DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0123
Facility Carried: BREA CANYON BLVD.
Location : 0.8 MI N/O CENTRAL AVENU
City :
Inspection Date : 07/15/2019

Bridge Inspection Report

Inspection Type

Routine	FC	Underwater	Special	Other
X				

STRUCTURE NAME: BREA CANYON CHANNEL

CONSTRUCTION INFORMATION

Year Built : 1939
Year Modified: N/A
Length (m) : 28
Skew (degrees): 60
No. of Joints : 0
No. of Hinges : 0

Structure Description: Simply supported 3-span CIP/RC T-beam (5 each) with RC pier walls and with RC open end diaphragm abutments, all supported upon concrete piles.

Span Configuration : (W) 3 @ 30.00 ft (E)

SAFE LOAD CAPACITY AND RATINGS

Design Live Load: UNKNOWN
Inventory Rating: RF= 0.69 Calculation Method: (LRFR) LD & RES FACT RATING
Operating Rating: RF= 0.89 Calculation Method: (LRFR) LD & RES FACT RATING
Permit Rating : PPPPP
Posting Load : Type 3: Legal Type 3S2: Legal Type 3-3: Legal

DESCRIPTION ON STRUCTURE

Deck X-Section: (S) 1.00 ft br, 0.67 ft cu, 30.00 ft, 0.67 ft cu, 1.00 ft br (N).
Total Width: 10.1 m Net Width: 9.1 m No. of Lanes: 2 Speed: 55 mph
Min. Vertical Clearance: Unimpaired Overlay Thickness: 3.0 inches
Rail Code: 0000

DESCRIPTION UNDER STRUCTURE

Channel Description: Natural earth trapezoidal, RC rectangular 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

A complete routine inspection was performed by Y. Chen and M. Monajemi. The bridge deck was inspected in accordance with SM&I procedures by walking through the narrow shoulder areas. Access to the area under the bridge was from the southeastern corner with the aid of a rope. The RC "T" girders, the deck soffit, the middle pier and abutmental walls were inspected by walking through all three spans. At the time of inspection, there was up to 6-inch deep water in the channel; there was an ongoing construction activity at the site

INSPECTION COMMENTARY

to reinforce concrete baluster rails with metal beams.

REVISIONS

The NBI Item 27 for year built has been coded as 1939. However, per the original bridge inspection reported dated on 05/13/1938, the inspector stated that "Channel has apparently scoured down about 5' since the bridge was constructed.", indicating the bridge should be constructed before 1938. For a bridge nearby (1,100 feet southwesterly toward West Central Avenue), the inspector estimated that it was constructed about 1930. It's reasonable to consider that this bridge was also constructed at the same time. Therefore, revise the code for NBI Item 27 from 1939 to 1930.

DECK AND ROADWAY

The roadway AC settled areas along the abutments reported in the previous bridge inspection report have been patched with new AC material.

SUBSTRUCTURE

There are 2 spalls sized +/- 12 inch x 3 inch x 1 inch with exposed rebars at the northwestern wing wall.

SAFE LOAD CAPACITY

All girder elements were analyzed by SM&I Ratings Branch using BrR 6.7.0 with AASHTO LRFR engine utilizing moment and shear demands. The section dimensions of the bridge used for analysis were found on aperture cards. A Load Rating Summary Sheet (LRSS) dated on 08/28/2015 is in file. While this report does not include a check of that analysis, it does verify that the structural conditions observed during this inspection are consistent with those assumed in that analysis.

ELEMENT INSPECTION RATINGS AND COMMENTARY

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	283	sq.m	278	2	3	0
	1080		**Delamination/Spall/Patched Area**	2	5		0	2	3	0
	510		**Deck Wearing Surface-Asphalt**	2	255	sq.m	240	15	0	0
		3220	**Cracking-AC (WS)**	2	15		0	15	0	0

(16-1080)
There are ten spalls at the north edge of the deck with exposed rusted rebars with the average size 8 inch x 6 inch x 1 inch, mostly at Spans 2 and 3.

(16-510-3220)
There is a longitudinal crack 30-feet long and 0.5-inch wide at the eastbound lane.

110			**Girder/Beam-RC**	2	140	m	136	0	4	0
	1080		**Delamination/Spall/Patched Area**	2	4		0	0	4	0

(110-1080)
There are spalls at the bottom faces of western exterior "T" girder, all with rusted rebars exposed at the following locations:
Girder 1 in Span 1, 2 spalls up to 12 inch x 4 inch x 1.5 inch,
Girder 1 in Span 2, 4 spalls from 4 inch x 4 inch x 1.5 inch to 12 inch x 6 inch x 1.5 inch,
Girder 1 in Span 3, 18 inch x 12 inch x 2 inch.

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
210			**Pier Wall-RC**	2	40	m	38	2	0	0
	1130		**Cracking (RC and Other)**	2	2		0	2	0	0

(210)
There were no significant defects noted.

