

Colorado Department of Transportation
Structure Inspection and Inventory Report (English Units)

Highway Number (ON) 5D: 470A 1

Mile Post (ON)11: 16.558 mi

Bridge Key: F-16-HW

Inspection Date: 3/24/2011

Sufficiency Rating: 95.0 Not Eligible

Rgn/Sectn 2E/2M:	68
Trans Region 2T:	02
County Code 3:	035
DOUGLAS	
Place Code 4:	00000
non-city	
Rte.(On/Under)5A:	1
Signing Prefix 5B:	3
Level of Service 5C:	1
Directional Suffix 5E:	0
Feature Intersected 6:	
SOUTH PLATTE RIVER	
Facility Carried 7:	
SH 470 ML EBND	
Alias Str No.8A:	
Prl Str No. 8P	
F-16-HV	
Location 9:	328.05117409
0.4 MI W.OF JCT 85,SANTA	
Max Clr 10:	99.99
BaseHiway Net12:	1
IrsinvRout 13A	000000470A
IrssubRout No13B:	00
Latitude 16:	39d 33' 58"
Longitude 17:	105d 02' 29"
Range18A:	68
Township18B:	68
Section18C:	31
Detour Length 19:	0.6 mi
Toll Facility 20:	3
Custodian 21:	1
Owner 22:	1
Functional Class 26:	12
Year Built 27:	1968
Lanes on 28A:	2
Lanes Under 28B:	0
ADT 29:	34,650
Year of ADT 30:	2007
Design Load 31:	5
Apr Rdwy Width 32:	38.0 ft
Median 33:	1
Skew 34:	30.00 °
Structure Flared 35:	0
Sfty Rail 36a/b/c/d:	1 0 1 1
Rail ht36h:	29 "in"

Hist Signif 37:	5
Posting status 41:	A
Service on/un 42A/B:	1 5
Main Mat/Desgn 43A/B:	2 4
Aprr Mat/Desgn 44A/B:	0 0
Main Spans Unit 45:	3
Approach Spans 46:	0
Horiz Clr 47:	38.0 ft
Max Span 48:	70.0 ft
Str Length 49:	173.3 ft
Curb Wdth L/R 50A/B:	0.0 ft 0.0 ft
Width Curb to Curb 51:	38.0 ft
Width Out to Out 52:	40.5 ft
Deck Area:	7,007.3 sq. ft
Min Clr Ovr Brdg 53:	99.99
Min Undrclr Ref 54A:	N
Min Undrclr 54B:	0.0 ft
Min Lat Clrnce Ref R 55A:	N
Min Lat Undrclr R 55B:	0.0 ft
Min Lat Undrclr L 56:	0
Deck 58:	6
Super 59:	7
Sub 60:	7
Channel/Protection 61:	7
Culvert 62:	N
Oprting Rtg Method 63:	1 LF Load Factr
Operating Rating 64:	50.8
Inv Rtnng Method 65:	1
Inventory Rating 66:	30.5
Asph/Fill Thick 66T:	006 "in"
Str. Evaluation 67:	6
Deck Geometry 68:	6
Undrclr Vert/Hor 69:	N
Posting 70:	5
Waterway Adequacy 71:	8
Approach Alignment 72:	8
Type of Work 75A:	
Work Done By 75B:	
Length of Improvment 76:	0.0 ft
Insp Team Indicator 90B:	BLUE TEAM
Inspector Name 90C:	ROSSARTB
Frequency 91:	24 months
FC Frequency 92A:	-1
UW Frequency 92B:	-1
SI Frequency 92C:	-1
FC Inspection Date 93A:	

