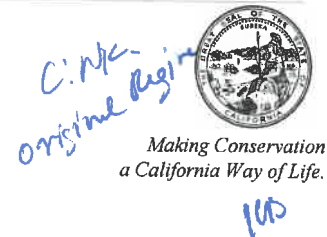


DEPARTMENT OF TRANSPORTATION

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



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MAR 18 2020

OC PUBLIC WORKS
DIRECTOR'S OFFICE

February 27, 2020

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 3 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,

A handwritten signature in blue ink, which appears to read "Ching Chao", is written over a light blue circular stamp.

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

Enclosures

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Bridge Report Transmittal Sheet**Batch** **57583****County of Orange**

Bridge #	Bridge Name	Location	Inspection		Outstanding	
			Date	Type	Work	Cost
55C0097	SANTA ANA RIVER CHANNEL (TALBERT/MACARTHUR)	0.6 MI W/O HARBOR BLVD.	01/15/2020	Routine	Y	\$
55C0283	SUNSET CHANNEL	100' NE/O PACIFIC CST HWY	01/15/2020	Routine	Y	\$
55C0344	SANTA ANA RIVER (ADAMS AVE)	0.5 MI E/O BROOKHURST ST	01/15/2020	Routine	N	\$

3 Bridge(s) in this Transmittal

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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.



Bridge Number : 55C0097
Facility Carried: TALBERT/MACARTHUR
Location : 0.6 MI W/O HARBOR BLVD.
City :
Inspection Date : 01/15/2020

Bridge Inspection Report

Inspection Type

Routine	FC	Underwater	Special	Other
☒	☐	☐	☐	☐

STRUCTURE NAME: SANTA ANA RIVER CHANNEL (TALBERT/MACARTHUR)

CONSTRUCTION INFORMATION

Year Built : 1983	Skew (degrees): 30
Year Modified: N/A	No. of Joints : 2
Length (m) : 110	No. of Hinges : 0

Structure Description: Continuous 4 span CIP/RC box girder (8 cells) with RC pier walls and RC open end seat abutments, all supported upon concrete piles.

Span Configuration : (W) 80.0 ft, 2 @ 98.0 ft, 80.0 ft (E)

SAFE LOAD CAPACITY AND RATINGS

Design Live Load: MS-18 OR HS-20	
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: <u>Legal</u>	Type 3S2: <u>Legal</u> Type 3-3: <u>Legal</u>

DESCRIPTION ON STRUCTURE

Deck X-Section: (S) 1.0 ft br, 5.0 ft sw, 68.2 ft, 5.0 ft sw, 1.0 ft br (N)
Total Width: 24.4 m Net Width: 20.7 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: RC trapezoidal.

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 in accordance with SM&I policy and procedures by walking along both sidewalks and by walking under the structure and using binoculars as needed.

DECK AND ROADWAY

There is a 12 inches L X 8 inches W X 4 inches D triangular spall with rebar exposed in the curb at the southwest corner. Also there are numerous 2 inches L X 2 inches W X 0.5 inch D spalls along inside face of both concrete rails.

INSPECTION COMMENTARY

There is a 3 inches L X 6 inches W X 1 inch D edge spall at the southerly deck overhang in span #4.

There are pattern cracks less than 0.05 inches wide along both sidewalks.

SUPERSTRUCTURE

The superstructure is in satisfactory condition.

SUBSTRUCTURE

There is a 12 inches H X 12 inches W X 1 inch D wingwall spall at the southeasterly corner.

There is a 12 inches H X 12 inches W X 1 inch D spall on bottom noise, upstream side (north) of pierwall #4.

