

## **Orange County Bridge Review Summary**

Dokken Engineering performed a field review of the Orange County bridge listed below in April 2017 to identify maintenance activities eligible for Caltrans' Bridge Preventive Maintenance Program (BPMP), dated December 2015, funding. Additional maintenance activities, if present, not eligible for BPMP funding were also noted. Maintenance recommendations, if noted in the most recent Caltrans Bridge Inspection Report (BIR), were confirmed.

**Bridge Number:** 55C0097

**Bridge Name:** Santa Ana River Channel

**Year Built:** 1983

**Facility Carried:** Talbert/MacArthur

The Santa Ana River Channel at Talbert MacArthur is a continuous 4 span cast-in-place reinforced concrete box girder with pier wall and open end diaphragm abutments supported on concrete piles.

### **Caltrans BIR recommendations:**

- None

### **Field Inspection Observations**

- Very minor spall on concrete railing, exposing rebar, and spalled sidewalk concrete (photos 1 & 5).
- Bridge deck appears to be treated (photo 2).

### **Maintenance Needs Assessment**

#### **BPMP Assessment**

- N/A – No eligible maintenance activities

#### **General Maintenance – Non-BPMP**

- Monitor existing spalls. Currently very minor, no action needed at this time.

### **Proposed BPMP Construction Costs**

- N/A

### **Construction Items Not Funded by BPMP**

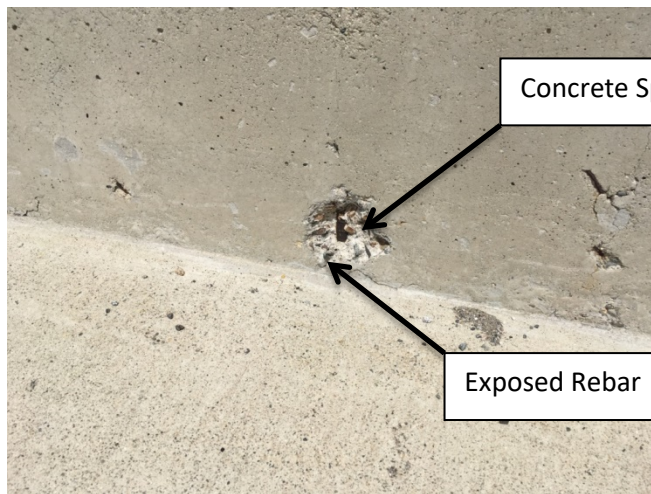
- N/A

# **APPENDIX A**

## **Photos and BIR**



Photo 1:



Concrete Spalling

Exposed Rebar

Photo 2: Barrier



Treated Deck

Photo 3: Bridge Deck

Joint Seal

Spalled Concrete on  
Sidewalk



Photo 4: Bridge Deck

Spalled Concrete



Photo 5: Sidewalk



**DEPARTMENT OF TRANSPORTATION**  
Structure Maintenance & Investigations

Bridge Number : 55C0097  
Facility Carried: TALBERT/MACARTHUR  
Location : 0.6 MI W/O HARBOR BLVD.  
City :  
Inspection Date : 10/24/2014

**Bridge Inspection Report**

Inspection Type  
Routine FC Underwater Special Other  
☒

**STRUCTURE NAME:** SANTA ANA RIVER CHANNEL (TALBERT/MACARTHUR)

**CONSTRUCTION INFORMATION**

Year Built : 1983 Skew (degrees): 30  
Year Widened: N/A No. of Joints : 2  
Length (m) : 110 No. of Hinges : 0

Structure Description: Continuous 4 span CIP/RC box girder (8 cells) with RC pier walls and RC open end seat abutments, all supported upon concrete piles.

Span Configuration : (W) 24.4 m, 2 @ 29.9 m, 24.4 m (E) c/c

**SAFE LOAD CAPACITY AND RATINGS**

Design Live Load: MS-18 OR HS-20  
Inventory Rating: RF=1.00 =>32.4 metric tons Calculation Method: ASSIGNED (LFD)  
Operating Rating: RF=1.67 =>54.1 metric tons Calculation Method: ASSIGNED (LFD)  
Permit Rating : PPPPP  
Posting Load : Type 3: Legal Type 3S2: Legal Type 3-3: Legal

**DESCRIPTION ON STRUCTURE**

Deck X-Section: (S) 0.3 m br, 1.5 m sw, 20.8m, 1.5 m sw, 0.3 m br (N)

Total Width: 24.4 m Net Width: 20.7 m No. of Lanes: 4 Speed: 45 mph

Min. Vertical Clearance: Unimpaired

Rail Code: 1000

Rail Type	Location	Length (ft)	Rail Modifications
Type 26	Right/Left	722	

**DESCRIPTION UNDER STRUCTURE**

Channel Description: RC trapezoidal.

