

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

Highway Number (ON) 5D: 470A

Mile Post (ON)11: 25.934 mi

Bridge Key: F-17-JX      Inspection Date: 10/11/2011      Sufficiency Rating: 93.8      Not Eligible

Rgn/Sectn 2E/2M:	68
Trans Region 2T:	02
County Code 3:	035
DOUGLAS	
Place Code 4:	45955
45955	
Rte.(On/Under)5A:	1
Signing Prefix 5B:	3
Level of Service 5C:	7
Directional Suffix 5E:	0
Feature Intersected 6:	
25, SH 470 ML, RAMPS R	
Facility Carried 7:	
RAMP TO SH 470 EBD	
Alias Str No.8A:	
Prll Str No. 8P	
Location 9:	328.05117409
TOP FLYOVER, JCT I-25 & 4	
Max Clr 10:	99.99
BaseHiway Net12:	0
IrsinvRout 13A	0000000000
IrsSubRout No13B:	00
Latitude 16:	39d 33' 16"
Longitude 17:	104d 52' 06"
Range18A:	67 W
Township18B:	67
Section18C:	3
Detour Length 19:	0.6 mi
Toll Facility 20:	3
Custodian 21:	1
Owner 22:	1
Functional Class 26:	11
Year Built 27:	1991
Lanes on 28A:	2
Lanes Under 28B:	14
ADT 29:	90,200
Year of ADT 30:	2005
Design Load 31:	6
Apr Rdwy Width 32:	38.0 ft
Median 33:	0
Skew 34:	0.00 °
Structure Flared 35:	0
Sfty Rail 36a/b/c/d:	1   1   1   1
Rail ht36h:	36 "in"

Hist Signif 37:	5
Posting status 41:	A
Service on/un 42A/B:	8   1
Main Mat/Desgn 43A/B:	4   6
Appr Mat/Desgn 44A/B:	0   0
Main Spans Unit 45:	7
Approach Spans 46:	0
Horiz Clr 47:	38.0 ft
Max Span 48:	193.5 ft
Str Length 49:	1,196.3 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:	41.4 ft
Deck Area:	49,647. sq. ft
Min Clr Ovr Brgd 53:	99.99
Min Undrclr Ref 54A:	H
Min Undrclr 54B:	17.3 ft
Min Lat Clrnce Ref R 55A:	H
Min Lat Undrclr R 55B:	55.4 ft
Min Lat Undrclr L 56:	9.000000209
Deck 58:	7
Super 59:	7
Sub 60:	7
Channel/Protection 61:	N
Culvert 62:	N
Optprtng Rtg Method 63:	1 LF Load Factr
Operating Rating 64:	88.0
Inv Rtgng Method 65:	1
Inventory Rating 66:	38.0
Asph/Fill Thick 66T:	003 "in"
Str. Evaluation 67:	7
Deck Geometry 68:	9
Undrclr Vert/Hor 69:	9
Posting 70:	5
Waterway Adequacy 7:	N
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 (M
Inspector Name 90C:	MAESA
Frequency 91:	24 months
FC Frequency 92A:	24
UW Frequency 92B:	-1
SI Frequency 92C:	-1
FC Inspection Date 93A:	3/4/2010

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 Brgd Code/% 98A/B:	
Border Bridge Number 99:	
Defense Highway 100:	1
Parallel Structure 101:	N
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:	2
Deck Protection 108C:	1
Truck ADT 109:	5 %
Trk Net 110:	1
Pier Protection 111:	#
NBIS Length 112:	Y
Scour Critical 113:	N
Scour Watch 113M:	0
Future ADT 114:	144,320
Year of Future ADT 115:	2025
CDOT Str Type 120A:	SBGC
CDOT Constr Type 120B:	10
Inspection Indic 122A:	
Inspection Trip 122AA:	
Scheduling Status 122B:	
Maintenance Patrol 123:	30
Expansion Dev/Type124:	D
Brdg Rail Type/Mod 125A/B:	R   0
Posting Trucks 129A/B/C:	0   0   0
Str Rating Date 130:	11/13/1996
Special Equip 133:	12
Vert Clr N/E 134A/B/C:	X   99.99   0.00
Vert Clr S/W 135A/B/C:	S   17.67   17.25
Vertical Clr Date:	10/8/1993
Weight Limit Color: 139:	0
Str Billing Type:	U
Userkey 1 - System:	ONSYS
Userkey 7-Update Indic:	

