

**Project Study Report-Project Development Support  
(PSR-PDS)  
(Structure Rehabilitation)**

**To**

**Request Approval to Proceed with Formal Studies for  
Long Lead SHOPP Project**

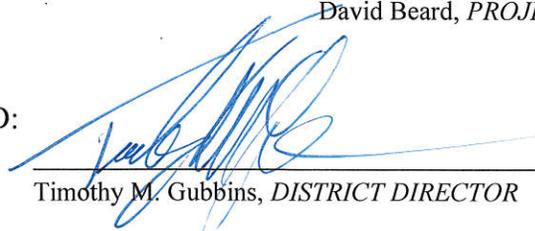
On Route 1  
Near Lompoc  
At San Antonio Creek (Bridge # 51-0237L/R)

APPROVAL RECOMMENDED:



David Beard, *PROJECT MANAGER*

APPROVED:

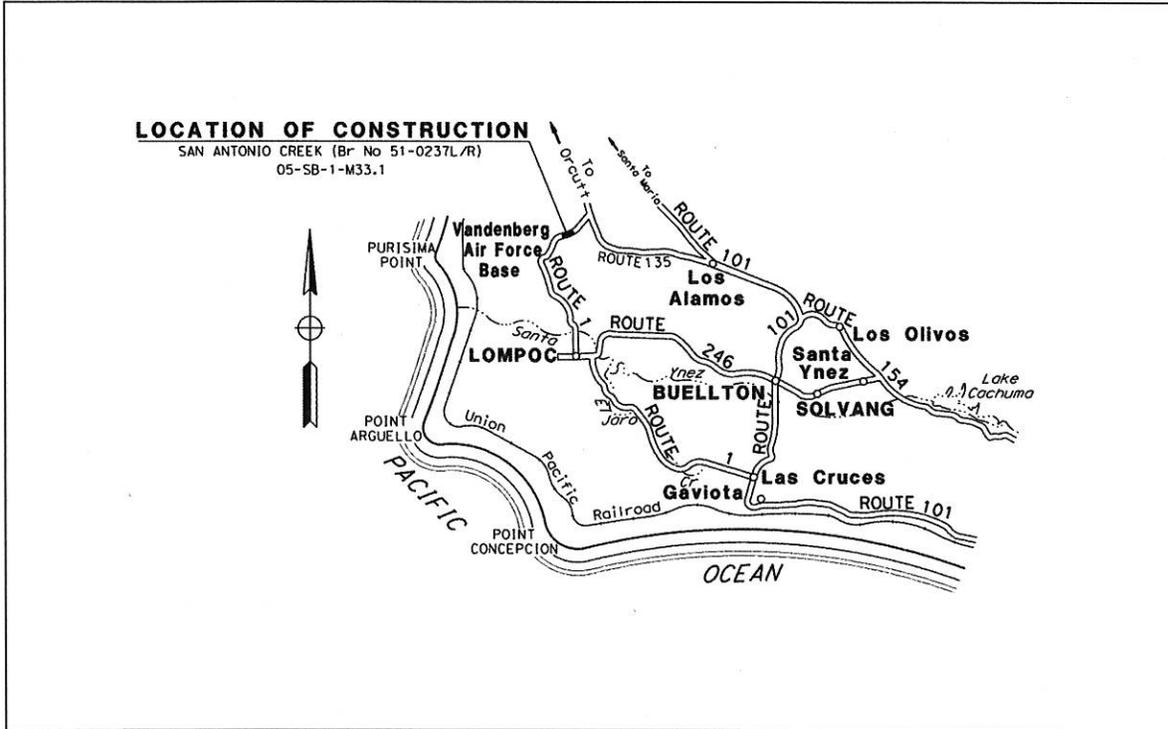


Timothy M. Gubbins, *DISTRICT DIRECTOR*



DATE

## Vicinity Map



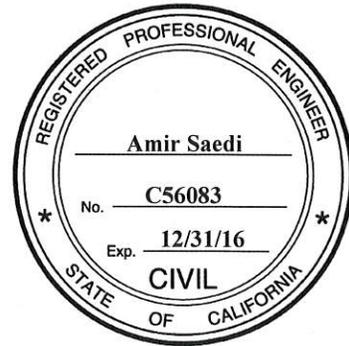
This project study report-project development support has been prepared under the direction of the following registered civil engineer. The registered civil engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are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



