ATTACHMENT 1

OSIM INSPECTION REPORTS & BCI FORMS

BRIDGES

Structure Condition Summary Form

Structure Name	Adams Rd Bridge
Structure Number	BR1
Date of Inspection	August 04, 2020
Project No.	20032
Consultant	HP Engineering Inc.

Element Group	Element Name	Unit (Qty.)	Unit Price (MTO)	Total Element Quantity	Element Qty. in Excellent Condition (1.00)	Element Quantity in Good Condition (0.75)	Element Quantity in Fair Condition (0.4)	Element Quantity in Poor Condition (0)	Total Replacement Value (TRV)	Current Element Value (CEV)	Element Condition Index	Performance Deficiency	Maintenance Need
Approaches	Wearing Surface	Sam	6.00	30.00	0.00	25.00	5 00	0.00	180	125	69	00	18
Approaches	Railing Systems	5q.m	200.00	48.00	0.00	23.00 48.00	0.00	0.00	9600	7200	09 75	00	10
Barriers	Railing Systems	m	200.00	48.00	0.00	48.00	0.00	0.00	4880	3600	73	00	00
Damers	Posts (Steel/Concrete)	Fach	200.00	12.00	0.00	12.00	0.00	0.00	2400	1800	75	00	00
	Sidewalks and Medians	Sa.m	150.00	14.52	0.00	13.52	1.00	0.00	2178	1581	73	00	00
Sidewalks/ Curbs	Curbs	Sg.m	40.00	8.96	0.00	8.96	0.00	0.00	358	269	75	00	00
	Wearing Surface	Sg.m	25.00	32.20	0.00	22.20	5.00	5.00	805	466	58	09	18
Decks	Deck Top - Thick Slab	Sq.m	350.00	32.20	0.00	32.20	0.00	0.00	11270	8453	75	00	02
	Soffit - Thick Slab	Sq.m	350.00	27.44	0.00	27.44	0.00	0.00	9604	7203	75	00	00
_	Wingwalls	Sq.m	350.00	8.31	0.00	8.31	0.00	0.00	2909	2181	75	00	00
Abutment	Abutment Walls	Sq.m	900.00	9.00	0.00	9.00	0.00	0.00	8100	6075	75	00	00
									52284	38952			

Bridge Condition Index (BCI)

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BRIDGE						ST	RUCTURE	NUMBER.: BR
INVENTORY DAT	'A:							
Structure Name	Adams Rd Bridge							
		Unc	der	Navigable	Water	Non- Na	avigable Wate	r 🛛
Main Hwy/Road #	Adams Road	Str	acture:	Rail 🗌	Road 🗵	Pedesti	rian 🗌	Other
		On		Rail 🗖	Road 🕅 Ped	estrian 🗖 🕠	Ither 🗖	
Road Name:		Str	acture:		Kuau 🖂 Tea			
Structure Location	Adams Road at Hornilb	rook Road						
Latitude	45°45'46.3'	'N	Longi	itude		79°27'1	14.7"W	
Owner(s)	Township of Strong		Herita	age	Not Cons.] Cons./Not Ap	pp. 🗌 List	/Not Desig. 🗌
			Desig	nation	Desig./not Lis	st 🗌 🛛 I	Desig. & List	
MTO Region	Northern		Road	Class:	Freeway 🗌	Arterial 🗌	Collector 🗌	Local 🗌
MTO District	Huntsville		Poste	d Speed	80	No. of L	anes <u>1</u>	
Old County	Parry Sound		AAD	Т	0	% Truck	.s <u>0</u>	
Geographic Twp.	Township of Strong		Speci	al Routes	Transit 🛛	Truck	School	Bicycle
Structure Type	Rigid Frame, Vertical le	gs	- D-4	T	A 1			
			Struct	ir Lengin . ture	Arouna	-		(km)
Total Deck Length	7	(m)	Fill or	n Structur	e _	0	1	(m)
Overall Str. Width	5.6	(m)	Skew	Angle	-	0	1	(Degrees)
Total Deck Area	39.2	(m ²)	Direc	tion of Str	ucture	East/V	West	_
Roadway Width	4.6	(m)	No. o	f Spans	-	1		_
Span Lengths	7	(m)						
HISTORICAL DAT	ГА							
Year Built				Last OSI	M Inspection		June	26, 2020
Year of Last Major F	Kehab			Last Enh	anced OSIM In	spection		-
Current Load Limit		(tonnes)	Last Brid	dge Master Insp	ection		
Load Limit By-Law	# -		,	Last Eva	luation			-
By-Law Expiry Date	;			Last Unc	lerwater Inspect	tion		-
Min Vertical Clearau	nce -		m)	Last Cor	dition Survey			-

BRIDGE

STRUCTURE NUMBER.: BR1

FIELD INSPECTION INFORMATION									
Date of Inspection:	August 4, 2020	Type of Inspection: 🛛 OSIM 🔲 Enhanced OSIM							
Inspector:	Sarah Vandergeest, P.Eng., HP Engineering								
Others in Party:	Sagar Chhayani, HP Engineering								
Access Equipment Used:	Measuring tape, Hip waders, Camera and Hammer								
Weather:	Sunny								
Temperature:	<u>18°C</u>								

ADDITIONAL INVESTIGATION DECLIDED		Priority	Estimated Cost	
ADDITIONAL INVESTIGATION REQUIRED	None	Normal	Urgent	Estimated Cost
Rehabilitation/Replacement Study:				\$
Material Condition Survey				
Detailed Deck Condition Survey:				\$ -
Non-destructive Delamination Survey of Asphalt- Covered Deck:				\$ -
Concrete Substructure Condition Survey:				\$ -
Detailed Coating Condition Survey:				\$ -
Detailed Timber Investigation:				\$ -
Underwater Investigation:				\$ -
Fatigue Investigation:				\$ -
Seismic Investigation:				\$ -
Structure Evaluation:				\$ -
Monitoring				
Monitoring of Deformations, Settlement and Movements:				\$ -
Monitoring Crack Widths:				\$ -
Load Posting – Estimated Load Limit		1	Fotal Cost	\$
Investigation Notes:				

0	VERALL STRUCTURAL NOTES:								
R	ecommended Work on Structure:	□ None	🛛 Minor Rehab.] Major Rehab.		Replace			
Ti	ming of Recommended Work:	$\boxtimes 1$ to 5	years 6 to 10 years						
O or	Overall structure is generally in good condition. Collision damage and abrasion noted on railing system and potholes observed on deck wearing surface.								
D	Date of Next Inspection: August 2022								
Susp 00	ected Performance Deficiencies None	06	Bearing not uniformly loaded/un	stable	12	Slippery surfaces			
01 02 03	Load carrying capacity Excessive deformations (deflections & rotation) Continuing settlement	07 08 09	Jammed expansion joint Pedestrian/vehicular hazard Bough riding surface		13 14 15	Flooding/channel blockage Undermining of foundation Unstable embantments			
04 05	Continuing movements Seized bearings	10 11	Surface ponding Deck drainage		16	Other			
01 02 03 04 05 06	Lift and swing bridge maintenance Bridge cleaning Bridge handrail maintenance Painting steel bridge structures Bridge deck joint repair Bridge bearing maintenance	07 08 09 10 11 12	Repair of structural steel Repair of bridge concrete Repair of bridge timber Bailey bridges maintenance Animal/pest control Bridge surface repair		13 14 15 16 17 18	Erosion control at bridges Concrete sealing Rout and seal Bridge deck drainage Scaling (loose Concrete or ACR Steel) Other			

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BRIDGE				STRUC	CTURE I	NUMBER.: BR1
ELEMENT DATA						
Element Group:	Approaches		Length:			
Element Name:	Barrier		Width:			
Location:	NE, NW, SE & SW Corn	ners of Structure	Height:	Height:		
Material:	Steel		Count:			
Element Type:	Steel Flex Beam on ste	eel post	Total Quantity:		48 m	
Environment:	Severe		Limited Inspection:			
Protection System	None					
Condition Data:	Units	Excellent	Good	Fair	Fair Po	
Condition Data:	m	-	48	-	-	
Comments: Generally	y in good condition. Southw	est end treatment is sub	ostandard and should be rep	laced with code o	complian	t end treatment.
Performance Defici	encies: 08		Maintenance Needs	s: 00		
Recommended Work: \square Rehab. \square ReplaceMaintenance Needs: \square Urgent \square 1 Year \square 2 Yea \square 1 - 5 Years \square 6 - 10 Years						r 2 Years

Element Group:	Approaches		Length:		3 m					
Element Name:	Wearing Surface		Width:		5 m					
Location:	North and South of Structure		Height:		0.08 m	1				
Material:	Sand		Count:		2					
Element Type:			Total Quantity:		30 m ²					
Environment:	Severe		Limited Inspection:							
Protection System	None									
	Units	Excellent	Good	Fair		Poor				
Condition Data:	m ²		25	5						
Comments: Loose sar	Comments: Loose sand and vegetation on each approach. Localized potholes noted on both approaches.									
Performance Deficie	encies: 09		Maintenance Need	s: 18 – Fix Pothol	les / Reg	grade				
Recommended Wor	k: ☐ Rehab. ☐ 1 – 5 Years	□ Replace □ 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	⊠ 1 Yea	ar 2 Years				

BRIDGE				STRU	CTURE	NUMBER.: BR1		
ELEMENT DATA								
Element Group:	Accessories		Length:					
Element Name:	Signs		Width:					
Location:	North and South of Structure		Height:					
Material:	Steel		Count:		6			
Element Type:	Checkerboard Traffic Syn	Total Quantity:		6				
Environment:	Severe	Limited Inspection:						
Protection System None								
Condition Data:	Units	Excellent	Good	Fair		Poor		
Condition Data:	Each	-	6	-		-		
Comments: Hazard s	igns are generally in good co	ndition. 5 Hazard signs.	1 Stop sign.					
Performance Defici	encies: 00		Maintenance Need	s: 00				
Recommended Wor	'k: ☐ Rehab. [Replace	Maintenance Need	s: 🗌 Urgent	□ 1 Ye	ar 2 Years		
	\Box 1 – 5 Years	☐ 6 – 10 Years						

Element Group:	Barriers		Length:							
Element Name:	Railing System		Width:							
Location:	North and South of Struct	ture	Height:							
Material:	laterial: Steel				2					
Element Type:	lement Type: Steel Flex Beam on steel post				24 m					
Environment:	Severe		Limited Inspection:							
Protection System	None									
	Units	Excellent	Good	Fair		Fair		Poor		
Condition Data:	m	-	24	-		-				
Comments: Collision	Comments: Collision damage and abrasions noted on each side of structure.									
Performance Defici	encies: 00		Maintenance Needs:	00						
Recommended Wor	'k: □ Rehab.	Replace	Maintenance Needs:	🗌 Urgent	🗌 1 Year	$\square 2 $ Years				

BRIDGE

Element Group:	Sidewalks / Curbs		Length:	Length:				
Element Name:	Curbs		Width:		0.6 m			
Location:	North and South of Structu	ıre	Height:		0.25 m	l		
Material:	Concrete		Count:		1			
Element Type:	Curb		Total Quantity:		14.52 r	m ²		
Environment:	Severe		Limited Inspection:					
Protection System	None							
Contra Data	Units	Excellent	Good	Fair	Poor			
Condition Data:	m ²	-	13.52	1				
Performance Deficiencies: 00 Maintenance Needs: 00 Recommended Work:								
Element Group: Element Name:	Decks Wearing Surface		Length: Width:		7 m 4.6 m			
Location:	Top of Deck		Height:					
Material:	Sand		Count:		1			
			Total Quantity: 32					
Element Type:	Sand wearing surface		Total Quantity:		32.2 m	2		
Element Type: Environment:	Sand wearing surface Severe		Total Quantity: Limited Inspection:		32.2 m	2		
Element Type: Environment: Protection System	Sand wearing surface Severe None		Total Quantity: Limited Inspection:		32.2 m	2		
Element Type: Environment: Protection System	Sand wearing surface Severe None Units	Excellent	Total Quantity: Limited Inspection: Good	Fair	32.2 m	2 Poor		
Element Type: Environment: Protection System Condition Data:	Sand wearing surface Severe None Units m ²	Excellent -	Total Quantity: Limited Inspection: Good 39.2	Fair -	32.2 m	2 Poor -		

BRIDGE

STRUCTURE NUMBER.: BR1

ELEMENT DATA							
Element Group:	Decks		Length:	Length:			
Element Name:	Deck Top (Covered)		Width:	Width:		4.6 m	
Location:	ocation: Top of Deck		Height:	Height:			
Material:	Cast in Place Concrete		Count:	Count:		1	
Element Type:	Deck top		Total Quantity:	Total Quantity:		32.2 m ²	
Environment:	Moderate		Limited Inspection:				
Protection System	Sand						
Condition Data	Units	Excellent	Good	Fair		Poor	
Condition Data:	m ²	-	32.2	-		-	

Comments:

Limited inspection due to wearing surface. Anticipated to be in good condition based on condition of soffit.

Performance Deficiencies: 00			Maintenance Needs:	00		
Recommended Work:	☐ Rehab. ☐ 1 – 5 Years	☐ Replace ☐ 6 – 10 Years	Maintenance Needs:	🗌 Urgent	□ 1 Year	2 Years

ELEMENT DATA							
Element Group:	Decks		Length:	Length:		6.1 m	
Element Name:	Soffit – Thick Slab (Inter	ior)	Width:		4.5 m		
Location:	Underside of Structure		Height:		-		
Material:	Concrete		Count:		1		
Element Type:	Soffit		Total Quantity:		27.44 m	2	
Environment:	Moderate		Limited Inspection:				
Protection System	None		·				
	Units	Excellent	Good	Fair		Poor	
Condition Data:	m ²	-	27.44	-		-	
Comments: Limited i	nspection due to high water	level. Appeared to be in	generally good condition	1.			
Performance Deficiencies: 00			Maintenance Needs: 00				
Recommended Wor	k: ☐ Rehab. [☐ 1 – 5 Years [☐ Replace ☐ 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	□ 1 Year	2 Years	

BRIDGE

ELEMENT DATA							
Element Group:	Abutments		Length:	Length:		2.6 m	
Element Name:	Wingwalls		Width:		-		
Location:	NE, NW, SE & SW of Str	ructure	Height:		0.8 m		
Material:	Concrete		Count:		4		
Element Type:	Cast-in-place concrete		Total Quantity:		8.31 m	1^2	
Environment:	Cast-in-place concrete wa	11	Limited Inspection:		\boxtimes		
Protection System	None		•				
	Units	Excellent	Good	Fair		Poor	
Condition Data:	%	-	8.31			-	
Comments: Limited i	nspection due to high water	level.					
Performance Defici	encies: 00		Maintenance Needs: 00				
Recommended Wor	• k: ☐ Rehab. [☐ 1 – 5 Years [☐ Replace ☐ 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	□ 1 Ye	ar 🗌 2 Years	

Element Group:	Abutments		Length:		-	
Element Name:	Abutment Walls		Width:		4.5 m	
Location:	East and west underside	e of structure	Height:		1 m	
Material:	Cast-in-place concrete		Count:		2	
Element Type:	Cast-in-place concrete	wall	Total Quantity:		9 m ²	
Environment:	Benign		Limited Inspection:			
Protection System	None					
Canditian Datas	Units	Excellent	Good	Fair		Poor
Condition Data:	m ²	-	9	-		-
Comments: Limited in	nspection due to high water l	evel.				
Performance Deficiencies: 00			Maintenance Need	s: 00		
Recommended Wor	k: ☐ Rehab. [☐ 1 – 5 Years [☐ Replace ☐ 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	1 Yea	ar 🗌 2 Years

BRIDGE

STRUCTURE NUMBER.: BR1

ELEMENT DATA							
Element Group:	Foundation		Length:				
Element Name:	Foundation (Below Ground Level)		Width:	Width:			
Location:	Below Structure		Height:				
Material:	Cast-in-place concrete		Count:		All		
Element Type:	Spread		Total Quantity:	Total Quantity:		All	
Environment:	Benign		Limited Inspection:	Limited Inspection:			
Protection System	Unknown						
Condition Data	Units Excellent		Good	Fair		Poor	
Conunion Data:	All		All	-		-	

Comments:

No signs of foundation settlement or instability at the time of the inspection.

Performance Deficiencies	s: 00		Maintenance Needs: (00		
Recommended Work:	□ Rehab. □ 1 – 5 Years	☐ Replace ☐ 6 – 10 Years	Maintenance Needs:	Urgent	🗌 1 Year	2 Years

Element Group:	Embankments and Streams		Length:			
Element Name:	Embankments		Width:			
Location:	NE, NW, SE & SW of Str	ructure	Height:			
Material:	Native Soil		Count:		4	
Element Type:	Embankments		Total Quantity:		4	
Environment:	Benign		Limited Inspection:			
Protection System	None					
Carditian Data:	Units	Excellent	Good	Fair		Poor
			4 -			
Condition Data:	Each	-	4	-		-
Comments: Embankn	Each nents are moderately sloped	- and well vegetated with	4 no signs of instability no	- oted at the time of	inspecti	on
Comments: Embankn Performance Deficio	Each nents are moderately sloped encies: 00	- and well vegetated with	4 no signs of instability no Maintenance Need	- oted at the time of s: 00	ìinspecti	on

BRIDGE				STRU	CTURE N	UMBER.: BR1
ELEMENT DATA						
Element Group:	Embankments and Stream	S	Length:	Length:		
Element Name:	Streams and Waterways		Width:			
Location:	Below Structure		Height:			
Material:	Native		Count:		1	
Element Type:	Streams and waterways		Total Quantity:		1	
Environment:	Benign		Limited Inspection:			
Protection System	None					
Canditian Datas	Units	Excellent	Good	Fair		Poor
Condition Data:	All		All	-		-
Comments: High volu	ume, no flow with water leve	I noted above the soffit.				
Performance Deficiencies: 00			Maintenance Need	s: 00		
Recommended Wor	k: ☐ Rehab. [☐ 1 – 5 Years [☐ Replace ☐ 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	□ 1 Year	2 Years

BRIDGE			STRUCTURE NUMBER.: BR1					
REPAIR AND REHABILITATION REQUIRED			Priority					
Element	Repair and Rehabilitation Required	6 - 10 Years	1 - 5 Years	< 1 year	Estimated Cost			
Approach- Barrier	Replace / upgrade SW end treatment		Х		\$ 6,000.00			
					\$ -			
					\$ -			
					\$ -			
					\$-			
					\$ -			
					\$ -			
					\$ -			
					\$ -			
				Total Cost	\$ 6,000.00			

ASSOCIATED WORK	Comments	Estimated Cost
Approaches		\$-
Detours		\$-
Traffic Control		\$-
Utilities		\$ -
Right of Way		\$-
Environmental Study		\$-
Other		\$ -
Contingencies		\$-
	Total Cost	\$-

JUSTIFICATION		



Photo 1 Structure from east approach



Photo 2 Structure from west approach



Photo 3 East approach from centre of structure



Photo 4 West approach from centre of structure

BRIDGE

SITE PHOTOGRAPHS

Site No.: BR1



Photo 5 North elevation



Photo 6 South elevation

BRIDGE



Photo 7 Potholes and loose gravel noted on deck wearing surface



Photo 8 Substandard end treatment noted on southwest corner



Photo 9 Collision damage noted on north deck barrier



Photo 10 Snowplow damage with narrow cracks noted on curb



Photo 11 Gravel accumulation noted at the edge of wearing surface

Structure Condition Summary Form

Structure Name	Brookside Road Bridge
Structure Number	BR3
Date of Inspection	August 04, 2020
Project No.	20032
Consultant	HP Engineering Inc.

