C.C. Tatham & Associates Ltd.
Consulting Engineers

Bridge Inspections

The Town of Parry Sound

Inspection Report

FINAL

prepared by:

C.C. Tatham & Associates Ltd.
8 Barron Drive
Bracebridge, ON P1L 0A1
Tel: (705) 645-7756 Fax: (705) 645-8159
info@cctatham.com

prepared for:

The Town of Parry Sound

October 2018

CCTA File 218506-1

Table of Contents

Appendices

List of Tables

1 Introduction

C.C. Tatham & Associates Ltd. (CCTA) was retained by the Town of Parry Sound to perform detailed visual inspections for 5 bridges at various locations within the Town. This work is required in compliance with Ontario Regulation (O.Reg.) 104/97 as amended by O.Reg. 472/10. This regulation states that bridges are to be inspected every two years and these inspections are to be conducted in accordance with the Ontario Structure Inspection Manual (OSIM). The objectives of this work are to:

- Protect and prolong the useful life of the structures;
- Identify maintenance, repair, load limit posting, and rehabilitation needs;
- Provide a basis for a structure management system for the planning and funding of the maintenance and rehabilitation of the structures.

The bridges that were inspected are listed in Table 1.

Table 1: Bridge Locations

Bridge Name	Road Name	Location
Seguin Street Bridge	Seguin Street	0.08 km West of River Street
Seguin River Pedestrian Bridge	Fitness Trail	0.1 km South of Seguin Street over Seguin River
Cascade Street Bridge No. 1	Cascade Street	0.1 km East of Water Street
Cascade Street Bridge No. 2	Cascade Street	0.02 km East of Water Street
Waubuno Street Pedestrian Bridge	Fitness Trail	Waubuno Street at Georgian Bay

The detailed visual inspections required by O.Reg.'s 104/97 and 472/10 involve an element by element analysis of the structure. Elements are reviewed and their condition is assessed based on observations made by the inspector. The condition is then quantified and categorized as excellent, good, fair, or poor. Action may be required if elements are partially or wholly in poor condition. Maintenance needs, repair work, and/or large scale repairs are then specified and time frames are recommended to assist the Town with prioritization of the work.

This report summarizes the results of the detailed visual inspections and provides costing and scheduling information for the recommended maintenance work.

1.1 Definitions

In order to convey the results of the visual inspections, certain terms are used to identify particular deficiencies with respect to concrete condition. These terms are used in accordance with the OSIM guidelines and are defined below for clarification.

1.1.1 Concrete

Delamination: This is the separation of a thin portion of surface concrete from the main concrete element and is usually due to the corrosion of the reinforcing steel. Concrete is substantially, but not completely detached from the concrete below or above it.

Efflorescence: This is a chloride residue that forms on the concrete surface due to the passage of water through the concrete. It is usually white in colour. Normally, the percolation of water through the concrete creates the potential for damage due to such processes as corrosion of the reinforcing steel or freeze-thaw cycling.

Honeycombing: This occurs when an area of concrete forms and the cement portion of the concrete mixture fails to fill the voids between the coarse aggregate. Honeycombing is vulnerable to deterioration.

Scaling: This occurs on concrete surfaces when water penetrates the surface of the concrete and experiences freeze-thaw cycles. The pressures caused by the expansion and contraction of water causes the surface concrete to erode and break away. Scaling damage appears as though the concrete surface finish has worn away resulting in a bumpy surface with exposed aggregate.

Scour: This is the erosion of the concrete footing, base of the concrete abutment, or the soil base below or surrounding the footing/abutment. This is usually caused by water flow and can lead to the loss of soil bearing support.

Spalling: This occurs when a piece of concrete separates from the main body of concrete and breaks off. Typically, spalling is caused by deep set freeze-thaw cycles or internal corrosion of reinforcing steel. Spalling differs from delamination in that typically, when spalling occurs, the piece of separated concrete is thicker, and the separated concrete has usually become completely detached, whereas when delamination occurs, the separated concrete is thin and still partially attached.

1.1.2 Wood

Abrasion and Wear: deterioration brought about by vehicle or snowplough blades scraping against wood surface, coupled with abrasive influence of sand, dirt or debris.

Checks: longitudinal tissue separations along the side grain of wood members.

Connection Deficiencies: connections loosened due to repetitive or dynamic loads, wear or decay of members.

Cracking, Splintering, Crushing and Shattering: physical damage as a result of impact loading or overloading of a member.

Fire and Chemical Damage: damage resulting from fire or from the use of non-preservative chemicals on the wood surface over a long period of time.

Insect Damage: Loss of section caused by tunnelling/boring by insects or larvae.

Rot or Decay: decomposition of wood.

Shakes: tissue separation that follow the growth rings and are visible at the ends of wood members.

Splits: severe separations similar to checks, extending to the ends of wood members.

Weathering: this occurs as a result of exposure to the actions of sun, rain, wind, frost and atmospheric pollutants, resulting in the gradual deterioration of the wood.

1.1.3 Steel

Connection Deficiencies: loose connections, cracking or excesive corrosion of the connector, gusset plate or fasteners.

Corrosion: deterioration of steel by chemical/electro-chemical reaction resulting from exposure to air, moisture, and other contaminants in the environment in which it is placed.

Cracking: linear fractures in steel extending partly or completely through the member.

Permanent Deformations: bending, buckling, twisting or elongation.

2 Inspection Summaries

The following summaries describe the observations and results from the bridge inspections. In addition to the deficiencies addressed by the maintenance and rehabilitation works described in the summaries below, complete information regarding the condition of each bridge can be found in the OSIM reports which include photos of each element. OSIM reports are included in Appendix A.

The summaries below categorize recommended works as maintenance work or rehabilitation work. This categorization is made to differentiate between smaller scale maintenance work that could be completed by the Town's works department, and larger scale rehabilitation work that may require higher costs and specialized design. Condition surveys, if required, are included as rehabilitation works.

2.1 Seguin Street Bridge

The Seguin Street Bridge is located on Seguin Street approximately 0.08 km west of River Street. The single span structure has a span of 55 m. The structure type is a concrete deck on steel box girder supported on concrete abutments. The bridge is approximately 20.6 m wide with a travelled roadway width of 15.0 m.

