**DEPARTMENT OF TRANSPORTATION**
Structure Maintenance & Investigations

**Bridge Number : 55C0168**
Facility Carried: AMAPOLA AVENUE
Location : 0.2 MI E/O ORANGE PK BLV
City :
Inspection Date : 07/10/2019
Inspection Type
Routine [X] FC [ ] Underwater [ ] Special [ ] Other [ ]

# Bridge Inspection Report

**STRUCTURE NAME: HANDY CREEK**

## CONSTRUCTION INFORMATION

Year Built : 1937
Year Modified: N/A
Length (m) : 8.5
Skew (degrees): 0
No. of Joints : 0
No. of Hinges : 0

Structure Description: Simply supported two span timber stringers (19 each) and timber deck with a timber treated timber post (6 each) bent and a treated timber post (6 each) abutments, all supported upon treated timber sills. All timber treated Douglas Fir.

Span Configuration : (W) 2 @ 13.00 feet (E).

## SAFE LOAD CAPACITY AND RATINGS

Design Live Load: UNKNOWN
Inventory Rating: RF=0.54 =>17.5 metric tons Calculation Method: ALLOWABLE STRESS
Operating Rating: RF=0.77 =>24.9 metric tons Calculation Method: ALLOWABLE STRESS
Permit Rating : OOOOO
Posting Load : Type 3: Legal Type 3S2: Legal Type 3-3: Legal

## DESCRIPTION ON STRUCTURE

Deck X-Section: (S) 0.30 feet br, 23.30 feet, 0.30 feet br (N).
Total Width: 7.3 m Net Width: 7.1 m No. of Lanes: 2 Speed: 25 mph
Min. Vertical Clearance: Unimpaired Overlay Thickness: 5.0 inches
Rail Code: 0000

## DESCRIPTION UNDER STRUCTURE

Channel Description: Natural earth trapezoidal upstream, RC rectangular with a check dam downstream.

## 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 was performed by walking on and around the bridge to inspect all visible elements of the bridge structure. Bridge deck was inspected by walking on shoulder. Soffit and all substructure were inspected by walking underneath the bridge with rain boots and binoculars due to 2.0 feet deep of water at the time of inspection.

## INSPECTION COMMENTARY

There is no need for a special equipment to inspect this structure except rain boots.

Pedestrian access is from the west side.

There is a water stagnant at 1.0 to 2.0 feet deep mainly in the middle of the bridge.

DECK AND ROADWAY
The bridge deck is covered by asphalt concrete with minor cracks.

The horizontal member of metal guard rails on both sides with minor dents and scratches.

SUPERSTRUCTURE
There are minor checks and shake on all timber girders mainly on both of the exterior girders. These timber girders are treated woods.

There are minor cracks on all timber girders mainly on both of the exterior girders. These timber girders are treated woods.

SUBSTRUCTURE
There are vertical cracks (up to 0.07 inches wide) on all bent columns.

Northerly side, there is a tree growing in between the timber planks at the easterly abutment (see the attached photos no. 2 and 3).

The south blanks of the easterly abutment is deteriorated with green mold (see the attached photo no. 4).

Both of the exterior bent caps sections have longitudinal checks.

SAFE LOAD CAPACITY
The load rating for this structure is being reviewed by SM&I Ratings Branch. A Load Rating Summary Sheet dated 05/19/2010 is on file for this structure.

## 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 |
|---|---|---|---|---|---|---|---|---|---|---|
| 31 | | | Deck-Timber | 2 | 60 | sq.m | 60 | 0 | 0 | 0 |
| | 510 | | Deck Wearing Surface-Asphalt | 2 | 60 | sq.m | 55 | 5 | 0 | 0 |
| | | 3220 | Cracking-AC (WS) | 2 | 5 | | 0 | 5 | 0 | 0 |

(31)
There were no significant defects noted.