UW Inspection Date 93B:	
SI Date 93C:	
Bridge Cost 94:	\$ 0
Roadway Cost 95:	\$ 0
Total Cost 96:	\$ 0
Year of Cost Estimate 97:	
Brdr Brdg Code/% 98A/B:	
Border Bridge Number 99:	
Defense Highway 100:	0
Parallel Structure 101:	R
Direction of Traffic 102:	1
Temporary Structure 103:	
Highway System 104:	1
Fed Lands Hiway 105:	0
Year Reconstructed 106:	0000
Deck Type 107:	1
Wearing Surface 108A:	6
Membrane 108B:	0
Deck Protection 108C:	0
Truck ADT 109:	3 %
Trk Net 110:	1
Pier Protection 111:	
NBIS Length 112:	Y
Scour Critical 113:	7
Scour Watch 113M:	
Future ADT 114:	49,896
Year of Future ADT 115:	2027
CDOT Str Type 120A:	CSGC
CDOT Constr Type 120B:	5.
Inspection Indic 122A:	
Inspection Trip 122AA:	
Scheduling Status 122B:	
Maintenance Patrol 123:	17
Expansion Dev/Type124:	B
Brdg Rail Type/Mod 125A/B:	W 2
Posting Trucks 129A/B/C:	0 0 0
Str Rating Date 130:	3/28/2003
Special Equip 133:	-1
Vert Clr N/E 134A/B/C:	X 99.99 0.00
Vert Clr S/W 135A/B/C:	X 99.99 0.00
Vertical Clr Date:	1/1/1901
Weight Limit Color: 139:	0
Str Billing Type:	U
Userkey 1 - System:	ONSYS
Userkey 7-Update Indic:	

Inspector Name: ROSSARTB

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Element Inspection Report

Elm/En	Description	Units	Total Qty	% in 1	CS 1	% in 2	CS 2	% in 3	CS 3	% in 4	CS 4	% in 5	CS 5
13/4	Unp Conc Deck/AC Ovl	(SF)	7,020	100 %	7,020	0 %	0	0 %	0	0 %	0	0 %	0
110/4	R/Conc Open Girder	(LF)	860	99 %	855	1 %	5	0 %	0	0 %	0	0 %	0
210/4	R/Conc Pier Wall	(LF)	88	100 %	88	0 %	0	0 %	0	0 %	0	0 %	0
215/4	R/Conc Abutment	(LF)	94	100 %	94	0 %	0	0 %	0	0 %	0	0 %	0
302/4	Compressn Joint Seal	(LF)	94	50 %	47	50 %	47	0 %	0	0 %	0	0 %	0
321/4	R/Conc Approach Slab	(EA)	2	100 %	2	0 %	0	0 %	0	0 %	0	0 %	0
325/4	Slope Prot/Berms	(EA)	2	50 %	1	50 %	1	0 %	0	0 %	0	0 %	0
326/4	Bridge Wingwalls	(EA)	4	100 %	4	0 %	0	0 %	0	0 %	0	0 %	0
334/4	Metal Rail Coated	(LF)	346	0 %	0	0 %	0	0 %	0	0 %	0	100 %	346
338/4	Conc Curbs/SW	(LF)	346	47 %	163	22 %	76	12 %	40	19 %	67	0 %	0
359/4	Soffit Smart Flag	(EA)	1	0 %	0	100 %	1	0 %	0	0 %	0	0 %	0
361/1	Scour Smart Flag	(EA)	1	100 %	1	0 %	0	0 %	0	0 %	0	0 %	0
501/1	Channel Cond	(EA)	1	100 %	1	0 %	0	0 %	0	0 %	0	0 %	0
502/1	ChannProtMatCond	(EA)	1	100 %	1	0 %	0	0 %	0	0 %	0	0 %	0
504/1	BankCond	(EA)	1	100 %	1	0 %	0	0 %	0	0 %	0	0 %	0
530/1	Approach Guardrail A	(EA)	1	100 %	1	0 %	0	0 %	0	0 %	0	0 %	0

