

06 - Ker - 58 - PM R99.3/R99.7  
Sand Canyon Road UC  
EA: 06-0M260K  
ID: 0612000095  
Program 20.20.201.110  
October 2011

## PROJECT SCOPE SUMMARY REPORT (STRUCTURE REHABILITATION)

To

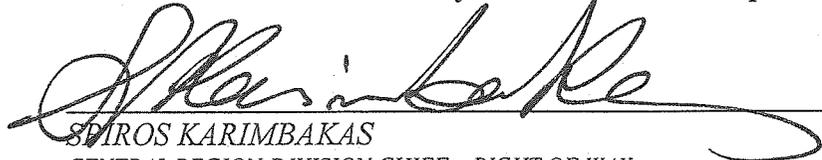
### Request Programming in the 2012 SHOPP

On Route 58 in Kern County

Between Postmile R99.3

And Postmile R99.7

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

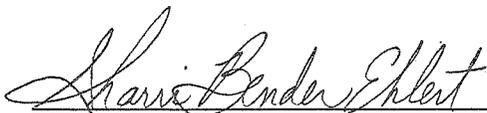
  
SPIROS KARIMBAKAS  
CENTRAL REGION DIVISION CHIEF - RIGHT OF WAY

APPROVAL RECOMMENDED:

  
FRANK MOMEN - PROJECT MANAGER

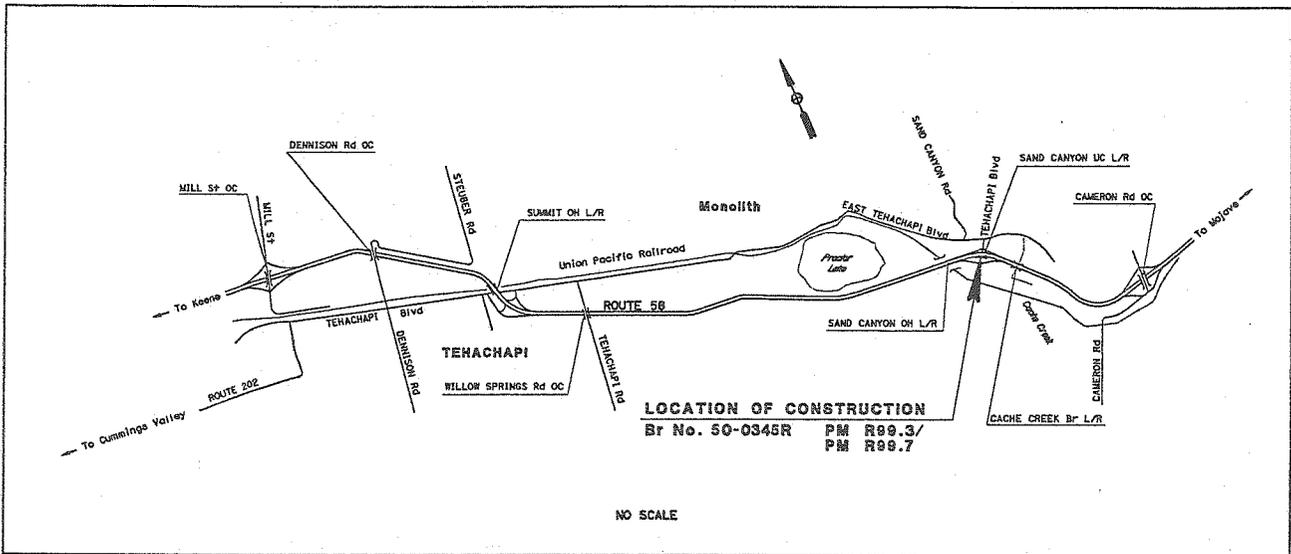
APPROVED:

CONCURRED FOR  
MAINTENANCE AND  
OPERATIONS BY:

  
SHARRI BENDER EHLERT  
INTERIM DISTRICT DIRECTOR  
DISTRICT 6 - CENTRAL REGION  
DATE 10/25/11

  
THOMAS P. HALLENBECK  
DISTRICT DIRECTOR  
DISTRICT 9  
DATE 10/25/11

06-Ker-58-PM R99.3/R99.7  
Sand Canyon Rd UC  
EA: 06-0M260K  
ID: 0612000095  
Program 20.20.201.110



On Route 58 in Kern County

Between PM R99.3

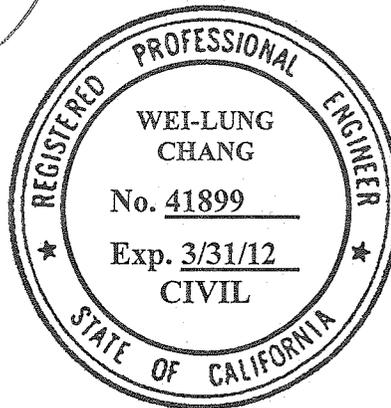
And PM R99.7

06-Ker-58-PM R99.3/R99.7  
Sand Canyon Rd UC  
EA: 06-0M260K  
ID: 0612000095  
Program 20.20.201.110

This Project Scope Summary 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.

  
\_\_\_\_\_  
WEI-LUNG CHANG, REGISTERED CIVIL ENGINEER

10-18-2011  
DATE



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## 1. INTRODUCTION AND BACKGROUND

The project proposes to replace the eastbound Sand Canyon Road Undercrossing (Bridge No. 50-0345R) at Postmile (PM) R99.5 of State Route (SR) 58 in Kern County that serves eastbound traffic at this location. State Route 58 is part of the National Highway System (NHS).

The current construction cost estimate of the project is \$2,609,000 and is proposed to be funded by the 2012 SHOPP Bridge Rehabilitation Program (20.10.201.110) in the 2014/15 fiscal year. The escalated cost estimate would be \$3,000,000.

<b>Project Limits</b> [Dist., Co., Rte., PM]	06, Kern, 58, R99.3/R99.7
<b>Capital Costs:</b>	\$2,609,000 (current)
<b>Right of way Costs:</b>	\$2,000
<b>Funding Source:</b>	201.110
<b>Number of Alternatives:</b>	4
<b>Recommended Alternative</b> (for programming and scheduling):	1
<b>Type of Facility</b> (conventional, expressway, freeway):	Freeway
<b>Number of Structures:</b>	1
<b>Environmental Determination/Document:</b>	CEQA-CE NEPA-CE
<b>Legal Description</b>	In Kern County Near Tehachapi At Sand Canyon Road Undercrossing

## 2. RECOMMENDATION

It is recommended that this Project Scope Summary Report be approved so that the project proceeds to the design phase.

### 3. PURPOSE AND NEED STATEMENT

**Need:**

The subject bridge was constructed in 1970. The most recent bridge inspection report, dated 4/6/2011 identifies the following deficiencies at the eastbound Sand Canyon Undercrossing:

- 1) The bridge deck shows extensively severe transverse cracks with areas of crumbling.
- 2) The bridge superstructure has vertical cracks at mid-span of the T-beams and extensive cracking at the soffit.

**Purpose:**

The purpose of the project is to address these deficiencies to help ensure the long-term operational capability of the eastbound State Route 58 at Sand Canyon Undercrossing.

### 4. EXISTING FACILITY AND TRAFFIC DATA

See Table on next page

#### 4A. Roadway Geometric Information

	Facility (1)	Minimum	Through Traffic Lanes (2)			Paved Shoulder Width (3)		Median (4)	Shoulder is a Bicycle Lane (Y/N) (5)	Other Bicycle Lane Width (6)	Bicycle Route (7)	Facilities Adjacent to the Roadbed (8)
			No. of Lanes	Lane Width	Type (Flex, Rigid, or Composite)	Left	Right					
Existing-SR58	Location	Curve Radius	4	12	Flex	5	10	23	N	N/A	N	
Proposed-SR58	*R 99.5	2300	4	12	Flex	5	10	23	N	N/A	N	
SR 58	Min. 3R Stds.	2100	4	12	Flex	5	10	22	-	-	-	
Existing- Tehachapi Road	Roadway below structure	N/A	2	12	Flex	N/A	8	N/A	N	N/A	N	
Proposed- Tehachapi Road	Roadway below structure	N/A	2	12	Flex	N/A	8	N/A	N	N/A	N	
Tehachapi Road	Min. 3R Stds.	N/A	2	12	Flex	N/A	8	N/A	-	-	-	

#### Remarks:

The project proposes to maintain the existing width, profile, spans and geometry as the existing bridge structure.

**4B. Condition of Existing Facility**

(1) Pedestrian Facility Data

No pedestrian facilities exist within the project limits.

(2) Bicycle Path Data

No bicycle paths exist within the project limits. The Transportation Concept Report for State Route 58 dated December 2004 indicates that bicycle use is permitted on this segment of SR 58 with Shared Roadway (No Bikeway Designation) classification.

**4C. Structures Information**

Structures	Width Between Curbs			Replace Bridge Railings (Y or N)	Vertical Clearance			Work Identified in STRAIN (Y or N)	Replace Bridge Approach Rail (Y or N)	Replace Bridge Approach Slab	
	Exist	3R Std	Prop		Exist	3R Std	Prop			(Y/N)	#
Sand Canyon Road UC / 50-0345R	39'	39'	39'	Y	15'-2"	15'-0"	15'-0" min	N	Y	Y	

Remarks:

Existing bridge rails consist of Type 9 railing and will be upgraded to current standard bridge railing.

**4D. Vehicle Traffic Data**

Present Year (2010) AADT 21,400

Construction Year (2014) AADT 24,090      20-Year AADT 43,500

DHV 2,510      40-Year ADT 78,570

D 61%      % Trucks 34%

\*T.I. (20-Year) 15      ESAL (20-Year) 77,429,120

\*T.I. (40-Year) 17      ESAL (40-Year) 208,120,560

- Must correlate with T.I. in Materials Report

Speed: Design Speed is 70 mph. The project is in a 65 mph speed zone and the eastbound 85<sup>th</sup> percentile speed is 70 mph. The eastbound pace speed is 57-67 mph. The speed limit of the lower roadway (Tehachapi Blvd) is 45 mph.

Latest 3-Year Accident Data:

The following table lists the latest three-year accident rates from April 1, 2007 to March 31, 2010 for PM R99.3 to R99.7 for eastbound SR 58. The accident rates were adjusted because the project limits are less than 0.5 miles, accident rates are expressed in Million Vehicles (MV).

Accident Rates (Per MV)*		
Types	Actual Avg.	Statewide Avg.
Fatal	0.00	0.005
F + I*	0.00	0.08
Total	0.18	0.21
* Accidents per Million Vehicles		
* Fatal plus Injury		

The following table lists the latest three-year accident rates from April 1, 2007 to March 31, 2010 at PM R99.328 for eastbound Off Ramp of SR 58, accident rates are expressed in Million Vehicles (MV).

Accident Rates (Per MV)*		
Types	Actual Avg.	Statewide Avg.
Fatal	0.00	0.007
F + I*	0.00	0.37
Total	0.00	1.20
* Accidents per Million Vehicles		
* Fatal plus Injury		

There were zero collisions recorded on the off ramp during the three-year study period.

The following table lists the latest three-year accident rates from April 1, 2007 to March 31, 2010 at PM R99.328 for eastbound On Ramp of SR 58, accident rates are expressed in Million Vehicles (MV).

Accident Rates (Per MV)*		
Types	Actual Avg.	Statewide Avg.
Fatal	0.00	0.004
F + I*	0.00	0.18
Total	0.00	0.60
* Accidents per Million Vehicles		
* Fatal plus Injury		

There were zero collisions recorded on the off ramp during the three-year study period.

## 5. CORRIDOR AND SYSTEM COORDINATION

The Transportation Concept Report (TCR) for Highway 58 reports a functional classification of Principal Arterial and a highway classification of Freeway for the segment of Highway 58 that includes the Sand Canyon UC. The current facility and 2030 concept facility are designated as 4-lane freeway, and the Ultimate Concept Facility is designated as 6-lane freeway. The proposed strategy is compatible with the long-term transportation plan for Highway 58 in that the proposed structure is to be compatible with any future bridge widening efforts, including vertical clearance compliance under ultimate conditions.

General Plan documents available from Kern County's official website include circulation studies for the Tehachapi-Antelope Valley and Tehachapi-Cummings areas. These studies do not include Tehachapi Blvd or identify it as an area of concern.

A project to replace the westbound structure (Bridge No. 50-035L) of Sand canyon undercrossing (EA 06-0K3901) at PM 99.5 is programmed for construction in 2012/13 fiscal year. The construction of the westbound structure will be completed prior to the beginning of construction of this eastbound structure.

## 6. ALTERNATIVES

Total of four alternatives been considered (see Section 6O). The preferred alternative proposes to replace the existing bridge with a new structure.

