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: 55C0550

Bridge Name: Aliso Creek **Year Built:** 1988

Facility Carried: Aliso Creek Road

The Aliso Creek Bridge at Aliso Creek Road is a single span cast-in-place post tensioned concrete box girder with diaphragm abutments supported on concrete piles.

Caltrans BIR recommendations:

- Seal severe cracks with epoxy at the east end of the WB lanes.

Field Inspection Observations

- Due to traffic, there was limited deck access. Efflorescence visible on bridge soffit (photo 1), this may be a result of a leaking utility. Recommend determining if there are utilities through bridge that may be leaking, since moisture must be present in bridge cells to cause the efflorescence.
- Some down drains are clogged (photo 2). Note this is not eligible for BPMP funds.

Maintenance Needs Assessment

BPMP Assessment

- Seal cracks at east end of WB lanes per Caltrans BIR recommendation. These are condition state 2, therefore eligible for funding.

General Maintenance – Non-BPMP

- Clean out down drains.

Proposed BPMP Construction Costs

- Seal Bridge Deck cracks ≈ $65,000
- Traffic Control for deck sealing ≈ $15,000

Construction Items Not Funded by BPMP

- Clean Down Drain ≈ $4,000 (performed same time as deck sealing)

APPENDIX A

Photos and BIR

Photo 1:

Photo 2:

Photo 3:

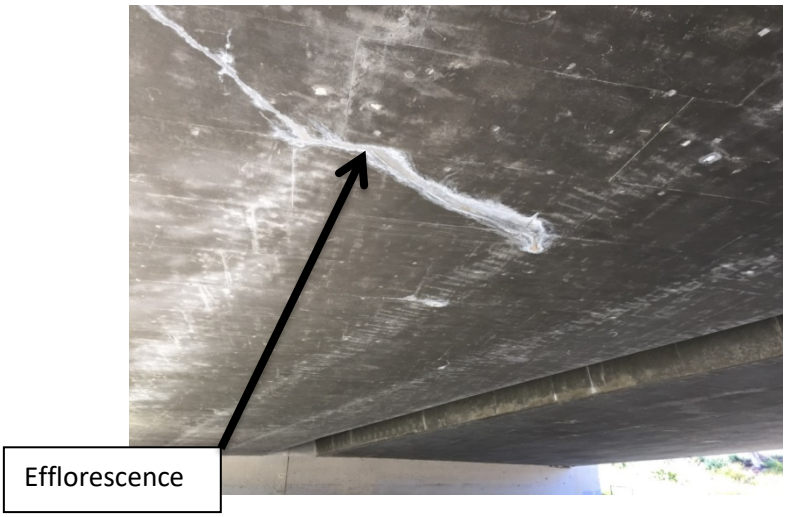

Photo 4: Bridge Soffit

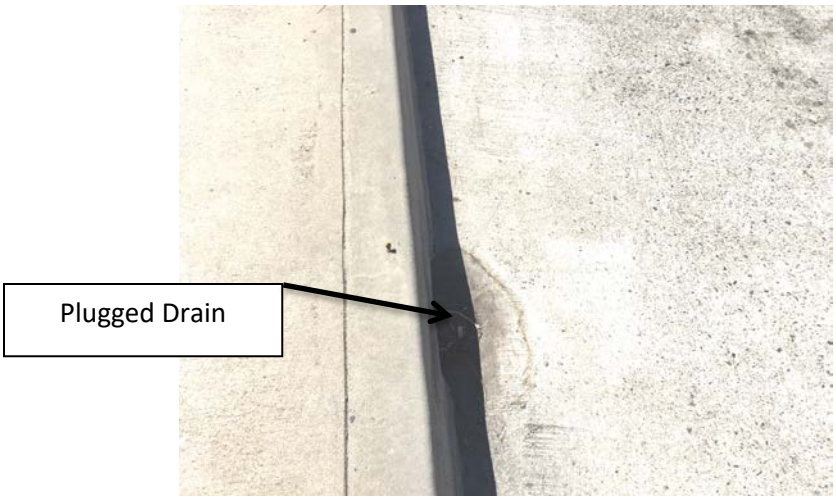

Photo 5: Bridge Deck

DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0550
Facility Carried: ALISO CREEK ROAD
Location : 100' W/O ALICIA PARKWAY
City :
Inspection Date : 08/14/2015

Bridge Inspection Report

Inspection Type

Routine	FC	Underwater	Special	Other
X				

STRUCTURE NAME: ALISO CREEK

CONSTRUCTION INFORMATION

Year Built : 1988
Year Widened: N/A
Length (m) : 51.8
Skew (degrees): 20
No. of Joints : 0
No. of Hinges : 0

Structure Description: Single span CIP/PS concrete box girder (16 cells) with RC open end diaphragm abutments, all supported upon concrete piles.

Span Configuration : (W) 50.0 m (E) c/c

SAFE LOAD CAPACITY AND RATINGS

Design Live Load: MS-18+MOD OR HS-20+MOD
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: (N) 0.3 m br, 1.5 m sw, 34.5 m, 1.5 m sw, 0.3 m br (N)
Total Width: 38.0 m Net Width: 34.5 m No. of Lanes: 9 Speed: 50 mph
Min. Vertical Clearance: Unimpaired Overlay Thickness: 0.0 Inches

Rail Code: 0000

Rail Type	Location	Length (ft)	Rail Modifications
Type 26	Right/Left	1085	

DESCRIPTION UNDER STRUCTURE

Channel Description: Natural earth, trapezoidal with RC slope protection through the site.

