



DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0103
Facility Carried: HAMILTON-VICTORIA
Location : 0.15 MI E/O BROOKHURST S
City :
Inspection Date : 05/16/2012

Bridge Inspection Report

Inspection Type
Routine FC Underwater Special Other
☒ X

STRUCTURE NAME: SANTA ANA RIVER

CONSTRUCTION INFORMATION

Year Built : 1979 Skew (degrees): 16
Year Widened: 1992 No. of Joints : 3
Length (m) : 194 No. of Hinges : 1

Structure Description: Continuous 7 span CIP/RC box girder (9 cells) with RC piers and RC open end diaphragm abutments, all supported upon concrete piles.

Span Configuration : (W) 24.4 m, 3 @ 28.8 m, 24.8 m, 28.6 m, 28.2 m (E)

LOAD CAPACITY AND RATINGS

Design Live Load: MS-18+MOD OR HS-20+MOD

Inventory Rating: 32.4 metric tonnes

Calculation Method: NO RATING ANALYSIS

Operating Rating: 54.1 metric tonnes

Calculation Method: NO RATING ANALYSIS

Permit Rating : P P P P P

Posting Load : Type 3: Legal

Type 3S2: Legal

Type 3-3: Legal

DESCRIPTION ON STRUCTURE

Deck X-Section: (N) 0.3 m br, 1.5 m sw, 23.8 m, 1.5 m sw, 0.3 m br (S)

Total Width: 24.4 m

Net Width: 23.8 m

No. of Lanes: 4

Rail Description: (S) Type 11 in spans 1-5, (s) spans 6-7 and (N)
Type 26 conc.

Rail Code : 1000

Min. Vertical Clearance: Unimpaired

DESCRIPTION UNDER STRUCTURE

Channel Description: Santa Ana River: Sandy bottom with grouted rock slopes through the site.

Greenville-Banning: Sandy bottom with RC vertical walls.

INSPECTION COMMENTARY

CONDITION OF STRUCTURE

There is damaged section of the south railing metal tube (6 meters long) located 12 m from west end.

There is a spall (150 mm x 75 mm x 50 mm) with exposed rebar at the south curb 30 from west end.

There are small spalls at the inside face of the rails and 2 spalls 200 mm x 50 mm x 20 mm with exposed rebar under the electrical poles.

There are transverse cracks in the deck over the supports moderate in size (0.5-1 mm) and density (less than 300 mm), mostly in eastbound lanes of old structure.

There was 400 mm water in the channel at various locations; all elements were inspected.

ELEMENT INSPECTION RATINGS

| Elem No. | Element Description | Env | Total | | Qty in each Condition State | | | | |
|-------------|--|-----|-------|-------|-----------------------------|-------|-------|-------|-------|
| | | | Qty | Units | St. 1 | St. 2 | St. 3 | St. 4 | St. 5 |
| 12 | Concrete Deck - Bare | 2 | 4733 | sq.m. | 4733 | 0 | 0 | 0 | 0 |
| 105 | Reinforced Concrete Closed Webs/Box Girder | 2 | 390 | m. | 390 | 0 | 0 | 0 | 0 |
| 210 | Reinforced Conc Pier Wall | 2 | 180 | m. | 180 | 0 | 0 | 0 | 0 |
| 215 | Reinforced Conc Abutment | 2 | 60 | m. | 60 | 0 | 0 | 0 | 0 |
| 227 | Reinforced Conc Submerged Pile | 2 | 1 | ea. | 1 | 0 | 0 | 0 | 0 |
| 302 | Compression Joint Seal | 2 | 87 | m. | 87 | 0 | 0 | 0 | 0 |
| 331 | Reinforced Conc Bridge Railing | 2 | 200 | m. | 200 | 0 | 0 | 0 | 0 |
| 335 | Other Bridge Railing | 2 | 100 | m. | 94 | 6 | 0 | 0 | 0 |
| 358 | Deck Cracking | 2 | 1 | ea. | 0 | 0 | 1 | 0 | 0 |

WORK RECOMMENDATIONS

| | | |
|----------------------------|--------------------|--|
| RecDate: 05/16/2012 | EstCost: | Repair the small spalls at the inside |
| Action : Railing-Repair | StrTarget: 2 YEARS | face or the rails and 2 spalls 200 mm x |
| Work By: LOCAL AGENCY | DistTarget: | 50 mm x 20 mm with exposed rebar under |
| Status : PROPOSED | EA: | the electrical poles. |
| | | |
| RecDate: 05/05/2010 | EstCost: | Repair the spall (150 mm x 75 mm x 50 mm) |
| Action : Railing-Repair | StrTarget: 2 YEARS | with exposed rebar at the south curb 30 |
| Work By: LOCAL AGENCY | DistTarget: | from west end. |
| Status : PROPOSED | EA: | |
| | | |
| RecDate: 06/11/2007 | EstCost: | Seal the deck transverse cracks by |
| Action : Deck-Methacrylate | StrTarget: 2 YEARS | methacrylate in eastbound lanes of old |
| Work By: LOCAL AGENCY | DistTarget: | structure. Most crack are over the |
| Status : PROPOSED | EA: | supports and are moderate in size (0.5-1mm) and density (less than 300mm). |
| | | |
| RecDate: 01/30/2003 | EstCost: | Replace the damaged 6.1 m of damaged 152 |
| Action : Railing-Repair | StrTarget: 2 YEARS | mm structural tube railing in the |
| Work By: LOCAL AGENCY | DistTarget: | southerly railing, approximately 12.2 m |
| Status : PROPOSED | EA: | from its westerly terminus. Remove the fractured concrete at two of the anchor posts, and patch with epoxy bonded cement mortar. |

