

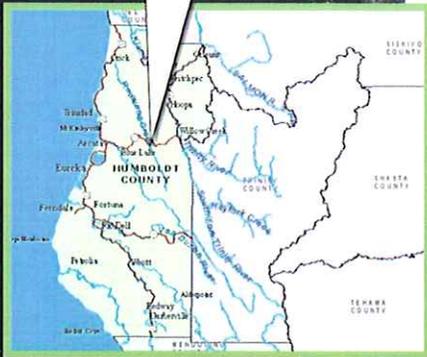
D1



PROJECT STUDY REPORT (Sabertooth Curve Shoulder Widening)

01-Hum-299
PM 23.6/23.9
01-0A370K
01 0002 0290
20.10.201.015 SHOPP
June 2011

Project Location



*In Humboldt County about fifteen miles
West of Willow Creek from 1.2 miles East to
1.5 miles East of Redwood Creek Bridge.*

APPROVAL
RECOMMENDED:

Richard Mullen

RICHARD MULLEN Date
Project Manager, District 1
Humboldt County Project Manager

Ralph Martinelli 6-27-11

RALPH MARTINELLI Date
Traffic Safety Chief, District 1

"I have reviewed the right of way information contained in this Project Report and the R/W Data Sheet attached hereto, and find the data to be complete, current and accurate."

Karen Hawkins 6/28/11

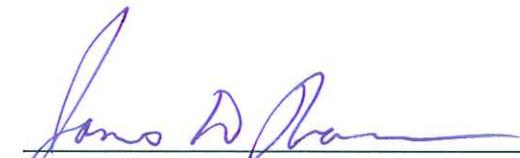
KAREN HAWKINS Date
North Region Right of Way Manager

Charles C. Fielder 6/30/11

CHARLES C. FIELDER Date
District Director, District 1



This Project Study 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.


James D. Rasmussen, P.E.
Registered Civil Engineer

6/22/11
Date

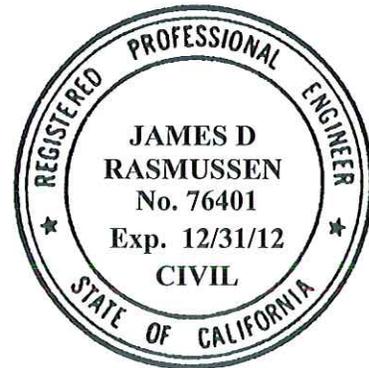


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1. INTRODUCTION

The Sabertooth Curve Shoulder Widening Project proposes to reduce collisions and improve safety along State Route (SR) 299 in Humboldt County. The project is located about 15 miles west of Willow Creek. A Location Map is included as Attachment A.

Please see the project cost estimate, included as Attachment C, for specific items of work included in this project.

Project Limits: (Dist-Co-Rte, PM):	01-HUM-299, PM 23.60/23.85
Number of Alternatives:	2
Alternative Recommended for Programming:	Build Alternative
Programmed or Proposed Capital Construction Cost:	\$1,667,000
Programmed or Proposed Capital Right of Way Cost:	\$6,500
Funding Source:	SHOPP
Type of Facility (conventional, expressway, freeway):	Conventional
Number of Structures:	None
Anticipated Environmental Determination/Document:	CE/CE
Legal Description:	In Humboldt County about 15 miles west of Willow Creek from 1.2 miles east to 1.5 miles east of Redwood Creek Bridge
Project Category:	5

It is proposed that the build alternative (discussed later) be funded from the 201.015 Collision Reduction program of the 2012 State Highway Operation and Protection Program (SHOPP).

2. BACKGROUND

Project History

This project was initiated by the District 1 Office of Traffic Safety to reduce collisions within the project limits. The project includes widening shoulders to improve clear recovery zone, realigning a compound horizontal curve, correcting superelevation, relocating the terminus of an existing eastbound truck climbing lane, and installing centerline and shoulder rumble strips.

Existing Facility

Designated as a scenic byway, SR 299 is a two-lane conventional highway located in rural, mountainous terrain. SR 299 is a principle arterial and a significant east-west route in northern California between Interstate 5 and the north coast.

The existing highway within the project limits consists of two 12-foot traffic lanes with 2 to 4 foot wide shoulders. The existing horizontal alignment is a compound curve consisting of a 600-foot radius curve followed by an 1800-foot radius curve. There is a 377 foot tangent prior to the beginning of the compound curve and a 688 foot tangent following the compound curve. The vertical alignment is downhill in the westbound direction and consists of grades between 5.9% and 6.5%, without vertical curves. There are no structures or railroads within the project limits.

The design speed within the project limits is 45 mph. The posted speed is 55 mph, however the truck speed limit (black on white) in the westbound direction (downhill) is 40 mph. There are advisory curve warning speed signs on both ends of the compound curve within the project limits. The eastbound approach has a 35 mph advisory curve sign and the westbound approach has a 45 mph sign.

There is an existing eastbound truck climbing lane, about 0.8 miles long, that ends within the project limits. That climbing lane ends and the lane drops thru the compound curve. The lane drops at about a 20:1 taper.

State Route 299 to the east and west of the project limits is also a two-lane rural conventional highway thru mountainous terrain. The posted speed is 55 mph; design speed is 45 mph. There are isolated truck climbing lane segments and the shoulder width varies from 2 to 10 feet. Immediately west of the project limits there are 3 reversing horizontal curves, all 600-foot radius curves, separated by short tangent sections (about 350 feet). About 2000 feet east of the project limits there are two 600-foot radius curves in the same direction separated by a 365-foot tangent. The vertical alignment on both ends of the projects is generally a 6% grade (6.8% max) going downhill in the westbound direction. The 6% grade extends from the Redwood Creek Bridge (PM R22.4) to Berry Summit (PM R28.9), a distance of about 6.5 miles. The total elevation difference between the bridge and summit is about 1800 feet.

3. PURPOSE AND NEED STATEMENT

Need: The project is needed because of the number of collisions that have occurred within the project limits. The actual collision rate for fatal plus injury collisions was 2.0 times greater than the statewide average for similar highways. The actual total collision rate was 2.4 times greater than the statewide average for similar highways.

Purpose: The purpose of this project is to enhance safety by reducing the number and severity of collisions within the project limits.

4. DEFICIENCIES

This collision reduction project was proposed due to the concentration of collisions occurring within the project limits. Providing 8-foot shoulders, realigning the horizontal curve and improving the superelevation rate and superelevation transitions within the project limits is expected to reduce the occurrence and severity of collisions.

Vehicle Traffic Data:

The current and forecasted traffic data is shown in the table below. The data was provided by the D1 office of Travel Forecasting and Modeling.

Base year AADT (2008)	3,700
Construction Year AADT (2015)	3,960
10-year AADT (2025)	4,330
20-year AADT (2035)	4,700
Design Hourly Volume (2008)	520
Design Hourly Volume (2015)	560
Design Hourly Volume (2025)	610
Design Hourly Volume (2035)	660
Directional Split %	60
Truck %	11.0
10-year TI	9.0
20-year TI	9.5

Collision Data:

The District 1 Traffic Safety Office reviewed the collision history for the 5-year period from 4/1/2004 to 3/31/2009. During this period within the project limits there were eight collisions but no fatalities. Three of the eight collisions involved injuries and the other five involved property damage only. The majority of the collisions (75%) occurred during wet conditions. Also, a majority of the collisions (75%) were caused by westbound (downhill) traffic. Five of the eight collisions were the result of the vehicle running off the road, and one of the eight was the result of a vehicle crossing into the opposite lane. The collision data is summarized in the following table.

Collision Data Summary (4/01/2004 to 3/31/2009)

Total	Fatal	Injury	PDO ⁽¹⁾	Wet	Dark
8	0	3	5	6	4

(1) Property Damage Only

Collision rates within the project limits were calculated and compared to the statewide average utilizing collision data from the Traffic Accident Surveillance and Analysis System (TASAS). The collision rates from TASAS Table B are shown below.

Collision Rates⁽¹⁾ (4/01/2004 to 3/31/2009)

Actual			State Average		
Fatal	F+I ⁽²⁾	Total	Fatal	F+I	Total
0	0.48	1.29	0.014	0.24	0.53

(1) Rates expressed as number of collisions per million vehicle miles traveled

(2) Fatal plus injury collisions

5. CORRIDOR AND SYSTEM COORDINATION

Future projects planned for the general area of the proposed project are listed in the table below.

Project Location	EA (EFIS)	Project Description	Fiscal Year of Construction
HUM-299 PM R5.7/38.6 Rumble to Willow Creek	01-49830 0100000693	Centerline and Shoulder Rumble Strips	2016
HUM-299, PM 19.3/19.9 Acorn Curve Correction	01-0A360 0100020289	Curve Correction, Widen Shoulders, Rumble Strip	2014
HUM-299, PM 21.1/21.4 Lupton Cr Curve Correction	TBD TBD	Curve Correction, Widen Shoulders, Rumble Strip	20xx
HUM-299, PM 25.1/25.7 Circle Point Curve	01-0A490 0100020308	Curve Correction, Widen Shoulders, Rumble Strip	20xx
HUM-299, PM 30.2/30.7 Cedar Gap Curve	01-0A320 0100020307	Curve Correction, Widen Shoulders, Rumble Strip	2015
HUM-299, PM R8.3 Blue Lake Sink	01-47440 0100000326	Repair slide and upgrade drainage	2011
HUM-299, PM 20.2/20.5 Green Point Sink	01-42370 0100000172	Reconstruct roadway	2012
HUM-299, PM 30.7 Low Gap Buttress	01-43740 0100000194	Buttress slope and reconstruct roadway	2012

6. ALTERNATIVES

One build alternative and the no-build alternative were evaluated for this project.

