

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

Highway Number (ON) 5D: 006G

Mile Post (ON)11: **284.530 mi**

Bridge Key: F-16-EJ Inspection Date: **12/19/2011** Sufficiency Rating: **42.9** **SD**

Rgn/Sectn 2E/2M:	68
Trans Region 2T:	02
County Code 3:	031
DENVER	
Place Code 4:	20000
DENVER	
Rte.(On/Under)5A:	1
Signing Prefix 5B:	2
Level of Service 5C:	1
Directional Suffix 5E:	0
Feature Intersected 6:	
BNSF RR	
Facility Carried 7:	
US 6 ML	
Alias Str No.8A:	
BRIDGE ENTERPRISE, TC1889	
Pril Str No. 8P	
F-16-EI	
Location 9:	328.05117409
EAST EDGE OF I-25 INT.	
Max Clr 10:	99.99
BaseHiway Net12:	1
IrsinvRout 13A	000000006G
IrssubRout No13B:	00
Latitude 16:	39d 43' 32"
Longitude 17:	105d 00' 40"
Range18A:	68 W
Township18B:	68
Section18C:	4
Detour Length 19:	2.0 mi
Toll Facility 20:	3
Custodian 21:	1
Owner 22:	1
Functional Class 26:	02
Year Built 27:	1956
Lanes on 28A:	8
Lanes Under 28B:	0
ADT 29:	137,000
Year of ADT 30:	2008
Design Load 31:	5
Apr Rdwy Width 32:	162.0 ft
Median 33:	2
Skew 34:	7.00 °
Structure Flared 35:	1
Sfty Rail 36a/b/c/d:	0 0 0 0
Rail ht36h:	38 "in"

Hist Signif 37:	5
Posting status 41:	A
Service on/un 42A/B:	1 2
Main Mat/Desgn 43A/B:	4 2
Appr Mat/Desgn 44A/B:	0 0
Main Spans Unit 45:	2
Approach Spans 46:	0
Horiz Clr 47:	70.0 ft
Max Span 48:	68.7 ft
Str Length 49:	130.0 ft
Curb Wdth L/R 50A/B:	0.0 ft 0.0 ft
Width Curb to Curb 51:	140.0 ft
Width Out to Out 52:	148.5 ft
Deck Area:	19,305. sq. ft
Min Clr Ovr Brdg 53:	99.99
Min Undrclr Ref 54A:	R
Min Undrclr 54B:	22.3 ft
Min Lat Clrnce Ref R 55A:	R
Min Lat Undrclr R 55B:	15.5 ft
Min Lat Undrclr L 56:	0
Deck 58:	5
Super 59:	5
Sub 60:	4
Channel/Protection 61:	N
Culvert 62:	N
Oprtg Rtg Method 63:	1 LF Load Fact
Operating Rating 64:	42.5
Inv Rtg Method 65:	1
Inventory Rating 66:	25.6
Asph/Fill Thick 66T:	004 "in"
Str. Evaluation 67:	4
Deck Geometry 68:	9
Undrclr Vert/Hor 69:	6
Posting 70:	5
Waterway Adequacy 7:	N
Approach Alignment 72:	8
Type of Work 75A:	31
Work Done By 75B:	1
Length of Improvment 76:	129.9 ft
Insp Team Indicator 90B:	WHITE TEAM
Inspector Name 90C:	CHURCHESK
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:	\$ 3,058,770
Roadway Cost 95:	\$ 305,877
Total Cost 96:	\$ 4,588,155
Year of Cost Estimate 97:	2006
Brdr Brdg Code/% 98A/B:	
Border Bridge Number 99:	
Defense Highway 100:	0
Parallel Structure 101:	N
Direction of Traffic 102:	2
Temporary Structure 103:	
Highway System 104:	1
Fed Lands Hiway 105:	0
Year Reconstructed 106:	1966
Deck Type 107:	1
Wearing Surface 108A:	6
Membrane 108B:	0
Deck Protection 108C:	0
Truck ADT 109:	2 %
Trk Net 110:	1
Pier Protection 111:	#
NBIS Length 112:	Y
Scour Critical 113:	N
Scour Watch 113M:	
Future ADT 114:	154,810
Year of Future ADT 115:	2028
CDOT Str Type 120A:	CIC
CDOT Constr Type 120B:	0.
Inspection Indic 122A:	
Inspection Trip 122AA:	
Scheduling Status 122B:	
Maintenance Patrol 123:	7
Expansion Dev/Type124:	1
Brdg Rail Type/Mod 125A/B:	Y 4
Posting Trucks 129A/B/C:	0 0 0
Str Rating Date 130:	11/24/2010
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:	11/8/1993
Weight Limit Color: 139:	0
Str Billing Type:	U
Userkey 1 - System:	ONSYS
Userkey 7-Update Indic:	

