

Bridge Inspection							
Bridge File Number	09551 -1 Bridge			Form Type	TH SG		
Year Built/Year Supstr	1959/1959			Lot No.	1		
Bridge or Town Name	MORRIN			Inspector Name	Owen Salava		
Located Over	RED DEER RIVER, 3, WATERCRS-ST			Inspector Class	BR CLS A		
Located On	27:10 C1 23.976			Assistant Name			
Water Body Cl./Year				Assistant Class			
Navigabil. Cl./Year				Inspection Date	25-Oct-2012		
Legal Land Location	SW SEC 15 TWP 31 RGE 21 W4M			Data Entry By	Marcia Chavez		
Longitude, Latitude	-112:54:12, 51:39:02			Data Entry Date	08-Nov-2012		
Road Authority	Alberta Transportation (AIT)			Reviewer Name	John O'Brien		
Contract Main. Area	CMA20			Review Date	29-Oct-2012		
Clear Roadway/Skew	7.3 /			Dept. Reviewer Name	Andrew Smikles		
AADT/Year	1,890 / 2011 (A)			Dept. Review Date	19-Nov-2012		
Road Classification	RAU-211.8-110			Follow-Up By			
Detour Length (km)	46						
Allowable Load (t):	Single	CS1 32 STRINGER	Semi	CS2 57 STRINGER	Train	CS3 74 GIRDER	---> On Critical Spans --->Critical Member
Design Loading:	HS20						---> Primary Span

Posting Information												
Required Vert. Clearance Posting (m)												
Posted Vertical Clearance (Y/N) Yes												
Posted:	Lane	EB	On Bridge (m)	5.3	In Advance (Y/N)	Yes	Lane	WB	On Bridge (m)	5.3	In Advance (Y/N)	Yes
Remarks Measured S1 - 5.47m S2 - 5.48m.												
Required Load Posting (t)			Single		Semi		Truck Train					
Posted Loading (t)			Single		Semi		Truck Train					
Posted:	Lane	EB	At Junction (Y/N)	No	In Advance (Y/N)	No	At Bridge (Y/N)	No				
Posted:	Lane	WB	At Junction (Y/N)	No	In Advance (Y/N)	No	At Bridge (Y/N)	No				
Remarks Not required.												
Hazard Marker At Bridge (Y/N)		Yes										
Remarks												
Other Sign Types		Brake Check at Hills, 6%, Low Gear, Curves, 85 km/hr, info										

Utilities (Located at)			
Utility Attachments			
Telephone		Gas	
Power		Municipal	
Others		Problem (Y/N)	No
Remarks			

Approach Road				
		Last	Now	Explanation of Condition
Horizontal Alignment		4	4	Road winds down to bridge on 6% grade. Climbing lane on both directions. Signage in place.
Vertical Alignment		4	4	
Roadway Width (m)	11.000			Post spacing incorrect. Rust at some guardrails.
Approach Bump		7	7	
Guardrail (Y/N)	Yes			
Guardrail		5	5	
Length (m)	45.000			
Current Standard (Y/N)	Yes			
Termination Type	TURNED DOWN			
Drainage		4	4	Erosion @ streambed of SE man-made ditch.
<b>Approach Road General Rating</b>		<b>4</b>	<b>4</b>	