Build Alternative

The Build Alternative proposes to widen the existing roadway to provide 8-foot shoulders and realign the roadway to replace the existing compound curve with a single 1000-foot radius curve,

The existing traveled way will be overlaid with variable-depth HMA to correct the superelevation. The existing eastbound truck climbing lane will be extended about 560 feet so that the lane drop occurs in a tangent section. Centerline and shoulder rumble strips will be installed. Preliminary Layouts and Typical Section sheets have been prepared and are included as Attachment B.

Realigning the compound curve into a 1000-foot radius curve will reduce the tangent length to the west from about 377 feet to about 212 feet. This revised tangent length is sufficient to transition the superelevation between the reversing curves within standards for restrictive conditions. The existing superelevation of about 6% will be increased to a maximum superelevation rate of 8%. The existing pavement would receive a variable-depth overlay to correct the cross slope.

Existing storm drains and culverts will be lengthened and adjusted as needed to match the proposed roadway section. The existing culverts were reviewed and found to be in adequate condition; no replacement or rehabilitation is needed.

The existing pavement within the project limits is in good condition, based on a visual survey. There is no alligator or block cracking evident. A Preliminary Pavement Recommendation has been prepared to provide design structural sections. This recommendation was based on previous studies in the area; no sampling or testing was done. A soil R-value of 30 was assumed based on historical data. Areas of existing pavement with localized structural section failure will be repaired by replacing a portion of the AC (dig-outs). All cracks greater than ¼ inch will be sealed. A geosynthetic pavement interlayer will be placed along the widening section to prevent reflective cracking from the underlying joint. For cost estimating purposes a structural section consisting of HMA and class 2 AB was used. Other sections to consider were an aggregate subbase as well as a full-depth HMA section. An open graded friction course has been included. A life cycle cost analysis of the various structural sections will be done during the preliminary engineering phase.

The improvements proposed for the project limits will correct most of the nonstandard features. An Exception to Advisory Design Standards is needed for the proposed superelevation transition as well as the proposed 1:1 embankment slope. The proposed superelevation transition does not meet the standard for normal transition but does meet the standard for restrictive conditions (6% change per 100 feet). Given the mountainous terrain in an environmentally sensitive corridor, a 4:1 embankment is not practical. The proposed 1:1 embankment slope will be shielded by MBGR. These issues were discussed with the HQ Design Reviewer, who concurred. An exception will be prepared and approved during the preliminary engineering phase.

An emergency call box is the only utility evident within the project limits. Utility verification will be done during the preliminary engineering phase. The call box will need to be relocated due to the widening and realignment.

The project proposes 1:1 cut slopes with the height of cut about 30 feet, and 1:1 embankment slopes with a fill height of about 30 feet. Temporary best management practices (BMPs) will be incorporated into the project to reduce to the potential for sediment release during construction.

Storm water issues are discussed further in Section 9 below. Highway planting and erosion control elements will be included with the project to re-establish vegetation on the newly constructed slopes.

A six-page estimate for capital costs associated with the Build Alternative has been prepared. The cost estimate, in current day dollars, is included as Attachment C. A preliminary digital terrain model developed from existing LIDAR data was used to estimate excavation and embankment quantities.

Construction is proposed to be completed in stages. There is a flat area adjacent to the roadway within the project limits that is suitable for staging the contractor's equipment and material. Material excavated for the widening on the south side will be used as embankment for widening the roadway to the north. Excess material will be disposed of off-site. During construction traffic thru the work zone will be accommodated using one-way traffic control with a pilot car. During non-working periods, the roadway will be open with one lane in each direction with 0 feet to 2 foot shoulders. The existing eastbound truck climbing lane would temporarily end prior to the project limits so that the additional width within the project limits can be used for traffic handling. Traffic management during construction is discussed further in Section 9 below.

No-build Alternative

The No-build Alternative proposed no improvements to this section of SR 299 other than routine maintenance. This alternative would not meet the need and purpose for the project as it does not address the high number of collisions occurring within the project limits.

7. COMMUNITY INVOLVEMENT

There are no local connections within the project limits. Chezem Road connects with SR 299 about 0.75 miles east of the projects limits; there is a private driveway about 1100 feet west of the project limits. No impacts are anticipated.

Bicyclists are present along this section of SR 299. These bicyclists are not casual riders, but experienced touring riders. The proposed eight-foot shoulders will accommodate them.

8. ENVIRONMENTAL DETERMINATION/DOCUMENT

A Preliminary Environmental Analysis Report (PEAR) has been prepared for this project. The environmental review of the PIF indicates that there is the potential for affects to special status plants and animals. Surveys will be required to confirm the presence or absence of these special status species. There is a low potential for impacts to cultural resources; consultation with local Native American groups will be required. The PEAR is included as Attachment D.

An environmental study will be completed during the next phase of the project. As noted in Section 5 above, there are several safety and collision reduction projects planned for the HUM 299 corridor in the coming years. To avoid segmentation concerns and to address potential cumulative impacts, the PEAR recommends that a Negative Declaration (ND) pursuant to the California Environmental Quality Act (CEQA) be prepared for the first capital project in the corridor to advance to the environmental phase. Preparation of an ND will also enable consideration of context sensitive planning as well as a notice to the public of the proposed projects, allowing the opportunity for public participation. It is anticipated that a Categorical Exemption pursuant to the National Environmental Policy Act (NEPA) will suffice. At this time it is uncertain which project will advance first. If this project does not advance first, it is anticipated that a Categorical Exclusion pursuant to CEQA will be prepared.

9. CONSIDERATIONS REQUIRING DISCUSSIONS

Geotechnical

Given the significantly reduced resources currently available for development of PIDs, a Preliminary Geotechnical Report (PGR) was not prepared. Instead, a reconnaissance level field review was done by the Office of Geotechnical Design North. The project is located in an area of active landslides. A preliminary recommendation includes 1:1 cut slopes on the right (south) side of the roadway. The area of cut proposed for the westerly end of the project appears stable; we do not recommend cutting into the existing slope above the road east of station 35+00, it is an active landslide. For the proposed fill section on the left (north) side of the roadway, Geotechnical is concerned about the additional weight of the proposed 2:1 embankment on the existing slope. Instead the recommendation is to either place lightweight fill or a 1:1 geosynthetic reinforced embankment (GRE) consisting of select material with layers of geogrid. For cost estimating purposes, the GRE alternative was used.

Hazardous Waste

An Initial Site Assessment (ISA) was prepared to identify potential issues. The ISA noted that the removal of the thermoplastic traffic stripes as well as potential aurally deposited lead (ADL) in the soil adjacent to the pavement. These hazardous wastes are considered minor; the contract documents will address handling these wastes using standard special provisions.

Transportation Management Plan

A Transportation Management Plan (TMP) Data Sheet has been prepared to identify the significant TMP elements and ensure all anticipated costs are included in this report. The TMP Data Sheet is included as Attachment E.

Given other projects along the SR 299 corridor in the vicinity of the subject project, the TMP prepared for the project will identify maximum corridor delays and require the contractor to coordinate closures and delay times with other projects in the area.

Storm Water Management Plan

Storm water issues have been considered, and discussed with the NPDES coordinator. Temporary construction and permanent BMPs will be included in the contract, and the costs are included in the estimate. Permanent BMPs will likely include traction sand traps and biofiltration strips and swales, either within the project limits or at suitable locations along the SR 299 corridor.

There are no named water bodies within the project limits. Surface drainage discharges into Captains Creek, which is a tributary to Redwood Creek. The area in and around the project limits typically gets about 60 inches of yearly precipitation. During the winter season, traction sand is typically applied anytime temperatures dip below 34° F. Treatment BMP's consisting of traction sand traps, biofiltration strips and swales may be required and will be determined in the PA&ED phase.

The project will result in approximately 1.6 acres of disturbed soil area. The project is anticipated to be risk level 2.

Right of Way

All work will be done within the existing R/W. A Right of Way Data Sheet has been prepared and is included as Attachment F.

Risk Management

A Risk Management Plan (RMP) has been prepared for the PID phase of the project. The RMP is included as Attachment G.

10. FUNDING

This project is proposed to be funded through the 20.10.201.015 Collision Reduction Program and is eligible for federal funding. The current year capital cost estimate of \$1,674,000 has been escalated by 3% per year to the mid-year of construction, currently 2016. The total escalated capital cost estimate is \$1,941,000.

A Programming Sheet has been prepared to identify proposed capital and support costs, as well as the PYs needed for support, broken down by functional unit and fiscal year. The Programming Sheet is included as Attachment H.

11. SCHEDULE

The proposed project schedule is shown in the table below.

Milestone	Date
PA&ED	July 2014
PS&E	September 2015
Right of Way Certification	November 2015
Ready to List	December 2015
Approve Contract	April 2016
Construction Contract Acceptance	February 2017

12. FHWA COORDINATION

This project is eligible for federal-aid funding and is considered to be state authorized under the current FHWA-Caltrans Stewardship Agreement. No Federal Highway Administration (FHWA) action is required for this project.

