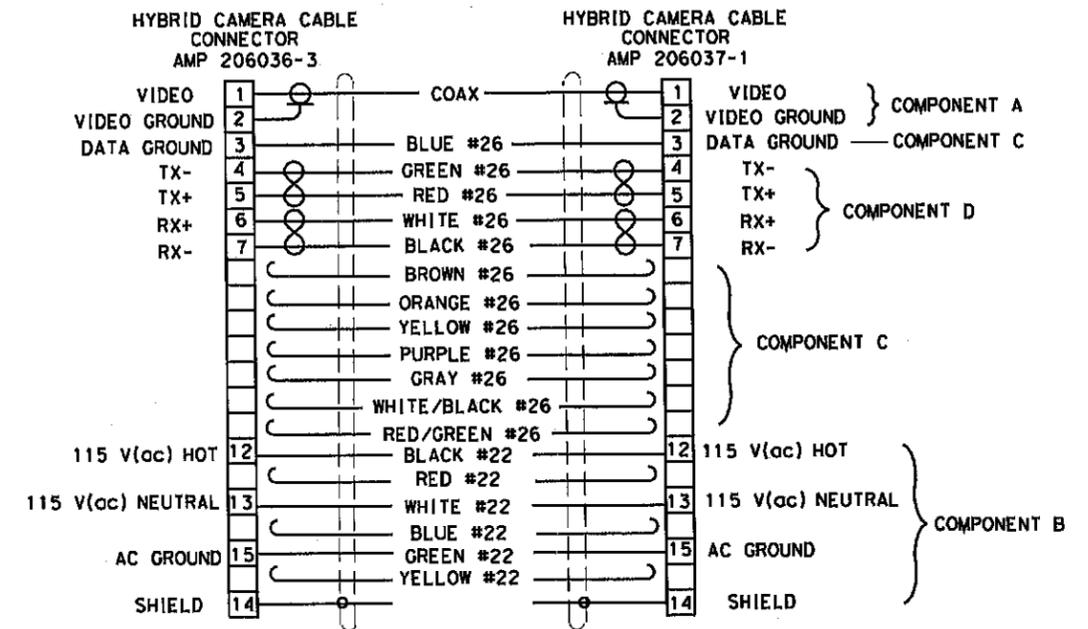
INTERFACE CABLE DETAILS



COMPONENT A



HYBRID CAMERA CABLE CROSS SECTION



COMPONENT	CONDUCTOR	DESCRIPTION
A	COAX	75 OHM, RG-59/U TYPE, STANDARD ANALOG VIDEO CABLE, 0.242" NOMINAL DIAMETER
B	6 CONDUCTOR	22 AWG, COPPER INSULATED CONDUCTOR, 0.048" NOMINAL DIAMETER, COLOR CODED: B1-BLACK, B2-RED, B3-GREEN, B4-WHITE, B5-BLUE, B6-YELLOW
C	8 CONDUCTOR	26 AWG, COPPER INSULATED CONDUCTOR, 0.037" NOMINAL DIAMETER, COLOR CODED: C1-BROWN, C2-BLUE, C3-ORANGE, C4-YELLOW, C5-PURPLE, C6-GRAY, C7-WHITE/BLACK, C8-RED/GREEN
D	4 CONDUCTOR	26 AWG, COPPER INSULATED CONDUCTOR, 0.037" NOMINAL DIAMETER, COLOR CODED: D1-BLACK & WHITE, D2-RED & GREEN

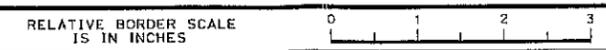
HYBRID CAMERA CABLE AND CONNECTORS DETAIL

ELECTRICAL DETAILS
(CCTV MOUNTING DETAILS)
NO SCALE

E-

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1



USERNAME => #USER
DGN FILE => #REQUEST

CU 00000

EA 000000M-TOS 06

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 ELECTRICAL
 REVISIONS: 03-29-10 DATE PLOTTED => STIME
 03-29-10 TIME PLOTTED => STIME

REVISOR: HENRY HOANG
DATE: 03-29-10

DESIGNER: DORIS YANG

CHECKED BY: KENNETH XU

FUNCTIONAL SUPERVISOR: KENNETH XU

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED ELECTRICAL ENGINEER DATE _____
M.P. Lee
No. 13435
Exp 9-30-10
ELECT
STATE OF CALIFORNIA

PLANS APPROVAL DATE _____
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

ABBREVIATIONS (FOR THIS SHEET ONLY)