*Amir Saedi - REGISTERED CIVIL ENGINEER*

6/29/15

DATE



## Table of Contents

1.	INTRODUCTION.....	1
2.	BACKGROUND .....	2
3.	PURPOSE AND NEED .....	2
4.	TRAFFIC ENGINEERING PERFORMANCE ASSESSMENT.....	3
5.	DEFICIENCIES.....	4
6.	CORRIDOR AND SYSTEM COORDINATION .....	5
7.	ALTERNATIVES .....	5
8.	RIGHT-OF-WAY .....	6
9.	STAKEHOLDER INVOLVEMENT .....	6
10.	ENVIRONMENTAL DETERMINATION/DOCUMENT .....	6
11.	FUNDING .....	7
12.	SCHEDULE.....	8
13.	RISKS.....	8
14.	FHWA COORDINATION .....	8
15.	PROJECT REVIEWS .....	9
16.	PROJECT PERSONNEL.....	9
17.	ATTACHMENTS (NUMBER OF PAGES) .....	9

## 1. INTRODUCTION

This project proposes to upgrade the sheet piling and rock slope protection at San Antonio Creek Bridge on Route 1 in Santa Barbara County at Post mile 33.1. The current capital construction cost estimate is \$775,000 (March 2015). Current estimated Right of Way costs for this project are \$54,000 (March 2015) associated with utility relocation and acquiring permits. This project is a SHOPP (20.xx.201.111) Project.

<b>Project Limits</b>	05 - SB - 1 – M33.1
<b>Number of Alternatives</b>	2 (Viable and No-build)
<b>Alternative Recommended for Programming</b>	Build Alternative
<b>Current Capital Outlay Support Estimate for Project Approval &amp; Environmental Document (PA&amp;ED)</b>	\$666,000
<b>Current Capital Outlay Construction Cost Range</b>	\$620,000-\$930,000
<b>Current Capital Outlay Right-of-Way Cost Range</b>	\$54,000-\$82,000
<b>Funding Source</b>	State Highway Operation and Protection Program (SHOPP) - 201.111
<b>Type of Facility</b>	Divided Highway
<b>Number of Structures</b>	2
<b>SHOPP Project Output</b>	2 Bridges
<b>Anticipated Environmental Determination or Document</b>	Mitigated Negative Declaration/Finding of No Significant Impact
<b>Legal Description</b>	In Santa Barbara County Near Lompoc at San Antonio Creek
<b>Project Development Category</b>	Category 4B

The remaining capital outlay support, right-of-way, and construction components of the project are preliminary estimates and are not suitable for programming purposes. Either a project report or a supplemental Project Initiation Document (PID) following the format of a Project Study Report (PSR) will serve as the programming document for the remaining components of the project. A project report will serve as approval of the “selected” alternative. This PSR-PDS is for programming the capital outlay support cost through PA&ED phase only.

## **2. BACKGROUND**

Within Santa Barbara County, Route 1 is a north south highway that generally follows the coastline of the Pacific Ocean. The highway is classified as a divided 4 lane highway within the project limits. Route 1 in this area was originally constructed in the 1930's as a 2 lane conventional highway. The highway was upgraded to a 4 lane divided highway in 1966 along with the San Antonio Creek Right and Left Bridges. The bridges are three span cast-in-place concrete box girder bridges supported on two-column circular bents and skewed abutments. In 1986 the county of Santa Barbara installed H-piles to underpin the bent foundations and cantilevered sheet pile walls were installed around the bent and into the creek banks. Rock slope protection was installed along the creek bank at Bent 2 of both bridges after large storm events of 1984/85 exposed the pile foundations at the bents. A large scour hole has developed along the western creek bank and threatens to flank the upstream side of the existing sheet pile wall and rock slope protection of Right Bridge Bent 2.

This is a Long Lead candidate because of specific project schedule risks. The project is located on a military base which may require additional permits and conditions. The environmental risks include presence of endangered species and fully protected species in the creek, specifically unarmored threespine stickleback (UTS). The multiple state species will require additional time and studies for permits. If because of geotechnical conditions the use of vibratory hammer is not practical for installing sheet piles, other methods of pile driving, that avoid impacting protected species have to be investigated.

### **Recommendation**

It is recommended that this PSR-PDS be approved and that the project receive authorization to be placed on the Long Lead list in the 2016 SHOPP and begin Project Approval and Environmental Document (PA&ED) in the 2016/17 fiscal year.

## **3. PURPOSE AND NEED**

### **Purpose:**

This project proposes to upgrade the erosion control features protecting bent 2 from severe scour.

### **Need:**

The existing bridge foundation is scour critical. Improvements to the sheet piling and rock slope protection will reduce the potential for lateral bank erosion to continue behind the existing sheet piles and undermine the bent 2 footings. The Structure

Replacement and Improvement Needs Report (STRAIN) have identified the need for scour mitigation. See Attachment K for the STRAIN Report.