Superstructure					
Bridge Component		Last	Now	Explanation of Condition	
(Primary Span : TH, 4 Spans, Lengths(m): 27.4-61-61-27.4, A-Ident Number: A0301-02;A0301-03;A0301-01;A0301-04)					
<b>Special Features</b>					
Special Feature			X		
(Type : )					
Special Feature			X		
(Type : )					
<b>Wearing Surface/Deck Top Detail Ratings</b>					
	N (%)	1 (%)	2 (%)	3 (%)	
<b>Last</b>	5	0	0	0	
<b>Now</b>	5.0	0.0	0.0	0.0	
Wearing Surface/Deck Top			5	5	Chip coat on top of epoxy. Deck cantilevered and reduces deck from 5 girders to 3. Long crk @ S1 Bay 6 to 9 on EB gutter - no punchout to date.
(Material Type : <b>CONCRETE - CONVENTIONAL CHIP SEAL COAT</b> )					
(Plank Thickness(mm) : <b>50</b> )					
(Plank Width(mm) : )					
Deck Rideability			7	7	
Deck Joints			3	3	(P1 - missing 4 curb COV PL bolts. P2 - missing 2 curb COV. PL bolts. P3 - missing 2 curb COV PL bolts. 17Feb2009). Snow covered. P1 & 3 seals appear to leak. P1 has pothole along paving lip & 1 missing cover plate bolt was viewed.  E. pier (P3) 77mm.
Temperature (deg. C)		-4			
(Expansion Type : <b>ARMoured GLAND (WABO UNDER FINGER OR SLIDING PLATES)</b> )					
(Fixed Type : )					
Gap Size (mm)		Gap Location			
95		W pier (P1)			
70		C pier (P2)			
Curbs/Wheel Guards			N	N	(30% medium scaling with random wide cracks on curbs. Heavy scaling at all parapets. Exposed curb rebar, open curb joints & spalled external at numerous locations. 17Feb2009). Snow covered.
(Curb Type : <b>Standard</b> )					
(Type : <b>CONCRETE</b> )					
(Curb Height(mm) : <b>300</b> )					
(Width(mm) : <b>250</b> )					
Bridge Rail			4	4	Cracked weld throughout. 10% of stitched welds cracking due to corrosion stresses.
(Type : <b>BRIDGE TUBE</b> )					
Bridge Rail Posts/Blocking			4	4	(Concrete base for posts cracking / delam. 17Feb2009). Base snow covered.
(Type : <b>POST STEEL;POST STEEL</b> )					
Bridge Rail/Posts Coating			4	4	Paint failure on all surfaces. Blistering @ rail to truss connections.
(Type : <b>PAINT</b> )					
Sidewalk			X	X	

Superstructure							
Bridge Component		Last	Now	Explanation of Condition			
(Primary Span : TH, 4 Spans, Lengths(m): 27.4-61-61-27.4, A-Ident Number: A0301-02;A0301-03;A0301-01;A0301-04)							
Wide Load Damage (Y/N)	Yes			See UT 2008 for all details. There are many dents and nicks that are minor.  (There are 5 missing bolts at random locations. 17Feb2009). Corrosion at ends  Heavy corrosion at top flange of exterior stringers			
High Load Damage (Y/N)	Yes						
Top Chord		7	7				
Batter Posts		6	6				
Sway Bracings		5	5				
Diagonals		6	6				
Verticals		6	6				
Portals		4	5				
Connections		4	4				
Floor Beams		5	5				
Bottom Chord		6	6				
(No. of Stringers : 50;50)							
Stringer Detail Ratings							
	N (count)	1 (count)	2 (count)	3 (count)			
<b>Last</b>							
<b>Now</b>							
Stringers			4	4			
(Type : STEEL)							
(Width(mm) : 200)							
(Depth(mm) : 460)							
(Spacing(mm) : 1639)							
Paint Condition		3	3	Superficial rust on btm flanges. 15% corrosion in splash zone. Bearings need painting.			
(Colour Description : )							
(Colour Code : )							
Touchup Required (Y/N)	No						
Bearings		4	4	(Splash zone and bottom chord or trusses painted with bridgecote in July/92). (P1 S bearing is misaligned 50mm - photo. 21Dec2010) - Snow covered. Exp=P2; Fixed=P1,3.			
Temperature (deg. C)	-4						
(Expansion Type : PINNED BEARING)							
(Fixed Type : ROCKER BEARING)							
Functioning (Y/N)	Yes						
Sub Deck/Deck Underside		3	3	Exposed rebar on U/S along exteriors			
(Material Type : CONCRETE)							
(Plank Thickness(mm) : 150)							
(Plank Width(mm) : )							
Defects (Percent Area)	20						
<b>Span Alignment Problems</b>							
Vertical (Y/N)	No						
Horizontal (Y/N)	No						
<b>Superstructure General Rating</b>		<b>3</b>	<b>3</b>				
Superstructure							
Bridge Component		Last	Now	Explanation of Condition			
(Secondary Span : RB)							
<b>Special Features</b>							
Special Feature			X				
(Type : )							
Special Feature			X				
(Type : )							