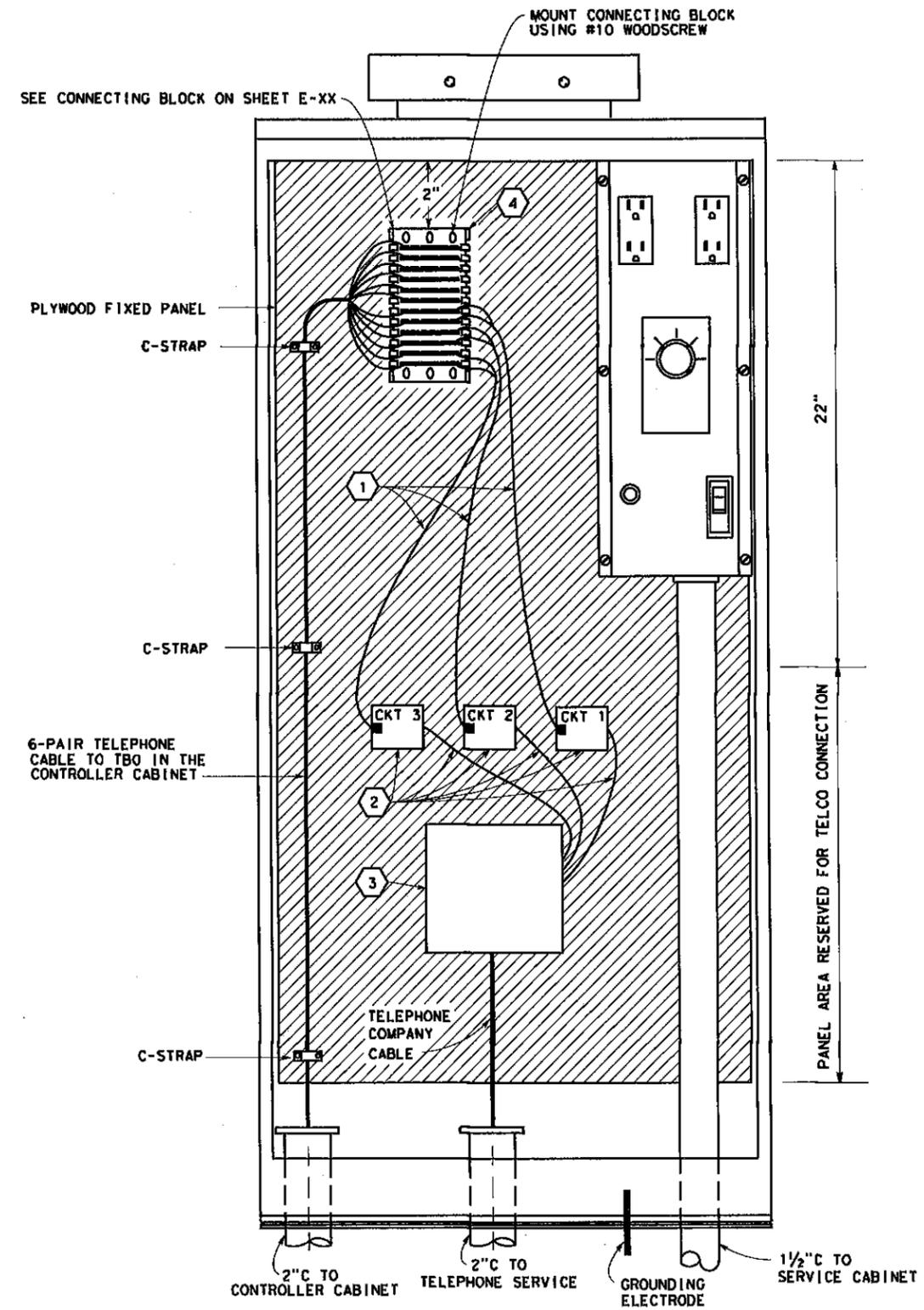
T/R TIP AND RING
TC TELEPHONE CABLE
TELCO TELEPHONE COMPANY

CONDUCTOR LIST FOR DEMARCATION CABINET

CABLE TYPE	FUNCTION	PAIR COLORS	12 ROW PUNCH BLOCK
TC	SPARE	WHITE & BLUE	ROW 1, ROW 2
TC	SPARE	WHITE & ORANGE	ROW 3, ROW 4
TC	SPARE	WHITE & GREEN	ROW 5, ROW 6
TC	CIRCUIT 1	WHITE & BROWN	ROW 7, ROW 8
TC	CIRCUIT 2	WHITE & GRAY	ROW 9, ROW 10
TC	CIRCUIT 3 (DIAL-UP: T/R PAIR)	RED & BLUE	ROW 11, ROW 12

NOTES (FOR THIS SHEET ONLY)

- ① 3' SINGLE ENDED 2-PAIR MODULAR CORD WITH PLUG CONNECTOR. CONDUCTORS SHALL BE 22 AWG, SOLID.
- ② SERVICE CORD AND CONNECTION BLOCK FURNISHED AND INSTALLED BY TELEPHONE COMPANY.
- ③ TELEPHONE COMPANY STANDARD PROTECTOR EQUIPMENT FURNISHED AND INSTALLED BY TELEPHONE COMPANY.
- ④ CONNECTING BLOCK SHALL BE TYPE SIEMON S66B1-6 OR EQUIVALENT.