The bridge is in generally good condition with no evidence of movement or significant deterioration. No detailed investigations are recommended at this time.

The following maintenance is recommended:

- Clean out deck drains and gutters (1 year);
- Seal sidewalk cracks on deck & approaches (1 year);
- Clean out west abutment wall drains (1 year);
- Paint walls with anti-graffiti paint (1 year);
- Patch and seal concrete retaining walls (1 year); and
- Repair concrete at pedestrian barrier post base on walkway beneath west end (2 Year).

The following rehabilitation is recommended:

- Replace northeast approach barrier connection with standard connection (urgent);
- Clean and recoat structural steel inside boxes and at exterior ends (1-5 years);
- Replace expansion joints or convert to semi-integral abutments (1-5 years); and

- Patch and seal deck soffit cracks within box girders (1-5 years).

No load posting is recommended at this time. It is proposed the next OSIM inspection occur in 2020.

2.2 Seguin River Pedestrian Bridge

The Seguin River Pedestrian Bridge is located on the fitness trail which was previously the railway bed. It is approximately 0.1 km south of the Seguin Street Bridge and crosses the Seguin River. The structure is 12 spans long and is made up of different structure types. The nine eastern spans are timber trestles, followed by a through plate girder span, a deck on steel girder span, and another through plate girder span.

Generally the bridge is in fair condition with no evidence of movement or significant deterioration. Updated steel condition testing is recommended along with a structural evaluation to confirm extent of ongoing corrosion and section loss particularly at the previously noted members governing load capacity. Additionally, an underwater inspection is recommended to determine the extent and severity of deterioration of the piers and timber cribs below the waterline.

The following maintenance is recommended:

- Replace missing pickets and top rail and retaining wall barriers (urgent);
- Install pedestrian barrier at northeast approach (urgent);
- Repair unsupported conduit at west end (urgent);
- Increase barrier height for snowmobiles on snow packed trails and/or bicycles (1 year);
- Clean off debris from bearing seats and girders (1 year);
- Clean and seal west concrete abutment (1 year);
- Remove vegetation on wingwall timbers (1 year); and
- Replace deteriorated curb sections (1 year).
- Replace missing and damaged lagging in abutment and ballast wall (2 year);

The following rehabilitation is recommended:

- Clean and recoat structural steel (1-5 years);
- Replace deteriorated timbers on east wingwalls (1-5 years);
- Repair crack in concrete retaining wall (1-5 years);
- Replace post anchor and post at retaining wall barrier southwest end (1-5 years);

- Repair west concrete abutment (1-5 years);
- Replace damaged timber pier brace (1-5 years); and
- Repair concrete piers (6-10 years).

The current load rating recommendation of pedestrian and snowmobile use is recommended to remain in place. It is proposed that the next OSIM inspection occur in 2020. It is also recommended that the abutments and piers be monitored for movement as they are supported on timber cribs, and the upper timbers are now exposed at the east pier.

2.3 Cascade Street Bridge No. 1

The Cascade Street Bridge No. 1 is located on Cascade Street approximately 0.1 km east of Water Street. The structure is 2 spans of approximately 26.45 m and is approximately 11.2 m wide. The structure is a precast concrete box girder bridge with concrete deck and has been converted to semi-integral abutments. The bridge has a travelled roadway width of 8.5 m.

The bridge is in generally good condition with no evidence of movement or significant deterioration. No additional investigations are recommended at this time.

The following maintenance is recommended:

- Patch repair concrete curb on approaches (1 year);
- Rout and seal crack at end of approach slab
- Clean out deck drains, gutters, and sidewalk (1 year);
- Provide slope protection at Northwest embankment (1 year); and
- Rout and seal cracks, repair pothole in asphalt (2 years).

The following rehabilitation is recommended:

- Replace damaged guide rail sections and install end treatments (urgent); and
- Concrete sidewalk repair (1-5 years).

No load posting is recommended at this time. It is proposed the next OSIM inspection occur in 2020.

2.4 Cascade Street Bridge No. 2

The Cascade Street Bridge No. 2 is also located on Cascade Street. It is adjacent to Cascade Street Bridge No. 1 and is approximately 0.02 km east of Water Street. The structure is a concrete rigid

frame with vertical legs. It has a span of 10 m and a width of 11.2 m. The travelled roadway width is approximately 8 m.

The bridge is in excellent to good condition with no evidence of movement or significant deterioration.

The following maintenance is recommended:

- Rout and seal cracks in asphalt wearing surface (1 year);
- Clean off bridge and approach driving surface, gutters and sidewalk (1 year); and
- Replace missing end caps on structure barrier (1 year).

The following rehabilitation is recommended:

- Upgrade barrier connections to structure at north quadrants (urgent);
- Repair cracks in south foundation and install steel armouring (1-5 years);
- Repair cracks in concrete wingwall at the northeast quadrant and replace joint seals at southwest and northwest quadrants (1-5 years);
- Repave approaches (6-10 years).

No load posting is recommended at this time. It is proposed the next OSIM inspection occur in 2020.

2.5 Waubuno Street Bridge

The Waubuno Street Bridge is located along the Parry Sound Fitness trail and crosses Waubuno Street at Georgian Bay. It is a timber girder bridge with timber plank deck, timber barriers, and timber trestle supports. The structure is 3 spans of 3.73 m, 4.18 m, and 3.53 m. The travelled width is 3.17 m and the overall width is 3.57 m. It is currently used by pedestrian and snowmobiles, and is posted with a 10 tonne limit.

Generally the bridge is in good condition, however the ballast wall and timber piles show evidence of some severe deterioration. The existing barriers appear to be deficient in height and strength for use by snowmobiles. The structure is currently restricted to pedestrian and snowmobile use – while one pier pile is severely deteriorated, the load capacity is not required to be reduced. No detailed investigations are recommended at this time.

The following maintenance is recommended:

- Repair eroded part of wearing surface (urgent);
- Reorient bridge signage to face approaches (1 year);

- Clean off bridge wearing surface (1 year);
- Replace damaged curb timber (1 year);
- Replace damaged post pickets on structure barrier (1 year);
- Install slope protection in eroded areas on embankment (1 year); and
- Install slope protection on north abutment slope interior face (1 year) ; and
- Replace 4 OFSC trail signs (2 years).

