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.

January 2, 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 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 Gedion Werrede @ (213) 897-2018.

Sincerely,

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

Enclosures

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Bridge Report Transmittal Sheet

Batch 39621

County of Orange

Bridge #	Bridge Name	Location	Inspection Date	Inspection Type	Outstanding Work	Outstanding Cost
55C0148	SANTA ANA RIVER CHANNEL (WARNER AVE)	0.1 MI W/O HARBOR BLVD	06/28/2017	Routine	Y	$
55C0371	SANTA ANA RIVER CHANNEL (SEGERSTROM-SLATER)	0.3 MI. W/O HARBOR BLVD.	06/28/2017	Routine	Y	$
55C0631	SANTA ANA RIVER CHANNEL (HARBOR BLVD)	0.2 MI N/O WARNER AVENUE	06/28/2017	Routine	Y	$

3 Bridge(s) in this Transmittal

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

DEPARTMENT OF TRANSPORTATION

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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 : 55C0148
Facility Carried: WARNER AVENUE
Location : 0.1 MI W/O HARBOR BLVD
City :
Inspection Date : 06/28/2017

Bridge Inspection Report

Inspection Type

Routine	FC	Underwater	Special	Other
X				

STRUCTURE NAME: SANTA ANA RIVER CHANNEL (WARNER AVE)

CONSTRUCTION INFORMATION

Year Built : 1961
Year Modified: 1969
Length (m) : 77.4

Skew (degrees): 9
No. of Joints : 2
No. of Hinges : 2

Structure Description: Continuous six span CIP/RC T-beam (9 each) and widened is PC/PS 3 girders at North; and PC/PS 2 girders South with stay in place steel forms with RC pier walls and RC open end diaphragm abutments, all supported upon concrete piles.

Span Configuration : (W) 34.50 ft, 2 @ 46.00 ft, 46.20 ft, 34.50 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: Legal Type 3S2: Legal Type 3-3: Legal

DESCRIPTION ON STRUCTURE

Deck X-Section: (S) 1.00 ft br, 5.00 ft sw, 44.00 ft, 8.00 ft cu.med, 40.00 ft, 5.00 ft sw, 1.00 ft br (N).

Total Width: 31.6 m Net Width: 24.5 m No. of Lanes: 6 Speed: 45 mph
Min. Vertical Clearance: Unimpaired Overlay Thickness: 0.7 inches

Rail Code: 1111

Rail Type	Location	Length (ft)	Rail Modifications
Type 26	Right/Left	525	

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

This inspection was performed by walking on the sidewalks, on the abutment slopes and under all spans of the superstructure. The water in the channel was 3 inches through span 3 during the time of inspection. A full inspection is performed for all substructure elements.

INSPECTION COMMENTARY

REVISIONS

The slope protection (element 256) is deleted from element table, because the channel lining in continuous at the channel and under the bridge.

NBI #108A was modified from 1 (Concrete) to 2 (Integrated Concrete) because of the bridge deck is protected with polyester concrete.

DECK AND ROADWAY

The roadway at the east side roadway of eastbound lanes has a pothole 1.5 feet X 1 foot X 3 inches at the south shoulder. (see the attached photos no. 1 to 3)

SUBSTRUCTURE

There is soot at the concrete girders at the west span, using the binocular there is no visible damaged noted.

SAFE LOAD CAPACITY

A load Rating Summary sheet is archived on 11/13/2014 with this bridge inspection report. This load rating was assigned in accordance with current SM&I procedures.

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
12			**Deck-RC**	2	688	sq.m	587	101	0	0
	1080		**Delamination/Spall/Patched Area**	2	1		0	1	0	0
	1130		**Cracking (RC and Other)**	2	100		0	100	0	0

(12-1080)
The polyester concrete exhibits two unsound concrete areas 4 feet X 3 inches at eastbound lane 2 (east end).

(12-1130)
The concrete deck exhibits several cracks with 5-10 feet long, 1.00 foot spacing and up to 0.05 inches wide at westbound lane 3 and south shoulder. (see the attached photos no. 6 & 7)

16			**Top Flange-RC**	2	1757	sq.m	1657	100	0	0
	1120		**Efflorescence/Rust Staining**	2	100		0	100	0	0
	511		**Deck Wearing Surface-Concrete**	2	1571	sq.m	1567	4	0	0
		3211	**Delam./Spall/Patch-Concrete (WS)**	2	2		0	2	0	0
		3221	**Cracking-Concrete (WS)**	2	2		0	2	0	0

(16)
There were no significant defects noted.

