



DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0283
Facility Carried: BROADWAY
Location : 100' NE/O PACIFIC CST HW
City :
Inspection Date : 01/12/2018

Bridge Inspection Report

Inspection Type

Routine	FC	Underwater	Special	Other
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

STRUCTURE NAME: SUNSET CHANNEL

CONSTRUCTION INFORMATION

Year Built : 1959	Skew (degrees): 0
Year Modified: N/A	No. of Joints : 5
Length (m) : 29.3	No. of Hinges : 0

Structure Description: Simply supported 4-span CIP/RC deck slab with RC 5-column pile bents and with column pile bent abutments.

Span Configuration : (S) 4 @ 23.0 ft (N)

SAFE LOAD CAPACITY AND RATINGS

Design Live Load: UNKNOWN

Inventory Rating: RF= 0.46

Operating Rating: RF= 0.59

Permit Rating : GGGGG

Posting Load : Type 3: Legal

Calculation Method: (LRFR) LD & RES FACT RATING

Calculation Method: (LRFR) LD & RES FACT RATING

Type 3S2: Legal

Type 3-3: Legal

DESCRIPTION ON STRUCTURE

Deck X-Section: (W) 1.0 ft br, 3.0 ft sw, 28.0 ft, 3.0 ft sw, 1.0 ft br (E).

Total Width: 11.0 m Net Width: 8.5 m No. of Lanes: 2 Speed: 25 mph

Min. Vertical Clearance: Unimpaired

Overlay Thickness: 0.0 inches

Rail Code: 1000

DESCRIPTION UNDER STRUCTURE

Channel Description: Tidal basin.

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

The structure is over a tidal basin. A complete routine inspection of all bridge elements was performed by walking on the deck surface and using a binocular to inspect the substructure elements from the north-east quadrant. The water in the channel is almost 7 feet during the time of inspection.

The most recent Underwater Investigation was conducted by Caltrans team Engineers, the underwater inspection was performed on 2/10/2015.

DECK AND ROADWAY

INSPECTION COMMENTARY

There are numerous longitudinal cracks which are greater than 0.05 inch in width and spacing range greater than 12 inches throughout the deck. Furthermore, there are numerous 2 inches L X 2 inches W X 1 inch D spalls along the deck.

There is a 2 feet X 15 inches X 5 inches post pocket spall at the bottom of the first post from the south of the east rail.

There is a 2 ft L X 6 inches W X 6 inches D spall at the west curb in span 4.

There is a 12 ft long X 0.25 inch W longitudinal crack on the west face of the slab in spans #2 and #3.

SUBSTRUCTURE

Bent cap 2 has vegetation at north face between columns 4 & 5.

Bent 2, column 3 has an estimated vertical crack width 0.05 inches.

Bent 3, column 5 has an estimated two vertical crack width 0.05 inches with brown stain under bent cap 3 southerly face. (see photo 15)

Bent 4, column 2 has a crack with brown stain at the easterly half.

Bent cap 3 has a sound patched spall 15 inches X 20 inches at north face at column 5, at the south face 10 inches X 15 inches just below the soffit above columns 3 to 5.

Bent cap 3 (west face) shows a vertical crack 1 foot long and 0.05 inch wide.

Bent cap 4 exhibits a 12 inches H X 12 inches L X 2 inches D spall at the south face.

SAFE LOAD CAPACITY

A Load Rating Summary Sheet on-file dated 01/21/2017 for this structure. Ratings of the bridge superstructure were established by analyzing the superstructure for moment and shear in the longitudinal direction, using the full slab width, on 111212017 using Load and Resistance Factor Rating Method (LRFR). The substructures and bent caps were not rated at this time. These load ratings supersede all previous ratings for this structure. The rating analysis was based on the following specifications in order of precedence:

- Memos to Load Raters (M2LR)
- MSHTO The Manual for Bridge Evaluation, 3rd Edition
- MSHTO LRFD Bridge Design Specifications, 8th Edition
- California Amendments to the MSHTO LRFD Bridge Design Specifications, 6th Edition

WATERWAY

There are no issues with the waterway.

UNDERWATER INVESTIGATION

The following conditions was noted during last underwater inspection on 02/10/2015.

Pier 2

The mudline depth was 5 ft at the west column (column 1) of the pier and 5 ft at the east column (column 5) of the pier. The diver cleaned a 1 ft swath from waterline to mudline at the 6 o'clock position, revealing sound concrete.

Defect 1130

There is a 16th of an inch wide crack, at 9 o'clock in Column 3, running from 1 ft below

INSPECTION COMMENTARY

the bent cap, and extends 2 ft to the 7 o'clock position. It is starting to delaminate.

