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: 55C0154

Bridge Name: Santa Ana River Channel **Year Built:** 1959

Facility Carried: Edinger Avenue

The Santa Ana River Channel at Edinger Avenue is a continuous 7 span cast-in-place reinforced concrete T-beam Bridge with pier wall and open-end diaphragm abutments supported on concrete piles. Bridge was widened in 2014.

Caltrans BIR recommendations:

- None

Field Inspection Observations

- Efflorescence visible on the bridge soffit (photo 1). OCPW states bridge deck was treated when the bridge was widened.

Maintenance Needs Assessment

BPMP Assessment

- N/A – No eligible maintenance activities

General Maintenance – Non-BPMP

- Clean out down drains.

Proposed BPMP Construction Costs

- N/A

Construction Items Not Funded by BPMP

- N/A

APPENDIX A

Photos and BIR

Photo 1:

Photo 2:

Photo 3:

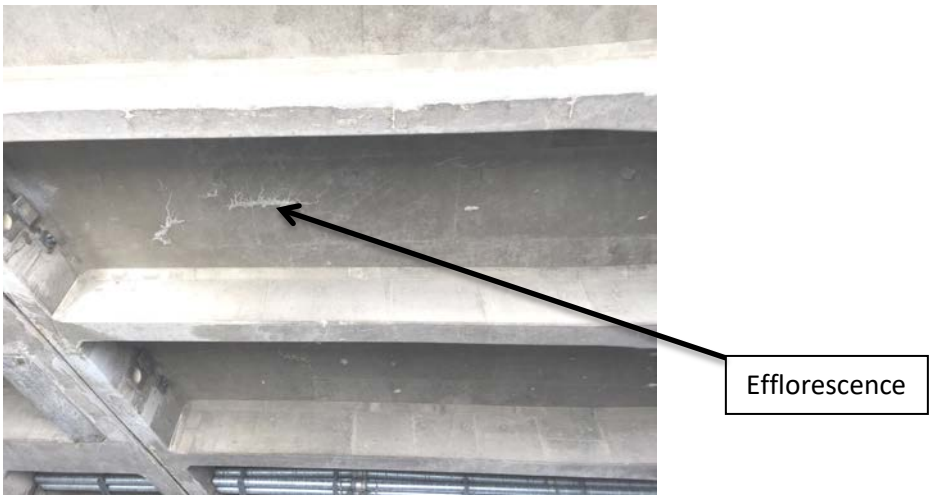

Photo 4:

Photo 5: Joint Seal

DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0154
Facility Carried: EDINGER AVENUE
Location : 0.3 MI. E/O HARBOR BLVD
City :
Inspection Date : 10/24/2014

Bridge Inspection Report

Inspection Type

Routine	FC	Underwater	Special	Other
X				

STRUCTURE NAME: SANTA ANA RIVER CHANNEL (EDINGER AVE)

CONSTRUCTION INFORMATION

Year Built : 1959
Year Widened: 2014
Length (m) : 91.4

Skew (degrees): 16
No. of Joints : 2
No. of Hinges : 2

Structure Description: Continuous seven span CIP/RC T-beam (6 each) and widened 3 girders N and 3 girders S with RC pier walls and RC open end diaphragm abutments, all supported upon concrete piles.

Span Configuration : (W) 10.4 m, 5 @ 14.0 m, 10.4 m (E) c/c

SAFE LOAD CAPACITY AND RATINGS

Design Live Load: MS-18 OR HS-20
Inventory Rating: RF=1.56 =>50.5 metric tons Calculation Method: LOAD FACTOR
Operating Rating: RF=2.60 =>84.2 metric tons Calculation Method: LOAD FACTOR
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, 1.6 m sw, 29.2 m, 1.6 m sw, 0.3 m br (N)

Total Width: 33.0 m Net Width: 29.2 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	600	

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 (EDINGER AVE).

INSPECTION COMMENTARY

Items numbers 32, 47, 50, 51, and 52 were revised to reflect the new widened.

SAFE LOAD CAPACITY
A load Rating Summary sheet was in BIRIS. The current load rating was based on calculations dated 11/19/1975.

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
12			**Deck-RC**	2	1572	sq.m	1572	0	0	0
(12) There were no significant defects noted.										
16			**Top Flange-RC**	2	1444	sq.m	1444	0	0	0
(16) There were no significant defects noted.										
109			**Girder/Beam-PS Conc.**	2	546	m	546	0	0	0
(109) There were no significant defects noted.										
110			**Girder/Beam-RC**	2	546	m	546	0	0	0
(110) There were no significant defects noted.										
182			**EQ Restrainer Cable-Other**	2	8	ea.	8	0	0	0
(182) There were no significant defects noted.										
210			**Pier Wall-RC**	2	165	m	165	0	0	0
(210) There were no significant defects noted.										
215			**Abutment-RC**	2	66	m	66	0	0	0
(215) There were no significant defects noted.										
301			**Joint-Pourable Seal**	2	60	m	60	0	0	0
(301) There were no significant defects noted.										
312			**Bearing-Enclosed**	2	2	each	2	0	0	0
(312) There were no significant defects noted.										
331			**Railing-RC**	2	182	m	182	0	0	0
(331) There were no significant defects noted.										

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 **55C0154**
(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- EDINGER AVENUE
(9) LOCATION- 0.3 MI. E/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 43 MIN 38.7 SEC
(17) LONGITUDE 117 DEG 54 MIN 55 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 7
(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 1959
(106) YEAR RECONSTRUCTED 2014
(42) TYPE OF SERVICE: ON- HIGHWAY 1
UNDER- WATERWAY 5
(28) LANES:ON STRUCTURE 04 UNDER STRUCTURE 00
(29) AVERAGE DAILY TRAFFIC 31000
(30) YEAR OF ADT 2007 (109) TRUCK ADT 1 %
(19) BYPASS, DETOUR LENGTH 3 KM

********** GEOMETRIC DATA **********

(48) LENGTH OF MAXIMUM SPAN 14.0 M
(49) STRUCTURE LENGTH 91.4 M
(50) CURB OR SIDEWALK: LEFT 1.6 M RIGHT 1.6 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 29.2 M
(52) DECK WIDTH OUT TO OUT 33.0 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 29.2 M
(33) BRIDGE MEDIAN- NO MEDIAN 0
(34) SKEW 16 DEG (35) STRUCTURE FLARED NO
(10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR 29.2 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

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SUFFICIENCY RATING = 93.6
STATUS
HEALTH INDEX 100.0
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 8
(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- 84.2
(65) INVENTORY RATING METHOD- LOAD FACTOR 1
(66) INVENTORY RATING- 50.5
(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 7

********** 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 51520
(115) YEAR OF FUTURE ADT 2031

********** INSPECTIONS **********

(90) INSPECTION DATE 10/14 (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)