TELEPHONE DEMARCATION CABINET, TYPE B WIRING DETAIL
SEE RSP ES-3E

**ELECTRICAL DETAILS
(TDC WIRING)
NO SCALE**

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY. FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1

THIS DRAWING IS STORED ON CAD5 ON SV04S01:
1SING\ONKAR\CADDL\LIBRARY\CADDL\BENGL\SH\STDDETAILS E -

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
California

REVISOR
DATE

CALCULATED-DESIGNED BY
CHECKED BY

SUPERVISING ENGINEER

BORDER LAST REVISED 11/1/2006

RELATIVE BORDER SCALE IS IN INCHES

USERNAME => #USER
DGN FILE => #REQUEST

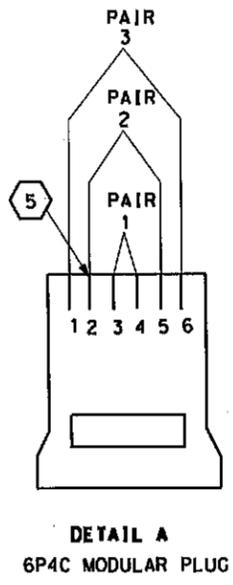
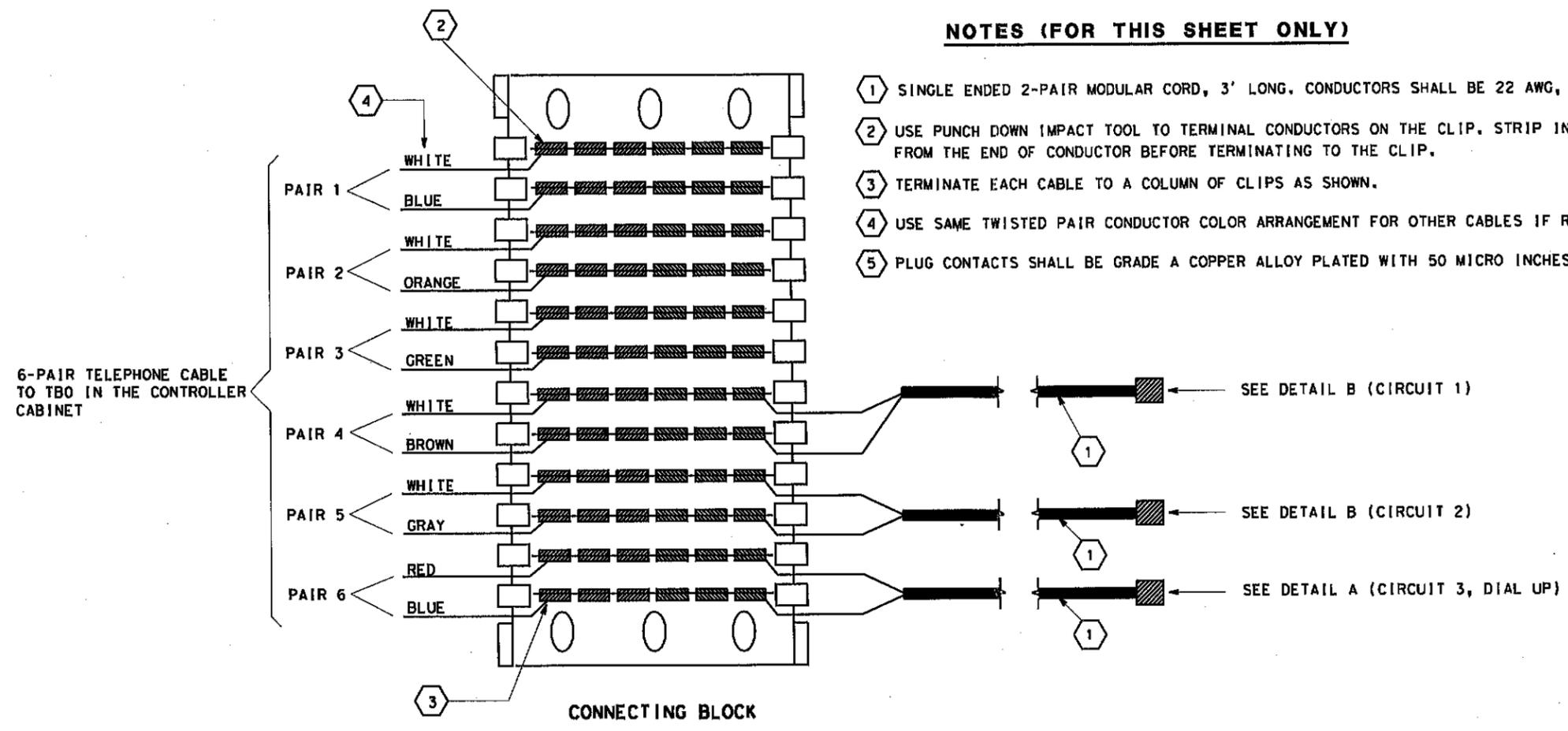
CU 00000