#### 4. TRAFFIC ENGINEERING PERFORMANCE ASSESSMENT

##### Roadway Geometric Information

		Existing
Facility Location	(Post Mile Limits)	M33.3
Minimum Curve Radius	Radius (ft)	N/A
Through Traffic Lanes	Number of Lanes	4
	Lane Width (ft)	12
	Type (Flexible, Rigid, or Composite)	Rigid
Paved Shoulder Width	Left (ft)	5
	Right (ft)	8
Median Width	(ft)	46
Shoulder is a Bicycle Lane	(Y/N)-Width (ft)	N
Other Bicycle Lane Width (3)	Width (ft)	N/A
Bicycle Route	(Y/N)	N
Facilities Adjacent to the Roadbed (4)	Code-Width (ft)	N/A

**Structures Information**

Structures	Width Between Curbs			Replace Bridge Railings (Y/N)	Vertical Clearance			Work Identified in STRAIN (Y/N)	Replace Bridge Approach Rail (Y/N)	Replace Bridge Approach Slab	
	Name Number	Exist (ft)	RRR Std (ft)		Prop (ft)	Exist (ft)	RRR Std (ft)			Prop (ft)	(Y/N)
51-0237R	37			N	N/A			Y	N	N	
51-0237L	37			N	N/N			Y	N	N	

**Traffic Data**

Present Year ADT 13,900  
 Construction Year ADT 17,700  
 DHV Std STAA

**5. DEFICIENCIES**

The bridges are three span cast-in-place concrete box girder bridges supported on two-column circular bents and skewed abutments. In 1986 the county of Santa Barbara installed H-piles to underpin the bent foundations and cantilevered sheet pile walls were installed around the bent and into the creek banks.

Rock slope protection was installed along the creek bank at Bent 2 of both bridges after large storm events of 1984/85 exposed the pile foundations at the bents. A large scour hole has developed along the western creek band and threatens to flank the upstream side of the existing sheet pile wall and rock slope protection of Right Bridge Bent 2. Bridge 51-0237R was listed as scour critical in October of 2003. Scour countermeasures were recommended on a plan of action in 2005 recommends extending the sheet piles upstream and placing RSP along the back to maintain smooth flow into the bridge opening.

## 6. CORRIDOR AND SYSTEM COORDINATION

Within the project limits, Route 1 is four lanes and is classified as conventional highway and expressway. The latest Transportation Concept Report, prepared in December 2009, for Route 1 in District 5 indicates that this area is functionally classified as a Principal Arterial. It is officially designated as a State Scenic Highway.

The Strategic Highway Corridor Network (STRAHNET) is a network of linked highways deemed essential to national defense for facilitating the movement of troops and equipment to airports, Ports, rail lines and military bases. The Federal Department of Defense in cooperation with Caltrans has identified the section of Route 1 from VAFB north to State Route 135 as a STRAHNET connector route.

The segment of highway 1 thru the project site carries 13,900 ADT and operates at LOS A. Traffic is projected to rise to 17,700 ADT by 2025 with service declining slightly to A/B.

## 7. ALTERNATIVES

### **Viable Alternatives**

The only viable alternative for this project would install additional sheet piles along the south east abutment of the northbound bridge of highway 1. (Bridge # 51-03237R) 05 - SB - 1 - M33.1

### *Proposed Engineering Features*

A 60' long sheet pile will be installed 5' behind the end of the existing sheet pile wall and overlapping the last 10' of the existing sheet piles. Rock slope protection will be placed behind the new sheet pile wall at a maximum of 1.5:1 slope to the existing bridge abutment fill.

This project would not address roadway geometrics. There are no anticipated design exceptions (in accordance with Highway Design Manual and Design Information Bulletin 79-03).

### **Other Alternatives**

Another alternative for this project is the no-build alternative.

## **8. RIGHT-OF-WAY**

Highway 1 in this area is operated by easement agreement with Vandenberg Air Force base. All project features are subject to approval by the Air Force.

### **Utilities:**

There is an AT&T Communications Fiber Optic line running thru the project site. The fiber optic is running thru a conduit attached to East side of 51-0237R. This utility can be avoided where construction vehicles will enter the project site so that there are no anticipated impacts to utilities.

### **Railroad:**

There is no railroad involvement in this project.

## **9. STAKEHOLDER INVOLVEMENT**

Coordination with Vandenberg Air Force Base has been ongoing and will continue through the construction phase of this project.

## **10. ENVIRONMENTAL DETERMINATION/DOCUMENT**

Environmental studies have not yet been completed. From preliminary discussions with Caltrans Environmental Staff, this project will require further field work and investigations to see if any additional endangered species or historical features are at risk. These studies would be conducted during the next phase of this project. The anticipated environmental documentation for the project is a Mitigated Negative Declaration under the California Environmental Quality Act and a Finding of No Significant Impact under the National Environmental Policy Act. This project must avoid impacts to state fully protected species and other endangered and threatened environmental resources whenever feasible. Permits will be required from the California Department of Fish and Wildlife (1600 and 2081), the Army Corps of Engineers (404), and Regional Water Quality Control Board (401). Please refer to the Preliminary Environmental Analysis Report (PEAR), Attachment F for more information.