Superstructure					
Bridge Component		Last	Now	Explanation of Condition	
(Secondary Span : <b>RB</b> )					
Wearing Surface/Deck Top Detail Ratings					
	N (%)	1 (%)	2 (%)	3 (%)	
<b>Last</b>	5	0	0	0	
<b>Now</b>	5.0	0.0	0.0	0.0	
Wearing Surface			6	6	Chipcoat on top of epoxy.
(Material Type : <b>CONCRETE - CONVENTIONAL CHIP SEAL COAT</b> )					
(Thickness(mm) : <b>50</b> )					
Deck Top			N	N	
Deck Rideability			7	7	
Deck Joints			5	5	All joints appear to still leak.
Temperature (deg. C)		-4			
(Expansion Type : <b>ARMoured GLAND (WABO UNDER FINGER OR SLIDING PLATES)</b> )					
(Fixed Type : )					
Gap Size (mm)		Gap Location			
78		W. abut (A1)			Koch joint at Abut 2
		E. abut (A2)			
95		W. pier (P1)			
70		Centre pier (P2)			
77		E. pier (P3)			
Deck Drainage			6	6	
Drains Clogged (Y/N)		No			
Curbs/Median			N	3	(Medium scaling on curbs - worst @ SW.3. 17Feb2009). Snow covered. Post 9 at S of S4 has curb spall with post anchor assembly exposed.
(Curb Type : <b>Standard</b> )					
Scaling (Percent Area)		30			
Bridge Rail			3	3	Welds cracked due to corrosion stress. S1-SP7 missing bottom bolt & top bolt pulled through at splice
(Type : <b>BRIDGE TUBE</b> )					
Bridge Rail Posts			3	3	(100% section loss @ S2 SE end post. - photo. 17Feb2009).
(Type : <b>POST STEEL;POST STEEL</b> )					
Bridge Rail/Posts Coating			3	3	Paint failure in all locations.
(Type : <b>PAINT</b> )					
Sidewalk			X	X	
<b>Girder/Beam</b>					
Cover Plate			6	6	Approx 25 mm sag in all RB girders. Superficial rust started along coverplates. Superficial rust @ btm flanges.  (Crack weld S4G2,4 W. end coverplate N. edge.) - Previous coverplate inspection. Downspouts field welded to btm flanges.
Flange			6	6	
Web			7	7	
Stiffeners			X	X	
Splice			X	X	
Weld			4	N	
Diaphragms/Cross Frame			7	7	
Paint Condition			4	4	10% superficial corrosion at flange edges. (Carbo-mastic paint overcoated with bridgecote in July/92.)
(Colour Description : )					
(Colour Code : )					
Touchup Required (Y/N)		Yes			

Superstructure						
Bridge Component		Last	Now	Explanation of Condition		
(Secondary Span : RB)						
Bearings		5	5	Exp=A1,2; Fixed=P1,3		
Temperature (deg. C)	-4					
(Expansion Type : <b>PINNED BEARING</b> )						
(Fixed Type : <b>ROCKER BEARING</b> )						
Coating Adequate (Y/N)	No			Scaling rust on rocker bearing + anchor bolts.		
Functioning (Y/N)	Yes					
Deck Underside		6	6	Efflorescence at S4 near A2.		
Stains (Percent Area)	1					
<b>Span Alignment Problems</b>						
Vertical (Y/N)	No					
Horizontal (Y/N)	No					
<b>Superstructure General Rating</b>		<b>4</b>	<b>4</b>	GR carried forward from 21Dec2010 based on coverplate weld.		
Substructure						
Bridge Component		Last	Now	Explanation of Condition		
<b>Abutments</b>						
(Extended Backwall Piles (Y/N) : <b>N</b> )						
(Extended Backwall Piles Spacing(mm) : )						
(Total Number of Caps/Corbels : <b>1:1</b> )						
Bearing Seats/Caps/Corbels Detail Ratings						
	N (count)	1 (count)	2 (count)	3 (count)		
<b>Last</b>	0	0	0	0		
<b>Now</b>	0	0	0	0		
Bearing Seats/Caps/Corbels		4	4	Heavy scaling at both abuts.		
(Type : <b>CONCRETE</b> )						
(Depth(mm) : )						
(Width(mm) : )						
Backwalls/Breastwalls		4	4	Sev. scaling on E. backwall due to leaky deck jt.		
Greatest Height (m)	2.00					
Wingwalls		5	5			
(Total Number of Bearing Piles : <b>0:0</b> )						
Piles Detail Ratings						
	N (count)	1 (count)	2 (count)	3 (count)		
<b>Last</b>	100	0	0	0		
<b>Now</b>	100	0	0	0		
Piles		N	N			
Paint/Coating		X	X			
Abutment Stability		7	7			
Scour/Erosion		5	5			
<b>Piers/Bents</b>						
(Type : <b>PIER-SOLID</b> )						
(Total Number of Caps/Corbels : <b>1:1:1</b> )						
Bearing Seats/Caps/Corbels Detail Ratings						
	N (count)	1 (count)	2 (count)	3 (count)		
<b>Last</b>	0	0	0	2		
<b>Now</b>	0	0	0	2	Severe spalling with exposed rebar at S end P1 & P3. Spalled area at S end of P2 - photos.	
Bearing Seats/Caps/Corbels		3	3			
(Type : <b>CONCRETE</b> )						