Element Group	Element Name	Unit (Qty.)	Unit Price (MTO)	Total Element Quantity	Element Qty. in Excellent Condition (1.00)	Element Quantity in Good Condition (0.75)	Element Quantity in Fair Condition (0.4)	Element Quantity in Poor Condition (0)	Total Replacement Value (TRV)	Current Element Value (CEV)	Element Condition Index	Performance Deficiency	Maintenance Need
Approaches	Wearing Surface	Sq.m	6.00	61.19	0.00	57.19	2.00	2.00	367	262	71	00	18
Darriare	Railing Systems	m	200.00	25.00	0.00	21.00	2.00	2.00	5000	3310	66	00	18
Balliers	Posts - Timber	Each	50.00	14.00	0.00	12.00	1.00	1.00	700	470	67	00	18
Dealer	Deck Top - Thin Slab	Sq.m	120.00	57.80	0.00	57.80	0.00	0.00	6936	5202	75	00	02
Decks	Soffit - Thin Slab	Sq.m	120.00	43.70	0.00	43.70	0.00	0.00	5244	3933	75	00	00
Beams/ Main Longitudinal	Girders -Steel	Sq.m	420.00	146.61	0.00	136.61	10.00	0.00	61576	44712	73	00	00
Abutment	Abutment Walls	Sq.m	900.00	9.00	0.00	9.00	0.00	0.00	8100	6075	75	00	00
									87923	63964			

Bridge Condition Index (BCI)

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RIDGE				5	STRUCTURE NUMBER.: BR
INVENTORY DATA	A:				
Structure Name	Brookside Road Bridge				
		Und	ler Navigable	e Water 🗌 Non- 1	Navigable Water 🛛
Main Hwy/Road #		Stru	cture: Rail	Road 🗌 Pede	strian 🗌 Other 🗌
Road Name:	Brookside Road	On Stru	acture: Rail	Road 🗌 Pedestrian 🗌	Other
Structure Location	Brookside Road, 650 east	of Rodeo Ro	ad		
Latitude	45°43'24.7"N	1	Longitude	79°2′	7'10.6"W
Owner(s)	Township of Strong		_ Heritage Designation	Not Cons. 🛛 Cons./Not A	App. ☐ List/Not Desig. ☐ Desig. & List ☐
MTO Region	Northern		Road Class:	Freeway 🗌 Arterial 🗌	Collector 🗌 Local 🛛
MTO District	Huntsville		Posted Speed	<u>80</u> No. of	Lanes 1
Old County	Parry Sound		AADT	<u>0</u> % Tru	cks <u>0</u>
Geographic Twp.	Township of Strong		_ Special Routes	Transit 🛛 Truck 🗌	School 🗌 Bicycle 🗌
Structure Type	Frame, Inclined Legs		- Detour Length Structure	Around	(km)
Total Deck Length	12.3	(m)	Fill on Structur		<u>0</u> (m)
Overall Str. Width	4.7	(m)	Skew Angle		0 (Degrees)
Total Deck Area	57.81	(m ²)	Direction of St	ructure Eas	t/West
Roadway Width	5.1	(m)	No. of Spans		1
Span Lengths	9.3	(m)			
HISTORICAL DATA	Α				
Year Built			Last OS!	IM Inspection	June 26, 2020
Year of Last Major Re	ehab		Last Enł	nanced OSIM Inspection	
Current Load Limit	20	(t	connes) Last Brid	dge Master Inspection	
Load Limit By-Law #	-		Last Eve	aluation	
By-Law Expiry Date			Last Unc	derwater Inspection	
Min. Vertical Clearan	- ce	(r	m) Last Cor	ndition Survey	

BRIDGE

FIELD INSPECTION INF	FORMATION	
Date of Inspection:	August 4, 2020	Type of Inspection: 🛛 OSIM 🔲 Enhanced OSIM
Inspector:	Sarah Vandergeest, P.Eng., HP Engineering	
Others in Party:	Sagar Chhayani, HP Engineering	
Access Equipment Used:	Measuring tape, Hip waders, Camera and Hammer	
Weather:	Sunny	
Temperature:	17°C	

ADDITIONAL INVESTIGATION DECLIDED	Priority				Estimated Cost	
ADDITIONAL INVESTIGATION REQUIRED	None	Normal	Urgent	Estil	nated Cost	
Rehabilitation/Replacement Study: Approach Barrier				\$	5,000.00	
Material Condition Survey						
Detailed Deck Condition Survey:				\$	-	
Non-destructive Delamination Survey of Asphalt- Covered Deck:				\$	-	
Concrete Substructure Condition Survey:				\$	-	
Detailed Coating Condition Survey:				\$	-	
Detailed Timber Investigation:				\$	-	
Underwater Investigation:				\$	-	
Fatigue Investigation:				\$	-	
Seismic Investigation:				\$	-	
Structure Evaluation:				\$	-	
Monitoring						
Monitoring of Deformations, Settlement and Movements:				\$	-	
Monitoring Crack Widths:				\$	-	
Load Posting – Estimated Load Limit]	Fotal Cost	\$	5,000.00	
Investigation Notes:	•					

overent sincerent in ores					
Recommended Work on Structure:	□ None	Minor Rehab.	☐ Major Rehab.] Replace
Timing of Recommended Work:	⊠ 1 to 5	years 🗌 6 to 10 yea	rs		
Overall structure appears generally	in good cor	dition. Conforming a	oproach barrier / er	nd tr	eatments should be installed.
Potholes noted on approach wearing	surface. C	ollision damage with	abrasion noted on l	hand	l railing systems.
romores notes on approach a camp	, : : : : : : : : : : : : : : : : : : :	enteren unninge min			running of oronio.
Date of Next Inspection:	August 20)22			
Suspected Performance Deficiencies					
00 None	06	Bearing not uniformly loaded	/unstable	12	Slippery surfaces
01 Load carrying capacity	07	Jammed expansion joint		13	Flooding/channel blockage
02 Excessive deformations (deflections & rotation	ı) 08	Pedestrian/vehicular hazard		14	Undermining of foundation
03 Continuing settlement	09	Rough riding surface		15	Unstable embankments
04 Continuing movements	10	Surface ponding		16	Other
05 Seized bearings	11	Deck drainage			
Maintenance Needs					
01 Lift and swing bridge maintenance	07	Repair of structural steel		13	Erosion control at bridges
02 Bridge cleaning	08	Repair of bridge concrete		14	Concrete sealing
03 Bridge handrail maintenance	09	Repair of bridge timber		15	Rout and seal
04 Painting steel bridge structures	10	Bailey bridges maintenance		16	Bridge deck drainage
05 Bridge deck joint repair	11	Animal/pest control		17	Scaling (loose Concrete or ACR Steel)
06 Bridge bearing maintenance	12	Bridge surface repair		18	Other

BRIDGE				STRU	CTURI	E NUMBER.: BR3
ELEMENT DATA						
Element Group:	Approaches		Length:		2.0	
Element Name:	Barrier		Width:			
Location:	NE, NW, SE & SW Corners of Structure		Height:			
Material:	Steel		Count:		4	
Element Type:	Steel Flex Beam on steel post		Total Quantity:		24.0	
Environment:	Severe		Limited Inspection:			
Protection System	None					
	Units	Excellent	Good	Fair	Poor	
Condition Data:	m	-	-	-		-
Comments: Approach	n barriers are substandard and	d should be replaced wit	h a code compliant appr	oach barrier syste	m and e	end treatments.
Performance Deficie	encies: 08		Maintenance Need	s: 00		
Recommended Wor	' k: ⊠ Rehab. [⊠ 1 – 5 Years [☐ Replace ☐ 6 – 10 Years	Maintenance Need	s: Urgent	1 Y	ear 🗌 2 Years

Element Group:	Approaches		Length:		6	
Element Name:	Wearing Surface		Width:		5.1	
Location:	North and South of Stru	icture	Height:		-	
Material:	Gravel		Count:		2	
Element Type:			Total Quantity:		61.19	
Environment:	Severe		Limited Inspection:			
Protection System	None		·			
	Units	Excellent	Good	Fair		Poor
Condition Data:	m ²		57.19	2		2
Comments: Numerou	s small potholes noted.					
Performance Deficie	encies: 00		Maintenance Needs	s: 18 – Regrade		
Recommended Wor	k: ☐ Rehab. ☐ 1 – 5 Years	☐ Replace ☐ 6 – 10 Years	Maintenance Needs	s: 🗌 Urgent	⊠ 1 Year	2 Years

BRIDGE				STRU	CTURE	NUMBER.: BR3
ELEMENT DATA						
Element Group:	Accessories		Length:			
Element Name:	Signs		Width:			
Location:	North and South of Structure		Height:			
Material:	I: Steel		Count:		7	
Element Type:	Checkerboard Traffic Syn	Total Quantity:		7		
Environment:	Severe		Limited Inspection:	:		
Protection System	None					
Condition Data	Units	Excellent	Good	Fair		Poor
Condition Data:	Each	-	-	-		-
Comments: 2 Hazard	l signs were damaged and lea	ning outward.				
Performance Defici	encies: 00		Maintenance Need	s: 18 – Replace /	Reinstat	e Hazard Signs
Recommended Wor	r k: Rehab.		Maintenance Need	s: 🗌 Urgent	⊠ 1 Ye	ar 2 Years
	\Box 1 – 5 Years	6 - 10 Years				

Element Group:	Barriers		Length:		0.2	
Element Name:	Railing Systems		Width:		0.2	
Location:	North and South of Struct	ture	Height:		-	
Material:	Steel Flex Beam on Wo	ood Post	Count:		14	
Element Type:	Parapet Wall without ra	ailing	Total Quantity:	Total Quantity: 14		
Environment:	Moderate		Limited Inspection	Limited Inspection:		
Protection System	None					
	Units	Excellent	Good	Fair	Poor	
Condition Data:	m	-	12	1	1	
Comments: Collision both side of barrier. Sj	damage noted on the north b plitting noted on the post. Da	barrier, northwest end tr amage post noted on the	eatment and northwest of south side. 1 post observ	orner of railing sys	tem. Abrasion noted on north side.	
Performance Deficie	encies: 00		Maintenance Need	l s: 18 – Repair / Re	einstate Damage Railing	
Recommended Wor	k: ☐ Rehab. [☐ 1 – 5 Years [☐ Replace ☐ 6 – 10 Years	Maintenance Need	ls: 🗌 Urgent [⊠ 1 Year □ 2 Years	

BRIDGE

ELEMENT DATA						
Element Group:	Decks		Length:		12.3	
Element Name:	Deck Top		Width:		4.7	
Location:	NA		Height:		0.01	
Material:	Steel		Count:		1	
Element Type:	Steel Plate - composite		Total Quantity:		57.8	
Environment:	Benin		Limited Inspection:			
Protection System	Hot dip galvanizing					
Condition Data	Units	Excellent	Good	Fair		Poor
Condition Data:	m ²	-	57.8 -		-	
Performance Deficie Recommended Wor	ncies: 00 k:] Replace] 6 – 10 Years	Maintenance Need Maintenance Need	s: 2 Bridge Clear s: □ Urgent	ning 🛛 1 Yea	ar 🗌 2 Years
Element Group: Element Name:	Decks Soffit - Thin Slab		Length: Width:		9.3 4.7	
Location:	NA		Height:		-	
Material:	Steel		Count:		1	
Element Type:	NA		Total Quantity:		43.7	
Environment:	Benign		Limited Inspection:			
Protection System	None					
Condition Data	Units	Excellent	Good	Fair		Poor
Condition Data:	m ²	-	43.7	-		
						-

BRIDGE

ELEMENT DATA						
Element Group:	Beams		Length:		12.3	
Element Name:	Girders		Width:		0.19	
Location:	NA		Height:		0.46	
Material:	Steel		Count:		8	
Element Type:	I-type		Total Quantity:		146.61	
Environment:	Benign		Limited Inspection:			
Protection System	Epoxy zinc/acrylic/acryl	ic				
Condition Data	Units	Excellent	Good	Fair		Poor
Condition Data:	m ²	-	136.61 10		-	
bridge.						
Performance Deficie	ncies: 00		Maintenance Need	s: 00		
Kecommended work	$\square 1 - 5$ Years	☐ Kepiace ☐ 6 – 10 Years		s. 🗋 Orgent		
ELEMENT DATA						
Element Group:	Main Longitudinal Elem	ents (MLE's)	Length:		4.7	
Element Name:	Stringers		Width:		0.05	
Location:	NA		Height:		0.1	
Material:	Steel		Count:		50	
Element Type:	Channel		Total Quantity:		50	
Environment:	Benign		Limited Inspection:		\boxtimes	
Protection System	Epoxy zinc/acrylic/acryl	ic				
Condition Data:	Units	Excellent	Good	Fair		Poor
Condition Data.	Each	-	50	-		-
Comments: Limited in Performance Deficie	nspection due to previous br	idge structure being pres	Maintenance Need	s: 00		
Recommended Worl	c: ☐ Rehab. ☐ 1 – 5 Years	☐ Replace ☐ 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	□ 1 Yea	ar 🗌 2 Years

BRIDGE

ELEMENT DATA						
Element Group:	Coatings Structural		Length:			
Element Name:	Steel		Width:			
Location:	NA		Height:			
Material:	NA		Count:		1	
Element Type:	Epoxy zinc/acrylic/acryl	ic	Total Quantity:	Total Quantity:		
Environment:	Benign		Limited Inspection:			
Protection System	Unknown					
Canditian Datas	Units	Excellent	Good Fair			Poor
Condition Data:	m ²	-	1	-		-
Desformance Deficie			Maintanana Naal			
Performance Deficient	ncies: 00		Maintenance Need	s: 00		
Recommended Work: \Box Rehab. \Box ReplaceMaintenance Needs: \Box Urgent \Box 1 Year \Box 2 Years \Box 1 – 5 Years \Box 6 – 10 Years						
Element Course	Abutments		L av eth:			
Element Group:	Abutments Abutment Walls		Length:		5	
Element Group: Element Name:	Abutments Abutment Walls		Length: Width:		5	
Element Group: Element Name: Location:	Abutments Abutment Walls Each End Wood		Length: Width: Height:		5 0.9 2	
Element Group: Element Name: Location: Material:	Abutments Abutment Walls Each End Wood		Length: Width: Height: Count:		5 0.9 2 9	
Element Group: Element Name: Location: Material: Element Type:	Abutments Abutment Walls Each End Wood Crib or gabion Benign		Length: Width: Height: Count: Total Quantity: Limited Insertion		5 0.9 2 9	
Element Group: Element Name: Location: Material: Element Type: Environment:	Abutments Abutment Walls Each End Wood Crib or gabion Benign		Length: Width: Height: Count: Total Quantity: Limited Inspection:		5 0.9 2 9 🖂	
Element Group: Element Name: Location: Material: Element Type: Environment: Protection System	Abutments Abutment Walls Each End Wood Crib or gabion Benign Penetrant applied	Excellent	Length: Width: Height: Count: Total Quantity: Limited Inspection:	Enin	5 0.9 2 9 🛛	Boox
Element Group: Element Name: Location: Material: Element Type: Environment: Protection System Condition Data:	Abutments Abutment Walls Each End Wood Crib or gabion Benign Penetrant applied Units m ²	Excellent	Length: Width: Height: Count: Total Quantity: Limited Inspection: Good	Fair	5 0.9 2 9 ⊠	Poor
Element Group: Element Name: Location: Material: Element Type: Environment: Protection System Condition Data: Comments: Generally	Abutments Abutment Walls Each End Wood Crib or gabion Benign Penetrant applied Units m ² in good condition. Only abu	Excellent - utment wall ends inspec	Length: Width: Height: Count: Total Quantity: Limited Inspection: 9 ted due to limited visibilities	Fair ity.	5 0.9 2 9 ×	Poor
Element Group: Element Name: Location: Material: Element Type: Environment: Protection System Condition Data: Comments: Generally Performance Deficient	Abutments Abutment Walls Each End Wood Crib or gabion Benign Penetrant applied Units m ² in good condition. Only abu	Excellent - utment wall ends inspec	Length: Width: Height: Count: Total Quantity: Limited Inspection: 9 ted due to limited visibilities Maintenance Need	Fair ity. s: 00	5 0.9 2 9 ⊠	Poor

BRIDGE

ELEMENT DATA							
Element Group:	Embankments & Streams		Length:				
Element Name:	Embankments		Width:				
Location:	Each Quadrant		Height:	Height:			
Material:	NA		Count:	Count:		4	
Element Type:	NA		Total Quantity:	Total Quantity:		4	
Environment:	Benign		Limited Inspection:	Limited Inspection:			
Protection System	None						
	Units	Excellent	Good	Fair		Poor	
Condition Data:	Each	-	-	-		4	
Comments: All quadra	ants have heavy erosion of g	ranular material.					
			1				
Performance Deficient	ncies: 00		Maintenance Need	s: 13 Erosion Cor	ntrol at	Bridges	
Recommended Work	k: □ Rehab. □	Replace	Maintenance Need	s: 🗌 Urgent	⊠ 1 Y	ear 2 Years	
	$\Box 1 - 5$ Years	☐ 6 – 10 Years					
Element Group:	Embankments & Streams Length:						
Element Name:	Streams and Waterways		Width:				
Location:	Under Bridge		Height:				
Material:	NA		Count:		1		
Element Type:	NA		Total Quantity:		1		
Environment:	Benign		Limited Inspection:				
Protection System	None						
~ ~ ~ ~	Units	Excellent	Good	Fair		Poor	
Condition Data:	Each	-	1	-		-	
Comments: Moderate	volume, Low flow with no s	sign of obstruction in th	e stream at the time of in	spection.			

Performance Deficiencies: 00		Maintenance Needs: 00				
T er for munee Denetenete	3. 00		infunctionalitie i (ceus)	00		
Recommended Work:	☐ Rehab. ☐ 1 – 5 Years	☐ Replace ☐ 6 – 10 Years	Maintenance Needs:	Urgent	□ 1 Year	2 Years

BRIDGE

REPAIR AND REHABILITATION REQUIRED			Priority			
Element	Repair and Rehabilitation Required	6 - 10 Years	1 - 5 Years	< 1 year	Estimated Cost	
Approach- Barrier	Install code complaint approach barrier			Х	\$ 48,000.00	
					\$ -	
					\$ -	
					\$ -	
					\$ -	
					\$ -	
					\$ -	
					\$ -	
					\$ -	
Total Cost					\$ 48,000.00	

ASSOCIATED WORK	Comments	Estimated Cost
Approaches		\$-
Detours		\$-
Traffic Control		\$-
Utilities		\$ -
Right of Way		\$-
Environmental Study		\$ -
Other		\$-
Contingencies		\$ -
Total Cost		

JUSTIFICATION			



Photo 1 Structure from east approach



Photo 2 Structure from west approach



Photo 3 East approach from centre of structure



Photo 4 West approach from centre of structure

BRIDGE

SITE PHOTOGRAPHS

Site No.: BR3



Photo 5 North elevation



Photo 6 South elevation



Photo 7 Loose gravel and potholes noted on wearing surface



Photo 8 Collision damage noted on northeast end treatment



Photo 9 Collision damage on substandard end treatment on southwest corner



Photo 10 Corrosion and perforation noted on deck barrier



Photo 11 Gravel accumulation noted at center and edge of deck wearing surface



Photo 12 Previous structure still present at the time of inspection



Photo 13 Cracks noted on wooden crib at northeast corner



Photo 14 Moderate corrosion with pitting of coating noted on exterior beams at southeast corner

BRIDGE

Page 8
Structure Condition Summary Form

Structure Name	Robins Road Bridge
Structure Number	BR4
Date of Inspection	August 04, 2020
Project No.	20032
Consultant	HP Engineering Inc.