EA 000000M-TOS 08

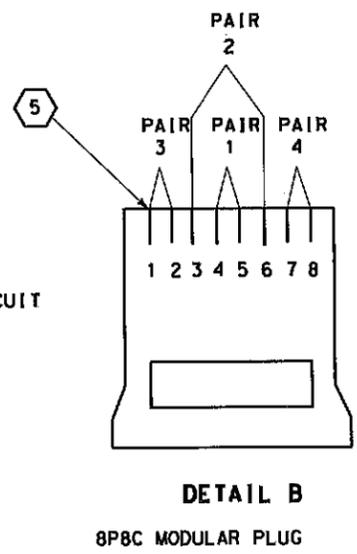
DATE PLOTTED => \$DATE
TIME PLOTTED => \$TIME
06-29-10

NOTES (FOR THIS SHEET ONLY)

- ① SINGLE ENDED 2-PAIR MODULAR CORD, 3' LONG, CONDUCTORS SHALL BE 22 AWG, SOLID.
- ② USE PUNCH DOWN TOOL TO TERMINAL CONDUCTORS ON THE CLIP, STRIP INSULATION 1/4" FROM THE END OF CONDUCTOR BEFORE TERMINATING TO THE CLIP.
- ③ TERMINATE EACH CABLE TO A COLUMN OF CLIPS AS SHOWN.
- ④ USE SAME TWISTED PAIR CONDUCTOR COLOR ARRANGEMENT FOR OTHER CABLES IF REQUIRED.
- ⑤ PLUG CONTACTS SHALL BE GRADE A COPPER ALLOY PLATED WITH 50 MICRO INCHES GOLD OVER NICKEL.



PAIR ID	PIN #	FUNCTION
T1	4	T/R PAIR FOR DIAL-UP CIRCUIT
R1	3	
T2	2	N/C
R2	5	
T3	6	N/C
R3	1	



PAIR ID	PIN #	FUNCTION
T1	5	TRANSMIT AND RECEIVE PAIR
R1	4	
T2	3	N/C
R2	6	
T3	1	N/C
R3	2	
T4	7	N/C
R4	8	

ABBREVIATIONS (FOR THIS SHEET ONLY)

T/R TIP AND RING
N/C NO CONNECTION
TBO TERMINAL BLOCK 0

TELEPHONE DEMARCATION CABINET, TYPE B WIRING DETAIL
SEE ES-3E

ELECTRICAL DETAILS (TDC WIRING)
NO SCALE

THIS PLAN IS ACCURATE FOR ELECTRICAL WORK ONLY.

FOR NOTES, ABBREVIATIONS AND LEGEND, SEE SHEET E-1

THIS DRAWING IS STORED ON CAD5 ON SV04501:
1SING\ONKAR\CADD\LIBRARY\CADD\LIBENGLISH\STDDETAILS E-

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 SUPERVISING ENGINEER
 CALCULATED-DESIGNED BY
 CHECKED BY
 REVISED BY
 DATE REVISED
 BORDER LAST REVISED 11/1/2006



USERNAME => #USER
DGN FILE => #REQUEST

CU 00000

EA 000000M-TOS 09

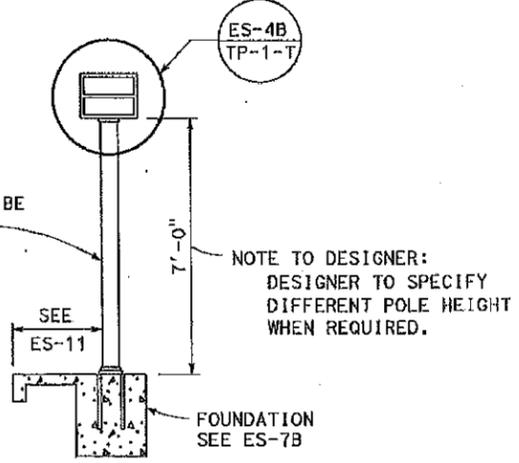
DATE PLOTTED => \$DATE
 TIME PLOTTED => \$TIME
 03-29-10

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS

REGISTERED ELECTRICAL ENGINEER DATE _____
 PLANS APPROVAL DATE _____
 THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER
 R. DUSCHINE
 No. 14758
 Exp. 6-30-09
 ELECT
 STATE OF CALIFORNIA

TYPE 1-B STANDARD. LOCATION AND POSITION OF STANDARD TO BE DETERMINED BY THE ENGINEER.