Inspector Name: CHURCHESK

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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)	19,305	0 %	0	100 %	19,305	0 %	0	0 %	0	0 %	0
107/4	Paint Stl Opn Girder	(LF)	2,540	77 %	1,951	15 %	370	7 %	181	1 %	38	0 %	0
201/1	Unpnt Stl Column	(EA)	3	100 %	3	0 %	0	0 %	0	0 %	0	0 %	0
205/4	R/Conc Column	(EA)	9	56 %	5	11 %	1	22 %	2	11 %	1	0 %	0
215/4	R/Conc Abutment	(LF)	300	42 %	125	25 %	75	33 %	100	0 %	0	0 %	0
234/4	R/Conc Cap	(LF)	135	0 %	0	37 %	50	56 %	75	7 %	10	0 %	0
304/4	Open Expansion Joint	(LF)	142	58 %	82	42 %	60	0 %	0	0 %	0	0 %	0
308/4	Constr Non Exp Jt	(LF)	300	0 %	0	100 %	300	0 %	0	0 %	0	0 %	0
311/4	Moveable Bearing	(EA)	40	28 %	11	28 %	11	45 %	18	0 %	0	0 %	0
313/4	Fixed Bearing	(EA)	20	0 %	0	0 %	0	100 %	20	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	75 %	3	25 %	1	0 %	0	0 %	0	0 %	0
331/4	Conc Bridge Railing	(LF)	260	92 %	240	8 %	20	0 %	0	0 %	0	0 %	0
334/4	Metal Rail Coated	(LF)	260	50 %	130	0 %	0	40 %	104	10 %	26	0 %	0
338/4	Conc Curbs/SW	(LF)	260	0 %	0	42 %	110	29 %	75	29 %	75	0 %	0
359/4	Soffit Smart Flag	(EA)	1	0 %	0	0 %	0	0 %	0	100 %	1	0 %	0

Elem/Env	Description	Element Notes
13/4	Unp Conc Deck/AC Ovl	3 - 4 Inches of asphalt. Light to mod. raveling of asphalt along seams. Few areas of allig. cracking and dishing in EBnd lanes. Small pothole in #2 EBnd lane above Span 2.
107/4	Paint Stl Opn Girder	Girders in Span 1 are heavily blackened by train exhaust. Girders at A3; 2I to 2R have been blackened by camp fires. Some R1 to R2 corrosion on top flanges where deck leaks & may be loose. Light rust/poor paint is mainly in Span 1. Some R1 & R2 corrosion in Span 2, mainly below joints on exterior girders, and Girders I & K. (See Tally Sheet) Corners of most flanges are digging about 1/4 inch into Abutment 3 backwall, and about 1 inch at Girder 2Q.
201/1	Unpnt Stl Column	Three unpainted steel columns have been placed below Girders 2R, 2S, and 2T near Pier 2 for temporary support. (See 2011 Photo)
205/4	R/Conc Column	Column 2I is spalled behind the main vert. reinf. bars (>3 inches deep) full height on right side. These bars have at least 25% section loss & are bowing out. The 12 consecutive tie bars are all corroded through on this south face. 8 Bands (usually used to attach signs to poles) were placed around the column to limit the bowing of the main reinf. (See 2008 & 2009 Photos) Column A has a 3/16 vertical crack, and some rust stains with delamination. Column E has vertical cracks and delamination. (See 2003 & 2008 Photos)

