

Level 2 Inspection - Concrete Deck						
Bridge File Number	78152 N-1 Bridge			Form Type	CDK	
Year Built/Year Supstr	1977/1977			Lot No.		
Bridge or Town Name	FT MCMURRAY			Inspector Name	Jason Saly	
Located Over	HANGINGSTONE RIVER, 8.11.39.1, WATERCRS-ST;TRAIL-PED			Inspector Class	BR CLS A	
Located On	63:11 R1 9.730			Assistant Name		
Water Body Cl./Year				Assistant Class		
Navigabil. Cl./Year				Inspection Date	02-Oct-2012	
Legal Land Location	NW SEC 10 TWP 89 RGE 9 W4M			Data Entry By	Jason Saly	
Longitude, Latitude	-111:21:25, 56:42:30			Data Entry Date	22-Jan-2013	
Road Authority	Alberta Transportation (AIT)			Reviewer Name	Paul Carter	
Contract Main. Area	CMA07			Review Date	31-Jan-2013	
Clear Roadway/Skew	16.1 /			Dept. Reviewer Name		
AADT/Year	38,830 / 2012 (A)			Dept. Review Date		
Road Classification	RAD-412.4-120			Follow-Up By		
Detour Length (km)	1			Visual Inspection?	Y	
				CSE Testing?	Y	
				Chloride Testing?	Y	

Allowable Load (t):	Single	CS1 28	Semi	CS2 49	Train	CS3 62	----> On Critical Spans ---->Critical Member
Design Loading:	CS750						----> Primary Span
(Primary Span : LF (CBC), Spans: 1,2,3, Lengths(m): 13.7-22.9-13.7)							
(Total Length : 13.7-22.9-13.7 = 50.3)							

**Concrete Deck Inspection**

	Last	Now	Explanation of Condition			
<b>Wearing Surface</b>						
Polymer? (Y/N)		N				
ACP? (Y/N)		N				
Chip Seal Coat? (Y/N)		N				
<b>Polymer Rating (% Area)</b>						
	9-7	6/5	4	3	2/1	N/X
<b>Last</b>						
<b>Now</b>	0	0	0	0	0	100
<b>ACP Rating (% Area)</b>						
	9-7	6/5	4	3	2/1	N/X
<b>Last</b>						
<b>Now</b>	0	0	0	0	0	100
<b>Chip Seal Coat Rating (% Area)</b>						
	9-7	6/5	4	3	2/1	N/X
<b>Last</b>						
<b>Now</b>	0	0	0	0	0	100
Polymer Total Debonded /Lost Area (m <sup>2</sup> )						X
ACP Total Debonded /Lost Area (m <sup>2</sup> )						X
ACP Average Measured Depth (mm)						X
ACP Crack Frequency (m/m <sup>2</sup> )						X
Chip Seal Coat Total Lost Area (m <sup>2</sup> )						X

<b>Concrete Overlay</b>	
Overlay? (Y/N)	Y
<b>(Span Type : LF)</b>	
(Span Numbers : 1, 2, 3)	
(Overlay type : CONCRETE (MODIFIED SILICA FUME, STEEL SPECIAL FIBRE))	
(Area(m <sup>2</sup> ) : 809.8)	
(Year Installed : 2003)	
(Thickness(mm) : 75)	

Concrete Deck Inspection							
		Last	Now	Explanation of Condition			
(Average Cylinder Strength(Mpa) : )							
<b>Overlay Rating (% Area)</b>							
	9-7	6/5	4	3	2/1	N/X	
<b>Last</b>							
<b>Now</b>	0	100	0	0	0	0	
Total Crack Length - Medium/Wide (m)						224	Transverse cracking.  Could not take cover measurements due to steel fibres in the overlay.
Total Scaled Area - Light (m <sup>2</sup> )						0	
Total Scaled Area -Moderate/Heavy/Severe (m <sup>2</sup> )						0	
Debonded Area (m <sup>2</sup> )						0	
Spalled Area (m <sup>2</sup> )						0	
Patched Area (m <sup>2</sup> )						0	
Average Measured Cover Depth (mm)						N	
Standard Deviation of Measured Cover Depth (mm)						N	
<b>Deck</b>							
<b>(Span Type : LF)</b>							
(Span Numbers : 1, 2, 3)							
(Deck Type : <b>PRECAST CONCRETE (PRECAST STD WT)</b> )							
(Area(m <sup>2</sup> ) : <b>220.6</b> )							
(Year Constructed : <b>1977</b> )							
(Year Widened : <b>1977</b> )							
(Thickness(mm) : )							
(Average Cylinder Strength(MPa) : )							
	Type		Size		Design Cover (mm)	Spacing (mm)	
Long. Reinforcing							
Trans. Reinforcing							
<b>Deck Top Rating (% Area)</b>							
	9-7	6/5	4	3	2/1	N/X	
<b>Last</b>							
<b>Now</b>	0	0	0	0	0	100	
Total Crack Length - Medium/Wide (m)						N	Bridge was widened to the west with 4 'CBC' girders. Underlugs beams were installed along the 'LF' girders. Typical chamfer cracking along the LF girders.
Total Scaled Area - Light (m <sup>2</sup> )						N	
Total Scaled Area - Moderate/Heavy/Severe (m <sup>2</sup> )						N	
Delaminated Area (m <sup>2</sup> )						N	
Spalled Area (m <sup>2</sup> )						N	
Patched Area (m <sup>2</sup> )						N	
Average Measured Cover Depth (mm)						N	
Standard Deviation of Measured Cover Depth (mm)						N	
<b>Deck Underside Rating (% Area)</b>							
	9-7	6/5	4	3	2/1	N/X	
<b>Last</b>							
<b>Now</b>	10	90	0	0	0	0	
Total Stained Area - Moderate (m <sup>2</sup> )						0	
Total Stained Area - Heavy/Severe (m <sup>2</sup> )						0	
Total Crack Length - Medium/Wide (m)						2	
% of Medium/Wide Cracks Stained						0	
<b>Edge Elements</b>							
Curbs? (Y/N)			Y				
Parapets? (Y/N)			N				
Medians? (Y/N)			N				
Sidewalks? (Y/N)			N				
<b>Curbs</b>							
(Type : <b>CONCRETE</b> )							