(16-1120)
The soffit of the original portion exhibits transverse cracks with white efflorescence at few bays in all spans.

(16-511)

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
The polyester concrete is placed on top of the original deck only. There were no significant defects noted.										
(16-511-3211) There are few spalls 12 inches X 3 inches X 0.75 inches at the polyester concrete at hinges 2 and 5 at eastbound lanes.										
(16-511-3221) There are few transverse cracks at eastbound lane 3 at east span.										
109			**Girder/Beam-PS Conc.**	2	387	m	387	0	0	0
(109) There were no significant defects noted.										
110			**Girder/Beam-RC**	2	697	m	687	10	0	0
	1130		**Cracking (RC and Other)**	2	10		0	10	0	0
(110) There were no significant defects noted.										
(110-1130) The concrete girders at the (original portion) have vertical cracks, next to the the supports.										
182			**EQ Restrainer Cable-Other**	2	18	ea.	18	0	0	0
(182) There were no significant defects noted.										
210			**Pier Wall-RC**	2	155	m	155	0	0	0
(210) There were no significant defects noted.										
215			**Abutment-RC**	2	64	m	64	0	0	0
(215) There were no significant defects noted.										
227			**Pile-RC**	2	1	ea.	1	0	0	0
(227) There were no significant defects noted.										
302			**Joint-Compression Seal**	2	56	m	56	0	0	0
(302) There were no significant defects noted.										
312			**Bearing-Enclosed**	2	7	each	7	0	0	0
(312) There were no significant defects noted.										
331			**Railing-RC**	2	155	m	152	3	0	0
	1130		**Cracking (RC and Other)**	2	3		0	3	0	0
(331-1130) The concrete rails exhibits several vertical cracks, up to 0.05 inches wide.										

WORK RECOMMENDATIONS

WORK RECOMMENDATIONS

RecDate: 10/24/2014	EstCost:		Repair the hole (18 inches x 8 inches x 12 inches) in the AC westbound departure (west) lane #1.
Action : Appr. Roadway-Repair	StrTarget:	2 YEARS	
Work By: LOCAL AGENCY	DistTarget:		
Status : PROPOSED	EA:		

Team Leader : Ashraf Shenouda

Report Author : Ashraf Shenouda

Inspected By : A.Shenouda/KD.Henderson

12/26/17

Ashraf Shenouda (Registered Civil Engineer) (Date)

STRUCTURE INVENTORY AND APPRAISAL REPORT

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

(1) STATE NAME- CALIFORNIA 069
(8) STRUCTURE NUMBER **55C0148**
(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- WARNER AVENUE
(9) LOCATION- 0.1 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 51.76 SEC
(17) LONGITUDE 117 DEG 55 MIN 17.07 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 6
(46) NUMBER OF APPROACH SPANS 0
(107) DECK STRUCTURE TYPE- CIP CONCRETE CODE 1
(108) WEARING SURFACE / PROTECTIVE SYSTEM:
A) TYPE OF WEARING SURFACE- INTEGRAL CONC. CODE 2
B) TYPE OF MEMBRANE- NONE CODE 0
C) TYPE OF DECK PROTECTION- NONE CODE 0

********** AGE AND SERVICE **********

(27) YEAR BUILT 1961
(106) YEAR RECONSTRUCTED 1969
(42) TYPE OF SERVICE: ON- HIGHWAY 1
UNDER- WATERWAY 5
(28) LANES:ON STRUCTURE 06 UNDER STRUCTURE 00
(29) AVERAGE DAILY TRAFFIC 25000
(30) YEAR OF ADT 2008 (109) TRUCK ADT 1 %
(19) BYPASS, DETOUR LENGTH 2 KM

