DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0130
Facility Carried: GLASSELL STREET
Location : 0.3 MI S/O ROUTE 91 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 : 1963
Year Widened: 2005
Length (m) : 293.5

Skew (degrees): 0
No. of Joints : 4
No. of Hinges : 4

Structure Description: 18 span continuous CIP RC "T" beam (12 each total induding widening) supported by RC pier walls and open end RC diaphragm abutments on steel piles, except Pier 10 through Pier 18 of the east half widening which are RC column (4 each) bents on continuous RC footing and steel piles.
Widen: the bridge was widened 2 CIP/RC beam (2 each) at west and east ends.

Span Configuration : (S) 12.5 m, 16 @ 16.8 m, 12.5 m (N) c/c

SAFE LOAD CAPACITY AND RATINGS

Design Live Load: UNKNOWN
Inventory Rating: RF=0.52 =>16.7 metric tons Calculation Method: FIELD EVAL/ENG JUDGMENT
Operating Rating: RF=0.86 =>27.8 metric tons Calculation Method: FIELD EVAL/ENG JUDGMENT
Permit Rating : XXXXX
Posting Load : Type 3: Legal Type 3S2: Legal Type 3-3: Legal

DESCRIPTION ON STRUCTURE

Deck X-Section: (W) 0.35 m br; 1.5 m sw; 10.6 m; 1.2 m cu. med.; 10.6 m; 1.5 m sw; 0.35 m br (E).

Total Width: 26.1 m Net Width: 21.2 m No. of Lanes: 4 Speed: 45 mph
Min. Vertical Clearance: Unimpaired Overlay Thickness: 0.0 Inches

Rail Code: 0000

Rail Type	Location	Length (ft)	Rail Modifications
Type 26	Right/Left	1938	

DESCRIPTION UNDER STRUCTURE

Channel Description: Natural sandy earth trapezoidal with rock slope protection 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

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SCOPE AND ACCESS

The water in the channel was up to 2-1/2 ft deep at spans 3 to 8 & span 11 to span 16; so no inspection was performed in span 3 to span 8 & span 11 to span 16. Pedestrian access is through a vehicular access at northeast gate.

DECK AND ROADWAY

Southeast corner of the sidewalk settled up to 3/4", with a spall 8" X 3" X 1" at the sidewalk approach at the same location.

SUBSTRUCTURE

Homeless shelters were found at PW#2 (north face) in span 2.

SAFE LOAD CAPACITY

A Load Rating Summary sheet is archived on 01/31/2016. As-built drawings are not available for the original bridge. The Load rating Summary Sheet has verified the physical conditions assumed in the above referenced load rating calculation have not changed significantly.

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	7660	sq.m	7160	500	0	0
	1080		Delamination/Spall/Patched Area	2	100		0	100	0	0
	1130		Cracking (RC and Other)	2	400		0	400	0	0
	521		Concrete Coat.(Meth/Paint/Seal)	2	6222	sq.m	6222	0	0	0

(16-1080)
The concrete deck has sound patched spalls +/- 2 ft X 18" in several spans, mostly in spans 12, 14 and 16.

(16-1130)
This defects was created not for the deck cracks but becasue of the soffit cracks.

The soffit exhibits:
* span #1: all bays under the traffic lanes (original bridge) has several transverse cracks with heavy white efflorescence;
* span #2: all bays under the traffic lanes (original bridge) has several transverse cracks, up to 6 ft long with light white efflorescence mostly at south end; and
* at spans #8 to #18: few transverse cracks with light white efflorescence; these cracks mirror the deck cracks.

(16-521)
There were no significant defects noted.

110			Girder/Beam-RC	2	3524	m	3224	300	0	0
	1080		Delamination/Spall/Patched Area	2	50		0	50	0	0
	1130		Cracking (RC and Other)	2	250		0	250	0	0

(110-1080)

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
			The concrete girders exhibit: In span 2: Girder 3, has six sound patched spalls +/- 12" X 10" in different locations. * in span 9: - girder 3 exhibits 4 spalls +/- 12" X 4" X 1" at west fascia; - girder 1 exhibits a spall 3" X 3" X 1" at west fascia at 15 ft from PW #10; - girder #9 exhibits two spalls 5" X 5" X 1" at 5 ft north from intermediate diaphragm at both faces; and - girder #10 exhibits a spall 5" X 5" X 1" at 5 ft north from intermediate diaphragm at west face. * in span 10: a spall 4" X 4" X 1" at girder #9 at 2 ft from the intermediate diaphragm without any rebar exposed. * in span 11: girder #10 (from west) has a spall 10" X 3" X 1" with rebar exposed and rusted at 5 ft north of intermediate diaphragm. * in span 17: most girders from 3 to 10 have up to two sound patched spalls +/- 12" X 12" .							
			(110-1130) The concrete girders exhibit: * in span 2: most original girders (south end) have few shear cracks (2 cracks at each girder) 1.0 mm wide; * in span 9: - 4 shear cracks (at each end) at each original girder; * in span 10: girders 7, 8, 9 and 10 each has eight vertical cracks, up to 1.0 mm wide and 2.5 ft spaced apart mostly at the middle 2/3rd of the span. * most original girders exhibit few shear cracks up to 0.5 mm wide at both ends.							
182		**EQ Restrainer Cable-Other**		2	40	ea.	35	5	0	0
	1000	**Corrosion**		2	5		0	5	0	0
			(182-1000) Steel cables of the seismic retrofit have a sign of rust of some of them.							
210		**Pier Wall-RC**		2	400	m	389	11	0	0
	1080	**Delamination/Spall/Patched Area**		2	1		0	1	0	0
	1130	**Cracking (RC and Other)**		2	10		0	10	0	0
			(210-1080) Pier wall #11 exhibits two spalls 3" X 3" X 1" at north face.							
			(210-1130) Pier walls exhibit: Pier wall #2 exhibits two vertical cracks, 1.0 mm wide. Pier wall #3 exhibits a vertical crack, 0.5 mm wide. Pier wall #10 exhibits a vertical crack, at the west portion 1.0 mm wide. Pier wall #11 exhibits a vertical crack, 1.0 mm wide. Pier wall #12 exhibits two vertical cracks, up to 1.0 mm wide at the westerly portion. Pier wall #14 exhibits two vertical crack, 1.0 mm wide. Pier wall #15 exhibits a vertical crack, 1.0 mm wide at the westerly portion and one horizontal crack 1.0 mm wide at the east portion of the pier wall. Pier wall #16 exhibits a vertical crack, 1.0 mm wide.							