### 6A. Rehabilitation Strategy

A HQ Structure Maintenance & Investigations (SM&I) Peer Review was convened on May 17, 2011 and again on May 24, 2011 to finalize repair strategies for several bridges including bridge 50-0345R (see Attachment K). SM&I evaluated the conclusion for consideration in repair strategy and determined that replacing the entire bridge structure is the preferred strategy for addressing the project need, because the effectiveness of any repair or rehabilitation strategy has an associated high level of unknown risk involved with partial replacement or rehabilitation. This could result in unpredictable long term performance of the structure repairs and inaccurate lifecycles cost assumptions.

Although this bridge is not listed in the Structure Replacement and Improvement Needs Report (STRAIN), the work that has been recommended previously by maintenance personnel (see deck replacement recommendation dated 4/6/11 in the Bridge Needs Report – Attachment F) justifies inclusion of this structure in the STRAIN.

The existing bridge is superelevated with a vertical clearance of 15-ft 2-inches at its low side. The bridge superstructure is comprised of 3-ft deep reinforced concrete T-beams supported on reinforced concrete two-column bents. Replacement of the bridge structure

along with the bridge deck will allow for design of a shallower superstructure depth than is provided on the existing bridge.

It is proposed to close Sand Canyon UC in order to facilitate use of the eastbound off ramp and on ramp as a detour for eastbound through traffic. Tehachapi Blvd would be closed to both eastbound and westbound traffic at Sand Canyon UC during construction. Local traffic would be directed to access Route 58 via East Tehachapi Road, which roughly parallels Route 58, at the Tehachapi Road Overcrossing located 4.3 miles west of the project site.

#### **6B. Design Exceptions**

No design exceptions are anticipated for the proposed project. The median width of Route 58 at the project location is nonstandard; however, given the scope of work proposed with this project and the geometry of Route 58 in the vicinity of the project site, a design exception would not be required for the 46-ft wide median. Michael Janzen, HQ Design Reviewer, concurs that this project would not be expected to correct or document the nonstandard advisory median width. Any nonstandard ramp features would be corrected based on the design standards.

#### **6C. Hazardous Waste Disposal Site**

Based upon the review of Department Records, State Water Resources Control Board Geotracker database, DTSC Corte List, and DTSC Envirostor Database, no data is available on the lead and other heavy metals concentrations in the soil at or near the project site. An Aerially Deposited Lead (ADL), asbestos and a lead paint survey of the bridge will be conducted at PS&E stage.

#### **6D. Other Agencies Involved**

County of Kern  
City of Tehachapi  
Regional Water Quality Control Board  
State Office of Truck Services

#### **6E. Materials and/or Disposal Site Needs and Availability**

No materials and or disposal site is anticipated, however, PSI is still pending for this project and will be conducted at PS&E stage.

#### **6F. Highway Planting and Irrigation**

The project does not propose new embankment construction, embankment widening or modification of existing embankment slopes. Proposed work includes excavation

associated with removal of the existing structure and construction of the replacement structure. In accordance with District Landscape Architecture recommendations, concrete slope paving will be provided on abutment slopes of the proposed structure.

Slope design may require written concurrence from the District Landscape Architect and may also require concurrence from District Maintenance and the District Storm Water Coordinator. Erosion control on unpaved slopes will be provided by the District Landscape Architect.

#### **6G. Roadside Design and Management**

The project does not propose to modify the roadside along SR 58.

The project proposes to protect Tehachapi Blvd by using appropriate safety features at new/existing bridge columns.

#### **6H. Storm Water Compliance**

A Storm Water Data Report (SWDR) has been prepared and approved by the Central Region (CR) NPDES Storm Water Management Office. The project will incorporate temporary and permanent storm water best management practices in accordance with the direction of the Caltrans Storm Water Quality Project Planning and Design Guide.

#### **6I. Right of Way**

No new right of way or utilities involvement is required for this project.

#### **6J. Railroad Involvement**

There is no railroad involvement.

#### **6K. Salvaging and Recycling of Non-Renewable Resources**

Salvaging and recycling of hardware and other non-renewable resources are not anticipated.

#### **6L. Prolonged Temporary Ramp Closures**

In order to facilitate use of the eastbound SR 58 off-ramp and on-ramp as a detour for through traffic, it is proposed to close the interchange to vehicles from East Tehachapi Blvd. The off-ramp and on-ramp at this location will serve as a detour for through traffic on eastbound SR 58 for all stages of construction. Since Tehachapi Blvd will be closed to all traffic from SR 58, the eastbound off and on ramps at Tehachapi Blvd will be closed as

well to all non-construction related traffic. The estimated length of construction is 110 days. Westbound traffic could be detoured from east of the project location.

Existing on ramp and off ramp will provide at minimum a 12-ft travel way and 8-ft wide shoulder and will be upgraded as necessary to support temporary traffic loads while used as a detour. Consideration has been given to the alternative of using a cross median detour to put both directions of traffic on the westbound structure. It was determined that given various factors associated with a cross median detour such as traffic control for both eastbound and westbound directions of SR 58 and cost of detour construction and removal, the alternative of using the on ramp and off ramp as a detour is a preferred alternative.

#### **6M. Recycled Materials**

No recycled materials are to be used for the proposed project.

#### **6N. Local and Regional Input**

The project is located about 7 miles east of the City of Tehachapi, in the County of Kern.

Kern County has been contacted for input about this project. Barry Nienke and Tim Douhan, representing the County of Kern, have indicated that there are no plans by Kern County to widen Tehachapi Blvd at the project site within the next 20 to 25 years. Thus proposed bridge column configuration as shown in the APS is appropriate for this project.

#### **6O. Alternatives Considered**

The alternatives considered by the SM&I Peer Review as shown on the Peer Review Fact Sheet (Attachment L) are:

- 1) Do nothing – The Peer Review determined this is not an option and corrective action is needed to ensure the safety of the traveling public and guarantee the reliability of this structure.
- 2) Rehabilitate the bridge decks – This alternative would involve District 6 initiating a project to rehabilitate the decks and place polyester concrete overlay on all decks.
- 3) Replace the bridge deck – This alternative would require District 6 developing a project to demolish the existing bridge deck and build new deck on existing superstructure.
- 4) Replace the bridge – This option proposes to replace the existing bridge with a new structure. ○

After considering life cycle costs for the various alternatives, the unknown risks and additional costs associated with each option, the best option available is to replace the bridge with a new structure.

**7. TRANSPORTATION MANAGEMENT**

**7A. Transportation Management Plan**

It is proposed that the eastbound off-ramp and on-ramp will be utilized as a detour during construction. Preliminary traffic impacts and mitigation for this project have been outlined in the attached Transportation Management Plan Data Sheet (TMP Data Sheet). Costs associated with the traffic impact mitigation measures listed in the TMP Data Sheet have been included in the project estimate.

**7B. Vehicle Detection Systems**

No vehicle detection systems are anticipated for the proposed project.

**8. ENVIRONMENTAL DETERMINATION/DOCUMENT**

A CEQA determination of Categorical Exemption Class 2 and NEPA determination of Categorical Exclusion under Section 6004 has been approved on 10/7/2011.

**9. FUNDING/SCHEDULING**

**9A. Cost Estimate**

**Proposed funding:** This project is proposed for funding in the 2012 SHOPP with funding from the 201.110 Bridge Rehabilitation Program in the 2014/2015 Fiscal Year.

**9B. Project Support**

**COST BREAKDOWN: (Capital Cost Estimate) - Capital and Support Cost Summary**

Component	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	
R/W Capital				2				2
Const Capital					3,000			3,000
PA&ED Support								0
PS&E Support			752					752
R/W Support				6				6
Const Support					517			517
<b>Total</b>	<b>0</b>	<b>0</b>	<b>752</b>	<b>8</b>	<b>3,517</b>	<b>0</b>	<b>0</b>	<b>\$4,277</b>

All costs X\$1,000.  
 Construction Capital escalated by 4.0% per year.  
 Support Costs Ratio is 42%.

**9C. Project Schedule**

<b>Milestones</b>	<b>Delivery Date (Month, Day, Year)</b>
PA & ED	11/01/2011
Bridge Site Submittal	06/01/2013
Draft Structures PS&E	08/01/2014
Draft PS&E	11/01/2014
R/W Cert	02/01/2015
Ready to List	02/15/2015
Advertising	07/01/2015
Begin Construction	11/01/2015
End Construction	07/01/2016

**10. FEDERAL COORDINATION**

This project is eligible for federal-aid funding and is considered to be STATE-AUTHORIZED under the 2007 FHWA-Caltrans Stewardship Agreement.

**11. REVIEWS**

**11A. Task Force Field Review**

As per correspondence dated October 6, 2011 from Roger Hunter, Headquarters Structure Maintenance and Investigations, a Task Force Field Review would not be required for this bridge replacement project.

**11B. Project Reviewed By:**

District Maintenance Sam Katich Date 10/03/2011  
 District Safety Terry Erlwein Date 10/12/2011  
 HQ Division of Design Mike Janzen Date 10/11/2011  
 HQ Program Advisor Roger Hunter Date 10/11/2011

## 12. ATTACHMENTS

- A. Project Location Map
- B. Typical Section(s)
- C. Cost Estimate
- D. Categorical Exemption Document
- E. Right of Way Data Sheet
- F. Bridge Needs Report
- G. Advance Planning Study
- H. Storm Water Data Report (Cover Page)
- I. Transportation Management Plan (TMP)
- J. Risk Management Plan
- K. Bridge Inspection Report
- L. Peer Review Fact Sheet

STATE OF CALIFORNIA  
 DEPARTMENT OF TRANSPORTATION  
 PROJECT PLANS FOR CONSTRUCTION ON  
 STATE HIGHWAY

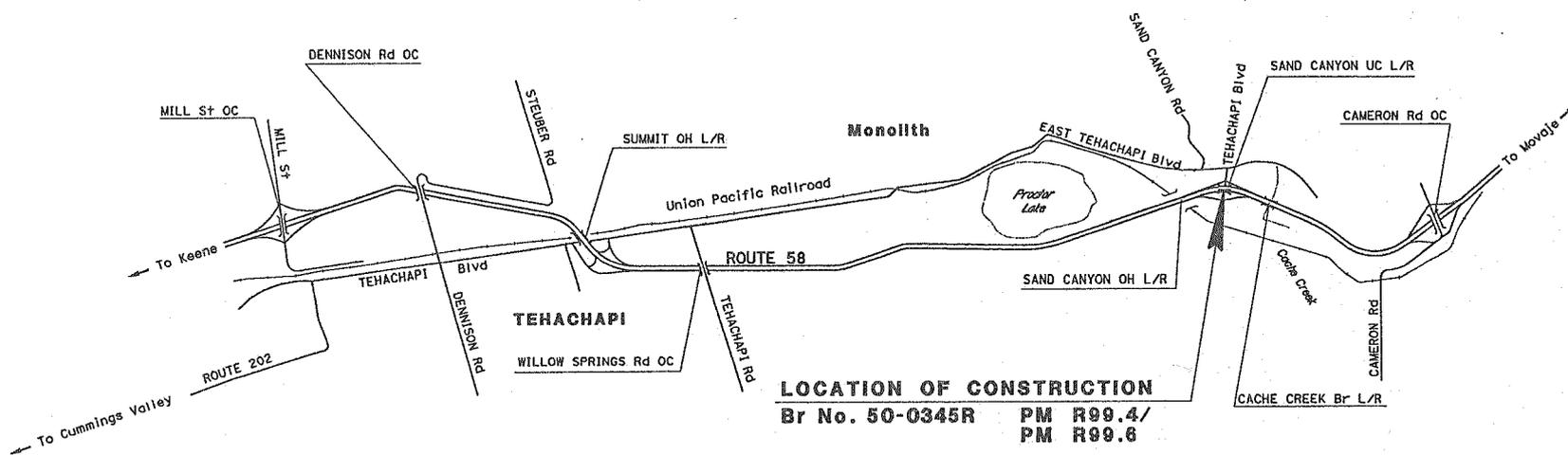
IN KERN COUNTY  
 NEAR TEHACHAPI  
 AT SAND CANYON ROAD UNDERCROSSING

TO BE SUPPLEMENTED BY STANDARD PLANS DATED MAY 2011

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Ker	58	R99.4/R99.6		

LOCATION MAP

ATTACHMENT A



**LOCATION OF CONSTRUCTION**  
 Br No. 50-0345R PM R99.4/  
 PM R99.6

NO SCALE

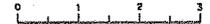
PROJECT ENGINEER DATE  
 REGISTERED CIVIL ENGINEER

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

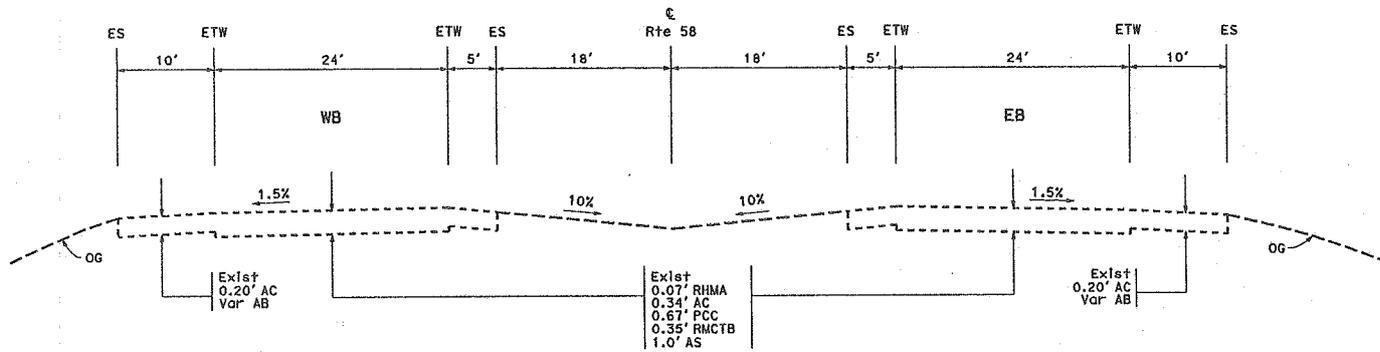
CONTRACT No. CU 06222 EA 0m2601

PROJECT MANAGER  
FRANK WOMEN  
  
DESIGN ENGINEER  
GURBHAY BRAR

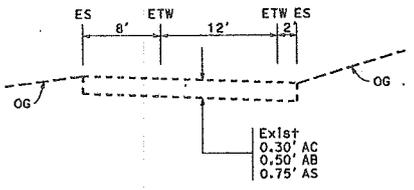
THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO CONTRACTORS."