Inspector Name: MAESA

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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
26/4	Conc Deck/Coatd Bars	(SF)	49,647	0 %	0	100 %	49,647	0 %	0	0 %	0	0 %	0
102/4	Paint Stl Box Girder	(LF)	2,392	99 %	2,377	1 %	15	0 %	0	0 %	0	0 %	0
210/4	R/Conc Pier Wall	(LF)	60	100 %	60	0 %	0	0 %	0	0 %	0	0 %	0
215/4	R/Conc Abutment	(LF)	83	100 %	83	0 %	0	0 %	0	0 %	0	0 %	0
234/4	R/Conc Cap	(LF)	170	100 %	170	0 %	0	0 %	0	0 %	0	0 %	0
300/4	Strip Seal Exp Joint	(LF)	76	100 %	76	0 %	0	0 %	0	0 %	0	0 %	0
307/4	Modular Expansion Jt	(LF)	83	100 %	83	0 %	0	0 %	0	0 %	0	0 %	0
308/4	Constr Non Exp Jt	(LF)	76	100 %	76	0 %	0	0 %	0	0 %	0	0 %	0
314/4	Pot Bearing	(EA)	16	100 %	16	0 %	0	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)	1	100 %	1	0 %	0	0 %	0	0 %	0	0 %	0
326/4	Bridge Wingwalls	(EA)	4	100 %	4	0 %	0	0 %	0	0 %	0	0 %	0
331/4	Conc Bridge Railing	(LF)	2,390	98 %	2,340	2 %	50	0 %	0	0 %	0	0 %	0
340/4	Superstr Cnc Coating	(EA)	1	100 %	1	0 %	0	0 %	0	0 %	0	0 %	0
341/4	Substr Conc Coating	(EA)	1	100 %	1	0 %	0	0 %	0	0 %	0	0 %	0
359/4	Soffit Smart Flag	(EA)	1	0 %	0	100 %	1	0 %	0	0 %	0	0 %	0

Elem/Env	Description	Element Notes
26/4	Conc Deck/Coatd Bars	2 to 3 inches of Asphalt. Transverse and longitudinal cracks. One impending pothole in Span 1 & 7 centerline, near Abutment 1. Raveling along left shoulder and near A8. Pothole in deck fwd of End Dam at A1, see pic.
102/4	Paint Stl Box Girder	SBGCs good condition. Active Moisture inside Girder A by FS 6. and span 3 mid-span of Girder B. Excessive pigeon droppings inside box girders at both abutments, #1 being the worst . Tension Control Bolts spline were not snapped off at the splice plates. Many are loose, possible hand tighten? One loose bolt at #1 Splice plate, on the Left web of Girder B, in Span 4; attempted to tighten in 2007, the nut is cross threaded on the bolt. Girder A splice plates 01 & 02. See 10-95; 10-05; & 03-10 Photos.
210/4	R/Conc Pier Wall	Good condition. Some minor rock pockets through out. Hairline shrinkage cracks, most at P3. Pier Wall #3 was scraped by a vehicle, no damage.
215/4	R/Conc Abutment	A few light vertical cracks. Some minor voids.
234/4	R/Conc Cap	Several hairline vertical cracks.

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Elem/Env	Description	Element Notes
300/4	Strip Seal Exp Joint	At Approaches -sleeper slab joints are filled with sand. A1 joint is open 1.75 inches at the Left, and 1.0 inch at the Right i-i of steel armor. A8 joint is open similarly. Concrete at the approach side of the joint at Abutment 1 and 8 is breaking up, adjacent to the armor. Some were previously patched, but have started to break up again. See 2010 photos.
307/4	Modular Expansion Jt	A series of 3 strip seals at both abutments. Both sand filled. Open about 8.5 inches, i-i of steel armor at both. End dams at Abutment 8, have several small spalls with rust staining. See 2010 photos.
308/4	Constr Non Exp Jt	Between abutments and approach slabs. Pushed down and full of sand. Minor D cracking at Abutment 8. Pothole has started to form #1 lane.
314/4	Pot Bearing	1 lateral movement restriction pintle at each abutment, and pier under the diaphragm. Strapping is still imbedded on the exterior side was never removed once they were placed. Concrete bases have hairline vertical cracks, no spalling or Delam at this time. Steel plates rust is starting to form. See 2010 photos.
321/4	R/Conc Approach Slab	Light longitudinal and shrinkage cracks in both. The Forward slab is spalled at A-8 Right.
325/4	Slope Prot/Berms	Conc. Slope Paving at A1 has minor undermining and settling of the top left edge. Minor settling at the Rt. side. One small tree growing through the joint at Abutment 1, Right side. Light horizontal cracks in some concrete panels. Dirt slope at Abutment 8.
326/4	Bridge Wingwalls	Hairline line horizontal crack at the top and at the construction joint with efflorescence. Some minor shrinkage cracks. Some moisture intrusion under paint. See 2010 photos.
331/4	Conc Bridge Railing	Left side abutment 1 spall with exposed rebar. Typical vertical cracking with some efflorescence. Several locations of tire scuff marks. Paint has started to peel.
340/4	Superstr Cnc Coating	Peeling along the base and mid height of the concrete Jersey barrier rails.
341/4	Substr Conc Coating	Minor scrapes on Pier 3 wall. Some moisture intrusion at the abutment and wing wall.
359/4	Soffit Smart Flag	Stay-in-place forms between box girders, and inside of them. One rust stained area in Span 4, between the girders. (Exterior) Interior span 3 of Girder 3B- SIP form has active R1 corrosion. Overhangs have transverse cracks with efflorescence. More pronounced near Abutments and Piers. See 2010 photos.