Pier 3

The mudline depth was 6.6 ft at the west column (column 1) of the pier and 5 ft at the east column (column 5) of the pier. The diver cleaned a 1 ft swath from waterline to mudline at the 9 o'clock position, revealing sound concrete.

Pier 4

The mudline depth was 5 ft at the west column (column 1) of the pier and 3.3 ft at the east column (column 5) of the pier. The diver cleaned a 1 ft swath from waterline to mudline at the 9 o'clock position.

Defect 1080

There is a 1 ft spall above Column 1, in the bent cap.

Defect 1120

There is cracking with rust staining on Column 2 at 5 and 6 o'clock.

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect	Element Description	Env	Total Qty	Units	Qty in each State	Condition	State
							St. 1	St. 2	St. 3 St. 4
38			Slab-RC	3	322	sq.m	154	142	26 0
	1080		Delamination/Spall/Patched Area	3	68		0	62	6 0
	1130		Cracking (RC and Other)	3	100		0	80	20 0
(38-1080)									
There are numerous 2 inches L X 2 inches W X 1 inch D spalls along the deck.									
(38-1130)									
There are numerous longitudinal cracks which are greater than 0.05 inch in width and spacing range greater than 12 inches throughout the deck.									
There is a 12 ft long X 0.25 inch W longitudinal crack on the west face of the slab in spans #2 and #3.									
205			Column-RC	4	15	each	12	1	2 0
	1120		Efflorescence/Rust Staining	4	2		0	0	2 0
	1130		Cracking (RC and Other)	4	1		0	1	0 0
(205-1120)									
Bent 3, column 5 has an estimated two vertical crack width 0.05 inches with brown stain under bent cap 3 southerly face.									
Bent 4, column 2 has a crack with brown stain at the easterly half.									
(205-1130)									
Bent 2, column 3 has an estimated vertical crack width 0.05 inches.									
215			Abutment-RC	3	22	m	22	0	0 0
(215)									
There were no significant defects noted.									

ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Defect Element Description	Env	Total Qty	Units	Qty in each St. 1	St. 2	St. 3	State St. 4
234		Pier Cap-RC	3	33	m	22	10	1	0
1080		Delamination/Spall/Patched Area	3	10		0	9	1	0
1130		Cracking (RC and Other)	3	1		0	1	0	0

(234-1080)

Bent cap 3 has a sound patched spall 15 inches X 20 inches at north face at column 5, at the south face 10 inches X 15 inches just below the soffit above columns 3 to 5.

Bent cap 4 exhibits a spall 12 inches X 12 inches X 2 inches, at the south face exhibits five sound patched spalls +/- 2 feet X 1.5 feet.

(234-1130)

Bent cap 3 (west face) shows a vertical crack 1 foot long and 0.05 inches wide.

301		Joint-Pourable Seal	3	33	m	13	20	0	0
2350		Debris Impaction (Joints)	3	20		0	20	0	0

(301-2350)

Most of the joints opening is partially full of dirt.

330		Railing-Metal	2	60	m	59	0	1	0
1900		Distortion	2	1		0	0	1	0

(330-1900)

There is a 2 feet X 15 inches X 5 inches post pocket spall at the bottom of the first post from the south of the east rail.

WORK RECOMMENDATIONS

RecDate: 01/12/2018

Action : Deck-Patch spalls

Work By: LOCAL AGENCY

Status : PROPOSED

EstCost:

StrTarget: 2 YEARS

DistTarget:

EA:

There is a 12 ft long X 0.25 inch W longitudinal crack on the west face of the slab in spans #2 and #3 that need to be repaired by epoxy injection method.

RecDate: 01/12/2018

Action : Railing-Repair

Work By: LOCAL AGENCY

Status : PROPOSED

EstCost:

StrTarget: 2 YEARS

DistTarget:

EA:

There is a 2 feet X 15 inches X 5 inches post pocket spall at the bottom of the first post from the south of the east rail that need to be repaired.

RecDate: 01/12/2018

Action : Deck-Methacrylate

Work By: LOCAL AGENCY

Status : PROPOSED

EstCost:

StrTarget: EMERGENCY

DistTarget:

EA:

Patch all spalls along the entire deck(including both sidewalks and curbs) and treat the bridge deck with Methacrylate resin.

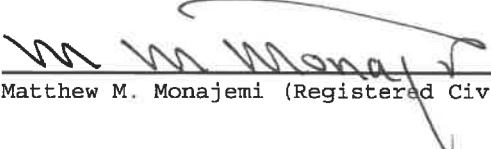
There are numerous longitudinal cracks which are greater than 0.05 inch in width and spacing range greater than 12 inches throughout the deck. Furthermore, there are numerous 2 inches L X 2 inches W X 1

WORK RECOMMENDATIONS

inch D spalls along the deck.
 There is a 2 ft L X 6 inches W X 6 D
 inches spall at the west curb in span 4.

