

Orange County Bridge Review Summary

Dokken Engineering performed a field review of the Orange County bridge listed below in April 2017 to identify maintenance activities eligible for Caltrans' Bridge Preventive Maintenance Program (BPMP), dated December 2015, funding. Additional maintenance activities, if present, not eligible for BPMP funding were also noted. Maintenance recommendations, if noted in the most recent Caltrans Bridge Inspection Report (BIR), were confirmed.

Bridge Number: 55C0561

Bridge Name: Dana Point Harbor

Year Built: 1970

Facility Carried: Island Way

The Dana Point Harbor Bridge at Island Way is a simply supported 4-span precast prestressed concrete box girder with a continuous reinforced concrete deck. The bridge is supported on single column bents and strutted abutments supported on spread footings.

Caltrans BIR recommendations:

- Remove and repair unsound concrete in splash zone.

Field Inspection Observations

- Minor spalling on walkway
- There was minimal access to the substructure (photo 1 and 2). Overall this bridge appears to be in good condition.
- Joint seals filled with debris. (photo 3) No immediate action required.

Maintenance Needs Assessment

BPMP Assessment

- N/A – No eligible maintenance activities

General Maintenance – Non-BPMP

- Recommend patching spalled concrete. No immediate actions required since not a high priority.

Proposed BPMP Construction Costs

- N/A

Construction Items Not Funded by BPMP

- Repair Spalls ≈ \$30,000, complicated by water access and wet conditions (includes engineering, mobilization and contingency)

APPENDIX A

Photos and BIR



Photo 1:



Photo 2:



Photo 3:



Photo 4:

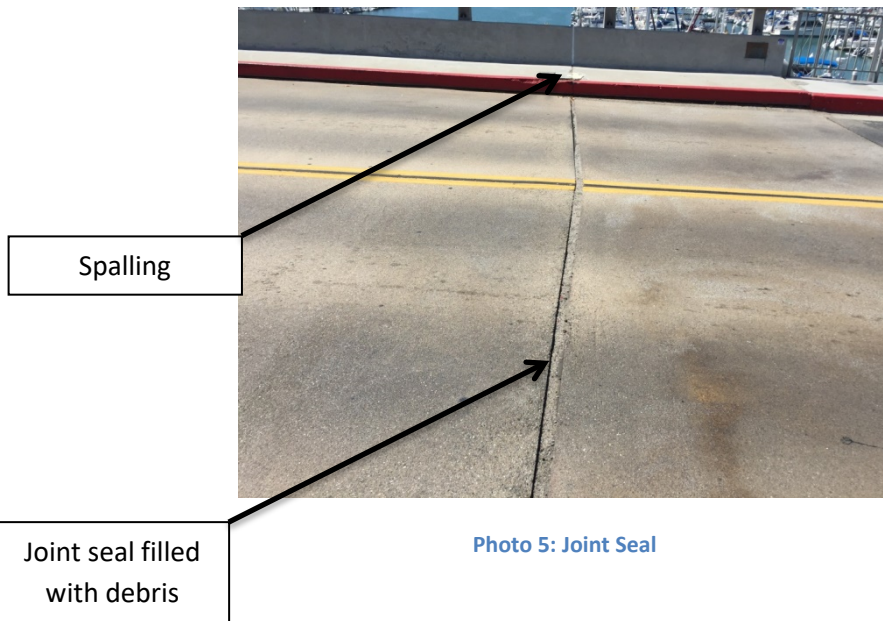


Photo 5: Joint Seal



DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0561
Facility Carried: ISLAND WAY
Location : 0.1 MI S/O DANA PT HBR D
City :
Inspection Date : 02/27/2015
Inspection Type
Routine FC Underwater Special Other
☒

Bridge Inspection Report

STRUCTURE NAME: DANA POINT HARBOR

CONSTRUCTION INFORMATION

Year Built : 1970 Skew (degrees): 0
Year Widened: N/A No. of Joints : 0
Length (m) : 62.5 No. of Hinges : 0

Structure Description: Simply supported 4-span PC/PS concrete box girder (8 units) with a continuous RC deck and RC single column bents and RC closed end strutted abutments, all supported upon spread footings.

Span Configuration : (S) 4 @ 15.2 m (N) c/c

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: (W) 0.4 m br, 1.5 m sw, 8.5 m, 1.5 m sw, 0.4 m br (E)
Total Width: 12.5 m Net Width: 8.5 m No. of Lanes: 2 Speed: 25 mph
Min. Vertical Clearance: Unimpaired AC Thickness:
Rail Code: 1000

Rail Type	Location	Length (ft)	Rail Modifications
Type 2	Right/Left	410	5 ft sidw walk

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

CONDITION OF STRUCTURE

The inspection was performed by walking the deck and under spans 1 and 4. All elements above water have been visually inspected.

UNDERWATER INVESTIGATION

The inspection was performed in June 2014. No defected on the substructure were found and remain in good condition. This element will remain in condition state 1.

INSPECTION COMMENTARY

MISCELLANEOUS

This location in Anaheim Bay is a navigable waterway for smaller boats which is under the jurisdiction of the United States Coast Guard.