Concrete Deck Inspection							
Last	Now	Explanation of Condition					
(Total Length(m) : <b>100.6</b> )							
(Height(mm) : )							
(Width(mm) : )							
(Average Cylinder Strength(MPa) : )							
Reinforcement Type		Size		Design Cover (mm)		Spacing (mm)	
(Type : <b>CONCRETE (MODIFIED SILICA FUME)</b> )							
(Total Length(m) : <b>27.4</b> )							
(Height(mm) : )							
(Width(mm) : )							
(Average Cylinder Strength(MPa) : )							
Reinforcement Type		Size		Design Cover (mm)		Spacing (mm)	
<b>Curb Rating (% Length)</b>							
	9-7	6/5	4	3	2/1	N/X	
<b>Last</b>							
<b>Now</b>	100	0	0	0	0	0	
Total Crack Length - Medium/Wide (m)						18	
Total Scaled Length - Light (m)						0	
Total Scaled Length - Moderate/Heavy/Severe (m)						0	
Delaminated Length (m)						0	
Spalled Length (m)						0	
Patched Length (m)						0	
Average Measured Cover Depth (mm)						64	
Standard Deviation of Measured Cover Depth (mm)						6	
<b>Deck Joints</b>							
(Type : <b>GLAND (WABO-MAUER, TRANSFLEX, ETC)</b> )							
(Number of Joints : <b>1</b> )							
(Expansion / Fixed? : <b>EXPANSION</b> )							
(Location : <b>A2</b> )							
% Inspected						100	
% Joints Leaks						100	
% Joint Length Leaks						5	
Superstructure Damage Rating						6	
Substructure Damage Rating						5	
Level 1 Joint Rating						3	
<b>CSE Testing</b>							
Testing Date		04-Jul-2012			Previous Testing Date		05-Aug-2008
<b>Weather Information</b>							
Temperature (°C)		18					
Conditions		Overcast					
<b>Equipment Information</b>							
Test Equipment Make and Model		Corexco CDL - 200 EA/512					
Electrical Ground Location and Type		1AB, northwest corner of the bridge					
<b>Measurement Locations Information</b>							
Origin for Data		Northwest					
		Number		Length of Each (m)		Length of Last (m)	
X Increments (Length)		42		1.219		0.600	
Y Increments (Width)		14		1.219		0.600	
<b>CSE Results</b>							
Span Numbers		1,2,3					

CSE Testing									
Span Type			LF						
Wearing Surface			CONCRETE (MODIFIED SILICA FUME, STEEL SPECIAL FIBRE)						
Testing Year	% Deck Area 0 to -0.1 V	% Deck Area < -0.1 to -0.2 V	% Deck Area < -0.2 to -0.3 V	% Deck Area < -0.3 to -0.4 V	% Deck Area < -0.4 V	Avg. Deck Reading (V)	Std. Dev. Deck Reading	Avg. Curb Reading (V)	Std. Dev. Curb Reading
2012	32.2	58.9	7.4	1.4	0.1	-0.144	0.068	-0.287	0.110
2008	40.0	55.0	5.0	1.0	0.0	-0.124	0.063	-0.201	0.068
1984	0.0	4.0	88.0	7.0	1.0	-0.253	0.055	-0.278	0.050
CSE Prediction Model Optimum 5 year Rehab Start Year			2013						
Comments									

Chloride Testing			
Test Equipment Make and Model		Germann Instruments RCT 5000	
Testing Date		04-Jul-2012	Previous Testing Date 05-Aug-2008

**(Span Type : LF)**

Testing Comments	24 chlorides were taken at inspection. The average for the CBC Girders were for the following depths: a=0.055 b=0.007 c=0.004
------------------	---

