## 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:** 55C0534

**Bridge Name:** Handy Creek **Year Built:** 1985

**Facility Carried:** Meads Avenue

The Handy Creek Bridge at Meads Avenue is a simple span cast-in-place reinforced concrete slab with end diaphragm abutments supported on concrete piles.

### Caltrans BIR recommendations:

- None

### Field Inspection Observations

- Fill from equestrian trial is encroaching onto the shoulder (photo 1).
- There was limited access to the substructure due to several feet of standing water (photo 2). Overall, this bridge appears 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: Bridge**

**Photo 2**

DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0534
Facility Carried: MEADS AVENUE
Location : 0.3 MI E/O ORANGE PARK B
City :
Inspection Date : 08/07/2015

# Bridge Inspection Report

Inspection Type

| Routine | FC | Underwater | Special | Other |
|---|---|---|---|---|
| | X | | | |

**STRUCTURE NAME:** HANDY CREEK

## CONSTRUCTION INFORMATION

Year Built : 1985
Year Widened: 1990
Length (m) : 8.5
Skew (degrees): 99
No. of Joints : 0
No. of Hinges : 0

Structure Description: Single span CIP/RC deck slab with RC open end diaphragm abutments, all supported upon concrete piles.

Span Configuration : (W) 1 @ 7.3 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) 0.1 m br, 2.2 m sw, 0.6 m br, 8.8 m, 0.1 m br (S)
Total Width: 11.9 m Net Width: 8.8 m No. of Lanes: 2 Speed: 25 mph
Min. Vertical Clearance: Unimpaired Overlay Thickness: 0.0 Inches

Rail Code: 1000

| Rail Type | Location | Length (ft) | Rail Modifications |
|---|---|---|---|
| MBBR | Right/Left | 99 | |

## DESCRIPTION UNDER STRUCTURE

Channel Description: Natural earth 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
There was about 2' deep stagnate water in the creek. All elements were visually inspected from the side due to clearance under the structure.

SAFE LOAD CAPACITY
A Load Rating Summary Sheet is included with this bridge inspection report. The current rating has been assigned in accordance with SM&I procedures.

## 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 | 101 | sq.m | 91 | 10 | 0 | 0 |
| | 1130 | | Cracking (RC and Other) | 2 | 10 | | 0 | 10 | 0 | 0 |
| (38-1130) There are 1 mm wide diagonal cracks at the corners | | | | | | | | | | |
| 215 | | | Abutment-RC | 3 | 34 | m | 34 | 0 | 0 | 0 |
| (215) There were no significant defects noted. | | | | | | | | | | |
| 252 | | | Pile-CIDH | 2 | 1 | ea. | 1 | 0 | 0 | 0 |
| (252) 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. | | | | | | | | | | |
| 330 | | | Railing-Metal | 2 | 17 | m | 17 | 0 | 0 | 0 |
| (330) There were no significant defects noted. | | | | | | | | | | |

**WORK RECOMMENDATIONS** - NONE

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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 **55C0534**
(5) INVENTORY ROUTE(ON/UNDER)- ON 140000000
(2) HIGHWAY AGENCY DISTRICT 12
(3) COUNTY CODE 059 (4) PLACE CODE 00000
(6) FEATURE INTERSECTED- HANDY CREEK
(7) FACILITY CARRIED- MEADS AVENUE
(9) LOCATION- 0.3 MI E/O ORANGE PARK BL
(11) MILEPOINT/KILOMETERPOINT 0
(12) BASE HIGHWAY NETWORK- NOT ON NET 0
(13) LRS INVENTORY ROUTE & SUBROUTE
(16) LATITUDE 33 DEG 48 MIN 26.85 SEC
(17) LONGITUDE 117 DEG 46 MIN 43.57 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 1985
(106) YEAR RECONSTRUCTED 1990
(42) TYPE OF SERVICE: ON- HIGHWAY-PEDESTRIAN 5
UNDER- WATERWAY 5
(28) LANES:ON STRUCTURE 02 UNDER STRUCTURE 00
(29) AVERAGE DAILY TRAFFIC 1000
(30) YEAR OF ADT 2011 (109) TRUCK ADT 1 %
(19) BYPASS, DETOUR LENGTH 2 KM

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

(48) LENGTH OF MAXIMUM SPAN 7.3 M
(49) STRUCTURE LENGTH 8.5 M
(50) CURB OR SIDEWALK: LEFT 0.0 M RIGHT 0.0 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 8.8 M
(52) DECK WIDTH OUT TO OUT 11.9 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 6.1 M
(33) BRIDGE MEDIAN- NO MEDIAN 0
(34) SKEW 99 DEG (35) STRUCTURE FLARED NO
(10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR 8.8 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 = 88.6
STATUS
HEALTH INDEX 97.9
PAINT CONDITION INDEX = N/A

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

(112) NBIS BRIDGE LENGTH- YES Y
(104) HIGHWAY SYSTEM- NOT ON NHS 0
(26) FUNCTIONAL CLASS- COLLECTOR URBAN 17
(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 7
(59) SUPERSTRUCTURE 7
(60) SUBSTRUCTURE 8
(61) CHANNEL & CHANNEL PROTECTION 8
(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 7
(68) DECK GEOMETRY 5
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
(71) WATER ADEQUACY 5
(72) APPROACH ROADWAY ALIGNMENT 5
(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 1282
(115) YEAR OF FUTURE ADT 2032

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

(90) INSPECTION DATE 08/15 (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)