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215/4	R/Conc Abutment	Abutment 1 is a tall retaining wall. Some horizontal, vertical, & diagonal cracks, some with efflorescence in Abutment 1. Face of Abutment 1 is delaminating on right side. Series of 1/8 inch vertical cracks with efflorescence that extend from groundline to below Girder C at Abutment 1. Breastwall of Abutment 3 cap has areas of spalled concrete with exposed corrosion in rebar, the worst is right half of Abutment 3. (See 2008 Photo) Spalling & delaminating along moderate horizontal cracks in Abutment 3, worst conditions are below Girders D, E, F, M, N, O & P. Some light vert., horiz., and diagonal cracks with efflor. in backwall of Abutment 3. Up to 6 inches of debris built up on bearing seat at Abutment 3. Abutment 1 wall is possibly being pushed towards Abutment 3 - A3 rockers have rotated, girders are pushing against backwall of Abut. 3 causing minor spalling. This is not a problem yet; bridge will probably be replaced before it is very significant.
234/4	R/Conc Cap	Pier caps have moderate to heavy horizontal cracks with areas of shallow to deep delamination, rust stains, and many areas of efflorescence. (See 2009 Photo of typical) No apparent bearing loss, but unable to get bucket truck below, used long ladder in 2008 Inspection. Cap under Girders 1A, 1B, and 1C shallow concrete spalled to rebar, no loss of bearing at this time. (See 2003 & 2008 Photos) Heavy spall with exposed rebar that is corroded, and moderate delam. cracks at P2 cap below Bay 2D, and below Girders 2R, 2S and 2T. (See Photos)
304/4	Open Expansion Joint	At Abutment 3. Asphalt covered and cracking.
308/4	Constr Non Exp Jt	At Abutment 1 & Pier 2. Asphalt cover is cracked and leaking, noted by icicles at times.
311/4	Moveable Bearing	Rockers at Pier 2 and at Abutment 3. R2 to R3 corrosion and heavy flaking rust on most. Bearings 3G, 3H, and 3L to 3Q have rotated to where girders are pushing against Abutment 3 backwall and causing some minor spalling (probably due to Abut. 1 being pushed inward).
313/4	Fixed Bearing	At Abutment 1. R1 to R2 corrosion on all.
321/4	R/Conc Approach Slab	Per plans - Covered with asphalt, no problems, but edges are starting to become exposed due to settling and erosion of fill along wings.
325/4	Slope Prot/Berms	Dirt slope & berm at Abutment 3. Some homeless encampments have been constructed on top of wide dirt berm area. (See 2011 Photo)
326/4	Bridge Wingwalls	Tall flared wings for retaining wall Abutment 1. Some spalling with exposed rebar along joint at #1 Rt. wing. Joint is open >2 inches at the top of #1 Right wingwall, allowing some loss of backfill. (See 2009 Photos) The joint at #1 Left wing is open slightly. Stubs for Abutment 3 cap, ok.
331/4	Conc Bridge Railing	Jersey barriers - In median (cast-in-place & continuous), and portable sections in front of left metal rail. Minor spalling, scale, tire marks, shrinkage, vertical cracks and delamination at base. (See 2008 Photos) Many fiberglass vert. glare strips attached to median barrier have been damaged. (See 2009 Photo)
334/4	Metal Rail Coated	Galvanized Type Y at right, was new in 1998, still OK. The original painted Type U rail at left is not being used because Jersey barrier has been placed in front of it. But it has R2-R4 corrosion on left posts @ base, spots of peeling paint, with R1-R4 corrosion, on railing. (See 2009 & 2003 photos)

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338/4	Conc Curbs/SW	Many spalls along top edges, some with exposed rebar. Extensive horiz. delam. cracking along face, right side is the worst. (See 2009 & 2008 Photos)
359/4	Soffit Smart Flag	Areas of map cracking with moderate efflorescence and rust stains, saturation in some of these areas with stalactites and icicles. The worst are in Bays A, B, C and I. Few other trans. cracks with efflor.: Span 2 (5 to 20 feet from Abutment 3) 1/32 inch trans. cracks with some differential especially in Bay 2Q with 1/8 inch difference. (See 1993 Photo) Spall (2½ ft. X 2 ft.) with exposed rebar in Bay 2P, 5 feet from Abutment 3. (See 1993 Photo) Spall with exposed rebar (about 14 SF) in Bay 2I about 15 ft. from Pier 2. (See 1993 & 2002 Photos) Some cracks, spalls, delaminations, and rust stains full length in Bay T. Patches, two in Bay 2H adjacent to Girder I, one in Bay 2L next to Girder L. Shallow delam cracking in Bay 2H, 12 feet from Abutment 3. Delam cracking and spalls in Bay 2o. Estimate about 25% total deck bad.

Maintenance Activity Summary

MMS Activity	Description	Recommended	Status	Target Year	Est Cost
398	Misc Br Wk	12/19/2011		2014	3000

Remove transient encampments that have been constructed on top of Abutment 3 slope.

357.05	Bearings	2/4/2008	-1	2014	3000
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Clean and paint dirty and rusting rocker bearings at Abutment 3.

358.05	Substr	2/4/2008	-1	2014	5000
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Column 2I needs rehabilitation of South face.

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Maintenance Activity Summary

MMS Activity	Description	Recommended	Status	Target Year	Est Cost
355.02	Cln & Pnt	1/7/2002	-1	2014	5000

Clean and spot paint steel girders and bearings, especially girder ends and bearings at Abutment 3.

360.00	App SI & S	12/21/2009	-1	2014	400
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Place fill at both sides of rear slab, there is settlement and erosion 2-3 feet deep between roadway and wings.

Bridge Notes

Transients are living in encampments constructed at top of Abutment 3 slope.
 There is soot from camp fires on Abutment 3 & girders.
 Much of the transient waste was taken to a roll-off dumpster, but continues to build up.

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Inspection Notes

Temperature: 30°
Time: 9:50
Weather: Overcast

Scope:

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

Inspector: CHURCHESK

Inspection Team:

Inspection Date: 12/19/2011

Inspector

Inspector