Substructure						
Bridge Component				Last	Now	Explanation of Condition
(Total Number of Bearing Piles : <b>0:0:0</b> )						
Piles Detail Ratings						
	N (count)	1 (count)	2 (count)	3 (count)		
<b>Last</b>	0	0	0	0		
<b>Now</b>	0	0	0	0		
Pier Shaft/Piles				4	4	Estimate 15% of exposed piers delaminated. Med. scaling on pier faces. Approx. 15m2 W face P3 concrete delaminating (photo). SW corner of P1 scaled & delaminated. NE corner has spall. P2 has spall at SW corner.
Greatest Height (m)		7.70				
Bracing/Struts/Sheathing				X	X	
Nose Plate				7	7	
Paint/Coating				4	4	25% superficial corrosion for nose only - monitor.
(Colour Description : )						
(Colour Code : )						
Pier Stability				7	7	
Scour				N	N	Ice
Debris (Y/N)		No				
<b>Substructure General Rating</b>				<b>3</b>	<b>3</b>	
Structure Usage						
				Last	Now	Explanation of Condition
<b>Channel</b>						
(U/S Direction : <b>N</b> )						
(D/S Direction : <b>S</b> )						
Alignment				8	8	
Bank Stability				6	6	
HWM (m below Top of Curb)		5.0				(Top of water to subdeck 10.0m.) 93/07/14 Drift at P1 & at A1.
Drift (Y/N)		Yes				
Slope Protection				7	7	Concrete filled sandbags at A2 hslp.
(Type : <b>NATURAL; NATURAL</b> )						
Guidebank/Spurs				X	X	
Adequacy of Opening				8	8	
(Fish Compensation Measure 1 : <b>NONE</b> )						
(Fish Compensation Measure 2 : <b>NONE</b> )						
<b>Channel General Rating</b>				<b>7</b>	<b>7</b>	

