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: 55C0690

Bridge Name: Handy Creek **Year Built:** 2012

Facility Carried: Orange Park BLVD

The Handy Creek Bridge at Orange Park Blvd is a single span cast-in-place reinforced concrete slab bridge with diaphragm abutments supported on concrete pile.

Caltrans BIR recommendations:

- None

Field Inspection Observations

- There was about a 1 foot deep stagnate water in the creek.
- Overall, bridge appears to be in good condition.
- Scour counter measures appear to be in good condition.

Maintenance Needs Assessment

BPMP Assessment

- N/A – No eligible maintenance activities

General Maintenance – Non-BPMP

- No recommendations.

Proposed BPMP Construction Costs

- N/A

Construction Items Not Funded by BPMP

- N/A

APPENDIX A

Photos and BIR

Photo 1:

Photo 2:

Photo 2:

Photo 4:

DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0690
Facility Carried: ORANGE PARK BLVD
Location : 0.25 SOUTH SANTIAGO RD
City :
Inspection Date : 09/10/2015

Bridge Inspection Report

Inspection Type
Routine FC | Underwater | Special | Other
X

STRUCTURE NAME: HANDY CREEK

CONSTRUCTION INFORMATION

Year Built : 2012
Year Widened: N/A
Length (m) : 12
Skew (degrees): 27
No. of Joints : 0
No. of Hinges :

Structure Description: Single span RC slab bridge on two RC abutmenets , all on piles.

Span Configuration : (S) 12.0 m (N) c/c.

SAFE LOAD CAPACITY AND RATINGS

Design Live Load: HL 93
Inventory Rating: RF= 1.00 Calculation Method: ASSIGNED (LRFD)
Operating Rating: RF= 1.30 Calculation Method: ASSIGNED (LRFD)
Permit Rating : PPPPP
Posting Load : Type 3: Legal Type 3S2: Legal Type 3-3: Legal

DESCRIPTION ON STRUCTURE

Deck X-Section: (W) 0.5 br , 3.05 m sw, 0.5 br, 13.2 m, 0.5 m br (S).

Total Width: 17.8 m Net Width: 13.2 m No. of Lanes: 2 Speed: 40 mph
Min. Vertical Clearance: Unimpaired Overlay Thickness: 0.0 Inches

Rail Code: 1000

Rail Type	Location	Length (ft)	Rail Modifications
ST-30	Right/Left	80	
ST-30	Other	40	SIde walk rails

DESCRIPTION UNDER STRUCTURE

Channel Description: Natural earth trapezoidal. Riprap slope at north side and Retaining wall at south side.

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 water depth at the time of this inspection measured approximately 3 inches mostly at the south side. All substructure elements were visually inspected, pedestrian access is from the north side side.

SAFE LOAD CAPACITY
A Load Rating Summary Sheet dated 09/30/2013 is on file for this structure. The current rating has been assigned in accordance with SM&I procedures.

INSPECTION COMMENTARY

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
38			Slab-RC	2	213	sq.m	201	12	0	0
	1120		Efflorescence/Rust Staining	2	1		1	0	0	0
	1130		Cracking (RC and Other)	2	12		0	12	0	0

(38-1120)
The soffit at the north side exhibits a longitudinal cracks 10 feet long with light white efflorescence at 30 ft from the east end almost closed to the center line of the bridge.

(38-1130)
The concrete deck exhibits a longitudinal crack 0.04 inch wide at the center of the bridge at the north end, and few scattered cracks < 0.02 inch wide.

215			Abutment-RC	2	20	m	20	0	0	0

(215)
There were no significant defects noted.

227			Pile-RC	2	1	ea.	1	0	0	0

(227)
The pile element is included to indicate the presence of piles on this structure. The piles were not exposed for visual inspection. No indication of pile distress was noted in any substructure element.

256			Slope Protection	2	1	ea.	1	0	0	0

(256)
There were no significant defects noted.