Element Group	Element Name	Unit (Qty.)	Unit Price (MTO)	Total Element Quantity	Element Qty. in Excellent Condition (1.00)	Element Quantity in Good Condition (0.75)	Element Quantity in Fair Condition (0.4)	Element Quantity in Poor Condition (0)	Total Replacement Value (TRV)	Current Element Value (CEV)	Element Condition Index	Performance Deficiency	Maintenance Need
	Curb and Gutters	m	25.00	24.00	0.00	24.00	0.00	0.00	600	450	75	00	18
Approaches	Wearing Surface	Sq.m	6.00	120.00	0.00	120.00	0.00	0.00	720	540	75	00	18
	Approach Slabs	Sq.m	140.00	120.00	0.00	120.00	0.00	0.00	16800	12600	75	00	00
Dorrioro	Railing Systems	m	200.00	67.31	0.00	67.31	0.00	0.00	13462	10097	75	00	00
Ddiffers	Posts (Steel/Concrete)	Each	200.00	38.00	0.00	38.00	0.00	0.00	7600	5700	75	00	00
Sidewalks/ Curbs	Curbs	Sq.m	40.00	35.10	0.00	35.10	0.00	0.00	1404	1053	75	00	18
	Wearing Surface	Sq.m	25.00	218.00	0.00	218.00	0.00	0.00	5450	4088	75	00	02
Decks	Deck Top - Thin Slab	Sq.m	120.00	250.69	0.00	250.69	0.00	0.00	30083	22562	75	00	00
	Soffit - Thin Slab	Sq.m	120.00	178.53	0.00	178.53	0.00	0.00	21424	16068	75	00	00
Beams/ Main Longitudinal	Girders	Sq.m	200.00	282.33	0.00	282.33	0.00	0.00	56466	42350	75	00	00
Abutmont	Wingwalls	Sq.m	350.00	21.83	0.00	21.83	0.00	0.00	7641	5730	75	00	00
Abdiment	Abutment Walls	Sq.m	900.00	45.59	0.00	45.59	0.00	0.00	41031	30773	75	00	00
Piers	Bearings	Each	1000.00	8.00	0.00	8.00	0.00	0.00	8000	6000	75	00	00
									210680	158010			

Bridge Condition Index (BCI)

75

RIDGE							S	FRUCTURE	NUMBER.: BI
INVENTORY DAT	`A:								
Structure Name	Robins Rd	l. Bridge							
				Under	Navigabl	e Water 🔲	Non- N	avigable Wat	er 🛛
Main Hwy/Road #				Structure:	Rail 🗌	Road [] Pedest	rian 🗌	Other
Road Name:	Robins R	.oad		On Structure:	Rail 🗌	Road 🗌 Ped	lestrian 🗌 C	Other 🗌	
Structure Location	Robins Ro	ad, East of Hi	ghway 11						
Latitude		45°43'24.7"	'N	Lor	ıgitude		79°27'	10.6"W	
Owner(s)	Township	of Strong		Her	itage	Not Cons. 🗵	Cons./Not A	pp. 🗌 List	t/Not Desig. 🗌
					Ignation	Desig./not Li	ist 🔲	Desig. & List	:
MTO Region	Northern			Roe	ıd Class:	Freeway 🗌	Arterial 🗌	Collector 🗌	Local 🛛
MTO District	Huntsville	<u>;</u>		Pos	ted Speed	80	No. of L	lanes <u>1</u>	
Old County	Parry Sour	nd			DT	0	% Truck	cs <u>0</u>	
Geographic Twp.	Township	of Strong		Spe	cial Routes	, Transit 🛛	Truck 🗌	School	Bicycle 🗌
Structure Type	I-beam or	Girders		Det	our Length cture	Around			_(km)
Total Deck Length		21.8	(m)	Fill	on Structur	re	()	_(m)
Overall Str. Width		11.5	(m)	Ske	w Angle		()	(Degrees)
Total Deck Area		250.7	(m ²)	Dir	ection of St	ructure	East/	West	_
Roadway Width		10	(m)	No.	of Spans		1	1	_
Span Lengths		20	(m)						
HISTORICAL DA?	ГА								
Year Built					Last OS	SIM Inspection		June	26, 2020
Year of Last Major F	Rehab.				Last En	hanced OSIM Ir	rspection		-
Current Load Limit				(tonnes)	Last Br	idge Master Insp	pection		-
Load Limit By-Law	#	-			Last Ev	aluation			-
By-Law Expiry Date	;	-			Last Un	derwater Inspec	tion		-
Min Varticel Clearance		(m)	m) Last Condition Survey -			_			

BRIDGE

FIELD INSPECTION INF	FORMATION	
Date of Inspection:	August 4, 2020	Type of Inspection: 🛛 OSIM 🔲 Enhanced OSIM
Inspector:	Sarah Vandergeest, P.Eng., HP Engineering	
Others in Party:	Sagar Chhayani, HP Engineering	
Access Equipment Used:	Measuring tape, Hip waders, Camera and Hammer	
Weather:	Sunny	
Temperature:	18°C	

ADDITIONAL INVECTIOATION DEGUIDED		Estimated Cost		
ADDITIONAL INVESTIGATION REQUIRED	None	Normal	Urgent	Estimated Cost
Rehabilitation/Replacement Study: Approach Barrier				\$-
Material Condition Survey				
Detailed Deck Condition Survey:				\$ -
Non-destructive Delamination Survey of Asphalt- Covered Deck:				\$ -
Concrete Substructure Condition Survey:				\$ -
Detailed Coating Condition Survey:				\$ -
Detailed Timber Investigation:				\$-
Underwater Investigation:				\$ -
Fatigue Investigation:				\$-
Seismic Investigation:				\$-
Structure Evaluation:				\$-
Monitoring				
Monitoring of Deformations, Settlement and Movements:				\$-
Monitoring Crack Widths:				\$-
Load Posting – Estimated Load Limit	Total Cost		\$ -	
Investigation Notes:				
OVERALL STRUCTURAL NOTES:				
Pasammandad Work on Structure: Nona I Minor Pahah	Major Dahah	D Damlaga		

R	ecommended Work on Structure:	🛛 None	☐ Minor Rehab.	🗌 Major Rehab.] Replace			
Ti	Timing of Recommended Work:I to 5 years6 to 10 years								
0	verall structure appears generally in	n good cor	dition.						
D	ate of Next Inspection:	August 20)22						
Sus	ected Performance Deficiencies								
00	None	06	Bearing not uniformly loaded	d/unstable	12	Slippery surfaces			
01	Load carrying capacity	07	Jammed expansion joint		13	Flooding/channel blockage			
02	Excessive deformations (deflections & rotation)	08	Pedestrian/vehicular hazard		14	Undermining of foundation			
03	Continuing settlement	09	Rough riding surface		15	Unstable embankments			
04	Continuing movements	10	Surface ponding		16	Other			
05	Seized bearings	11	Deck drainage						
Mai	ntenance Needs								
01	Lift and swing bridge maintenance	07	Repair of structural steel		13	Erosion control at bridges			
02	Bridge cleaning	08	Repair of bridge concrete		14	Concrete sealing			
03	Bridge handrail maintenance	09	Repair of bridge timber		15	Rout and seal			
04	Painting steel bridge structures	10	Bailey bridges maintenance		16	Bridge deck drainage			
05	Bridge deck joint repair	11	Animal/pest control		17	Scaling (loose Concrete or ACR Steel)			
06	Bridge bearing maintenance	12	Bridge surface repair		18	Other			

BRIDGE

ELEMENT DATA								
Element Group:	Approaches		Length:	121				
Element Name:	Barrier		Width:					
Location:	NE, NW, SE & SW Corne	ers of Structure	Height:	Height:				
Material:	Steel		Count:	Count:				
Element Type:	Steel Flex Beam on steel post		Total Quantity:		242			
Environment:	Severe		Limited Inspection:					
Protection System	None							
Canditian Datas	Units	Excellent	Good	Fair		Poor		
Condition Data:	m	-	242	-		-		
Comments: Approach barrier appears generally in good condition with collision damage observed at SW end. NE- Connection + 19 Posts, NW- Connections + 26 Posts, SE- Connections + 28 Posts, SW- Connections + 46 Posts								
Performance Deficie	ncies: 00		Maintenance Need	s: 18 – Reinstate	Damage	Guiderail		
Recommended Work	x: □ Rehab. [□ 1 – 5 Years [☐ Replace ☐ 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	🛛 1 Yea	ar 2 Years		

Element Group:	Approaches		Length:		6		
Element Name:	Wearing Surface		Width:		10		
Location:	North and South of Struc	ture	Height:		0.08		
Material:	Asphalt		Count:		2		
Element Type:	NA		Total Quantity:		120		
Environment:	Severe		Limited Inspection:				
Protection System	None						
	Units	Excellent	Good	Fair		Poor	
Condition Data:	m ² -		120	-	-		
Comments: Generally roadway.	v in good condition with mir	nor raveling noted on the	both approaches. Sand	and gravel accum	ılated a	long edges of	
Performance Deficie	encies: 00		Maintenance Need	Maintenance Needs: 18 – Clean Sand and Gravel			
Recommended Wor	k: ☐ Rehab. ☐ 1 – 5 Years	□ Replace □ 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	⊠ 1 Ye	ear 2 Years	

BRIDGE				STRUC	TURE NUMBER.: BR4	
ELEMENT DATA						
Element Group:	Approaches		Length:		6	
Element Name:	Curb and Gutters		Width:		-	
Location:	NA		Height:		0.18	
Material:	Cast-in-place concrete		Count:		4	
Element Type:	NA		Total Quantity:		24	
Environment:	Severe		Limited Inspection:			
Protection System	None		·			
	Units	Excellent	Good	Fair	Poor	
Condition Data:	Each	-	24	-	-	
Comments: Generall	y in the good condition. Sand	l observed along the nor	theast and northwest side	2S.		
Performance Defici	encies: 00		Maintenance Need	s: 18 – Clean Sand	and Gravel	
Recommended Wor	r k: □ Rehab. [□ 1 – 5 Years [☐ Replace ☐ 6 – 10 Years	Maintenance Need	s: 🗌 Urgent 🛛 🛛	¶ 1 Year ☐ 2 Years	

Element Group:	Approaches Approach		Length:		6		
Element Name:	Slabs		Width:	Width:		10	
Location:	Each End		Height:	Height:			
Material:	Cast-in-place concrete		Count:	Count:			
Element Type:	NA		Total Quantity:		120		
Environment:	Moderate		Limited Inspection:				
Protection System	None						
Carditian Datas	Units Excellent		Good	Fair		Poor	
Condition Data:	m	-	- 120		-		
Comments: Overall,	generally in good condition.	Rating based on wearing	surface condition.				
Performance Defici	encies: 03		Maintenance Needs	: 00			

BRIDGE

ELEMENT DATA						
Element Group:	Accessories		Length:			
Element Name:	Signs		Width:			
Location:	North and South of Struct	ure	Height:			
Material:	Steel		Count:		7	
Element Type:	Checkerboard Traffic Symbol		Total Quantity:		7	
Environment:	Severe		Limited Inspection:			
Protection System	None					
	Units	Excellent	Good	Fair		Poor
Condition Data:	Each	-	-			-
Comments: Generally	r in good condition.					
Performance Deficie	encies: 00		Maintenance Need	s: 00		
Recommended Wor	k: ☐ Rehab. [☐ 1 – 5 Years [☐ Replace ☐ 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	🗌 1 Year	r 🗌 2 Years

Element Group:	Barriers		Length:	1.87				
Element Name:	Railing Systems		Width:	Width:		-		
Location:	North and South of Struc	ture	Height:		0.62			
Material:	Steel		Count:		36			
Element Type:	Steel Post > 108 mm & 1 red. & 1 sq. tube		Total Quantity:		67.31			
Environment:	Moderate		Limited Inspection:					
Protection System	None	Vone						
Condition Dates	Units	Excellent	Good	Good Fair 57.31 -		Fair Poor		Poor
Condition Data:	m	-	67.31			-		
Comments: Generally	/ in good condition with light	nt corrosion noted at brid	ge barrier to approach ra	iling connection.				
Performance Deficiencies: 00			Maintenance Need	s: 00				
Recommended Wor	k: □ Rehab. □ 1 – 5 Years	□ Replace □ 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	🗌 1 Ye	ear 2 Years		

BRIDGE

ELEMENT DATA							
Element Group:	Sidewalks/Curbs		Length:		21.8		
Element Name:	Curbs		Width:		0.625		
Location:	NA		Height:		0.18		
Material:	Cast-in-place concrete		Count:		2		
Element Type:	NA		Total Quantity:		35.1		
Environment:	Severe		Limited Inspection	:			
Protection System	None						
Condition Data	Units	Excellent	Good	Fair		Poor	
Condition Data:	m ²	-	35.1	-		-	
Comments: Generally	Comments: Generally in good condition. Sand noted along the north curb.						
Performance Deficie	encies: 00		Maintenance Need	ls: 18 – Clean Sano	d and C	Gravel	
Recommended Wor	k: ☐ Rehab. [☐ 1 – 5 Years [☐ Replace] 6 – 10 Years	Maintenance Need	ls: □ Urgent	⊠ 1 Ye	ear 🗌 2 Years	

Element Group:	Decks		Length:		21.8			
Element Name:	Wearing Surface		Width:		10			
Location:	NA I		Height:		0.09			
Material:	Asphalt		Count:		1			
Element Type:	NA		Total Quantity:		218			
Environment:	Severe		Limited Inspection	:				
Protection System	None							
Condition Datas	Units	Excellent	Good	Fair		Poor		
Condition Data:	m ²	-	218	1		1		
Comments: Generally Small, localized abras	Comments: Generally in good condition. Sand and gravel was noted on both sides of the bridge deck for the full length and should be cleaned. Small, localized abrasions observed during the inspection.							
Performance Deficie	encies: 00		Maintenance Need	ls: 02 – Bridge Cl	eaning			
Recommended Wor	k: ☐ Rehab. ☐ 1 – 5 Years	☐ Replace ☐ 6 – 10 Years	Maintenance Need	ls: 🗌 Urgent	⊠ 1 Y	ear 🗌 2 Years		

BRIDGE

ELEMENT DATA							
Element Group:	Decks		Length:		19.3		
Element Name:	Soffit - Thin Slab (Exteri	or)	Width:		1.85		
Location:	NA		Height:		-		
Material:	Cast-in-place concrete		Count:		2		
Element Type:	NA		Total Quantity:		71.41		
Environment:	Benin		Limited Inspection:	:			
Protection System	Hot dip galvanizing						
Canditian Datas	Units	Excellent	Good	Fair		Poor	
Condition Data:	m ²	-	71.41	-		-	
Performance Deficiencies: 00 Maintenance Needs: 00							
Recommended work: \square Renab. \square Replace Maintenance Needs: \square Orgent \square I Year \square 2 Years \square 1 – 5 Years \square 6 – 10 Years							
Flomont Crount	Decks		Longth:		19.3		
Element Name:	Soffit - Thin Slab (Interio	or)	Width:		1.85		
Location:	NA	,	Height:		-		
Material:	Cast-in-place concrete		Count:		3		
Flamma T	Cast-in-place concrete		Count		3		
Element I vne•	NA		Count: Total Quantity:		3 107.12		
Element Type: Environment:	NA Benign		Count: Total Quantity: Limited Inspection:		3 107.12		
Element Type: Environment: Protection System	NA Benign None		Count: Total Quantity: Limited Inspection:		3 107.12		
Element Type: Environment: Protection System	NA Benign None Units	Excellent	Count: Total Quantity: Limited Inspection: Good	Fair	3 107.12	Poor	
Element Type: Environment: Protection System Condition Data:	NA Benign None Units m ²	Excellent	Count: Total Quantity: Limited Inspection: Good 107.12	Fair -	3 107.12	Poor	
Element Type: Environment: Protection System Condition Data: Comments: Generally Performance Deficie	NA Benign None Units m ² in good condition.	Excellent -	Count: Total Quantity: Limited Inspection: Good 107.12 Maintenance Need	Fair -	3 107.12 ⊠	Poor	

BRIDGE STRUCTURE NUMBER.: BR4							
ELEMENT DATA							
Element Group:	Beams		Length:		17.3		
Element Name:	Girders		Width:		0.56		
Location:	NA		Height:		1.2		
Material:	Steel		Count:		4		
Element Type:	I-type		Total Quantity:		282.3	3	
Environment:	Benign		Limited Inspection:	:	\boxtimes		
Protection System	Epoxy zinc/acrylic/acrylic						
Contra Data	Units	Excellent	Good	Fair		Poor	
Condition Data:	m ²	-	282.33	-		-	
Comments: Generally in good condition.							
Performance Deficie	encies: 00		Maintenance Need	s: 00			
Recommended Wor	k: ☐ Rehab. [☐ 1 – 5 Years [☐ Replace ☐ 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	□ 1 Ye	ear 🗌 2 Years	

ELEMENT DATA						
Element Group:	Abutments		Length:		4.2	
Element Name:	Wingwalls		Width:		-	
Location:	NA		Height:		1.3	
Material:	Cast-in-place concrete		Count:		4	
Element Type:	Reinforced Concrete Wa	.11	Total Quantity:		21.83	
Environment:	Benign		Limited Inspection:			
Protection System	N/A					
	Units	Excellent	Good	Fair		Poor
Condition Data:	m ²	-	21.83	-		-
Comments: Generall	y in good condition. Some iso	olated small pop-outs no	oted. Damp stained map c	racks observed o	on wingwa	11.
Performance Defici	encies: 00		Maintenance Needs	s: 00		
Recommended Wor	rk: ☐ Rehab. [☐ 1 – 5 Years [☐ Replace ☐ 6 – 10 Years	Maintenance Needs	s: 🗌 Urgent	□ 1 Yea	r 🗌 2 Years

BRIDGE

ELEMENT DATA							
Element Group:	Abutments		Length:		0.35		
Element Name:	Bearings		Width:		0.45		
Location:	NA		Height:		0.04		
Material:	NA		Count:		8		
Element Type:	Elastomeric pad		Total Quantity:		8		
Environment:	Benign		Limited Inspection:				
Protection System	None						
	Units	Excellent	Good	Fair		Poor	
Condition Data:	m ²	-	8	-		-	
Comments: Millor loss of contact at northeast, southeast, northwest and Southwest bearings.							
Performance Deficiencies: 00			Maintenance Need	s: 00			
\Box 1 – 5 Years \Box 6 – 10 Years							
ELEMENT DATA							
ELEMENT DATA Element Group:	Abutments		Length:		-		
ELEMENT DATA Element Group: Element Name:	Abutments Abutment Walls		Length: Width:		- 11.4		
ELEMENT DATA Element Group: Element Name: Location:	Abutments Abutment Walls Each End		Length: Width: Height:		- 11.4 2		
ELEMENT DATA Element Group: Element Name: Location: Material:	Abutments Abutment Walls Each End Cat-in-place concrete		Length: Width: Height: Count:		- 11.4 2 2		
ELEMENT DATA Element Group: Element Name: Location: Material: Element Type:	Abutments Abutment Walls Each End Cat-in-place concrete Conventional closed		Length: Width: Height: Count: Total Quantity:		- 11.4 2 2 45.59		
ELEMENT DATA Element Group: Element Name: Location: Material: Element Type: Environment:	Abutments Abutment Walls Each End Cat-in-place concrete Conventional closed Benign		Length: Width: Height: Count: Total Quantity: Limited Inspection:		- 11.4 2 2 45.59		
ELEMENT DATAElement Group:Element Name:Location:Material:Element Type:Environment:Protection System	Abutments Abutment Walls Each End Cat-in-place concrete Conventional closed Benign N/A		Length: Width: Height: Count: Total Quantity: Limited Inspection:		- 11.4 2 2 45.59		
ELEMENT DATA Element Group: Element Name: Location: Material: Element Type: Environment: Protection System	Abutments Abutment Walls Each End Cat-in-place concrete Conventional closed Benign N/A Units	Excellent	Length: Width: Height: Count: Total Quantity: Limited Inspection: Good	Fair	- 11.4 2 45.59	Poor	
ELEMENT DATAElement Group:Element Name:Location:Material:Element Type:Environment:Protection SystemCondition Data:	Abutments Abutment Walls Each End Cat-in-place concrete Conventional closed Benign N/A Units m ²	Excellent -	Length: Width: Height: Count: Total Quantity: Limited Inspection: Good 45.59	Fair -	- 11.4 2 45.59	Poor	
ELEMENT DATA Element Group: Location: Location: Material: Element Type: Environment: Protection System Condition Data: Comments: Generally	Abutments Abutment Walls Each End Cat-in-place concrete Conventional closed Benign N/A Units m ² in good condition.	Excellent	Length: Width: Height: Count: Total Quantity: Limited Inspection: Good 45.59	Fair -	- 11.4 2 45.59	Poor	
ELEMENT DATA Element Group: Element Name: Location: Material: Element Type: Environment: Protection System Condition Data: Comments: Generally Performance Deficient	Abutments Abutment Walls Each End Cat-in-place concrete Conventional closed Benign N/A Units m ² in good condition.	Excellent -	Length: Width: Height: Count: Total Quantity: Limited Inspection: Good 45.59 Maintenance Need	Fair - s: 00	- 11.4 2 45.59 1 1 1 1 1 1 1 1 1 1 1 1	Poor -	

BRIDGE

STRUCTURE NUMBER.: BR4

ELEMENT DATA						
Element Group:	Foundations		Length:			
Element Name:	Foundation (below groun	nd level)	Width:			
Location:	NA		Height:			
Material:	Cast-in-place concrete		Count:			
Element Type:	Spread		Total Quantity:			
Environment:	Benign		Limited Inspection:			
Protection System	Unknown					
Canditian Datas	Units	Excellent	Good	Fair	Poor	
Condition Data:	%	-	-	-	-	
r er tor mance Dencie						
Recommended Work	c: \square Rehab. \square \square 1 – 5 Years \square	☐ Replace] 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	∐ I Year ∐ 2 Years	
Element Group:	Embankments & Streams	3	Length:			
Element Name:	Embankments		Width:			
Location:	Each Quadrant		Height:			
Material:	NA		Count:		4	
Element Type:	NA		Total Quantity:		4	
Environment:	Benign		Limited Inspection:			
Protection System	Penetrant applied					

Comments: Steep sloped and appears in stable condition at the time of inspection.