ELEMENT INSPECTION RATINGS AND NOTES

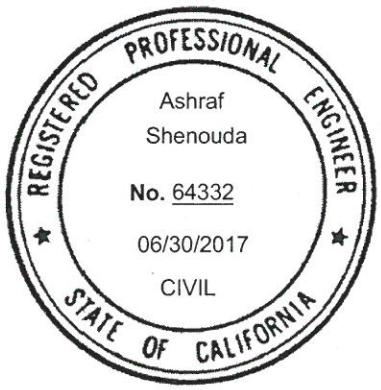
Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4
215			**Abutment-RC**	2	36	m	36	0	0	0
(215) There were no significant defects noted.										
225			**Pile-Steel**	2	1	ea.	1	0	0	0
(225) The pile element is included to indicate the 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.										
256			**Slope Protection**	2	3	ea.	3	0	0	0
(256) There were no significant defects noted.										
301			**Joint-Pourable Seal**	2	88	m	84	4	0	0
	2320		**Seal Adhesion (Joints)**	2	2		0	2	0	0
	2340		**Seal Cracking (Joints)**	2	2		0	2	0	0
(301-2320) The pourable joint seal lost cohesion at southbound lanes at the hinge in span 16.										
(301-2340) The pourable joint seal has cracks at southbound lanes at the hinge in span 16.										
312			**Bearing-Enclosed**	2	4	each	4	0	0	0
(312) There were no significant defects noted.										
331			**Railing-RC**	2	591	m	561	30	0	0
	1130		**Cracking (RC and Other)**	2	30		0	30	0	0
(331-1130) The RC rails have several vertical cracks, 1.5 mm wide and 10 ft spaced apart.										

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)

CC: City of Orange
City of Anaheim

STRUCTURE INVENTORY AND APPRAISAL REPORT

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

(1) STATE NAME- CALIFORNIA 069
(8) STRUCTURE NUMBER **55C0130**
(5) INVENTORY ROUTE(ON/UNDER)- ON 150000000
(2) HIGHWAY AGENCY DISTRICT 12
(3) COUNTY CODE 059 (4) PLACE CODE 00000
(6) FEATURE INTERSECTED- SANTA ANA RIVER CHANNEL
(7) FACILITY CARRIED- GLASSELL STREET
(9) LOCATION- 0.3 MI S/O ROUTE 91 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 35.94 SEC
(17) LONGITUDE 117 DEG 51 MIN 09.2 SEC
(98) BORDER BRIDGE STATE CODE % SHARE %
(99) BORDER BRIDGE STRUCTURE NUMBER

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

(43) STRUCTURE TYPE MAIN:MATERIAL- CONCRETE CONT
TYPE- TEE BEAM CODE 204
(44) STRUCTURE TYPE APPR:MATERIAL- OTHER/NA
TYPE- OTHER/NA CODE 000
(45) NUMBER OF SPANS IN MAIN UNIT 18
(46) NUMBER OF APPROACH SPANS 0
(107) DECK STRUCTURE TYPE- CIP CONCRETE CODE 1
(108) WEARING SURFACE / PROTECTIVE SYSTEM:
A) TYPE OF WEARING SURFACE- CONCRETE CODE 1
B) TYPE OF MEMBRANE- NONE CODE 0
C) TYPE OF DECK PROTECTION- NONE CODE 0

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

(27) YEAR BUILT 1963
(106) YEAR RECONSTRUCTED 2005
(42) TYPE OF SERVICE: ON- HIGHWAY 1
UNDER- WATERWAY 5
(28) LANES:ON STRUCTURE 04 UNDER STRUCTURE 00
(29) AVERAGE DAILY TRAFFIC 22000
(30) YEAR OF ADT 2003 (109) TRUCK ADT 1 %
(19) BYPASS, DETOUR LENGTH 5 KM

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

(48) LENGTH OF MAXIMUM SPAN 16.8 M
(49) STRUCTURE LENGTH 293.5 M
(50) CURB OR SIDEWALK: LEFT 0.0 M RIGHT 0.0 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 21.2 M
(52) DECK WIDTH OUT TO OUT 26.1 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 21.2 M
(33) BRIDGE MEDIAN- CLOSED NON-MOUNTABLE 3
(34) SKEW 0 DEG (35) STRUCTURE FLARED NO
(10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR 10.6 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

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SUFFICIENCY RATING = 67.8
STATUS
HEALTH INDEX 97.6
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- CITY OR MUNICIPAL HIGHWAY AGENCY 04
(22) OWNER- CITY OR MUNICIPAL HIGHWAY AGENCY 04
(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- UNKNOWN 0
(63) OPERATING RATING METHOD- FIELD EVAL/ENG JUD 0
(64) OPERATING RATING- 27.8
(65) INVENTORY RATING METHOD- FIELD EVAL/ENG JUD 0
(66) INVENTORY RATING- 16.7
(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 4
(68) DECK GEOMETRY 9
(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 45792
(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)