(31-510-3220)
There are random minor tranverse and longitudinal cracks on the asphalt deck surface.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 111 | | | Girder/Beam-Timber | 2 | 162 | m | 154 | 8 | 0 | 0 |
| | 1150 | | Check/Shake (Timber) | 2 | 4 | | 0 | 4 | 0 | 0 |
| | 1160 | | Crack (Timber) | 2 | 4 | | 0 | 4 | 0 | 0 |

(111)
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 Condition State St. 1 | St. 2 | St. 3 | St. 4 |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | (111-1150) | | | | | | | |
| | | | There are minor checks and shake on all timber girders mainly on both of the exterior girders. These timber girders are treated woods. | | | | | | | |
| | | | (111-1160) | | | | | | | |
| | | | There are minor cracks on all timber girders mainly on both of the exterior girders. These timber girders are treated woods. | | | | | | | |
| **206** | | **Column-Timber** | | 3 | 18 | each | 12 | 5 | 1 | 0 |
| | **1160** | **Crack (Timber)** | | 3 | 4 | | 0 | 3 | 1 | 0 |
| | **1170** | **Split/Delamination (Timber)** | | 3 | 2 | | 0 | 2 | 0 | 0 |
| | | | (206) | | | | | | | |
| | | | Cracks, splits, and green marine algea at the bottom. | | | | | | | |
| | | | (206-1160) | | | | | | | |
| | | | There are vertical cracks (up to 0.07 inches wide) on all bent columns. | | | | | | | |
| | | | (206-1170) | | | | | | | |
| | | | There are splits (up to 0.05 inches wide) mainly right on top of all bent columns. | | | | | | | |
| **216** | | **Abutment-Timber** | | 3 | 16 | m | 6 | 9 | 1 | 0 |
| | **1180** | **Abrasion (Timber)** | | 3 | 10 | | 0 | 9 | 1 | 0 |
| | | | (216) | | | | | | | |
| | | | Abrasion and green mold close to the bottom of both abutment timber planks. | | | | | | | |
| | | | (216-1180) | | | | | | | |
| | | | Northerly side, there is a tree growing in between the timber planks at the easterly abutment (see the attached photos no. 2 and 3). | | | | | | | |
| | | | The south blanks of the easterly abutment is deteriorated with green mold (see the attached photo no. 4). | | | | | | | |
| **235** | | **Pier Cap-Timber** | | 2 | 21 | m | 16 | 5 | 0 | 0 |
| | **1150** | **Check/Shake (Timber)** | | 2 | 5 | | 0 | 5 | 0 | 0 |
| | | | (235) | | | | | | | |
| | | | Checks and shakes mainly at both of the exterior sections. | | | | | | | |
| | | | (235-1150) | | | | | | | |
| | | | Both of the exterior bent caps sections have longitudinal checks. | | | | | | | |
| **330** | | **Railing-Metal** | | 2 | 17 | m | 17 | 0 | 0 | 0 |
| | **7000** | **Damage** | | 2 | 1 | | 0 | 1 | 0 | 0 |
| | | | (330) | | | | | | | |
| | | | There were no significant defects noted. | | | | | | | |
| | | | (330-7000) | | | | | | | |
| | | | There are a few minor hits along both sides of metal guard rails mainly on the top of horizontal members. | | | | | | | |

## WORK RECOMMENDATIONS

RecDate: 07/10/2019
Action : Drainage Issue
Work By: LOCAL AGENCY
Status : PROPOSED

EstCost:
StrTarget: 1 YEAR
DistTarget:
EA:

Clean the dowstream to let water flow consistently. This water stagnant has been causing the green marine mold, algea to the substructure elements such as

**WORK RECOMMENDATIONS**

timber columns, timber cross bracing members, timber planks at both abutments.

RecDate: 05/18/2012
Action : Sub-Patch spalls
Work By: LOCAL AGENCY
Status : PROPOSED

EstCost:
StrTarget: 2 YEARS
DistTarget:
EA:

Replace the deteriorated timber plank at 8.0 inches from the bottom and remove the tree at the north side of the abutment between timber planks.