Units

m²

Condition Data:

Performance Deficiencies: 00		Maintenance Needs: 00				
Recommended Work:	☐ Rehab. ☐ 1 – 5 Years	☐ Replace ☐ 6 – 10 Years	Maintenance Needs:	Urgent	🗌 l Year	2 Years

Good

4

Fair

Excellent

-

Poor

Each

BRIDGE

STRUCTURE NUMBER.: BR4

ELEMENT DATA							
Element Group:	Embankments & Stream	S	Length:				
Element Name:	Slope Protection		Width:	Width:			
Location:	Each End of Bridge		Height:				
Material:	NA		Count:		2		
Element Type:	Rock protection		Total Quantity:		2		
Environment:	Benign		Limited Inspection:				
Protection System	None	None					
Carlifford Datas	Units	Excellent	Good	Fair		Poor	
Condition Data:	Each	-	2	-		-	
Performance Deficiencies: 00 Maintenance Needs: 00 Recommended Work:							
	Emboultments & Stucom				[
Element Group:	Embankments & Stream	15	Length:				
Element Name:	Streams and waterways		Width:				
Location:	Under Bridge		Height:		-		
Material:	NA		Count:		1		
Element Type:	NA		Total Quantity:		1		
Environment:	Benign		Limited Inspection:	:			

Environment:	Benign		Limited Inspection:				
Protection System	None						
	Units	Excellent	Good	Fair	Poor		
Condition Data:	Each	-	1				
Comments: Moderate volume fast flow from north to south with branches in waterway observed at the time of inspection							

Comments: Moderate volume, fast flow from north to south with branches in waterway observed at the time of inspection.

Performance Deficiencies: 00		Maintenance Needs: 18- Remove debris					
Recommended Work:	☐ Rehab. ☐ 1 – 5 Years	☐ Replace ☐ 6 – 10 Years	Maintenance Needs:	Urgent	⊠ 1 Year	2 Years	

BRIDGE

REPAIR AND REHABIL	REPAIR AND REHABILITATION REQUIRED		Priority		
Element	Repair and Rehabilitation Required	6 - 10 Years 1 - 5 Years < 1 year		Estimated Cost	
					\$-
					\$-
					\$-
					\$-
					\$ -
					\$-
					\$-
					\$-
					\$ -
Total Cost					

ASSOCIATED WORK	Comments	Estimated Cost
Approaches		\$ -
Detours		\$ -
Traffic Control		\$ -
Utilities		\$ -
Right of Way		\$ -
Environmental Study		\$ -
Other		\$ -
Contingencies		\$ -
	Total Cost	\$ -

JUSTIFICATION			

BRIDGE



Photo 1 Structure from east approach



Photo 2 Structure from west approach

BRIDGE



Photo 3 East approach from centre of structure



Photo 4 West approach from centre of structure



Photo 5 North elevation



Photo 6 South elevation

BRIDGE



Photo 7 Vertical cracks noted along centerline and edges of approach wearing surface



Photo 8 Corrosion noted at connection between approach barrier and traffic barrier



Photo 9 Debris accumulation noted at the edge and over the traffic barrier



Photo 10 Bearing pad at west abutment wall



Photo 11 East underside of structure



Photo 12 Northwest wingwall



Photo 13 East abutment wall



Photo 14 West abutment wall

Structure Condition Summary Form

Structure Name	Muskoka Road Bridge
Structure Number	BR5
Date of Inspection	August 04, 2020
Project No.	20032
Consultant	HP Engineering Inc.

Element Group	Element Name	Unit (Qty.)	Unit Price (MTO)	Total Element Quantity	Element Qty. in Excellent Condition (1.00)	Element Quantity in Good Condition (0.75)	Element Quantity in Fair Condition (0.4)	Element Quantity in Poor Condition (0)	Total Replacement Value (TRV)	Current Element Value (CEV)	Element Condition Index	Performance Deficiency	Maintenance Need
Approaches	Wearing Surface	Sa.m	6.00	84.00	0.00	83.50	0.50	0.00	504	377	75	00	00
	Railing Systems	m	200.00	44.00	0.00	44.00	0.00	0.00	8800	6600	75	00	00
Barriers	Posts (Steel/Concrete)	Each	200.00	24.00	0.00	24.00	0.00	0.00	4800	3600	75	00	00
Sidewalks/ Curbs	Curbs	Sq.m	40.00	30.22	0.00	30.22	0.00	0.00	1209	907	75	00	18
	Wearing Surface	Sq.m	25.00	112.00	0.00	112.00	0.00	0.00	2800	2100	75	00	18
Decks	Deck Top - Thin Slab	Sq.m	120.00	112.00	0.00	112.00	0.00	0.00	13440	10080	75	00	00
	Soffit - Thin Slab	Sq.m	120.00	108.64	0.00	108.64	0.00	0.00	13037	9778	75	00	00
Beams/ Main Longitudinal	Girders -Steel	Sq.m	420.00	148.02	0.00	148.02	0.00	0.00	62168	46626	75	00	00
Abutmont	Wingwalls	Sq.m	350.00	11.20	0.00	11.20	0.00	0.00	3920	2940	75	00	00
Abument	Abutment Walls	Sq.m	900.00	16.00	0.00	16.00	0.00	0.00	14400	10800	75	00	00
								1					

Bridge Condition Index (BCI)

75

BRIDGE						ST	FRUCTURE	NUMBER.: BR
INVENTORY DAT	ſ A:							
Structure Name	Muskoka Rd. Bridş	ze						
		U	nder	Navigable	e Water 🔲	Non- Na	avigable Wate	r 🖂
Main Hwy/Road #		St	tructure:	Rail 🗌	Road [] Pedest	rian 🗌	Other
		0	'n	Rail 🗖	Road □ Ped	lestrian □ C)ther 🗖	
Road Name:	Muskoka Road	St	tructure:		Roud			
Structure Location	0.2 km North of Re	obins Rd.						
Latitude	45°42'	38.3"N	Long	itude		79°25'	36.1"W	
Owner(s)	Township of Strong	g	Herit	age	Not Cons. 🛛	Cons./Not A	pp. 🗌 List/	'Not Desig. 🗌
			Desig	gnation	Desig./not Li	ist 🔲 🔡	Desig. & List	
MTO Region	Northern		Road	l Class:	Freeway 🗌	Arterial 🗌	Collector 🗌	Local 🛛
MTO District	Huntsville		Poste	d Speed	80	No. of L	anes 2	
Old County	Parry Sound		AAD	T	0	% Truck	cs <u>0</u>	
Geographic Twp.	Township of Strong	g	Speci	ial Routes	, Transit 🛛	Truck	School	Bicycle
Structure Type	I-beam or Girders		Data	^T creath	المحمد ال			
			Struc	ur Lengui ture	Arounu			(km)
Total Deck Length	16	(m)	Fill o	on Structur	re	C)	(m)
Overall Str. Width	8.1	(m)	Skew	7 Angle		C)	(Degrees)
Total Deck Area	129.6	(m ²)	Direc	ction of St	tructure	North -	· South	-
Roadway Width	7	(m)	No. c	of Spans		1	l	-
Span Lengths	14.0	(m)						
HISTORICAL DA	ТА							
Year Built		2014		Last OS	SIM Inspection		June	26, 2020
Year of Last Major J	Rehab.	-	-	Last En	hanced OSIM Ir	ispection		
Current Load Limit			(tonnes)	Last Bri	idge Master Insp	vection		
Load Limit By-Law	#			Last Ev:	aluation			
By-Law Expiry Date	e		-	Last Un	derwater Inspec	tion		
Min. Vertical Cleara	ince	-	(m)	Last Co	ndition Survey			-

Rehabilitation History: (Date / Description)

BRIDGE

FIELD INSPECTION INF	FORMATION	
Date of Inspection:	August 4, 2020	Type of Inspection: 🛛 OSIM 🔲 Enhanced OSIM
Inspector:	Sarah Vandergeest, P.Eng., HP Engineering	
Others in Party:	Sagar Chhayani, HP Engineering	
Access Equipment Used:	Measuring tape, Hip waders, Camera and Hammer	
Weather:	Sunny	
Temperature:	18°C	

ADDITIONAL INVECTICATION DECLIDED		Estimated Cost		
ADDITIONAL INVESTIGATION REQUIRED	None	Normal	Urgent	Estimated Cost
Rehabilitation/Replacement Study: Approach Barrier				\$-
Material Condition Survey				
Detailed Deck Condition Survey:				\$ -
Non-destructive Delamination Survey of Asphalt- Covered Deck:				\$ -
Concrete Substructure Condition Survey:				\$-
Detailed Coating Condition Survey:				\$-
Detailed Timber Investigation:				\$-
Underwater Investigation:				\$-
Fatigue Investigation:				\$-
Seismic Investigation:				\$-
Structure Evaluation:				\$-
Monitoring				
Monitoring of Deformations, Settlement and Movements:				\$-
Monitoring Crack Widths:				\$-
Load Posting – Estimated Load Limit]	Fotal Cost	\$-
Investigation Notes:				
OVERALL STRUCTURAL NOTES:				

Recommended Work on Structure:	🛛 None	Minor Rehab.	🗌 Major Rehab.] Replace
Timing of Recommended Work:	□ 1 to 5	years 6 to 10 ye	ars		
Overall structure is generally in good	d condition	1.			
Date of Next Inspection:	August 2	022			
Suspected Performance Deficiencies					
00 None	06	Bearing not uniformly loade	d/unstable	12	Slippery surfaces
01 Load carrying capacity	07	Jammed expansion joint		13	Flooding/channel blockage
02 Excessive deformations (deflections & rotation)	08	Pedestrian/vehicular hazard		14	Undermining of foundation
03 Continuing settlement	09	Rough riding surface		15	Unstable embankments
04 Continuing movements	10	Surface ponding		16	Other
05 Seized bearings	11	Deck drainage			
Maintenance Needs					
01 Lift and swing bridge maintenance	07	Repair of structural steel		13	Erosion control at bridges
02 Bridge cleaning	08	Repair of bridge concrete		14	Concrete sealing
03 Bridge handrail maintenance	09	Repair of bridge timber		15	Rout and seal
04 Painting steel bridge structures	10	Bailey bridges maintenance		16	Bridge deck drainage
05 Bridge deck joint repair	11	Animal/pest control		17	Scaling (loose Concrete or ACR Steel)
06 Bridge bearing maintenance	12	Bridge surface repair		18	Other
		· -			

BRIDGE				STRU	JCTURE N	NUMBER.: BR5	
ELEMENT DATA							
Element Group:	Approaches		Length: 22				
Element Name:	Barrier		Width:				
Location:	NE, NW, SE & SW Corne	Height:					
Material:	Steel	Count:		4			
Element Type:	Steel Flex Beam on ste	Total Quantity:		88			
Environment:	Severe		Limited Inspection:				
Protection System	None				·		
Carlina Data	Units	Excellent	Good	Fair		Poor	
Condition Data:	m	-	88	-	-		
Comments: Generally	y in good condition with min	or collision damage not	ed at southwest and north	east corners.			
Performance Defici	encies: 00		Maintenance Need	s: 00			
Recommended Wor	• k: ☐ Rehab. [☐ 1 – 5 Years [☐ Replace ☐ 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	□ 1 Year	2 Years	

Element Group:	Approaches		Length:		6	
Element Name:	Wearing Surface		Width:		7	
Location:	East and West of Structure		Height:		0.08	
Material:	Asphalt		Count:		2	
Element Type:	NA 7		Total Quantity:		84	
Environment:	Severe		Limited Inspection:			
Protection System	None					
Condition Deter	Units	Excellent	Good	Fair		Poor
Condition Data:	m ²	-	83.5	-		
Comments: Generally	/ in good condition with narr	row to medium transverse	cracks observed at end o	f decks.		
Performance Deficie	encies: 00		Maintenance Needs:	00		
Recommended Wor	' k: □ Rehab. [□ Replace	Maintenance Needs:	Urgent 🗌	🗌 1 Year	□ 2 Years

BRIDGE

ELEMENT DATA						
Element Group:	Accessories		Length:			
Element Name:	Signs		Width:			
Location:	North and South of Struct	ure	Height:			
Material:	Steel		Count:		4	
Element Type:	Checkerboard Traffic Syn	nbol	Total Quantity:		4	
Environment:	Severe		Limited Inspection:			
Protection System	None					
Canditian Datas	Units	Excellent	Good	Fair		Poor
Condition Data:	Each	-	4	-		-
Comments: 4- Hazard	signs noted at the time of th	e inspection. Generally	n good condition.			
Performance Deficie	ncies: 00		Maintenance Need	s: 00		
Recommended Worl	k: □ Rehab. [Replace	Maintenance Need	s: 🗌 Urgent	🗌 1 Year	□ 2 Years
	\Box 1 – 5 Years	☐ 6 – 10 Years				

Element Group:	Barriers		Length:		22		
Element Name:	Railing Systems	Railing Systems		Width:		0.5	
Location:	NA		Height:		-		
Material:	Steel		Count:		2		
Element Type:	Thrie Beam on steel post		Total Quantity:		44		
Environment:	Moderate		Limited Inspection:				
Protection System	None						
Condition Data	Units	Excellent	Good	Fair		Poor	
Condition Data:	m -		44	- 44		-	
Comments: Generall	y in good condition with n	ninor collision damage no	ted at southwest and north	east corners.			
Performance Defici	encies: 00		Maintenance Needs	s: 00			
Recommended Wor	•k: ☐ Rehab. ☐ 1 – 5 Years	☐ Replace ☐ 6 – 10 Years	Maintenance Needs	s: 🗌 Urgent	🗌 1 Year	2 Years	

BRIDGE				STRU	CTURI	E NUMBER.: BR5
ELEMENT DATA						
Element Group:	Sidewalks/Curbs		Length:		22	
Element Name:	Curbs		Width:		0.5	
Location:	NA		Height:		0.18	
Material:	Cast-in-place concrete		Count:		2	
Element Type:	NA		Total Quantity:		30.22	2
Environment:	Severe		Limited Inspection:	:		
Protection System	None					
	Units	Excellent	Good	Fair		Poor
Condition Data:	m ²	-	30.22	-		-
Comments: Generally	y in good condition. Some sa	nd / gravel build up on t	the sides.			
Performance Deficion	encies: 00 :k: □ Rehab.	Replace	Maintenance Need	Maintenance Needs: 18 - Clean Sand and Gravel		
	$\square 1 - 5$ Years	☐ 6 – 10 Years				

Element Group:	Decks Length:			-			
Element Name:	Drainage System		Width:	Width:		-	
Location:	NA		Height:	Height:		-	
Material:	Steel		Count:		4		
Element Type:	Metal drain pipes		Total Quantity:		4		
Environment:	Severe		Limited Inspection:				
Protection System	None						
	Units	Excellent	Good	Fair		Poor	
Condition Data:	Distribution Data: Each - 2		2	2		-	
Comments: 2 drain bl	l ocked. Clear as maintenance	e.					
Comments: 2 drain bl	ocked. Clear as maintenance encies: 00	2.	Maintenance Need	s: 16 – Bridge D	eck Drain	age	

BRIDGE				STRUC	TURE NUMBER.: BR5
ELEMENT DATA					
Element Group:	Decks		Length:		14
Element Name:	Wearing Surface		Width:		2.26
Location:	NA		Height:		-
Material:	Asphalt	Asphalt			1
Element Type:	NA		Total Quantity:		31.92
Environment:	Benin		Limited Inspection	:	
Protection System	None				
	Units	Excellent	Good	Fair	Poor
Condition Data:	m ²	-	112	-	-
Comments: Generally	y in good condition. Sand /	gravel accumulate noted	along the edges.		
Performance Defici	encies: 00		Maintenance Need	ls: 18 - Clean San	d and Gravel
Recommended Wor	•k: ☐ Rehab. ☐ 1 – 5 Years	☐ Replace ☐ 6 – 10 Years	Maintenance Need	Is: 🗌 Urgent 🗌] 1 Year 🛛 2 Years

Element Group:	Decks		Length:		16		
Element Name:	Deck Top		Width:		7		
Location:	NA		Height:	Height:			
Material:	Cast-in-place concrete		Count:		1		
Element Type:	Cast-in-place concrete on supports		Total Quantity:		112		
Environment:	Benign		Limited Inspection:				
Protection System	None						
Condition Data:	Units	Excellent	Good	Fair		Poor	
Condition Data:	m ²	-	112	-		-	
Comments: Generall	y in good condition.						
						Poor - 2 Years	
Performance Defici	encies: 00		Maintenance Needs:	00			

BRIDGE				STRUC	CTURE NI	UMBER.: BR5
ELEMENT DATA						
Element Group:	Decks		Length:		14	
Element Name:	Soffit - Thin Slab (Exteri	ior)	Width:		2.26	
Location:	NA		Height:		-	
Material:	Cast-in-place concrete		Count:		1	
Element Type:	Cast-in-place concrete or	n supports	Total Quantity:		31.92	
Environment:	Benign		Limited Inspection:			
Protection System	Epoxy zinc/acrylic/acryli	ic		ľ		
	Units	Excellent	Good	Fair		Poor
Condition Data:	m ²	-	31.92	-		-
Comments: Generally	y in good condition.					
Performance Defici	encies: 00		Maintenance Need	s: 00		
Recommended Wor	•k: ☐ Rehab. [☐ 1 – 5 Years [☐ Replace ☐ 6 – 10 Years	Maintenance Need	s: 🗌 Urgent [□ 1 Year	2 Years

ELEMENT DATA							
Element Group:	Decks		Length:	14			
Element Name:	Soffit - Thin Slab (Interio	or)	Width:	5.4	3		
Location:	NA		Height:	0.22	25		
Material:	Cast-in-place concrete		Count:	1			
Element Type:	Cast-in-place concrete on supports		Total Quantity:	76.	72		
Environment:	Benign		Limited Inspection	: 0			
Protection System	N/A	N/A					
	Units	Excellent	Good	Fair	Poor		
Condition Data:	m ²	-	76.72	-	-		
Comments: Generall	y in good condition.						
Performance Defici	encies: 00		Maintenance Need	ls: 00			
Recommended Wor	r k: ☐ Rehab. [☐ 1 – 5 Years [☐ Replace ☐ 6 – 10 Years	Maintenance Need	ls: 🗌 Urgent 🔲 1	Year 2 Years		

BRIDGE

ELEMENT DATA						
Element Group:	Beams		Length:		15.5	
Element Name:	Girders		Width:		0.23	
Location:	NA		Height:		0.61	
Material:	Steel		Count:		5	
Element Type:	I-type		Total Quantity:		148.0	2
Environment:	Benign		Limited Inspection:			
Protection System	None					
	Units	Excellent	Good	Fair		Poor
Condition Data:	m ²	-	148.02	-		-
Comments: Generally	in good condition. Some lig	ght corrosion noted.				
Performance Deficiencies: 00 Maintenance Needs: 00 Recommended Work: □ Rehab. □ Replace □ 1 - 5 Years □ 6 - 10 Years □ 6 - 10 Years □ 1 - 5 Ye						
ELEMENT DATA						
Element Group:	Main Longitudinal Elem	ents (MLE's)	Length:		1.6	
Element Name:	Diaphragms		Width:		0.065	
Location:	NA		Height:		0.25	
Material:	Steel		Count:		10	
Element Type:	Channel		Total Quantity:		10	
Environment:	Benign		Limited Inspection:			
Protection System	N/A		·	·		
	Units	Excellent	Good	Fair		Poor
Condition Data:	Each	-	10	-		-
Comments: Generally	in good condition.					