**Maintenance Recommendations**

Inspector Recommendations	Year	Inspector Comments	Department Comments	Target Year	Est. Cost	Cat #
REPAIR/REPLACE BRIDGE RAIL	2013	Replace bridgerail with double layer flexbeam + new bridge post anchorage. Replace SE end post, if not yet done.				
GALVANIZE/PAINT BRIDGE RAIL						
RETROFIT BRIDGE RAIL						
SEAL CURBS	2013	Recast exposed bridgepost anchorages, if not yet done.				
PATCH DECK	2013	Deck Underside				
SEAL DECK						
OVERLAY DECK						
REPAIR/REPLACE DECK JOINTS						
RESET/ PAINT BEARINGS	2013	Reset P1 roller nest - blast and paint all bearings, if not yet done.				
REPAINT SUPERSTRUCTURE	2013	Repaint truss and apply touchup to RB appr. span girders.				
STRAIGHTEN/REPLACE MEMBERS						
WASHING						
SHOTCRETE REPAIRS						
REPAIR ABUTMENT SCOUR/EROSION						
PLACE ADDITIONAL RIP RAP	2013	Restore eroded ditch & add riprap.				
REMOVE DRIFT ACCUMULATION						
OTHER ACTION	2013	Replace seals @ pier 1,2,3 & abut 1, (install missing COV PL bolts, if not yet done).				
OTHER ACTION	2013	Repair lower plate welds, if not yet done.				
OTHER ACTION	2013	Patch all piers or recast.				
OTHER ACTION	2013	Remove scale & seal abut elements.				
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Structural Condition Rating (Last/Now) (%)	33.3/33.3	Sufficiency Rating (Last/Now) (%)	29.8/29.8	Est. Repl. Yr	2020	Maint. Req. (Y/N)	Yes
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Special Comments for Next Inspection		Department Comments	
Maintenance Reviewed By		Date	Estimated Total 0
Proposed Long-Term Strategy	2004.02.03 Consultant assessment, Recommends Bridge replacement in 2014 - Agreed. DD to be done with road work due 2007.06.30.		
On 3-Year Program (Y/N)			
Proposed Action			
Previous Inspector's Name	Owen Salava	Previous Assistant's Name	
Next Inspection Date	25-Jul-2014	Previous Inspection Date	21-Dec-2010
Inspection Cycle (Default) (months)	21		
Comment			



Maintenance Recommendations						
Inspector Recommendations	Year	Inspector Comments	Department Comments	Target Year	Est. Cost	Cat #
REPAIR/REPLACE BRIDGE RAIL	2013	Replace bridgerail with double layer flexbeam + new bridge post anchorage. Replace SE end post, if not yet done.	Region requesting replacement	2014		
GALVANIZE/PAINT BRIDGE RAIL						
RETROFIT BRIDGE RAIL						
SEAL CURBS	2013	Recast exposed bridgepost anchorages, if not yet done.	Region requesting replacement	2014		
PATCH DECK	2013	Deck Underside	Region requesting replacement	2014		
SEAL DECK						
OVERLAY DECK						
REPAIR/REPLACE DECK JOINTS						
RESET/ PAINT BEARINGS	2013	Reset P1 roller nest - blast and paint all bearings, if not yet done.	Region requesting replacement	2014		
REPAINT SUPERSTRUCTURE	2013	Repaint truss and apply touchup to RB appr. span girders.	Region requesting replacement	2014		
STRAIGHTEN/REPLACE MEMBERS						
WASHING						
SHOTCRETE REPAIRS						
REPAIR ABUTMENT SCOUR/EROSION						
PLACE ADDITIONAL RIP RAP	2013	Restore eroded ditch & add riprap.	Region requesting replacement	2014		
REMOVE DRIFT ACCUMULATION						
OTHER ACTION	2013	Replace seals @ pier 1,2,3 & abut 1, (install missing COV PL bolts, if not yet done).	Region requesting replacement	2014		
OTHER ACTION	2013	Repair lower plate welds, if not yet done.	Region requesting replacement	2014		
OTHER ACTION	2013	Patch all piers or recast.	Region requesting replacement	2014		
OTHER ACTION	2013	Remove scale & seal abut elements.	Region requesting replacement	2014		
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Maintenance Recommendations							
OTHER ACTION							
<b>Structural Condition Rating (Last/Now) (%)</b>	<b>33.3/33.3</b>	<b>Sufficiency Rating (Last/Now) (%)</b>	<b>29.8/29.8</b>	Est. Repl. Yr	2020	Maint. Req. (Y/N)	Yes
Special Comments for Next Inspection				Department Comments	Replacement programmed for 2017		
Maintenance Reviewed By	Andrew Smikles		Date	20-Dec-2012	Estimated Total	0	
Proposed Long-Term Strategy	2004.02.03 Consultant assessment, Recommends Bridge replacement in 2014 - Agreed. DD to be done with road work due 2007.06.30.						
On 3-Year Program (Y/N)							
Proposed Action							
Previous Inspector's Name	Owen Salava		Previous Assistant's Name				
Next Inspection Date	25-Jul-2014		Previous Inspection Date	21-Dec-2010			
Inspection Cycle (Default) (months)	21						
Comment							