SAFE LOAD CAPACITY

A Load Rating Summary Sheet dated 01/10/2017 is on file for this structure. While this report does not include a check of that analysis, it does verify that the structural conditions observed during this inspection are consistent with those assumed in that analysis. "Assigned by Design - LFD" method in accordance with SM&I procedures and the Sept 29, 2011 FHWA memorandum for bridges was used to load rate this bridge. The condition ratings (NBI Items 58, 59, 60) noted in the BIR dated 10/24/14 and as built plans filed in BIRIS through 1982 were utilized. California P.E. signed as-built plans dated 1982 indicate that the bridge was designed for HS20 and Permit (P13) vehicles using LFD Method.

The load rating is based on the existing bridge geometry and roadway configuration. Any modifications performed to the structure (such as bridge rail modification, new deck overlay or widening) after 1982 may require a new load rating.

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	2682	sq.m	2681	1	0	0
	1080		Delamination/Spall/Patched Area	2	1		0	1	0	0
	521		Concrete Coat. (Meth/Paint/Seal)	2	2280	sq.m	2280	0	0	0
(16-1080)										
There is a 3 inches L X 6 inches W X 1 inch D edge spall at the southerly deck overhang in span #4.										
(16-521)										
Bridge deck has been treated with Methacrylate resin.										
105			Box Girder-RC	2	110	m	110	0	0	0
(105)										
There were no significant defects noted.										
210			Pier Wall-RC	2	84	m	83	1	0	0
	1080		Delamination/Spall/Patched Area	2	1		0	1	0	0
(210)										
There were no significant defects noted.										

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Element Description	Env	Total Qty	Units	Qty in each Condition State			
						St. 1	St. 2	St. 3	St. 4
(210-1080)									
There is a 12 inches H X 12 inches W X 1 inch D spall on bottom noise,upstream side (north) of pierwall #4.									
215		Abutment-RC	2	56	m	55	1	0	0
1080		Delamination/Spall/Patched Area	2	1		0	1	0	0
(215)									
There were no significant defects noted.									
(215-1080)									
There is a 12 inches H X 12 inches W X 1 inch D wingwall spall at the southeasterly corner.									
227		Pile-RC	2	1	ea.	1	0	0	0
(227)									
There were no significant defects noted.									
256		Slope Protection	2	2	ea.	2	0	0	0
(256)									
There were no significant defects noted.									
302		Joint-Compression Seal	2	48	m	32	16	0	0
2350		Debris Impaction (Joints)	2	16		0	16	0	0
(302-2350)									
The joint seal gaps were partially filled with dirt and debris.									
312		Bearing-Enclosed	2	2	each	2	0	0	0
(312)									
There were no significant defects noted.									
331		Railing-RC	2	220	m	189	30	1	0
1080		Delamination/Spall/Patched Area	2	31		0	30	1	0
(331-1080)									
There is a 12 inches L X 8 inches W X 4 inches D triangular spall with rebar exposed in the curb at the southwest corner. Also there are numerous 2 inches L X 2 inches W X 0.5 inch D spalls along inside face of both concrete rails.									

WORK RECOMMENDATIONS

RecDate: 01/17/2018

Action : Deck-Patch spalls

Work By: LOCAL AGENCY

Status : PROPOSED

EstCost:

StrTarget: 2 YEARS

DistTarget:

EA:

Chip and remove all unsound concrete .
Patch with epoxy bonded cement mortar.
Cure with non-pigmented curing compound.

There is a 3 inches L X 6 inches W X 1
inch D edge spall at the southerly deck
overhang in span #4.

WORK RECOMMENDATIONS

RecDate: 01/17/2018	EstCost:	Chip and remove all unsound concrete.
Action : Railing-Repair	StrTarget: 2 YEARS	Patch with epoxy bonded cement mortar.
Work By: LOCAL AGENCY	DistTarget:	Cure with nonpigmented curing compound.
Status : PROPOSED	EA:	

There is a 12 inches L X 8 inches W X 4 inches D triangular spall with rebar exposed in the curb at the southwest corner. Also there are numerous 2 inches L X 2 inches W X 0.5 inch D spalls along inside face of both concrete rails.

