DEPARTMENT OF TRANSPORTATION
Structure Maintenance & Investigations

Bridge Number : 55C0178
Facility Carried: SILVERADO CANYN RD
Location : 4.9 MI. E/O SANTIAGO ROA
City :
Inspection Date : 07/10/2019

Bridge Inspection Report

Inspection Type

Routine	FC	Underwater	Special	Other
[X]	[ ]	[ ]	[ ]	[ ]

STRUCTURE NAME: SILVERADO CANYON CREEK

CONSTRUCTION INFORMATION

Year Built : 1947
Year Modified: N/A
Length (m) : 12.8

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

Structure Description: Simply supported single span steel girders (4 each) with RC open end seat abutments, all supported upon spread footings.

Span Configuration : (W) 41.00 feet (E).

SAFE LOAD CAPACITY AND RATINGS

Design Live Load: UNKNOWN
Inventory Rating: RF= 0.73 Calculation Method: (LRFR) LD & RES FACT RATING
Operating Rating: RF= 0.95 Calculation Method: (LRFR) LD & RES FACT RATING
Permit Rating : PPPPP
Posting Load : Type 3: Legal Type 3S2: Legal Type 3-3: Legal

DESCRIPTION ON STRUCTURE

Deck X-Section: (S) 1.50 feet br, 24.00 feet, 1.50 feet br (N).

Total Width: 8.2 m Net Width: 7.3 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: Natural earth trapezoidal with a cobbled bottom.

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 due to 5.0 inches deep of water in the middle of stream bed at the time of inspection.

There is no need for a special equipment to inspect this structure except rain boots if it is in raining season.

INSPECTION COMMENTARY

DECK AND ROADWAY
There are longitudinal and transverse deck cracks (0.04 inches wide, 2.0 to 4.0 feet in spacing) throughout the entire deck.

The concete deck has an area of delamination (12.0 inches L X 12.0 inches W) and a spall at (6.0 inches L X 5.0 inches W X 1.0 inch D).

The bridge deck soffit has two transverse cracks at 4.0 feet long with white light efflorescence in every bay.

The concrete deck surface has about 60.0 percent of abrasion (wearing surface with exposed aggregate).

SUPERSTRUCTURE
The paint system is in poor condition with rusted, chalk and corrosion.

There is a minor dent at 3.0 inches long at the middle of the north girder.

SUBSTRUCTURE
The westerly abutment has a vertical crack at 0.04 inches wide under girder #3.

The footing of the easterly abutment is exposed, about 12.0 feet long and 1.0 to 2.0 inches deep (minor); and also, it is covered by rock along this area.

SAFE LOAD CAPACITY
The load rating for this structure is calculated on 08/31/2016 by SMI Ratings Branch using BrR 6.8.0 AASHTO analysis, and the load rating summary sheet is archived on 09/08/2016.

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	90	sq.m	22	48	20	0
	1080		Delamination/Spall/Patched Area	2	1		0	1	0	0
	1120		Efflorescence/Rust Staining	2	2		0	2	0	0
	1130		Cracking (RC and Other)	2	50		0	30	20	0
	1190		Abrasion (PS Conc./RC)	2	15		0	15	0	0

(12)
Bridge deck has cracks, spalls and abrasion with exposed aggregate on surface.

(12-1080)
The concete deck has an area of delamination (12.0 inches L X 12.0 inches W) and a spall at (6.0 inches L X 5.0 inches W X 1.0 inch D).

(12-1120)
The bridge deck soffit has two transverse cracks at 4.0 feet long with white light efflorescence in every bay.

(12-1130)
There are longitudinal and transverse deck cracks (0.04 inches wide, 2.0 to 4.0 feet in spacing) throughout the entire deck.