The following rehabilitation is recommended:

- Replace southwest timber pile (1 year);
- Replace bridge barrier with CHBDC code-compliant system (1-5 years); and
- Replace deteriorated ballast walls (1-5 years).

It is recommended that the existing load posting remain. It is proposed the next OSIM inspection occur in 2020.

3 Recommendations

Overall the structures within the Town are in good condition with minimal investigation and rehabilitation work recommended. The various maintenance and rehabilitation activities recommended in Section 2 are recommended to be completed at all structures within the indicated time frames.

We trust the above is sufficient for your purposes. If you have any questions or comments regarding the above, please do not hesitate to contact our office.

Authored by: Kieran Ferguson

Reviewed by: Emma Wilkinson, H.B.A., B.E.Sc., P.Eng.
Senior Engineer, Project Manager

Appendix A: OSIM Forms

Inventory Data:

Structure Name	Seguin Street Bridge				
Main Hwy/Road #		On [X] Under [ ]	Crossing Type:	Navig. Water [X] Non-Navig. Water [ ]	Rail [ ] Road [ ] Ped. [ ] Other [ ]
Road Name	Seguin Street				
Structure Location	0.081 km west of River Street				
Latitude	45° 20' 45" N		Longitude	80° 01' 52" W	
Owner(s)	Town of Parry Sound		Heritage Designation:	Not Cons. [X] Cons./Not App. [ ] List/Not Desig. [ ] Desig./Not List [ ] Desig. & List [ ]	
MTO Region	50 - Northeastern		Road Class:	Freeway [ ] Arterial [X] Collector [ ] Local [ ]	
MTO District	52 - Huntsville		Posted Speed	50	No. of Lanes 4
Old County	44 - Parry Sound		AADT	unknown	% Trucks unknown
Geographic Twp.	452 - McDougall		Special Routes:	Transit [ ] Truck [ ] School [ ] Bicycle [ ]	
Structure Type	4 - Box Beam Girder		Detour Length Around Bridge	2.2	(km)
Total Deck Length	55.9	(m)	Fill on Structure	0	(m)
Overall Str. Width	20.6	(m)	Skew Angle	0.0	(Degrees)
Total Deck Area	1151.54	(sq.m)	Direction of Structure	E-W	
Roadway Width	15	(m)	No. of Spans	1	
Span Lengths	55	(m)			

Historical Data:

Year Built	1987	Year of Last Major Rehab.		
Last OSIM Inspection	2015	Last Evaluation	2007	
Last Enhanced OSIM Inspection		Current Load Limit	/ /	(tonnes)
Enhanced Access Equipment (ladder, boat, lift, etc.)	boat	Load Limit By-Law #		
Last Underwater Inspection		By-Law Expiry Date		
Last Condition Survey	2007	Min. Vertical Clearance		(m)

Rehab. History: (Date/description)

2007 - Steel thickness measurements were completed and an evaluation for load capacity was completed

Field Inspection Information:			
Date of Inspection:	June 27, 2018	Type of Inspection: [X] OSIM	[ ] Enhanced OSIM
Inspector:	Kieran Ferguson		
Others in Party:	Jesse Godin, Safety Design Systems Rescue Technician		
Access Equipment Used:	Access Ladder, Air Monitor, Flashlight, Restraining Harness, Retrieval System, Boat		
Weather:	Light Rain / Overcast		
Temperature:	21 °C		

Additional Investigations Required:	Priority			Estimated Cost
	None	Normal	Urgent	
Material Condition Survey				
Detailed Deck Condition Survey:	X			
Non-destructive Delam. Survey of Asphalt-Covered Deck:	X			
Concrete Substructure Condition Survey:	X			
Detailed Coating Condition Survey:	X			
Detailed Timber Investigation:	X			
Post-Tensioned Strand Investigation:	X			
Underwater Investigation	X			
Fatigue Investigation	X			
Seismic Investigation	X			
Structure Evaluation:	X			
Monitoring (deformations, settlements, movements, crack widths)	X			
Load Posting - Estimated Load			Total Cost	$0.00

Investigation Notes:

Overall Structure Notes:	
Overall Comments:	Overall in good condition. Minor deterioration of the deck and girders.
Date of Next inspection:	2020

Overall Bridge Condition					
% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIp)	
				BCIp	BCI
2%	4%	0.24%	0%	97.80	72.04

Overal Bridge Sufficiency				
Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)
0	5	0	0	67.04

Element Data:

Element Group:	Decks	Length:	55.9
Element Name:	Wearing Surface	Width:	15
Location:		Height:	0.09
Material:	Asphalt	Count:	1
Element Type:		Total Quantity:	838.5
Environment:	Severe	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m	838.5				

Comments: Asphalt has been repaved and is in excellent condition.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:
Urgent:	1-5 Years:	6-10 Years:	None: X
Urgent:	1 Year:	2 Year:	

Element Photo:

Description of Photo: Photo 1 - Wearing Surface

Element Data:

Element Group:	Decks	Length:	55.9
Element Name:	Deck Top	Width:	20.6
Location:		Height:	0.225
Material:	Cast-in-place Concrete	Count:	1
Element Type:	CIP Concrete on supports, composite	Total Quantity:	1151.54
Environment:	Moderate	Limited Inspection:	X
Protection System:	Asphalt and Waterproofing		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		1151.54			

Comments: No deficiencies visible. Deck has been repaved and appears to be in good condition.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year:

Element Photo:

Description of Photo:

Photo 2 - Deck Top

Element Data:

Element Group:	Deck	Length:	2
Element Name:	Soffit - Inside Boxes	Width:	3.4
Location:	Ends	Height:	
Material:	CIP Concrete	Count:	3
Element Type:		Total Quantity:	20.4
Environment:	Moderate	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		20.2	0.2		

Comments: Some wet stains on concrete at drainage tube locations. In good condition overall.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐	1 Year: ☐	2 Year: ☐

Element Photo:

Description of Photo:

Photo 3 - Interior Soffit End

Element Data:

Element Group:	Decks	Length:	51.9
Element Name:	Soffit - Inside Boxes	Width:	3.4
Location:	Middle	Height:	
Material:	CIP Concrete	Count:	3
Element Type:		Total Quantity:	529.38
Environment:	Moderate	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		524.58	2.4	2.4	

Comments: Very minor sporadic stained cracking throughout soffit, especially the north and south girders.