13. PROJECT PERSONNEL

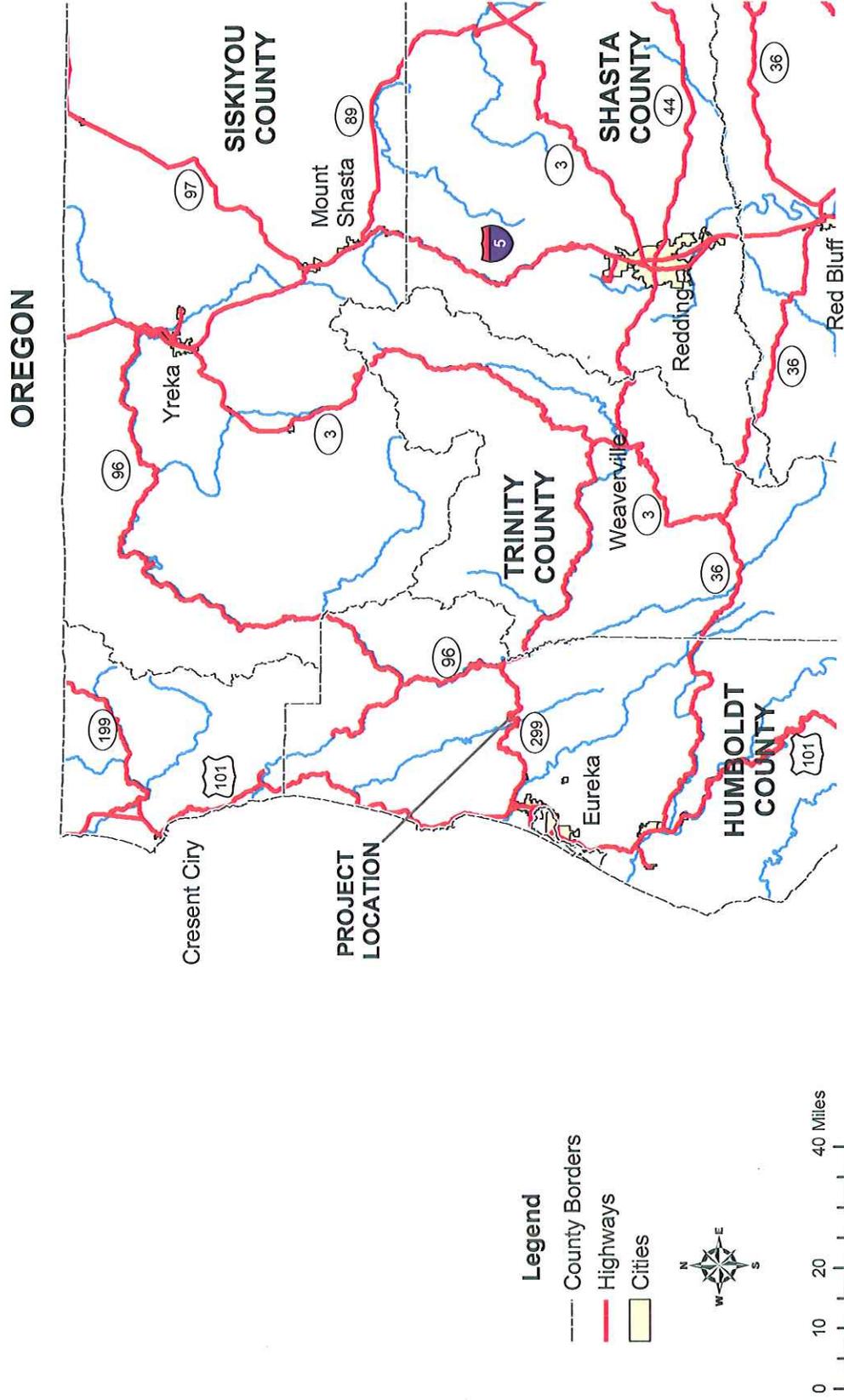
Name	Title	Telephone
Richard Mullen	Project Manager	(707) 441-5877
John Martin	Chief, Design R1	(530) 225-3476
Jim Rasmussen	Project Engineer	(530) 225-2095
Ralph Martinelli	Chief, Traffic Safety	(707) 445-6376
Gary Berrigan	Chief, Environmental	(707) 441-5730
Linda Evans	Environmental Coordinator	(707) 441-5840

14. ATTACHMENTS

- Attachment A Location Map
- Attachment B Preliminary Project Plans
- Attachment C Cost Estimate
- Attachment D Preliminary Environmental Analysis Report
- Attachment E Traffic Management Plan Data Sheet
- Attachment F Right of Way Data Sheet
- Attachment G Risk Management Plan
- Attachment H Programming Sheet

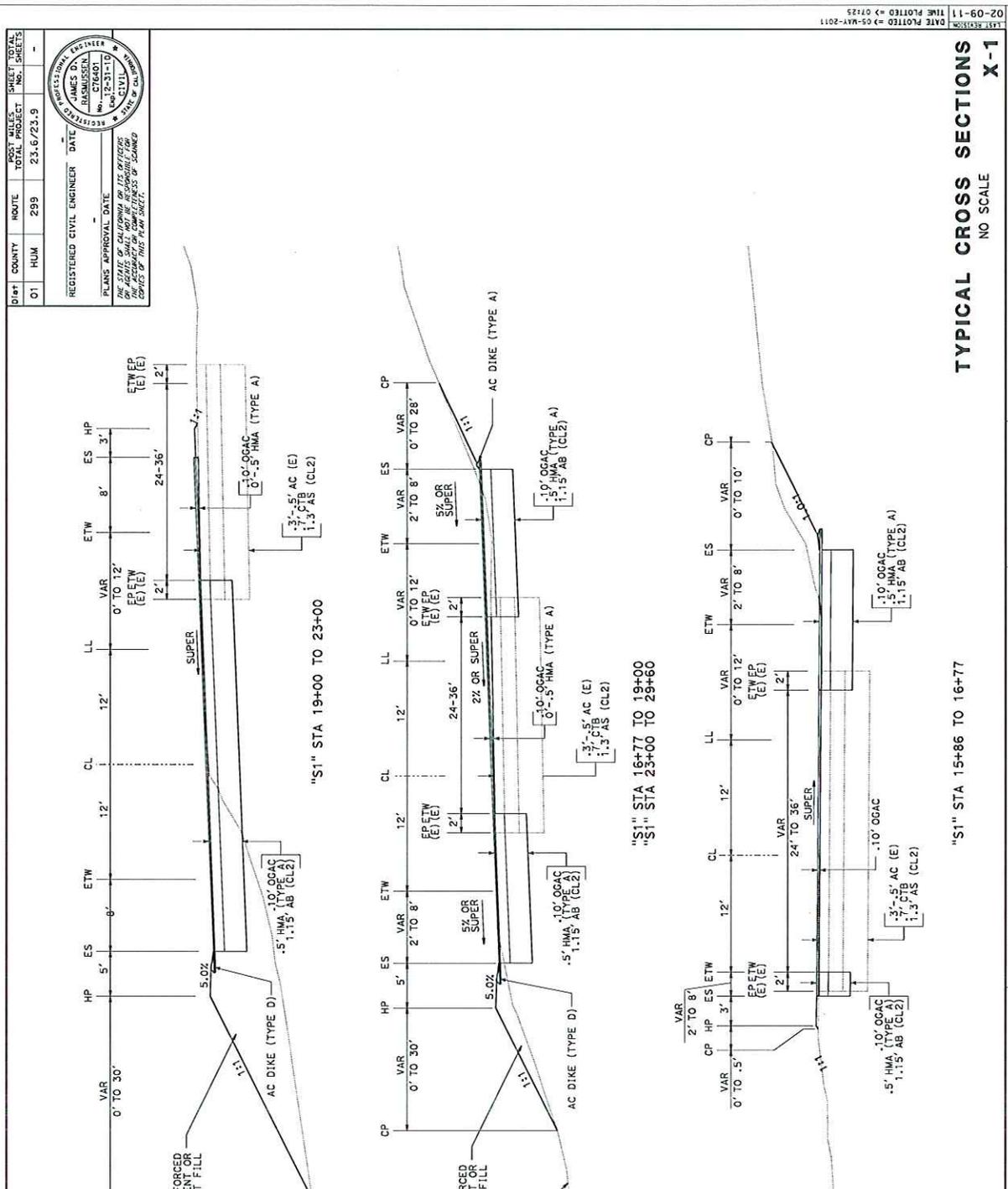
**Attachment A
Location Map**

Sabertooth Curve Correction Vicinity Map



Attachment B
Preliminary Project Plans

DATE REVISSED	CHECKER	REVISOR
DATE REVISSED	CHECKER	REVISOR



REGISTERED CIVIL ENGINEER
 DATE
 JAMES D. RASMUSSEN
 No. 27640
 Exp. 2-31-10
 CIVIL
 STATE OF CALIFORNIA

PLANS APPROVAL DATE
 FOR ADVICE ONLY - NO GUARANTEE
 FOR ACCURACY OR COMPLETENESS OF DRAWINGS
 UNLESS OTHERWISE SPECIFIED

PROJECT NO. 0100020290K
 SHEET NO. 11
 TOTAL SHEETS 11

ROUTE 299
 COUNTY HUMBOLDT
 DATE 23.6/23.9

DATE PLOTTED 05-MAR-2011
 TIME PLOTTED 07:23

NO. SCALE X-1
 TYPICAL CROSS SECTIONS

PROJECT NUMBER & PHASE
 UNIT 0315

RELATIVE HORIZONTAL SCALE
 1" = 40'

USNAME → 115784
 DGN FILE → 010002029001.dgn

BORDER LAST REVISED 7/2/2010

DISP#	COUNTY	ROUTE	TOTAL PROJECT SHEETS	SHEET NO.	TOTAL SHEETS
01	HUM	299	23.6/23.9	-	-

PRELIMINARY

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

THE STATE OF CALIFORNIA BY ITS OFFICER
 IN THE ACCOUNT OF COMPLETENESS OF SCANNED
 COPIES OF THIS PLAN SHEET.