**NOTICE**

The bridge inspection condition assessment used for this inspection is based on the American Association of State Highway and Transportation Officials (AASHTO) Bridge Element Inspection Manual 2013 as defined in Moving Ahead for Progress in the 21st Century (MAP-21) federal law. The new element inspection methodology may result in changes to related condition and appraisal ratings on the bridge without significant physical changes at the bridge.

The element condition information contained in this report represents the current condition of the bridge based on the most recent routine and special inspections. Some of the notes presented below may be from an inspection that occurred prior to the date noted in this report. Refer to the Scope and Access section of this inspection report for a description of which portions of the bridge were inspected on this date.

**INSPECTION COMMENTARY**

**SCOPE AND ACCESS**

The river was dry at inspection time. All elements were visually inspected.

**REVISIONS**

The bridge name was revised to include the road carried name.

Old name: SANTA ANA RIVER CHANNEL.

New name: SANTA ANA RIVER CHANNEL (TALBERT/MACARTHUR).

**INSPECTION COMMENTARY****SAFE LOAD CAPACITY**

A load Rating Summary sheet was in BIRIS. This load rating was assigned in accordance with current SM&I procedures.

**ELEMENT INSPECTION RATINGS AND COMMENTARY**

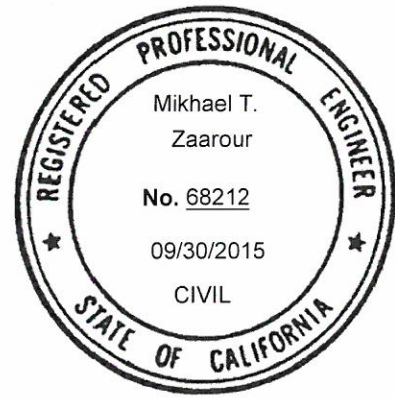
Elem No.	Defect /Prot	Element Description	Env	Total Qty	Units	Qty in each St. 1	St. 2	Condition St. 3	State St. 4
16		Top Flange-RC	2	2682	sq.m	2682	0	0	0
	1130	Cracking (RC and Other)	2	2280		2280	0	0	0
	521	Concrete Coat. (Meth/Paint/Seal)	2	2280	sq.m	2280	0	0	0
(16-1130)									
The cracks were sealed by methacrylate in 2014									
(16-521)									
There were no significant defects noted.									
105		Box Girder-RC	2	110	m	110	0	0	0
(105)									
There were no significant defects noted.									
210		Pier Wall-RC	2	84	m	84	0	0	0
(210)									
There were no significant defects noted.									
215		Abutment-RC	2	56	m	56	0	0	0
(215)									
There were no significant defects noted.									
256		Slope Protection	2	2	ea.	2	0	0	0
(256)									
There were no significant defects noted.									
302		Joint-Compression Seal	2	48	m	32	16	0	0
	2350	Debris Impaction (Joints)	2	16		0	16	0	0
(302-2350)									
The joint seal gaps were partially filled with dirt and debris.									
312		Bearing-Enclosed	2	2	each	2	0	0	0
(312)									
There were no significant defects noted.									
331		Railing-RC	2	220	m	189	30	1	0
	1080	Delamination/Spall/Patched Area	2	31		0	30	1	0
(331-1080)									
There is a triangular spall 12" x 8" x 4" with rebar exposed in the curb at the southwest corner. Also there are many small spalls 2" x 2" x 0.5" in the inside face of the concrete rail.									

**WORK RECOMMENDATIONS** - NONE



Team Leader : Mikhael T. Zaarour  
Report Author : Mikhael T. Zaarour  
Inspected By : MT.Zaarour/KD.Henderson

 11/13/14  
Mikhael T. Zaarour (Registered Civil Engineer) (Date)



**STRUCTURE INVENTORY AND APPRAISAL REPORT**

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

(1) STATE NAME- CALIFORNIA 069  
 (8) STRUCTURE NUMBER 55C0097  
 (5) INVENTORY ROUTE(ON/UNDER)- ON 140000000  
 (2) HIGHWAY AGENCY DISTRICT 12  
 (3) COUNTY CODE 059 (4) PLACE CODE 00000  
 (6) FEATURE INTERSECTED- SANTA ANA RIVER CHANNEL  
 (7) FACILITY CARRIED- TALBERT/MACARTHUR  
 (9) LOCATION- 0.6 MI W/O HARBOR BLVD.  
 (11) MILEPOINT/KILOMETERPOINT 0  
 (12) BASE HIGHWAY NETWORK- PART OF NET 1  
 (13) LRS INVENTORY ROUTE & SUBROUTE 000000000000  
 (16) LATITUDE 33 DEG 42 MIN 07 SEC  
 (17) LONGITUDE 117 DEG 55 MIN 48 SEC  
 (98) BORDER BRIDGE STATE CODE % SHARE %  
 (99) BORDER BRIDGE STRUCTURE NUMBER

