DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0400
Facility Carried: EDINGER AVE
Location : 1.7 MI W/O BOLSA CHICA R
City :
Inspection Date : 04/23/2015

Bridge Inspection Report

Inspection Type
Routine [X] FC Underwater Special Other

STRUCTURE NAME: BOLSA CHICA CHANNEL

CONSTRUCTION INFORMATION

Year Built : 1968
Year Widened: 1988
Length (m) : 92.4
Skew (degrees): 50
No. of Joints : 0
No. of Hinges : 0

Structure Description: Simply supported 15-span timber stringers (17 each) and a corrugated steel plate deck (Armco 12 gage) with 10-timber pile bents and 10-timber pile at west abutment and 11-tibmer pile at east abutment with timber sheathing walls.

Span Configuration : (W) 15 @ 6.1 m (E) c/c

SAFE LOAD CAPACITY AND RATINGS

Design Live Load: UNKNOWN
Inventory Rating: RF=0.23 =>7.5 metric tons Calculation Method: FIELD EVAL/ENG JUDGMENT
Operating Rating: RF=0.38 =>12.3 metric tons Calculation Method: FIELD EVAL/ENG JUDGMENT
Permit Rating : XXXXX
Posting Load : Type 3: 7 U.S. Tons Type 3S2: 11 U.S. Tons Type 3-3: 14 U.S. Tons

DESCRIPTION ON STRUCTURE

Deck X-Section: (N) 0.4 m br, 7.5 m, 1.3 m sw, 0.3 m br (S).
Total Width: 9.0 m Net Width: 7.5 m No. of Lanes: 2 Speed: 45 mph
Min. Vertical Clearance: Unimpaired Overlay Thickness: 6.0 Inches

Rail Code: 0000

Rail Type	Location	Length (ft)	Rail Modifications
MBBR	Right/Left	3056	

DESCRIPTION UNDER STRUCTURE

Channel Description: Earth trapezoidal tidal channel with a rock slope at the westerly bank.

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 performed by walking on the roadway and under spans 1, 14 and 15. the others span was done by underwater team. parking at the northwest quadrant of the structure.

SUBSTRUCTURE
The deteriorated piles that was reported on 2/24/2015 by underwater investigation were

INSPECTION COMMENTARY

supplemented for Bents 3, 4, and 5 in April 2015.

SAFE LOAD CAPACITY
The load rating for this structure was calculated on 01/13/2011. An updated Load Rating Summary is archived on 10/07/2011. The Load rating Summary Sheet has verified the physical conditions assumed in the above referenced load rating calculation have not changed significantly.

The load rating calculation result of two options:
First option is to reduce the load limit to:
7 TON PER VEHICLE
11 TON PER SEMI-TRAILER COMBINATION
14 TON PER FULL TRUCK AND FULL TRAILER
The second option is to reduce the traffic lane to one lane for both directions.
The first option was adopted by the county.

Safe Load Capacity
Load capacity calculation dated 1/13/2011 indicate the safe load carrying capacity is
7 TON PER VEHICLE
11 TON PER SEMI-TRAILER COMBINATION
14 TON PER FULL TRUCK AND FULL TRAILER

EXISTING SIGNS
A silhouette type sign showing the existing posting is in place at both approaches of the bridge.

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
30			Steel Deck-Orthotropic	3	932	sq.m	932	0	0	0
	510		Deck Wearing Surface-Asphalt	3	693	sq.m	693	0	0	0
	515		Steel Coating-Paint	3	1800	sq.m	1800	0	0	0
(30)										
There were no significant defects noted.										
(30-510)										
There were no significant defects noted.										
(30-515)										
There were no significant defects noted.										
111			Girder/Beam-Timber	3	1570	m	1485	85	0	0
	1150		Check/Shake (Timber)	3	85		0	85	0	0
(111-1150)										
There are checks, 3 mm wide and 4 ft long on average, in the girders at the following locations Span 1 stringers 3, 4, 13, 14 and 17, Span 13 stringers 13 and 17, Span 14 stringers 15 and 17, Span 15 stringers 6, 9, 10, 14 and 17.										
202			Column-Steel	3	10	each	10	0	0	0
	517		Weathering Steel	3	100	sq.m	100	0	0	0
(202)										
There were no significant defects noted.										
(202-517)										

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
There were no significant defects noted.										
206			Column-Timber	4	161	each	131	3	13	14
	1140		Decay/Section Loss (Timber)	4	30		0	3	13	14
(206) There are										
(206-1140) The timber columns in Bent 3, 4, and 5 are deteriorated: 3 column lost section less the 10% than its diameter area, 3 columns lost sections less than 50% of its diameter area, 10 columns lost sections more than 50% of its diameter area, 9 columns lost sections more than 75% and 5 columns total section lost.										
216			Abutment-Timber	4	28	m	28	0	0	0
(216) There were no significant defects noted.										
235			Pier Cap-Timber	3	199	m	189	10	0	0
	1150		Check/Shake (Timber)	3	10		0	10	0	0
(235) There were no significant defects noted.										
(235-1150) There is checks 3 mm wide in bent cap #4										
256			Slope Protection	3	1	ea.	1	0	0	0
(256) There were no significant defects noted.										
330			Railing-Metal	3	185	m	185	0	0	0
(330) There steel top members rusted at the connection.										

