

Bridge Inspection									
Bridge File Number	75014 -1 Bridge				Form Type	DT SG			
Year Built/Year Supstr	1964/1962				Lot No.	1			
Bridge or Town Name	ENTWISTLE				Inspector Name	Garry Roberts			
Located Over	PEMBINA RIVER, 8.11.84, WATERCRS-ST				Inspector Class	BR CLS A			
Located On	16:10 R1 28.440;16:10 L1 28.488				Assistant Name				
Water Body Cl./Year					Assistant Class				
Navigabil. Cl./Year					Inspection Date	04-Jun-2012			
Legal Land Location	NW SEC 20 TWP 53 RGE 7 W5M				Data Entry By	Lisa Fairhurst			
Longitude, Latitude	-115:00:19, 53:35:33				Data Entry Date	15-Oct-2012			
Road Authority	Alberta Transportation (AIT)				Reviewer Name	Eric Carcoux			
Contract Main. Area	CMA12				Review Date	08-Oct-2012			
Clear Roadway/Skew	17.1 /				Dept. Reviewer Name	Brent Herrick			
AADT/Year	8,050 / 2011 (A)				Dept. Review Date	13-Nov-2012			
Road Classification	RAD-412.4-120				Follow-Up By				
Detour Length (km)	1								
Allowable Load (t):	Single	H 33 U2L2	Semi	HS 49	Train	CS3 62 L2U3	----> On Critical Spans ---->Critical Member		
Design Loading:	HS20						----> Primary Span		

Posting Information									
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	One for E/B and one for W/B.								
Other Sign Types	Information, Pembina River, Narrow Bridge sign.								

Utilities (Located at)									
Utility Attachments	TELEPHONE UTILITIES-PHONE LINE								
Telephone	Along catwalk, South r/w, and North ROW				Gas				
Power	Street lighting along median & at approach corners.				Municipal				
Others	Along catwalk.				Problem (Y/N)	Yes			
Remarks	Utilities conduit disconnected near E end. Power box open-photo. Missing light posts at 2 locations.								

Approach Road									
			Last	Now	Explanation of Condition				
Horizontal Alignment			6	6	Entrance to East. Curve entering from West.				
Vertical Alignment			8	8					
Roadway Width (m)		22.000							
Approach Bump			6	6					
Guardrail (Y/N)		Yes	Thrie beam transition, not attached to bridge at exiting end.						
Guardrail			6	6					
Length (m)		60.000							
Current Standard (Y/N)		No							
Termination Type		Turned Down/Terminal							
Drainage			4	4	CSP drain pipes disconnected at couplers & 2m wide x 2m deep gullies are forming NW & NE - photo. Matting placed on W sideslope has deteriorated & gullies are forming under matting.				
<b>Approach Road General Rating</b>			<b>6</b>	<b>6</b>					