Performance Deficiencies: 00			Maintenance Needs: 00			
Recommended Work:	☐ Rehab. ☐ 1 – 5 Years	☐ Replace ☐ 6 – 10 Years	Maintenance Needs:	Urgent	□ 1 Year	2 Years

BRIDGE

ELEMENT DATA						
Element Group:	Abutments		Length:		3.5	
Element Name:	Wingwalls		Width:		0.45	
Location:	NA		Height:		1.6	
Material:	Cast-in-place concrete		Count:		4	
Element Type:	Reinforced concrete		Total Quantity:		11.2	
Environment:	Benign		Limited Inspection:			
Protection System	Unknown					
	Units	Excellent	Good	Good Fair		Poor
Condition Data:	m ²	-	11.2	-		-
				00		
Performance Deficiencies: 00			Maintenance Need	s: 00		
Recommended Work: \Box Rehab. \Box ReplaceMaintenance Needs: \Box Urgent \Box 1 Year \Box 2 Years \Box 1 – 5 Years \Box 6 – 10 Years						
	Abutments					
Element Group:	Abutments		Length:		0	
Element Group: Element Name:	Abutments Abutment Walls		Length: Width:		8	
Element Group: Element Name: Location:	Abutments Abutment Walls Each End		Length: Width: Height:		8	
Element Group: Element Name: Location: Material:	Abutments Abutment Walls Each End Cast-in-place concrete		Length: Width: Height: Count:		8 1 2	
Element Group: Element Name: Location: Material: Element Type:	Abutments Abutment Walls Each End Cast-in-place concrete Conventional closed		Length: Width: Height: Count: Total Quantity:		8 1 2 16	
Element Group: Element Name: Location: Material: Element Type: Environment:	Abutments Abutment Walls Each End Cast-in-place concrete Conventional closed Benign		Length: Width: Height: Count: Total Quantity: Limited Inspection:		8 1 2 16	
Element Group: Element Name: Location: Material: Element Type: Environment: Protection System	Abutments Abutment Walls Each End Cast-in-place concrete Conventional closed Benign Penetrant applied		Length: Width: Height: Count: Total Quantity: Limited Inspection:		8 1 2 16 □	
Element Group: Element Name: Location: Material: Element Type: Environment: Protection System Condition Data:	Abutments Abutment Walls Each End Cast-in-place concrete Conventional closed Benign Penetrant applied Units	Excellent	Length: Width: Height: Count: Total Quantity: Limited Inspection: Good	Fair	8 1 2 16	Poor
Element Group: Element Name: Location: Material: Element Type: Environment: Protection System Condition Data:	Abutments Abutment Walls Each End Cast-in-place concrete Conventional closed Benign Penetrant applied Units m ²	Excellent	Length: Width: Height: Count: Total Quantity: Limited Inspection: Good 16	Fair	8 1 2 16 □	Poor Each
Element Group: Element Name: Location: Material: Element Type: Environment: Protection System Condition Data: Comments: Generally	Abutments Abutment Walls Each End Cast-in-place concrete Conventional closed Benign Penetrant applied Units m ² in good condition.	Excellent	Length: Width: Height: Count: Total Quantity: Limited Inspection: Good 16	Fair	8 1 2 16 	Poor Each
Element Group: Element Name: Location: Material: Element Type: Environment: Protection System Condition Data: Comments: Generally Performance Deficient	Abutments Abutment Walls Each End Cast-in-place concrete Conventional closed Benign Penetrant applied Units m ² in good condition.	Excellent	Length: Width: Height: Count: Total Quantity: Limited Inspection: Good 16 Maintenance Need	Fair 5: 00	8 1 2 16	Poor Each

BRIDGE

ELEMENT DATA						
Element Group:	Foundations		Length:			
Element Name:	Foundation (below grou	ind level)	Width:			
Location:	NA		Height:			
Material:	Steel		Count:		All	
Element Type:	Piles		Total Quantity:		All	
Environment:	Foundations	Limited Inspection:				
Protection System	None					
Condition Data	Units	Excellent	Good Fair			Poor
Condition Data:	Each	-	All	-		-
Performance Deficiencies: 00 Maintenance Needs: 00						
Recommended Work: Rehab Replace			Maintenance Need	s: 🗌 Urgent	$\Box 1 Y$	ear 2 Years
	\Box 1 – 5 Years	☐ 6 – 10 Years		_ 0		
Element Group:	Embankments & Stream	ns	Length:			
Element Name:	Embankments		Width:			
Location:	Each Ouadrant					
			Height:			
Material:	NA		Count:		4	
Material: Element Type:	NA NA		Count: Total Quantity:		4 4	
Material: Element Type: Environment:	NA NA Benign		Height: Count: Total Quantity: Limited Inspection:		4 4	
Material: Element Type: Environment: Protection System	NA NA Benign None		Count: Total Quantity: Limited Inspection:		4 4	
Material: Element Type: Environment: Protection System	NA NA Benign None Units	Excellent	Good	Fair	4	Poor
Material: Element Type: Environment: Protection System Condition Data:	NA NA Benign None Units Each	Excellent -	Height: Count: Total Quantity: Limited Inspection: Good 4	Fair	4 4	Poor Each
Material: Element Type: Environment: Protection System Condition Data: Comments: Generally	NA NA Benign None Units Each in good condition with stab	Excellent - le, sloped, high vegetatio	Good 4	Fair	4	Poor Each
Material: Element Type: Environment: Protection System Condition Data: Comments: Generally Performance Deficie	NA NA Benign None Units Each in good condition with stab	Excellent - le, sloped, high vegetatio	Height: Count: Total Quantity: Limited Inspection: Good 4 on noted. Maintenance Need	Fair s: 00	4 4	Poor Each

BRIDGE

ELEMENT DATA							
Element Group:	Embankments & Stream	ns	Length:				
Element Name:	Streams and Waterway	s	Width:				
Location:	Under Bridge		Height:				
Material:	NA		Count:		1		
Element Type:	NA		Total Quantity:		1		
Environment:	Benign Limited Inspection:						
Protection System	None	None					
	Units	Excellent	Good	Fair		Poor	
Condition Data:	%	-	1	-		-	
Comments: No visible inspection.	signs of instability observe	d at the time of inspectio	n. Moderate volume, no	o flow obstruction	s noted	at the time of	
Performance Deficie	ncies: 00		Maintenance Need	s: 00			
Recommended Work	$\begin{array}{c} \textbf{K:} \qquad \Box \text{ Rehab.} \qquad [\\ \Box 1-5 \text{ Years} \qquad [\\ \end{array}$	☐ Replace ☐ 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	□ 1 Y	ear 2 Years	

BRIDGE

REPAIR AND REHABIL	REPAIR AND REHABILITATION REQUIRED		Priority			
Element	Repair and Rehabilitation Required	6 - 10 Years 1 - 5 Years < 1 year		Estimated Cost		
					\$-	
					\$ -	
					\$-	
					\$-	
					\$-	
					\$-	
					\$ -	
					\$ -	
					\$ -	
				Total Cost	\$	

ASSOCIATED WORK	Comments	Estimated Cost
Approaches		\$-
Detours		\$-
Traffic Control		\$-
Utilities		\$-
Right of Way		\$-
Environmental Study		\$-
Other		\$-
Contingencies		\$-
	Total Cost	\$ -

JUSTIFICATION		



Photo 1 Structure from north approach



Photo 2 Structure from south approach



Photo 3 North approach from centre of structure



Photo 4 South approach from centre of structure

BRIDGE

SITE PHOTOGRAPHS

Site No.: BR5



Photo 5 East elevation



Photo 6 West elevation
BRIDGE

SITE PHOTOGRAPHS

Site No.: BR5



Photo 7 Potholes and loose gravel noted on approach wearing surface



Photo 8 Small dents and abrasion noted on southeast hazard sign



Photo 9 North underside of structure



Photo 10 Narrow cracks and scaling noted on east fascia



Photo 11 Longitudinal narrow racks with damp stains noted on west fascia



Photo 12 Southeast wingwall

BRIDGE



Photo 13 Concrete disintegration and scaling noted on abutment wall

Structure Condition Summary Form

Structure Name	Stirling Creek Bridge
Structure Number	BR6
Date of Inspection	August 04, 2020
Project No.	20032
Consultant	HP Engineering Inc.

Element Group	Element Name	Unit (Qty.)	Unit Price (MTO)	Total Element Quantity	Element Qty. in Excellent Condition (1.00)	Element Quantity in Good Condition (0.75)	Element Quantity in Fair Condition (0.4)	Element Quantity in Poor Condition (0)	Total Replacement Value (TRV)	Current Element Value (CEV)	Element Condition Index	Performance Deficiency	Maintenance Need
Approaches	Wearing Surface	Sg.m	6.00	72.60	0.00	68.60	2.00	2.00	436	314	72	00	12
Barriers	Railing Systems	m	200.00	26.00	0.00	24.00	1.00	1.00	5200	3680	71	00	18
	Top Chords	Sq.m	300.00	14.64	0.00	14.64	0.00	0.00	4392	3294	75	00	00
	Verticals	Sq.m	300.00	48.00	0.00	48.00	0.00	0.00	14400	10800	75	00	00
Trusses/ Arches	Diagonals	Sq.m	300.00	128.00	0.00	128.00	0.00	0.00	38400	28800	75	00	00
	Bottom Chords	Sq.m	300.00	9.76	0.00	9.76	0.00	0.00	2928	2196	75	00	00
	Connections	Each	0.00	208.00	0.00	208.00	0.00	0.00	0	0		00	00
Sidewalks/ Curbs	Curbs	Sq.m	40.00	24.00	0.00	22.00	1.00	1.00	960	676	70	00	02
	Wearing Surface	Sq.m	25.00	60.60	0.00	0.00	56.60	4.00	1515	566	37	00	00
Decks	Deck - Timber	Sq.m	50.00	60.60	0.00	0.00	59.10	1.50	3030	1182	39	00	00
	Soffit - Thin Slab	Sq.m	120.00	60.60	0.00	0.00	59.10	1.50	7272	2837	39	00	00
Beams/ Main Longitudinal	Stringers	Each	0.00	11.00	0.00	11.00	0.00	0.00	0	0		00	00
Elements	Floor Beams - Steel	Sq.m	420.00	60.43	0.00	60.43	0.00	0.00	25381	19035	75	00	00
Bracing	Bracing - Steel	Each	500.00	8.00	0.00	8.00	0.00	0.00	4000	3000	75	00	00
Coatings	Structural steel	Sq.m	80.00	1.00	0.00	1.00	0.00	0.00	80	60	75	00	00
	Ballast Walls	Sq.m	350.00	18.92	0.00	17.92	0.00	1.00	6622	4704	71	00	08
Abutment	Bearings	Each	1000.00	8.00	0.00	8.00	0.00	0.00	8000	6000	75	00	02
	Abutment Walls	Sq.m	900.00	61.06	0.00	61.06	0.00	0.00	54954	41216	75	00	02

Bridge Condition Index (BCI)

72

177569

128359

BRIDGE					STRUCTU	RE NUMBER.: BR
INVENTORY DAT	`A:					
Structure Name	Stirling Creek Bridge					
		Un	der Navigabl	e Water 🔲	Non- Navigable	Water 🛛
Main Hwy/Road #		Str	ucture: Rail 🗌	Road 🗌] Pedestrian	Other
		On		Deed 🗖 Ded	tion D Other D	
Road Name:	North Horn Lake Road	Str	ucture: Kall	Koad 📋 Ped		
Structure Location	West of Highway 11					
Latitude	45°40'58.8'	'N	Longitude		79°25'54.7"W	
Owner(s)	Township of Strong		Heritage	Not Cons. 🛛] Cons./Not App.	List/Not Desig.
			Designation	Desig./not Li	st 🗌 Desig. &	List 🔲
MTO Region	Northern		Road Class:	Freeway 🗌	Arterial 🗌 Collector	Local 🛛
MTO District	Huntsville		Posted Speed	50	No. of Lanes 1	
Old County	Parry Sound		AADT	0	<u>%</u> Trucks <u>0</u>	
Geographic Twp.	Township of Strong		Special Routes	, Transit 🗌	Truck 🗌 School	□ Bicycle □
Structure Type	Bailey Panel		- D-tour I ongth	ال ۸		
			Structure	Arouna	-	(km)
Total Deck Length	12.2	(m)	Fill on Structur	re	0	(m)
Overall Str. Width	6.37	(m)	Skew Angle	-	0	(Degrees)
Total Deck Area	77.714	(m ²)	Direction of St	tructure	East/West	
Roadway Width	5.05	(m)	No. of Spans	-	1	
Span Lengths	12.2	(m)				
HISTORICAL DA	ГА					
Year Built			Last OS	SIM Inspection	<u>J</u>	une 26, 2018
Year of Last Major I	Rehab		Last En	hanced OSIM In	spection	-
Current Load Limit		((tonnes) Last Bri	idge Master Insp	ection	

Rehabilitation History: (Dat	te / Description)				
Min. Vertical Clearance		(m)	Last Condition Survey		
By-Law Expiry Date	-	-	Last Underwater Inspection		
Load Limit By-Law #		_	Last Evaluation		
Current Load Limit		(tonnes)	Last Bridge Master Inspection		
Year of Last Major Rehab.	-	-	Last Enhanced OSIM Inspection	-	

BRIDGE

FIELD INSPECTION INFORMATION								
Date of Inspection:	August 4, 2020	Type of Inspection: 🛛 OSIM 🔲 Enhanced OSIM						
Inspector:	Sarah Vandergeest, P.Eng., HP Engineering							
Others in Party:	Sagar Chhayani, HP Engineering							
Access Equipment Used:	Measuring tape, Hip waders, Camera and Hammer							
Weather:	Sunny							
Temperature:	18°C							

ADDITIONAL INVESTIGATION DECLIDED		Estimated Cost		
ADDITIONAL INVESTIGATION REQUIRED	None	Normal	Urgent	Estimated Cost
Rehabilitation/Replacement Study: Approach Barrier				\$ -
Material Condition Survey				
Detailed Deck Condition Survey:				\$-
Non-destructive Delamination Survey of Asphalt- Covered Deck:				\$-
Concrete Substructure Condition Survey:				\$-
Detailed Coating Condition Survey:				\$-
Detailed Timber Investigation:				\$-
Underwater Investigation:				\$-
Fatigue Investigation:				\$-
Seismic Investigation:				\$-
Structure Evaluation:				\$-
Monitoring				
Monitoring of Deformations, Settlement and Movements:				\$-
Monitoring Crack Widths:				\$-
Load Posting – Estimated Load Limit]	Fotal Cost	\$-
Investigation Notes:				
OVERALL STRUCTURAL NOTES:				

R	ecommended Work on Structure:	□ None	Minor Rehab.	☐ Major Rehab.] Replace			
Ti	Timing of Recommended Work: \square 1 to 5 years \square 6 to 10 years								
O ur er	Overall, structure is generally in good condition with damaged noted on railing system. Replace of timber deck surface (and underlying deck timbers as required) is recommended. Replacement of approach railing end treatments with code compliant end treatments recommended.								
D	Date of Next Inspection: August 2022								
Susp	uspected Performance Deficiencies								
00	None	06	Bearing not uniformly loaded	d/unstable	12	Slippery surfaces			
01	Load carrying capacity	07	Jammed expansion joint		13	Flooding/channel blockage			
02	Excessive deformations (deflections & rotation)	08	Pedestrian/vehicular hazard		14	Undermining of foundation			
03	Continuing settlement	09	Rough riding surface		15	Unstable embankments			
04	Continuing movements	10	Surface ponding		16	Other			
05	Seized bearings	11	Deck drainage						
Mai	ntenance Needs								
01	Lift and swing bridge maintenance	07	Repair of structural steel		13	Erosion control at bridges			
02	Bridge cleaning	08	Repair of bridge concrete		14	Concrete sealing			
03	Bridge handrail maintenance	09	Repair of bridge timber		15	Rout and seal			
04	Painting steel bridge structures	10	Bailey bridges maintenance		16	Bridge deck drainage			
05 Bridge deck joint repair 11 Animal/pest control 17 Scaling (loose Concrete or ACR Steel)						Scaling (loose Concrete or ACR Steel)			
06	Bridge bearing maintenance	12	Bridge surface repair		18	Other			

BRIDGE

ELEMENT DATA							
Element Group:	Approaches		Length:				
Element Name:	Barrier	Barrier V					
Location:	NE, NW, SE & SW Corners of Structure		Height:				
Material:	Steel		Count:				
Element Type:	Steel Flex Beam on wo	od post	Total Quantity:				
Environment:	Severe		Limited Inspection:	:			
Protection System	tem Hot Dip Galvanized						
Units Excellent Good				Fair		Poor	
Condition Data:	m	-	-	-	-		
Comments: Barrier is on wood posts. End tro	Comments: Barrier is generally in good condition with some minor collision damage and light corrosion noted at end. Checks and splits noted on wood posts. End treatments are substandard and should be replaced with code compliant end treatments.						
Performance Deficie	encies: 08		Maintenance Need	s: 18 – Replace D	amaged	Posts / Rails	
Recommended Wor	k: ☐ Rehab. [⊠ 1 – 5 Years [⊠ Replace] 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	⊠ 1 Yea	ar 🗌 2 Years	

Element Group:	Approaches		Length:		6			
Element Name:	Wearing Surface	Width:		6.05	6.05			
Location:	North and South of Str	ucture	Height:		-			
Material:	Gravel		Count:		2			
Element Type:	NA		Total Quantity:		72.6			
Environment:	Severe		Limited Inspection:					
Protection System	None							
Canditian Datas	Units	Excellent	Good	Fair		Poor		
Condition Data:	m ²	-	68.6	2		2		
Comments: Pothole n	Comments: Pothole noted at north and south ends of deck wearing surface at the time of the inspection.							
Performance Deficie	encies: 00	Maintenance Need	s: 12					
Recommended Wor	k: ☐ Rehab. ☐ 1 – 5 Years	□ Replace □ 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	□ 1 Yea	ar 🛛 2 Years		

BRIDGE

ELEMENT DATA								
Element Group:	Accessories		Length:					
Element Name:	Signs	Signs V						
Location:	North and South of Structure He		Height:					
Material:	Steel		Count:		2			
Element Type:	Hazard Signs		Total Quantity:		2			
Environment:	Severe		Limited Inspection:					
Protection System	None							
Condition Data	Units	Excellent	Good	Fair		Poor		
Condition Data:	Each	-	1	-		1		
Comments: 2 Hazard s	Comments: 2 Hazard signs. Northeast hazard sign damaged. Install 3 hazard signs and 2 narrow bridge signs as maintenance.							
Performance Deficie	ncies: 00		Maintenance Need	s: 18 - Install Haz	zard / N	arrow Bridge Signs		
Recommended Work	c: ☐ Rehab. [☐ 1 – 5 Years [] Replace] 6 – 10 Years	Maintenance Need	S: 🛛 Urgent	□ 1 Ye	ear 2 Years		

Element Group:	Barriers		Length:		13			
Element Name:	Railing Systems		Width:		-			
Location:	Bridge		Height:		-			
Material:	Steel		Count:		2			
Element Type:	Steel Flex Beam on St	eel Post	Total Quantity:		26			
Environment:	Moderate		Limited Inspection	:				
Protection System	Hot Dip Galvanized							
	Units	Excellent	Good	Fair	Poor			
Condition Data:	m		24	1	1			
Comments: Collision	Comments: Collision damaged observed on Northeast and Southwest barriers.							
Performance Defici	encies: 00		Maintenance Need	Maintenance Needs: 18 – Repair / Replace Damage Railing				
Recommended Wo	r k: ☐ Rehab. ☐ 1 – 5 Years	\Box Replace $\Box 6 - 10$ Years	Maintenance Need	ls: 🗌 Urgent [] 1 Year ⊠ 2 Years			