330			Railing-Metal	2	36	m	36	0	0	0

(330)
There were no significant defects noted.

WORK RECOMMENDATIONS - NONE

Team Leader : Mikhael T. Zaarour

Report Author : Mikhael T. Zaarour

Inspected By : MT.Zaarour/DH. Kim

Mikhael T. Zaarour (Registered Civil Engineer) 10/21/15 (Date)

STRUCTURE INVENTORY AND APPRAISAL REPORT

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

(1) STATE NAME- CALIFORNIA 069
(8) STRUCTURE NUMBER **55C0690**
(5) INVENTORY ROUTE(ON/UNDER)- ON 15000000
(2) HIGHWAY AGENCY DISTRICT 12
(3) COUNTY CODE 059 (4) PLACE CODE 00000
(6) FEATURE INTERSECTED- HANDY CREEK
(7) FACILITY CARRIED- ORANGE PARK BLVD
(9) LOCATION- 0.25 SOUTH SANTIAGO RD
(11) MILEPOINT/KILOMETERPOINT 0
(12) BASE HIGHWAY NETWORK- NOT ON NET 0
(13) LRS INVENTORY ROUTE & SUBROUTE
(16) LATITUDE 33 DEG 48 MIN 37.06 SEC
(17) LONGITUDE 117 DEG 46 MIN 56.08 SEC
(98) BORDER BRIDGE STATE CODE % SHARE %
(99) BORDER BRIDGE STRUCTURE NUMBER

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

(43) STRUCTURE TYPE MAIN:MATERIAL- CONCRETE
TYPE- SLAB CODE 101
(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 2012
(106) YEAR RECONSTRUCTED
(42) TYPE OF SERVICE: ON- HIGHWAY-PEDESTRIAN 5
UNDER- WATERWAY 5
(28) LANES:ON STRUCTURE 02 UNDER STRUCTURE 00
(29) AVERAGE DAILY TRAFFIC 1100
(30) YEAR OF ADT 2012 (109) TRUCK ADT 2 %
(19) BYPASS, DETOUR LENGTH 2 KM

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

(48) LENGTH OF MAXIMUM SPAN 11.7 M
(49) STRUCTURE LENGTH 12.0 M
(50) CURB OR SIDEWALK: LEFT 0.0 M RIGHT 0.0 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 13.2 M
(52) DECK WIDTH OUT TO OUT 17.8 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 13.2 M
(33) BRIDGE MEDIAN- NO MEDIAN 0
(34) SKEW 27 DEG (35) STRUCTURE FLARED NO
(10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR 13.2 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 = 97.9
STATUS
HEALTH INDEX 98.5
PAINT CONDITION INDEX = N/A

********** CLASSIFICATION ********** CODE

(112) NBIS BRIDGE LENGTH- YES Y
(104) HIGHWAY SYSTEM- NOT ON NHS 0
(26) FUNCTIONAL CLASS- MINOR ARTERIAL URBAN 16
(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- CITY OR MUNICIPAL HIGHWAY AGENCY 04
(22) OWNER- CITY OR MUNICIPAL HIGHWAY AGENCY 04
(37) HISTORICAL SIGNIFICANCE- NOT ELIGIBLE 5

********** CONDITION ********** CODE

(58) DECK 7
(59) SUPERSTRUCTURE 7
(60) SUBSTRUCTURE 8
(61) CHANNEL & CHANNEL PROTECTION 8
(62) CULVERTS N

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

(31) DESIGN LOAD- HL 93 A
(63) OPERATING RATING METHOD- ASSIGNED (LRFD) F
(64) OPERATING RATING- RF= 1.30
(65) INVENTORY RATING METHOD- ASSIGNED (LRFD) F
(66) INVENTORY RATING- RF= 1.00
(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 7
(68) DECK GEOMETRY 7
(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 2000
(115) YEAR OF FUTURE ADT 2032

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

(90) INSPECTION DATE 09/15 (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)