Team Leader : Nelson N. Vo

Report Author : Nelson N. Vo

Inspected By : NN.Vo/E.Mah

8/22/2019

Edwin Mah (Registered Civil Engineer) (Date)

# STRUCTURE INVENTORY AND APPRAISAL REPORT

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

(1) STATE NAME- CALIFORNIA 069
(8) STRUCTURE NUMBER **55C0168**
(5) INVENTORY ROUTE(ON/UNDER)- ON 140000000
(2) HIGHWAY AGENCY DISTRICT 12
(3) COUNTY CODE 059 (4) PLACE CODE 00000
(6) FEATURE INTERSECTED- HANDY CREEK
(7) FACILITY CARRIED- AMAPOLA AVENUE
(9) LOCATION- 0.2 MI E/O ORANGE PK BLVD
(11) MILEPOINT/KILOMETERPOINT 0
(12) BASE HIGHWAY NETWORK- NOT ON NET 0
(13) LRS INVENTORY ROUTE & SUBROUTE
(16) LATITUDE 33 DEG 48 MIN 08.93 SEC
(17) LONGITUDE 117 DEG 46 MIN 46.19 SEC
(98) BORDER BRIDGE STATE CODE % SHARE %
(99) BORDER BRIDGE STRUCTURE NUMBER

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

(43) STRUCTURE TYPE MAIN:MATERIAL- WOOD OR TIMBER
TYPE- STRINGER/MULTI-BEAM OR GDR CODE 702
(44) STRUCTURE TYPE APPR:MATERIAL- OTHER/NA
TYPE- OTHER/NA CODE 000
(45) NUMBER OF SPANS IN MAIN UNIT 2
(46) NUMBER OF APPROACH SPANS 0
(107) DECK STRUCTURE TYPE- TIMBER CODE 8
(108) WEARING SURFACE / PROTECTIVE SYSTEM:
A) TYPE OF WEARING SURFACE- BITUMINOUS CODE 6
B) TYPE OF MEMBRANE- NONE CODE 0
C) TYPE OF DECK PROTECTION- NONE CODE 0

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

(27) YEAR BUILT 1937
(106) YEAR RECONSTRUCTED 0000
(42) TYPE OF SERVICE: ON- HIGHWAY 1
UNDER- WATERWAY 5
(28) LANES:ON STRUCTURE 02 UNDER STRUCTURE 00
(29) AVERAGE DAILY TRAFFIC 1000
(30) YEAR OF ADT 2019 (109) TRUCK ADT 1 %
(19) BYPASS, DETOUR LENGTH 2 KM

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

(48) LENGTH OF MAXIMUM SPAN 4.0 M
(49) STRUCTURE LENGTH 8.5 M
(50) CURB OR SIDEWALK: LEFT 0.0 M RIGHT 0.0 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 7.1 M
(52) DECK WIDTH OUT TO OUT 7.3 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 6.7 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 6.7 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 = 48.1

PAINT CONDITION INDEX = N/A

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

(112) NBIS BRIDGE LENGTH- YES Y
(104) HIGHWAY SYSTEM- NOT ON NHS 0
(26) FUNCTIONAL CLASS- COLLECTOR URBAN 17
(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 5
(61) CHANNEL & CHANNEL PROTECTION 8
(62) CULVERTS N

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

(31) DESIGN LOAD- UNKNOWN 0
(63) OPERATING RATING METHOD- ALLOWABLE STRESS 2
(64) OPERATING RATING- 24.9
(65) INVENTORY RATING METHOD- ALLOWABLE STRESS 2
(66) INVENTORY RATING- 17.5
(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 5
(72) APPROACH ROADWAY ALIGNMENT 6
(36) TRAFFIC SAFETY FEATURES 0000
(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 2061
(115) YEAR OF FUTURE ADT 2037

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

(90) INSPECTION DATE 07/19 (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)