Level 2 Inspection - Concrete Deck

Bridge File Number	74440 -1 Bridge	Form Type	CDK
Year Built/Year Supstr	1958/1956	Lot No.	
		Inspector Name	Jason Saly
Bridge or Town Name	GUY	Inspector Class	BR CLS A
Located Over	LITTLE SMOKY RIVER, 8.10.58.7, WATERCRS-ST	Assistant Name	
		Assistant Class	
Located On	49:12 C1 1.760	Inspection Date	11-Sep-2012
Water Body Cl./Year		Data Entry By	Jason Saly
Navigabil. Cl./Year		Data Entry Date	22-Feb-2013
Legal Land Location	NE SEC 33 TWP 74 RGE 21 W5M	Reviewer Name	Paul Carter
Longitude, Latitude	-117:09:44, 55:27:21	Review Date	26-Feb-2013
Road Authority	Alberta Transportation (AIT)	Dept. Reviewer Name	
Contract Main. Area	CMA03	Dept. Review Date	
Clear Roadway/Skew	10 /	Follow-Up By	
AADT/Year	1,700 / 2012 (A)	Visual Inspection?	Y
Road Classification	RAU-213.4-120	CSE Testing?	Y
Detour Length (km)	40	Chloride Testing?	N

Allowable Load (t):	Single	CS1 35 STRINGER	Semi	CS2 61 STRINGER	Train	CS3 78 GIRDER	---> On Critical Spans ---->Critical Member
Design Loading:		HS20					---> Primary Span

(Primary Span : **DT, Spans: 3,4,5, Lengths(m): 61-61-61**)

(Secondary Span : **RB, Spans: 1, Lengths(m): 21.3**)

(Secondary Span : **RG, Spans: 2,6, Lengths(m): 33.5-33.5**)

(Total Length : **21.3-33.5-61-61-61-33.5 = 271.3**)

Concrete Deck Inspection

		Last	Now	Explanation of Condition
Wearing Surface				
Polymer? (Y/N)	N			
ACP? (Y/N)	N			
Chip Seal Coat? (Y/N)	N			

Polymer Rating (% Area)

	9-7	6/5	4	3	2/1	N/X
Last						
Now	0	0	0	0	0	100

ACP Rating (% Area)

	9-7	6/5	4	3	2/1	N/X
Last						
Now	0	0	0	0	0	100

Chip Seal Coat Rating (% Area)

	9-7	6/5	4	3	2/1	N/X
Last						
Now	0	0	0	0	0	100

Polymer Total Debonded /Lost Area (m^2)			X
ACP Total Debonded /Lost Area (m^2)			X
ACP Average Measured Depth (mm)			X
ACP Crack Frequency (m/m^2)			X
Chip Seal Coat Total Lost Area (m^2)			X

Concrete Overlay	
Overlay? (Y/N)	N

Deck

(Span Type : DT)

(Span Numbers : **3, 4, 5**)

(Deck Type : **CONCRETE (MODIFIED SILICA FUME, CORROSION INHIBITOR)**)

Concrete Deck Inspection

		Last	Now	Explanation of Condition
(Area(m²) : **1830.0**)				
(Year Constructed : **2000**)				
(Year Widened :)				
(Thickness(mm) : **150**)				
(Average Cylinder Strength(MPa) :)				

	Type	Size	Design Cover (mm)	Spacing (mm)
Long. Reinforcing	REINFORCING STEEL			
Trans. Reinforcing	REINFORCING STEEL			

Deck Top Rating (% Area)

	9-7	6/5	4	3	2/1	N/X
Last						
Now	0	100	0	0	0	0

	Last	Now	Explanation of Condition
Total Crack Length - Medium/Wide (m)		272	Crack repiars have been completed making crack counting chalenging. There are random pop-outs along the deck top
Total Scaled Area - Light (m²)		0	
Total Scaled Area - Moderate/Heavy/Severe (m²)		0	
Delaminated Area (m²)		149	
Spalled Area (m²)		0	
Patched Area (m²)		7	Random patching
Average Measured Cover Depth (mm)		71	
Standard Deviation of Measured Cover Depth (mm)		10	

Deck Underside Rating (% Area)

	9-7	6/5	4	3	2/1	N/X
Last						
Now	0	60	0	0	0	40

	Last	Now	Explanation of Condition
Total Stained Area - Moderate (m²)		0	Could not inspect the underside of span 4 due to water levels in the river.
Total Stained Area - Heavy/Severe (m²)		0	
Total Crack Length - Medium/Wide (m)		111	There is transverse cracking in the deck underside.
% of Medium/Wide Cracks Stained		100	