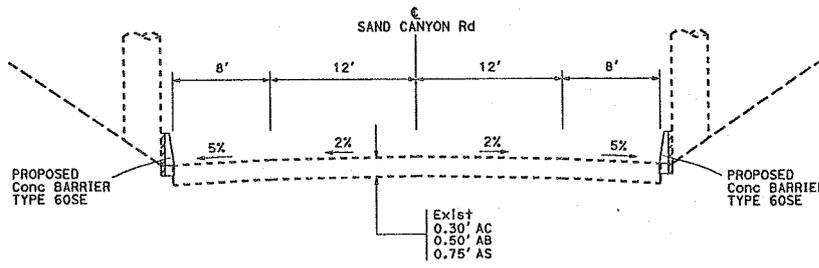
DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
06	Ker	58	99.5		
REGISTERED CIVIL ENGINEER		DATE			
PLANS APPROVAL DATE					
<small>THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF SCANNED COPIES OF THIS PLAN SHEET.</small>					



**ROUTE 58**  
PM R90.7/R102.1



**EB OFFRAMP AND WB ONRAMP AT SAND CANYON ROAD**



**SAND CANYON Rd**

**TYPICAL CROSS SECTION**

NO SCALE

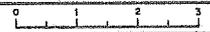
X-1

REVISIONS BY: WEL-LUNG CHANG  
 CALCULATED/DESIGNED BY: GURBHAY BHAR  
 CHECKED BY:  
 FUNCTIONAL SUPERVISOR:  
 STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION  
 DESIGN

BORDER LAST REVISED 7/1/2010

USERNAME => s123349  
 DGN FILE => 060u260cc001.dgn

RELATIVE BORDER SCALE IS IN INCHES



UNIT 0000

PROJECT NUMBER & PHASE

0000000001

ATTACHMENT B

CADD BORDER DATE PLOTTED => 30-SEP-2011  
 00-00-00 TIME PLOTTED => 11:32

# ATTACHMENT C

## PRELIMINARY PROJECT COST ESTIMATE SUMMARY

District-County-Route 06-Ker-58

PM R99.3/R99.7

EA 0M260K

Program Code \_\_\_\_\_

### PROJECT DESCRIPTION:

Limits

In kern County near the city of Tehachapi at Sand Canyon Undercrossing

Proposed Improvement

Replace Eastbound Structure (BR No. 50-0345R) at Sand Canyon Road

Undercrossing

Alternate \_\_\_\_\_

### SUMMARY OF PROJECT COST ESTIMATE

TOTAL ROADWAY ITEMS : \$1,409,000

TOTAL STRUCTURE ITEMS : \$1,200,000

SUBTOTAL CONSTRUCTION COSTS : \$2,609,000

TOTAL RIGHT OF WAY ITEMS : \$0

TOTAL PROJECT CAPITAL OUTLAY COST : \$2,609,000

Reviewed by District Program Manager \_\_\_\_\_

(Signature)

Approved by Project Manager

Frank Momen  
(Signature)

Date

10/29/11

Phone No. \_\_\_\_\_

Page No.

1 of 6

District-County-Route 06-Ker-58  
 KP (PM) R99.3/R99.7

EA 0M260K

**II. STRUCTURE ITEMS**

	Structure (1)	Structure (2)	Structure (3)	Structure (4)
Bridge Name	Sand Canyon UC			
Bridge Number	50-0345R			
Structure Type	PC/PS Slab			
Width (out to out)-(ft)	41'-10"			
Span Lengths-(ft)	113.00			
Total Area-(ft <sup>2</sup> )	4727.00			
Footing Type (pile/spread)	Pile			
Cost Per ft <sup>2</sup> (incl. 10% mobilization and 20% contingency)	\$250			
Total Cost for Structure (includes Bridge Removal)	\$1,200,000			
<b>SUBTOTAL STRUCTURES ITEMS</b> (Sum of Total Cost for Structures)				<b>\$1,200,000</b>
Railroad Related Costs:				\$0
				\$0
				\$0
<b>SUBTOTAL RAILROAD ITEMS</b>				<b>\$0</b>
<b>TOTAL STRUCTURES ITEMS</b> (Sum of Structures Items plus Railroad Items)				<b>\$1,200,000</b>

COMMENTS:

Estimate Prepared By Wei-Lung Chang Phone# 599-230-3104 Date October 18, 2011  
 (Print Name)

# ATTACHMENT D

## CATEGORICAL EXEMPTION/ CATEGORICAL EXCLUSION DETERMINATION FORM

06-Ker-58

R99.3/R99.7

06-0M2600

Dist.-Co.-Rte. (or Local Agency)

P.M/P.M.

E.A. (State project)

Federal-Aid Project No. (Local project)/ Proj. No.

### PROJECT DESCRIPTION:

(Briefly describe project, purpose, location, limits, right-of-way requirements, and activities involved.)

The California Department of Transportation (Caltrans) proposes to replace the Eastbound bridge at the Sand Canyon Road UC (Bridge number: 50-0345R) and make all elements conform to standards. It is anticipated that the Eastbound off-ramp to Sand Canyon Road and the Eastbound on-ramp from Sand Canyon Road would be utilized as a detour during construction between post miles R99.3 - R99.7. Construction activities will be confined within the existing state right of way.

### CEQA COMPLIANCE (for State Projects only)

Based on an examination of this proposal, supporting information, and the following statements (See 14 CCR 15300 et seq.):

- If this project falls within exempt class 3, 4, 5, 6 or 11, it does not impact an environmental resource of hazardous or critical concern where designated, precisely mapped and officially adopted pursuant to law.
- There will not be a significant cumulative effect by this project and successive projects of the same type in the same place, over time.
- There is not a reasonable possibility that the project will have a significant effect on the environment due to unusual circumstances.
- This project does not damage a scenic resource within an officially designated state scenic highway.
- This project is not located on a site included on any list compiled pursuant to Govt. Code § 65962.5 ("Cortese List").
- This project does not cause a substantial adverse change in the significance of a historical resource.

### CALTRANS CEQA DETERMINATION (Check one)

Exempt by Statute. (PRC 21080[b]; 14 CCR 15260 et seq.)

Based on an examination of this proposal, supporting information, and the above statements, the project is:

**Categorically Exempt. Class 1(d).** (PRC 21084; 14 CCR 15300 et seq.)

**Categorically Exempt. General Rule exemption.** [This project does not fall within an exempt class, but it can be seen with certainty that there is no possibility that the activity may have a significant effect on the environment (CCR 15061[b][3])]

**Kirsten Helton**

Print Name: Environmental Branch Chief

  
Signature Date 10/7/11

**Frank Momen**

Print Name: Project Manager/DLA Engineer

  
Signature Date 10/7/11

### NEPA COMPLIANCE

In accordance with 23 CFR 771.117, and based on an examination of this proposal and supporting information, the State has determined that this project:

- does not individually or cumulatively have a significant impact on the environment as defined by NEPA and is excluded from the requirements to prepare an Environmental Assessment (EA) or Environmental Impact Statement (EIS), and
- has considered unusual circumstances pursuant to 23 CFR 771.117(b) (<http://www.fhwa.dot.gov/hep/23cfr771.htm> - sec. 771.117).

In non-attainment or maintenance areas for Federal air quality standards, the project is either exempt from all conformity requirements, or conformity analysis has been completed pursuant to 42 USC 7506(c) and 40 CFR 93.

### CALTRANS NEPA DETERMINATION (Check one)

**Section 6004:** The State has been assigned, and hereby certifies that it has carried out, the responsibility to make this determination pursuant to Chapter 3 of Title 23, United States Code, Section 326 and a Memorandum of Understanding (MOU) dated June 7, 2010, executed between the FHWA and the State. The State has determined that the project is a Categorical Exclusion under:

23 CFR 771.117(c): activity (c) ( )

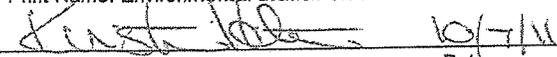
23 CFR 771.117(d): activity (d) (3)

Activity \_\_\_ listed in the MOU between FHWA and the State

**Section 6005:** Based on an examination of this proposal and supporting information, the State has determined that the project is a CE under Section 6005 of 23 U.S.C. 327.

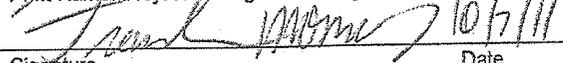
**Kirsten Helton**

Print Name: Environmental Branch Chief

  
Signature Date 10/7/11

**Frank Momen**

Print Name: Project Manager/DLA Engineer

  
Signature Date 10/7/11

Briefly list environmental commitments on continuation sheet. Reference additional information, as appropriate (e.g., air quality studies, documentation of conformity exemption, FHWA conformity determination if Section 6005 project; §106 commitments; §4(f); §7 results; Wetlands Finding; Floodplain Finding; additional studies; and design conditions). Revised June 7, 2010

# ATTACHMENT E

State of California

Business, Transportation and Housing Agency

## RW Data Sheet - Minimum Report

To: Frank Momen  
Project Manager – Fresno

Date: September 28, 2011  
File Ref.: Kern 58- PM R99.4/R99.6  
EA: 06-0M260k  
Project No.: 06-1200-0095  
Alt No.: preferred

Attention: Wei-Lung Chang, Project Engineer- Fresno

From: DEPARTMENT OF TRANSPORTATION, Division of Right of Way, Central Region – Bishop

Subject: Minimum Right of Way Data Sheet

We have completed an estimate of the right of way costs for the above-referenced project based on the Right of Way Data Sheet Request Form dated: *September 27, 2011 - "Sand Canyon Road Undercrossing Bridge Replacement" to perform bridge no. 50-0345R replacement at the Sand Canyon Road undercrossing on Route 58 east of Tehachapi*". The following assumptions and limiting conditions were identified:

1. Contractor needs to be aware that USA Alert has to be contacted prior to any digging. This information should go in the specials.
2. Project is not listed in the august 2011 Eastern Kern County "Status of Projects". Project Engineer states that right of way data sheet is needed for the Project Study Report.
3. Per request for data sheet: there is no new right of way required, environmental mitigation parcels are not required, there are no utility involvements and all work should be done within the existing highway right of way.
4. Environmental filing/permit processing fees have been determined at \$ N/A. A MCCE form has not been provided.
5. Right of Way cost is estimated at zero dollars and no right of way mapping is required for this project. One month lead-time may be required prior to RW Certification document.
6. PA&ED Acceptance or completion and a copy of CE will be needed prior to compiling RW Certification document.



