

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: 55C0404

Bridge Name: Anaheim-Barber City Channel

Year Built: 1959

Facility Carried: Dale Street

The Anaheim-Barber City channel culvert at Dale Street is a reinforced concrete double box culvert. Asphalt concrete overlay on deck.

Caltrans BIR recommendations:

- Patch east headwall spalls

Field Inspection Observations

- Spalled post pocket on east side (photo 3).
- Utility on the west side dripping water (photo 4), constantly keeping concrete wet.
- Minor soffit spall at east abutment/headwall (photo 4).
- Minor efflorescence visible on soffit (photo 5).

Maintenance Needs Assessment

BPMP Assessment

- N/A – No eligible maintenance activities

General Maintenance – Non-BPMP

- Recommend patching spalled concrete. No immediate actions required since not a high priority.
- Efflorescence likely from water penetrating through deck. Not significant problem at this time.
To repair will require deck AC removal, deck treatment, and grinding approach AC to conform to lower deck elevation.
- Recommend contacting utility owner to repair water drip problem.

Proposed BPMP Construction Costs

- N/A

Construction Items Not Funded by BPMP

- Repair Spalls < \$10,000 (includes engineering, mobilization and contingency)
- Utility repair should be funded by utility company

APPENDIX A

Photos and BIR



Photo 1:



Photo 2:



Photo 3: Railing Curb



Photo 4: Watermain



Photo 5: Bridge Soffit



Photo 6: Bridge Deck



DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0404
Facility Carried: DALE STREET
Location : 0.1 MI N/O CHAPMAN AVENUE
City :
Inspection Date : 09/10/2015
Inspection Type
Routine FC Underwater Special Other
☒

Bridge Inspection Report

STRUCTURE NAME: ANAHEIM-BARBER CITY CHANNEL

CONSTRUCTION INFORMATION

Year Built : 1959 Skew (degrees): 38
Year Widened: N/A No. of Joints : 0
Length (m) : 10.1 No. of Hinges : 0

Structure Description: Double 3.7 m W x 3.0 m H x 27.4 m L RC box culvert (grade top)
beneath 0.3 m of earth fill.

Span Configuration : (S) 2 @ 3.7 m (N) clear, normal

SAFE LOAD CAPACITY AND RATINGS

Design Live Load: UNKNOWN
Inventory Rating: RF=0.75 =>24.3 metric tons Calculation Method: FIELD EVAL/ENG JUDGMENT
Operating Rating: RF=1.25 =>40.5 metric tons Calculation Method: FIELD EVAL/ENG JUDGMENT
Permit Rating : PPPPP
Posting Load : Type 3: Legal Type 3S2: Legal Type 3-3: Legal

DESCRIPTION ON STRUCTURE

Deck X-Section: (W) 0.2 m cu, 2.5 m sw, 14.9 m, 0.2 m cu, 2.0 m ea, 1.2 m sw, 0.2 m cu (E)
Total Width: 24.4 m Net Width: 14.9 m No. of Lanes: 3 Speed: 35 mph
Min. Vertical Clearance: Unimpaired Overlay Thickness: 3.0 Inches

Rail Code: 0000

Rail Type	Location	Length (ft)	Rail Modifications
None	Right/Left		CLF

DESCRIPTION UNDER STRUCTURE

Channel Description: RC trapezoidal upstream and downstream.

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 channel was dry, the inspection performed by walking on the road and under. There was no access to the channel the inspector jump the CLF. All elements were visually inspected.

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
241			Culvert-RC	2	54	m	44	9	1 0
	1080		Delamination/Spall/Patched Area	2	2		0	1	1 0
	1120		Efflorescence/Rust Staining	2	1		0	1	0 0
	1130		Cracking (RC and Other)	2	7		0	7	0 0

(241-1080)

There are 2 incipient spalls 300 mm x 200mm at the inside face of headwall under posts 2 & 3.
There is a spall 100 mm x 100 mm x 25 mm with exposed rebar at the bottom of east headwall of barrel #1 (south).

(241-1120)

There is white efflorescence at the soffit along the construction joint.

(241-1130)

There are vertical cracks 1 mm wide, 4 cracks in south wall, 7 cracks in middle wall and 3 cracks in north wall

WORK RECOMMENDATIONS

RecDate: 06/08/2011

Action : Super-Patch spalls

Work By: LOCAL AGENCY

Status : PROPOSED

EstCost:

StrTarget: 2 YEARS

DistTarget:

EA:

Repair the spall 100 mm x 100 mm x 25 mm with exposed rebar at the bottom of east headwall of barrel #1 (south) and the 2 incipient spalls 300 mm x 200mm at the inside face of headwall under posts 2 & 3.