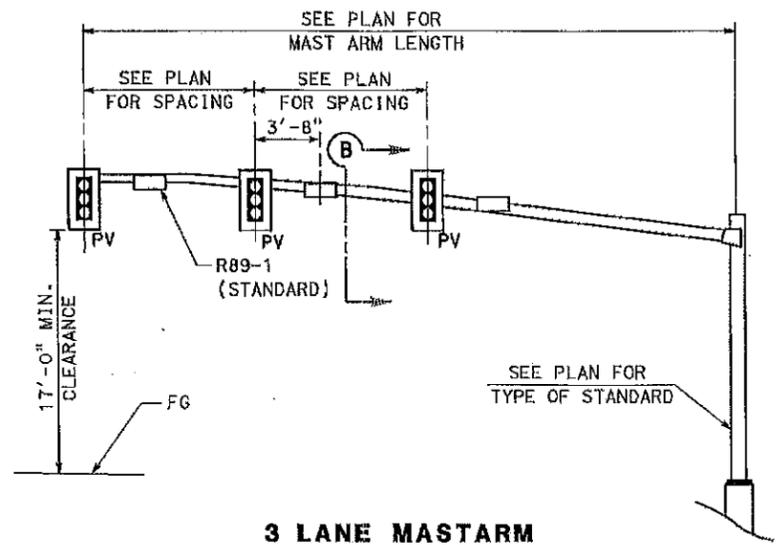


"METER ON" SIGN DETAIL

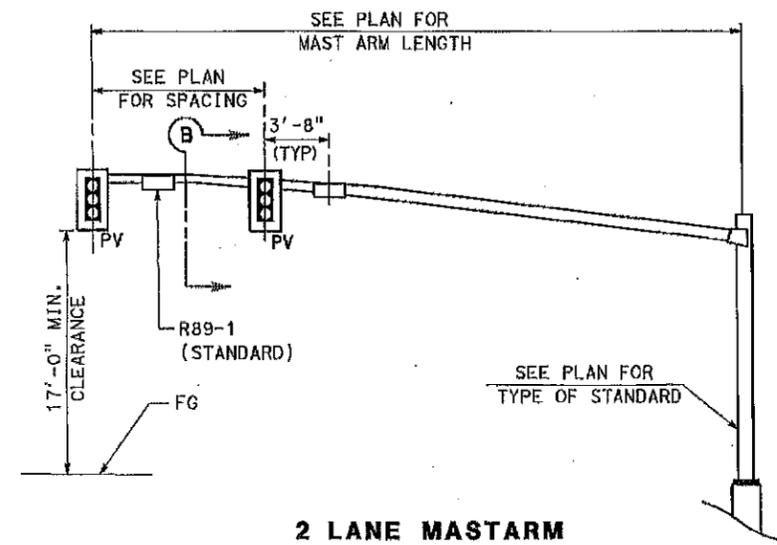
SIGNAL CONDUCTORS FOR RAMP METERS SHALL BE COLOR CODED AS FOLLOWS:

PHASE	BASE	STRIPE	BAND	SYMBOLS
1	RE, YE, BRN	NONE		1
2	RE, YE, BRN	BLACK		2
3	RE, YE, BRN	PURPLE		3
4	RE, YE, BRN	ORANGE		4

DETAIL "CONDUCTOR COLOR CODING"