NANCY ESCALLIER  
Field Office Chief  
Right of Way, Central Region - Bishop  
(760) 872-0641; fax (760) 872-0755

# ATTACHMENT F

SMS12630

California Department of Transportation  
Office of Structure Maintenance and Investigation  
**BRIDGE NEEDS/PROJECT REPORT**  
**COMPLETED WORK NOT SHOWN**

Date : 09/30/2011

Page 1 of 2

Bridge No.: 50 0345R      Location: 06-KER-058-R99.49      Name: SAND CANYON ROAD UC  
ABME Area: 08D - GREGORY HAYLOCK      Last Insp: 04/06/2011      Last Insp By: G.Haylock

**Structure Type & Material**

Str Matl: 2-CONCRETE CONT  
Design Type: 04-TEE BEAM  
Deck Type: 1-CIP CONCRETE  
Dk Surface: 0-NONE  
Dk Membrane: 0-NONE  
Dk Protect: 0-NONE

**Structure Details**

Year Build (27): 1970  
Feature Intersected (6): SAND CANYON ROAD  
Facility Carried (7): STATE HWY 58 EB  
Type of Service on (42a): 1 HIGHWAY  
Under (42b): 1 HIGHWAY  
Structure Length (49): (m) 34.4  
Permit Rating: PPPPP  
Rail Rating: 0010

**Structure Condition**

Suff Rating: 79.00      Health Index: 73.69      Status: STRUCTURALLY DEFICIENT  
Paint Index:      Scour Code: N NOT OVER WATERWAY

Deck (58): 1 IMMINENT FAILURE      Channel (61): N N/A (NBI)  
Superstructure(59): 5 FAIR      Culvert (62): N N/A (NBI)  
Substructure(60): 6 SATISFACTORY      Waterway (71): N NOT APPLICABLE

**Element Condition**

Unit	Elem	Env	Quantity	Units	St.1	St.2	St.3	St.4	St.5	Description
101	12	4	410	sq.m.	0	0	0	410	0	Concrete Deck - Bare
101	110	4	207	m.	137	70	0	0		Reinforced Conc Open Girder/Beam
101	205	3	4	ea.	0	4	0	0		Reinforced Conc Column or Pile Extension
101	215	4	32	m.	24	8	0	0		Reinforced Conc Abutment
101	234	4	15	m.	13	2	0	0		Reinforced Conc Cap
101	252	2	24	ea.	24	0	0	0	0	Cast-In-Drilled Hole Concrete Pile
101	302	2	16	m.	16	0	0	0	0	Compression Joint Seal
101	321	4	4	ea.	0	4	0	0		Reinforced Conc Approach Slab w/ or w/o AC
101	333	4	82	m.	0	80	2			Other Bridge Railing
101	358	4	1	ea.	0	0	0	1		Deck Cracking
101	359	2	1	ea.	0	0	1	0	0	Soffit of Concrete Deck or Slab

**Project Information**

Dist/EA: 06 - 0M260      FY: 2015      Tot.Cost (\$): \$3000      Status: 8 10-YEAR PLAN

Dist/EA: 06 - 41420X      FY:      Tot.Cost (\$): \$130      Status: D - PROJECT DROPPED

Project Description: Seal bridge deck

**Notes:**

\* This bridge contains multiple ratings. The controlling rating is shown for the bridge.

California Department of Transportation  
Office of Structure Maintenance and Investigation  
**BRIDGE NEEDS/PROJECT REPORT**  
**COMPLETED WORK NOT SHOWN**

Date : 09/30/2011

Bridge No.: 50 0345R

Location: 06-KER-058-R99.49

Name: SAND CANYON ROAD UC

ABME Area: 08D - GREGORY HAYLOCK

Last Insp: 04/06/2011 Last Insp By: G.Haylock

**Outstanding Work**

Rec. Date: 04/06/2011	EstCost: \$31,820	After completing deck rehab, place a polyester overlay over entire deck.
Action : Deck-Place Overlay	StrTarget : 2 years	
Work By : Maint. Contract	DistTarget:	
Status : Proposed	Comp Date :	
	EA :	
Rec. Date: 04/06/2011	EstCost: \$344,000	This deck is in bad shape, but it appears that only the top portion of the concrete is deteriorating due to de-icing chemicals and freeze thaw cycles. There are isolated areas of unsound concrete that extend to the soffit. Two of those areas were repaired by the D06 Bridge Crew, which likely averted a punch through at those locations..
Action : Deck-Rehab	StrTarget : 2 years	
Work By : Maint. Contract	DistTarget:	
Status : Proposed	Comp Date :	
	EA :	
		This deck should have the top 3.5 inches of concrete removed in stages that will keep the top mat rebar in place. The steel should be abrasive blasted to remove corrosion and concrete section should be rebuilt to a thicker section either with deck on deck or just adding more concrete. After deck rehab is complete place a polyester overlay.
		10% shoring was added to cost for the likely event of unsound concrete extending through to soffit in some areas.
		This work recommendation should supersede the 5/13/2009 recommendation to replace the deck.
Rec. Date: 05/13/2009	EstCost: \$506,540	Deck is in bad shape as is the left bridge. Deck has extensive crack network that is spalling apart in several locations. Patches have only slowed the progress of deterioration.
Action : Deck-Replace	StrTarget : 4 years	
Work By : STRAIN	DistTarget:	
Status : Ten Year Plan	Comp Date :	
	EA : 0M260	

## Notes:

\* This bridge contains multiple ratings. The controlling rating is shown for the bridge.

# ATTACHMENT G

State of California  
DEPARTMENT OF TRANSPORTATION

Business, Transportation and Housing Agency

## Memorandum

*Flex your power!  
Be energy efficient!*

To: **GURBHAY BRAR**  
Senior Transportation Engineer  
Design IV, Branch C  
Project Development Division  
Central Region

Date: October 6, 2011

File: 06-Ker-58-PM R99.3/R99.6  
Sand Canyon Road UC (Replace)  
(Br. No. 50-0345R)  
06-0M260K  
Project ID 06.1200.0095

From: **MICHAEL DOWNS**   
Technical Liaison Engineer  
Office of Bridge Design Central  
Structure Design  
Division on Engineering Services

Subject: **Advance Planning Study Transmittal**

The Division of Engineering Services has completed the Advance Planning Study to replace the eastbound Route 58 Sand Canyon Road UC (Br. No. 50-0345R) on the above referenced bridge rehabilitation project.

The forecast structure cost, which includes time related overhead, mobilization, contingencies and bridge removal, and the preliminary structure working day estimate are as follows:

Bridge Name	Bridge Number	Estimated Structure Cost	Structure Working Day Estimate
Sand Canyon Rd UC (Replace)	50-0345R	\$1,150,000	75 Days

The structure working day estimate should only be considered to be at a preliminary level of accuracy and without regard to specific information related to contractor submittals, procurement of material, existing or future utilities, permits or any environmental constraints.

The following table summarizes the projected structure cost based on a variable escalation rate. The escalated structure costs are provided for informational purposes only and do not replace annual cost updates as required by Department policy.

Years Beyond Midpoint	Escalated Structure Cost
1	\$1,176,000
2	\$1,212,000
3	\$1,260,000
4	\$1,308,000
5	\$1,343,000

**GURBHAY BRAR**

October 6, 2011

Page 2

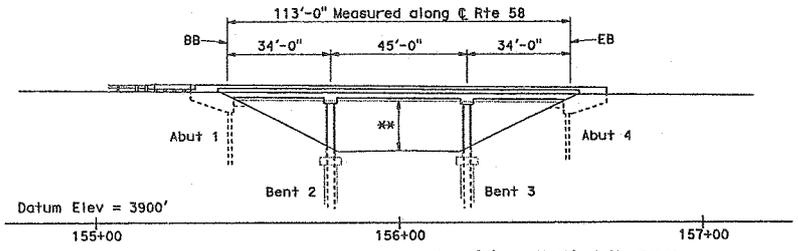
This Advance Planning Studies and associated cost estimates is based on the recent General Plan estimate developed for the left bridge replacement under 06-0K390 and the following risks/assumptions:

1. Route 58 profile grade cannot be raised.
2. Eastbound Route 58 traffic will be detoured onto the existing Sand Canyon Rd off-ramp and on-ramp during construction.
3. Sand Canyon Road will be closed during construction.
4. Traffic control costs to be determined by District.
5. 1'-4" CIDH pile foundations assumed at each abutment.
6. 2'-6" CIDH pile foundations assumed at each bent.
7. Any necessary approach pavement work to be determined by District.

If you have any questions or need further information regarding this study, please contact me at (916) 227-9365.

- c: Peggy Lim – Project Liaison Engineer  
John Stayton – Office of Bridge Design Central/Structure OE  
John Babcock – Structure Construction  
Roy Bibbens – Geotechnical Services  
Kevin Wall – Structure Maintenance & Investigations  
Ching Chao – Structure Maintenance & Investigations (South)  
Frank Momen – Project Manager, District 6  
Wei-Lung Chang – Project Engineer, CR Project Development

DIST	COUNTY	ROUTE	POST MILE
06	Ker	58	R99.5
To get to the Caltrans web site, go to: <a href="http://www.dot.ca.gov">http://www.dot.ca.gov</a>			

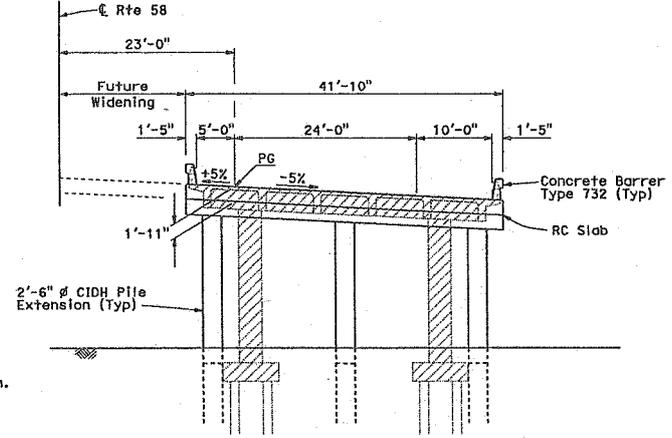


**ELEVATION**  
1" = 20'

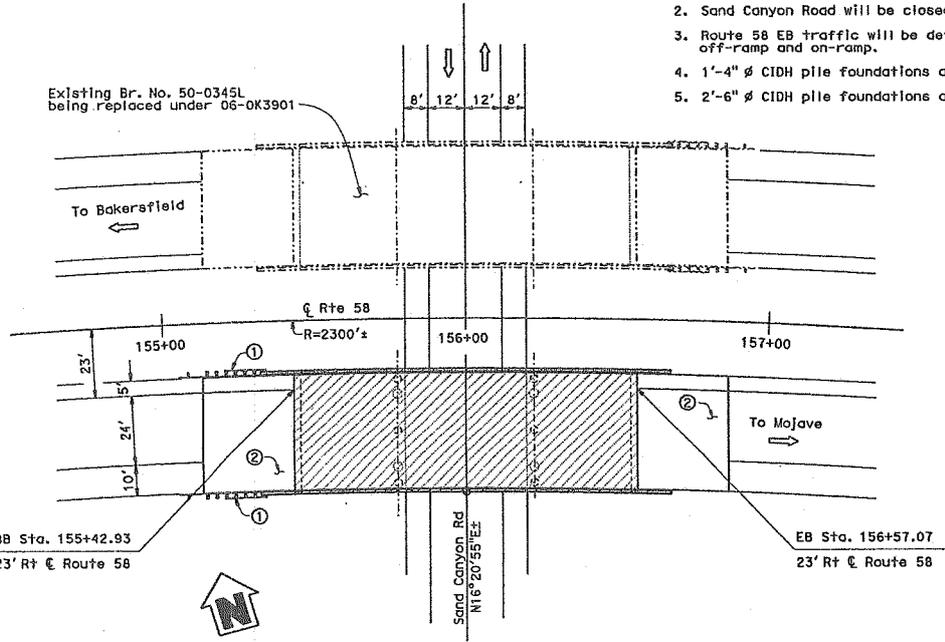
\*\* Minimum Vertical Clearance:  
Existing = 15'-2"  
Replacement = 15'-0"±

**Risks/Assumptions:**

1. As-built stations shown.
2. Sand Canyon Road will be closed during construction.
3. Route 58 EB traffic will be detoured onto existing off-ramp and on-ramp.
4. 1'-4"  $\phi$  CIDH pile foundations assumed at each abutment.
5. 2'-6"  $\phi$  CIDH pile foundations assumed at each bent.