Superstructure					
Bridge Component		Last	Now	Explanation of Condition	
(Primary Span : DT, 6 Spans, Lengths(m): 24.4-76.8-63.4-87.2-37.2-24.4, A-Ident Number: A0362-03;A0362-02;A0362-01;A0362-04)					
<b>Special Features</b>					
Special Feature		N	5	Minor vibrations in bracing.	
(Type : <b>SWAY DAMP SYS</b> )				Fence @ West end cut open; gate at both ends open, latch misaligned	
Catwalk Access		4	4		
(Type : <b>UNLOCKED</b> )					
Hinge		N	5		
(Hinge Type : <b>PIN HANGER</b> )					
Wearing Surface/Deck Top Detail Ratings					
	N (%)	1 (%)	2 (%)	3 (%)	
<b>Last</b>					
<b>Now</b>	0.0	0.0	0.0	0.0	
Wearing Surface		4	4	HPC overlay. Chip seal wearing off at joints. 5% total. Chip seal worn bare beside joints in direction of travel, typical. 5% total.	
(Material Type : <b>CONCRETE</b> )					
(Thickness(mm) : <b>50</b> )					
Deck Top		N	N		
Deck Rideability		7	7		
Deck Joints		N	3	Missing bolt on median cover plate @ P3 and P4 WBL.	
Temperature (deg. C)		15		Gland Type: A2, P5, P2, P1 & A1.	
(Expansion Type : <b>GLAND (WABO-MAUER, TRANSFLEX, ETC);ARMoured GLAND (WABO UNDER FINGER OR SLIDING PLATES)</b> )				50% of fingers with cracked welds at P2 EBL.	
(Fixed Type : )					
Gap Size (mm)		Gap Location			
10		0			
30		Center pier - FP - P3			
70		West pier - Gland - P2			
Deck Drainage		4	5	Drains have been replaced.	
Drains Clogged (Y/N)		No			
Curbs/Median		7	5	Concrete jersey median present. Barrier has isolated corrosion cracks.	
(Curb Type : <b>Standard</b> )					
Scaling (Percent Area)		5			
Bridge Rail		8	7		
(Type : <b>GALVANIZED STEEL BRIDGE TUBE</b> )					
Bridge Rail Posts		8	7		
(Type : <b>GALVANIZED POST STEEL;GALVANIZED POST STEEL</b> )					
Bridge Rail/Posts Coating		8	6		
(Type : <b>GALVANIZED</b> )					
Sidewalk		X	X		
Top Chord		6	6	(See ultrasonic report. June 2012) for details.	
Diagonals		7	7	Hangers only partly visible and require cleaning and blasting to properly assess.	
Verticals		7	7	2 open holes need bolts and one broken bolt along spans 2 and 3.	
Connections		N	3	Cracks at welds between stiffeners and lower flange at 3 floor beams on span 2.	
Floor Beams		5	5	Sliding joints of wind linkage pulling apart with headless rivets pulling out.	
Bottom Chord		4	4	Cracked stringer clips at 17 locations, plus 12 broken and missing bolts at clips.	
Stringers		N	5	Bottom chord is losing section due to rust.	

Superstructure				
Bridge Component		Last	Now	Explanation of Condition
(Primary Span : DT, 6 Spans, Lengths(m): 24.4-76.8-63.4-87.2-37.2-24.4, A-Ident Number: A0362-03;A0362-02;A0362-01;A0362-04)				
Diaphragms/Cross Frame		6	6	
Paint Condition		3	3	Deep pitting occurring some areas especially bottom chords. Some members near west end are peeling. As well as east end. Exterior stringers are rusting. Bracing rusting from old joint leakage. Active corrosion at pack rust locations. 5% peeling at newly painted members - photos.
(Colour Description : GREEN)				
(Colour Code : 14090)				
Touchup Required (Y/N)	Yes			
Bearings		5	5	Rocker bearing pier 2 has been repaired with keepers and is stained but still adequate at this time. Missing anchor bolt nut at L10N. Fixed at pier 1, 2 & 4. Rocker nest at P3 has not move since painting and has lost 3mm height.
Temperature (deg. C)	16			
(Expansion Type : <b>ROCKER BEARING</b> )				
(Fixed Type : <b>PINNED BEARING</b> )				
Coating Adequate (Y/N)	Yes			
Functioning (Y/N)	Yes			
Deck Underside		4	4	There are random areas of spalling. Water stain showing through deck on East span. Deck underside delam spall exposing rusting rebar @ 6th floor beam East of P1 - photo.
Stains (Percent Area)	3			
(Snow Slots Filled : )				
<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 : WG)				
<b>Special Features</b>				
Special Feature			X	
(Type : )				
Special Feature			X	
(Type : )				
Wearing Surface/Deck Top Detail Ratings				
	N (%)	1 (%)	2 (%)	3 (%)
<b>Last</b>				
<b>Now</b>	0.0	0.0	0.0	0.0
Wearing Surface		4	4	HPC overlay. Chip coat wearing off at joints. Chipseal worn bare at joints in direction of travel.
(Material Type : <b>CONCRETE - CONVENTIONAL CHIP SEAL COAT;CONCRETE</b> )				
(Thickness(mm) : <b>50</b> )				
Deck Top		N	N	
Deck Rideability		7	7	
Deck Joints		4	6	
Temperature (deg. C)	15			
(Expansion Type : <b>GLAND (WABO-MAUER, TRANSFLEX, ETC);ARMOURED GLAND (WABO UNDER FINGER OR SLIDING PLATES)</b> )				
(Fixed Type : )				
Gap Size (mm)		Gap Location		
70		East abutment		
70		East pier		
73		West pier		
70		West abutmen		

