STATE OF CALIFORNIA - CALIFORNIA STATE TRANSPORTATION AGENCY
EDMUND G. BROWN JR., Governor

DEPARTMENT OF TRANSPORTATION
DIVISION OF MAINTENANCE
STRUCTURE MAINTENANCE & INVESTIGATIONS
100 South Main Street, 3rd Floor
LOS ANGELES, CA 90012
PHONE (213) 897-2004
FAX (213) 897-2033

Making Conservation a California Way of Life.

August 8, 2018

Mr. Shane Silsby
Director of Public Works
County of Orange
P O Box 4048
Santa Ana, CA 92702-4048

Dear Mr. Silsby:

In accordance with Title 23 of the Code of Federal Regulations (Federal Highway Act) and the National Bridge Inspection Standards (NBIS), Caltrans Structure Maintenance and Investigations performed an inspection of 4 bridges under your jurisdiction. The type of inspection is indicated on the bridge report transmittal sheet. The bridges have been rated to indicate their deficiencies, structural adequacy, safe load carrying capacity and overall general condition.

Enclosed are copies of the Bridge Inspection Reports for the structures noted on the attached transmittal sheet. These reports contain descriptions of physical changes to the structures since the last inspection, recommendations for work to be done, and additional information not recorded in the previous Bridge Reports.

Your attention is directed to the requirements of Title 23, Part 650 of the Code of Federal Regulations, where newly completed structures or any modification of existing structures shall be entered in the inventory within 90 days. Please notify this office of any newly constructed bridge or culvert within your jurisdiction, more than 20 feet measured along the center of the roadway and carrying public vehicular traffic or over a public roadway, in order that it may be entered in the inventory of bridge structures in compliance with Federal requirements.

Should you have any questions regarding the enclosed Bridge Inspection Reports, please contact Bing Wu @ (213) 897-0874.

Sincerely,

CHING CHAO
Office Chief
Structure Maintenance & Investigations - (Investigations-South)

Enclosures

DEPARTMENT OF TRANSPORTATION
DIVISION OF MAINTENANCE
STRUCTURE MAINTENANCE & INVESTIGATIONS
100 South Main Street, 3rd Floor
LOS ANGELES, CA 90012
PHONE (213) 897-2004
FAX (213) 897-2033

Making Conservation a California Way of Life.

Bridge Report Transmittal Sheet

Batch 45552

County of Orange

Bridge #	Bridge Name	Location	Inspection Date	Inspection Type	Outstanding Work	Outstanding Cost
55C0097	SANTA ANA RIVER CHANNEL (TALBERT/MACARTHUR)	0.6 MI W/O HARBOR BLVD.	01/17/2018	Routine	Y	$
55C0103	SANTA ANA RIVER (HAMILTON AVE)	0.15 MI E/O BROOKHURST ST	01/12/2018	Routine	Y	$
55C0283	SUNSET CHANNEL	100' NE/O PACIFIC CST HWY	01/12/2018	Routine	Y	$
55C0344	SANTA ANA RIVER (ADAMS AVE)	0.5 MI E/O BROOKHURST ST	01/17/2018	Routine	N	$

4 Bridge(s) in this Transmittal

STATE OF CALIFORNIA - CALIFORNIA STATE TRANSPORTATION AGENCY
EDMUND G. BROWN JR., Governor

DEPARTMENT OF TRANSPORTATION
DIVISION OF MAINTENANCE
STRUCTURE MAINTENANCE & INVESTIGATIONS
100 South Main Street, 3rd Floor
LOS ANGELES, CA 90012
PHONE (213) 897-2004
FAX (213) 897-2033

Making Conservation a California Way of Life.

WEB SITES:

The National Bridge Inspection Standards (NBIS) Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges, Element Level Inspection, Structure Maintenance and Investigations Manuals, Local Assistance Program Guidelines and other related information are posted on Division of Maintenance, Structure Maintenance and Investigations; Division of Local Assistance, Local Highway Bridge Program (HBP) and FHWA websites.
The websites can be accessed at:

1. "Caltrans Structure Maintenance and Investigations" http://www.dot.ca.gov/hq/structur/strmaint/
2. "Caltrans Division of Local Assistance"
http/www.dot.ca.gov/hq/LocalPrograms/hbrr99/hbrr99a.htm
3. "FHWA" http/www.fhwa.dot.gov/BRIDGE/mtguide.pdf