**TYPICAL SECTION**  
1/8" = 1'-0"



**PLAN**  
1" = 20'

**Notes:**

- ① MBGR (see Road Plans)
- ② Structure Approach Type N(30D)

- Indicates existing structure
- ▨ Indicates bridge removal
- Indicates new construction
- Point of minimum vertical clearance

DATE OF ESTIMATE	10-6-2011
BRIDGE REMOVAL	= \$50,000
STRUCTURE DEPTH	= 1'-11"
LENGTH	= 113'-0"
WIDTH	= 41'-10"
AREA	= 4,727 ft <sup>2</sup>
COST/SF INCLUDING TRO. MOBILIZATION	
CONTINGENCY	= \$232.71/ft <sup>2</sup>
TOTAL COST	= \$1,150,000

DESIGNED BY	M. Downs	DATE	10/11
DRAWN BY	M. Downs	DATE	10/11
CHECKED BY	X	DATE	X
APPROVED	X	DATE	X

<b>STRUCTURE DESIGN</b>	<b>PLANNING STUDY</b>	
	<b>SAND CANYON RD UC (REPLACE)</b>	
	BRIDGE NO. 50-0345R	CU 06
SCALE: As Noted	EA OM250K	

# ATTACHMENT H

## Short Form - Storm Water Data Report



Dist-County-Route: 6-Ker-58

Post Mile Limits: R99.3/R99.7

Project Type: SHOPP - Bridge Rehabilitation

Project ID (or EA): 06-0M2600

Program Identification: 201.110

Phase:  PID  
 PA&ED  
 PS&E

Regional Water Quality Control Board(s): Lahontan, Region 6, Victorville Office

1. Is the project required to consider incorporating Treatment BMPs? Yes  No
2. Does the project disturb 5 or more acres of soil? Yes  No
3. Does the project disturb more than 1 acre of soil and not qualify for the Rainfall Erosivity Waiver? Yes  No
4. Does the project potentially create permanent water quality impacts? Yes  No
5. Does the project require a notification of ADL reuse? Yes  No

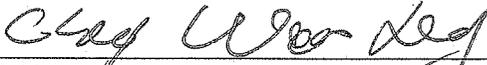
If the answer to any of the preceding questions is "Yes", prepare a Long Form - Storm Water Data Report.

Estimate Construction Start Date: 02/01/2014 Construction Completion Date: 09/01/2014

Separate Dewatering Permit (if yes, permit number) Yes  Permit # \_\_\_\_\_ No

Erosivity Waiver Yes  Date: \_\_\_\_\_ No

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

  
Wei-Lung Chang, Registered Project Engineer  
Date: 09/19/11  
I have reviewed the stormwater quality design issues and find this report to be complete, current and accurate:

[Stamp Required for PS&E only]

  
Marissa Nishikawa, District/Regional SW Coordinator  
Date: 9-19-11



# ATTACHMENT I

## DISTRICT 9 - TRANSPORTATION MANAGEMENT PLAN

### DATA SHEET

(TMP Elements and Costs)

CO/RTE/IPM	KER	58	PM R99.3/R99.7	EA	06-0M260K
PROJECT NAME	Sand Canyon UC (Eastbound)				
PROJECT LOCATION	In Kern County near Tehachapi at the eastbound Sand Canyon Road UC Bridge No. 50-345R.				
PROJECT DESCRIPTION	Remove existing eastbound SR58 bridge structure and construct replacement bridge.				

A) **The project includes the following:**  
 (Check all that applicable type of facility closures.)

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Highway or Freeway Lanes<br><input checked="" type="checkbox"/> Highway or Freeway Shoulders<br><input type="checkbox"/> Freeway Connectors | <input checked="" type="checkbox"/> Freeway Off-ramps<br><input checked="" type="checkbox"/> Freeway On-ramps<br><input checked="" type="checkbox"/> Local Streets |
|---|--|

B) **Are there any construction strategies that can restore existing number of lanes?**

- No       Yes (Check all applicable strategies.)

- |   |                              |  |
|---|------------------------------|--|
| <input type="checkbox"/> Temporary Roadway Widening<br>Structure Involvement?   | <input type="checkbox"/> Yes | <input type="checkbox"/> No (If yes, notify Project Manager) |
| <input type="checkbox"/> Lane Restriping (Temporary narrow lane widths)<br><input checked="" type="checkbox"/> Roadway Realignment (Detour around work area)<br><input type="checkbox"/> Median and/or Right Shoulder Utilization<br><input type="checkbox"/> Use of HOV lane as Temporary Mixed Flow Lane<br><input type="checkbox"/> Staging Alternatives (Explain Below) |                              |  |

C) **Calculated Delay**

(To be performed if construction strategies in Item B do not mitigate congestion resulting from Item A)

- |  |               |
|--|---------------|
| 1. Estimated Maximum Individual delay                      | 2 minutes     |
| 2. Existing or Acceptable Individual Vehicle Delay         | 5 minutes     |
| 3. Estimated Individual Vehicle Delay Requiring Mitigation | 0 minutes     |
| 4. Estimate Delay Cost (Most Applicable)                   |               |
| <input type="checkbox"/> Extended Weekend Closure          |               |
| <input checked="" type="checkbox"/> Weekly (7 days)        |               |
| 5. Estimated Duration of Project Related Delays            | 110 # of Days |
| 6. Cost of Construction Related delays                     | \$225,500     |

TMP estimates based on 110 number of working days requiring lane closures and traffic control.

**TMP DATASHEET**

Design Senior: [Name]   
 Branch: LR Project Development Design I/F

KER-58-PM R05 4 R00 6   
 EA 06 0M280K

**D) Preliminary TMP Elements and cost:** (Identify all elements and estimated costs that will be used to mitigate congestion resulting from the proposed construction activities.)

<p><b>1. Public Information - Bees 066063</b></p> <p><input checked="" type="checkbox"/> Brochures &amp; Mailers \$ 0</p> <p><input checked="" type="checkbox"/> Press Release \$ 6,000</p> <p><input type="checkbox"/> Paid Advertising \$ -</p> <p><input type="checkbox"/> Public Info Center/Kiosk \$ -</p> <p><input checked="" type="checkbox"/> Public Meeting/Speakers Bureau \$ 0</p> <p><input type="checkbox"/> Telephone Hotline \$ -</p> <p><input type="checkbox"/> Internet \$ -</p> <p><input checked="" type="checkbox"/> Coordination w/ CTA &amp; AAA \$ 0</p> <p><input type="checkbox"/> Other \$ -</p> <p><b>3. Incident Management</b></p> <p><input checked="" type="checkbox"/> COZEEP - (see note 5) \$ 50,000</p> <p><input type="checkbox"/> Freeway Service Patrol \$ -</p> <p><input type="checkbox"/> TMT - Bees 066004 \$ -</p> <p><input type="checkbox"/> Helicopter Surveillance \$ -</p> <p><input type="checkbox"/> Traffic Surveillance (Loop &amp; CCTV) \$ -</p> <p><input type="checkbox"/> Other \$ -</p> <p><b>5. Demand Management</b></p> <p><input type="checkbox"/> HOV Lane/Ramps \$ -</p> <p><input type="checkbox"/> Park &amp; Ride Lots \$ -</p> <p><input type="checkbox"/> Rideshare Incentives</p> <p><input type="checkbox"/> Variable Work Hours</p> <p><input type="checkbox"/> Telecommute \$ -</p> <p><input type="checkbox"/> Ramp Metering (New) \$ -</p> <p><input type="checkbox"/> Ramp Metering (Existing) \$ -</p> <p><input type="checkbox"/> Other \$ -</p> <p><b>7. Other Considerations</b></p> <p><input type="checkbox"/> Application of New Technologies \$ -</p> <p><input type="checkbox"/> Other \$ -</p>	<p><b>2. Motorist Information Strategies</b></p> <p><input type="checkbox"/> Fixed CMS \$ -</p> <p><input checked="" type="checkbox"/> Portable CMS (see note 4) \$ 40,000</p> <p><input type="checkbox"/> Ground Mounted signs \$ -</p> <p><input type="checkbox"/> Highway Advisory Radio \$ -</p> <p><input checked="" type="checkbox"/> CT Hwy Infom. Network (CHIN) \$ 0</p> <p><input type="checkbox"/> Other \$ -</p> <p><b>4. Construction Strategies (In Addition to Elements Identified on Item B)</b></p> <p><input checked="" type="checkbox"/> Lane Closure Charts \$ 0</p> <p><input type="checkbox"/> Reversing Traffic Control \$ -</p> <p><input type="checkbox"/> Total Road Closure \$ -</p> <p><input type="checkbox"/> Extended Weekend Closure \$ -</p> <p><input type="checkbox"/> Truck Traffic Restrictions \$ -</p> <p><input checked="" type="checkbox"/> Reduced Speed Zone \$ 0</p> <p><input type="checkbox"/> Connector &amp; Ramp Closure \$ -</p> <p><input type="checkbox"/> Incentive &amp; Disincentive \$ -</p> <p><input type="checkbox"/> Moveable Barrier \$ -</p> <p><input type="checkbox"/> Traffic Contingency Plan / Emergency Detour Route \$ -</p> <p><input type="checkbox"/> Other \$ -</p> <p><b>6. Alternative Route Strategies</b></p> <p><input type="checkbox"/> Add Capacity or Fwy Connector \$ -</p> <p><input type="checkbox"/> Street Improvement</p> <p><input type="checkbox"/> Traffic Control Officers \$ -</p> <p><input type="checkbox"/> Parking Restrictions \$ -</p> <p><input type="checkbox"/> Other \$ -</p>
--	---

<b>TOTAL COST OF TMP</b>	<b>\$96,000</b>
--------------------------	-----------------

**PROJECT NOTES:**

- Current dollar values used. Inflation was not factored into the estimate.
- There are no noise restrictions / moratoriums for night work.
- Traffic Control/Maintain Traffic costs was not provided. Please consult with the OE or construction office for this estimate.
- Portable CMS specified for this project by this estimate is designed for congestion relief as outlined by DD-60. Portable CMS required for other purposes should be included under other specifications.
- COZEEP specified for this project by this estimate is designated for congestion relief as outlined by DD-60. COZEEP required for other purposes should be included under other specifications.
- The TMP is a living document that is subject to change if material changes take place in the final version of the project phase or if changes are required during construction to respond to excessive levels of congestion.

Prepared By: <i>[Signature]</i>	Date: September 16, 2011	DISTRICT 9 TRAFFIC OPERATIONS
---------------------------------	--------------------------	-------------------------------

DISTRICT 9 - MAINTENANCE AND OPERATIONS DIVISION  
OFFICE OF TRAFFIC OPERATIONS

DATE:	9/19/2011
PREPARED BY:	Lianne Talbot

LANE CLOSURE CHART NO. 1 OF 1

EA:	06-0M2600	PROJECT LOCATION:	06-Ker 58 PM R99.3/R99.7 Eastbound					
CLOSURE LIMITS:	COUNTY: Ker	RTE: 58	FROM:	0.7 mile west of EB Off ramp to Sand Canyon Rd	R98.6	TO:	EB On ramp from Sand Canyon Rd	R99.7
TYPE OF WORK:	Remove existing eastbound bridge structure and construct replacement bridge.							
TYPE OF FACILITY:	4-Lane Freeway		ESTIMATED SINGLE OPEN LANE CAPACITY IN PCPH:				1053	
PERCENT PASSENGER CARS:	66%		ESTIMATED SINGLE OPEN LANE CAPACITY IN YPH:				901	
PERCENT TRUCKS:	34%							

DIRECTION:	Eastbound Only	LANE REQUIREMENTS AND HOURS OF WORK																									
		AM								PM																	
		Midnight	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	Noon	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00	10:00	11:00	Midnight	
Monday through Thursday		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Friday		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Saturday		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Sunday		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

LEGEND:

- 1 PROVIDE AT LEAST ONE THROUGH TRAFFIC LANE OPEN IN DIRECTION OF TRAVEL
- WORK PERMITTED WITHIN PROJECT RIGHT OF WAY WHERE SHOULDER OR LANE CLOSURE IS NOT REQUIRED

REMARKS:

- a. Unless approved by the engineer, the maximum length of a single stationary lane closure shall be 1.5 miles (2.4 km).
- b. Unless approved by the Engineer, not more than 1 separate stationary lane closures will be allowed at one time.
- c. The full width of the traveled way shall be open for the use by public traffic when construction operations are not actively in progress.
- d. Sand Canyon Road shall be closed during all stages of construction. SR 58 shall not be stop at any time along the detour.

# ATTACHMENT J

## PROJECT RISK MANAGEMENT PLAN

Dist - E.A 06-0M260\_

Project Name

Co-Rte-PM Ker-58-R99.3/R99.7

Date 9/22/2011

Project Mngr Frank Momen

Telephone Number (559) 243-3444

PROJECT RISK MANAGEMENT PLAN																	
Priority	Identification						Qualitative Analysis				OPTIONAL Quantitative Analysis			Risk Response Plan		Monitoring and Control	
	Status	ID #	Date Identified Project Phase	Functional Assignment	Threat/Opportunity Event	Risk Trigger	Type	Probability	Impact	Risk Matrix	Probability (%)	Impact (\$ or days)	Effect (\$ or days)	Strategy	Response Actions including advantages and disadvantages	Responsibility (Risk Manager)	Last date changes made to risk and Comments
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14) = (12)x(13)	(15)	(16)	(17)	(18)
	Dormant		9/22/2011 PID	Design	Project Cost Increase	Material Cost Increase	Cost	Low	Moderate		30%			Acceptance	Annual Provide yearly cost estimate update to PM. Incorporate material cost and notify the PM of major cost increases. Process a PCR, if necessary.	Design / Project Manager	
	Dormant		9/22/2011 PID	Project Management	Project Support Cost Increase	Expended resources exceed resources designated or allocated	Cost	Moderate	Moderate					Acceptance	Monitor expenditures, team coordination, process PCR if necessary.	Project Manager	

# ATTACHMENT K

*California Department of Transportation  
Division of Maintenance*

## *Structure Maintenance and Investigations*

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**B**<sub>RIDGE</sub>

**I**<sub>NSPECTION</sub>

**R**<sub>ECORDS</sub>

**I**<sub>NFORMATION</sub>

**S**<sub>YSTEM</sub>

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The requested documents have been generated by BIRIS.