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

(43) STRUCTURE TYPE MAIN:MATERIAL- CONCRETE CONT  
 TYPE- BOX BEAM OR GIRDER - MULTI CODE 205  
 (44) STRUCTURE TYPE APPR:MATERIAL- OTHER/NA  
 TYPE- OTHER/NA CODE 000  
 (45) NUMBER OF SPANS IN MAIN UNIT 4  
 (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 1983  
 (106) YEAR RECONSTRUCTED 0000  
 (42) TYPE OF SERVICE: ON- HIGHWAY-PEDESTRIAN 5  
 UNDER- WATERWAY 5  
 (28) LANES:ON STRUCTURE 04 UNDER STRUCTURE 00  
 (29) AVERAGE DAILY TRAFFIC 26000  
 (30) YEAR OF ADT 2012 (109) TRUCK ADT 1 %  
 (19) BYPASS, DETOUR LENGTH 2 KM

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

(48) LENGTH OF MAXIMUM SPAN 29.9 M  
 (49) STRUCTURE LENGTH 110.0 M  
 (50) CURB OR SIDEWALK: LEFT 1.5 M RIGHT 1.5 M  
 (51) BRIDGE ROADWAY WIDTH CURB TO CURB 20.7 M  
 (52) DECK WIDTH OUT TO OUT 24.4 M  
 (32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 20.7 M  
 (33) BRIDGE MEDIAN- NO MEDIAN 0  
 (34) SKEW 30 DEG (35) STRUCTURE FLARED NO  
 (10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M  
 (47) INVENTORY ROUTE TOTAL HORIZ CLEAR 20.7 M  
 (53) MIN VERT CLEAR OVER BRIDGE RDWY 99.99 M  
 (54) MIN VERT UNDERCLEAR REF- NOT H/RR 0.00 M  
 (55) MIN LAT UNDERCLEAR RT REF- NOT H/RR 0.0 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 = 95.6  
 STATUS  
 HEALTH INDEX 99.8  
 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 URBAN 14  
 (100) DEFENSE HIGHWAY- NOT STRAHNET 0  
 (101) PARALLEL STRUCTURE- NONE EXISTS N  
 (102) DIRECTION OF TRAFFIC- 2 WAY 2  
 (103) TEMPORARY STRUCTURE-  
 (105) FED.LANDS HWY- NOT APPLICABLE 0  
 (110) DESIGNATED NATIONAL NETWORK - NOT ON NET 0  
 (20) TOLL- ON FREE ROAD 3  
 (21) MAINTAIN- COUNTY HIGHWAY AGENCY 02  
 (22) OWNER- COUNTY HIGHWAY AGENCY 02  
 (37) HISTORICAL SIGNIFICANCE- NOT ELIGIBLE 5

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

(58) DECK 8  
 (59) SUPERSTRUCTURE 8  
 (60) SUBSTRUCTURE 8  
 (61) CHANNEL & CHANNEL PROTECTION 9  
 (62) CULVERTS N

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

(31) DESIGN LOAD- MS-18 OR HS-20 5  
 (63) OPERATING RATING METHOD- ASSIGNED (LFD) A  
 (64) OPERATING RATING- 54.1  
 (65) INVENTORY RATING METHOD- ASSIGNED (LFD) A  
 (66) INVENTORY RATING- 32.4  
 (70) BRIDGE POSTING- EQUAL TO OR ABOVE LEGAL LOADS 5  
 (41) STRUCTURE OPEN, POSTED OR CLOSED- A  
 DESCRIPTION- OPEN, NO RESTRICTION

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

(67) STRUCTURAL EVALUATION 8  
 (68) DECK GEOMETRY 9  
 (69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N  
 (71) WATER ADEQUACY 9  
 (72) APPROACH ROADWAY ALIGNMENT 8  
 (36) TRAFFIC SAFETY FEATURES 1000  
 (113) SCOUR CRITICAL BRIDGES 8

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

(75) TYPE OF WORK- CODE  
 (76) LENGTH OF STRUCTURE IMPROVEMENT M  
 (94) BRIDGE IMPROVEMENT COST  
 (95) ROADWAY IMPROVEMENT COST  
 (96) TOTAL PROJECT COST  
 (97) YEAR OF IMPROVEMENT COST ESTIMATE  
 (114) FUTURE ADT 53226  
 (115) YEAR OF FUTURE ADT 2031

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

(90) INSPECTION DATE 10/14 (91) FREQUENCY 48 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)