BRIDGE				STRUC	TURE NUMBER.: BR6
ELEMENT DATA					
Element Group:	Trusses/Arches		Length:		12.2
Element Name:	Top Chords		Width:		0.05
Location:	NA		Height:		0.1
Material:	Steel		Count:		4
Element Type:	Channel		Total Quantity:		14.64
Environment:	Benign		Limited Inspection:	:	
Protection System	Hot dip galvanized				
Canditian Datas	Units	Excellent	Good	Fair	Poor
Condition Data:	m ²	-	14.64	-	-
Comments: Generally	y in good condition.				
Performance Deficion	encies: 00		Maintenance Need	s: 00	
Recommended Wor	·k: 🗌 Rehab.	□ Replace	Maintenance Need	s: 🗌 Urgent 🗌	1 Year 2 Years
	\Box 1 – 5 Years	\Box 6 – 10 Years			

Element Group:	Trusses/Arches		Length:	0.04				
Element Name:	Verticals / Diagonals		Width:		0.08			
Location:	Verticals		Height:	Height:				
Material:	Steel C		Count:		48			
Element Type:	Channel	Channel T			48			
Environment:	Benign		Limited Inspection:					
Protection System	Hot dip galvanized	Hot dip galvanized						
Canditian Data:	Units	Excellent	Good	Fair		Poor		
Condition Data:	m ²	-	48	-		-		
Comments: Generally	y in good condition.							
Performance Defici	encies: 00		Maintenance Needs	:00				
Recommended Wor	•k: ☐ Rehab. ☐ 1 – 5 Years	□ Replace □ 6 – 10 Years	Maintenance Needs	: 🗌 Urgent	🗌 1 Year	r 🗌 2 Years		

BRIDGE				STRU	CTURE	NUMBER.: BR6	
ELEMENT DATA							
Element Group:	Trusses/Arches		Length:	Length:		1.34	
Element Name:	Verticals / Diagonals		Width:		0.05		
Location:	Diagonals H		Height:		0.08		
Material:	Steel C		Count:		128		
Element Type:	Channel	Channel 7			128		
Environment:	Benign		Limited Inspection:				
Protection System	Hot dip galvanized		·				
Carditian Data	Units	Excellent	Good	Fair		Poor	
Condition Data:	m ²	-	128	-		-	
Porformance Deficiencies: 00							
Performance Defici	encies: 00		Maintenance Need	s: 00			
Performance Defici Recommended Wor	encies: 00 ^r k: ☐ Rehab. [☐ 1 – 5 Years [] Replace] 6 – 10 Years	Maintenance Need Maintenance Need	s: 00 s: □ Urgent	□ 1 Yea	ar 🗌 2 Years	
Performance Defici Recommended Wor	encies: 00 ^r k: ☐ Rehab. [☐ 1 – 5 Years [Trusses/Arches] Replace] 6 – 10 Years	Maintenance Need Maintenance Need	s: 00 s: □ Urgent	□ 1 Yes	ar 🗌 2 Years	

Element Name:	Bottom Chords		Width:		0.05	
Location:	NA		Height:		0.1	
Material:	Steel		Count:		4	
Element Type:	Channel ·		Total Quantity:		9.76	
Environment:	Benign		Limited Inspection:			
Protection System	Hot Dip Galvanized					
Canditian Datas	Units	Excellent	Good	Fair		Poor
Condition Data:	m ²	-	9.76	-		-
Comments: Generally	in good condition.					
Performance Deficiencies: 00						
Performance Deficie	ncies: 00		Maintenance Needs:	00		

BRIDGE				STRU	CTURE N	NUMBER.: BR6
ELEMENT DATA						
Element Group:	Trusses/Arches		Length:			
Element Name:	Connections		Width:			
Location:	NA		Height:		-	
Material:	Steel		Count:		208	
Element Type:	Bolted		Total Quantity:		208	
Environment:	Benign		Limited Inspection:			
Protection System	Hot Dip Galvanized					
Carditian Datas	Units	Excellent	Good	Fair		Poor
Condition Data:	Each	-	208	-		-
Comments: Generally	y in good condition.					
Performance Deficio	encies: 00		Maintenance Need	s: 00		
Recommended Wor	k: ☐ Rehab. ☐ 1 – 5 Years	☐ Replace ☐ 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	□ 1 Year	r 🗌 2 Years

ELEMENT DATA							
Element Group:	Sidewalks/Curbs		Length:	Length:			
Element Name:	Curbs		Width:	Width:		0.2	
Location:	Each side H		Height:		0.2		
Material:	Wood C		Count:		2		
Element Type:	NA	NA T			24		
Environment:	Benign		Limited Inspection:				
Protection System	None				•		
Constraint Data	Units	Excellent	Good	Fair		Poor	
Condition Data:	m	-	22	1		1	
Comments: Curb cov	vered in debris. Clean debris o	off curb as maintenance.	Some minor section loss	/ abrasion obser	rved on the	south curb.	
Performance Defici	iencies: 00		Maintenance Needs	: 02 Bridge Clea	aning		
Recommended Wo	rk: ☐ Rehab. [☐ 1 – 5 Years [☐ Replace ☐ 6 – 10 Years	Maintenance Needs	: 🗌 Urgent	🗌 l Year	⊠ 2 Years	

BRIDGE

ELEMENT DATA								
Element Group:	Decks		Length:	Length:				
Element Name:	Wearing Surface		Width:		5.05			
Location:	NA		Height:		0.045			
Material:	Wood		Count:		1			
Element Type:	NA		Total Quantity:		60.6			
Environment:	Severe		Limited Inspection:					
Protection System	None							
Condition Data	Units	Excellent	Good	Fair	- Poor			
Condition Data:	m ²	-	-	56.6		4		
Performance Dencie	ncies: UU		Maintenance Need					
\boxtimes 1 – 5 Years \square 6 – 10 Years								
ELEMENT DATA								
ELEMENT DATA Element Group:	Decks		Length:		12			
ELEMENT DATA Element Group: Element Name:	Decks Deck Top		Length: Width:		12 5.05			
ELEMENT DATA Element Group: Element Name: Location:	Decks Deck Top NA		Length: Width: Height:		12 5.05 0.06			
ELEMENT DATA Element Group: Element Name: Location: Material:	Decks Deck Top NA Wood		Length: Width: Height: Count:		12 5.05 0.06 1			
ELEMENT DATA Element Group: Element Name: Location: Material: Element Type:	Decks Deck Top NA Wood Wood Planks		Length: Width: Height: Count: Total Quantity:		12 5.05 0.06 1 60.6			
ELEMENT DATA Element Group: Element Name: Location: Material: Element Type: Environment:	Decks Deck Top NA Wood Wood Planks Benign		Length: Width: Height: Count: Total Quantity: Limited Inspection:		12 5.05 0.06 1 60.6 ⊠			
ELEMENT DATA Element Group: Element Name: Location: Material: Element Type: Environment: Protection System	Decks Deck Top NA Wood Wood Planks Benign None		Length: Width: Height: Count: Total Quantity: Limited Inspection:		12 5.05 0.06 1 60.6 ⊠			
ELEMENT DATA Element Group: Element Name: Location: Material: Element Type: Environment: Protection System Condition Data:	Decks Deck Top NA Wood Wood Planks Benign None Units	Excellent	Length: Width: Height: Count: Total Quantity: Limited Inspection: Good	Fair	12 5.05 0.06 1 60.6 ⊠	Poor		
ELEMENT DATAElement Group:Element Name:Location:Material:Element Type:Environment:Protection SystemCondition Data:	Decks Deck Top NA Wood Wood Planks Benign None Units m ²	Excellent	Length: Width: Height: Count: Total Quantity: Limited Inspection: Good -	Fair 59.1	12 5.05 0.06 1 60.6 ⊠	Poor 1.5		
ELEMENT DATAElement Group:Element Name:Location:Material:Element Type:Environment:Protection SystemCondition Data:Comments: Top of de of wearing surface). SPerformance Deficie	Decks Deck Top NA Wood Wood Planks Benign None Units m ² ck not visible (covered in w hould be further inspected a	Excellent - earing surface deck plar nd reinstated as required	Length: Width: Height: Count: Total Quantity: Limited Inspection: - iss). Likely some rot and after removal of wearin Maintenance Need	Fair 59.1 I deterioration (b g surface planks. s: 00	12 5.05 0.06 1 60.6 ⊠	Poor 1.5 bserved condition		

BRIDGE

ELEMENT DATA							
Element Group:	Decks		Length:		12		
Element Name:	Soffit		Width:		5.05		
Location:	NA		Height:		0.06		
Material:	Wood		Count:		1		
Element Type:	NA		Total Quantity:		60.6		
Environment:	Benign		Limited Inspection:				
Protection System	None						
Condition Data	Units	Excellent	Good	Fair		Poor	
Condition Data:	m ²	-	-	59.1		1.5	
after removal of wearing	ng surface planks.	/ rocalized rotaling of th				anou as roquinou	
Performance Deficie	ncies: 00		Maintenance Need	s: 00			
Recommended Work: \square Rehab. \square ReplaceMaintenance Needs: \square Urgent \square 1 Year \square 2 Years \square 1 - 5 Years \square 6 - 10 Years							
Floment Crown	Main Longitudinal Elem	ents (MLE's)	Longth		12.2		
Element Name	Stringers		Width:	Width:		0.04	
Location:	NA		Width:		0.1		
Material:	Steel		Count:		11		
Element Type	(Steel I) Beam		Total Quantity:		11		
Environment:	Benign		Limited Inspection:				
Protection System	Hot din galvanized		Ellinted Inspection				
	Units	Excellent	Good	Fair		Poor	
Condition Data:	Each	-	11	-		-	
Comments: Generally in good condition. Some damp and stains noted on stringers. Light corrosion observed on flanges.							
Recommended Work	k: □ Rehab. □	☐ Replace	Maintenance Need	s: 🗌 Urgent	□ 1 Yea	$\square 2 \text{ Years}$	
	\Box 1 – 5 Years [] 6 – 10 Years		S Orgont		2 10415	

BRIDGE

STRUCTURE NUMBER.: BR6

ELEMENT DATA								
Element Group:	Main Longitudinal Elem	ents (MLE's)	Length:		7.9			
Element Name:	Floor Beams		Width:	Width:		0.2		
Location:	NA	NA F			0.465			
Material:	Steel C		Count:		5			
Element Type:	(Steel I) Beam T		Total Quantity:		60.43			
Environment:	Benign I		Limited Inspection:					
Protection System	Hot dip galvanized	lot dip galvanized						
	Units	Excellent	Good	Fair		Poor		
Condition Data:	m ²	-	60.43	-		-		
Comments: Generally	in good condition. Light co	rrosion noted on flanges	3.					
Performance Deficie	ncies: 00		Maintenance Need	s: 00				
Performance Deficies Recommended Work	ncies: 00 <tr] Replace	Maintenance Need Maintenance Need	s: 00 s: □ Urgent	□ 1 Ye	ear 🗌 2 Years		
Performance Deficies Recommended Work	ncies: 00 ::	☐ Replace ☐ 6 – 10 Years	Maintenance Need Maintenance Need	s: 00 s: □ Urgent	□ 1 Ye	ear 🗌 2 Years		
Performance Deficies Recommended Work	ncies: 00 <:	☐ Replace ☐ 6 – 10 Years	Maintenance Need Maintenance Need	s: 00 s: □ Urgent	□ 1 Ye	ear 🗌 2 Years		
Performance Deficie Recommended Work	ncies: 00 k:	☐ Replace ☐ 6 – 10 Years	Maintenance Need Maintenance Need Length:	s: 00 s: □ Urgent	□ 1 Ye	ear 🗌 2 Years		
Performance Deficie Recommended Work Element Group: Element Name:	ncies: 00 ::	☐ Replace ☐ 6 – 10 Years	Maintenance Need Maintenance Need Length: Width:	s: 00 s: □ Urgent	□ 1 Ye	ear 🗌 2 Years		
Performance Deficie Recommended Work Element Group: Element Name: Location:	ncies: 00 ::	☐ Replace ☐ 6 – 10 Years	Maintenance Need Maintenance Need Length: Width: Height:	s: 00 s: □ Urgent	□ 1 Ye 4.3 0.1 0.05	ear 🗌 2 Years		
Performance Deficie Recommended Work Element Group: Element Name: Location: Material:	ncies: 00 x:	☐ Replace ☐ 6 – 10 Years	Maintenance Need Maintenance Need Length: Width: Height: Count:	s: 00 s: □ Urgent	□ 1 Yo 4.3 0.1 0.05 8	ear 🗌 2 Years		
Performance Deficie Recommended Work Element Group: Element Name: Location: Material: Element Type:	ncies: 00 ::	☐ Replace] 6 – 10 Years	Maintenance Need Maintenance Need Length: Width: Height: Count: Total Quantity:	s: 00 s: 🗌 Urgent	□ 1 Ye 4.3 0.1 0.05 8 8	ear 2 Years		
Performance Deficie Recommended Work Element Group: Element Name: Location: Material: Element Type: Environment:	ncies: 00 C: C Rehab. C D 1 – 5 Years C Bracing Bracing Horizontal Bracing Steel Channel Benign	☐ Replace ☐ 6 – 10 Years	Maintenance Need Maintenance Need Length: Width: Height: Count: Total Quantity: Limited Inspection:	s: 00 s: 🗌 Urgent	□ 1 Ye 4.3 0.1 0.05 8 8 8 □	ear 2 Years		
Performance Deficie Recommended Work Element Group: Element Name: Location: Material: Element Type: Environment: Protection System	ncies: 00 C: C Rehab. [D 1 – 5 Years [Bracing Bracing Horizontal Bracing Steel Channel Benign Hot dip galvanized	☐ Replace ☐ 6 – 10 Years	Maintenance Need Maintenance Need Length: Width: Height: Count: Total Quantity: Limited Inspection:	s: 00 s: 🗌 Urgent	□ 1 Yo 4.3 0.1 0.05 8 8 8 □	ear 2 Years		
Performance Deficie Recommended Work Element Group: Element Name: Location: Material: Element Type: Environment: Protection System	ncies: 00 c:	☐ Replace ☐ 6 – 10 Years	Maintenance Need Maintenance Need Length: Width: Height: Count: Total Quantity: Limited Inspection:	s: 00 s: Urgent	□ 1 Ye 4.3 0.1 0.05 8 8 □	ear 2 Years		
Performance Deficie Recommended Work Element Group: Element Name: Location: Material: Element Type: Environment: Protection System Condition Data:	ncies: 00 x:	☐ Replace ☐ 6 – 10 Years 	Maintenance Need Maintenance Need Length: Width: Height: Count: Total Quantity: Limited Inspection: Good	s: 00 s: Urgent 	□ 1 Ye 4.3 0.1 0.05 8 8 □	ear 2 Years		

Comments: Light corrosion noted on flanges.

 Performance Deficiencies: 00
 Maintenance Needs: 00

 Recommended Work:

 П Rehab.
 П Replace
 1 - 5 Years
 1

BRIDGE

ELEMENT DATA							
Element Group:	Coatings		Length:				
Element Name:	Structural Steel		Width:				
Location:	NA		Height:				
Material:	NA		Count:		1		
Element Type:	Hot dip galvanized		Total Quantity:		1		
Environment:	Benign		Limited Inspection:				
Protection System	N/A						
	Units	Excellent	Good	Fair		Poor	
Condition Data:	%	-	1	-		-	
	-						
Performance Deficiencies: 00			Maintenance Need	s: 00			
Recommended Work: \Box Rehab. \Box ReplaceMaintenance Needs: \Box Urgent \Box 1 Year \Box 2 Years \Box 1 - 5 Years \Box 6 - 10 Years							
Element Group:	Abutments		Length:		0.35		
Element Name:	Ballast Walls		Width:	Width:		8.6	
Location:	Each End		Height:		1.1		
Material:	Cast-in-place concrete		Count:		2		
Element Type:	Reinforced concrete		Total Quantity:		18.92		
Environment:	Benign		Limited Inspection:				
Protection System	None						
	Units	Excellent	Good	Fair		Poor	
Condition Data:	m ²	-	17.92	-		1	
Comments: Rust stains and large spall noted on the top of southeast ballast wall.							
Recommended West	z. Rebah	7 Replace	Maintenance Nood	s. UIraant	\Box 1 Vec	r 🕅 2 Vaars	
Kecommended work	$\square 1 - 5$ Years	☐ Keptace] 6 – 10 Years		s. 🗋 Orgent		1 Z Z Tears	

BRIDGE

ELEMENT DATA							
Element Group:	Abutments		Length:		0.46		
Element Name:	Bearings		Width:		0.38		
Location:	NA		Height:		-		
Material:	Steel		Count:	Count:			
Element Type:	Hinge		Total Quantity:		8		
Environment:	Benign		Limited Inspection:				
Protection System	Hot Dip Galvanized						
	Units	Excellent	Good	Fair		Poor	
Condition Data:	Each	-	8	-		-	
Performance Deficie	ncies: 00	Maintenance Need	s: 02 – Bridge C	leaning			
Recommended Work	<: ☐ Rehab. [☐ 1 – 5 Years [☐ Replace ☐ 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	⊠ 1 Year	2 Years	
Element Group:	Abutments		Length:		-		
Element Name:	Abutment Walls		Width:		8.6		
Location:	Each End		Height:	Height:		3.55	
Material:	Cast-in-place concrete		Count:		2		
Element Type:	Conventional closed		Total Quantity:		61.06		
Environment:	Benign		Limited Inspection:				
Protection System	None		-				
Canditian Datas	Units	Excellent	Good	Fair		Poor	
Condition Data:	m ²	-	61.06	-		-	
Comments: Abutment bearing seat covered in debris and should be cleared. Minor bug holes noted.							
r eriormance Deficie			Ivraintenance iveed	\sim 02 – Bridge C			
Kecommended Worl	k: \square Kehab. $[$ \square 1 – 5 Years $[$	☐ Keplace ☐ 6 – 10 Years	Maintenance Need	s: ∐ Urgent	⊠ I Year	⊔ 2 Years	

BRIDGE

ELEMENT DATA								
Element Group:	Embankments & Stream	S	Length:		-			
Element Name:	Embankments		Width:		-			
Location:	All		Height:	Height:				
Material:	NA		Count:		6			
Element Type:	NA		Total Quantity:		6			
Environment:	Benign		Limited Inspection:					
Protection System	None		•					
	Units	Excellent	Good	Fair		Poor		
Condition Data:	Each	-	6	-		-		
generally in good cond	ition.							
Performance Deficie	ncies: 00		Maintenance Need	s: 06				
Recommended Work: \Box Rehab. \Box ReplaceMaintenance Needs: \Box Urgent \Box 1 Year \Box 2 Years \Box 1 – 5 Years \Box 6 – 10 Years								
Element Group:	Embankments & Stream	s	Length:		-	-		
Element Name:	Streams and Waterways		Width:		-			
Location:	Under Structure		Height:		-			
Material:	NA		Count:		1			
Element Type:	NA		Total Quantity:		1			
Environment:	Benign		Limited Inspection:					
Protection System	None							
Condition Data	Units	Excellent	Good	Fair		Poor		
Condition Data:	Each	-	1	-		-		
Comments: High volu	Comments: High volume, low flow from west to south with no obstructions in the stream at the time of inspection.							
Performance Deficie	ncies: 00		Maintenance Need	s: 00				
Recommended Work	<: □ Rehab. [□ 1 – 5 Years [☐ Replace ☐ 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	□ 1 Ye	ar 2 Years		

BRIDGE

STRUCTURE NUMBER.: BR6

REPAIR AND REHABIL	ITATION REQUIRED	Priority			- Estimated Cost	
Element	Repair and Rehabilitation Required	6 - 10 Years	1 - 5 Years	<1 year	Estimated Cos	
Approach Barrier	Replace non-conforming End Treatments		Х		\$ 24,00	00.00
Deck Wearing Surface / Deck Timbers	Replace Timber Deck Planks (and deck timbers as required)		Х		\$ 40,00	00.00
					\$	-
					\$	-
					\$	-
					\$	-
					\$	-
					\$	-
					\$	-
	•			Total Cost	\$ 64,00	00.00

ASSOCIATED WORK	Comments	Estimated Cost
Approaches		\$-
Detours		\$-
Traffic Control		\$ -
Utilities		\$-
Right of Way		\$ -
Environmental Study		\$-
Other		\$ -
Contingencies		\$ -
	Total Cost	\$-

JUSTIFICATION



Photo 1 Structure from east approach



Photo 2 Structure from west approach



Photo 3 East approach from centre of structure



Photo 4 West approach from centre of structure



Photo 5 North elevation



Photo 6 South elevation



Photo 7 Tire rutting and small potholes noted on approach wearing surface



Photo 8 Collision damage observed on southeast approach barrier



Photo 9 Substandard end treatment with damaged approach barrier at northeast corner



Photo 10 Damage with corrosion noted on thrie steel beam on northeast approach barrier

BRIDGE



Photo 11 Southwest end treatment was buried into ground



Photo 12 Corrosion noted on diagonal member of bailey panel on bridge barrier

SITE PHOTOGRAPHS

Site No.: BR6



Photo 13 East underside of structure



Photo 14 Debris accumulation observed around bearing pad



Photo 15 Southeast wingwall



Photo 16 East abutment wall



Photo 17 West abutment wall

Structure Condition Summary Form

Structure Name	Pevency Road Bridge
Structure Number	BR7
Date of Inspection	August 04, 2020
Project No.	20032
Consultant	HP Engineering Inc.