These documents are the property of the California Department of Transportation and should be handled in accordance with Deputy Directive 55 and the State Administrative Manual.

Records for "Confidential" bridges may only be released outside the Department of Transportation upon execution of a confidentiality agreement.



DEPARTMENT OF TRANSPORTATION  
Structure Maintenance & Investigations

Bridge Number : 50 0345R  
Facility Carried: STATE HWY 58 EB  
Location : 06-KER-058-R99.49  
City :  
Inspection Date : 04/06/2011

### Bridge Inspection Report

Inspection Type  
 Routine  FC  Underwater  Special  Other

**STRUCTURE NAME:** SAND CANYON ROAD UC

#### CONSTRUCTION INFORMATION

Year Built : 1970 Skew (degrees): 0  
Year Widened: N/A No. of Joints : 2  
Length (m) : 34.4 No. of Hinges : 0

Structure Description: Three span continuous RC "T" beam (6) on RC 2 column bent and RC open end diaphragm abutments, all founded on CIDH piles.

Span Configuration : (W) 10.1 m, 13.7 m, 10.1 m (E) c/c

#### LOAD CAPACITY AND RATINGS

Design Live Load: MS-18 OR HS-20  
Inventory Rating: 36.6 metric tonnes Calculation Method: LOAD FACTOR  
Operating Rating: 60.5 metric tonnes Calculation Method: LOAD FACTOR  
Permit Rating : P P P P P  
Posting Load : Type 3: Legal Type 3S2: Legal Type 3-3: Legal

#### DESCRIPTION ON STRUCTURE

Deck X-Section: (N) 0.3m br; 1.5m s; 2 @ 3.7m; 3.0m s; 0.3m br (S)  
Total Width: 12.5 m Net Width: 11.9 m No. of Lanes: 2  
Rail Description: Type 9 Rail Code : 0010  
Min. Vertical Clearance: Unimpaired

#### DESCRIPTION UNDER STRUCTURE

Facility Name	Func Class	Lanes	Horiz Clr (m)	Vert Clr (m)
SAND CANYON ROAD	09	2	7.40	4.62

Channel Description: None.

#### CONDITION TEXT

#### REVISIONS

Updated routine photos and entered into BIRIS  
Moved element 12 to condition state 4.  
Moved soffit SMART flag 359 to state 3.

#### SAFETY FEATURES

As noted previously, both metal bridge approach guardrails are not attached to the rail ends on the structure.

#### DECK NOTE

This bridge deck is in critical condition. The D06 Bridge Crew patched two small areas of the deck that were previously patched with asphalt. These two areas (about 3' x 3' each and along the left tire lines of the #1 and #2 lanes) had unsound concrete all the way through the deck. These areas were saw cut and patched with CeraTech Pavemend. Another random area was chosen and chipped out. The crew encountered sound concrete just below the top mat of rebar.

CONDITION TEXT

In 2009 METS personnel extracted cores from an exterior "T" girder on both the right and left bridges. Analysis for the super and substructures have no adverse findings beyond the presence of 25% reactive aggregate.

On 4/6/2011 the D06 Bridge Crew extracted 4 cores from the deck and they were sent to Trans Lab at 5900 Folsom for analysis. Uranyl Acetate testing confirms the presence of 25% reactive aggregate in the concrete. No confirmation was done for ASR products. Chloride testing indicates 4.8 lbs/cu yd in the top 1 inch then 4.0, 2.8, 2.6, 0.4 & 1.2 lbs/cu yd for the successive 5" below that. (See report in BIRIS)

DECK AND RAILS

Suffix "R" is missing from the stenciled bridge number on the rail.

Concrete portions of barriers have cracks and spalls at various locations on both sides.

Deck has extensive transverse cracks, similar to the left bridge, it is beginning to crumble along and around the cracks. There are several small spalls in the #1 lane and 1 larger spall (approx 400 mm x 300 mm) in the #2 lane. 2 spalls that had been previously patched with asphalt have been properly repaired.

SUPERSTRUCTURE

Soffit has minor transverse cracks with light efflorescence in some span bays and several hairline cracks with no efflorescence in span 1. Efflorescence is mostly below the low side of the bridge deck along the drainage flowline.

Girders have minor vertical flex cracks.

SUBSTRUCTURE

Abutments have map pattern cracks at the corners with vertical cracks across face.

Columns have hairline map pattern cracks

MISCELLANEOUS

The G-11 sign is missing.

Sufficiency rating, structure condition and health index on the Structure Inventory and Appraisal Report are computer-generated.

Horizontal/Lateral clearance values were not field-verified during this investigation.

Bridge was inspected while bridge crew was working on the bridge, hence only one inspector on report.

<u>ELEMENT INSPECTION RATINGS</u>									
Elem No.	Element Description	Env	Total		Qty in each Condition State				
			Qty	Units	St. 1	St. 2	St. 3	St. 4	St. 5
12	Concrete Deck - Bare	4	410	sq.m.	0	0	0	410	0
110	Reinforced Conc Open Girder/Beam	4	207	m.	137	70	0	0	

Elem No.	Element Description	Env	Total		Qty in each Condition State				
			Qty	Units	St. 1	St. 2	St. 3	St. 4	St. 5
205	Reinforced Conc Column or Pile Extension	3	4	ea.	0	4	0	0	
215	Reinforced Conc Abutment	4	32	m.	24	8	0	0	
234	Reinforced Conc Cap	4	15	m.	13	2	0	0	
252	Cast-In-Drilled Hole Concrete Pile	2	24	ea.	24	0	0	0	0
302	Compression Joint Seal	2	16	m.	16	0	0	0	0
321	Reinforced Conc Approach Slab w/ or w/o AC Ovly	4	4	ea.	0	4	0	0	
333	Other Bridge Railing	4	82	m.	0	80	2		
358	Deck Cracking	4	1	ea.	0	0	0	1	
359	Soffit of Concrete Deck or Slab	2	1	ea.	0	0	1	0	0

WORK RECOMMENDATIONS

RecDate: 04/06/2011  
Action : Deck-Rehab  
Work By: MAINT. CONTRACT  
Status : PROPOSED

EstCost: \$344,000  
StrTarget: 2 YEARS  
DistTarget:  
EA:

This deck is in bad shape, but it appears that only the top portion of the concrete is deteriorating due to de-icing chemicals and freeze thaw cycles. There are isolated areas of unsound concrete that extend to the soffit. Two of those areas were repaired by the D06 Bridge Crew, which likely averted a punch through at those locations..

This deck should have the top 3.5 inches of concrete removed in stages that will keep the top mat rebar in place. The steel should be abrasive blasted to remove corrosion and concrete section should be rebuilt to a thicker section either with deck on deck or just adding more concrete. After deck rehab is complete place a polyester overlay.

10% shoring was added to cost for the likely event of unsound concrete extending through to soffit in some areas.

This work recommendation should supersede the 5/13/2009 recommendation to replace the deck.

RecDate: 04/06/2011  
Action : Deck-Place Overlay  
Work By: MAINT. CONTRACT  
Status : PROPOSED

EstCost: \$31,820  
StrTarget: 2 YEARS  
DistTarget:  
EA:

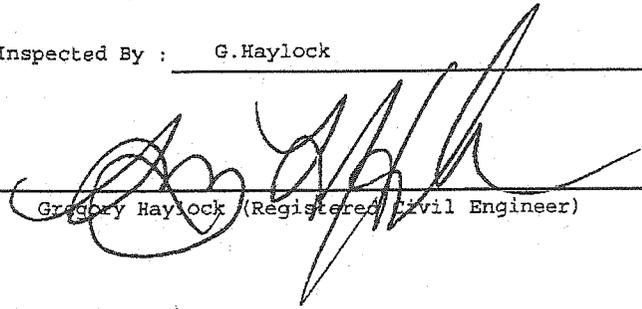
After completing deck rehab, place a polyester overlay over entire deck.

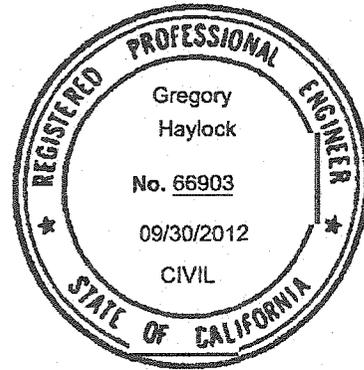
RecDate: 05/13/2009  
Action : Deck-Replace  
Work By: STRAIN  
Status : TEN YEAR PLAN

EstCost: \$506,540  
StrTarget: 4 YEARS  
DistTarget:  
EA: OM260

Deck is in bad shape as is the left bridge. Deck has extensive crack network that is spalling apart in several locations. Patches have only slowed the progress of deterioration.

Inspected By : G.Haylock

  
\_\_\_\_\_  
Gregory Haylock (Registered Civil Engineer)



STRUCTURE INVENTORY AND APPRAISAL REPORT

## \*\*\*\*\* IDENTIFICATION \*\*\*\*\*

(1) STATE NAME- CALIFORNIA 069  
 (8) STRUCTURE NUMBER 50 0345R  
 (5) INVENTORY ROUTE(OH/UNDER)- ON 131000580  
 (2) HIGHWAY AGENCY DISTRICT 06  
 (3) COUNTY CODE 029 (4) PLACE CODE 00000  
 (6) FEATURE INTERSECTED- SAND CANYON ROAD  
 (7) FACILITY CARRIED- STATE HWY 58 EB  
 (9) LOCATION- 06-KER-058-R99.49  
 (11) MILEPOINT/KILOMETERPOINT 99.49  
 (12) BASE HIGHWAY NETWORK- PART OF NET 1  
 (13) LRS INVENTORY ROUTE & SUBROUTE 000000005801  
 (16) LATITUDE 35 DEG 06 MIN 35.86 SEC  
 (17) LONGITUDE 118 DEG 19 MIN 21.97 SEC  
 (98) BORDER BRIDGE STATE CODE % SHARE %  
 (99) BORDER BRIDGE STRUCTURE NUMBER

## \*\*\*\*\* STRUCTURE TYPE AND MATERIAL \*\*\*\*\*

(43) STRUCTURE TYPE MAIN:MATERIAL- CONCRETE CONT  
 TYPE- TEE BEAM CODE 204  
 (44) STRUCTURE TYPE APPR:MATERIAL- OTHER/NA  
 TYPE- OTHER/NA CODE 000  
 (45) NUMBER OF SPANS IN MAIN UNIT 3  
 (46) NUMBER OF APPROACH SPANS 0  
 (107) DECK STRUCTURE TYPE- CIP CONCRETE CODE 1  
 (108) WEARING SURFACE / PROTECTIVE SYSTEM:  
 A) TYPE OF WEARING SURFACE- NONE CODE 0  
 B) TYPE OF MEMBRANE- NONE CODE 0  
 C) TYPE OF DECK PROTECTION- NONE CODE 0

## \*\*\*\*\* AGE AND SERVICE \*\*\*\*\*

(27) YEAR BUILT 1970  
 (106) YEAR RECONSTRUCTED 0000  
 (42) TYPE OF SERVICE: ON- HIGHWAY 1  
 UNDER- HIGHWAY W/NO PEDESTF 1  
 (28) LANES:ON STRUCTURE 02 UNDER STRUCTURE 02  
 (29) AVERAGE DAILY TRAFFIC 20000  
 (30) YEAR OF ADT 2005 (109) TRUCK ADT 30 %  
 (19) BYPASS, DETOUR LENGTH 0 KM

## \*\*\*\*\* GEOMETRIC DATA \*\*\*\*\*

(48) LENGTH OF MAXIMUM SPAN 13.7 M  
 (49) STRUCTURE LENGTH 34.4 M  
 (50) CURB OR SIDEWALK: LEFT 0.0 M RIGHT 0.0 M  
 (51) BRIDGE ROADWAY WIDTH CURB TO CURB 11.9 M  
 (52) DECK WIDTH OUT TO OUT 12.5 M  
 (32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 11.9 M  
 (33) BRIDGE MEDIAN- NO MEDIAN 0  
 (34) SKEW 0 DEG (35) STRUCTURE FLARED NO  
 (10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M  
 (47) INVENTORY ROUTE TOTAL HORIZ CLEAR 11.9 M  
 (53) MIN VERT CLEAR OVER BRIDGE RDWY 99.99 M  
 (54) MIN VERT UNDERCLEAR REF- HIGHWAY 4.62 M  
 (55) MIN LAT UNDERCLEAR RT REF- HIGHWAY 2.4 M  
 (56) MIN LAT UNDERCLEAR LT 0.0 M