Recommended Work:	Rehab: [X]	Replace: [ ]	Maintenance Needs:	
Urgent: [ ]	1-5 Years: [X]	6-10 Years: [ ]	None: [ ]	Urgent: [ ] 1 Year: [ ] 2 Year: [ ]
These cracks should be repaired by epoxy injection.				

Element Photo:

Description of Photo: Photo 4 - Interior Soffit Mid

Element Data:

Element Group:	Decks	Length:	500 mm wide x 230 deep drain
Element Name:	Drainage System	Width:	200 mm dia pipes
Location:		Height:	
Material:	Steel	Count:	8
Element Type:	Metal Drain Pipes	Total Quantity:	8
Environment:	Severe	Limited Inspection:	
Protection System:	Hot Dip Galvanizing		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		8			

Comments: Drains appear to be in good condition. Moderate debris buildup in drain grating. Very light corrosion on bottoms of drain pipe.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	16 - Bridge Deck Drainage
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: X 2 Year: ☐
			Clean out drain scuppers.	

Element Photo:

Description of Photo:

Photo 5 - Drain

Element Photo:

Description of Photo: Photo 6 - Drain

Element Photo:

Description of Photo: Photo 7 - Drain

Element Data:

Element Group:	Decks	Length:	2
Element Name:	Soffit Thin Slab	Width:	15.3
Location:	End	Height:	
Material:	CIP Concrete	Count:	2
Element Type:		Total Quantity:	61.2
Environment:	Moderate	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		61.2			

Comments: Soffit near girder ends is in good condition.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year:

Element Photo:

Description of Photo:

Photo 8 - Soffit End

Element Photo:

Description of Photo: Photo 9 - Soffit End

Element Photo:

Description of Photo: Photo 022 - Mostly New Timber Deck Over East Steel Through Truss Span

Element Data:

Element Group:	Decks	Length:	51.9
Element Name:	Soffit - Thin Slab	Width:	4.25
Location:	Exterior	Height:	
Material:	Concrete	Count:	1
Element Type:		Total Quantity:	220.6
Environment:	Moderate	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		220.6			

Comments: Previously patched area at northwest expansion joint. Some minor staining and narrow cracks in overhang soffit.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: ☒	Urgent: ☐ 1 Year: ☐ 2 Year: ☐

Element Photo:

Description of Photo: Photo 10 - Soffit Exterior

Element Photo:

Description of Photo: Photo 11 - Soffit Exterior

Element Photo:

Description of Photo: Photo 12 - Soffit Exterior

Element Data:

Element Group:	Decks	Length:	51.9
Element Name:	Soffit Thin Slab	Width:	6.8
Location:	Interior	Height:	
Material:	Concrete	Count:	
Element Type:		Total Quantity:	352.9
Environment:	Benign	Limited Inspection:	X
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		352.9			

Comments: Interior soffit is in good condition.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year:

Element Photo:

Description of Photo: Photo 13 - Soffit Interior

Element Photo:

Description of Photo: Photo 14 - Soffit Interior

Element Photo:

Description of Photo: Photo 15 - Soffit Interior

Element Data:

Element Group:	Joints	Length:	20.6
Element Name:	Seals/Sealants	Width:	
Location:		Height:	
Material:	Neoprene	Count:	2
Element Type:	Strip Seal	Total Quantity:	2
Environment:	Severe	Limited Inspection:	X
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each			2		

Comments: Severely deteriorated seals. Dirt and debris covering seal.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:

Urgent:	1-5 Years:	6-10 Years:	None:	Urgent:	1 Year:	2 Year:
	X					

Convert to semi-integral abutment or replace joints.

Element Photo:

Description of Photo: Photo 16 - Expansion Joint

Element Photo:

Description of Photo: Photo 17 - Expansion Joint

Element Photo:

Description of Photo: Photo 022 - Mostly New Timber Deck Over East Steel Through Truss Span

Element Data:

Element Group:	Joints	Length:	15
Element Name:	Concrete End Dams	Width:	0.5
Location:	East and West	Height:	
Material:	Concrete	Count:	4
Element Type:		Total Quantity:	30
Environment:	Severe	Limited Inspection:	
Protection System:	Steel Angle		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m			30		

Comments: Some spalling at the armouring. Moderate abrasion and weathering.

Recommended Work:	Rehab: [X]	Replace: [ ]	Maintenance Needs:	
Urgent: [ ]	1-5 Years: [X]	6-10 Years: [ ]	None: [ ]	Urgent: [ ] 1 Year: [ ] 2 Year: [ ]
Patch or convert to semi-integral abutments.				

Element Photo:

Description of Photo: Photo 18 - End Dam

Element Photo:

Description of Photo: Photo 19 - End Dam

Element Photo:

Description of Photo: Photo 022 - Mostly New Timber Deck Over East Steel Through Truss Span

Element Data:

Element Group:	Joints	Length:	20.6
Element Name:	Armouring/Retaining Devices	Width:	
Location:	East and West	Height:	
Material:	Steel	Count:	2
Element Type:	Angle	Total Quantity:	41.2
Environment:	Severe	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m			41.2		

Comments: Minor collision damage throughout, possibly from snow ploughs or snowmobiles.

Recommended Work:	Rehab: [ ]	Replace: [X]	Maintenance Needs:	
Urgent: [ ]	1-5 Years: [X]	6-10 Years: [ ]	None: [ ]	Urgent: [ ] 1 Year: [ ] 2 Year: [ ]
Replace or convert to semi-integral abutment.				

Element Photo:

Description of Photo: Photo 20 - Steel Angle Armouring

Element Data:

Element Group:	Sidewalks / Curbs	Length:	55.9
Element Name:	Sidewalks	Width:	2.8
Location:	North and South	Height:	0.24
Material:	Concrete	Count:	2
Element Type:		Total Quantity:	313
Environment:	Severe	Limited Inspection:	
Protection System:	Epoxy Coated Steel		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		298.4	13.6	1	

Comments: Transverse light to medium cracks along both the north and south sidewalk - 14 on the North and 25 on the South. Minor spalling of the curb along the majority of curb at both sides of the roadway.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	8 - Repair of Bridge Concrete
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: ☒	Urgent: ☐ 1 Year: ☒ 2 Year: ☐
			Seal cracks.	