Element Group	Element Name	Unit (Qty.)	Unit Price (MTO)	Total Element Quantity	Element Qty. in Excellent Condition (1.00)	Element Quantity in Good Condition (0.75)	Element Quantity in Fair Condition (0.4)	Element Quantity in Poor Condition (0)	Total Replacement Value (TRV)	Current Element Value (CEV)	Element Condition Index	Performance Deficiency	Maintenance Need
Approaches	Wearing Surface	Sq.m	6.00	65.39	0.00	60.39	5.00	0.00	392	284	72	00	18
Barriers	Barrier/ Parapet Walls	Sq.m	100.00	87.78	0.00	85.28	1.50	1.00	8778	6456	74	00	03,08
Docks	Deck Top - Thin Slab	Sq.m	120.00	91.05	0.00	89.05	2.00	0.00	10926	8111	74	00	02
Decks	Soffit - Thin Slab	Sq.m	120.00	84.75	0.00	84.75	0.00	0.00	10170	7628	75	00	00
Beams/ Main Longitudinal	Girders -Steel	Sq.m	420.00	86.40	0.00	86.40	0.00	0.00	36288	27216	75	00	00
	Wingwalls	Sq.m	350.00	16.37	0.00	16.37	0.00	0.00	5730	4297	75	00	00
Abutment	Bearings	Each	1000.00	6.00	0.00	6.00	0.00	0.00	6000	4500	75	00	00
	Abutment Walls	Sq.m	900.00	29.04	0.00	26.04	3.00	0.00	26136	18657	71	00	00
									101120	774.40			

Bridge Condition Index (BCI)

74

BRIDGE							STRUCTURE	NUMBER.: BR
INVENTORY DAT	·A:							
Structure Name	Pevency Road Bridge							
		Un	der	Navigable	Water	Non- 1	Navigable Wat	er 🛛
Main Hwy/Road #		Str	ucture:	Rail 🗌	Road 🗌] Pede	strian 🗌	Other
		On	l	Rail □	Road □ Ped	ectrian 🗖	Other 🗖	
Road Name:	Pevency Road	Str	ucture:		Kudu 🗋 Tea			
Structure Location	South of Farm View Ro	oad						
Latitude	45°42'57.1	."N	Lonş	gitude		79°1	9'03.4''W	
Owner(s)	Township of Strong		Heri	tage	Not Cons. 🛛] Cons./Not	App. 🗌 List	t/Not Desig. 🗌
			Desi	gnation	Desig./not Li	st 🗌	Desig. & List	
MTO Region	Northern		Road	d Class:	Freeway 🗌	Arterial 🗌	Collector 🗌	Local 🛛
MTO District	Huntsville		Post	ed Speed	80	No. of	Lanes <u>1</u>	
Old County	Parry Sound		AAI	ЭТ	0	% True	cks <u>0</u>	
Geographic Twp.	Township of Strong		Spec	cial Routes	Transit 🛛	Truck 🗌	School	Bicycle
Structure Type	I-Beam or Girders		— Detc	ur Length	Around			
			Struc	cture	-		-	_(km)
Total Deck Length	15.05	(m)	Fill	on Structur	e _		0	_(m)
Overall Str. Width	6.05	(m)	Skev	v Angle	-		0	(Degrees)
Total Deck Area	91.05	(m ²)	Dire	ction of Str	ructure	North	ı - South	_
Roadway Width	5.45	(m)	No. (of Spans	-		1	_
Span Lengths	13.65	(m)						
HISTORICAL DA	ГА							
Year Built				Last OS!	IM Inspection		June	26. 2020
Year of Last Major I	Rehab			Last Enł	nanced OSIM In	spection		-
Current Load Limit			(tonnes)	Last Brid	dge Master Insp	ection		
Load Limit By-Law	# _		· /	– Last Eva	luation			-

Last Underwater Inspection

Last Condition Survey

Min. Vertical Clearance

By-Law Expiry Date

Rehabilitation History: (Date / Description)

-

(m)

-

-

-

BRIDGE

FIELD INSPECTION INF	FORMATION	
Date of Inspection:	August 4, 2020	Type of Inspection: 🛛 OSIM 🔲 Enhanced OSIM
Inspector:	Sarah Vandergeest, P.Eng., HP Engineering	
Others in Party:	Sagar Chhayani, HP Engineering	
Access Equipment Used:	Measuring tape, Hip waders, Camera and Hammer	
Weather:	Sunny	
Temperature:	18°C	

ADDITIONAL INVECTICATION DECLIDED		Priority		Estimated Cost	
ADDITIONAL INVESTIGATION REQUIRED	None	Normal	Urgent	Estimated Cost	
Rehabilitation/Replacement Study: Approach Barrier				\$ -	
Material Condition Survey					
Detailed Deck Condition Survey:				\$ -	
Non-destructive Delamination Survey of Asphalt- Covered Deck:				\$-	
Concrete Substructure Condition Survey:				\$-	
Detailed Coating Condition Survey:				\$-	
Detailed Timber Investigation:				\$ -	
Underwater Investigation:				\$ -	
Fatigue Investigation:				\$-	
Seismic Investigation:				\$-	
Structure Evaluation:				\$-	
Monitoring					
Monitoring of Deformations, Settlement and Movements:				\$-	
Monitoring Crack Widths:				\$-	
Load Posting – Estimated Load Limit		7	Fotal Cost	\$ -	
Investigation Notes:					
OVED ALL CTRUCTURAL NOTES.					

01	ERALL STRUCTURAL NOTES.								
Rec	commended Work on Structure:	□ None	Minor Rehab.	Major Rehab.		Replace			
Tim	Timing of Recommended Work:I to 5 years6 to 10 years								
Ov	Overall, structure is generally in good condition with spalls and abrasion noted on barrier parapet wall. It is recommended to								
per	form a bridge cleaning. Leaving of	end treatm	ents are non-complia	nt and should be rep	lace	ed with code compliant end			
trea	atments								
Dat	e of Next Inspection:	August 20	022						
Suspe	cted Performance Deficiencies								
00	None	06	Bearing not uniformly loade	d/unstable	12	Slippery surfaces			
01	Load carrying capacity	07	Jammed expansion joint		13	Flooding/channel blockage			
02	Excessive deformations (deflections & rotation)	08	Pedestrian/vehicular hazard		14	Undermining of foundation			
03	Continuing settlement	09	Rough riding surface		15	Unstable embankments			
04	Continuing movements	10	Surface ponding		16	Other			
05	Seized bearings	11	Deck drainage						
Maint	enance Needs								
01	Lift and swing bridge maintenance	07	Repair of structural steel		13	Erosion control at bridges			
02	Bridge cleaning	08	Repair of bridge concrete		14	Concrete sealing			
03	Bridge handrail maintenance	09	Repair of bridge timber		15	Rout and seal			
04	Painting steel bridge structures	10	Bailey bridges maintenance		16	Bridge deck drainage			
05	Bridge deck joint repair	11	Animal/pest control		17	Scaling (loose Concrete or ACR Steel)			
06	Bridge bearing maintenance	12	Bridge surface repair		18	Other			

BRIDGE

STRUCTURE NUMBER.: BR7

ELEMENT DATA								
Element Group:	Approaches		Length:					
Element Name:	Barrier		Width:					
Location:	NE, NW, SE & SW Corne	Height:						
Material:	Steel		Count:					
Element Type:	Steel Flex Beam on wo	od post	Total Quantity:					
Environment:	Severe		Limited Inspection:					
Protection System	None							
Canditian Datas	Units	Excellent	Good	Fair		Poor		
Condition Data:	m	-	-	-		-		
Comments: Barrier is are substandard and sh	Comments: Barrier is generally in good condition with some minor collision damage and light corrosion noted at end. Leaving end treatments are substandard and should be replaced with code compliant end treatments.							
Performance Deficie	encies: 08		Maintenance Need	s: 03 &18 – Repl	lace Dan	naged Posts		
Recommended Work: \Box Rehab. \boxtimes ReplaceMaintenance Needs: \Box Urgent \Box 1 Year \Box 2 Years \Box 1 - 5 Years \Box 6 - 10 Years								

Element Group:	Approaches	Length:	Length:		6	
Element Name:	Wearing Surface	Wearing Surface			5.45	
Location:	North and South of Stru	Height:		0.25		
Material:	Gravel		Count:		2	
Element Type:	NA		Total Quantity:		65.39	
Environment:	Severe		Limited Inspection:			
Protection System	None		-			
	Units	Excellent	Good	Fair		Poor
Condition Data:	m ²	-	60.39	5		-
Comments: Potholes	noted at north and south end	s of deck wearing surfac	e at the time of the inspe	ection. Uneven gr	ravel co	verage.
Performance Deficiencies: 00			Maintenance Need	s: 18 – Regrade A	Approac	hes
Recommended Wor	• k: ☐ Rehab. [☐ 1 – 5 Years [☐ Replace ☐ 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	⊠ 1 Ye	ear 🔲 2 Years

BRIDGE

ELEMENT DATA							
Element Group:	Accessories		Length:				
Element Name:	Signs		Width:				
Location:	North and South of Struct	Height:					
Material:	Steel		Count:		5		
Element Type:	Hazard Signs		Total Quantity:		5		
Environment:	Severe		Limited Inspection:				
Protection System	None						
Condition Data	Units	Excellent	Good	Fair		Poor	
Condition Data:	Each	-	4	1		-	
Comments: 4 Hazard	Comments: 4 Hazard signs. 1 One lane bridge sign at north leaning.						
Performance Deficie	ncies: 00		Maintenance Needs	s: 18 – Reinstate	leaning	sign	
Recommended Worl	k: ☐ Rehab. [☐ 1 – 5 Years [☐ Replace ☐ 6 – 10 Years	Maintenance Needs	s: 🗌 Urgent	⊠ 1 Ye	ear 🗌 2 Years	

Element Group:	Barriers		Length:		20.8		
Element Name:	Barrier/Parapet Walls		Width:	Width: 0		0.25	
Location:	NA		Height:	Height:		0.93	
Material:	Cast-in-place concrete		Count:		2 87.78		
Element Type:	Parapet Wall with single	railing	Total Quantity:				
Environment:	Moderate		Limited Inspection:				
Protection System	None		ŀ				
	Units	Excellent	Good	Fair		Poor	
Condition Data:	m ²	-	85.28 1.5			1	
	111						
Comments: Collision Missing end cap at so	damaged observed on Nor uthwest and northeast ends	theast and Southwest ba of the hand railings.	rriers. Spalls on all four cor	ners and abrasio	ns on the	e wall observed.	
Comments: Collision Missing end cap at sor Performance Defici	a damaged observed on Nor- uthwest and northeast ends encies: 00	theast and Southwest ba of the hand railings.	rriers. Spalls on all four cor	ners and abrasio 03 and 08	ons on the	e wall observed.	

BRIDGE				STRU	JCTURE N	UMBER.: BR7
ELEMENT DATA						
Element Group:	Decks	Length:		15.05		
Element Name:	Deck Top	Width:		6.05		
Location:	NA		Height:		-	
Material:	Cast-in-place concrete		Count:		1	
Element Type:	Cast-in-place concrete o	n supports, composite	Total Quantity:		91.05	
Environment:	Benign		Limited Inspection:			
Protection System	Hot dip galvanized		·			
Constitution Defen	Units	Excellent	Good	Fair		Poor
Condition Data:	m ²	-	89.05	2		-
Comments: Build up	of debris on the deck top wi	th snowplow abrasions an	nd high scaling noted.			
Performance Defici	encies: 00		Maintenance Needs:	02		
Recommended Wor	•k: ☐ Rehab. ☐ 1 – 5 Years	□ Replace □ 6 – 10 Years	Maintenance Needs:	Urgent	□ 1 Year	⊠ 2 Years

Element Group:	Decks		Length:	Length:		12.5	
Element Name:	Soffit - Thin Slab		Width:	Width:		1.5	
Location:	Exterior		Height:	Height:		-	
Material:	Cast-in-place concrete		Count:	Count:		2	
Element Type:	NA		Total Quantity:	Total Quantity:		37.5	
Environment:	Benign		Limited Inspection:	Limited Inspection:			
Protection System	Hot dip galvanized						
	Units	Excellent	Good	Fair		Poor	
Condition Data:	m ²	-	37.5	-		-	
Comments: Generall	y in good condition.						
Performance Deficiencies: 00			Maintenance Needs:				
Recommended Wo	rk: ☐ Rehab. ☐ 1 – 5 Years	□ Replace □ 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	□ 1 Yea	r 🗌 2 Years	

BRIDGE				STRU	CTURE	NUMBER.: BR7	
ELEMENT DATA							
Element Group:	Decks	Length:		12.5			
Element Name:	Soffit - Thin Slab		Width:		1.89		
Location:	Interior		Height:	Height:		-	
Material:	Cast-in-place concrete		Count:	Count:		2	
Element Type:	NA		Total Quantity:	Total Quantity:		47.25	
Environment:	Benign		Limited Inspection:	Limited Inspection:			
Protection System	Hot dip galvanizing						
	Units	Excellent	Good	Fair		Poor	
Condition Data:	m ²	-	47.25	-		_	
Performance Deficiencies: 00 Maintenance Needs: 00							
Recommended Wor	•k: ☐ Rehab. [☐ 1 – 5 Years]	□ Replace □ 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	🗌 1 Yea	r 🗌 2 Years	
Element Group:	Beams		Length:		15		

•	Beams		Length:				
Element Name:	Girders		Width:		0.24		
Location:	NA		Height:		0.6		
Material:	Weathering steel		Count:		3		
Element Type:	I-type		Total Quantity:		86.4		
Environment:	Benign	Benign		Limited Inspection:			
Protection System	None						
	Units	Excellent	Good	Fair		Poor	
Condition Data:	m ²	-	86.4	-		-	
Comments: Generally in good condition. Some light corrosion observed.							
Performance Defici	encies: 00		Maintenance Need	s: 00			

STRUCTURE	NUMBER.:	BR7
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BRIDGE				STRU	JCTURE N	UMBER.: BR7	
ELEMENT DATA							
Element Group:	Main Longitudinal Elen	Length:	Length:		2		
Element Name:	Diaphragms	Width:		0.05			
Location:	NA		Height:	Height:		0.25	
Material:	Weathering steel		Count:	Count:		4	
Element Type:	I-type		Total Quantity:	Total Quantity:		4	
Environment:	Benign		Limited Inspection:	Limited Inspection:			
Protection System	Epoxy zinc/acrylic/acry	lic			•		
~	Units	Excellent	Good	Fair		Poor	
Condition Data:	Each	-	4	-		-	
Comments: Generally in good condition with some light corrosion observed.							
Performance Deficiencies: 00			Maintenance Needs: 00				
Recommended Wor	•k: ☐ Rehab. ☐ 1 – 5 Years	☐ Replace ☐ 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	□ 1 Year	2 Years	

ELEMENT DATA							
Element Group:	Abutments	Length:		3.15			
Element Name:	Wingwalls		Width:	Width:		-	
Location:	East and West side of Structure		Height:		1.3		
Material:	Cast-in-place concrete		Count:	Count:		4	
Element Type:	Reinforced concrete		Total Quantity:	Total Quantity:		16.37	
Environment:	Benign		Limited Inspection:	Limited Inspection:			
Protection System	N/A						
Contra Data	Units	Excellent	Good	Fair		Poor	
Condition Data:	m ²	-	16.37	-		-	
Comments: All wingwalls are generally in good condition with minor honeycombing.							
Performance Deficiencies: 00			Maintenance Needs: 00				
Recommended Wor	k: ☐ Rehab. ☐ 1 – 5 Years	☐ Replace ☐ 6 – 10 Years	Maintenance Needs	: 🗌 Urgent	□ 1 Year	2 Years	
BRIDGE

STRUCTURE NUMBER.: BR7

ELEMENT DATA						
Element Group:	Abutments		Length:		0.6	
Element Name:	Bearings		Width:		0.6	
Location:	NA		Height:		0.1	
Material:	NA		Count:		6	
Element Type:	Elastometric pad	Elastometric pad			6	
Environment:	Severe		Limited Inspection:			
Protection System	None					
Condition Data:	Units	Excellent	Good	Fair		Poor
	Each	-	6	-		-
Performance Definite			Maintenance Nord			
Performance Deficient	ncies: 00		Maintenance Need	s: 00		
$\square 1 - 5 \text{ Years} \square 6 - 10 \text{ Years}$						
ELEMENT DATA						
ELEMENT DATA Element Group:	Abutments		Length:		-	
ELEMENT DATA Element Group: Element Name:	Abutments Abutment Walls		Length: Width:		- 6.05	
ELEMENT DATA Element Group: Element Name: Location:	Abutments Abutment Walls Each End		Length: Width: Height:		- 6.05 2.4	
ELEMENT DATA Element Group: Element Name: Location: Material:	Abutments Abutment Walls Each End Cast-ip-place concrete		Length: Width: Height: Count:		- 6.05 2.4 2	
ELEMENT DATA Element Group: Element Name: Location: Material: Element Type:	Abutments Abutment Walls Each End Cast-ip-place concrete Conventional closed		Length: Width: Height: Count: Total Quantity:		- 6.05 2.4 2 29.04	
ELEMENT DATA Element Group: Element Name: Location: Material: Element Type: Environment:	Abutments Abutment Walls Each End Cast-ip-place concrete Conventional closed Benign		Length: Width: Height: Count: Total Quantity: Limited Inspection:		- 6.05 2.4 2 29.04 □	
ELEMENT DATA Element Group: Element Name: Location: Material: Element Type: Environment: Protection System	Abutments Abutment Walls Each End Cast-ip-place concrete Conventional closed Benign N/A		Length: Width: Height: Count: Total Quantity: Limited Inspection:		- 6.05 2.4 2 29.04 □	
ELEMENT DATA Element Group: Element Name: Location: Material: Element Type: Environment: Protection System	Abutments Abutment Walls Each End Cast-ip-place concrete Conventional closed Benign N/A <u>Units</u>	Excellent	Length: Width: Height: Count: Total Quantity: Limited Inspection:	Fair	- 6.05 2.4 2 29.04 □	Poor
ELEMENT DATAElement Group:Element Name:Location:Material:Element Type:Environment:Protection SystemCondition Data:	Abutments Abutment Walls Each End Cast-ip-place concrete Conventional closed Benign N/A Units m ²	Excellent -	Length: Width: Height: Count: Total Quantity: Limited Inspection: Good 26.04	Fair 3	- 6.05 2.4 2 29.04 □	Poor
ELEMENT DATA Element Group: Element Name: Location: Material: Element Type: Environment: Protection System Condition Data: Comments: Light scalundermining at south at Performance Deficie	Abutments Abutment Walls Each End Cast-ip-place concrete Conventional closed Benign N/A Units m ² ing on north abutment, med butment, mentioned in prev	Excellent - ium scaling on south ab ious inspection report.	Length: Width: Height: Count: Total Quantity: Limited Inspection: Good 26.04 utment. Minor honeycom	Fair 3 abing at north side s: 00	- 6.05 2.4 2 29.04	Poor -
ELEMENT DATA Element Group: Element Name: Location: Material: Element Type: Environment: Protection System Condition Data: Comments: Light scal undermining at south a Performance Deficie	Abutments Abutment Walls Each End Cast-ip-place concrete Conventional closed Benign N/A Units m ² ing on north abutment, med butment, mentioned in prev	Excellent - ium scaling on south ab ious inspection report.	Length: Width: Height: Count: Total Quantity: Limited Inspection: Good 26.04 utment. Minor honeycom Maintenance Need Maintenance Need	Fair 3 abing at north side s: 00	- 6.05 2.4 2 29.04 □	Poor - I not confirm the

BRIDGE

STRUCTURE NUMBER.: BR7

ELEMENT DATA								
Element Group:	Foundations		Length:	Length:				
Element Name:	Foundation (below grour	nd level)	Width:		-			
Location:	NA		Height:		-			
Material:	Cast-in-place concrete		Count:	Count:				
Element Type:	Spread		Total Quantity:	1				
Environment:	Benign		Limited Inspection:					
Protection System	Unknown							
Units Excellent			Good	Fair		Poor		
Conuntion Data:	All	-	-	1		1		

Comments: Undermining at south abutment could not be confirmed during current inspection. Should be further reviewed in subsequent inspections. No evidence of instability noted.