Elem/Env	Description	Element Notes
13/4	Unp Conc Deck/AC Ovl	5 Inches to 6 inches of asphalt. Wheel lines are starting to rut. Alligator cracks have started to form. Longitudinal seams have been sealed.
110/4	R/Conc Open Girder	Light diagonal shear cracks; three at rear of Girder 1A, and one at forward end of Girders 3A & 3C. Typical light flexure cracks, seen mostly in exterior girders. Insignificant chips (< 1 inch deep) on the bottom edge of girders in Span 1. Girder 1D has shallow spall over bike/Pedestrian path. Girder 1E has several chips along the bottom edge.
210/4	R/Conc Pier Wall	Light to moderate stream abrasion on ends at waterline. Pier 3 has several areas of rock pockets span 2.
215/4	R/Conc Abutment	Good condition.
302/4	Compressn Joint Seal	Covered with asphalt. Asphalt is cracked open about 1 inch over both abutments. "D" Cracks have been sealed in past, but are re-opening. See 3/24/2011 PHOTOS.
321/4	R/Conc Approach Slab	Covered with asphalt. Wheel lines are starting to rut.
325/4	Slope Prot/Berms	Concrete retaining wall at Abutment 1 with bike path in front of it, then riprap on stream bank. Shotcreted berm at Abutment 1 has settled up to 3 inches, still OK. Rock riprap (up to 2 feet diameter) on slope at Abutment 4. Some erosion is occurring at Abutment 4 right from roadway runoff.
326/4	Bridge Wingwalls	Stub extensions of abutments. Some light horizontal cracks in #4 Right wingwall. #1 left has hairline shrinkage cracks.

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Elem/Env	Description	Element Notes
334/4	Metal Rail Coated	Type W rail. Galvanized thrie-beam rail has been placed on painted backing tubes. R2 to R4 corrosion on backing tubes full length. Base of most posts have R2-R4 corrosion. (See 2007 Photo) 4 Inch square tubes help to strengthen posts.
338/4	Conc Curbs/SW	Horizontal Delam. Cracking on tops of both below railing, and in both faces (primarily on gutter faces, but some on backsides) longitudinal cracks on right and left side. Several sections of curb on right side and left side are broken and spalled off. (See 3/2001 PHOTO) Some rust staining on curbs.
359/4	Soffit Smart Flag	Hairline and light map cracking, without efflorescence seen near abutments. Areas of efflorescence on right side between Pier 2 and Pier 3, also in Bay 1D. A moderate Delam. with efflorescence, in Bay 3D at Abutment 4. (See 2007 Photo) Span 2 has some moderate cracks with efflorescence. Longitudinal Cracking with efflorescence deposits, & map cracking with efflorescence in Bay 2D at Pier 2. (See 2007 Photo) See 2011 SKETCH
361/1	Scour Smart Flag	Scour holes at the Nose of Pier 2 and Pier 3. Greater than 3 feet deep.
501/1	Channel Cond	South Platte River. Live Bed. Good alignment. Sandy bed with some rock. Flows in all 3 spans. Chatfield Reservoir dam is about 1.5 miles upstream, controls flow.
502/1	ChannProtMatCond	Up to 3 feet diameter rock riprap on upstream banks and downstream banks between bridges. Small concrete check dam, with riprap on both sides, about 300 feet downstream.
504/1	BankCond	Gentle to steep banks with some rock & vegetation. Some erosion on outside of curve, well upstream.
530/1	Approach Guardrail A	#1 left guard rail is bent and scraped from vehicle impact at several locations.

Maintenance Activity Summary

MMS Activity	Description	Recommended	Status	Target Year	Est Cost
**356.01	Curb & RI	3/24/2005	-1	2013	30000

Replace bridge rail posts and backing tubes due to the R2 to R4 corrosion full length both sides.

356.02	Curb & RI	3/14/2001	-1	2013	5000
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Remove and replace delaminated/spalled concrete on right curb.

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MMS Activity	Description	Recommended	Status	Target Year	Est Cost
**398	Replace	3/24/2011	_	2012	1500

Letter to the City of Littleton about the R2 to R4 corrosion at the Bike/Pedestrian rail with missing and broken Horizontal tubes.

360.03	App SI & S	3/14/2001	-1	2012	10000
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Add riprap at nose of Piers 2 & 3, and the base of Abutment 4 slope at the right where some has been washed away.

Bridge Notes

Utility: 2 Inch diameter steel conduit hanging from rail post mounts on right side.
Bike and Pederstrain rail has seveal locations of broken tubes. Many locations of R2-R4 corrosion. Letter to the Municipality of Littleton.

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Inspection Notes

Time: 13:50 Temperature: 53 Degrees F.
Weather: Overcast/ Gusty Winds

Scope:

NBI: Element: Underwater: Fracture Critical: Other: Type: Regular NBI

Inspector: ROSSARTB

Inspection Team:

Inspection Date: 03/24/2011

Inspector

Inspector