Element Photo:

Description of Photo: Photo 21 - Sidewalk

Element Photo:

Description of Photo: Photo 22 - Sidewalk

Element Photo:

Description of Photo: Photo 23 - Sidewalk

Element Data:

Element Group:	Barriers	Length:	72
Element Name:	Railing Systems	Width:	
Location:	North and South	Height:	
Material:	Aluminum	Count:	2
Element Type:	4 Rail Metal Railing - Aluminum	Total Quantity:	144
Environment:	Severe	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		136	8		

Comments: One crack on the north side of the bridge. Some minor dents and scrapes throughout with some wear of the coating.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:
Urgent:	1-5 Years:	6-10 Years:	None: X
Urgent:	1 Year:	2 Year:	

Element Photo:

Description of Photo: Photo 24 - Railing

Element Photo:

Description of Photo: Photo 25 - Railing

Element Photo:

Description of Photo: Photo 26 - Railing

Element Data:

Element Group:	Beams	Length:	6.8
Element Name:	Diaphragms	Width:	
Location:	End	Height:	2.4
Material:	Steel	Count:	10
Element Type:		Total Quantity:	10
Environment:	Moderate	Limited Inspection:	
Protection System:	Epoxymastic		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		10			

Comments: Grafitti was present at the west end, but no deterioration of the steel was noted. The coating appears to still be in good condition.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: ☐ 2 Year: ☐

Element Photo:

Description of Photo: Photo 27 - End Diaphragm

Element Photo:

Description of Photo: Photo 28 - End Diaphragm

Element Photo:

Description of Photo:

Element Data:

Element Group:	Beams	Length:	15.85
Element Name:	Diaphragms	Width:	0.125
Location:	Intermediate	Height:	2.4
Material:	Steel	Count:	75
Element Type:		Total Quantity:	75
Environment:	Moderate	Limited Inspection:	
Protection System:	Weathering Steel		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		70	5		

Comments: Steel is evenly weathered throughout

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: ☒	Urgent: ☐	1 Year: ☐	2 Year: ☐

Element Photo:

Description of Photo: Photo 29 - Cross Bracing

Element Photo:

Description of Photo: Photo 30 - Cross Bracing

Element Photo:

Description of Photo:

Element Data:

Element Group:	Beams	Length:	1.2
Element Name:	Girders	Width:	2.2
Location:	End	Height:	2.8
Material:	Steel	Count:	6
Element Type:	Box/Trapezoidal	Total Quantity:	56
Environment:	Moderate	Limited Inspection:	
Protection System:	Epoxymastic		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		55		1	

Comments: Some corrosion of the bottom flange at the drain holes. Girders in good condition throughout.

Recommended Work:	Rehab: ☐ Replace: ☐	Maintenance Needs:	
Urgent: ☐ 1-5 Years: ☒ 6-10 Years: ☐ None: ☐		Urgent: ☐ 1 Year: ☐ 2 Year: ☐	
Clean and recoat in conjunction with interior recoating.			

Element Photo:

Description of Photo: Photo 31 - Girder End

Element Photo:

Description of Photo: Photo 32 - Girder End

Element Photo:

Description of Photo: Photo 33 - Girder End

Element Data:

Element Group:	Beams	Length:	53.5
Element Name:	Girders	Width:	2.2
Location:	Middle	Height:	2.8
Material:	Steel	Count:	3
Element Type:	Box/Trapezoidal	Total Quantity:	1251.9
Environment:	Moderate	Limited Inspection:	
Protection System:	Weathering Steel		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		1251.9			

Comments: Weathering steel girders are in good condition.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: ☐ 2 Year: ☐

Element Photo:

Description of Photo: Photo 34 - Girder Mid

Element Photo:

Description of Photo: Photo 35 - Girder Mid

Element Photo:

Description of Photo:

Element Data:

Element Group:	Beams	Length:	1.2
Element Name:	Inside Boxes	Width:	2.2
Location:	End	Height:	2.8
Material:	Steel	Count:	6
Element Type:		Total Quantity:	56
Environment:	Benign	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		31	12.5	12.5	

Comments: The existing coating along the bottom flange and stiffeners has failed. Some pitting of the steel. Steel stiffeners are severely corroded on the north and south girder at both ends, but the middle girders are in better condition.

Recommended Work:	Rehab: [X] Replace: [ ]	Maintenance Needs:	
Urgent: [ ] 1-5 Years: [X] 6-10 Years: [ ] None: [ ]		Urgent: [ ] 1 Year: [ ] 2 Year: [ ]	
Clean and recoat the inside of the north and south girders.			

Element Photo:

Description of Photo:

Photo 36 - Gider End Inside

Element Photo:

Description of Photo: Photo 37 - Girder End Inside

Element Photo:

Description of Photo: Photo 38 - Girder End Inside

Element Photo:

Description of Photo: Photo 39 - Girder End Inside

Element Photo:

Description of Photo: Photo 40 - Girder End Inside

Element Photo:

Description of Photo: Photo 41 - Girder End Inside

Element Photo:

Description of Photo: Photo 42 - Girder End Inside

Element Data:

Element Group:	Beams	Length:	53.5
Element Name:	Inside Boxes	Width:	2.2
Location:	Middle	Height:	2.8
Material:	Steel	Count:	3
Element Type:	Box/Trapezoidal	Total Quantity:	1251.9
Environment:	Benign	Limited Inspection:	
Protection System:	Weathering Steel		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		1146.7	8.55	96.65	

Comments: Corrosion of the girders on the webs and bottom and edge of flange. In good condition overall. Some sporadic areas of moderate corrosion and pitting.

Recommended Work:	Rehab: [X]	Replace: [ ]	Maintenance Needs:	
Urgent: [ ]	1-5 Years: [X]	6-10 Years: [ ]	None: [ ]	Urgent: [ ] 1 Year: [ ] 2 Year: [ ]
Clean and coat the bottom flange.				