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

(48) LENGTH OF MAXIMUM SPAN 14.0 M
(49) STRUCTURE LENGTH 77.4 M
(50) CURB OR SIDEWALK: LEFT 0.0 M RIGHT 1.5 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 24.5 M
(52) DECK WIDTH OUT TO OUT 31.6 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 25.7 M
(33) BRIDGE MEDIAN- CLOSED NON-MOUNTABLE 3
(34) SKEW 9 DEG (35) STRUCTURE FLARED NO
(10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR 13.4 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 = 91.5
STATUS
HEALTH INDEX 98.4
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 8
(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 5
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
(71) WATER ADEQUACY 8
(72) APPROACH ROADWAY ALIGNMENT 7
(36) TRAFFIC SAFETY FEATURES 1111
(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 58671
(115) YEAR OF FUTURE ADT 2036

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

(90) INSPECTION DATE 06/17 (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 (WARNER AVE)

0.1 MI W/O HARBOR BLVD 06/28/2017 [AAAH] 55C0148

105 - PHOTO-Deck-Misc.

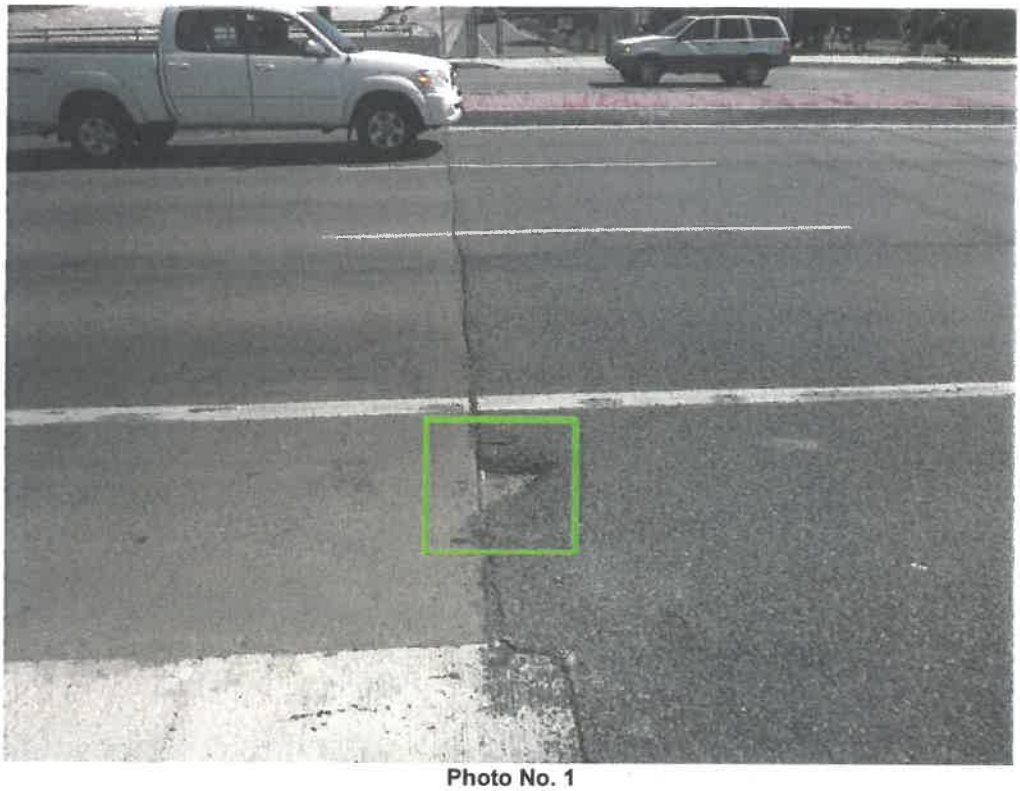

Photo No. 1

AC roadway at the outh shoulder EB llanes has a pothole 1.5 ft X 1 ft X 3 inches.

105 - PHOTO-Deck-Misc.

Photo No. 2

AC roadway at the outh shoulder EB llanes has a pothole 1.5 ft X 1 ft X 3 inches.

SANTA ANA RIVER CHANNEL (WARNER AVE)

0.1 MI W/O HARBOR BLVD 06/28/2017 [AAAH] 55C0148

105 - PHOTO-Deck-Misc.

Photo No. 3

AC roadway at the outh shoulder EB llanes has a pothole 1.5 ft X 1 ft X 3 inches.