## \*\*\*\*\* NAVIGATION DATA \*\*\*\*\*

(38) NAVIGATION CONTROL- NOT APPLICABLE CODE N  
 (111) PIER PROTECTION- CODE  
 (39) NAVIGATION VERTICAL CLEARANCE 0.0 M  
 (116) VERT-LIFT BRIDGE NAV MIN VERT CLEAR M  
 (40) NAVIGATION HORIZONTAL CLEARANCE 0.0 M

## \*\*\*\*\* SUFFICIENCY RATING \*\*\*\*\*

SUFFICIENCY RATING = 79.0  
 STATUS STRUCTURALLY DEFICIENT  
 HEALTH INDEX 73.7  
 PAINT CONDITION INDEX = N/A

## \*\*\*\*\* CLASSIFICATION \*\*\*\*\* CODE

(112) NBIS BRIDGE LENGTH- YES Y  
 (104) HIGHWAY SYSTEM- ROUTE ON NHS 1  
 (26) FUNCTIONAL CLASS- OTHER PRIN ART RURAL 02  
 (100) DEFENSE HIGHWAY- STRAHNET 1  
 (101) PARALLEL STRUCTURE- RIGHT STRUCTURE R  
 (102) DIRECTION OF TRAFFIC- 1 WAY 1  
 (103) TEMPORARY STRUCTURE-  
 (105) FED.LANDS HWY- NOT APPLICABLE 0  
 (110) DESIGNATED NATIONAL NETWORK - PART OF NET 1  
 (20) TOLL- ON FREE ROAD 3  
 (21) MAINTAIN- STATE HIGHWAY AGENCY 01  
 (22) OWNER- STATE HIGHWAY AGENCY 01  
 (37) HISTORICAL SIGNIFICANCE- NOT ELIGIBLE 5

## \*\*\*\*\* CONDITION \*\*\*\*\* CODE

(58) DECK 1  
 (59) SUPERSTRUCTURE 5  
 (60) SUBSTRUCTURE 6  
 (61) CHANNEL & CHANNEL PROTECTION N  
 (62) CULVERTS N

## \*\*\*\*\* LOAD RATING AND POSTING \*\*\*\*\* CODE

(31) DESIGN LOAD- MS-18 OR HS-20 5  
 (63) OPERATING RATING METHOD- LOAD FACTOR 1  
 (64) OPERATING RATING- 60.5  
 (65) INVENTORY RATING METHOD- LOAD FACTOR 1  
 (66) INVENTORY RATING- 36.6  
 (70) BRIDGE POSTING- EQUAL TO OR ABOVE LEGAL LOADS 5  
 (41) STRUCTURE OPEN, POSTED OR CLOSED-  
 DESCRIPTION- OPEN, NO RESTRICTION A

## \*\*\*\*\* APPRAISAL \*\*\*\*\* CODE

(67) STRUCTURAL EVALUATION 5  
 (68) DECK GEOMETRY 7  
 (69) UNDERCLEARANCES, VERTICAL & HORIZONTAL 5  
 (71) WATER ADEQUACY N  
 (72) APPROACH ROADWAY ALIGNMENT 8  
 (36) TRAFFIC SAFETY FEATURES 0010  
 (113) SCOUR CRITICAL BRIDGES N

## \*\*\*\*\* PROPOSED IMPROVEMENTS \*\*\*\*\*

(75) TYPE OF WORK- SUP/SUB REHAB CODE 35  
 (76) LENGTH OF STRUCTURE IMPROVEMENT 34.4 M  
 (94) BRIDGE IMPROVEMENT COST \$430,000  
 (95) ROADWAY IMPROVEMENT COST \$86,000  
 (96) TOTAL PROJECT COST \$722,400  
 (97) YEAR OF IMPROVEMENT COST ESTIMATE 2010  
 (114) FUTURE ADT 40266  
 (115) YEAR OF FUTURE ADT 2029

## \*\*\*\*\* INSPECTIONS \*\*\*\*\*

(90) INSPECTION DATE 04/11 (91) FREQUENCY 24 MO  
 (92) CRITICAL FEATURE INSPECTION: (93) CFI DATE  
 A) FRACTURE CRIT DETAIL- NO MO A)  
 B) UNDERWATER INSP- NO MO B)  
 C) OTHER SPECIAL INSP- NO MO C)

50 0345R SAND CANYON ROAD UC 06-KER-058-R99.49  
100 - PHOTO-ROADWAY VIEW

04/06/2011 [AAAG]

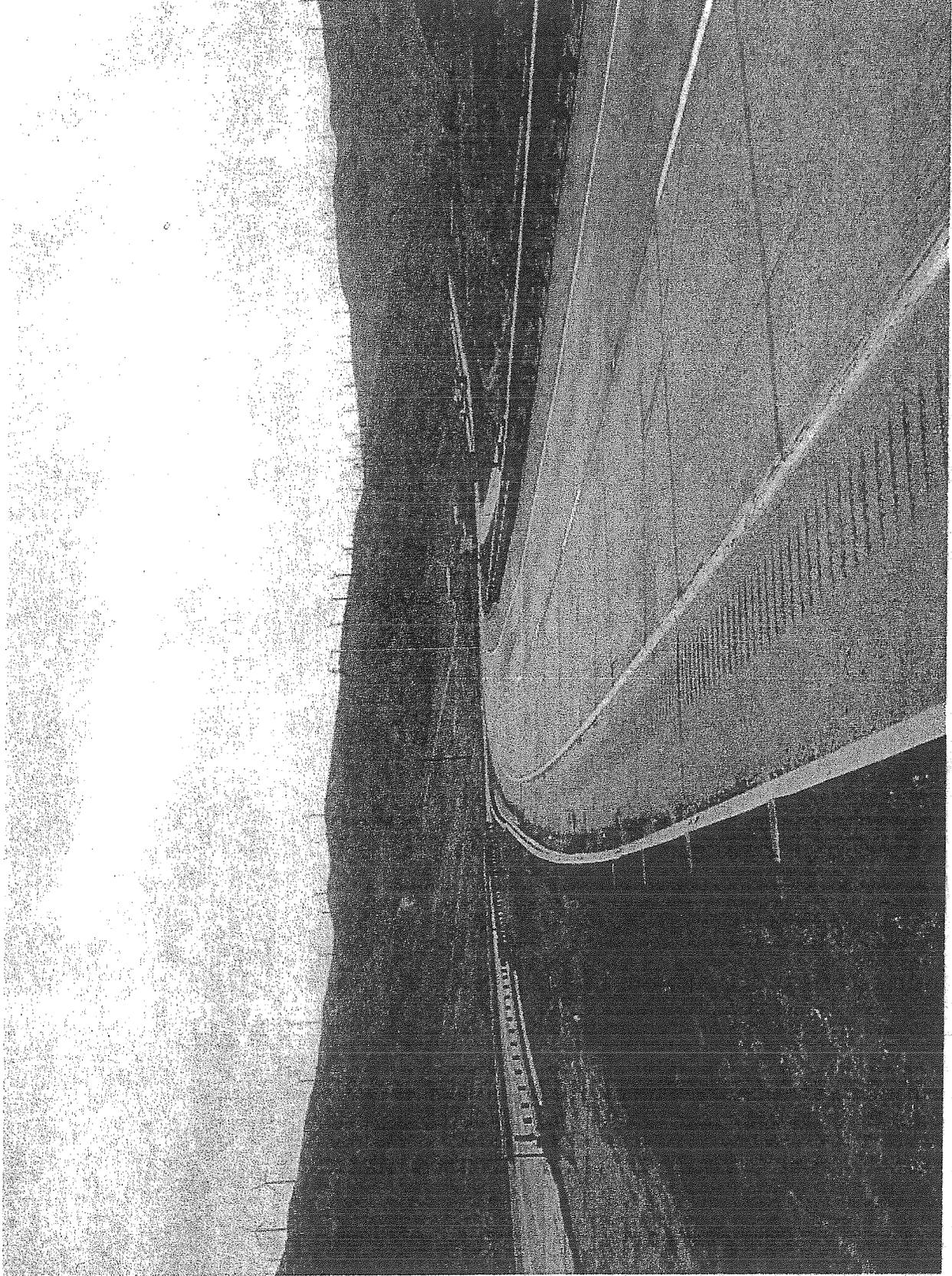


Photo No. 1  
Routine deck view looking east or ahead on SR 58

50 0345R SAND CANYON ROAD UC 06-KER-058-R99.49  
101 - PHOTO-ROUTINE ELEVATION

04/06/2011 [AAAAG]

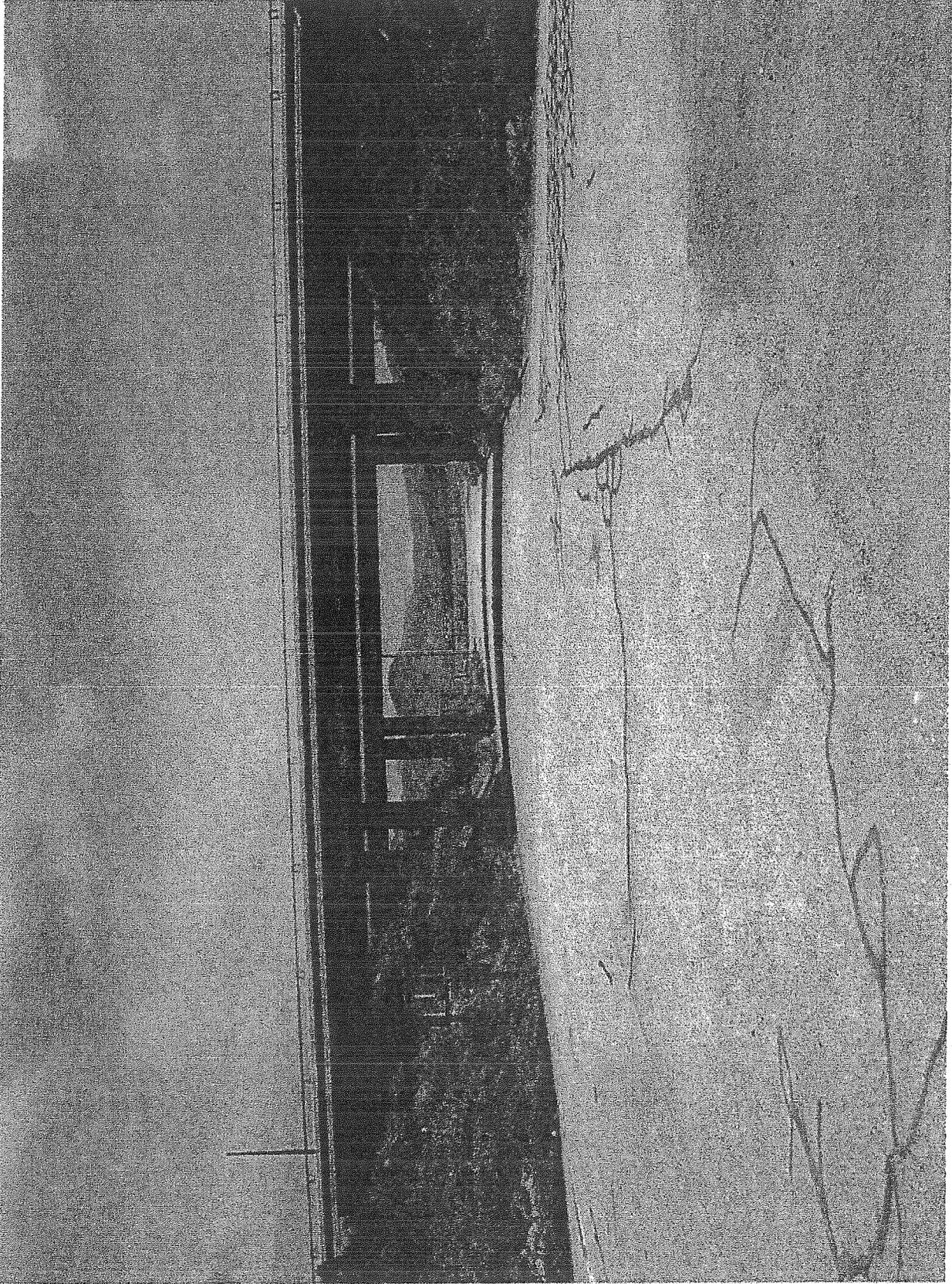


Photo No. 1  
Routine elevation looking northerly

# ATTACHMENT L

## PEER REVIEW FACT SHEET

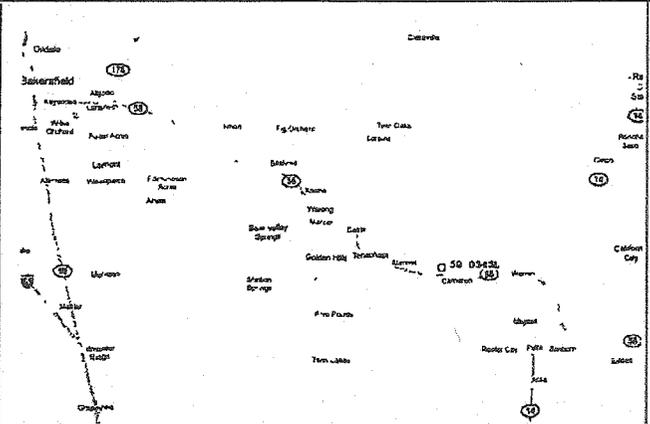
State Route 58, Br. No.'s 50-0345R and 50-0346L/R

May 24, 2011

### Project Location and Information

50-0345R and 50-0346L/R carry SR 58 over Sand Canyon Rd and Cache Creek in eastern Kern County, just east of Tehachapi. All are three-span continuous reinforced concrete (RC) T-girders (6) on RC two-column bents and RC open end diaphragm abutments, all supported on CIDH piles.