Element Photo:

Description of Photo: Photo 43 - Girder Mid Inside

Element Photo:

Description of Photo: Photo 44 - Girder Mid Inside

Element Photo:

Description of Photo: Photo 45 - Girder Mid Inside

Element Photo:

Description of Photo: Photo 46 - Girder Mid Inside

Element Photo:

Description of Photo: Photo 47 - Girder Mid Inside

Element Photo:

Description of Photo: Photo 48 - Girder Mid Inside

Element Photo:

Description of Photo:

Element Data:

Element Group:	Coatings	Length:	1,2
Element Name:	Structural Steel	Width:	2.2
Location:	Ends	Height:	2.8
Material:		Count:	6
Element Type:		Total Quantity:	112
Environment:		Limited Inspection:	X
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		98.5		13.5	

Comments: Interior coating at ends of north and south girder have failed along the bottom flange and stiffener plates. Some minor coating corrosion around the drain holes in the bottom flange. Girder has worn coating throughout. Steel diaphragms are moderate corroded.

Recommended Work:	Rehab: [X] Replace: [ ]	Maintenance Needs:	
Urgent: [ ] 1-5 Years: [X] 6-10 Years: [ ] None: [ ]		Urgent: [ ] 1 Year: [ ] 2 Year: [ ]	
Clean and recoat the interior of the girders to prevent further corrosion.			

Element Photo:

Description of Photo: Photo 49 - Coating

Element Data:

Element Group:	Abutments	Length:	
Element Name:	Abutment Walls	Width:	19.5
Location:		Height:	5.73
Material:	Concrete	Count:	2
Element Type:	Conventional Closed	Total Quantity:	223.47
Environment:	Moderate	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		222.47	1		

Comments: Two narrow and one medium vertical crack in the west abutment face. Cracking is located beneath the north and south bearing seats. Grafitti throughout surface, especially west side. Wall drains are plugged with garbage.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	18 - Other
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: X 2 Year:
				Remove garbage from wall drains. Paint walls with anti-grafitti paint.

Element Photo:

Description of Photo: Photo 50 - Abutment

Element Photo:

Description of Photo: Photo 51 - Abutment

Element Photo:

Description of Photo: Photo 52 - Abutment

Element Data:

Element Group:	Abutments	Length:	
Element Name:	Ballast Walls	Width:	19.5
Location:		Height:	3.23
Material:	Concrete	Count:	2
Element Type:		Total Quantity:	125.97
Environment:		Limited Inspection:	X
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		124.97	1		

Comments: Limited inspection as some of the wall is hidden by the diaphragms. Narrow crack noted on the west ballast wall between centre and south girder and cracking where the insulated pipe penetrates the ballast wall.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐	1 Year: ☐	2 Year: ☐

Element Photo:

Description of Photo: Photo 53 - Ballast Wall

Element Photo:

Description of Photo: Photo 54 - Ballast Wall

Element Photo:

Description of Photo: Photo 55 - Ballast Wall

Element Data:

Element Group:	Abutments	Length:	0.5
Element Name:	Bearings	Width:	0.6
Location:		Height:	0.1
Material:		Count:	6
Element Type:		Total Quantity:	6
Environment:		Limited Inspection:	X
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		6			

Comments: East end bearing pads were not accessible and were not inspected. Bearings on west end appear to be in good condition.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year:

Element Photo:

Description of Photo: Photo 56 - Bearings

Element Photo:

Description of Photo: Photo 57 - Bearings

Element Photo:

Description of Photo: Photo 58 - Bearings

Element Data:

Element Group:	Abutments	Length:	8.5
Element Name:	Wingwalls	Width:	
Location:	All Quadrants	Height:	2.1
Material:	Concrete	Count:	4
Element Type:	Reinforced Concrete	Total Quantity:	71.4
Environment:	Moderate	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		70.4		1	

Comments: Some staining on the southeast wingwall. In good condition overall. Rough, weathered concrete but no damage.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: ☒	Urgent: ☐ 1 Year: ☐ 2 Year: ☐

Element Photo:

Description of Photo: Photo 59 - Northwest Wingwall

Element Photo:

Description of Photo: Photo 60 - Southwest Wingwall

Element Photo:

Description of Photo: Photo 61 - Northeast Wingwall

Element Data:

Element Group:	Retaining Walls	Length:	10.05 (avg.)
Element Name:	Walls	Width:	
Location:	NW and SW Quadrants	Height:	4 (avg.)
Material:	Concrete	Count:	4
Element Type:	Reinforced Concrete	Total Quantity:	160.8
Environment:	Moderate	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		158.8	2		

Comments: Some minor spalling on the top of the southwest retaining wall where water drains from above. Northwest retaining wall has a narrow vertical crack full height. Rough concrete surface throughout.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	8 - Repair of Bridge Concrete
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: X 2 Year: ☐
			Patch and seal concrete.	

Element Photo:

Description of Photo: Photo 62 - Retaining Wall

Element Photo:

Description of Photo: Photo 63 - Retaining Wall

Element Photo:

Description of Photo: Photo 64 - Retaining Wall

Element Data:

Element Group:	Barriers	Length:	7.9
Element Name:	Railings	Width:	
Location:	Northwest Quadrant	Height:	
Material:	Aluminum	Count:	1
Element Type:	4 Rail Metal - Aluminum	Total Quantity:	7.9
Environment:	Moderate	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		7.9			

Comments: Railing in good condition.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: ☐ 2 Year: ☐

Element Photo:

Description of Photo: Photo 65 - Northwest Railing

Element Data:

Element Group:	Retaining Walls	Length:	50
Element Name:	Barrier Systems on Walls	Width:	
Location:		Height:	
Material:	Steel	Count:	1
Element Type:	Pedestrian Handrail	Total Quantity:	50
Environment:	Moderate	Limited Inspection:	
Protection System:	Hot-Dip Galvanized		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		48.8		1.2	

Comments: Pedestrian handrail along path under the west end of the bridge. One post connection has cracked and is seperated at the base. Minor rust staining throughout.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	3 - Bridge Handrail Maintenance
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: ☐ 2 Year: X
			Repair post base.	