**Rapid Chloride Test Data**

Test Location	Sample No.	Depth (mm)	% CL-	Sample No.	Depth (mm)	% CL-	Sample No.	Depth (mm)	% CL-	Sample No.	Depth (mm)	% CL-
(0.0 m, 0.0 m)	13A	12.5	0.047	13B	50	0.010	13C	100	0.004	13D	120	X
(0.0 m, 0.0 m)	14A	12.5	0.070	14B	50	0.003	14C	100	0.002	14D	120	X
(0.0 m, 0.0 m)	15A	12.5	0.038	15B	50	0.008	15C	100	0.004	15D	120	X
(0.0 m, 0.0 m)	16A	12.5	0.042	16B	50	0.004	16C	100	0.004	16D	120	X
(0.0 m, 0.0 m)	17A	12.5	0.019	17B	50	0.001	17C	100	0.002	17D	120	X
(0.0 m, 0.0 m)	18A	12.5	0.038	18B	50	0.002	18C	100	0.002	18D	120	X
(0.0 m, 0.0 m)	19A	12.5	0.057	19B	50	0.010	19C	100	0.004	19D	120	X
(0.0 m, 0.0 m)	20A	12.5	0.048	20B	50	0.002	20C	100	0.002	20D	120	X
(0.0 m, 0.0 m)	21A	12.5	0.029	21B	50	0.010	21C	100	0.005	21D	120	X
(0.0 m, 0.0 m)	22A	12.5	0.019	22B	50	0.006	22C	100	0.003	22D	120	X
(0.0 m, 0.0 m)	23A	12.5	0.197	23B	50	0.003	23C	100	0.002	23D	120	X
(0.0 m, 0.0 m)	24A	12.5	0.056	24B	50	0.004	24C	100	0.004	24D	120	X

**Lab Chloride Test Data**

Test Location	Sample No.	Depth (mm)	% CL-	Sample No.	Depth (mm)	% CL-	Sample No.	Depth (mm)	% CL-	Sample No.	Depth (mm)	% CL-
(0.0 m, 0.0 m)	2A	12.5	0.110	2B	50	0.019	2C	100	0.020	2D	120	X
(0.0 m, 0.0 m)	2A	12.5	0.111	2B	50	0.017	2C	100	0.021	2D	120	X
(0.0 m, 0.0 m)	9A	12.5	0.051	9B	50	0.034	9C	100	0.026	9D	120	X
(0.0 m, 0.0 m)	9A	12.5	0.050	9B	50	0.034	9C	100	0.026	9D	120	X

**Chloride Testing Summary**

Span Type		Depth A (mm) (Last/Now)	% CL- (Last/Now)	Depth B (mm) (Last/Now)	% CL- (Last/Now)	Depth C (mm) (Last/Now)	% CL- (Last/Now)	Depth D (mm) (Last/Now)	% CL- (Last/Now)
LF	RCT Averages	12.5/12.5	0.116/0.055	50.0/50.0	0.012/0.005	100.0/100.0	0.013/0.003	150.0/120.0	/
	RCT Std. Dev.	N/A	0.000/0.045	N/A	0.000/0.003	N/A	0.000/0.001	N/A	/
	Lab Averages	12.5/12.5	/0.081	50.0/50.0	/0.026	100.0/100.0	/0.023	150.0/120.0	/

Maintenance Recommendations										
Inspector Recommendations	Year	Inspector Comments			Department Comments			Target Year	Est. Cost	Cat #
SEAL CURBS										
PATCH DECK										
SEAL DECK										
OVERLAY DECK										
REPAIR/REPLACE DECK JOINTS										
WASHING										
OTHER ACTION										
CRACK REPAIRS/TREATMENT										
PATCH CURBS/PARPETS										
OTHER ACTION										
OTHER ACTION										
OTHER ACTION										
<b>Structural Condition Rating (%)</b>	<b>61.1</b>	<b>Sufficiency Rating (%)</b>			<b>55.3</b>			Est Repl Year	2037	
Level 1 Insp Date	16-Nov-2011	Next Level 1 Insp Date			16-Aug-2013	Current Level 1 Insp Cycle (Default) (Months)			21	
Special Comments for Next Insp										
Snooper? (Y/N)	No	Lift? (Y/N)	No	Traffic Control? (Y/N)	Yes	Boat? (Y/N)	No	Ladder? (Y/N)	No	
Other Special Requirements Comments										
Previous Level 2 Inspector's Name	Brian Cote			Previous Level 2 Insp Date	05-Aug-2008					
Next Level 2 Insp Date	02-Oct-2016			Discontinue Level 2 Insp? (Y/N)	No					
Level 2 Insp Previously Completed	3			Level 2 Insp Cycle (Default) (Months)	48					
Detailed Report/Diagram? (Y/N)	Yes									
Level 2 Insp Comments										
Next Level 2 Inspection/Test	Concrete Deck Insp? (Y/N)			Yes	CSE Testing? (Y/N)	Yes	Chloride Testing? (Y/N)		No	
Department Reviewer Comments										