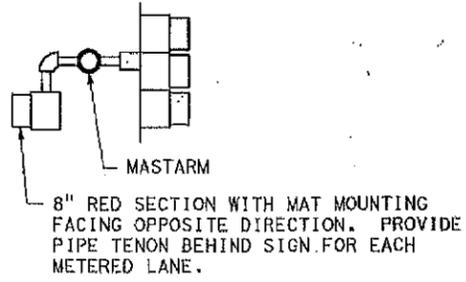


3 LANE MASTARM

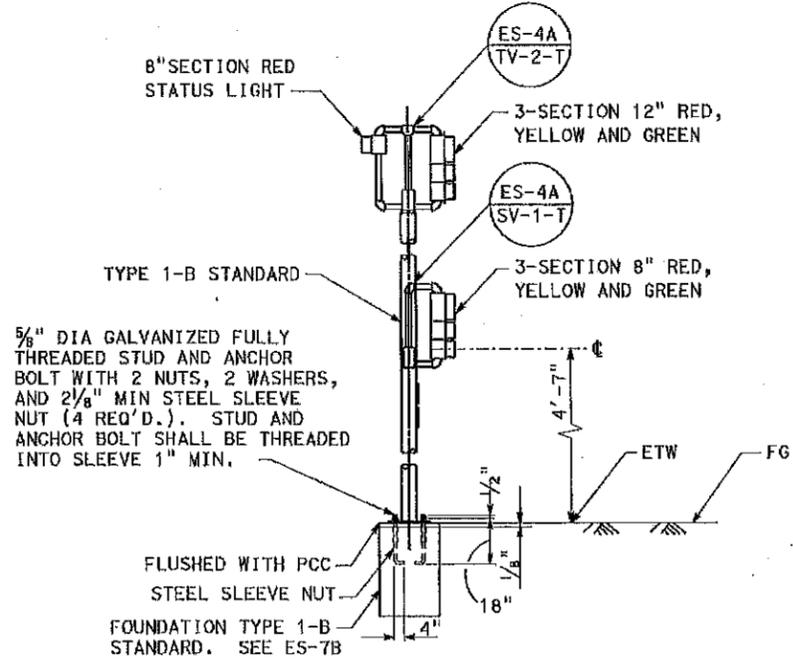


2 LANE MASTARM

DETAIL "MA" RAMP METER SIGNAL, MAST ARM MOUNTED



SECTION B



DETAIL "SIG" RAMP METER SIGNAL, POLE MOUNTED

ELECTRICAL DETAILS ("METER ON" SIGN RAMP METERING 1-B STANDARD, 2-LANE MASTARM, 3-LANE MASTARM, CONDUCTOR COLOR CODING)

NO SCALE

FOR NOTES, ABBREVIATIONS &/OR LEGEND, SEE SHEET E-1

THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY

ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE SHOWN

THIS DRAWING IS STORED ON CAD5 ON 5V04S01: 1SING\ONKAR\CADD\LIBRARY\CADD\BENGLISH\STDDetails

E-

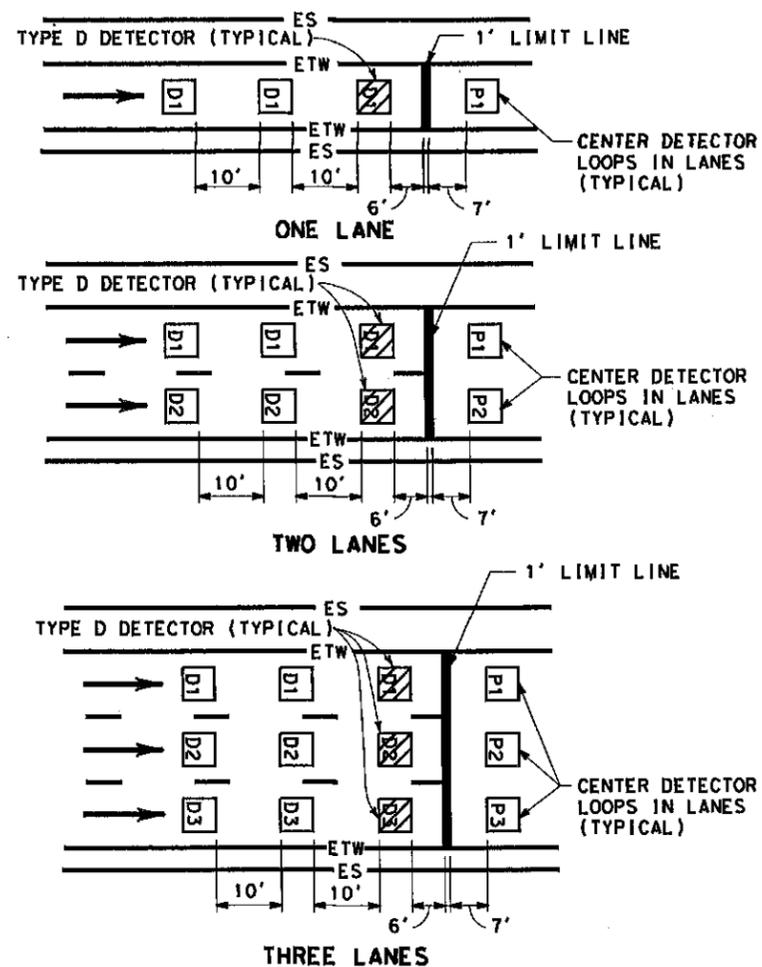
REVISIONS: REVISED BY, DATE REVISED, CALCULATED-DESIGNED BY, CHECKED BY, SUPERVISING ENGINEER, DEPARTMENT OF TRANSPORTATION, STATE OF CALIFORNIA, **Ed Cattrans**

LAST REVISION DATE PLOTTED => 03-APR-2009 04-03-09 TIME PLOTTED => 09:25

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS

REGISTERED ELECTRICAL ENGINEER	DATE
PLANS APPROVAL DATE	

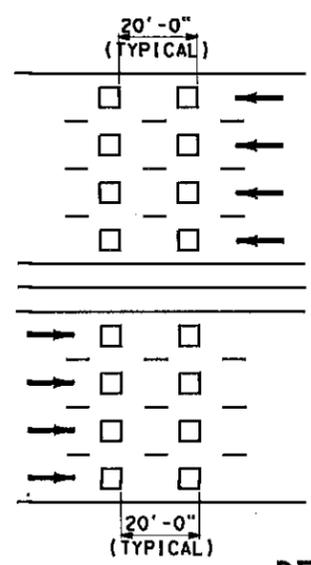
THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.