Superstructure				
Bridge Component		Last	Now	Explanation of Condition
<b>(Secondary Span : WG)</b>				
Deck Drainage		4	6	Drains have been replaced
Drains Clogged (Y/N)	No			
Curbs/Median		6	5	New curbs (2006). There is medium cracking along the median with moderate scaling.
(Curb Type : <b>Standard</b> )				
Scaling (Percent Area)				
Bridge Rail		7	7	Missing washers on 5% of connector bolts and post anchor bolts.
(Type : <b>GALVANIZED STEEL BRIDGE TUBE</b> )				
Bridge Rail Posts		7	7	
(Type : <b>GALVANIZED POST STEEL;GALVANIZED POST STEEL</b> )				
Bridge Rail/Posts Coating		8	6	
(Type : <b>GALVANIZED</b> )				
Sidewalk		X	X	
<b>Girder/Beam</b>				
Cover Plate		X	X	
Flange		7	7	
Web		7	7	
Stiffeners		7	7	
Splice		7	7	
Weld		7	7	
Diaphragms/Cross Frame		7	7	
Paint Condition		5	4	Lots of graffiti. Isolated corrosion along top and bottom flange girders. Ends of girders have been touched up.
(Colour Description : <b>GREEN</b> )				
(Colour Code : <b>14090</b> )				
Touchup Required (Y/N)	No			
Bearings		6	6	Tilt Wall. Fixed at abutments.
Temperature (deg. C)	16			
(Expansion Type : <b>ROCKER BEARING</b> )				
(Fixed Type : <b>PINNED BEARING</b> )				
Coating Adequate (Y/N)	Yes			
Functioning (Y/N)	Yes			
Deck Underside		5	5	Transverse cracking, some with efflorescence staining. Minor spalling between G2/G3 East span and G3-G4 west span.
Stains (Percent Area)	2			
<b>Span Alignment Problems</b>				
Vertical (Y/N)	No			
Horizontal (Y/N)	No			
<b>Superstructure General Rating</b>		<b>5</b>	<b>5</b>	
<b>Substructure</b>				
Bridge Component		Last	Now	Explanation of Condition
<b>Abutments</b>				
Bearing Seats/Caps		6	6	
(Type : <b>CONCRETE</b> )				
Backwalls/Breastwalls		5	5	
Wingwalls		6	6	
Piles		N	N	Buried
Paint/Coating		X	7	Tar coating