REGISTERED PROFESSIONAL ENGINEER
 JAMES D. RASMUSSEN
 No. CT6401
 002-31-10
 CIVIL
 STATE OF CALIF.



LAYOUT
 SCALE: 1" = 50'

PROJECT NUMBER & PHASE
 UNIT 0315 01.00020290K

RELATIVE BORDER SCALE
 15" IN INCHES



DATE PLOTTED => 26-MAY-2011
 TIME PLOTTED => 11:24

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	DESIGN	FUNCTIONAL SUPERVISOR	JOHN MARTIN	CHECKED BY	JAMES D RASMUSSEN	CHECKER		DATE REVISED	
		DESIGNED BY							
		REVISOR							

BORDER LAST REVISED 7/2/2010
 USERNAME => s127004
 DOW FILE => 10A370_wd001.dgn

Attachment C
Cost Estimate

PROJECT STUDY REPORT COST ESTIMATE SUMMARY

DIST-CO-RTE: 01-HUM-299
PM: 23.60/23.85
EA: 01-0A370K
EFIS: 100020290
Program Code: 015 - Collision
Reduction

PROJECT DESCRIPTION:

Limits: In Humbolt County about 15 miles west of Willow Creek, from about 1.2 miles east to 1.5 miles east of the Redwood Creek Bridge

Proposed Improvement (Scope): Realign horizontal curve; construct 8' wide shoulders by widening on both sides to provide standard-width lanes and shoulders; widen about 500 ft of existing roadway to relocate existing lane drop for climbing lane; correct superelevation and transitions; and modify drainage.

Alternative: Build

TOTAL ROADWAY ITEMS:	\$1,667,000
TOTAL STRUCTURE ITEMS:	<u><u>\$0</u></u>
SUBTOTAL CONSTRUCTION COSTS:	\$1,667,000
TOTAL RIGHT-OF-WAY ITEMS:	<u><u>\$6,500</u></u>
TOTAL PROJECT CAPITAL OUTLAY COSTS:	\$1,673,500

Reviewed by District Program Manager: _____

Approved by Project Manager: _____
Richard Mullen, P.E. Phone Date

I. ROADWAY ITEMS**Section 1 Earthwork**

	Quantity	Unit	Unit Price	Cost
Clearing & Grubbing	2	ACRE	\$10,000.00	\$20,000
Roadway Excavation	7500	CY	\$9.00	\$67,500
Embankment Backfill (GRE)	2600	CY	\$40.00	\$104,000
Geosynthetic Reinforcement (GRE)	60000	SQYD	\$3.00	\$180,000
Develop Water Supply	1	LS	\$5,000.00	\$5,000
Subtotal Earthwork:				\$376,500

Section 2 Structural Section

	Quantity	Unit	Unit Price	Cost
Cold Plane AC	180	SQYD	\$10.00	\$1,800
Geosynthetic Pavement Interlayer	1200	SQYD	\$3.00	\$3,600
Class 2 Aggregate Base	1600	CY	\$45.00	\$72,000
HMA (Type A)	1200	TON	\$135.00	\$162,000
AC Digouts	30	CY	\$300.00	\$9,000
HMA (Open Graded)	500	TON	\$150.00	\$75,000
Tack Coat	1	TON	\$800.00	\$800
Comp Adj Asph Price Index	1	LS	\$10,000.00	\$10,000
Place HMA Dike	750	LF	\$15.00	\$11,250
Import Material, Shld Back	400	TON	\$40.00	\$16,000
Subtotal Structural Section:				\$361,450

Section 3 Drainage

	Quantity	Unit	Unit Price	Cost
24" CSP & FES	1	LS	\$40,000.00	\$40,000
Edge Drains & Outlets	1	LS	\$10,000.00	\$10,000
Modify Inlets	1	LS	\$6,000.00	\$6,000
Underdrains	600	LF	\$80.00	\$48,000
Rock Slope Protection	1	LS	\$3,000.00	\$3,000
Subtotal Drainage:				\$107,000

Section 4 Specialty Items

	Quantity	Unit	Unit Price	Cost
Remove MBGR	700	LF	\$6.00	\$4,200
MBGR	750	LF	\$40.00	\$30,000
Alt In-line Terminal System	1	EA	\$3,000.00	\$3,000
Delineators and Markers	40	EA	\$50.00	\$2,000
Shld & CL Rumble Strip	40	STA	\$100.00	\$4,000
Lead Compliance Plan	1	LS	\$1,000.00	\$1,000
SWPPP	1	LS	\$8,000.00	\$8,000
Temporary BMPs	1	LS	\$10,000.00	\$10,000
Permanent BMPs	1	LS	\$20,000.00	\$20,000
Environmental Mitigation	1	LS	\$10,000.00	\$10,000
RE Office Space	1	LS	\$4,000.00	\$4,000
COZEEP	1	LS	\$48,000.00	\$48,000
Subtotal Specialty Items:				\$96,200

Section 5 Traffic Items

	Quantity	Unit	Unit Price	Cost
Construction Area Signs	1	LS	\$5,000.00	\$5,000
Traffic Control System	1	LS	\$50,000.00	\$50,000
Temporary Flashing Beacon	1	LS	\$10,000.00	\$10,000
Portable CMS	1	LS	\$10,000.00	\$10,000
Channelizers	100	EA	\$40.00	\$4,000
(Surface Mounted)				
Remove Traffic Stripes	10000	LF	\$0.25	\$2,500
Temporary Stripe (Paint)	8000	LF	\$2.00	\$16,000
Traffic Stripes	8000	LF	\$2.00	\$16,000
Pavement Markers	160	EA	\$12.00	\$1,920
(Recessed)				
Remove Roadside Sign	8	EA	\$100.00	\$800
Relocate Roadside Sign	4	EA	\$250.00	\$1,000
Roadside Sign - One Post	4	EA	\$300.00	\$1,200
Maintain Traffic	1	LS	\$50,000.00	\$50,000
Subtotal Traffic Items:				\$168,420

II. STRUCTURES ITEMS

Subtotal Structure Items: \$0

Railroad Related Costs: \$0

TOTAL STRUCTURE ITEMS: \$0

Estimate Prepared by: _____
Phone _____ Date _____

III. RIGHT-OF-WAY

Acquisition (includes excess lands and damages)	\$0
Utility Relocation (State share)	\$0
Project Development Permit Fees	\$6,500
Clearance/Demolition	\$0
RAP	\$0
Title and Escrow Fees	\$0

Subtotal Right of Way Items: \$6,500

Construction Contract Work: \$0

TOTAL RIGHT OF WAY ITEMS: \$6,500

Estimate Prepared by: _____

Attachment D
Preliminary Environmental Analysis Report



PRELIMINARY ENVIRONMENTAL ANALYSIS REPORT

1. Project Information

District 01	County HUM	Route 299	PM 23.6/24.0	EA - EFIS 0A370k - 0100020290
Project Title: Sabertooth Curve Correction				
Project Manager Richard Mullen			Phone # 707-441-5877	
Project Engineer John Martin (Design Senior)			Phone # 530-225-3476	
Environmental Office Chief Gary Berrigan			Phone # 707-441-5730	
PEAR Preparer Linda Evans			Phone # 707-441-5840	

2. Project Description

Purpose and Need

This two-lane segment of Route 299 includes elements that do not meet current Highway Design Manual standards, including shoulder width and tangent lengths. Eight reported collisions took place within a 5-year time period between April 2004 and March 2009. The purpose of this project is to improve the safety of the facility by reducing the number and severity of accidents. As much as 50% reduction of incidents can be anticipated through the implementation of the proposed safety improvements.

Description of work

This segment of SR 299 is a two lane conventional highway located in rural, mountainous terrain. The design speed of the highway is 45 mph on a downhill grade in the westbound direction. The existing alignment consists of a 600 ft. radius curve with short tangents in a lane drop of a 3-lane (truck climbing) section. In this section of roadway, the paved shoulders vary from 3-4 ft. The existing shoulder widths, tangent lengths and associated super-transitions do not meet current Highway Design Manual (HDM) standards. The proposed project would realign the existing curve with a larger radius curve and tangents, widen shoulders, and improve super elevation transitions from PM R23.6/R24.0. The third lane (truck climbing) would connect to the existing 3-lane alignment on the west end of this project.

Project elements include:

- Construction Area signs would be installed outside of the identified project limits. Flashing beacons would be installed; this work would require a utility connection or solar power source
- Clearing and grubbing would involve removal of trees and other vegetation.

- Sabertooth Curve is located on an active earth slide (earth flows). Geotechnical recommendations to minimize disturbances to the slides include: lightweight fill or a geosynthetic reinforced embankment, with a 1:1 cut of about 30 feet in height and a 1:1 fill slopes with a fill height of about 30 feet.
- Approximately 3000 cubic yards of fill for the embankment would be needed; and 6500 cubic yards of excavation would be generated.
- At least two culverts within the project limits would be extended.
- Three 12 foot wide lanes, with 8 foot paved shoulders would be constructed, replacing the existing two 12 foot wide lanes and 3-4 foot paved shoulders.
- Super elevation transitions and tangent lengths would be improved.
- Clear recovery area would be improved.
- The roadway would be repaved with asphalt concrete (AC), with centerline and shoulder rumble strips ground in, and striping and pavement markers installed.
- Metal Beam Guardrail (MBGR) would be installed. All existing MBGR would be reset and the terminal sections replaced.
- Placement of a three-foot wide strip of shoulder backing on both sides of the highway.
- All turnouts on both sides of the highway within the project limits are proposed for equipment staging areas.
- No right-of-way would be required.
- There would be no utility relocation for this project, although as noted in 1 above, a utility line may be needed for the temporary signal system and flashing beacon.
- Access to all of the work would need to be identified early in project development.