Inspection Type Definitions

Routine Inspection:
Routine Inspections consist of both the initial Inventory Inspection (the first inspection of the bridge that places it in the bridge inventory or when there has been a change in the configuration of the structure) and subsequent regularly scheduled inspections. The initial inspection provides all the Structural Inventory & Appraisal (SI&A) data required by federal and state regulations, determines the baseline structural conditions, lists any existing problems, and establishes the load capacity of the structure. Subsequent inspections consist of observations, measurements needed to determine the physical and functional condition of the bridge, to identify any changes from the previously recorded conditions, and verification of its load capacity. These inspections are generally conducted from the deck, ground and/or water level, and from permanent work platforms and walkways, if present. Inspection of underwater portions of the substructure is limited to observations during low-flow periods and/or probing for signs of undermining. Special equipment should be utilized in circumstances where its use provides the only practical access to areas of the structure.

Fracture Critical, Special Feature & Underwater Inspections:
Fracture Critical, Special Feature, and Underwater Inspections are up close, hands-on inspections of one or more members above or below the water level to identify any deficiencies not readily detectable using Routine Inspection procedures. These inspections generally require special equipment such as under-bridge inspection equipment, manlifts, boats, traffic control, and railroad flagging. Personnel with special skills such as divers or structural steel inspectors trained in non-destructive testing techniques may be required.

Other Inspections:
Other Inspections are conducted on damaged structures, structures that have developed specific problems, or structures suspected of developing problems. The scope of these investigations should be sufficient to determine the need for emergency load restrictions or closure of the structure, monitor a changing condition, and to assess the level of effort necessary to effect a repair.

DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0103
Facility Carried: HAMILTON-VICTORIA
Location : 0.15 MI E/O BROOKHURST S
City :
Inspection Date : 01/12/2018

Bridge Inspection Report

Inspection Type

Routine	FC	Underwater	Special	Other
X				

STRUCTURE NAME: SANTA ANA RIVER (HAMILTON AVE)

CONSTRUCTION INFORMATION

Year Built : 1979
Year Modified: 1992
Length (m) : 194

Skew (degrees): 16
No. of Joints : 3
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) 81.0 ft, 3 @ 94.0 ft, 81.0 ft, 94.0 ft, 92.5 ft (E)

SAFE LOAD CAPACITY AND RATINGS

Design Live Load: MS-18+MOD OR HS-20+MOD
Inventory Rating: RF=1.00 =>32.4 metric tons Calculation Method: ASSIGNED (LFD)
Operating Rating: RF=1.67 =>54.1 metric tons Calculation Method: ASSIGNED (LFD)
Permit Rating : PPPPP
Posting Load : Type 3: Legal Type 3S2: Legal Type 3-3: Legal

DESCRIPTION ON STRUCTURE

Deck X-Section: (N) 1.0 ft br, 5.0 ft sw, 78.0 ft, 5.0 ft sw, 1.0 ft br (S)

Total Width: 27.4 m Net Width: 23.8 m No. of Lanes: 4 Speed: 45 mph
Min. Vertical Clearance: Unimpaired Overlay Thickness: 0.0 inches
Rail Code: 1000

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.

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

A complete routine inspection of all visible bridge elements was performed by walking on, around and under the structure. The bridge deck and underside of the structure was evaluated visually and by using binoculars.

INSPECTION COMMENTARY

DECK AND ROADWAY

The joint seals are lost adhesion and dirt were filled in between the rubber and the concrete.

The southerly bridge railing nuts are missing at the following locations.

Span #4, second post from the existing electrollier at station 16+90.38.
Span #4, fourth post from the existing electrollier at station 16+90.38.
Span #5, third post from the existing electrollier at station 18+20.38.

There is a 3 inches H X 8 inches L X 1 inch D spall at the southerly bridge rail, under the electrolier in span #4. Furthermore, there is a a 3 inches H X 8 inches L X 1 inch D spall with rebar exposed at the southerly bridge rail, approximately 4 ft from the hinge in span #6.

SUPERSTRUCTURE

The superstructure is in satisfactory condition.

SUBSTRUCTURE

The substructure is in satisfactory condition.

SAFE LOAD CAPACITY

A Load Rating Summary Sheet dated 05/10/2010 is on file for this structure. The load rating for this structure is being reviewed by SM&I Ratings Branch. An updated Load Rating Summary Sheet will be archived when this review is completed.

WATERWAY

There are no issues with the waterway.