The bridges, built in 1970, are in a sub-Alpine environment at the southern reach of the Sierra Nevada range. Elevation is about 4000' above sea level. Deicing compounds are applied seasonally. They each carry about 20,000 vehicles a day with 33% heavy trucks. SR 58 is a vital link out of the Central Valley from Bakersfield to US 395 and Interstates 15 & 40.



50-0345R is located approximately 55 miles east of Bakersfield and Cache Creek is 600' east of San Canyon Rd

### Discussion

**A Structure Maintenance & Investigations (SM&I) Peer Review was convened on May 17, 2011 and again on May 24, 2011 to finalize repair strategies for these bridges in conjunction with 50-0345L's Peer Review.**

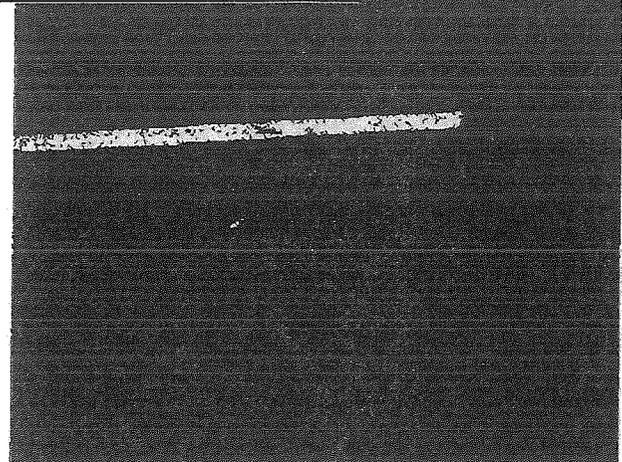
In attendance were, D06 Program Advisor Roger Hunter, Inspections South Acting Chief Anthony Gugino, Senior Bridge Engineers Gedion Werrede and Tony Brake on 5/17/2011 and HQ Bridge Program Advisor Roger Hunter, Inspections South Acting Chief Sam Haack, Senior Bridge Engineer Gedion Werrede and ABME Greg Haylock on 5/24/2011.

**This Peer Review document grew out of the in depth investigations for several bridges with deterioration that has been ongoing since the bridges were new.**

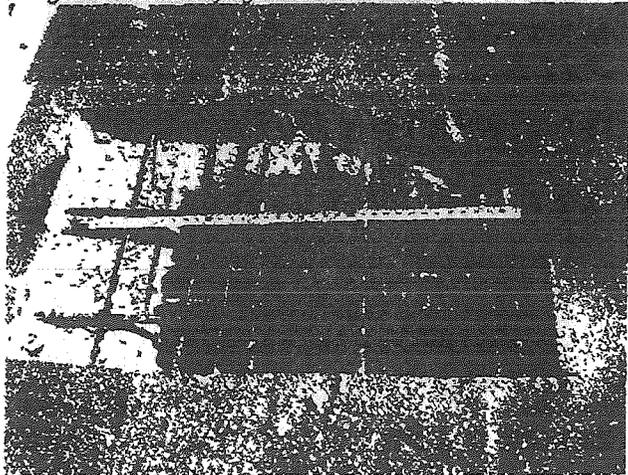
In-depth investigations of these structures was led by ABME Greg Haylock of SM&I South. Investigations included HQ METS crew coring in Jan 2009; D09 METS crew coring, also in 2009; D06 Bridge Crew work in April 2010 and again in April 2011. Investigations also included saw cutting around several selected areas, chipping down to the top mat rebar and investigating; treating for corrosion and then patching those areas.

Cores were analyzed. Petrographic analysis found no ASR products present, while Uranyl Acetate testing indicates 25% reactive aggregates present. All compressive strength test results exceed original concrete design requirements.

Chloride levels of 7.4 lbs/yc<sup>3</sup> at 50-0346R and 4.8 lbs/yc<sup>3</sup> at 50-0345R were found in the first inch at bridge, very high at the surface and progressively less deeper down. Complete lab reports are in BIRIS for the



50-0345R This badly deteriorated AC patch was removed along with the underlying unsound concrete.



50-0345R The timely repairs that were made here likely averted a deck punch through.

**PEER REVIEW FACT SHEET**  
*State Route 58, Br. No.'s 50-0345R and 50-0346L/R*  
*May 24, 2011*

respective bridges. No cores were obtained from bridge 50-0346L, but values are expected to be the same.

The condition of the deck surfaces indicate advanced deterioration of the concrete. All bridge decks have ongoing spall problems. Several previously patched spalls have been patched and repatched. Emergency methacrylate was applied on two occasions at 50-0345L & R, first in 2007 and again in 2009, filling the cracks and "gluing" the concrete back together where spalls were developing.

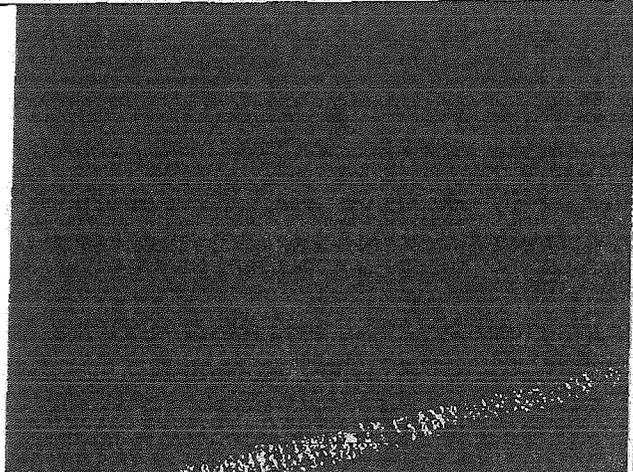
The seasonal freeze thaw, snow and deicing salts used in winter months along SR 58, coupled with heavy truck traffic punish these bridge decks.

Summarized findings for all bridges:

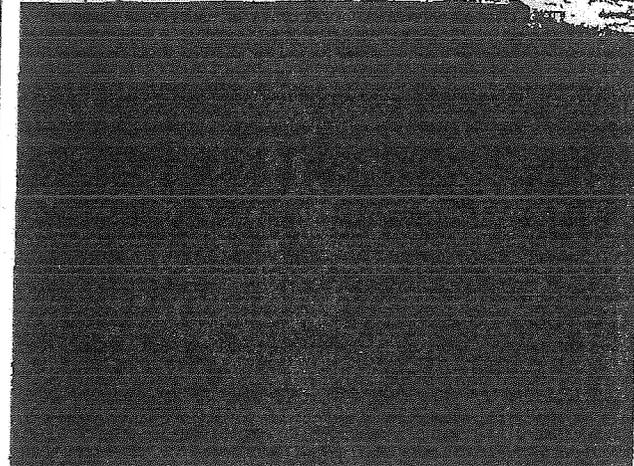
- 1) Surface corrosion on the top mat #5 bars as well as main longitudinal reinforcing #11 bars.
- 2) Delaminations and spalling of the concrete above the steel with varying amounts of corrosion.
- 3) Top mat steel was typically encountered at 2" or less below roadway surface.
- 4) Corrosion was limited to rusting away of mill scale and mild pitting. Abrasive blasting revealed no significant section loss.
- 5) Chipping operations determined concrete below the top mat steel was generally sound except for small isolated areas where the chipping gun punched through the soffit.

#### Repair Options Considered

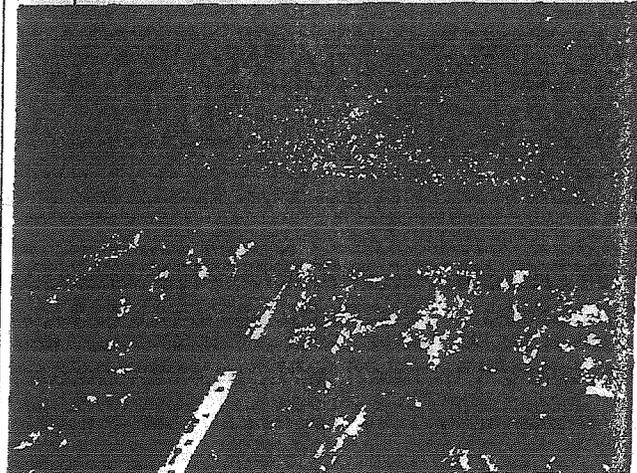
- 1) **Complete replacement of the decks.** This option would put back the same structural section or a slightly thicker section on a superstructure already weakened with age. Replacing the decks would require extra time as well as expensive falsework. Careful demolition of existing decks could be problematic and might add costly change orders and delays.
- 2) **Repair the top 3" of the decks.** This option involves removing the top 3" of concrete, treating rebar for corrosion, replacing 3" of concrete and placing a polyester overlay.
- 3) **Repair the top 3" of the decks and add a "Deck on Deck".** This option could be staged behind K-rail such that traffic could remain on the bridge in a single lane during construction. Any option that debonds negative moment steel requires falsework.
- 4) **Complete replacement of the structure.** This option could happen just as fast or faster than deck only replacement, but would be more expensive short term while having a significantly longer lifecycle.



*50-0346R Cache Creek right deck condition with spalls developing between predominantly transverse cracks*



*50-0346L Cache Creek left deck condition. Asphaltic sealer with spalls*



*50-0282 Broome Rd has deck delaminations and corrosion similar to that found at all bridges.*

**PEER REVIEW FACT SHEET**  
**State Route 58, Br. No.'s 50-0345R and 50-0346L/R**  
**May 24, 2011**

**Conclusions for Consideration in Repair Strategy**

- 1) Decks have predominantly transverse cracks with spalls developing mostly along the wheel lines. High measured chlorides indicate corrosion is occurring in the decks. Previous patches and repairs have failed and are in constant need of repair.
- 2) s'MASH hammer data at 50-0282, Broome Road and 50-0347, Cameron RD along with extensive deck investigations at listed bridges verifies delaminations and corrosion are present at top mat reinforcing steel for the structures.
- 3) Areas on the soffits with heavy efflorescence and scaling indicate problems in the main reinforcing and bottom mat steel with likely deck punch through problems as a result of any construction operations.
- 4) The effectiveness of any repair or rehabilitation strategy has an associated high level of unknown risk involved with partial replacement or rehabilitation. This could result in unpredictable long term performance of the structure repairs and inaccurate lifecycle cost assumptions.

**Alternatives Considered**

- 1) **Do nothing** – The Peer Review determined this is not an option and corrective action is needed to ensure the safety of the traveling public and guarantee the reliability of this structure.
- 2) **Rehabilitate the bridge decks**– This alternative would involve District 6 initiating a project to rehabilitate the decks and place polyester concrete overlays on all decks.
- 3) **Replace the bridge deck** – This alternative would require District 6 developing a project to build falsework, demo the existing decks and build new decks on existing superstructure.
- 4) **Replace the bridges** – This option would create new projects to replace 50-0346L/R and 50-0345R

**Repair Strategy**

The Peer Review unanimously recommends that District 6 move forward with Alternative 4 - Replace the Bridges.

After considering life cycle costs for the various alternatives, the unknown risks and additional costs associated with each option, the best option available is to completely replace the bridges with new structures.

**Bridges Investigated**

50-0282	Broome Rd OC:	06-KER-058-R85.15
50-0344L	Sand Canyon OH:	06-KER-058-R99.26
50-0345L	Sand Canyon Rd UC:	06-KER-058-R99.49
50-0345R	Sand Canyon Rd UC:	06-KER-058-R99.49
50-0346L	Cache Creek:	06-KER-058-R99.81
50-0346R	Cache Creek:	06-KER-058-R99.82
50-0347	Cameron Rd OC	06-KER-058-R101.56

The findings at these bridges are similar and relevant to each other and other bridges along SR 58.