RecDate: 01/17/2018	EstCost:	Chip and remove all unsound concrete.
Action : Sub-Patch spalls	StrTarget: 2 YEARS	Patch with epoxy bonded cement mortar.
Work By: LOCAL AGENCY	DistTarget:	Cure with nonpigmented curing compound.
Status : PROPOSED	EA:	

There is a 12 inches H X 12 inches W X 1 inch D wingwall spall at the southeasterly corner.

There is a 12 inches H X 12 inches W X 1 inch D spall on bottom noise,upstream side (north) of pierwall #4.

Team Leader : Matthew M. Monajemi

Report Author : Matthew M. Monajemi

Inspected By : MM.Monajemi/J.Zhu

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



STRUCTURE INVENTORY AND APPRAISAL REPORT

***** IDENTIFICATION *****

(1) STATE NAME- CALIFORNIA 069
 (8) STRUCTURE NUMBER 55C0097
 (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 CHANNEL
 (7) FACILITY CARRIED- TALBERT/MACARTHUR
 (9) LOCATION- 0.6 MI W/O HARBOR BLVD.
 (11) MILEPOINT/KILOMETERPOINT 0
 (12) BASE HIGHWAY NETWORK- PART OF NET 1
 (13) LRS INVENTORY ROUTE & SUBROUTE 000000000000
 (16) LATITUDE 33 DEG 42 MIN 06.52 SEC
 (17) LONGITUDE 117 DEG 55 MIN 50.92 SEC
 (98) BORDER BRIDGE STATE CODE % SHARE %
 (99) BORDER BRIDGE STRUCTURE NUMBER

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

(43) STRUCTURE TYPE MAIN:MATERIAL- CONCRETE CONT
 TYPE- BOX BEAM OR GIRDER - MULTI CODE 205
 (44) STRUCTURE TYPE APPR:MATERIAL- OTHER/NA
 TYPE- OTHER/NA CODE 000
 (45) NUMBER OF SPANS IN MAIN UNIT 4
 (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 1983
 (106) YEAR RECONSTRUCTED 0000
 (42) TYPE OF SERVICE: ON- HIGHWAY-PEDESTRIAN 5
 UNDER- WATERWAY 5
 (28) LANES:ON STRUCTURE 04 UNDER STRUCTURE 00
 (29) AVERAGE DAILY TRAFFIC 26000
 (30) YEAR OF ADT 2018 (109) TRUCK ADT 1 %
 (19) BYPASS, DETOUR LENGTH 2 KM

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

(48) LENGTH OF MAXIMUM SPAN 29.9 M
 (49) STRUCTURE LENGTH 110.0 M
 (50) CURB OR SIDEWALK: LEFT 1.5 M RIGHT 1.5 M
 (51) BRIDGE ROADWAY WIDTH CURB TO CURB 20.7 M
 (52) DECK WIDTH OUT TO OUT 24.4 M
 (32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 20.7 M
 (33) BRIDGE MEDIAN- NO MEDIAN 0
 (34) SKEW 30 DEG (35) STRUCTURE FLARED NO
 (10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
 (47) INVENTORY ROUTE TOTAL HORIZ CLEAR 20.7 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 = 95.6

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- 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 OR HS-20 5
 (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 54119
 (115) YEAR OF FUTURE ADT 2039

***** INSPECTIONS *****

(90) INSPECTION DATE 01/20 (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)

SANTA ANA RIVER CHANNEL (TALBERT/MACARTHUR)

0.6 MI W/O HARBOR BLVD.

01/17/2018 [AAAI]

55C0097

100 - PHOTO> Routine-Roadway View



Photo No. 1

Deckview Looking East

101 - PHOTO> Routine-Elevation View



Photo No. 2

Sideview Looking South

SANTA ANA RIVER CHANNEL (TALBERT/MACARTHUR)

0.6 MI W/O HARBOR BLVD.

01/17/2018 [AAAI]

55C0097

135 - PHOTO> Routine-Underside View



Photo No. 3
Underside View