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 : 10/12/2012

Inspection Type
Routine FC Underwater Special Other
X

Bridge Inspection Report

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

LOAD CAPACITY AND RATINGS

Design Live Load: UNKNOWN
Inventory Rating: RF=0.23 =>7.5 metric tons Calculation Method: LOAD FACTOR
Operating Rating: RF=0.38 =>12.3 metric tons Calculation Method: LOAD FACTOR
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
Rail Code: 0000 Rail Description: MBBR

DESCRIPTION UNDER STRUCTURE

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

INSPECTION COMMENTARY

REVISIONS
The load calculation method was revised from LRFR to LF

CONDITION OF STRUCTURE

There are 6 stringers that are splits on one side 3 of them in span #1 and 3 in span 15.

The follow up the report dated 2/10/2011 base of the report of AECOM Transportation on behave of County of Orange dated May 10, 2010 and the revised the report on January 13, 2011.

The underwater inspection by AECOM results are that piles at Bents 12 through 14 are in poor condition. The inspection indicates pile section loss greater than 50 percent is severe condition at; three locations at Bent 12, six locations at Bent 13, and six locations at Bent 14; also it indicates pile section loss between 25-50 percent is major condition at; six locations at Bent 12, four locations at Bent 13, and three locations at Bent 14. Other locations show significant pile degradation due to borer activity. See the report dated May 10, 2010 for more detailed.

The underwater inspection by OSMI Underwater Team see the report dated April 7, 2011 for more detailed.

INSPECTION COMMENTARY

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

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

MISCELLANEOUS
As a consequence of these revisions, the calculated Sufficiency Rating is 23.6 also the bridge is "Structurally Deficient".

ELEMENT INSPECTION RATINGS

Elem No.	Element Description	Env	Total Qty	Units	Qty in each Condition State St. 1	St. 2	St. 3	St. 4	St. 5
30	Steel Deck - Corrugated/Orthotropic/Etc.	3	693	sq.m.	693	0	0	0	0
111	Timber Open Girder/Beam	3	1570	m.	1540	30	0	0	
206	Timber Column or Pile Extension	4	161	ea.	111	20	15	15	
216	Timber Abutment	4	28	m.	28	0	0	0	0
235	Timber Cap	3	199	m.	199	0	0	0	
256	Slope Protection	3	1	ea.	1	0	0	0	0
337	Metal Railing (W6X25 Posts)	3	204	m.	0	204	0	0	0

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/RR.Morgan

11-1-12

Mikhael T. Zaarour (Registered Civil Engineer)

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 46.61 SEC
(17) LONGITUDE 118 DEG 04 MIN 12.58 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

****

SUFFICIENCY RATING = 21.6
STATUS STRUCTURALLY DEFICIENT
HEALTH INDEX 97.9
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- 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 6
(61) CHANNEL & CHANNEL PROTECTION 7
(62) CULVERTS N

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

(31) DESIGN LOAD- UNKNOWN 0
(63) OPERATING RATING METHOD- LOAD FACTOR 1
(64) OPERATING RATING- 12.3
(65) INVENTORY RATING METHOD- LOAD FACTOR 1
(66) INVENTORY RATING- 7.5
(70) BRIDGE POSTING- > 39.9% BELOW 0
(41) STRUCTURE OPEN, POSTED OR CLOSED- P
DESCRIPTION- POSTED FOR LOAD

********** 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 2606
(115) YEAR OF FUTURE ADT 2029

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

(90) INSPECTION DATE 10/12 (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) 04/11
C) OTHER SPECIAL INSP- NO MO C)