Element Photo:

Description of Photo: Photo 66 - Steel Handrail

Element Photo:

Description of Photo: Photo 67 - Steel Handrail

Element Photo:

Description of Photo: Photo 68 - Steel Handrail

Element Data:

Element Group:	Foundations	Length:	
Element Name:	Foundation (below ground level)	Width:	
Location:	West	Height:	
Material:		Count:	1
Element Type:	Spread	Total Quantity:	
Environment:		Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	all			1		

Comments: West side has some minor loss of material beneath walkway.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year:

Element Photo:

Description of Photo: Photo 69 - West Foundation

Element Data:

Element Group:	Foundations	Length:	
Element Name:	Foundation (below ground level)	Width:	
Location:	East	Height:	
Material:		Count:	
Element Type:	Piles	Total Quantity:	
Environment:		Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	N/A					

Comments: No apparent signs of movement or distress.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐	1 Year: ☐	2 Year: ☐

Element Photo:

Description of Photo: Photo 70 - East Foundation

Element Data:

Element Group:	Embankments & Streams	Length:	
Element Name:	Streams & Waterways	Width:	
Location:		Height:	
Material:		Count:	
Element Type:		Total Quantity:	
Environment:		Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	all		all			

Comments: No signs of scour or aggradation noted.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: ☐ 2 Year: ☐

Element Photo:

Description of Photo: Photo 71 - Waterway

Element Data:

Element Group:	Embankments & Streams	Length:	
Element Name:	Embankments	Width:	
Location:		Height:	
Material:		Count:	4
Element Type:		Total Quantity:	4
Environment:		Limited Inspection:	
Protection System:	vegetation		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		4			

Comments: No apparent loss of material.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: ☒	Urgent: ☐ 1 Year: ☐ 2 Year: ☐

Element Photo:

Description of Photo:

Photo 72 - Embankment

Element Photo:

Description of Photo: Photo 73 - Embankment

Element Photo:

Description of Photo:

Element Data:

Element Group:	Embankments & Streams	Length:	
Element Name:	Slope Protection	Width:	
Location:		Height:	
Material:		Count:	2
Element Type:	Rock Protection	Total Quantity:	2
Environment:		Limited Inspection:	X
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		2			

Comments: Rock protection in front of east abutment, northwest and northeast retaining walls appears to be in good condition.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year:

Element Photo:

Description of Photo: Photo 74 - Slope Protection

Element Data:

Element Group:	Approaches	Length:	6
Element Name:	Wearing Surface	Width:	15
Location:	East and West	Height:	0.09
Material:	Asphalt	Count:	2
Element Type:		Total Quantity:	180
Environment:	Severe	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m	180				

Comments: Recently repaved and in excellent condition.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐	1 Year: ☐	2 Year: ☐

Element Photo:

Description of Photo: Photo 75 - West Approach

Element Photo:

Description of Photo: Photo 76 - East Approach

Element Photo:

Description of Photo:

Element Data:

Element Group:	Approaches	Length:	6
Element Name:	Approach Slabs	Width:	15
Location:	East and West	Height:	0.25
Material:	Concrete	Count:	2
Element Type:		Total Quantity:	180
Environment:	Moderate	Limited Inspection:	X
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		180			

Comments: Slab not visible. Road recently repaved. Approach slabs appear to be in good condition.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: ☐ 2 Year: ☐

Element Photo:

Description of Photo: Photo 77 - Approach Slabs

Element Data:

Element Group:	Approaches	Length:	
Element Name:	Drainage	Width:	
Location:	East and West Sides	Height:	
Material:	Concrete	Count:	5
Element Type:		Total Quantity:	5
Environment:	Severe	Limited Inspection:	X
Protection System:	Cast Iron Grating		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		5			

Comments: Limited inspection of the culvert. There is some cracking of the asphalt at the catch basin. There is a buildup of sediment on the south side gutter.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: ☐ 2 Year: ☐

Element Photo:

Description of Photo: Photo 78 - Approach Drainage

Element Data:

Element Group:	Approaches	Length:	6
Element Name:	Curb/Gutters	Width:	
Location:	All Quadrants	Height:	0.14
Material:	Concrete	Count:	4
Element Type:		Total Quantity:	24
Environment:	Severe	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		12	11	1	

Comments: Minor damage to the tops and edges of the curb throughout, likely due to snowplows.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year:

Element Photo:

Description of Photo: Photo 79 - Approach Curb

Element Data:

Element Group:	Approaches	Length:	6
Element Name:	Sidewalk	Width:	1.8
Location:	All Quadrants	Height:	
Material:	Concrete	Count:	4
Element Type:		Total Quantity:	43.2
Environment:	Severe	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		40	2.2	1	

Comments: Two moderate transverse cracks at the southeast corner. Some minor localized spalls in the concrete surface. Cracking at the edge of the wingwalls.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	14 - Concrete Sealing
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent:	1 Year: X	2 Year:
			Seal the concrete cracks to prevent moisture penetration. Patch concrete.	

Element Photo:

Description of Photo: Photo 80 - Approach Sidewalk

Element Data:

Element Group:	Accessories	Length:	
Element Name:	Utilities	Width:	
Location:		Height:	
Material:		Count:	6
Element Type:	Various	Total Quantity:	6
Environment:		Limited Inspection:	X
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		6			

Comments: There is gas line supported on the north face of the bridge, insulated pipe (likely a watermain) under the north soffit, electrical and bell also appear to be supported under the north soffit. There are some punctures in the insulation of the watermain. Electrical also is supported along both ballast walls. The drawings indicate that there could also be hydro ducts within the sidewalk.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: ☐ 2 Year: ☐

Element Photo:

Description of Photo: Photo 81 - Utilities

Element Photo:

Description of Photo: Photo 82 - Utilities

Element Photo:

Description of Photo: Photo 83 - Utilities

Element Data:

Element Group:	Accessories	Length:	
Element Name:	Other - Light Standards	Width:	
Location:		Height:	
Material:		Count:	3
Element Type:	Lighting Poles	Total Quantity:	3
Environment:		Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		3			

Comments: In good condition.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: ☐ 2 Year: ☐

Element Photo:

Description of Photo: Photo 84 - Light Standard

Element Data:

Element Group:	Approaches	Length:	14.6 m (NE) and 11.0 (SW)
Element Name:	Barriers	Width:	
Location:	SW and NE Quadrants	Height:	
Material:	Steel Beam Guiderail	Count:	
Element Type:	Beam	Total Quantity:	25.6
Environment:	Severe	Limited Inspection:	
Protection System:	Galvanized Coating		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		25.6			

Comments: The northeast end is flared with a standard end terminal hidden behind a flowerbox with retaining wall. Connections to the concrete barriers are outdated. Southwest corner has one steel beam guide rail section with no end terminal and no connection to the concrete end wall and is supported on old cable guiderail posts.