124 - PHOTO-Joint-Damage/Deterioration

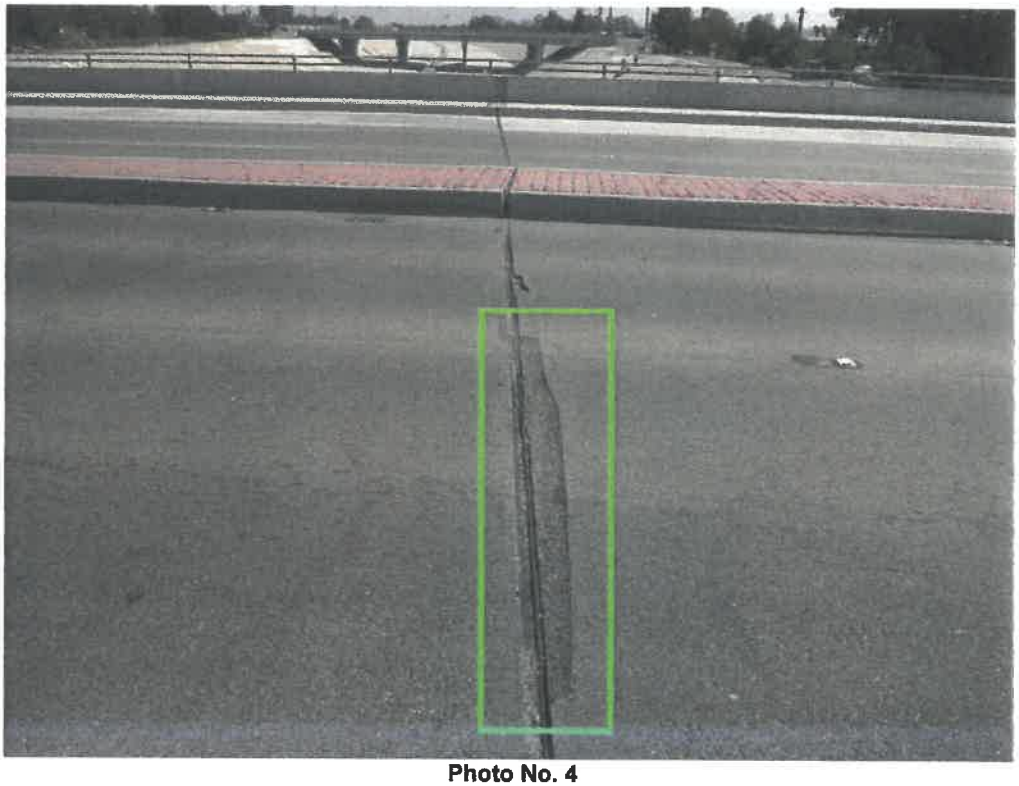

Photo No. 4

Polyester spall at joint 5.

SANTA ANA RIVER CHANNEL (WARNER AVE)

0.1 MI W/O HARBOR BLVD 06/28/2017 [AAAH] 55C0148

124 - PHOTO-Joint-Damage/Deterioration

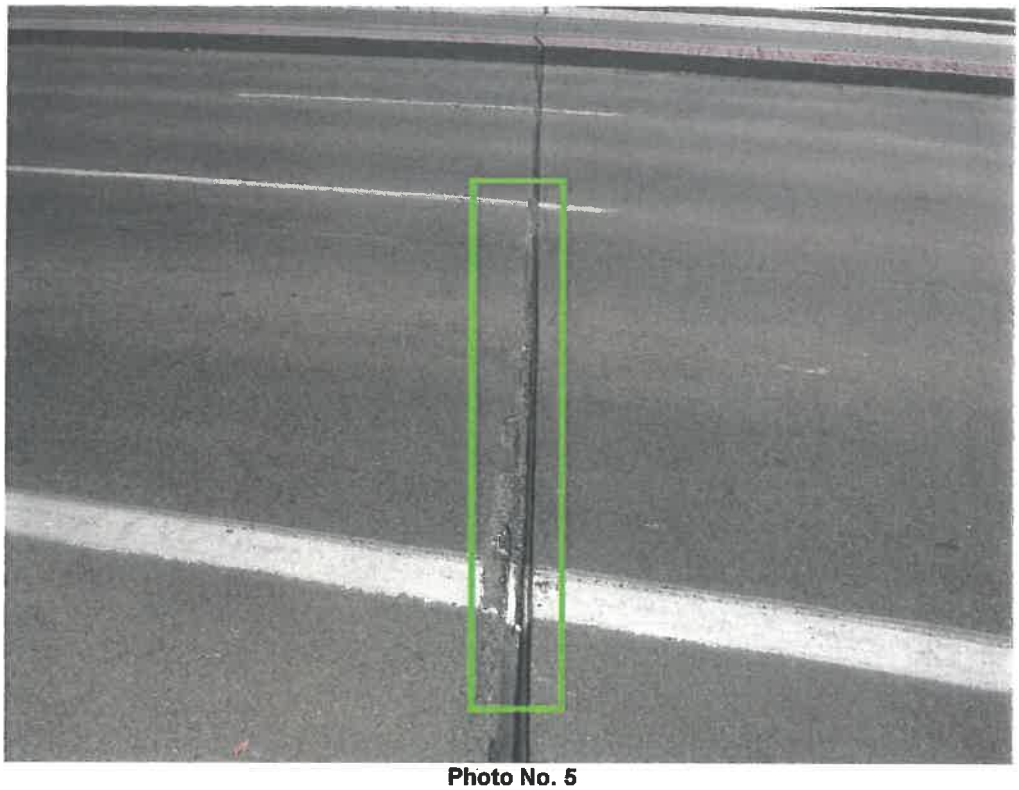

Photo No. 5

Polyester spall at joint 2.

102 - PHOTO-Deck-Damage/Deterioration

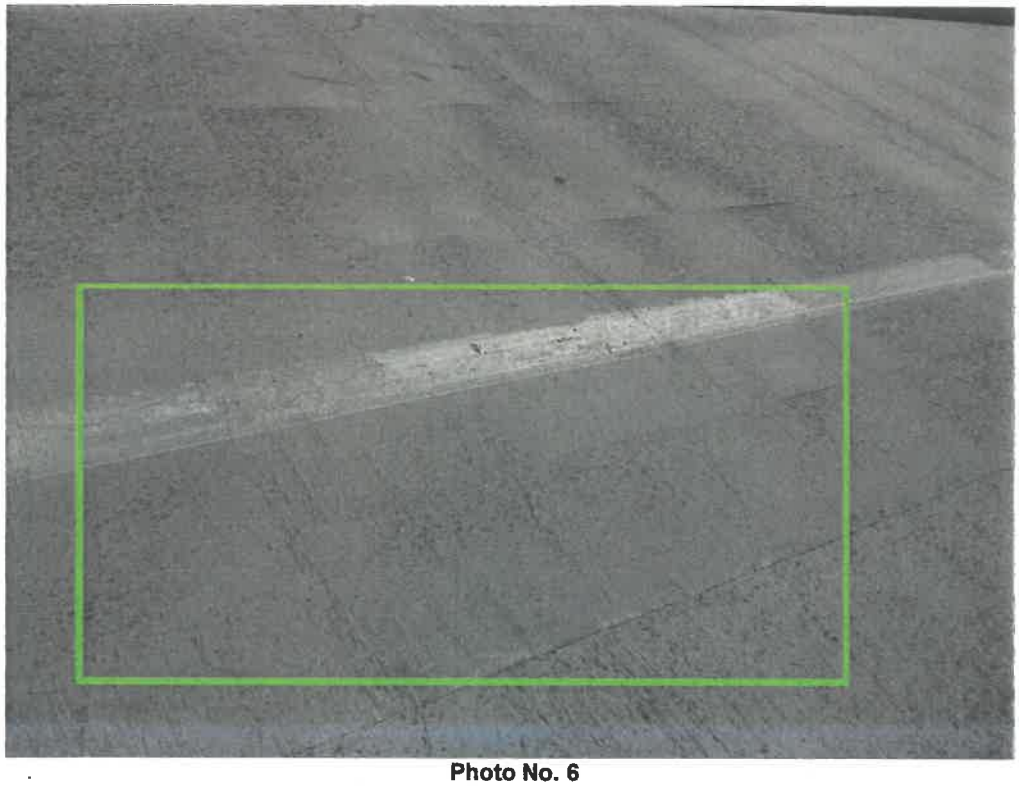

Photo No. 6

Deck transverse cracks.

