DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0017
Facility Carried: LINCOLN AVENUE
Location : 0.7 MI E/O ROUTE 57 FWY.
City :
Inspection Date : 12/30/2015

Bridge Inspection Report

Inspection Type

Routine	FC	Underwater	Special	Other
X				

STRUCTURE NAME: SANTA ANA RIVER CHANNEL

CONSTRUCTION INFORMATION

Year Built : 1970
Year Widened: 2014
Length (m) : 130.1

Skew (degrees): 8
No. of Joints : 1
No. of Hinges : 1

Structure Description: Continuous six span CIP/RC T-beam (8 each) with RC piers and RC open end diaphragm abutments, all supported upon steel piles HP 14X89. The widening: Box girder on RC pier walland RC open end diaphragm abutments, all supported upon steel piles from both side. (18 ft from each side).

Span Configuration : (W) 17.4 m, 4 @ 23.8 m, 17.4 m (E) c/c

SAFE LOAD CAPACITY AND RATINGS

Design Live Load: MS-18 OR HS-20
Inventory Rating: RF=1.71 =>55.4 metric tons Calculation Method: LOAD FACTOR
Operating Rating: RF=2.84 =>92.0 metric tons Calculation Method: LOAD FACTOR
Permit Rating : PPPPP
Posting Load : Type 3: Legal Type 3S2: Legal Type 3-3: Legal

DESCRIPTION ON STRUCTURE

Deck X-Section: (S) 0.3 m br, 1.5 m sw, 28.0 m, 1.5 m sw, 0.3 m br (N).
Total Width: 31.6 m Net Width: 28.0 m No. of Lanes: 6 Speed: 45 mph
Min. Vertical Clearance: Unimpaired Overlay Thickness: 0.0 Inches

Rail Code: 1000

Rail Type	Location	Length (ft)	Rail Modifications
Type 26	Right/Left	978	

DESCRIPTION UNDER STRUCTURE

Channel Description: Natural earth trapezoidal with rock slope protection, grouted 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

HISTORY

The bridge currently is widened in 2014.

INSPECTION COMMENTARY

SCOPE AND ACCESS

There is 1 m of water in spans #2 down to 0.5 m in span #5.

REVISIONS

The bridge was widened from both sides, some of the elements quantities were update and all the pertinent dimensions were modified as follows:
Deck area was changed from 2,490 m2 to 3,795 m2;
ELI #16 was changed from 2,490 m2 to 3,795 m2;
ELI #210(RC pier walls): the entire quantity was modified from 105 m to 160 m;
ELI #215(RC abutments): the entire quantity was modified from 42 m to 64 m;
NBI #47 (Total Horizontal Clearance) was modified from 9.6 m to 28.0 m;
NBI #51 (Bridge Roadway Width) was modified from 19.1 m to 28.0m;
NBI #50A (Sidewalk Left) was modified from 0 m to 1.5 m;
NBI #50B (Sidewalk Right) was modified from 0 m to 1.5 m;
NBI #52 (Deck Width out to out) was modified from 20.4 m to 31.6 m;
ELI #104 (PC/PS Box girder) was added to ELI list (260 m in CS 1);
ELI #302 (Compression joint seal) was modified from 21 m to 31 m;; and
The old metal rail was removed and replaced with concrete rail, so element #330 was replaced with element #331.

MISCELLANEOUS

Ten-year bridge roadway, elevation and underside photos were taken during this inspection.

SAFE LOAD CAPACITY

A Structure Rating Summary Sheet, dated 02/03/2014, is on-file for this structure. The current rating is based on a BDS computer output, dated 11/20/1979, while this report does not include a check of that analysis

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
16			Top Flange-RC	2	3795	sq.m	3495	300	0	0
	1120		Efflorescence/Rust Staining	2	300		0	300	0	0
(16-1120)										
There are transverse cracks in the soffit in several bays in most spans with white efflorescence.										
104			Box Girder-PS Conc.	2	260	m	230	30	0	0
	1080		Delamination/Spall/Patched Area	2	5		0	5	0	0
	1110		Cracking (PS Conc.)	2	25		0	25	0	0
(104-1080)										
Span 1: few sound patched spalls 12" X 12" at mid-span.										
There are several sound patched spalls in several girders.										