ELEMENT INSPECTION RATINGS AND COMMENTARY

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	5335	sq.m	5335	0	0	0
	521		**Concrete Coat.(Meth/Paint/Seal)**	2	2450	sq.m	2450	0	0	0
(16)										
There were no significant defects noted.										
(16-521)										
There were no significant defects noted.										
105			**Box Girder-RC**	2	390	m	390	0	0	0
(105)										
There were no significant defects noted.										
210			**Pier Wall-RC**	2	180	m	180	0	0	0
(210)										
There were no significant defects noted.										
215			**Abutment-RC**	2	60	m	60	0	0	0

ELEMENT INSPECTION RATINGS AND COMMENTARY

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)										
There were no significant defects noted.										
227			**Pile-RC**	2	1	ea.	1	0	0	0
(227)										
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.										
302			**Joint-Compression Seal**	2	87	m	27	60	0	0
	2320		**Seal Adhesion (Joints)**	2	60		0	60	0	0
(302-2320)										
The joint seals are lost adhesion and dirt were filled in between the rubber and the concrete.										
331			**Railing-RC**	2	252	m	252	0	0	0
(331)										
There were no significant defects noted.										
333			**Railing-Other**	2	136	m	134	0	2	0
	1020		**Connection**	2	1		0	0	1	0
	1080		**Delamination/Spall/Patched Area**	2	1		0	0	1	0
(333)										
There were no significant defects noted.										
(333-1020)										
The southerly bridge railing nuts are missing at the following locations" Span #4, second post from the existing electrollier at station 16+90.38. Span #4, fourth post from the existing electrollier at station 16+90.38. Span #5, third post from the existing electrollier at station 18+20.38.										
(333-1080)										
There is a 3 inches H X 8 inches L X 1 inch D spall at the southerly bridge rail, under the electrolier in span #4. Furthermore, there is a a 3 inches H X 8 inches L X 1 inch D spall with rebar exposed at the southerly bridge rail, approximately 4 ft from the hinge in span #6.										

WORK RECOMMENDATIONS

RecDate: 01/12/2018
Action : Railing-Repair
Work By: LOCAL AGENCY
Status : PROPOSED

EstCost:
StrTarget: 2 YEARS
DistTarget:
EA:

Repair all spalls and install all missing nuts along both rails.

Span #4, second post from the existing electrollier at station 16+90.38.
Span #4, fourth post from the existing electrollier at station 16+90.38.
Span #5, third post from the existing electrollier at station 18+20.38.

There is a 3 inches H X 8 inches L X 1 inch D spall at the southerly bridge rail, under the electrolier in span #4.

WORK RECOMMENDATIONS

Furthermore, there is a a 3 inches H X 8 inches L X 1 inch D spall with rebar exposed at the southerly bridge rail, approximately 4 ft from the hinge in span #6.

CHANNEL X-SECTION

Side : Upstream
Measured From : Soffit

X-Section Date: 01/12/2018

Location	Horiz(m)	Vert(m)	Comments
Abutment 1	0.00	0.54	face of abutment
	8.66	1.95	Toe of Slope
	17.45	3.87	Toe of Slope
	21.58	3.95	edge of pavement
Pier 2	24.77	4.71	
	35.75	6.68	
	42.05	6.52	
Pier 3	53.57	6.87	
	62.43	6.79	
	68.50	6.85	
Pier 4	82.37	7.23	
	91.22	6.89	
	104.99	6.78	
Pier 5	111.18	6.81	

Team Leader : Matthew M. Monajemi

Report Author : Matthew M. Monajemi

Inspected By : MM.Monajemi/Y.Chen

8-1-18

Matthew M. Monajemi (Registered Civil Engineer) (Date)

STRUCTURE INVENTORY AND APPRAISAL REPORT

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

(1) STATE NAME- CALIFORNIA 069
(8) STRUCTURE NUMBER **55C0103**
(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
(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 01.76 SEC
(17) LONGITUDE 117 DEG 57 MIN 08.31 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 2 %
(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 27.4 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 24.0 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 = 91.0
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 - PART OF NET 1
(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 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- ASSIGNED (LFD) A
(64) OPERATING RATING- 54.1
(65) INVENTORY RATING METHOD- ASSIGNED (LFD) A
(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 50289
(115) YEAR OF FUTURE ADT 2036

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

(90) INSPECTION DATE 01/18 (91) FREQUENCY 48 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)