Alternatives

No alternatives to the design improvements identified above have been proposed for consideration. Due to the unstable nature of the local geology, the removal of vegetation and opening of cut slopes may lead to surface slope failure after project completion. The revegetation of the steep cut slopes would be difficult to revegetate successfully due to the steepness of the final cut and fill slopes, placing at risk the potential surface soils and slope stabilizing benefits of replanting.

Because of these concerns, it is recommended that alternatives to this design be considered by the Project Development Team. The goals of a new alternative would be to minimize vegetation removal and reduce risks of potential slope destabilization of the hillside surface soils above the roadway.

In addition to reducing the overall volume of cut and amount of potential excess material that would need to be disposed of, a cut slope at a flatter angle that involves a lesser amount of ground disturbance and recontouring could be more conducive to successful revegetation efforts.

3. Anticipated Environmental Approval

CEQA		NEPA	
Environmental Determination			
Statutory Exemption	<input type="checkbox"/>		<input type="checkbox"/>
Categorical Exemption	<input type="checkbox"/>	Categorical Exclusion	<input checked="" type="checkbox"/>
Environmental Document			
Focused Initial Study with Negative Declaration or Mitigated ND	<input checked="" type="checkbox"/>	Environmental Assessment with Finding of No Significant Impact	<input type="checkbox"/>
Environmental Impact Report	<input type="checkbox"/>	Environmental Impact Statement	<input type="checkbox"/>
CEQA Lead Agency:		California Department of Transportation	
Estimated length of time (months) to obtain environmental approval:		30 months	
Estimated person hours to complete identified tasks:			

Multiple safety projects are proposed to be developed on Route 299 between postmiles 5.45 and 38.6 (Blue Lake to Willow Creek), including:

<u>Project Nickname</u>	<u>Postmiles</u>
1. Rumble Strip PEAR/project	(PM 5.45/38.6)
2. Acorn Curve PEAR	(PM 19.35/19.65)
3. Lupton Creek Curve PEAR	(PM 21.1/21.4)
4. Sabertooth Curve PEAR	(PM 23.6/24.0)
5. Chezem Curve PEAR	(PM 24.4/24.6)
6. Circle Point Curve PEAR	(PM 25.05/25.65)
7. Cedar Gap Curve PEAR	(PM 30.25/30.65)
8. Sink Point Curves PEAR	(PM 31.1/31.4)

All of these projects are safety projects in the PEAR phase. It is not known which of these projects would be the first to move forward into the 0 phase for preparation of an environmental document. Because of the number of projects and locations with a similar purpose and potential impacts, it is recommended that a Negative Declaration for CEQA be prepared, at least for the first project that moves forward after the PEAR phase.

The purpose and need of the PEARs is similar to the subject Sabertooth Curve project. A Negative Declaration would enable consideration of potential cumulative impacts and context sensitive planning combined with notice to the public of the proposed projects, affording an opportunity for public participation prior to final decision-making and commencement of construction. While the project is not anticipated to result in significant environmental impacts, there would be less than significant impacts that could

influence design decisions or alternatives considered. For NEPA purposes, A Categorical Exclusion would suffice.

4. Special Environmental Considerations

Seasonal surveys are necessary for sensitive plants, and additional seasonal surveys for presence or absence of northern spotted owl (NSO) and marbled murrelet (MAMU) may be required. A noise analysis will be needed to evaluate potential impacts during construction and permanent impacts of the introduction of rumble strips into the roadway environment.

An extended Phase 1 archaeological investigation may be required.

5. Anticipated Environmental Commitments

No environmental commitments have been made at this phase of the project. A range of environmental commitments may include: construction windows to avoid impacts to NSO and MAMU during nesting/breeding season; removal of trees and habitat vegetation during the non-breeding season as required by the Migratory Bird Treaty Act; design and installation of treatment BMPs to avoid or minimize sediment contributions to the Redwood Creek drainage; aesthetic treatments for revegetation, wall finishes, and guardrail; identification of borrow and disposal sites; staging areas; temporary access roads for construction; and measures to minimize noise impacts.

6. Permits and Approvals

The following permits would be required: North Coast Regional Water Quality Control Board (RWQCB) Section 401 Certification, U.S. Army Corps of Engineers (USACE) Section 404 Clean Water Act Permit, Section 1602 Stream Alteration Agreement from the Department of Fish and Game (DFG), and one or more endangered species act consultation.

7. Level of Effort: Risks and Assumptions

See discussion in number 5 above, "Anticipated Environmental Commitments". Adequate time to conduct seasonally required surveys for sensitive plants and birds needs to be factored into the project development process. See discussion of "Alternatives" in number 2 above, "Project Description". Due to the unstable nature of the local geology, the removal of vegetation and opening of cut slopes may lead to surface slope failure after project completion. The revegetation of the steep cut slopes would be difficult to revegetate successfully due to the steepness of the final cut and fill slopes, placing at risk the potential surface soils and slope stabilizing benefits of replanting.

8. PEAR Technical Summaries

8.1 Land Use: The parcel sizes adjacent to the project site are large, in the range of 5 to 80+ acres. The Humboldt County General Plan land use designations for the adjacent and nearby parcels are primarily resource-based Agricultural and Timber land designations.

8.2 Growth: There are no growth related issues resulting from this proposed project. The extension of the third lane is not for increasing traffic capacity, but to serve as a passing lane extension and offer some clear recovery area.

8.3 Farmlands/Timberlands: Large parcels with low density residential are adjacent to the state highway. The primary land use has timber land with some range land. No new right of way would be needed, and the project would not impact existing or continued use of farmlands and timberlands.

8.4 Community Impacts: There is no defined community in the vicinity. A string of rural, larger size parcels with some single family residences exists on Chezem Road. There are no anticipated community impacts associated with this project.

8.5 Visual/Aesthetics: The project is located on Route 299 within the Trinity Scenic Byway as designated and administered by the U.S. Forest Service (USFS). Although the limits of the project are about 12 miles from the boundaries of Six Rivers National Forest, the Scenic Byway extends for 140 miles between Arcata and Redding. In addition Route 299 is listed as "Eligible" for scenic highway designation within the California Scenic Highway System.

Landform modifications such as cutting into slopes or adding fill for embankment alter the visual landscape. Vegetation would be removed as part of the excavation. Revegetation would be planned, where feasible, but the steepness of the cut bank, and exposed rocky or clay based soils are determinant factors in the relative success of revegetation. It may be difficult to obtain 401 permits from the RWQCB if the revegetation on steep cut slopes is deemed impractical or unachievable to implement.

Because the revegetation plays an important role in preventing sedimentation of streams and water sources, a multi-functional evaluation through the Project Development Team is recommended to determine the best approach and project alternative that fulfills the most needs for fiscal responsibility, geological stability, visual and aesthetic considerations.

Temporary impacts of night lighting during construction would need to be discussed.

8.6 Cultural Resources: Prehistoric, and possibly historic, archaeological surveys would be required. Native American consultation would be required. Additionally, an extended Phase I archaeological investigation may be required if resources are identified that cannot be avoided. A geoarchaeological investigation may be required dependent on the nature and extent of project excavation, the results of archaeological surveys and Native American consultation, and the geotechnical description of the earth flow at the project location.

8.7 Hydrology and Floodplain: Changes in culverts, topographical landform modifications, placement of fill, and increases to impervious surfaces all affect the micro-hydrology in the project limits. No specific hydrologic review has been provided for the

PEAR. The environmental analysis and environmental document preparation would need a technical report and input on Hydrology.

8.8 Water Quality and Storm Water Runoff: The disturbed soil area would likely exceed one acre, and would cause an increase in impervious surfaces. Sedimentation and Siltation Total Daily Maximum Loads (TMDLs) have been adopted by the US Environmental Protection Agency (EPA) and the North Coast Regional Water Quality Control Board (NCRWQCB) that apply to the Redwood Creek watershed. In the 2002 Section 303(d) list update, Redwood Creek was listed as impaired for temperature. Treatment BMP evaluation would be expected as part of the Section 401 Water Quality Certification. Storm Water permits needed for this project include the Construction General Permit, Caltrans Statewide NPDES Permit. The process would likely require submittal of Notices of Intent (NOI) and Notices of Termination (NOT) after a new NPDES Statewide Permit has been adopted (adoption is anticipated to take place by August 2011). The change to this process will allow the NCRWQCB to determine when a project meets final stabilization standard. For the terms for submitting a NOT. Construction is developing a service contract for the North Region that will allow drafting Task Orders to address erosion control and other storm water needs during the time when a project contract is completed and the NOT is accepted.

8.9 Geology, Soils, Seismic and Topography: The project is mapped as highly unstable by USGS and as documented in Humboldt County Community Development Department's resource maps. Geotech staff is recommending the use of lightweight fill or a geosynthetic reinforced embankment with 1:1 cut & fill slopes to minimize disturbances to the slides. Based on these recommendations (per conversation with Charlie Narwold), the Design engineers modified the project plans. The recommended modifications to the cut/fill slope result in the following changes to the volumes:

<u>Excavation/cut</u>	<u>Embankment/fill</u>
Original 12,500 cubic yards (cy)	5,500 cubic yards
Modified 6,500 cy	3,000 cy

A geological technical report needs to be prepared for this project.