Substructure				
Bridge Component		Last	Now	Explanation of Condition
Abutment Stability		4	5	Soil anchors @ East abutment have cracks in #2, #4 and #6 wall assemblies and 1 floor assembly.
Scour/Erosion		4	4	Erosion gullies forming SW & NW exposing utilities & cutoff wall. All slope protection on both sides gone leaving only geotextile .
Piers/Bents				
(Type : <b>PIER-SOLID</b> )				
Bearing Seats/Caps		5	5	
(Type : <b>CONCRETE</b> )				
(Total Number of Bearing Piles : <b>2:2:2:2:2</b> )				
Pier Shaft/Piles		7	5	
Bracing/Struts/Sheathing		X	X	
Nose Plate		4	X	P5 has severe scaling on both North & South concrete pedestals exposing rebar. Minor spalls at top of P4 footing. Recent patches.
Paint/Coating		5	X	
(Colour Description : )				
(Colour Code : )				
Pier Stability		7	7	
Scour		N	7	
Debris (Y/N)	No			
<b>Substructure General Rating</b>		<b>4</b>	<b>5</b>	
Structure Usage				
		Last	Now	Explanation of Condition
Channel				
(U/S Direction : <b>S</b> )				
(D/S Direction : <b>N</b> )				
Alignment		8	7	
Bank Stability		6	5	
HWM (m below Top of Curb)				HWM not visible.
Drift (Y/N)	No			
Slope Protection		5	5	Sag @ top of West slope protection, a few random medium cracks. Rock @ river. Vertical wall @ base of East slope anchored, cracks visible.
(Type : <b>CONCRETE; CONCRETE</b> )				
Guidebank/Spurs		X	X	
Adequacy of Opening		9	9	
(Fish Compensation Measure 1 : <b>NONE</b> )				
(Fish Compensation Measure 2 : <b>NONE</b> )				
<b>Channel General Rating</b>		<b>5</b>	<b>5</b>	

Maintenance Recommendations						
Inspector Recommendations	Year	Inspector Comments	Department Comments	Target Year	Est. Cost	Cat #
REPAIR/REPLACE BRIDGE RAIL						
GALVANIZE/PAINT BRIDGE RAIL						
RETROFIT BRIDGE RAIL						
SEAL CURBS						
PATCH DECK	2012	Patch bare deck (chipseal) near joints.				
SEAL DECK						
OVERLAY DECK						
REPAIR/REPLACE DECK JOINTS	2012	Repair missing/loose bolts. Repair cracked finger joint welds - check all others.				
RESET/ PAINT BEARINGS	2012	Replace anchor bolt nut.				
REPAINT SUPERSTRUCTURE						
STRAIGHTEN/REPLACE MEMBERS	2012	Repair cracked stringer clip angles and broken bolts. Conduct analysis to determine cause of cracking. Install 12 missing bolts, drill as necessary.				
WASHING						
SHOTCRETE REPAIRS						
REPAIR ABUTMENT SCOUR/EROSION	2012	Repair NW and NE CSP ditch drains. Place permanent erosion control matting on West headslope.				
PLACE ADDITIONAL RIP RAP						
REMOVE DRIFT ACCUMULATION						
OTHER ACTION						
OTHER ACTION	2012	Design review of sliding joints along bottom chord.				
OTHER ACTION	2012	Replace sway dampening hardware.				
OTHER ACTION	2012	Notify utility companies of broken conduits and clamps.				
OTHER ACTION	2012	Repair cracks in span 2 floor beam stiffeners. Require new design.				
OTHER ACTION	2012	Evaluate if expansion heaving not moving is a problem.				
OTHER ACTION	2012	Wash and clean and coat hanger pin area.				
OTHER ACTION	2012	Conduct detailed NDT of hanger pins and hanger plates.				
OTHER ACTION						
OTHER ACTION						
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Maintenance Recommendations							
OTHER ACTION							
OTHER ACTION							
<b>Structural Condition Rating (Last/Now) (%)</b>	<b>38.9/44.4</b>	<b>Sufficiency Rating (Last/Now) (%)</b>	<b>47.8/49.4</b>	Est. Repl. Yr	2035	Maint. Req. (Y/N)	Yes
Special Comments for Next Inspection				Department Comments			
Maintenance Reviewed By				Date		Estimated Total	0
Proposed Long-Term Strategy							
On 3-Year Program (Y/N)							
Proposed Action							
Previous Inspector's Name	Kris Bosters		Previous Assistant's Name				
Next Inspection Date	04-Mar-2014		Previous Inspection Date	05-Oct-2010			
Inspection Cycle (Default) (months)	21						
Comment							