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 channel was dry at time of inspection. The inspection was performed by walking on the deck and under the structure. All elements were visually inspected.

DECK
The 5 mm thick at the north corner of Abutment 2 (leveling concrete) is broken into pieces and peeled off.

INSPECTION COMMENTARY

SAFE LOAD CAPACITY

A Load Rating Summary Sheet dated 03/30/3013 is on file for this structure. The current rating has been assigned in accordance with SM&I procedures.

SCOPE AND ACCESS

ELEMENT INSPECTION RATINGS AND NOTES

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
16			Top Flange-RC	2	1970	sq.m	183	1787	0	0
	1130		Cracking (RC and Other)	2	1787		0	1787	0	0
(16-1130) There are cracks 1 mm wide throughout the deck mainly in the ends										
104			Box Girder-PS Conc.	2	104	m	104	0	0	0
(104) There were no significant defects noted.										
215			Abutment-RC	2	93	m	93	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.										
331			Railing-RC	2	104	m	104	0	0	0
(331) There were no significant defects noted.										

WORK RECOMMENDATIONS

RecDate: 03/30/2013
Action : Deck-Methacrylate
Work By: LOCAL AGENCY
Status : PROPOSED

EstCost:
StrTarget: 2 YEARS
DistTarget:
EA:

Seal with epoxy the severe cracks (up to 5 mm wide) at the east end of the WB lanes.

Team Leader : Mikhael T. Zaarour

Report Author : Mikhael T. Zaarour

Inspected By : MT.Zaarour/KD.Henderson

Mikhael T. Zaarour (Registered Civil Engineer) 9/23/15 (Date)

STRUCTURE INVENTORY AND APPRAISAL REPORT

********** IDENTIFICATION **********

(1) STATE NAME- CALIFORNIA 069
(8) STRUCTURE NUMBER **55C0550**
(5) INVENTORY ROUTE(ON/UNDER)- ON 140000000
(2) HIGHWAY AGENCY DISTRICT 12
(3) COUNTY CODE 059 (4) PLACE CODE 00000
(6) FEATURE INTERSECTED- ALISO CREEK
(7) FACILITY CARRIED- ALISO CREEK ROAD
(9) LOCATION- 100' W/O ALICIA PARKWAY
(11) MILEPOINT/KILOMETERPOINT 0
(12) BASE HIGHWAY NETWORK- PART OF NET 1
(13) LRS INVENTORY ROUTE & SUBROUTE 000000000000
(16) LATITUDE 33 DEG 33 MIN 19.74 SEC
(17) LONGITUDE 117 DEG 43 MIN 07.56 SEC
(98) BORDER BRIDGE STATE CODE % SHARE %
(99) BORDER BRIDGE STRUCTURE NUMBER

******** STRUCTURE TYPE AND MATERIAL *********

(43) STRUCTURE TYPE MAIN:MATERIAL- PRESTRESS CONC
TYPE- BOX BEAM OR GIRDER - MULTI CODE 505
(44) STRUCTURE TYPE APPR:MATERIAL- OTHER/NA
TYPE- OTHER/NA CODE 000
(45) NUMBER OF SPANS IN MAIN UNIT 1
(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 1988
(106) YEAR RECONSTRUCTED 0000
(42) TYPE OF SERVICE: ON- HIGHWAY-PEDESTRIAN 5
UNDER- WATERWAY 5
(28) LANES:ON STRUCTURE 09 UNDER STRUCTURE 00
(29) AVERAGE DAILY TRAFFIC 25915
(30) YEAR OF ADT 2011 (109) TRUCK ADT 1 %
(19) BYPASS, DETOUR LENGTH 3 KM

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

(48) LENGTH OF MAXIMUM SPAN 50.0 M
(49) STRUCTURE LENGTH 51.8 M
(50) CURB OR SIDEWALK: LEFT 1.5 M RIGHT 1.5 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 34.5 M
(52) DECK WIDTH OUT TO OUT 38.0 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 34.5 M
(33) BRIDGE MEDIAN- NO MEDIAN 0
(34) SKEW 20 DEG (35) STRUCTURE FLARED NO
(10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR 34.5 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 = 92.3
STATUS
HEALTH INDEX 74.6
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 6
(59) SUPERSTRUCTURE 8
(60) SUBSTRUCTURE 8
(61) CHANNEL & CHANNEL PROTECTION 9
(62) CULVERTS N

********* LOAD RATING AND POSTING ********* CODE

(31) DESIGN LOAD- MS-18+MOD OR HS-20+MOD 6
(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 5
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
(71) WATER ADEQUACY 9
(72) APPROACH ROADWAY ALIGNMENT 8
(36) TRAFFIC SAFETY FEATURES 0000
(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 46252
(115) YEAR OF FUTURE ADT 2035

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

(90) INSPECTION DATE 08/15 (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)