8.10 Paleontology: The proposed project is named for the nearby county roadway, Sabertooth Road. Discussion with Humboldt County Department of Public Works and/or Don Tuttle, the former Natural Resources Department head, should clarify the basis of the name. The westerly portion of the roadway follows the Grogan Fault parallel to and immediately up slope from Redwood Creek. The Geologic Map of California – Redding Sheet – Division of Mines and Geology 1962 – shows a Quaternary nonmarine terrace deposit immediately west of the Grogan Fault that may have the potential to produce fossils. If present, potential fossil deposits are more likely west of the Grogan Fault on the westerly portion of Sabertooth Road, than on the segment of the road to the east of the proposed project.

8.11 Hazardous Waste/Materials: The Initial Site Assessment found that the project may have potential hazardous waste issues associated with Aerially Deposited Lead (ADL)

and thermoplastic stripe paint disturbance. Naturally Occurring Asbestos (NOA) is not likely present in site soils.

8.12 Air Quality: The air quality is not anticipated to be an issue for this project. The baseline air quality meets standards and the project is not expected to change those baseline conditions.

8.13 Noise and Vibration: Temporary noise during construction would need to be considered with regard to wildlife usage and bird nesting season. Permanent noise from centerline and shoulder rumble strips would need to be evaluated.

8.14 Energy and Climate Change: This has not been evaluated. The text provided from Caltrans Headquarters addressing climate change would be included in the environmental document and is not anticipated to be a substantial issue for this project.

8.15 Biological Environment: The project limits are located on a generally southwest-facing slope of mixed hardwood-conifer forest and annual grasslands. Construction would be assumed to use equipment generating noises with frequencies, durations and intensities no greater than ambient (85 dBA @ 50') noise levels. If it is anticipated to exceed these noise levels, a bioacoustic noise analysis would need to be part of the biological analysis. The construction hours may be extended by the use of lights which would need to be evaluated for potential impacts to the surrounding habitat and wildlife use. An assessment for potential presence of special-status plants would be conducted during the zero phase and would reveal the presence/absence of habitat suitable for special-status plants. If the habitat is present and at risk of impact, spring-time and summer-time floristic surveys would be undertaken. Such surveys would be required each year prior to the completion of construction. Presence of special-status plants at risk may require agency consultation and possible mitigation.

Special-status animals that may be affected by proposed operations may include, but are not limited to: marbled murrelet (MAMU) and northern spotted owl (NSO). MAMU and NSO are each federally and/or State ESA-listed species. Construction generated noise disturbances during breeding seasons and/or alteration of habitat are likely to affect one or more of these species to the extent that would require Federal Endangered Species Act (FESA) Section 7 and/or California Environmental Species Act (CESA) 2081 (b) consultation (or Section 7 with a 2080.1 consistency determination).

Modifications to the construction window for the project may be incorporated in an effort to avoid ESA consultation for potential impacts to MAMU and NSO. Other considerations may be made to minimize or avoid the take of NSO habitat (removal of trees). Impacts to jurisdictional waters are expected to be minimal, if any. Mitigation measures resulting from ESA consultations may include planting trees or other measures.

8.16 Cumulative Impacts: Several other projects are in various phases of the project development process between postmiles 5.7 and 38.6 on Highway 299, including seven other PEARs, a recently constructed project with a tie-back wall, and two permanent

restoration projects from storm damage. There is a potential for cumulative impacts to the following resources: visual resources and context sensitive planning and design in the Trinity Scenic Byway with substantial landform alteration, cuts and fills, retaining walls; potential to destabilize slopes by cutting into slopes for curve corrections; sedimentation and water quality concerns for Redwood Creek or other watersheds with TMDL limitations; disposal site needs from at least 8 projects generating excess materials; imported materials for numerous projects; cumulative construction impacts including traffic delays; bioacoustic noise impacts during construction; noise impacts from the introduction of rumble strips to the roadway.

8.17 Context Sensitive Solutions: Steep cut slopes would create areas of vegetation removal and landform modification. The project design should consider the visual/aesthetic treatments, viability of revegetation on steepened slopes, potential for use of low walls where cuts and fills are proposed and the context of multiple similar projects to take place along the Trinity Scenic Byway.

9. Summary Statement for PSR or PSR-PDS

Only one build alternative was proposed and that was subsequently modified based on a recommendation from Geotech. A full project development team meeting to discuss and consider a range of alternatives needs to take place that would factor in the needs of multiple functions, regulatory requirements, contextual settings of multiple projects in close proximity on Route 299 and the potential for cumulative impacts.

10. Disclaimer

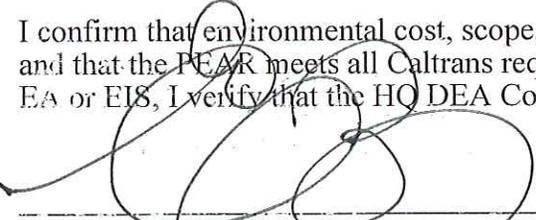
This Preliminary Environmental Analysis Report (PEAR) provides information to support programming of the proposed project. It is not an environmental determination or document. Preliminary analysis, determinations, and estimates of mitigation costs are based on the project description provided in the Project Study Report (PSR). The estimates and conclusions in the PEAR are approximate and are based on cursory analyses of probable effects. A reevaluation of the PEAR will be needed for changes in project scope or alternatives, or in environmental laws, regulations, or guidelines.

11. List of Preparers

Cultural Resources Specialist, Barry Douglas
Biologist, Peter Lewendal
Noise Specialist, Ben Tam
Water Quality Specialist, Miguel Villicana
Hazardous Waste/Materials Specialist, Steve Werner
Visual/Aesthetics Specialist, Jim Hibbert
Geologist, Charlie Narwold (conversation only, no report)
PEAR Preparer, Linda Evans, Associate Environmental Planner, Generalist

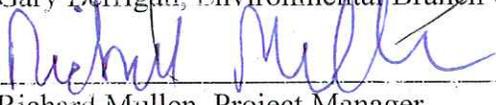
12. Review and Approval

I confirm that environmental cost, scope, and schedule have been satisfactorily completed and that the PEAR meets all Caltrans requirements. Also, if the project is scoped as an EA or EIS, I verify that the HQ DEA Coordinator has concurred in the Class of Action.



Gary Berrigan, Environmental Branch Chief

Date: 06.24.11



Richard Mullen, Project Manager

Date: 6-27-11

ATTACHMENTS:

Attachment A: PEAR Environmental Studies Checklist

Attachment B: Estimated Resources by WBS Code

Attachment D: PEAR Environmental Commitments Cost Estimate (Standard FSR)

Attachment A: PEAR Environmental Studies Checklist

Rev. 11/08

Environmental Studies for PA&ED Checklist							
	Not anticipated	Memo to file	Report required	Risk*			Comments
				L	M	H	
Land Use	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Growth	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Farmlands/Timberlands	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Community Impacts	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Community Character and Cohesion	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Relocations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Environmental Justice	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Utilities/Emergency Services	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Visual/Aesthetics	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Cultural Resources:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Archaeological Survey Report	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Historic Resources Evaluation Report	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Historic Property Survey Report	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Historic Resource Compliance Report	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Section 106 / PRC 5024 & 5024.5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Native American Coordination	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Finding of Effect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Data Recovery Plan	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Memorandum of Agreement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Hydrology and Floodplain	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>M</u>			
Water Quality and Stormwater Runoff	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>M</u>			
Geology, Soils, Seismic and Topography	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>M</u>			
Paleontology	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
PER	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
PMP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Hazardous Waste/Materials:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
ISA (Additional)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
PSI	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Other:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Air Quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Noise and Vibration	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>			
Energy and Climate Change	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Biological Environment	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Natural Environment Study	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>			
Section 7:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>			
Formal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Informal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
No effect	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Section 10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
USFWS Consultation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>			
NMFS Consultation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Species of Concern (CNPS, USFS, BLM, S, F)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			

Environmental Studies for PA&ED Checklist

	Not anticipated	Memo to file	Report required	Risk*			Comments
				L	M	H	
Wetlands & Other Waters/Delineation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>			
404(b)(1) Alternatives Analysis	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>			
Invasive Species	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Wild & Scenic River Consistency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Coastal Management Plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
HMMP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
DFG Consistency Determination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>			
2081	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>			
Other: USFS	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>			Scenic Byway
Cumulative Impacts	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>			
Context Sensitive Solutions	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>			
Section 4(f) Evaluation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
Permits:							
401 Certification Coordination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>			
404 Permit Coordination, IP, NWP, or LOP	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>			
1602 Agreement Coordination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>			
Local Coastal Development Permit Coordination	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
State Coastal Development Permit Coordination	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
NPDES Coordination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<u>L</u>			
US Coast Guard (Section 10)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
TRPA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			
BCDC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>L</u>			

Attachment D: PEAR Environmental Commitments Cost Estimate

Standard PSR Only

(Prepare a separate form for each viable alternative described in the Project Study Report)

PART 1 PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile 01-HUM-299-23.6/23.9	EA: 0A370k
Project Description: Sabertooth Curve	
Form completed by (Name/District Office): Peter Lewendal/N. Region, E-1 Env. Branch	
Project Manager: Richard Mullen	Phone Number: 707-441-5877
Date: 6/23/11	