SAFE LOAD CAPACITY

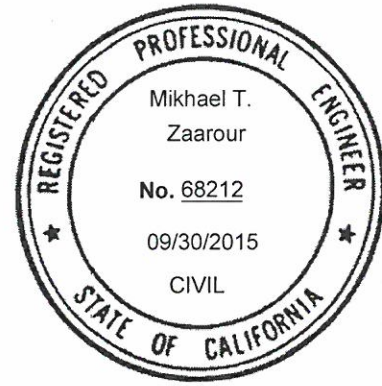
ELEMENT INSPECTION RATINGS AND COMMENTARY

Elem No.	Defect /Prot	Element Description	Env	Total Qty	Units	Qty in each Condition	State		
						St. 1	St. 2	St. 3	St. 4
16		Top Flange-RC	3	781	sq.m	781	0	0	0
	511	Deck Wearing Surface-Concrete	3	533	sq.m	533	0	0	0
(16)									
There were no significant defects noted.									
(16-511)									
There were no significant defects noted.									
104		Box Girder-PS Conc.	3	62	m	62	0	0	0
(104)									
There were no significant defects noted.									
205		Column-RC	4	3	each	3	0	0	0
(205)									
There were no significant defects noted.									
215		Abutment-RC	2	30	m	30	0	0	0
(215)									
There were no significant defects noted.									
234		Pier Cap-RC	3	36	m	34	2	0	0
	1120	Efflorescence/Rust Staining	3	2		0	2	0	0
(234-1120)									
Rust stain on the surface of pier #4									
256		Slope Protection	3	2	ea.	2	0	0	0
(256)									
There were no significant defects noted.									
312		Bearing-Enclosed	3	8	each	8	0	0	0
(312)									
The bearing element is included to indicate the presence of bearings on this structure. The bearings were not exposed for visual inspection. No indication of bearing distress was noted in any substructure element.									
321		Approach Slab-RC	3	52	sq.m	52	0	0	0
(321)									
There were no significant defects noted.									
333		Railing-Other	3	142	m	142	0	0	0
(333)									
There were no significant defects noted.									

WORK RECOMMENDATIONS - NONE

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Report Author : Mikhael T. Zaarour
Inspected By : MT.Zaarour/M.Zolfaghari

Mikhael T. Zaarour 3/30/15
Mikhael T. Zaarour (Registered Civil Engineer) (Date)



STRUCTURE INVENTORY AND APPRAISAL REPORT

***** IDENTIFICATION *****

(1) STATE NAME- CALIFORNIA 069
 (8) STRUCTURE NUMBER 55C0561
 (5) INVENTORY ROUTE(ON/UNDER)- ON 140000000
 (2) HIGHWAY AGENCY DISTRICT 12
 (3) COUNTY CODE 059 (4) PLACE CODE 00000
 (6) FEATURE INTERSECTED- DANA POINT HARBOR
 (7) FACILITY CARRIED- ISLAND WAY
 (9) LOCATION- 0.1 MI S/O DANA PT HBR DR
 (11) MILEPOINT/KILOMETERPOINT 0
 (12) BASE HIGHWAY NETWORK- NOT ON NET 0
 (13) LRS INVENTORY ROUTE & SUBROUTE
 (16) LATITUDE 33 DEG 27 MIN 35.58 SEC
 (17) LONGITUDE 117 DEG 41 MIN 57.87 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- BOX BEAM OR GIRDER - MULTI CODE 605
 (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- PRECAST CONC. PA CODE 2
 (108) WEARING SURFACE / PROTECTIVE SYSTEM:
 A) TYPE OF WEARING SURFACE- CONCRETE CODE 1
 B) TYPE OF MEMBRANE- NONE CODE 0
 C) TYPE OF DECK PROTECTION- NONE CODE 0

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

(27) YEAR BUILT 1970
 (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 3510
 (30) YEAR OF ADT 2011 (109) TRUCK ADT 1 %
 (19) BYPASS, DETOUR LENGTH 199 KM

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

(48) LENGTH OF MAXIMUM SPAN 15.2 M
 (49) STRUCTURE LENGTH 62.5 M
 (50) CURB OR SIDEWALK: LEFT 1.5 M RIGHT 1.5 M
 (51) BRIDGE ROADWAY WIDTH CURB TO CURB 8.5 M
 (52) DECK WIDTH OUT TO OUT 12.5 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 *****

SUFFICIENCY RATING = 61.0

STATUS

HEALTH INDEX 99.9

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 8
 (59) SUPERSTRUCTURE 8
 (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 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 3176
 (115) YEAR OF FUTURE ADT 2037

***** INSPECTIONS *****

(90) INSPECTION DATE 02/15 (91) FREQUENCY 48 MO
 (92) CRITICAL FEATURE INSPECTION: (93) CFI DATE
 A) FRACTURE CRIT DETAIL- NO MO A)
 B) UNDERWATER INSP- YES 60 MO B) 06/14
 C) OTHER SPECIAL INSP- NO MO C)