<u>CHANNEL X-SECTION</u>			
Side : Upstream		X-Section Date: 01/12/2018	
Measured From :Top of Curb: 0.30 m			
Location	Horiz (m)	Vert (m)	Comments
Abutment	0.00	0.00	
Sheet pile	3.45	3.70	
Bent 2	7.00	4.20	
Bent 3	13.95	4.60	
Bent 4	20.98	3.90	
Sheet Pile	24.46	3.30	
Abutment 5	28.20	0.00	

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 55C0283
 (5) INVENTORY ROUTE (ON/UNDER) - ON 140000000
 (2) HIGHWAY AGENCY DISTRICT 12
 (3) COUNTY CODE 059 (4) PLACE CODE 00000
 (6) FEATURE INTERSECTED- SUNSET CHANNEL
 (7) FACILITY CARRIED- BROADWAY
 (9) LOCATION- 100' NE/O PACIFIC CST HWY
 (11) MILEPOINT/KILOMETERPOINT 0
 (12) BASE HIGHWAY NETWORK- NOT ON NET 0
 (13) LRS INVENTORY ROUTE & SUBROUTE
 (16) LATITUDE 33 DEG 43 MIN 05.19 SEC
 (17) LONGITUDE 118 DEG 04 MIN 12.45 SEC
 (98) BORDER BRIDGE STATE CODE % SHARE %
 (99) BORDER BRIDGE STRUCTURE NUMBER

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

(43) STRUCTURE TYPE MAIN:MATERIAL- CONCRETE
 TYPE- SLAB CODE 101
 (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 1959
 (106) YEAR RECONSTRUCTED 0000
 (42) TYPE OF SERVICE: ON- HIGHWAY-PEDESTRIAN 5
 UNDER- WATERWAY 5
 (28) LANES:ON STRUCTURE 02 UNDER STRUCTURE 00
 (29) AVERAGE DAILY TRAFFIC 2500
 (30) YEAR OF ADT 2009 (109) TRUCK ADT 1 %
 (19) BYPASS, DETOUR LENGTH 199 KM

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

(48) LENGTH OF MAXIMUM SPAN 7.0 M
 (49) STRUCTURE LENGTH 29.3 M
 (50) CURB OR SIDEWALK: LEFT 0.9 M RIGHT 0.1 M
 (51) BRIDGE ROADWAY WIDTH CURB TO CURB 8.5 M
 (52) DECK WIDTH OUT TO OUT 11.0 M
 (32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 8.5 M
 (33) BRIDGE MEDIAN- NO MEDIAN 0
 (34) SKEW 0 DEG (35) STRUCTURE FLARED NO
 (10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
 (47) INVENTORY ROUTE TOTAL HORIZ CLEAR 8.5 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- NO CONTROL CODE 0
 (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 = 38.1

STATUS

HEALTH INDEX 84.2

PAINT CONDITION INDEX = N/A

***** CLASSIFICATION ***** CODE

(112) NBIS BRIDGE LENGTH- YES Y
 (104) HIGHWAY SYSTEM- NOT ON NHS 0
 (26) FUNCTIONAL CLASS- LOCAL URBAN 19
 (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 5
 (60) SUBSTRUCTURE 5
 (61) CHANNEL & CHANNEL PROTECTION 9
 (62) CULVERTS N

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

(31) DESIGN LOAD- UNKNOWN 0
 (63) OPERATING RATING METHOD- (LRFR) LD & RES FA 8
 (64) OPERATING RATING- RF= 0.59
 (65) INVENTORY RATING METHOD- (LRFR) LD & RES FA 8
 (66) INVENTORY RATING- RF= 0.46
 (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 4
 (68) DECK GEOMETRY 4
 (69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
 (71) WATER ADEQUACY 9
 (72) APPROACH ROADWAY ALIGNMENT 8
 (36) TRAFFIC SAFETY FEATURES 1000
 (113) SCOUR CRITICAL BRIDGES 5

***** 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 4218
 (115) YEAR OF FUTURE ADT 2038

***** INSPECTIONS *****

(90) INSPECTION DATE 01/18 (91) FREQUENCY 24 MO
 (92) CRITICAL FEATURE INSPECTION: (93) CFI DATE
 A) FRACTURE CRIT DETAIL- NO MO A)
 B) UNDERWATER INSP- YES 60 MO B) 02/15
 C) OTHER SPECIAL INSP- NO MO C)