WORK RECOMMENDATIONS

RecDate: 02/10/2011
Action : Sub-Replace
Work By: LOCAL AGENCY
Status : PROPOSED

EstCost:
StrTarget: 2 YEARS
DistTarget:
EA:

Replace all damaged and deteriorated piles as being indicated by AECOM report dated 1/13/2011 to restore the safe load capacity. As a consequence of these revisions, the calculated Sufficiency Rating is 31.6 and since the bridge is also "Structurally Deficient", it may qualify to be in the list for replacement within the Highway Bridge Rehabilitation and Replacement Program.

Team Leader : Mikhael T. Zaarour

Report Author : Mikhael T. Zaarour

Inspected By : MT.Zaarour

Mikhael T. Zaarour (Registered Civil Engineer) 10/19/15 (Date)

STRUCTURE INVENTORY AND APPRAISAL REPORT

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

(1) STATE NAME- CALIFORNIA 069
(8) STRUCTURE NUMBER 55C0400
(5) INVENTORY ROUTE(ON/UNDER)- ON 150000000
(2) HIGHWAY AGENCY DISTRICT 12
(3) COUNTY CODE 059 (4) PLACE CODE 00000
(6) FEATURE INTERSECTED- BOLSA CHICA CHANNEL
(7) FACILITY CARRIED- EDINGER AVE
(9) LOCATION- 1.7 MI W/O BOLSA CHICA RD
(11) MILEPOINT/KILOMETERPOINT 0
(12) BASE HIGHWAY NETWORK- NOT ON NET 0
(13) LRS INVENTORY ROUTE & SUBROUTE
(16) LATITUDE 33 DEG 43 MIN 46.41 SEC
(17) LONGITUDE 118 DEG 04 MIN 14.84 SEC
(98) BORDER BRIDGE STATE CODE % SHARE %
(99) BORDER BRIDGE STRUCTURE NUMBER

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

(43) STRUCTURE TYPE MAIN:MATERIAL- WOOD OR TIMBER
TYPE- STRINGER/MULTI-BEAM OR GDR CODE 702
(44) STRUCTURE TYPE APPR:MATERIAL- OTHER/NA
TYPE- OTHER/NA CODE 000
(45) NUMBER OF SPANS IN MAIN UNIT 15
(46) NUMBER OF APPROACH SPANS 0
(107) DECK STRUCTURE TYPE- CORRUGATED STEEL CODE 6
(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 1968
(106) YEAR RECONSTRUCTED 1988
(42) TYPE OF SERVICE: ON- HIGHWAY 1
UNDER- WATERWAY 5
(28) LANES:ON STRUCTURE 02 UNDER STRUCTURE 00
(29) AVERAGE DAILY TRAFFIC 1529
(30) YEAR OF ADT 2007 (109) TRUCK ADT 3 %
(19) BYPASS, DETOUR LENGTH 199 KM

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

(48) LENGTH OF MAXIMUM SPAN 6.1 M
(49) STRUCTURE LENGTH 92.4 M
(50) CURB OR SIDEWALK: LEFT 0.3 M RIGHT 1.2 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 7.5 M
(52) DECK WIDTH OUT TO OUT 9.0 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 14.0 M
(33) BRIDGE MEDIAN- NO MEDIAN 0
(34) SKEW 50 DEG (35) STRUCTURE FLARED NO
(10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR 7.5 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 = 21.6
STATUS STRUCTURALLY DEFICIENT
HEALTH INDEX 97.5
PAINT CONDITION INDEX = 100.0

********** 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- CITY OR MUNICIPAL HIGHWAY AGENCY 04
(22) OWNER- CITY OR MUNICIPAL HIGHWAY AGENCY 04
(37) HISTORICAL SIGNIFICANCE- NOT ELIGIBLE 5

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

(58) DECK 8
(59) SUPERSTRUCTURE 7
(60) SUBSTRUCTURE 7
(61) CHANNEL & CHANNEL PROTECTION 7
(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- 12.3
(65) INVENTORY RATING METHOD- FIELD EVAL/ENG JUD 0
(66) INVENTORY RATING- 7.5
(70) BRIDGE POSTING- > 39.9% BELOW 0
(41) STRUCTURE OPEN, POSTED OR CLOSED- B
DESCRIPTION- POSTING RECOMMENDED

********** APPRAISAL ********** CODE

(67) STRUCTURAL EVALUATION 2
(68) DECK GEOMETRY 4
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
(71) WATER ADEQUACY 4
(72) APPROACH ROADWAY ALIGNMENT 6
(36) TRAFFIC SAFETY FEATURES 0000
(113) SCOUR CRITICAL BRIDGES 5

********** PROPOSED IMPROVEMENTS **********

(75) TYPE OF WORK- REPLACE FOR DEFICIENC CODE 31
(76) LENGTH OF STRUCTURE IMPROVEMENT 92.4 M
(94) BRIDGE IMPROVEMENT COST $1,922,800
(95) ROADWAY IMPROVEMENT COST $384,560
(96) TOTAL PROJECT COST $3,230,304
(97) YEAR OF IMPROVEMENT COST ESTIMATE 2009
(114) FUTURE ADT 2667
(115) YEAR OF FUTURE ADT 2036

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

(90) INSPECTION DATE 04/15 (91) FREQUENCY 12 MO
(92) CRITICAL FEATURE INSPECTION: (93) CFI DATE
A) FRACTURE CRIT DETAIL- NO MO A)
B) UNDERWATER INSP- YES 60 MO B) 04/15
C) OTHER SPECIAL INSP- NO MO C)