CHANNEL X-SECTION

| | | | |
|--|----------|---------|----------------------------|
| Side : Upstream | | | X-Section Date: 05/16/2012 |
| Measured From :top of N. conc. rail (H=0.7m) | | | |
| Location | Horiz(m) | Vert(m) | Comments |
| abut 1 | 0.00 | 2.56 | face of abut wall |
| | 0.05 | 3.03 | toe of conc. slope |
| | 9.30 | 3.18 | top of riprap |
| | 16.10 | 6.29 | toe of slope |
| | 16.70 | 6.36 | west edge of bike bath |
| | 20.85 | 6.50 | east edge of bike bath |
| | 21.75 | 6.90 | break piont |
| pier 2 | 0.00 | 7.26 | west face fo pier 2 |

CHANNEL X-SECTION


Side : Upstream

X-Section Date: 05/16/2012

Measured From : top of N. conc. rail (H=0.7m)

| Location | Horiz (m) | Vert (m) | Comments |
|----------|-----------|----------|------------------------------------|
| | 0.00 | 8.45 | east face fo pier 2/ in the water |
| | 2.00 | 9.00 | |
| | 8.00 | 8.85 | |
| | 17.05 | 9.15 | |
| pier 3 | 0.00 | 9.30 | west face fo pier 3 |
| | 0.00 | 8.73 | east face fo pier 3 |
| | 3.00 | 9.10 | edge of water |
| | 9.65 | 9.40 | |
| | 18.00 | 9.30 | edge of water |
| pier 4 | 0.00 | 9.30 | west face fo pier 4 |
| | 0.00 | 8.70 | east face fo pier 4 |
| | 9.90 | 9.20 | |
| | 20.00 | 9.20 | |
| pier 5 | 0.00 | 9.50 | west face fo pier 5 |
| | 0.00 | 9.15 | east face fo pier 5 |
| | 11.65 | 9.47 | edge of water |
| | 19.15 | 9.90 | |
| pier 6 | 0.00 | 9.80 | west face fo pier 6 |
| | 0.00 | 10.10 | east face fo pier 6 |
| | 4.05 | 10.20 | |
| | 7.20 | 9.50 | edge of water/ toe of slope |
| | 14.25 | 6.00 | top of slope / bike path |
| | 19.60 | 5.85 | bike path / toe of slope |
| | 24.95 | 4.00 | top of slope |
| | 32.55 | 4.26 | top of wall of rectangular channel |
| | 32.75 | 10.36 | |
| | 51.80 | 10.45 | |
| | 52.00 | 4.50 | top of wall of rectangular channel |
| | 52.10 | 5.93 | bike path |
| abut 8 | 0.00 | 5.92 | face of abut wall |

Inspected By : MT.Zaarour/A.Shenouda



Mikhael T. Zaarour (Registered Civil Engineer)


STRUCTURE INVENTORY AND APPRAISAL REPORT

***** IDENTIFICATION *****

(1) STATE NAME- CALIFORNIA 069
 (8) STRUCTURE NUMBER 55C0103
 (5) INVENTORY ROUTE (ON/UNDER)- ON 1400M0360
 (2) HIGHWAY AGENCY DISTRICT 12
 (3) COUNTY CODE 059 (4) PLACE CODE 00000
 (6) FEATURE INTERSECTED- SANTA ANA RIVER
 (7) FACILITY CARRIED- HAMILTON-VICTORIA
 (9) LOCATION- 0.15 MI E/O BROOKHURST ST
 (11) MILEPOINT/KILOMETERPOINT 0
 (12) BASE HIGHWAY NETWORK- NOT ON NET 0
 (13) LRS INVENTORY ROUTE & SUBROUTE
 (16) LATITUDE 33 DEG 39 MIN 02.35 SEC
 (17) LONGITUDE 117 DEG 57 MIN 05.81 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 7
 (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 1979
 (106) YEAR RECONSTRUCTED 1992
 (42) TYPE OF SERVICE: ON- HIGHWAY-PEDESTRIAN 5
 UNDER- WATERWAY 5
 (28) LANES:ON STRUCTURE 04 UNDER STRUCTURE 00
 (29) AVERAGE DAILY TRAFFIC 30000
 (30) YEAR OF ADT 2010 (109) TRUCK ADT 1 %
 (19) BYPASS, DETOUR LENGTH 5 KM

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

(48) LENGTH OF MAXIMUM SPAN 28.8 M
 (49) STRUCTURE LENGTH 194.0 M
 (50) CURB OR SIDEWALK: LEFT 1.5 M RIGHT 1.5 M
 (51) BRIDGE ROADWAY WIDTH CURB TO CURB 23.8 M
 (52) DECK WIDTH OUT TO OUT 24.4 M
 (32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 20.4 M
 (33) BRIDGE MEDIAN- NO MEDIAN 0
 (34) SKEW 16 DEG (35) STRUCTURE FLARED NO
 (10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
 (47) INVENTORY ROUTE TOTAL HORIZ CLEAR 23.8 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 *****

SUFFICIENCY RATING = 89.9
 STATUS
 HEALTH INDEX 100.0
 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 5
 (59) SUPERSTRUCTURE 7
 (60) SUBSTRUCTURE 7
 (61) CHANNEL & CHANNEL PROTECTION 9
 (62) CULVERTS N

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

(31) DESIGN LOAD- MS-18+MOD OR HS-20+MOD 6
 (63) OPERATING RATING METHOD- NO RATING ANALYSIS 5
 (64) OPERATING RATING- 54.1
 (65) INVENTORY RATING METHOD- NO RATING ANALYSIS 5
 (66) INVENTORY RATING- 32.4
 (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 7
 (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 49459
 (115) YEAR OF FUTURE ADT 2029

***** INSPECTIONS *****

(90) INSPECTION DATE 05/12 (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)