PART 2 PERMITS AND AGREEMENTS

	Permits and Agreements (\$\$)
<input checked="" type="checkbox"/> Fish and Game 1602 Agreement	13
<input type="checkbox"/> Coastal Development Permit	
<input type="checkbox"/> State Lands Agreement	
<input checked="" type="checkbox"/> Section 401 Water Quality Certification	12
<input checked="" type="checkbox"/> Section 404 Permit – Nationwide (U.S. Army Corps)	0
<input type="checkbox"/> Section 404 Permit – Individual (U.S. Army Corps)	
<input type="checkbox"/> Section 10 Navigable Waters Permit (U.S. Army Corps)	
<input type="checkbox"/> Section 9 Permit (U.S. Coast Guard)	
<input type="checkbox"/> Other:	
Total (enter zeros if no cost)	25

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

- Report costs in \$1,000s.
- Include all costs to complete the commitment:
 - Capital outlay and staff support. Refer to Estimated Resources by WBS Code. For example, if you estimated 80 hours for biological monitoring (WBS 235.35 Long Term Mitigation Monitoring), convert those hours to a dollar amount for this entry. For current conversion rates from PY to dollars, see the Project Manager.
 - Cost of right of way or easements.
 - If compensatory mitigation is anticipated (for wetlands, for example), insert a range for purchasing credits in a mitigation bank.
 - Long-term monitoring and reporting
 - Any follow-up maintenance
 - Use current costs; the Project Manager will add an appropriate escalation factor.
 - This is an estimating tool, so a range is not only acceptable, but advisable.

Environmental Commitments Alternative		
	Estimated Cost in \$1,000's	Notes
Noise abatement or mitigation	8	
Special landscaping	16	
Archaeological resources		
Biological resources	22	
Historical resources		
Scenic resources		
Wetland/riparian resources	8	
Res./bus. relocations		
Other:		
Total (enter zeros if no cost)	79	

Attachment E
Traffic Management Plan Data Sheet

TRANSPORTATION MANAGEMENT PLAN

To: Jim Rasmussen
Project Engineer

Date: 29 December 2010
File: HUM-299 PM 23.6/23.9
EA: 01-0A370K
01 0002 0290 K
Sabertooth Curve

From: Troy Arseneau, Chief
District 1 Office of Traffic Operations

Project Information

Location: In Humboldt County, about 15 miles west of Willow Creek. From 1.2 miles east to 1.5 miles east of Redwood Creek Bridge.

Type of Work: Shoulder widening, realignment.

Anticipated Traffic Control: One-way reversible traffic control.
Lane reduction.
Moving lane closure.
Shoulder closure.

Estimated Maximum Delay: 5 minutes.

Peak Hour Traffic Volumes: 350 vph.

Lane Requirement Charts Included: Yes.

Work During Night Hours: Possible, but improbable.

Number of Working Days: 40 days.

Next Major Milestone and Date: TBD

RTL Date: TBD

District Traffic Manager/ TMP Manager: Troy Arseneau (707) 445-6377

TMP Coordinator: Marie Brady (707) 445-6689

Anticipated Traffic Impacts

Significant traffic impacts are not anticipated provided that the following recommendations and requirements are incorporated into the project. In conformance with Deputy Directive-60, District Lane Closure Review Committee approval is not required for projects with anticipated traffic delay less than 30 minutes.

Hours of Work

- See Chart No. 1 “Conventional Highway Lane Requirements” for work hour restrictions.
- See Chart No. 2 “Lane Closure Restrictions for Designated Legal Holidays” for work day restrictions.

Public Notice

- Upon receipt of notice that the roadway width, including paved shoulder, for a direction of travel will be narrowed to less than 16 ft, the Resident Engineer shall promptly notify the HQ Construction Liaison Jay Horton at (916) 322-4957.
- The District Public Information Office, (707) 445-6444, shall be contacted two weeks in advance of the start of construction.
- Any emergency service agency whose ability to respond to incidents will be affected by any lane closure must be notified prior to that closure.
- Work shall be coordinated with the local busing system (including school buses and public systems) to minimize impact on their bus schedules.
- Include in a memo to the Resident Engineer that at least 5 days in advance of excavation work in the vicinity of possible Caltrans facilities, that Maintenance-Electrical Supervisor (825-0590) shall be contacted to locate existing Caltrans underground electrical facilities.

Traffic Control

- One closure is permitted within the project limits.
- The W11-1 vehicular traffic sign (bicycle symbol) and the W16-1 supplemental plaque (SHARE THE ROAD) shall be placed, in each direction of travel, prior to the construction zone.

- One-way traffic control shall be in conformance with the Caltrans Standard Plan T-13, “TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON TWO LANE CONVENTIONAL HIGHWAYS.”
 - A minimum of 14 ft of paved roadway shall be open for use by public traffic.
 - The maximum length of one-way traffic control closure is 2000 ft.
 - When one-way traffic control is in effect, additional advance flaggers will be required. All flaggers shall have continuous radio contact with personnel in the work area. All flaggers are required to wear a white ANSI Z89.1 hard hat, ANSI Z87.1 eye protection, and an ANSI 107-2004 Class III ensemble.
- Work that occurs within 6 ft of the edge of traveled way, on a conventional highway, shall require a shoulder closure in conformance with “Figure 6H-3. Work on Shoulders (TA-3)” in the September 26, 2006 CA MUTCD for Streets and Highways (Pg. 6H-11/12).
- Work that requires a lane closure shall be in conformance with the Caltrans Standard Plan T-11, “TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON MULTILANE CONVENTIONAL HIGHWAYS.”
 - A minimum of 14 ft of paved roadway in each direction of travel shall be open for use by public traffic.
- Work that requires a moving lane closure shall be in conformance with the Caltrans Standard Plan T-15 and T-16, “TRAFFIC CONTROL SYSTEM FOR MOVING LANE CLOSURES ON MULTILANE HIGHWAYS.”
- Work that requires a moving lane closure shall be in conformance with the Caltrans Standard Plan T-17, “TRAFFIC CONTROL SYSTEM FOR MOVING LANE CLOSURES ON TWO LANE HIGHWAYS.”
- A minimum of one PCMS in advance of both ends of the construction site shall be required to notify the public of the closures related to this project.
- Access to businesses, side roads and residences shall be maintained at all times. When work or traffic queues extend through an intersection, additional traffic control will be required at the intersection.
- Bicyclists shall be accommodated through the work zone by instructing them to join the vehicle queue.

Contingency Plan

The contractor shall prepare a contingency plan for reopening closures to public traffic. The Contractor shall submit the contingency plan for a given operation to the Engineer within one working day of the Engineer's request. Contingencies for unanticipated delays, emergencies, etc. shall be coordinated between the RE and the Contractor.

Approval

Approved by:

As Signed By TAA
Traffic/Transportation Management Plan Coordinator

Approved by:

District Traffic/ TMP Manager

TAA/pwh4

CC: 1)TAArseneau, 2)JCandalot
1)RMMartinelli, 2) DWorkman, 3)File
JMartin, R1
RMullen
HLQuintrell
AJones

Chart No. 1																												
Conventional Highway Lane Requirements																												
County: HUM								Route/Direction: 299 EB/WB								PM: 23.6/23.9												
Closure Limits:																												
FROM HOUR TO HOUR																												
24 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24																												
Mondays through Thursdays								R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	
Fridays								R	R	R	R	R	R	R	R	R	R	R	R	R	R							
Saturdays																												
Sundays																												
Legend:																												
R		Provide at least one 14 ft through traffic lane for use by both directions of travel (Reversing Control). The maximum length of one-way traffic control closure is 2000 ft.																										
		No closures allowed.																										
REMARKS: The full width of the traveled way shall be open for use by public traffic when construction operations are not actively in progress.																												

Chart 2: Lane Closure Restrictions for Designated Legal Holidays										
Thu	Fri	Sat	Sun	Mon	Tues	Wed	Thu	Fri	Sat	Sun
xx	H xx									
	xx	H xx								
	xx		H xx	xx						
	xx			H xx						
				xx	H xx					
					xx	H xx				
						xx	H xx	xx		
Legends:										
Refer to lane closure charts										
xx		The full width of the traveled way shall be open for use by public traffic.								
H		Designated Legal Holiday								

Attachment F
Right of Way Data Sheet

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
RIGHT OF WAY DATA SHEET

4. Are there any major items of construction contract work?
Yes _____ No X

5. Provide a general description of the right of way and excess lands required (zoning, use, major improvements, critical or sensitive parcels, etc.).

All work will be within the existing Right of Way

6. Are any properties acquired for this project expected to be rented, leased, or sold?
Yes _____ No X

7. Is there an effect on assessed valuation? Yes _____ Not Significant _____
No X

8. Are utility facilities or rights of way affected? Yes X No _____
Utility relocations are not anticipated; however, utility verifications will be required.

9. Are railroad facilities or rights of way affected? Yes _____ No X

10. Were any previously unidentified sites with hazardous waste and/or material found?
Yes _____ None Evident X

11. Are RAP displacements required? Yes _____ No X
No. of single family _____ No. of business/nonprofit _____
No. of multi-family _____ No. of farms _____

Based on Draft/Final Relocation Impact Statement/Study dated N/A
it is anticipated that sufficient replacement housing (will/will not) be available without
Last Resort Housing.

12. Are there material borrow and/or disposal sites required?
Yes X No _____ Required to provide optional site for contractor.