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**Maintenance Activity Summary**

MMS Activity	Description	Recommended	Status	Target Year	Est Cost
**353.04	Br Dk Rpr	10/11/2011	_	2011	1000

Patch potholes on concrete roadway approach to abutment 1.

352.00	Cln & Wash	3/4/2010	-1	2010	150
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Inside Box Girder A at spans 3 & 6. Bolts are loose for drainage system.

398.00	Replace	10/27/2005	-1	2012	50
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Install ladder stops on slope paving at Abutment 1.

**364.01	Exp Jts	10/11/2011	_	2011	
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Repair damaged concrete along Strip Seal Joint Plate at A1 on roadway approach.

398	Misc Br Wk	8/24/2001	-1	2012	20
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Roadway is pulling away from the Right approach concrete rail, the gap needs to be sealed.

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<b>MMS Activity</b>	<b>Description</b>	<b>Recommended</b>	<b>Status</b>	<b>Target Year</b>	<b>Est Cost</b>
*354.00	Suprstr	3/4/2010	-1	2012	500

Tension Control Bolts splines were not all snapped off in either girder A or B at the splice plates in all spans. Some in the top flange, some in the bottom flange, and the longitudinal stiffener.

**354.04	Suprstr	10/27/2005	-1	2012	5000
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Clean the excessive pigeon droppings from inside of the box girders at both abutments, especially SPAN 1; and consider installing screen doors on the end diaphragm access holes. This impedes inspection of Span 1 end at Abutment 1.

**Bridge Notes**

Inside wired with lights, power source needed.  
 Drain pipes are attached to the Left end of Pier walls 3, and 6.  
 1 inch separation at the base of concrete barrier, to approach roadway at the Forward end, Right side of the roadway.  
 Did not put Snooper on the bridge in 2007.  
 A-40 was used off the right side in 2010 inspection.  
 Accessed Girder B from Abutment 8 during 2007 inspection. Girders A & B were access in the 2010 inspection from Abutment 8- best parking. MODERATE DETER. OF CONC. 4 IN. DEEP 6 IN. WIDE ON RDWY APPRO. ALONG REAR PLATE OF STRIP SEAL JT. AND EXPOSING ANCHORS, BOTH LANES. ALSO 3 AREAS ON RDWY APPRO TO A1 APPRO. SLAB THE CONC. IS DETER., POTHOLING. SEE PICS.

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**Inspection Notes**

Time: 9:30 Temp: 63 WEATHER: P/C  
Access Holes through bottom flanges at both abutments, with no locks on the doors; Span 1 access doors are 10.5 feet above the concrete slope paving (w/o ladder stops), making this end difficult to access. If ladder stops were installed, one could rest the end of the ladder on the abutment seat to open the doors. Span 7 access doors are about 5 feet above the dirt berm. This span can also be accessed by some from getting on the ends of the abutment, seat and going around the end of the girder. Lots of dried pigeon feces; up to a foot high against the web, and a couple of inches high on the lower flanges of Span 1 girders.

**Scope:**

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

Inspector: MAESA

Inspection Team:

Inspection Date: 10/11/2011

\_\_\_\_\_  
Inspector

\_\_\_\_\_  
Inspector