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
(12-1190)										
The concrete deck surface has about 60.0 percent of abrasion (wearing surface with exposed aggregate).										
107			**Girder/Beam-Steel**	2	52	m	48	4	0	0
	1000		**Corrosion**	2	3		0	3	0	0
	1900		**Distortion**	2	1		0	1	0	0
	515		**Steel Coating-Paint**	2	118	sq.m	78	30	10	0
		3440	**Effectiveness (Steel PC)**	2	40		0	30	10	0
(107)										
Minor corrosion and distorsion.										
(107-1000)										
The steel girders has pitting rust the surface of the bottom flange.										
(107-1900)										
There is a minor dent at 3.0 inches long at the middle of the north girder.										
(107-515)										
Rusted at the bottom flanges and webs.										
(107-515-3440)										
The paint system is in poor condition with rusted, chalk and corrosion.										
215			**Abutment-RC**	2	24	m	23	1	0	0
	1130		**Cracking (RC and Other)**	2	1		0	1	0	0
(215)										
There were no significant defects noted.										
(215-1130)										
The westerly abutment has a vertical crack at 0.04 inches wide under girder #3.										
220			**Pile Cap/Footing-RC**	2	12	m	0	12	0	0
	6000		**Scour**	2	12		0	12	0	0
(220)										
There were no significant defects noted.										
(220-6000)										
The footing of the easterly abutment is exposed, about 12.0 feet long and 1.0 to 2.0 inches deep (minor).										
330			**Railing-Metal**	2	26	m	26	0	0	0
(330)										
There were no significant defects noted.										

WORK RECOMMENDATIONS

RecDate: 07/10/2019
Action : Paint-Spot Blast/Ful
Work By: LOCAL AGENCY
Status : PROPOSED

EstCost:
StrTarget: 2 YEARS
DistTarget:
EA:

Re-paint the entire steel members of this bridge (superstructure).

WORK RECOMMENDATIONS

RecDate: 07/12/2011
Action : Deck-Methacrylate
Work By: LOCAL AGENCY
Status : PROPOSED

EstCost:
StrTarget: 2 YEARS
DistTarget:
EA:

Prior to seal the deck cracks with methacrylate, contractors need to patch all deck spalls.

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 **55C0178**
(5) INVENTORY ROUTE(ON/UNDER)- ON 140000000
(2) HIGHWAY AGENCY DISTRICT 12
(3) COUNTY CODE 059 (4) PLACE CODE 00000
(6) FEATURE INTERSECTED- SILVERADO CANYON CREEK
(7) FACILITY CARRIED- SILVERADO CANYN RD
(9) LOCATION- 4.9 MI. E/O SANTIAGO ROAD
(11) MILEPOINT/KILOMETERPOINT 0
(12) BASE HIGHWAY NETWORK- NOT ON NET 0
(13) LRS INVENTORY ROUTE & SUBROUTE
(16) LATITUDE 33 DEG 44 MIN 45.83 SEC
(17) LONGITUDE 117 DEG 36 MIN 20.9 SEC
(98) BORDER BRIDGE STATE CODE % SHARE %
(99) BORDER BRIDGE STRUCTURE NUMBER

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

(43) STRUCTURE TYPE MAIN:MATERIAL- STEEL
TYPE- STRINGER/MULTI-BEAM OR GDR CODE 302
(44) STRUCTURE TYPE APPR:MATERIAL- OTHER/NA
TYPE- OTHER/NA CODE 000
(45) NUMBER OF SPANS IN MAIN UNIT 1
(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 1947
(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 2000
(30) YEAR OF ADT 2019 (109) TRUCK ADT 1 %
(19) BYPASS, DETOUR LENGTH 199 KM

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

(48) LENGTH OF MAXIMUM SPAN 12.5 M
(49) STRUCTURE LENGTH 12.8 M
(50) CURB OR SIDEWALK: LEFT 0.0 M RIGHT 0.0 M
(51) BRIDGE ROADWAY WIDTH CURB TO CURB 7.3 M
(52) DECK WIDTH OUT TO OUT 8.2 M
(32) APPROACH ROADWAY WIDTH (W/SHOULDERS) 6.4 M
(33) BRIDGE MEDIAN- NO MEDIAN 0
(34) SKEW 45 DEG (35) STRUCTURE FLARED NO
(10) INVENTORY ROUTE MIN VERT CLEAR 99.99 M
(47) INVENTORY ROUTE TOTAL HORIZ CLEAR 7.3 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

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SUFFICIENCY RATING = 45.6

PAINT CONDITION INDEX = 85.9

********** 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 4
(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- (LRFR) LD & RES FA 8
(64) OPERATING RATING- RF= 0.95
(65) INVENTORY RATING METHOD- (LRFR) LD & RES FA 8
(66) INVENTORY RATING- RF= 0.73
(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 5
(68) DECK GEOMETRY 4
(69) UNDERCLEARANCES, VERTICAL & HORIZONTAL N
(71) WATER ADEQUACY 9
(72) APPROACH ROADWAY ALIGNMENT 6
(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 4204
(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)