RAMP METERING STATION NOTES

- SEE ES-5A, ES-5B, AND ES-13A FOR ADDITIONAL DETAILS.
- DLC CONDUCTORS SHALL BE SPLICED TO THE LOOP CONDUCTORS IN THE NEAREST PULLBOX.
- ALL SPLICES SHALL BE TYPE "S" OR TYPE "ST" AS REQUIRED.
- LOCATION OF TYPE 1 STANDARDS SHOULD BE APPROXIMATELY 3 FEET FROM THE EDGE OF SHOULDER AND 12 INCHES DOWNSTREAM OF THE LIMIT LINE.

**DETAIL "RM"
RAMP METERING STATION**



TRAFFIC MONITORING STATION NOTES

- FREEWAY MAINLINE DETECTOR DESIGNATION:**
- N=NORTHBOUND LANES (NB)
 - S=SOUTHBOUND LANES (SB)
 - E=EASTBOUND LANES (EB)
 - W=WESTBOUND LANES (WB)
- NUMBER OF LANES FROM LEFT WITH RESPECT TO DIRECTION OF TRAFFIC:**
- 1=FIRST LANE FROM LEFT
 - 2=SECOND LANE FROM LEFT
 - 3=THIRD LANE FROM LEFT
 - 4=FOURTH LANE FROM LEFT
- NUMBER OF DETECTOR IN THE SAME LANE:**
- 1=ENTERING DETECTOR
 - 2=LEAVING DETECTOR

**DETAIL "TM"
TRAFFIC MONITORING STATION**

RAMP DETECTOR DESIGNATION:

- D=DEMAND DETECTOR
 - P=PASSAGE DETECTOR
 - O=QUEUE DETECTOR
 - F=OFFRAMP DETECTOR
- 1=FIRST LANE FROM LEFT
2=SECOND LANE FROM LEFT

FOR NOTES, ABBREVIATIONS &/OR LEGEND, SEE SHEET E-1

THIS PLAN ACCURATE FOR ELECTRICAL WORK ONLY

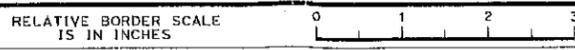
ALL DIMENSIONS ARE IN FEET UNLESS OTHERWISE SHOWN

**ELECTRICAL DETAILS
(RAMP METERING AND TRAFFIC MONITORING
DETECTOR SPACING AND DESIGNATION)**

NO SCALE
THIS DRAWING IS STORED ON CAD5 ON SV04S01:
1SING\ONKAR\CADD\LIBRARY\CADD\BENGLISH\STDDETAILS

E-

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
 SUPERVISING ENGINEER
 CALCULATED-DESIGNED BY
 CHECKED BY
 REVISED BY
 DATE REVISED
 BORDER LAST REVISED 11/1/2006



USERNAME => \$USER
DGN FILE => \$REQUEST

CU 00000

EA 000000

RD-02

LAST REVISION DATE PLOTTED => \$DATE
 TIME PLOTTED => \$TIME
 10-17-12

Attachment J

Materials Recommendation

Memorandum

*Flex your power!
Be energy efficient!*

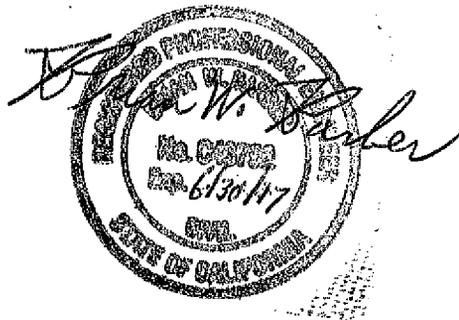
To: MS. ARLISSA PANG
District Branch Chief
Special Projects

Date: August 31, 2016

File: 04-ALA-680
PM 0.0/21.9
EA 4G1114 (0412000630
Freeway Performance
Initiative (FPI)

Atten: Hao-Anh Le

From: BRIAN W. BARBER
Materials Design Engineer
Office Of Engineering Services - Materials B



Subject: Updated Materials Structural Section Recommendations for PSSR-PR

This memorandum is in response to your August 29, 2016 E-mail requesting our office provide a review and update of pavement design recommendations for a PSR/PR project (EA 4G1114) on Route 680 in Alameda County from PM 0.0 to PM 21.9.

The proposed project is to install and implement Traffic Operation System (TOS) elements and widen selected ramps. We understand this project EA 4G1114 is Phase 2 of the parent project EA 04-15310.

Our office previously provided Materials pavement design recommendations for this project in our memorandum dated August 15, 2013. Our recommendations in the 8/15/16 memorandum remain the valid for this project with the exception of the updated new pavement designs as are presented in this current memorandum. Updated recommendations provided in this current memorandum is to maximize the use of Rubberized Hot Mix Asphalt (RHMA) as required for District 04 projects.