(Span Type : RB)

(Span Numbers : **1**)	
(Deck Type : **CONCRETE (MODIFIED SILICA FUME, CORROSION INHIBITOR)**)	
(Area(m²) : **213.0**)	
(Year Constructed : **2000**)	
(Year Widened :)	
(Thickness(mm) :)	
(Average Cylinder Strength(MPa) :)	

	Type	Size	Design Cover (mm)	Spacing (mm)
Long. Reinforcing				
Trans. Reinforcing				

Concrete Deck Inspection

	Last	Now	Explanation of Condition
Deck Top Rating (% Area)			

	9-7	6/5	4	3	2/1	N/X
Last						
Now	0	100	0	0	0	0

Total Crack Length - Medium/Wide (m)		24	Transverse cracking repairs have been completed, making it difficult to get an accurate crack count.
Total Scaled Area - Light (m^2)		0	
Total Scaled Area - Moderate/Heavy/Severe (m^2)		0	
Delaminated Area (m^2)		32	
Spalled Area (m^2)		0	
Patched Area (m^2)		0	
Average Measured Cover Depth (mm)		65	
Standard Deviation of Measured Cover Depth (mm)		10	

Deck Underside Rating (% Area)

	9-7	6/5	4	3	2/1	N/X
Last						
Now	0	100	0	0	0	0

Total Stained Area - Moderate (m^2)		0	
Total Stained Area - Heavy/Severe (m^2)		0	
Total Crack Length - Medium/Wide (m)		58	There is transverse cracking, mostly stained.
% of Medium/Wide Cracks Stained		90	

(Span Type : RG)

(Span Numbers : **2, 6**)

(Deck Type : **CONCRETE (MODIFIED SILICA FUME, CORROSION INHIBITOR)**)

(Area(m^2) : **670.0**)

(Year Constructed : **2000**)

(Year Widened :)

(Thickness(mm) : **150**)

(Average Cylinder Strength(MPa) :)

	Type	Size	Design Cover (mm)	Spacing (mm)
Long. Reinforcing	REINFORCING STEEL			
Trans. Reinforcing	REINFORCING STEEL			

Deck Top Rating (% Area)

	9-7	6/5	4	3	2/1	N/X
Last						
Now	0	100	0	0	0	0

Total Crack Length - Medium/Wide (m)		118	Transverse cracking. Crack repairs have been completed, making accurate crack counting difficult.
Total Scaled Area - Light (m^2)		0	
Total Scaled Area - Moderate/Heavy/Severe (m^2)		0	
Delaminated Area (m^2)		53	
Spalled Area (m^2)		0	
Patched Area (m^2)		1	
Average Measured Cover Depth (mm)		69	
Standard Deviation of Measured Cover Depth (mm)		12	

Deck Underside Rating (% Area)

	9-7	6/5	4	3	2/1	N/X
Last						
Now	0	100	0	0	0	0

Minor corrosion along the bottom flanges of the girders.

Total Stained Area - Moderate (m^2)		0	
Total Stained Area - Heavy/Severe (m^2)		0	
Total Crack Length - Medium/Wide (m)		143	There is transverse cracking along the deck underside.
% of Medium/Wide Cracks Stained		95	

Edge Elements

Concrete Deck Inspection

		Last	Now	Explanation of Condition
Curbs? (Y/N)	Y			
Parapets? (Y/N)	N			
Medians? (Y/N)	N			
Sidewalks? (Y/N)	N			

Curbs

(Type : **CONCRETE**)

(Total Length(m) : **542.6**)

(Height(mm) :)

(Width(mm) :)

(Average Cylinder Strength(MPa) :)

Reinforcement Type	Size	Design Cover (mm)	Spacing (mm)

Curb Rating (% Length)

	9-7	6/5	4	3	2/1	N/X
Last						
Now	80	20	0	0	0	0

Total Crack Length - Medium/Wide (m)		137	Transverse cracking along the curbs.
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)		85	
Standard Deviation of Measured Cover Depth (mm)		12	

Deck Joints

(Type : **ARMOURED GLAND (WABO UNDER FINGER OR SLIDING PLATES)**)

(Number of Joints : **4**)