13. Are there potential relinquishments and/or abandonments?
Yes _____ No X

14. Are there any existing and/or potential airspace sites?
Yes _____ No X

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
RIGHT OF WAY DATA SHEET

15. What type of mitigation is required for the project?
Due to the preliminary nature of the estimate, mitigation costs are unknown at this time. An accurate determination will not be available until 0 phase

16. 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.)

Right of Way Lead Time will require a minimum of 3 months after we receive first appraisal maps, utility conflict maps, and the necessary environmental clearance and freeway agreements have been approved and obtained. Additionally a minimum of 3 months will be required after receiving the last appraisal map to Right of way for certification.

17. Is it anticipated that Caltrans will perform all Right of Way work?
Yes No

Evaluation Prepared By:

Right of Way:


ED FITZGERALD

Date

1/19/11

Reviewed By:

RW Project Coordinator:


ROBERT CLOSE

Date

1/19/11

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


DAVID MCCANLESS,
Senior Right of Way Agent
Project Delivery Branch
Eureka

Date

1/24/11

Attachment G
Risk Management Plan

Project Risk Register

DIST-EA 01-0A370k		Project Name: Sabertooth shoulder widening Co - Rte - PK: HUM-209-23 6/23.9				Project Manager: Richard Mullen Telephone: 707-441-5877				Date Created:		Last Updated:				
ID #	Status	Threat / Opportunity	Category	Date Risk Identified	Risk Description	Root Causes	Primary Objective	Overall Risk Rating	Cost/Time Impact Value	Risk Owner	Risk Trigger	Strategy	Response Actions w/ Pros & Cons	Adjusted Cost/Time Impact Value	WBS Item	Status Date and Review Comments
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)	(l)	(m)	(n)	(o)	(p)	(q)
1	Active	Threat	DESIGN	052511	If the proposed 1:1 embankment slope is not built as designed, erosion may be required	communication	SCOPE	3=Med (20-30%) Probability Impact 4 =High	Cost/Time Impact Value	Project Engineer Project Engineer@dot.ca.gov	Geotechnical studies indicate that the soil characteristics will not allow for a 1:1 slope	MITIGATE	Instate geotechnical studies immediately in the environmental phase	Adjusted Cost/Time Impact Value	105 PERFORM ENVIRONMENTAL STUDIES AND PREPARE DRAFT ENVIRONMENTAL DOCUMENT Additional WBS	
2	Active	Threat	DESIGN	052511	If utilities are within the roadway prism, they may need to be relocated	communication	COST	2=Low (10-15%) Probability Impact 4 =High		Project Engineer Project Engineer@dot.ca.gov	Utility verification indicates that there is a utility within the area of the improvements	MITIGATE	Proceed with a design exception to keep utilities within the G&C prism. Review plan options early		105 PERFORM ENVIRONMENTAL STUDIES AND PREPARE DRAFT ENVIRONMENTAL DOCUMENT	
3	Active	Threat	DESIGN	052511	not constructable	communication	TIME	2=Low (10-15%) Probability Impact 3 =Med		Project Manager Project Manager@dot.ca.gov	Designed alternative is not constructable	MITIGATE	Develop a constructability team that includes design, traffic ops, etc. to evaluate each alternative		105 PERFORM ENVIRONMENTAL STUDIES AND PREPARE DRAFT ENVIRONMENTAL DOCUMENT	
4	Active	Threat	DESIGN	052511	require additional rw above what has been planned for	communication	COST	4=High (40-50%) Probability Impact 8 =High		Project Engineer Project Engineer@dot.ca.gov	Designed alternative is not constructable because of the need for additional rw	MITIGATE	Develop a constructability team that includes design, traffic ops, etc. early to evaluate each alternative		105 PERFORM ENVIRONMENTAL STUDIES AND PREPARE DRAFT ENVIRONMENTAL DOCUMENT	
5	Active	Threat	ENV	052511	There is the potential for special status plants and animals to be affected	communication	TIME	3=Med (20-30%) Probability Impact 4 =High		Environmental coordinator Environmental coordinator@dot.ca.gov	Estimated risk levels or areas of potential impacts affect identified biological	MITIGATE	First look to minimize impacts to a less than significant impact		105 PERFORM ENVIRONMENTAL STUDIES AND PREPARE DRAFT ENVIRONMENTAL DOCUMENT	
6	Active	Threat	CON	052511	If too many projects are in construction nearby may have additional traffic impacts	communication	TIME	4=High (40-50%) Probability Impact 3 =Med		Project Manager Project Manager@dot.ca.gov	Other projects in the area on the same schedule for delivery	MITIGATE	Monitor and meter out the projects on HUM-209		105 PERFORM ENVIRONMENTAL STUDIES AND PREPARE DRAFT ENVIRONMENTAL DOCUMENT	
7																

Approved by: _____ date

Attachment H
Programming Sheet

PROGRAMMING SHEET - 2011/2012

EA: 01-0a370
 Proj Name: Sabertooth Shoulder Widening Project
 Project Manager: Richard Mullen
 Co-Rte-PM: HUM-299- 023.6/ 023.9
 Date: 07/11/2011
 Type: SHOPP

PROJECT SCHEDULE

MILESTONE		DATE (STATUS)
Begin Environmental Document	M020	07/01/2012 (T)
Begin Project Report	M040	07/01/2012 (T)
Circulate Environmental Document (DED)	M120	
Project Approval & Environmental Document (PA&ED)	M200	07/01/2014 (T)
District Submits Bridge Site Data to Structures	M221	
Right of Way Maps	M224	07/31/2014 (T)
Regular Right of Way	M225	10/01/2014 (T)
District Plans, Specifications & Estimates to DOE	M377	07/01/2015 (T)
Draft Structures Plans, Specifications & Estimates	M378	
District Plans, Specifications & Estimates (PS&E)	M380	09/01/2015 (T)
Right of Way Certification	M410	11/01/2015 (T)
Ready to List (RTL)	M460	12/01/2015 (T)
Headquarters Advertise (HQ AD)	M480	02/01/2016 (T)
Approve Construction Contract	M500	04/15/2016 (T)
Contract Acceptance (CCA)	M600	02/01/2017 (T)
End Project	M800	09/01/2018 (T)

ESTIMATE	DATE	AMOUNT
ROADWAY	05/25/11	\$ 1674
BRIDGE		\$ 0
Subtotal Const		\$ 1674
RIGHT OF WAY	01/19/11	\$ 7
MITIGATION		\$ 0
Subtotal RW		\$ 7
GRAND TOTAL		\$ 1681

EXISTING PROGRAMMING	
PAED	\$
PS&E	\$
RW - Sup	\$
RW - Cap	\$
Const - Sup	\$
Const - Cap	\$

*Does not apply to RW Capital + Not Escalated ++ Only Escalated to 1 year into Future

PROJECT COSTS BY SB45 CATEGORY

CAPITAL COST ESTIMATE (Escalation Factor)	Prior Yrs+	11/12+	12/13 (3.5%)	13/14 (3.5%)	14/15 (3.5%)	15/16 (3.5%)	Future++ (3.5%)	Total	
Right of Way				7				\$ 7	
Construction						1920		\$ 1,921	
CAPITAL COSTS TOTAL								\$ 1,928	
SUPPORT COSTS (Escalation Factor)			(1.5%)	(1.5%)	(1.5%)	(1.5%)	(1.5%)		Sup/Cap
PAED	0	34	180	125				\$ 339	17.56%
PS&E					319	142	13	\$ 475	24.62%
Right of Way					14	5	2	\$ 22	00.11%
Construction						85	331	\$ 416	21.57%
SUPPORT COSTS TOTAL								\$ 1,252	64.94%
TOTAL PROJECT COSTS								\$ 3,180	

PROJECT SUPPORT IN PYS

	Prior Yrs	11/12	12/13	13/14	14/15	15/16	Future	Total	PY %
Environmental	0.00	0.02	0.66	0.63	0.57	0.11	0.32	2.31	20.83%
Design	0.00	0.00	0.26	0.14	0.31	0.16	0.04	0.91	8.21%
Engineering Services	0.00	0.00	0.11	0.08	0.34	0.31	0.37	1.21	10.91%
Surveys	0.00	0.00	0.04	0.02	0.47	0.10	0.28	0.91	8.21%
Right of Way	0.00	0.00	0.01	0.01	0.06	0.03	0.02	0.13	6.49%
Traffic	0.00	0.01	0.06	0.03	0.22	0.09	0.11	0.52	4.69%
Construction	0.00	0.00	0.01	0.00	0.04	0.34	0.97	1.36	12.26%
Project Management	0.00	0.15	0.08	0.00	0.17	0.02	0.09	0.51	4.60%
District Units*	0.00	0.03	0.68	0.64	0.57	0.12	0.23	2.27	20.47%
Subtotal Dist/Region Resources	0.00	0.21	1.91	1.55	2.75	1.28	2.43	10.13	96.66%
59-DES Project Development	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.05	0.45%
59-DES Structures Foundation	0.00	0.01	0.00	0.00	0.01	0.00	0.01	0.03	0.27%
59-Office Engineer	0.00	0.00	0.00	0.00	0.01	0.28	0.00	0.29	2.61%
59-DES Project Management	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%
59-DES Construction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%
59-DES Other Units**	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00%
Subtotal DES Resources	0.00	0.01	0.00	0.00	0.02	0.33	0.01	0.37	3.34%
TOTAL PYS	0.00	0.22	1.91	1.55	2.77	1.61	2.44	10.50	

*Admin, Plng, Maintenance

**DES Admin, DES Plng, DES Maintenance

HRS/PYS = 1758

Comments: