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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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 : 55C0631
Facility Carried: HARBOR BOULEVARD
Location : 0.2 MI N/O WARNER AVENUE
City :
Inspection Date : 06/28/2017

Bridge Inspection Report

Inspection Type

Routine	FC	Underwater	Special	Other
X				

STRUCTURE NAME: SANTA ANA RIVER CHANNEL (HARBOR BLVD)

CONSTRUCTION INFORMATION

Year Built : 1994
Year Modified: N/A
Length (m) : 120.1

Skew (degrees): 45
No. of Joints : 2
No. of Hinges : 0

Structure Description: Continuous 5-span PC/PS I-girder (14 each) with RC pier walls and RC open end seat abutments, all supported upon driven Class 70 and Class 100 PS concrete piles.

Span Configuration : (S) 68.00 ft, 3 @ 85.00 ft, 68.00 ft (N)

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: (W) 1.00 ft br, 5.00 ft sw, 44.00 ft, 4.00 ft cu med, 44.00 ft, 5.00 ft sw, 1.00 ft br (E)

Total Width: 30.5 m Net Width: 26.8 m No. of Lanes: 6 Speed: 45 mph
Min. Vertical Clearance: Unimpaired Overlay Thickness: 0.0 inches

Rail Code: 1000

Rail Type	Location	Length (ft)	Rail Modifications
Type 26	Right/Left	788	

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 2 inches with 7 feet wide 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.

The inspection frequency was modified from 48 months to 24 months.

DECK AND ROADWAY

The deck drains are clogged and one cover is missing in the southbound 50 feet from north end. (see the attached photo no. 1)

SUBSTRUCTURE

Transients are noticed under the bridge near The south and north Abutments.

SAFE LOAD CAPACITY

A load Rating Summary sheet is archived in BIRIS on 04/23/2015. The current load rating was based on calculations dated 04/23/2015.

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	3660	sq.m	2785	875	0	0
	1120		Efflorescence/Rust Staining	2	75		0	75	0	0
	1130		Cracking (RC and Other)	2	800		0	800	0	0

(12-1120)
There are about 20 transverse cracks with white efflorescence in every span.

(12-1130)
The concrete deck exhibits:
* several longitudinal and transverse cracks, up to 0.04 inches wide at north and south ends;
* diagonal cracks, up to 0.04 inches wide at the south end; and
* mostly transverse cracks, up to 0.04 inches wide at 2 feet spaced apart in many locations.

109			Girder/Beam-PS Conc.	2	1680	m	1654	6	20	0
	1080		Delamination/Spall/Patched Area	2	26		0	6	20	0

(109-1080)
The are damaged girders due to fire at span 5 as follow: (see the attached photos no. 2 to 5)

Girder 12 has a spall 30 feet long L X 8 inches W X 6 inches D at the top flange with exposed rebar; and a spall 20 inches X 6 inches X 2 inches at the bottom flange.

Girder 13 has a spall 30 feet long L X 8 inches W X 6 inches D at the top flange with exposed rebar.

Girder 14 has a spall 20 feet long L X 8 inches W X 6 inches D at the top flange with exposed rebar.

210			Pier Wall-RC	2	176	m	172	4	0	0
	1130		Cracking (RC and Other)	2	4		0	4	0	0

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
(210-1130)									
Each pier wall has two vertical cracks, 0.04 inches wide.									
215		**Abutment-RC**	2	90	m	90	0	0	0
(215)									
There were no significant defects noted.									
226		**Pile-PS Conc.**	2	1	ea.	1	0	0	0
(226)									
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	84	m	74	10	0	0
	2350	**Debris Impaction (Joints)**	2	10		0	10	0	0
(302-2350)									
The joints were partially filled with debris.									
312		**Bearing-Enclosed**	2	6	each	6	0	0	0
(312)									
There were no significant defects noted.									
321		**Approach Slab-RC**	2	444	sq.m	294	150	0	0
	1130	**Cracking (RC and Other)**	2	150		0	150	0	0
(321-1130)									
The approach and departure slabs at the south side have several longitudinal cracks, 2 fete long and up to 0.05 inches wide. (see the attached photos no. 7 & 8)									
331		**Railing-RC**	2	240	m	225	15	0	0
	1130	**Cracking (RC and Other)**	2	15		0	15	0	0
(331-1130)									
Both concrete rails have several vertical cracks, up to 0.04 inches wide.									

WORK RECOMMENDATIONS

RecDate: 06/28/2017
Action : Deck-Methacrylate
Work By: LOCAL AGENCY
Status : PROPOSED

EstCost:
StrTarget: 2 YEARS
DistTarget:
EA:

Seal the deck cracks with methacrylate.

RecDate: 06/28/2017
Action : Super-Patch spalls
Work By: LOCAL AGENCY
Status : PROPOSED

EstCost:
StrTarget: 2 YEARS
DistTarget:
EA:

Patch the damaged girders du to file at span 5 as follow:

Girder 12 has a spall 30 feet long L X 8 inches W X 6 inches D at the top flange with exposed rebar; and a spall 20 inches X 6 inches X 2 inches at the bottom flange.

Girder 13 has a spall 30 feet long L X 8 inches W X 6 inches D at the top flange with exposed rebar.

WORK RECOMMENDATIONS

Girder 14 has a spall 20 feet long L X 8 inches W X 6 inches D at the top flange with exposed rebar.

RecDate: 03/02/2007
Action : Drainage Issue
Work By: LOCAL AGENCY
Status : PROPOSED

EstCost:
StrTarget: 2 YEARS
DistTarget:
EA:

Open all the deck drains those were clogged at the west side.

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 **55C0631**
(5) INVENTORY ROUTE(ON/UNDER)- ON 141000000
(2) HIGHWAY AGENCY DISTRICT 12
(3) COUNTY CODE 059 (4) PLACE CODE 00000
(6) FEATURE INTERSECTED- SANTA ANA RIVER CHANNEL
(7) FACILITY CARRIED- HARBOR BOULEVARD
(9) LOCATION- 0.2 MI N/O WARNER AVENUE
(11) MILEPOINT/KILOMETERPOINT 0
(12) BASE HIGHWAY NETWORK- PART OF NET 1
(13) LRS INVENTORY ROUTE & SUBROUTE 000000000000
(16) LATITUDE 33 DEG 42 MIN 57.95 SEC
(17) LONGITUDE 117 DEG 55 MIN 12.78 SEC
(98) BORDER BRIDGE STATE CODE % SHARE %
(99) BORDER BRIDGE STRUCTURE NUMBER

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

(43) STRUCTURE TYPE MAIN:MATERIAL- PRSTR CONC CONT
TYPE- OTHER CODE 600
(44) STRUCTURE TYPE APPR:MATERIAL- OTHER/NA
TYPE- OTHER/NA CODE 000
(45) NUMBER OF SPANS IN MAIN UNIT 5
(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 1994
(106) YEAR RECONSTRUCTED 0000
(42) TYPE OF SERVICE: ON- HIGHWAY-PEDESTRIAN 5
UNDER- WATERWAY 5
(28) LANES:ON STRUCTURE 06 UNDER STRUCTURE 00
(29) AVERAGE DAILY TRAFFIC 54000
(30) YEAR OF ADT 2012 (109) TRUCK ADT 1 %
(19) BYPASS, DETOUR LENGTH 2 KM

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

(48) LENGTH OF MAXIMUM SPAN 25.9 M
(49) STRUCTURE LENGTH 120.1 M
(50) CURB OR SIDEWALK: LEFT 1.8 M RIGHT 1.8 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 26.8 M
(52) DECK WIDTH OUT TO OUT 30.5 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 26.8 M
(33) BRIDGE MEDIAN- CLOSED (NO BARRIER) 2
(34) SKEW 45 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 = 91.9
STATUS
HEALTH INDEX 95.4
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 5
(59) SUPERSTRUCTURE 7
(60) SUBSTRUCTURE 7
(61) CHANNEL & CHANNEL PROTECTION 8
(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 7
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
(71) WATER ADEQUACY 8
(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 71555
(115) YEAR OF FUTURE ADT 2036

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

(90) INSPECTION DATE 06/17 (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)

SANTA ANA RIVER CHANNEL (HARBOR BLVD)

0.2 MI N/O WARNER AVENUE 06/28/2017 [AAAI] 55C0631

105 - PHOTO-Deck-Misc.

Photo No. 1

Deck drains are clogged

107 - PHOTO-Super-Damage/Deteroration

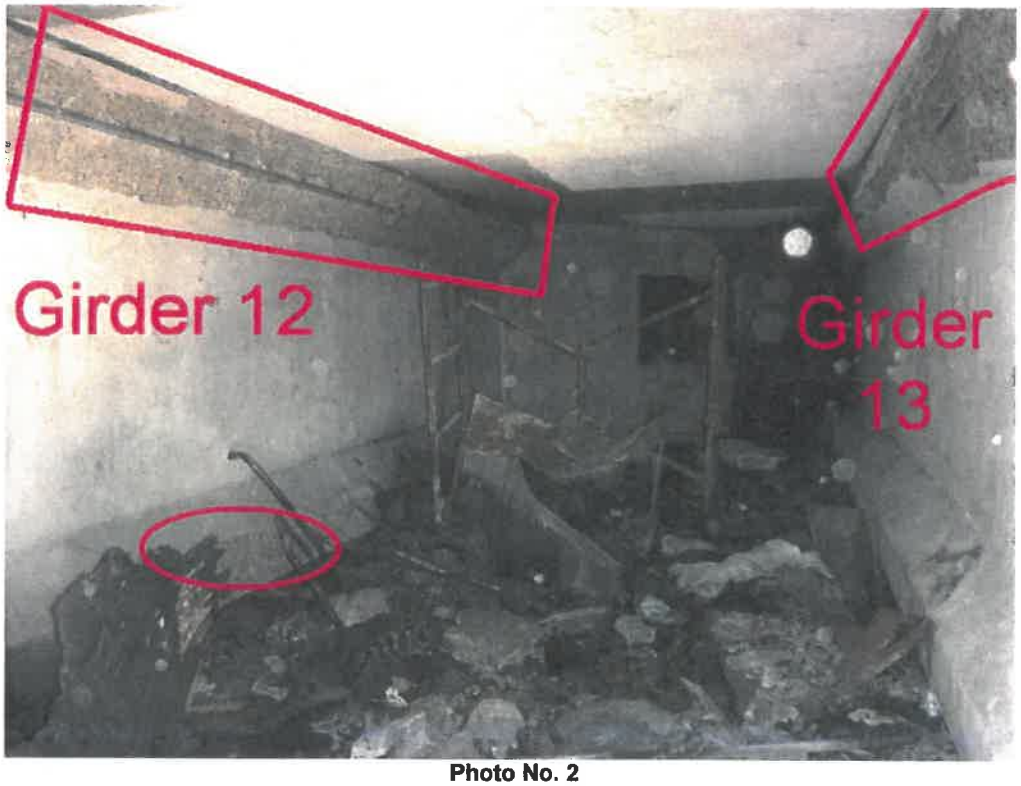

Photo No. 2

Spalls due to fire at span 5 , Girders 12 & 13; up 30 ft X 8 in. X 6 in.

SANTA ANA RIVER CHANNEL (HARBOR BLVD)

0.2 MI N/O WARNER AVENUE 06/28/2017 [AAAI] 55C0631

107 - PHOTO-Super-Damage/Deteroration

Photo No. 3

Spalls due to fire at span 5 , Girder 12 has a spall 30 ft X 8 in. X 6 in.

107 - PHOTO-Super-Damage/Deteroration

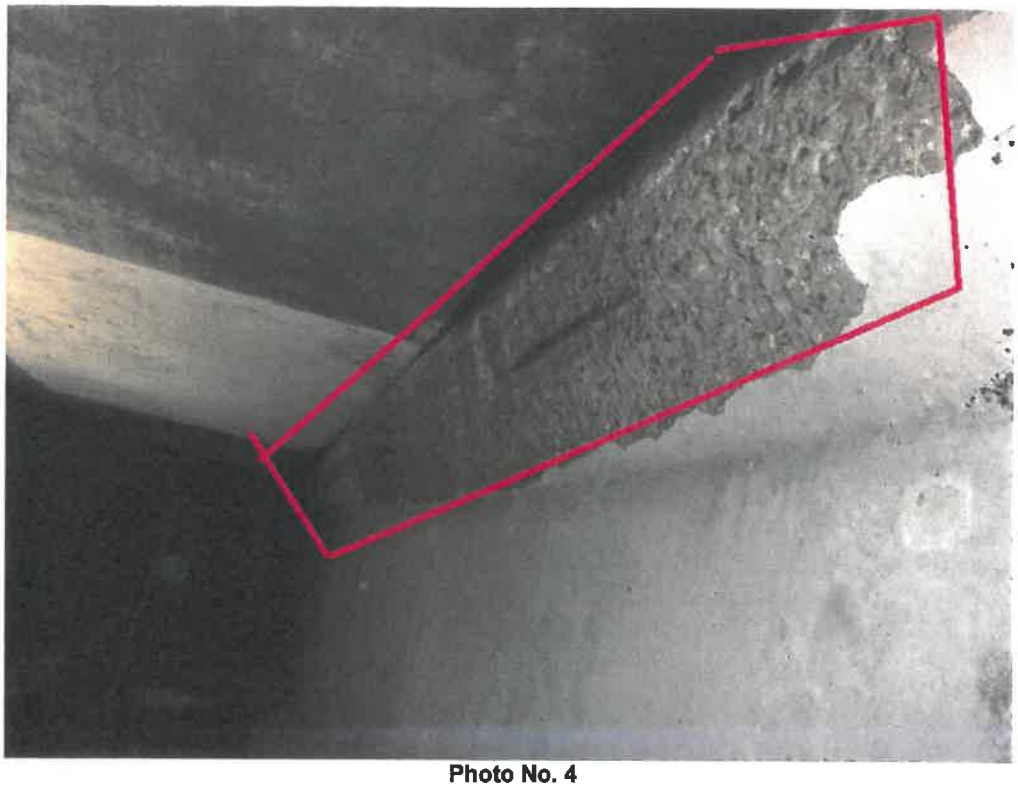

Photo No. 4

Spalls due to fire at span 5 , Girders 13 has a spall 30 ft X 8 in. X 6 in.

SANTA ANA RIVER CHANNEL (HARBOR BLVD)

0.2 MI N/O WARNER AVENUE 06/28/2017 [AAAI] 55C0631

107 - PHOTO-Super-Damage/Deteroration

Photo No. 5

Spalls due to fire at span 5 , Girders 13& 14 have a spalls up to 30 ft X 8 in. X 6 in.

133 - PHOTO-Unclassified

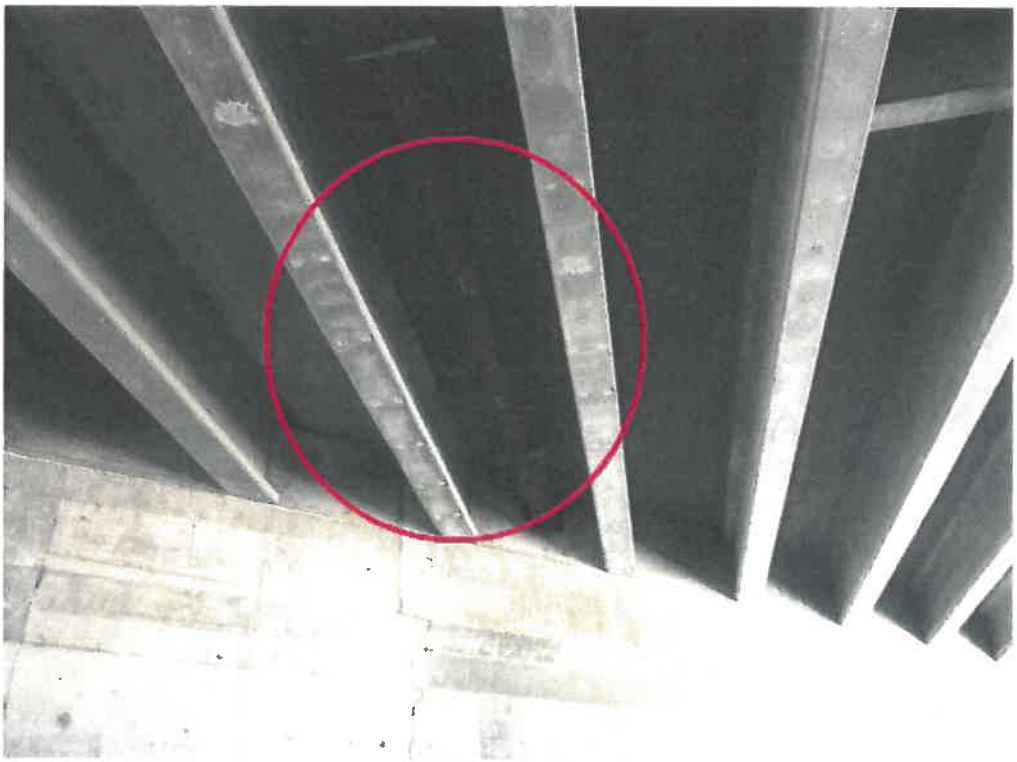

Photo No. 6

Encroachments

SANTA ANA RIVER CHANNEL (HARBOR BLVD)

0.2 MI N/O WARNER AVENUE 06/28/2017 [AAAI] 55C0631

104 - PHOTO-Deck-Unusual Conditions

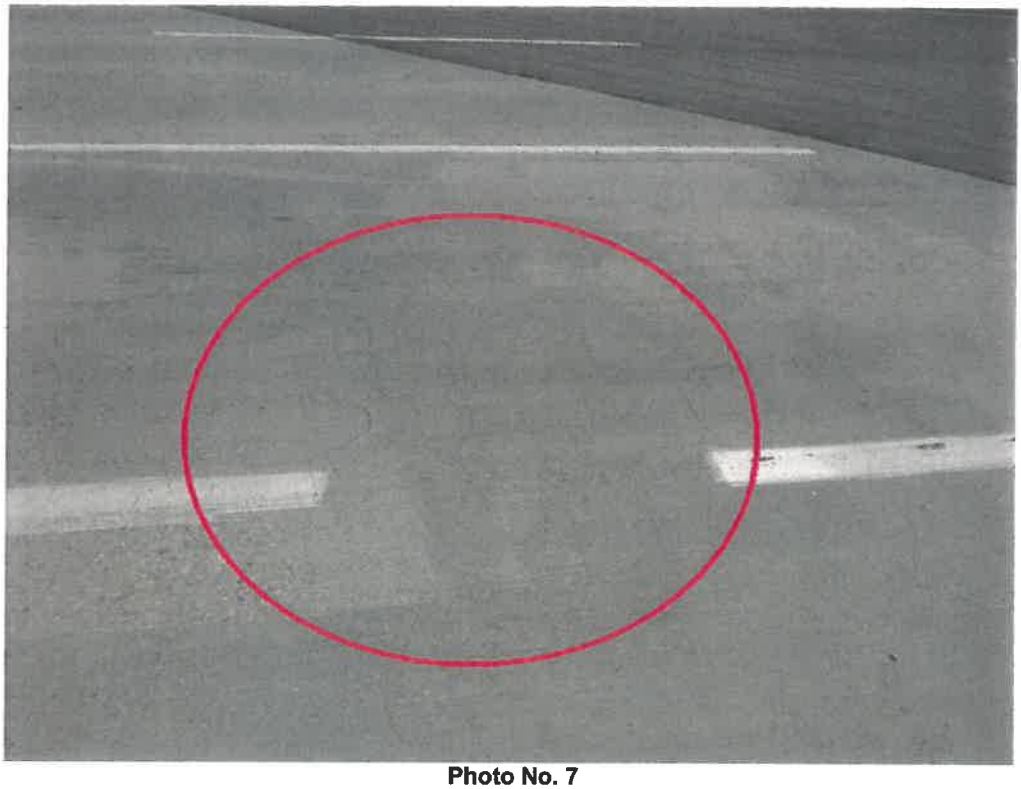

Photo No. 7

Approach and departure slabs have transverse cracks.

104 - PHOTO-Deck-Unusual Conditions

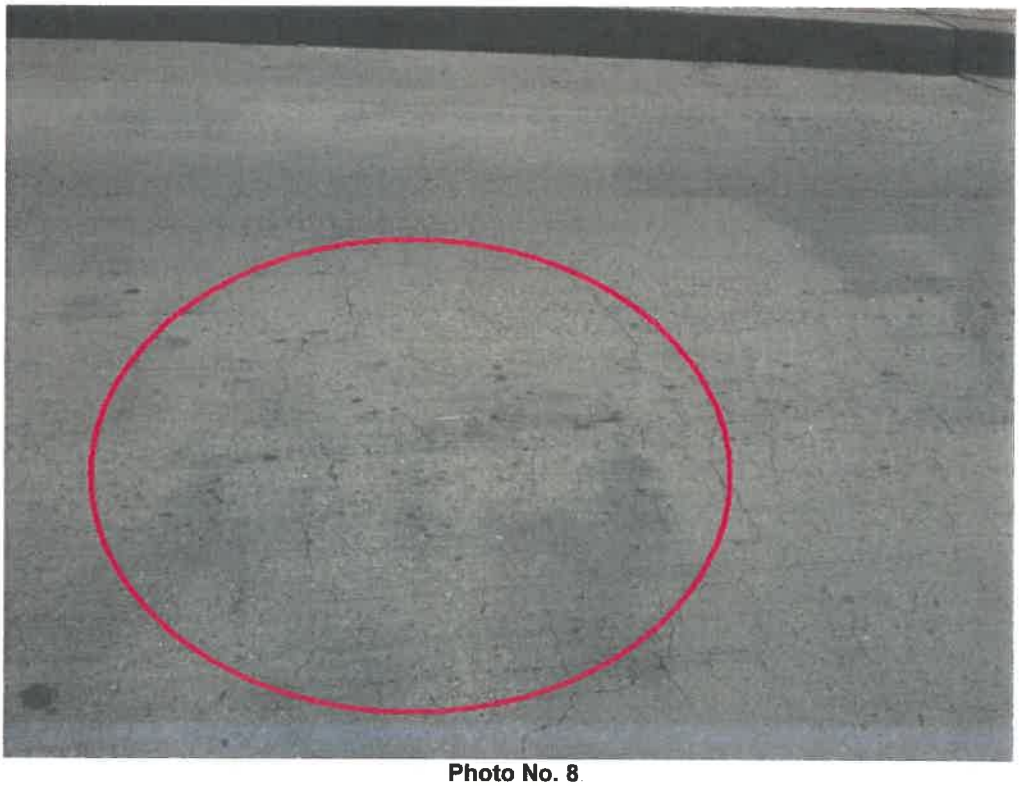

Photo No. 8

Approach and departure slabs have transverse cracks.