(210-1130)
There are 2 and 3 vertical cracks on Pier wall 2 and Pier wall 3 respectively, up to 0.04 inches wide.

215			**Abutment-RC**	2	52	m	52	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.

331			**Railing-RC**	2	56	m	36	10	10	0
	1080		**Delamination/Spall/Patched Area**	2	20		0	10	10	0

(331-1080)
There are cracks and spalls along the concrete baluster rails in multiple locations up to the size 15 inch x 3 inch x 1 inch.
The baluster rails were being reinforced with metal beams at the time of inspection.

WORK RECOMMENDATIONS

RecDate: 05/06/2010 Action : Sub-Patch spalls Work By: LOCAL AGENCY Status : PROPOSED	EstCost: StrTarget: 2 YEARS DistTarget: EA:	Repair the three spalls +/- 12 inch x 3 inch X 1 inch with exposed rebars at the northwest wing wall.
RecDate: 05/06/2010 Action : Railing-Repair Work By: LOCAL AGENCY Status : PROPOSED	EstCost: StrTarget: 2 YEARS DistTarget: EA:	Repair the spalls +/- 15 inch x 3 inch x 1 inch in both concrete baluster railings.
RecDate: 05/30/2007 Action : Super-Patch spalls Work By: LOCAL AGENCY Status : PROPOSED	EstCost: StrTarget: 2 YEARS DistTarget: EA:	Locate the spalled areas at the bottom of experior girders, mainly in Girder 1, remove unsound concrete and all rusts on the exposed rebars, clean and patch the spalled areas. Update by Y. Chen, 09/05/2019

Team Leader : Young Chen

Report Author : Young Chen

Inspected By : Y.Chen/MM.Monajemi

9/16/2019

Young Chen (Registered Civil Engineer) (Date)

STRUCTURE INVENTORY AND APPRAISAL REPORT

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

(1) STATE NAME- CALIFORNIA 069
(8) STRUCTURE NUMBER **55C0123**
(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- BREA CANYON BLVD.
(9) LOCATION- 0.8 MI N/O CENTRAL AVENUE
(11) MILEPOINT/KILOMETERPOINT 0
(12) BASE HIGHWAY NETWORK- NOT ON NET 0
(13) LRS INVENTORY ROUTE & SUBROUTE
(16) LATITUDE 33 DEG 56 MIN 27.32 SEC
(17) LONGITUDE 117 DEG 53 MIN 15.24 SEC
(98) BORDER BRIDGE STATE CODE % SHARE %
(99) BORDER BRIDGE STRUCTURE NUMBER

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

(43) STRUCTURE TYPE MAIN:MATERIAL- CONCRETE
TYPE- STRINGER/MULTI-BEAM OR GDR CODE 102
(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- CIP CONCRETE CODE 1
(108) WEARING SURFACE / PROTECTIVE SYSTEM:
A) TYPE OF WEARING SURFACE- BITUMINOUS CODE 6
B) TYPE OF MEMBRANE- NONE CODE 0
C) TYPE OF DECK PROTECTION- NONE CODE 0

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

(27) YEAR BUILT 1939
(106) YEAR RECONSTRUCTED 0000
(42) TYPE OF SERVICE: ON- HIGHWAY 1
UNDER- WATERWAY 5
(28) LANES:ON STRUCTURE 02 UNDER STRUCTURE 00
(29) AVERAGE DAILY TRAFFIC 19000
(30) YEAR OF ADT 2009 (109) TRUCK ADT 2 %
(19) BYPASS, DETOUR LENGTH 2 KM

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

(48) LENGTH OF MAXIMUM SPAN 9.1 M
(49) STRUCTURE LENGTH 28.0 M
(50) CURB OR SIDEWALK: LEFT 0.2 M RIGHT 0.2 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 9.1 M
(52) DECK WIDTH OUT TO OUT 10.1 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 8.2 M
(33) BRIDGE MEDIAN- NO MEDIAN 0
(34) SKEW 60 DEG (35) STRUCTURE FLARED NO
(10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR 9.1 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 = 63.9

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

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

(31) DESIGN LOAD- UNKNOWN 0
(63) OPERATING RATING METHOD- (LRFR) LD & RES FA 8
(64) OPERATING RATING- RF= 0.89
(65) INVENTORY RATING METHOD- (LRFR) LD & RES FA 8
(66) INVENTORY RATING- RF= 0.69
(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 5
(68) DECK GEOMETRY 3
(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 42072
(115) YEAR OF FUTURE ADT 2036

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

(90) INSPECTION DATE 07/19 (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)

Photo No. 1
ROADWAY VIEW LOOKING EAST

Photo No. 1
SIDE VIEW LOOKING NORTH

Photo No. 1
SIDE VIEW LOOKING NORTHEAST

Photo No. 1
SIDE VIEW LOOKING EAST

Photo No. 1
JOINT CONDITION AT WESTERN ABUTMENT

Photo No. 1
UNDER VIEW IN SPAN 1, LOOKING SOUTHEAST