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: 55C0119

Bridge Name: Brea Canyon Channel **Year Built:** 1971

Facility Carried: Tonner Canyon Road

The Brea Canyon Channel at Tonner Canyon Road is a triple reinforced concrete box culvert.

Caltrans BIR recommendations:

- Clearing and grubbing channel bed.

Field Inspection Observations

- Horizontal cracks on culvert walls. (photo 2)
- Confirmed that the channel bed is over grown with vegetation. (photo 3) Recommend clearing and grubbing channel bed to allow water to flow properly.

Maintenance Needs Assessment

BPMP Assessment

- N/A – No eligible maintenance activities

General Maintenance – Non-BPMP

- Recommend monitoring cracks on culvert walls. Seal if further deterioration is observed. Existing cracks do not currently pose major maintenance issue.

Proposed BPMP Construction Costs

- N/A

Construction Items Not Funded by BPMP

- Clearing and Grubbing

APPENDIX A

Photos and BIR

Photo 1:

Photo 2: Culvert Wall

Photo 3: Brea Canyon Channel

Photo 4:

Photo 5:

DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0119
Facility Carried: TONNER CANYON ROAD
Location : 400' S/O BREA CANYON BLV
City :
Inspection Date : 10/02/2015

Inspection Type

Routine	FC	Underwater	Special	Other
X				

Bridge Inspection Report

STRUCTURE NAME: BREA CANYON CHANNEL

CONSTRUCTION INFORMATION

Year Built : 1971
Year Widened: N/A
Length (m) : 11.9

Skew (degrees): 0
No. of Joints : 0
No. of Hinges : 0

Structure Description: Triple 3.7 m W x 3.0 m H x 39.6 m L RC box culvert (non-grade top) beneath 2.1 m of earth fill.

Span Configuration : (W) 3 @ 3.7 m (E) 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: (S)4.4 m ea, MBGR, 8.0 m ea, 14.6 m, 8.0 m ea, CL fence, 1.8 m ea (N)
Total Width: .0 m Net Width: .0 m No. of Lanes: 4 Speed: 45 mph
Min. Vertical Clearance: Unimpaired Overlay Thickness: 0.0 Inches

Rail Code: NNNN

Rail Type	Location	Length (ft)	Rail Modifications
MBGR on Fill	Right	100	
Pedestrian	Left	100	CLF

DESCRIPTION UNDER STRUCTURE

Channel Description: RC rectangular upstream, natural earth trapezoidal downstream with heavy bushes and trees in the channel.

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 inspection was performed by walking on the deck and inside the culvert. All elements were visually inspected. Access the the culvert from southwest quadrant.
There are bushes and trees down stream obstructed the water flow.

INSPECTION COMMENTARY

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	120	m	111	0	9	0
	1080		Delamination/Spall/Patched Area	2	3		0	0	3	0
	1090		Exposed Rebar (PS Conc./RC)	2	3		0	0	3	0
	1130		Cracking (RC and Other)	2	3		0	0	3	0

(241-1080)
There are spalls at the following locations:
Eight ft of south end of wall #1, size was 12" x 12" x 1".
North bottom nose of wall #2, size was 12" x 6" x x2".
South end of wall #3, size was 18" x 15" x 2".

(241-1090)
There were 6 exposed rebars in the invert of barrel #1 and 1 exposed 2' rebar at the bottom of wall #4.

(241-1130)
There is horizontal crack 2 mm wide 6 ft long at the south end of wall #1.

WORK RECOMMENDATIONS

RecDate: 06/05/2001
Action : Remove Vegetation
Work By: LOCAL AGENCY
Status : PROPOSED

EstCost:
StrTarget: 2 YEARS
DistTarget:
EA:

Remove the bushes and trees from the channel bed within 30 meters of the bridge to allow the water to flow properly.
It is growing back.

Team Leader : Mikhael T. Zaarour

Report Author : Mikhael T. Zaarour

Inspected By : MT.Zaarour / DH.Kim

MKZ 2/24/16

Mikhael T. Zaarour (Registered Civil Engineer) (Date)

STRUCTURE INVENTORY AND APPRAISAL REPORT

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

(1) STATE NAME- CALIFORNIA 069
(8) STRUCTURE NUMBER **55C0119**
(5) INVENTORY ROUTE(ON/UNDER)- ON 140000000
(2) HIGHWAY AGENCY DISTRICT 12
(3) COUNTY CODE 059 (4) PLACE CODE 00000
(6) FEATURE INTERSECTED- BREA CANYON CHANNEL
(7) FACILITY CARRIED- TONNER CANYON ROAD
(9) LOCATION- 400' S/O BREA CANYON BLVD
(11) MILEPOINT/KILOMETERPOINT 0
(12) BASE HIGHWAY NETWORK- NOT ON NET 0
(13) LRS INVENTORY ROUTE & SUBROUTE
(16) LATITUDE 33 DEG 56 MIN 21.19 SEC
(17) LONGITUDE 117 DEG 52 MIN 39.33 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 3
(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 1971
(106) YEAR RECONSTRUCTED 0000
(42) TYPE OF SERVICE: ON- HIGHWAY 1
UNDER- WATERWAY 5
(28) LANES:ON STRUCTURE 04 UNDER STRUCTURE 00
(29) AVERAGE DAILY TRAFFIC 2000
(30) YEAR OF ADT 2009 (109) TRUCK ADT 3 %
(19) BYPASS, DETOUR LENGTH 19 KM

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

(48) LENGTH OF MAXIMUM SPAN 3.7 M
(49) STRUCTURE LENGTH 11.9 M
(50) CURB OR SIDEWALK: LEFT 0.0 M RIGHT 0.0 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 0.0 M
(52) DECK WIDTH OUT TO OUT 0.0 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 14.6 M
(33) BRIDGE MEDIAN- CLOSED (NO BARRIER) 2
(34) SKEW 0 DEG (35) STRUCTURE FLARED NO
(10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR 14.6 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 = 75.1
STATUS
HEALTH INDEX 95.0
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 JUD 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 N
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
(71) WATER ADEQUACY 9
(72) APPROACH ROADWAY ALIGNMENT 7
(36) TRAFFIC SAFETY FEATURES NNNN
(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 3544
(115) YEAR OF FUTURE ADT 2035

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

(90) INSPECTION DATE 10/15 (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)