Team Leader : Mikhael T. Zaarour

Report Author : Mikhael T. Zaarour

Inspected By : MT.Zaarour/DH.Kim



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

STRUCTURE INVENTORY AND APPRAISAL REPORT

***** IDENTIFICATION *****

(1) STATE NAME- CALIFORNIA 069
 (8) STRUCTURE NUMBER 55C0404
 (5) INVENTORY ROUTE(ON/UNDER)- ON 140000000
 (2) HIGHWAY AGENCY DISTRICT 12
 (3) COUNTY CODE 059 (4) PLACE CODE 00000
 (6) FEATURE INTERSECTED- ANAHEIM-BARBER CITY CHA
 (7) FACILITY CARRIED- DALE STREET
 (9) LOCATION- 0.1 MI N/O CHAPMAN AVENUE
 (11) MILEPOINT/KILOMETERPOINT 0
 (12) BASE HIGHWAY NETWORK- NOT ON NET 0
 (13) LRS INVENTORY ROUTE & SUBROUTE
 (16) LATITUDE 33 DEG 47 MIN 24.05 SEC
 (17) LONGITUDE 117 DEG 59 MIN 02.63 SEC
 (98) BORDER BRIDGE STATE CODE % SHARE %
 (99) BORDER BRIDGE STRUCTURE NUMBER

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

(43) STRUCTURE TYPE MAIN:MATERIAL- CONCRETE
 TYPE- CULVERT CODE 119
 (44) STRUCTURE TYPE APPR:MATERIAL- OTHER/NA
 TYPE- OTHER/NA CODE 000
 (45) NUMBER OF SPANS IN MAIN UNIT 2
 (46) NUMBER OF APPROACH SPANS 0
 (107) DECK STRUCTURE TYPE- NOT APPLICABLE CODE N
 (108) WEARING SURFACE / PROTECTIVE SYSTEM:
 A) TYPE OF WEARING SURFACE- NOT APPLICABLE CODE N
 B) TYPE OF MEMBRANE- NOT APPLICABLE CODE N
 C) TYPE OF DECK PROTECTION- NOT APPLICABLE CODE N

***** AGE AND SERVICE *****

(27) YEAR BUILT 1959
 (106) YEAR RECONSTRUCTED 0000
 (42) TYPE OF SERVICE: ON- HIGHWAY-PEDESTRIAN 5
 UNDER- WATERWAY 5
 (28) LANES:ON STRUCTURE 03 UNDER STRUCTURE 00
 (29) AVERAGE DAILY TRAFFIC 16000
 (30) YEAR OF ADT 2009 (109) TRUCK ADT 1 %
 (19) BYPASS, DETOUR LENGTH 2 KM

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

(48) LENGTH OF MAXIMUM SPAN 3.7 M
 (49) STRUCTURE LENGTH 10.1 M
 (50) CURB OR SIDEWALK: LEFT 2.5 M RIGHT 1.2 M
 (51) BRIDGE ROADWAY WIDTH CURB TO CURB 14.9 M
 (52) DECK WIDTH OUT TO OUT 24.4 M
 (32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 15.2 M
 (33) BRIDGE MEDIAN- NO MEDIAN 0
 (34) SKEW 38 DEG (35) STRUCTURE FLARED NO
 (10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
 (47) INVENTORY ROUTE TOTAL HORIZ CLEAR 14.9 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 *****

SUFFICIENCY RATING = 87.9
 STATUS
 HEALTH INDEX 93.3
 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- COUNTY HIGHWAY AGENCY 02
 (22) OWNER- COUNTY HIGHWAY AGENCY 02
 (37) HISTORICAL SIGNIFICANCE- NOT ELIGIBLE 5

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

(58) DECK N
 (59) SUPERSTRUCTURE N
 (60) SUBSTRUCTURE N
 (61) CHANNEL & CHANNEL PROTECTION 9
 (62) CULVERTS 7

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

(31) DESIGN LOAD- UNKNOWN 0
 (63) OPERATING RATING METHOD- FIELD EVAL/ENG JUD 0
 (64) OPERATING RATING- 40.5
 (65) INVENTORY RATING METHOD- FIELD EVAL/ENG JUI 0
 (66) INVENTORY RATING- 24.3
 (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 6
 (68) DECK GEOMETRY 6
 (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 20791
 (115) YEAR OF FUTURE ADT 2035

***** INSPECTIONS *****

(90) INSPECTION DATE 09/15 (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)