(Expansion / Fixed? : **EXPANSION**)

(Location : **P1, P2, P3, P4**)

% Inspected		100	There are tears in the east pier joint. Other joints are fairly tight and tears are hard to determine. Previous inspection 06-Jun-2009 indicated leakage in the west pier joint as well as the third pier joint from the west.
% Joints Leaks		25	
% Joint Length Leaks		10	
Superstructure Damage Rating		6	
Substructure Damage Rating		4	
Level 1 Joint Rating		4	

(Type : **FINGER PLATES**)

(Number of Joints : **1**)

(Expansion / Fixed? : **EXPANSION**)

(Location : **A1**)

% Inspected		100	Water leaks onto the abutment.
% Joints Leaks		100	
% Joint Length Leaks		100	
Superstructure Damage Rating		6	
Substructure Damage Rating		4	Abutment is scaled.
Level 1 Joint Rating		4	

(Type : **GLAND (WABO-MAUER, TRANSFLEX, ETC)**)

(Number of Joints : **1**)

(Expansion / Fixed? : **EXPANSION**)

(Location : **P5**)

Concrete Deck Inspection

	Last	Now	Explanation of Condition
% Inspected		100	
% Joints Leaks		25	
% Joint Length Leaks		10	
Superstructure Damage Rating		6	
Substructure Damage Rating		4	
Level 1 Joint Rating		4	
(Type : **GLAND (WABO-MAUER, TRANSFLEX, ETC)**)			
(Number of Joints : **1**)			
(Expansion / Fixed? : **FIXED**)			
(Location : **A2**)			
% Inspected		100	Water is leaking past plumbing at the south end.
% Joints Leaks		100	
% Joint Length Leaks		5	
Superstructure Damage Rating		6	
Substructure Damage Rating		4	Abutment is severly scaled, with exposed rebar.
Level 1 Joint Rating		4	

CSE Testing

Testing Date	15-Jun-2012	Previous Testing Date	16-Jul-2009
Weather Information			
Temperature (°C)	19		
Conditions	Sunny		
Equipment Information			
Test Equipment Make and Model	Corexco CDL - 200 EA/512		
Electrical Ground Location and Type	1DD, third deck joint from the west		
Measurement Locations Information			
Origin for Data	south west		

	Number	Length of Each (m)	Length of Last (m)
X Increments (Length)	113	1.219	1.200
Y Increments (Width)	9	1.219	0.300

CSE Results	
Span Numbers	1,2,3,4,5,6
Span Type	DT, RB, RG
Wearing Surface	CONCRETE (MODIFIED SILICA FUME, CORROSION INHIBITOR)

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)	Stnd. Dev. Deck Reading	Avg. Curb Reading (V)	Stnd. Dev. Curb Reading
2012	0.2	11.3	49.1	31.1	8.3	-0.281	0.094	-0.295	0.082
2009	0.0	15.0	53.0	27.0	5.0	-0.266	-0.084	-0.257	-0.083
2008	0.0	6.0	47.0	40.0	7.0	-0.295	0.083	-0.266	0.073

CSE Prediction Model Optimum 5 year Rehab Start Year	2015
Comments	

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						
CRACK REPAIRS/TREATMENT						
PATCH CURBS/PARPETS						
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						
OTHER ACTION						

Structural Condition Rating (%)	**38.9**	**Sufficiency Rating (%)**	**36.1**	Est Repl Year	2044

Level 1 Insp Date	03-Dec-2012	Next Level 1 Insp Date	03-Sep-2014	Current Level 1 Insp Cycle (Default) (Months)	21
Special Comments for Next Insp	Monitor headslope movement and scour at SE headslope/pier. Monitor concrete pier abrasion.				

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	Converted from CDIS								

Previous Level 2 Inspector's Name	Jason Saly	Previous Level 2 Insp Date	16-Jul-2009
Next Level 2 Insp Date	11-Sep-2016	Discontinue Level 2 Insp? (Y/N)	No
Level 2 Insp Previously Completed	16	Level 2 Insp Cycle (Default) (Months)	48
Detailed Report/Diagram? (Y/N)	Yes		
Level 2 Insp Comments	Bearings at the east pier are deforming at on site indicating that they may be rehabed soon		

Next Level 2 Inspection/Test	Concrete Deck Insp? (Y/N)	Yes	CSE Testing? (Y/N)	Yes	Chloride Testing? (Y/N)	No	
Department Reviewer Comments							