## 11. FUNDING

This project is proposed for inclusion in the 2016 SHOPP to be funded by the Bridge Scour Mitigation program (201.111) for delivery in the 2020/21 fiscal year. The current estimated capital project cost is \$829,000 (June 2015). See Attachment E for the 11-Page Project Study Report Cost Estimate for the recommended alternative. The proposed estimated resources and funding schedule for this project are summarized in the following table. It has been determined that this project is eligible for federal-aid funding.

### Capital Outlay Project Estimate

	Range of Estimate		SHOPP Funds	
	Construction	Right-of-Way	Construction	Right-of-Way
Alternative 1	\$620,000-\$930,000	\$54,000-\$82,000	\$620,000-\$930,000	\$54,000-\$82,000

The level of detail available to develop these capital outlay project estimates is only accurate to within the above ranges and is useful for long-range planning purposes only. The capital outlay project estimates should not be used to program or commit State-programmed capital outlay funds.

### Capital Outlay Support Estimate

Capital outlay support estimate for programming PA&ED in the 2016 SHOPP for this project: \$688,000.

## 12. SCHEDULE

Project Deliverables	Task Number	Start Date (Month/Day/Year)	Finish Date (Month/Day/Year)
Environmental Study Request	160.30	6/1/2016	1/1/2017
Base Maps and Plan Sheets for PA&ED Development	160.45	6/1/2016	1/1/2017
Draft Environmental Document	165.25	1/1/2017	2/28/2018
DED Circulation	175.05	3/1/2018	4/30/2018
Project Preferred Alternative	175.20	5/1/2018	7/30/2018
Final Environmental Document	180.10	8/1/2018	12/01/2018

Project Milestones		Scheduled Delivery Date (Month/Day/Year)
PROGRAM PROJECT	M015	7/1/2016
BEGIN ENVIRONMENTAL	M020	1/1/2017
CIRCULATE DPR AND DED INTERNALLY	M060	12/1/2017
CIRCULATE DED EXTERNALLY	M120	2/1/2018
APPROVED FED	M160	12/1/2018
PA & ED	M200	1/1/2019
<i>RIGHT OF WAY CERTIFICATION</i>	<i>M410</i>	<i>8/1/2020</i>
<i>PS&amp;E TO DOE</i>	<i>M377</i>	<i>8/21/2020</i>
<i>READY TO LIST</i>	<i>M460</i>	<i>1/1/2021</i>
<i>CONTRACT ACCEPTANCE</i>	<i>M600</i>	<i>12/1/2021</i>
<i>END PROJECT</i>	<i>M800</i>	<i>9/1/2022</i>

The anticipated funding fiscal year for construction is 2020/2021. Milestones in italics are not for programming purposes.

## 13. RISKS

Risks associated with this project can affect the schedule and cost. All of the risks associated with this project have been documented in the Risk Register and can be found under Attachment F.

## 14. FHWA COORDINATION

This project is considered to be an Assigned Project in accordance with the current Federal Highway Administration (FHWA) and Department of Transportation (Caltrans) Joint Stewardship and Oversight Agreement.

## 15. PROJECT REVIEWS

District Program Advisor	<u>Kelly McClain</u>	Date	<u>5/15/2015</u>
Headquarters SHOPP Program Advisor	<u>Diana Campbell</u>	Date	<u>5/15/2015</u>
District Maintenance	<u>Dennis Glickman</u>	Date	<u>4/15/2015</u>
Project Manager	<u>David Beard</u>	Date	<u>4/15/2015</u>
District Safety Review	<u>Scott Morris</u>	Date	<u>5/27/2015</u>
Constructability Review	<u>Berkeley Lindt</u>	Date	<u>5/28/2015</u>

## 16. PROJECT PERSONNEL

David Beard, Project Manager	805-549-3016
James Perano, Design Manager	805-549-3438
Aaron Wolfram, Project Engineer	805-549-3137
Kevin Harper, Structures	916-227-8156
Judith Lopez, Environmental Planner	559-445-6663
Kelly McClain, Program Manager	805-549-4778
Marshall Garcia, Right of Way	805-549-3471

## 17. ATTACHMENTS (NUMBER OF PAGES)

- A. Vicinity Map (1)
- B. Preliminary Layout (1)
- C. Right of Way Datasheet (3)
- D. Preliminary Cost Estimate (9)
- E. Preliminary Environmental Analysis Report (10)
- F. Risk Register (1)
- G. Stormwater Data Report (6)
- H. Advanced Planning Study (3)
- I. Photos (3)
- J. Traffic Management Plan (1)
- K. STRAIN (1)