UPDATED PRELIMINARY PAVEMENT DESIGN RECOMMENDATIONS

The following are our "new updated" ramp widening pavement structural section design recommendations. Design is based on a 20-year Traffic Index (T.I.) for the project specified ramp locations; an estimated minimum R-value =10 on native subgrade soil and an R-value =15 for new pavement constructed on imported engineered fill of at least 3 feet in thickness.

Ramp Location: NB On from SB Route 84 (T.I.=8.0)

0.20' RHMA(G); 0.20' HMA(A); 0.65' AB(2); 0.85' AS(4) – On Subgrade Soil R-Value =10

0.20' RHMA(G); 0.20' HMA(A); 0.65' AB(2); 0.70' AS(4) – On Engineered Fill R-Value =15

MS. ARLISSA PANG
Atten: Hao-Anh Le
August 31, 2016

Ramp Locations: NB On from Calaveras/Route 84; NB On from Sunol (Koopman); NB On from Pleasanton/Sunol (T.I.=10.0)

0.20' RHMA(G); 0.30' HMA(A); 0.85' AB(2); 1.10' AS(4) – On Subgrade Soil R-Value =10

0.20' RHMA(G); 0.30' HMA(A); 0.85' AB(2); 0.95' AS(4) – On Engineered Fill R-Value =15

Ramp Locations: SB On from Pleasanton/Sunol; SB On from Bernal Ave.; SB On from EB Stoneridge Dr.; SB On from WB Stoneridge Dr. (T.I.=10.5)

0.20' RHMA(G); 0.35' HMA(A); 0.85' AB(2); 1.15' AS(4) – On Subgrade Soil R-Value =10

0.20' RHMA(G); 0.35' HMA(A); 0.85' AB(2); 1.00' AS(4) – On Engineered Fill R-Value =15

Ramp Location: NB On from Scott Creek Rd. (T.I.=11.0)

0.20' RHMA(G); 0.35' HMA(A); 0.90' AB(2); 1.25' AS(4) – On Subgrade Soil R-Value =10

0.20' RHMA(G); 0.35' HMA(A); 0.90' AB(2); 1.05' AS(4) – On Engineered Fill R-Value =15

Ramp Location: NB On from Misson/262; Segment NB On from NB Mission/262; NB On from Bernal Ave. (T.I.=12.0)

0.20' RHMA(G); 0.40' HMA(A); 0.60' LCB; 1.35' AS(4) – On Subgrade Soil R-Value =10

0.20' RHMA(G); 0.40' HMA(A); 0.60' LCB; 1.15' AS(4) – On Engineered Fill R-Value =15

Ramp Location: SB On from SB Route 84 (T.I.=12.0 - Rigid Pavement, Inland Valley, Type II Soils, Lateral Support)

0.85' JPCP; 0.40' LCB; 0.60' AS(4) – On Native Subgrade Soil R-Value =10 and/or On Engineered Fill R-Value =15

Notes:

RHMA(G) = Rubberized Hot Mix Asphalt – Type G

HMA(A) = Hot Mix Asphalt - Type A

AB(2) = Aggregate Base – Class 2

AS(4) = Aggregate Subbase - Class 4

LCB = Lean Concrete Base

JPCP = Jointed Plane Concrete Pavement

item code 401050

plain

MS. ARLISSA PANG
Atten: Hao-Anh Le
August 31, 2016

Ramp RHMA Overlays

For the identified AC only ramps/connectors within the project limits we recommend a minimum 0.15' grind and replacement with RHMA(G) adjacent to the proposed new ramp widening sections to provide a smooth continuous uniform mat surface across the entire paved ramp width. Construct the new pavement section ramp widening section so the upper final 0.15' RHMA(G) lift will match final top elevation and cross-slope of the proposed 0.15' RHMA(G) remove/replacement resurfacing of the adjacent existing pavement.

Notes:

- The SB Stoneridge (Loop and Diagonal) On-Ramps, per as-built records (Contract No. 04-113514), show a 0.25' ATPB layer. The existing ATPB layer (if present) may have to be matched when the ramp is widened if the new widening is in the downgradient direction, with possibly re-establishment of the outside edge drain(s) and hookup to a drainage outlet.
- Prior to the proposed RHMA overlays the existing ramp(s) pavement should be reviewed for potential AC digouts and/or crack sealing. HMA digout repair depths would be 0.50' or depth of the existing AC pavement layer, whichever is the minimum in thickness. Seal all visibly open cracks wider than 1/4".
- Saw cut at least 0.5- to 1 foot into existing pavement to provide a competent clean edge cross-section surface for the new pavement widening.

Note: During the PS&E phase of the project site specific subgrade soil samples may be obtained to determine R-values for final pavement section design for the ramp locations.

If you have any comments or questions, please contact Brian Barber at (707) 622-5490.

c: Daily File, Route File

BBarber/dg/ALA-680, EA 4G1114 (0412000630) PSR/PR Updated Pavement Recom.