SANTA ANA RIVER CHANNEL (WARNER AVE)

0.1 MI W/O HARBOR BLVD 06/28/2017 [AAAH] 55C0148

102 - PHOTO-Deck-Damage/Deterioration

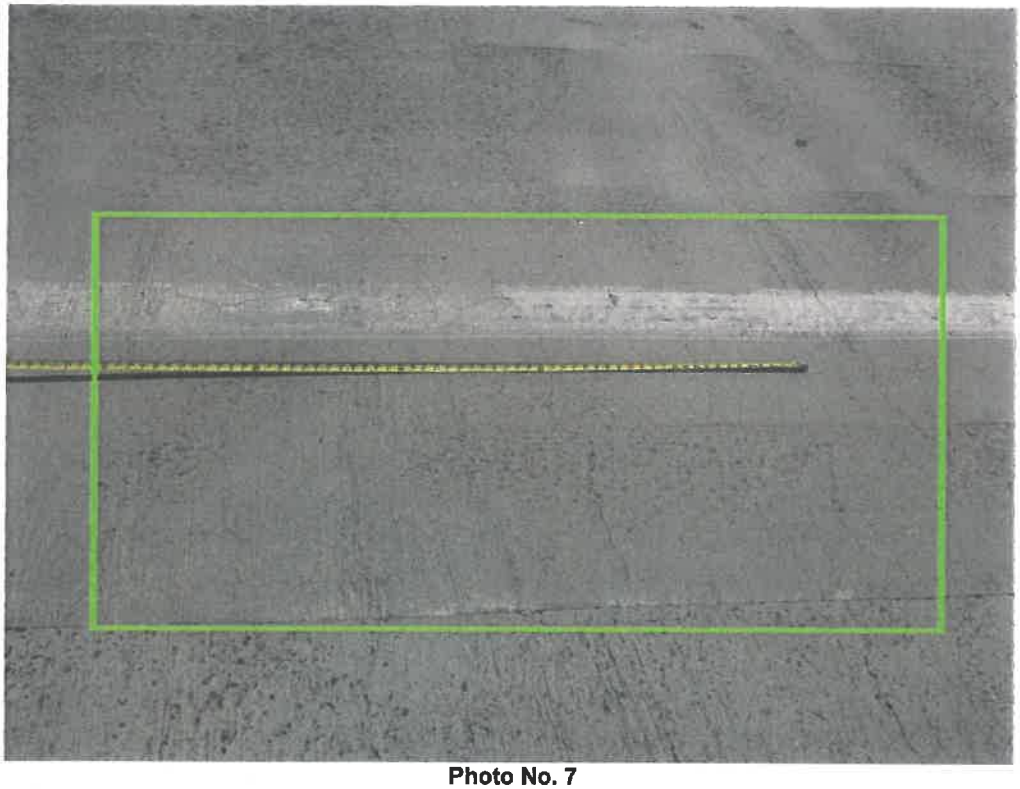

Photo No. 7

Deck transverse cracks.