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
(104-1110)										
Northerly box girder has few vertical cracks with light white efflorescence above pier walls #5 and #6.										
110			**Girder/Beam-RC**	2	1040	m	1038	1	1	0
	1080		**Delamination/Spall/Patched Area**	2	1		0	0	1	0
	1130		**Cracking (RC and Other)**	2	1		0	1	0	0
(110-1080)										
In span 2: girder #1 (original RC) has a spall 2-1/2 ft X 10" X 2" at mid-span.										
(110-1130)										
There are shear cracks in most girders, up to 1.0 mm wide near the supports.										
210			**Pier Wall-RC**	2	160	m	155	5	0	0
	1130		**Cracking (RC and Other)**	2	5		0	5	0	0
(210-1130)										
Pier walls have few vertical racks, up to 1.0 mm wide.										
215			**Abutment-RC**	2	64	m	64	0	0	0
(215)										
There were no significant defects noted.										
256			**Slope Protection**	2	2	ea.	2	0	0	0
(256)										
There were no significant defects noted.										
302			**Joint-Compression Seal**	2	31	m	26	5	0	0
	2320		**Seal Adhesion (Joints)**	2	5		0	5	0	0
(302-2320)										
The compression joint seal lost adhesion.										
312			**Bearing-Enclosed**	2	1	each	1	0	0	0
(312)										
There were no significant defects noted.										
331			**Railing-RC**	2	262	m	262	0	0	0
(331)										
There were no significant defects noted.										

WORK RECOMMENDATIONS - NONE

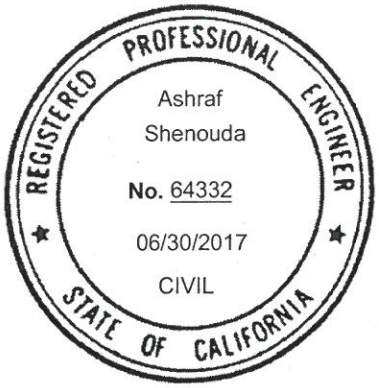
Team Leader : Ashraf Shenouda

Report Author : Ashraf Shenouda

Inspected By : A.Shenouda/KD.Henderson

3/11/2016

Ashraf Shenouda (Registered Civil Engineer) (Date)



STRUCTURE INVENTORY AND APPRAISAL REPORT

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

(1) STATE NAME- CALIFORNIA 069
(8) STRUCTURE NUMBER **55C0017**
(5) INVENTORY ROUTE(ON/UNDER)- ON 140000000
(2) HIGHWAY AGENCY DISTRICT 12
(3) COUNTY CODE 059 (4) PLACE CODE 00000
(6) FEATURE INTERSECTED- SANTA ANA RIVER CHANNEL
(7) FACILITY CARRIED- LINCOLN AVENUE
(9) LOCATION- 0.7 MI E/O ROUTE 57 FWY.
(11) MILEPOINT/KILOMETERPOINT 0
(12) BASE HIGHWAY NETWORK- PART OF NET 1
(13) LRS INVENTORY ROUTE & SUBROUTE 000000000000
(16) LATITUDE 33 DEG 50 MIN 07.59 SEC
(17) LONGITUDE 117 DEG 51 MIN 50.13 SEC
(98) BORDER BRIDGE STATE CODE % SHARE %
(99) BORDER BRIDGE STRUCTURE NUMBER

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

(43) STRUCTURE TYPE MAIN:MATERIAL- CONCRETE
TYPE- TEE BEAM CODE 104
(44) STRUCTURE TYPE APPR:MATERIAL- OTHER/NA
TYPE- OTHER/NA CODE 000
(45) NUMBER OF SPANS IN MAIN UNIT 6
(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 1970
(106) YEAR RECONSTRUCTED 2014
(42) TYPE OF SERVICE: ON- HIGHWAY 1
UNDER- WATERWAY 5
(28) LANES:ON STRUCTURE 06 UNDER STRUCTURE 00
(29) AVERAGE DAILY TRAFFIC 28000
(30) YEAR OF ADT 2009 (109) TRUCK ADT 4 %
(19) BYPASS, DETOUR LENGTH 5 KM

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

(48) LENGTH OF MAXIMUM SPAN 23.8 M
(49) STRUCTURE LENGTH 130.1 M
(50) CURB OR SIDEWALK: LEFT 1.5 M RIGHT 1.5 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 28.0 M
(52) DECK WIDTH OUT TO OUT 31.6 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 28.0 M
(33) BRIDGE MEDIAN- NO MEDIAN 0
(34) SKEW 8 DEG (35) STRUCTURE FLARED NO
(10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR 28.0 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 = 91.4
STATUS
HEALTH INDEX 98.1
PAINT CONDITION INDEX = N/A

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

(112) NBIS BRIDGE LENGTH- YES Y
(104) HIGHWAY SYSTEM- ROUTE ON NHS 1
(26) FUNCTIONAL CLASS- OTHER PRIN ART URBAN 14
(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 8
(60) SUBSTRUCTURE 8
(61) CHANNEL & CHANNEL PROTECTION 8
(62) CULVERTS N

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

(31) DESIGN LOAD- MS-18 OR HS-20 5
(63) OPERATING RATING METHOD- LOAD FACTOR 1
(64) OPERATING RATING- 92.0
(65) INVENTORY RATING METHOD- LOAD FACTOR 1
(66) INVENTORY RATING- 55.4
(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 8
(68) DECK GEOMETRY 9
(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 79890
(115) YEAR OF FUTURE ADT 2035

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

(90) INSPECTION DATE 12/15 (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)