Performance Deficiencies	Maintenance Needs: (00				
Recommended Work:	□ Rehab. □ 1 – 5 Years	☐ Replace ☐ 6 – 10 Years	Maintenance Needs:	🗌 Urgent	🗌 1 Year	2 Years

Element Group:	Embankments & Stream	ms	Length:	-		
Element Name:	Embankments		Width:	Width:		
Location:	Each Quadrant		Height:		-	
Material:	NA		Count:		1	
Element Type:	NA		Total Quantity:		1	
Environment:	Benign		Limited Inspection:			
Protection System	Hot dip galvanized					
Canditian Datas	Units	Excellent	Good	Fair	r Poor	
Condition Data:	Each	_	4	-		
	Lacii		'			
Comments: All emba	nkments appear steep, well	vegetated and in stable o	condition.			
Comments: All emba	nkments appear steep, weli	vegetated and in stable o	Maintenance Need	s: 00		

BRIDGE

STRUCTURE NUMBER.: BR7

ELEMENT DATA						
Element Group:	Embankments & Streams	s	Length:		-	
Element Name:	Streams and Waterways		Width:		-	
Location:	Under Bridge		Height:		-	
Material:	NA		Count:		1	
Element Type:	NA		Total Quantity:		1	
Environment:	Benign		Limited Inspection:			
Protection System	Hot dip galvanized					
Condition Data	Units	Excellent	Good	Fair		Poor
Conumon Data.	All	-	1 -			-
Comments: Moderate volume, moderate flow from east to west with no obstructions observed at the time of inspection.						
Performance Deficie	ncies: 00		Maintenance Needs: 00			
Recommended Worl	<: □ Rehab. [□ 1 – 5 Years [☐ Replace ☐ 6 – 10 Years	Maintenance Need	s: Urgent	□ 1 Y	ear 2 Years

BRIDGE

STRUCTURE NUMBER.: BR7

REPAIR AND REHABIL	ITATION REQUIRED	Priority				Estimated Cost	
Element	Repair and Rehabilitation Required	6 - 10 Years	1 - 5 Years	<1 year	Estin	nated Cost	
Approach Railing	Replace Leaving End Treatments				\$	12,000.00	
					\$	-	
					\$	-	
					\$	-	
					\$	-	
					\$	-	
					\$	-	
					\$	-	
					\$	-	
				Total Cost	\$	12,000.00	

ASSOCIATED WORK	Comments	Estimated Cost
Approaches		\$-
Detours		\$-
Traffic Control		\$-
Utilities		\$-
Right of Way		\$-
Environmental Study		\$-
Other		\$-
Contingencies		\$ -
	Total Cost	\$ -

JUSTIFICATION	



Photo 1 Structure from north approach



Photo 2 Structure from south approach

BRIDGE



Photo 3 North approach from centre of structure



Photo 4 South approach from centre of structure

BRIDGE

SITE PHOTOGRAPHS



Photo 5 East elevation



Photo 6 West elevation



Photo 7 Northeast end treatment buried into ground



Photo 8 Large potholes and tire rutting noted on approach wearing surface



Photo 9 Spacer connected with approach barrier at northeast completely weathered



Photo 10 Collision damage noted at connection between approach and deck barrier

BRIDGE

SITE PHOTOGRAPHS



Photo 11 Narrow cracks with damp stains noted on parapet wall



Photo 12 West underside of structure



Photo 13 Northeast wingwall



Photo 14 North abutment wall



Photo 15 Moderate scaling, honeycombing and spall noted on south abutment wall

Structure Condition Summary Form

Structure Name	Rodeo Road Bridge
Structure Number	BR12
Date of Inspection	August 04, 2020
Project No.	20032
Consultant	HP Engineering Inc.

Element Group	Element Name	Unit (Qty.)	Unit Price (MTO)	Total Element Quantity	Element Qty. in Excellent Condition (1.00)	Element Quantity in Good Condition (0.75)	Element Quantity in Fair Condition (0.4)	Element Quantity in Poor Condition (0)	Total Replacement Value (TRV)	Current Element Value (CEV)	Element Condition Index	Performance Deficiency	Maintenance Need
Approaches	Wearing Surface	Sg.m	6.00	306.00	0.00	300.00	3.00	3.00	1836	1357	74	00	18
Decks	Deck Top - Thick Slab	Sq.m	350.00	28.79	0.00	28.79	0.00	0.00	10077	7557	75	00	00
Abutmont	Wingwalls	Sq.m	350.00	24.00	0.00	20.00	4.00	0.00	8400	5810	69	00	00
Abutment	Abutment Walls	Sq.m	900.00	64.00	0.00	54.00	10.00	0.00	57600	40050	70	00	00
									77913	54775			

Bridge Condition Index (BCI)

70

BRIDGE						S	TRUCTURE	NUMBER.: BR12
INVENTORY DAT	·A:							
Structure Name	Rodeo Road Culvert							
		Unde	er	Navigable	e Water 🔲	Non-	Navigable Wa	ter 🛛
Main Hwy/Road #		Struc	cture:	Rail 🗌	Road [] Pede	estrian 🗌	Other
		On		Rail 🗖	Road □ Ped	lestrian 🗖	Other 🗖	
Road Name:	Rodeo Road	Struc	sture:					
Structure Location	1 km south of Black Creek R	Road						
Latitude	45°41'33.7"N		Long	gitude		79°2	26'59.4"W	
Owner(s)	Township of Strong		Heri	tage	Not Cons. 🛛	Cons./Not	App. 🗌 Lis	st/Not Desig. 🗖
			Desi	gnation	Desig./not Li	ist 🔲	Desig. & Lis	it 🗌
MTO Region	Northern		Road	d Class:	Freeway 🗌	Arterial 🗌	Collector] Local 🛛
MTO District	Huntsville		Post	ed Speed	80	No. of	f Lanes 2	
Old County	Parry Sound		ΑΑΓ	ЭТ	0	% Tru	icks <u>0</u>	
Geographic Twp.	Township of Strong		Spec	ial Routes	Transit 🔲	Truck 🔲	School 🗌	Bicycle 🗌
Structure Type	Rigid Frame, Vertical legs		Data	····· I an ath	A			
			Struc	cture	Arouna		-	_(km)
Total Deck Length	16	(m)	Fill	on Structur	re		2.7	_(m)
Overall Str. Width		(m)	Skev	v Angle			0	(Degrees)
Total Deck Area		(m ²)	Dire	ction of St	ructure	East	t - West	
Roadway Width	6	(m)	No. (of Spans			1	_
Span Lengths	1.8	(m)						
HISTORICAL DA	ГА							
Year Built				Last OS	IM Inspection		June	e 26, 2020
Year of Last Major I	Rehab			Last Enl	hanced OSIM Ir	ispection		-

Current Load Limit

Load Limit By-Law # By-Law Expiry Date

Min. Vertical Clearance

	_	Last OSIW Inspection	Julie 20, 2020
-	_	Last Enhanced OSIM Inspection	-
	(tonnes)	Last Bridge Master Inspection	-
	_	Last Evaluation	-
	_	Last Underwater Inspection	-
-	(m)	Last Condition Survey	-

Rehabilitation History: (Date / Description)

2020; Structure rehabilitated (after completion of OSIM inspection). Rehabilitation included repair of undermined footings, reinstatement of missing stones on retaining walls; work completed by Derrick Johnstone Construction and repair designed by HP Engineering Inc.

BRIDGE

STRUCTURE NUMBER.: BR12

FIELD INSPECTION INF	FIELD INSPECTION INFORMATION							
Date of Inspection:	August 4, 2020	Type of Inspection: 🛛 OSIM 🔲 Enhanced OSIM						
Inspector:	Sarah Vandergeest, P.Eng., HP Engineering							
Others in Party:	Sagar Chhayani, HP Engineering							
Access Equipment Used:	Measuring tape, Hip waders, Camera and Hammer							
Weather:	Sunny							
Temperature:	_18°C							

ADDITIONAL INVECTIOATION DEGUIDED		Priority		Estimated Cost	
ADDITIONAL INVESTIGATION REQUIRED	None	Normal	Urgent	ESU	Inated Cost
Rehabilitation/Replacement Study: Approach Barrier				\$	5,000.00
Material Condition Survey					
Detailed Deck Condition Survey:				\$	-
Non-destructive Delamination Survey of Asphalt- Covered Deck:				\$	-
Concrete Substructure Condition Survey:				\$	-
Detailed Coating Condition Survey:				\$	-
Detailed Timber Investigation:				\$	-
Underwater Investigation:				\$	-
Fatigue Investigation:				\$	-
Seismic Investigation:				\$	-
Structure Evaluation:				\$	-
Monitoring					
Monitoring of Deformations, Settlement and Movements:				\$	-
Monitoring Crack Widths:				\$	-
Load Posting – Estimated Load Limit		Total Cost		\$	5,000.00
Investigation Notes:					
OVERALL STRUCTURAL NOTES:					

R	ecommended Work on Structure:	□ None	🛛 Minor Rehab.	🗌 Major Rehab.		Replace	
Ti	ming of Recommended Work:	⊠ 1 to 5	years 6 to 10 years	rs			
St by	Structure repaired in summer / fall of 2020 (after OSIM inspection). Repair intended to extend useful service life of structure by approximately 20 years. Approach barriers / end treatments not present and should be installed.						
D	ate of Next Inspection:	August 20)22				
Sus	pected Performance Deficiencies						
00	None	06	Bearing not uniformly loaded	/unstable	12	Slippery surfaces	
01	Load carrying capacity	07	Jammed expansion joint		13	Flooding/channel blockage	
02	Excessive deformations (deflections & rotation)	08	Pedestrian/vehicular hazard		14	Undermining of foundation	
03	Continuing settlement	09	Rough riding surface		15	Unstable embankments	
04	Continuing movements	10	Surface ponding		16	Other	
05	Seized bearings	11	Deck drainage				
Mai	ntenance Needs		e				
01	Lift and swing bridge maintenance	07	Repair of structural steel		13	Erosion control at bridges	
02	Bridge cleaning	08	Repair of bridge concrete		14	Concrete sealing	
03	Bridge handrail maintenance	09	Repair of bridge timber		15	Rout and seal	
04	Painting steel bridge structures	10	Bailey bridges maintenance		16	Bridge deck drainage	
05	Bridge deck joint repair	11	Animal/pest control		17	Scaling (loose Concrete or ACR Steel)	
06	Bridge bearing maintenance	12	Bridge surface repair		18	Other	
	5 5		5 1				

BRIDGE				STRUC	TURE	NUMBER.: BR12
ELEMENT DATA						
Element Group:	Approaches		Length:			
Element Name:	Barrier		Width:			
Location:	NE, NW, SE & SW Corne	ers of Structure	Height:			
Material:			Count:			
Element Type:			Total Quantity:			
Environment:			Limited Inspection:			
Protection System			-			
Canditian Datas	Units	Excellent	Good	Fair		Poor
Condition Data:	m	-	-	-		-
Comments: No approainstalled.	ach barriers observed at the t	ime of the inspection.	It is recommended that c	ode compliant ba	rriers a	nd end treatments be
Performance Deficie	encies: 08		Maintenance Need	s: 00		
Recommended Worl	k: □ Rehab. [⊠ 1 – 5 Years [⊠ Replace] 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	□ 1 Y	ear 2 Years

Element Group:	Approaches		Length:	Length:		15.3	
Element Name:	Wearing Surface		Width:	Width:		10	
Location:	North and South of Structure		Height:		-		
Material:	Gravel		Count:		2		
Element Type:	NA		Total Quantity:		306		
Environment:	Severe		Limited Inspection:				
Protection System	None						
	Units	Excellent	Good	Fair		Poor	
Condition Data:	m ²	-	300	3		3	
Comments: Potholes should be completed to	observed over the structure. o determine the warrant for g	No hazard sign or barrie guiderail / barriers and si	r present at the time of in gnage.	nspection. A road	side safety	evaluation	
Performance Deficie	encies: 00		Maintenance Need	s: 18 – Regrade A	Approaches		
Recommended Wor	k: ☐ Rehab. ☐ 1 – 5 Years	☐ Replace ☐ 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	⊠ 1 Year	2 Years	

BRIDGE

STRUCTURE NUMBER.: BR12

ELEMENT DATA						
Element Group:	Accessories		Length:			
Element Name:	Signs		Width:			
Location:	North and South of Struct	ure	Height:			
Material:	Steel		Count:			
Element Type:	Hazard Signs		Total Quantity:			
Environment:	Severe		Limited Inspection:			
Protection System	None					
	Units	Excellent	Good	Fair		Poor
Conumon Data.	Each	-	-	-		-
Comments: Hazard sig	gns are missing and should l	be installed.				
			-			
Performance Deficie	ncies: 00		Maintenance Need	s: 18 - Install Ha	zard signs	
Recommended Worl	k: 🗌 Rehab. [Replace	Maintenance Need	s: 🛛 Urgent	🗌 1 Year	r 2 Years
	\Box 1 – 5 Years	☐ 6 – 10 Years				

Element Oroup.	Decks		Length:		16			
Element Name:	Soffit - Thick Slab		Width:		1.8			
Location:	NA		Height:		-			
Material:	Concrete		Count:		1			
Element Type:	NA		Total Quantity:		28.79			
Environment:	Decks		Limited Inspection:					
Protection System	None				·			
	Units	Excellent	Good	Fair		Fair Po		Poor
Condition Data:	m ²	-	28.79	-				
· · · · · · · · · · · · · · · · · · ·								
Comments: Generall	y in good condition.							
Comments: Generally Performance Defici	y in good condition. e ncies: 00		Maintenance Needs	: 00				

BRIDGE				STRUC	TURE	NUMBER.: BR12	
ELEMENT DATA							
Element Group:	Abutments		Length:		3		
Element Name:	Wingwalls		Width:		-		
Location:	NA		Height:		2		
Material:	Masonry		Count:		4		
Element Type:	NA		Total Quantity:		24		
Environment:	Benign		Limited Inspection:	:			
Protection System	Hot dip galvanized						
	Units	Excellent	Good	Fair		Poor	
Condition Data:	Each	-	20	4		-	
Comments: Previous 2020. Minor loss of m	undermining repaired in 202 ortar noted in joints.	0. Stone sections previo	usly disconnected from	wall at northeast a	nd nort	hwest repaired in	
Performance Deficie	encies: 00		Maintenance Need	Maintenance Needs: 00			
Recommended Wor	k: ☐ Rehab. [☐ 1 – 5 Years [☐ Replace ☐ 6 – 10 Years	Maintenance Need	s: 🗌 Urgent	1 Ye	ear 🗌 2 Years	

Element Group:	Abutments		Length:		-		
Element Name:	Abutment Walls		Width:	Width:		16	
Location:	Each End I		Height:		2		
Material:	Masonry		Count:		2		
Element Type:	NA		Total Quantity:		64		
Environment:	Benign		Limited Inspection:				
Protection System	Hot dip galvanized						
Canditian Datas	Units	Excellent	Good	Fair		Poor	
Condition Data:	2	_	54	10		-	
	m²		0.	-			
Comments: Previous	m ² undermining repaired in 202	0. Minor loss of mortar	noted in joints.				
Comments: Previous Performance Deficie	m ² undermining repaired in 202 encies: 00	0. Minor loss of mortar	noted in joints. Maintenance Need	s: 00			

BRIDGE

STRUCTURE NUMBER.: BR12

ELEMENT DATA							
Element Group:	Foundations		Length:	Length:			
Element Name:	Foundation (below grou	und level)	Width:	Width:		-	
Location:	NA		Height:		-		
Material:	NA		Count:		1		
Element Type:	Foundations		Total Quantity:		1		
Environment:	Benign		Limited Inspection	:			
Protection System	Hot dip galvanized						
Condition Data	Units	Excellent	Good	Fair		Poor	
Condition Data:	All	-	-	1		-	
Comments: Undermin	Comments: Undermining repaired in 2020. No visual evidence of foundation related issues						
Performance Deficie	encies: 00		Maintenance Need	ls: 00			
Recommended Wor	k: ☐ Rehab. [☐ 1 – 5 Years [☐ Replace ☐ 6 – 10 Years	Maintenance Need	ls: 🗌 Urgent	□ 1 Y	ear 🗌 2 Years	

Element Group:	Embankments & Stre	ams	Length:		-	
Element Name:	Streams and Waterways Width:			-		
Location:	Under Structure		Height:		-	
Material:	NA		Count:		1	
Element Type:	NA		Total Quantity:		1	
Environment:	Benign		Limited Inspection	:		
Protection System	Hot dip galvanized		·		•	
	Units	Excellent	Good	Fair		Poor
Condition Data:	Each	-	-	1		-
Comments: Moderate	e volume, High flow from v	west to east direction. Ob	stacles (including trees) p	present in waterwa	y dowr	nstream.
Performance Defici	encies: 00		Maintenance Need	ls: 18 – Clear Cha	nnel De	ebris
Recommended Wor	•k: ☐ Rehab. ☐ 1 – 5 Years	☐ Replace ☐ 6 – 10 Years	Maintenance Need	Is: Urgent	⊠ 1 Y	ear 2 Years

BRIDGE

STRUCTURE NUMBER.: BR12

REPAIR AND REHABIL	ITATION REQUIRED	Priority			Estimated Cost	
Element	Repair and Rehabilitation Required	6 - 10 Years	1 - 5 Years	< 1 year	Esti	nated Cost
Approach Barrier	Install Code Compliant Approach Barrier and End Treatments		Х		\$	48,000.00
					\$	-
					\$	-
					\$	-
					\$	-
					\$	-
					\$	-
					\$	-
					\$	-
				Total Cost	\$	48,000.00

ASSOCIATED WORK	Comments	Estimated Cost
Approaches		\$-
Detours		\$-
Traffic Control		\$-
Utilities		\$ -
Right of Way		\$ -
Environmental Study		\$ -
Other		\$ -
Contingencies		\$ -
	Total Cost	\$-

JUSTIFICATION

BRIDGE



Photo 1 Structure from north approach



Photo 2 Structure from south approach

BRIDGE



Photo 3 North approach from centre of structure



Photo 4 South approach from centre of structure

BRIDGE



Photo 5 East elevation (prior to 2020 rehabilitation)



Photo 6 West elevation (prior to 2020 rehabilitation)

BRIDGE

SITE PHOTOGRAPHS



Photo 7 Potholes and loose gravel noted on wearing surface



Photo 8

Large spall with disconnected portion noted at interface of north abutment wall and wingwall (prior to 2020 rehabilitation)

BRIDGE



Photo 10 Moderate honey combing noted at base of abutment wall along waterline (prior to 2020 rehabilitation)

BRIDGE



Photo 11 Spalls with exposed corroded reinforcement noted on soffit



Photo 12 Undermining noted on south abutment wall at west end (prior to 2020 rehabilitation)

BRIDGE

SITE PHOTOGRAPHS



Photo 14 East Elevation (after 2020 rehabilitation)

BRIDGE



Photo 16 Northeast wingwall (after 2020 rehabilitation)

BRIDGE

SITE PHOTOGRAPHS



Photo 18 West Elevation (after 2020 rehabilitation)

BRIDGE

SITE PHOTOGRAPHS



Photo 20 Barrel from east (after 2020 rehabilitation)

BRIDGE

SITE PHOTOGRAPHS



Photo 21 Southeast wingwall (after 2020 rehabilitation)