113 - PHOTO-Sub-Damage/Deterioration

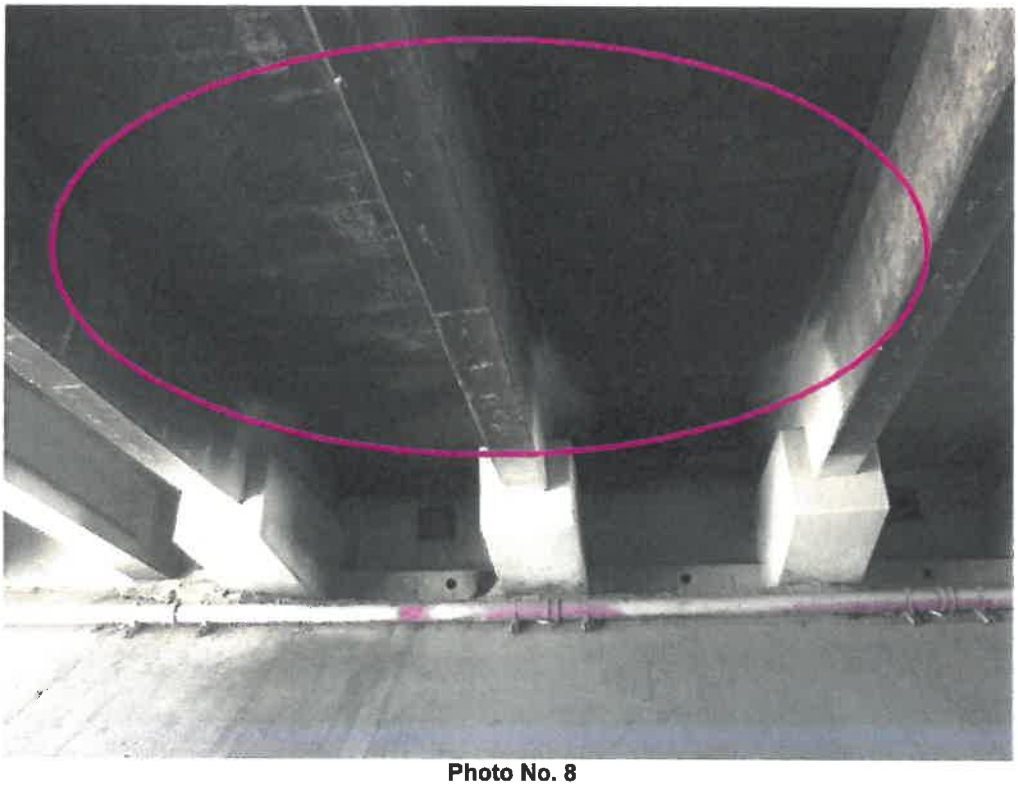

Photo No. 8

Soot is noticed at the westerly span under the RC girders.

SANTA ANA RIVER CHANNEL (WARNER AVE)

0.1 MI W/O HARBOR BLVD 06/28/2017 [AAAH] 55C0148

102 - PHOTO-Deck-Damage/Deterioration

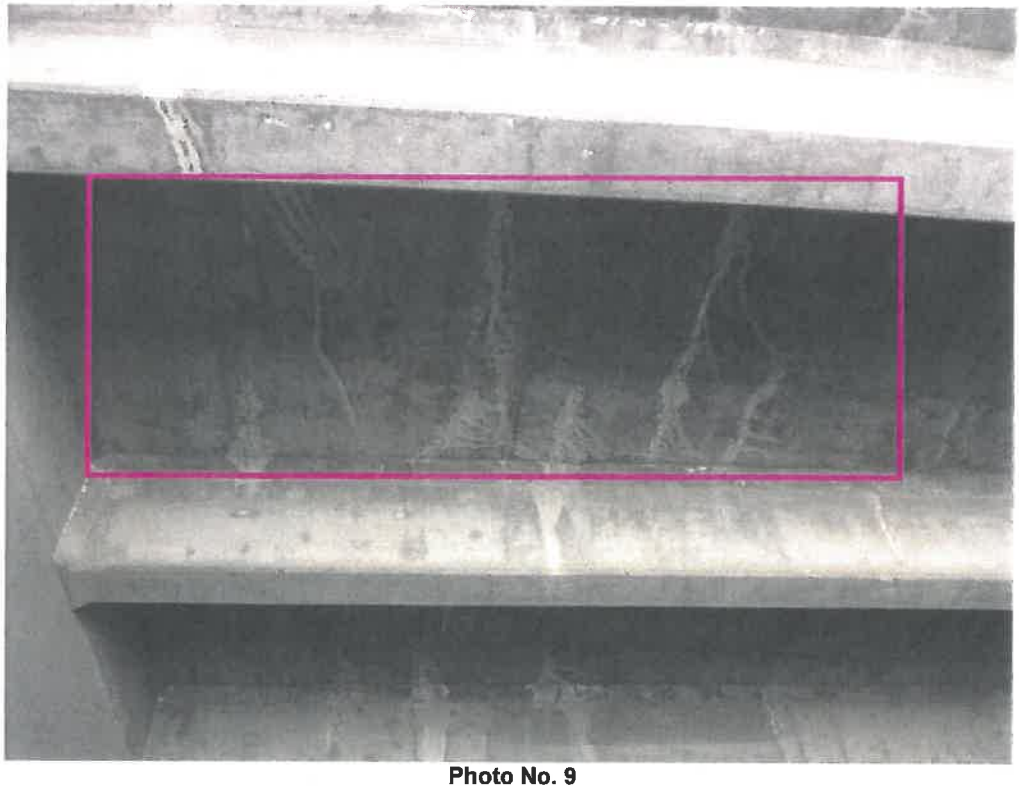

Photo No. 9

Transverse cracks with white efflorescence at the soffit, maily at the original portion.