Recommended Work:	Rehab: [ ]	Replace: [X]	Maintenance Needs:	
Urgent: [X]	1-5 Years: [ ]	6-10 Years: [ ]	None: [ ]	Urgent: [ ] 1 Year: [ ] 2 Year: [ ]
Replace substandard connection with current standard.				

Element Photo:

Description of Photo: Photo 85 - Approach - no barrier

Element Photo:

Description of Photo: Photo 86 - Approach Barrier - Northeast

Element Photo:

Description of Photo: Photo 87 - Approach - no barrier

Repair and Rehabilitation Required:		Priority				Estimated Structural Cost
Element[1]	Repair and Rehabilitation Required[2]	6 to 10 Years	1 to 5 Years	Within 1 Year	Urgent	
Demolition						
Replacement						
Deck						
Sidewalk/Curb	Rehab. = Seal cracks		X			$7,500.00
Barrier						
Joints	Rehab. = Replace joints		X			$150,000.00
Beams	Rehab. = Clean and coat		X			$50,000.00
Abutment	Rehab. = Seal cracks		X			$7,500.00
Soffit	Rehab. = Seal cracks		X			$7,500.00
Estimated Rehabilitated or Replacement Structure Dimensions[3]						
Total Deck Length (m)	Overall Str. Width (m)				Total Structural Cost	$222,500.00

1 - Indicate specific costs for structure replacement OR for rehabilitation under the given headings.

2 - Give a very brief description of the rehabilitation work required.

3 - Estimated structure dimensions after completion of the proposed work - if it is expected to change.

Associated Work	Comments	Estimated Associated Work Cost
Approaches	Upgrade Structure Connections	$20,000.00
Detours		
Traffic Control	Barriers, Flagging, Etc...	$10,000.00
Utilities		
Other	Engineering and Contingency	$80,000.00
	Mobilization / Demobilization, General, Insurance	$50,000.00
	Environmental and Access	$30,000.00
	Total Associated Work Cost	$190,000.00

Total Construction Cost	$412,500.00

Justification:
Seal cracks in sidewalks and curbs over strucutre. Replace deteriorated joints where structure meets approaches. Clean and recoat deteriorated portions of structural steel girders. Seal cracks in abutment and soffit. Recommend that deficient steel beam guide rail structure connections be replaced.

Inventory Data:

Structure Name	Seguin River Pedestrian Bridge								
Main Hwy/Road #		On [X]	Under [ ]	Crossing Type:	Navig. Water [X]	Non-Navig. Water [ ]			
					Rail [ ]	Road [ ]	Ped. [X]	Other [ ]	
Road Name	Parry Sound Fitness Trail								
Structure Location	0.1 km South of Seguin Street over the Seguin River								
Latitude	45° 20' 45" N		Longitude	80° 01' 52" W					
Owner(s)	Town of Parry Sound		Heritage Designation:	Not Cons. [X]	Cons./Not App. [ ]	List/Not Desig. [ ]	Desig./Not List [ ]	Desig. & List [ ]	
MTO Region	50 - Northeastern		Road Class:	Freeway [ ]	Arterial [ ]	Collector [ ]	Local [X]		
MTO District	52 - Huntsville		Posted Speed	0	No. of Lanes	0			
Old County	44 - Parry Sound		AADT	0	% Trucks	0			
Geographic Twp.	452 - McDougall		Special Routes:	Transit [ ]	Truck [ ]	School [ ]	Bicycle [X]		
Structure Type	Varies		Detour Length Around Bridge	N/A	(km)				
Total Deck Length	96.5	(m)	Fill on Structure	0	(m)				
Overall Str. Width	4.6	(m)	Skew Angle	0.0	(Degrees)				
Total Deck Area	332.93	(sq.m)	Direction of Structure	E-W					
Roadway Width	3.45	(m)	No. of Spans	12					
Span Lengths	3.4, 3.8, 4.0, 4.0, 3.9, 3.8, 3.8, 3.75, 3.65, 22.6, 14.3, 25.5	(m)							

Historical Data:

Year Built	1920	Year of Last Major Rehab.	
Last OSIM Inspection	2015	Last Evaluation	2007
Last Enhanced OSIM Inspection		Current Load Limit	Pedestrian & Snowmobile
Enhanced Access Equipment (ladder, boat, lift, etc.)		Load Limit By-Law #	
Last Underwater Inspection		By-Law Expiry Date	
Last Condition Survey	2007	Min. Vertical Clearance	(m)

Rehab. History: (Date/description)

1990 - Converted from a railway traffic bridge to a pedestrian bridge
2007 - Steel thickness measurements were completed and an evaluation for load capacity was completed
2008 - Additional steel thickness measurements completed to confirm web thickness
2014 / 2015 - Deteriorated timber planks and railing pickets replaced

Field Inspection Information:

Date of Inspection:	June 28, 2018	Type of Inspection: [X] OSIM	[ ] Enhanced OSIM
Inspector:	Kieran Ferguson		
Others in Party:	Scott Cahill		
Access Equipment Used:	Powered Watercraft		
Weather:	Overcast / Sunny		
Temperature:	24 °C		

Additional Investigations Required:

	Priority			Estimated Cost
	None	Normal	Urgent	
Material Condition Survey				
Detailed Deck Condition Survey:	X			
Non-destructive Delam. Survey of Asphalt-Covered Deck:	X			
Concrete Substructure Condition Survey:	X			
Detailed Coating Condition Survey:	X			
Detailed Timber Investigation:	X			
Post-Tensioned Strand Investigation:	X			
Underwater Investigation		X		$5,000.00
Fatigue Investigation	X			
Seismic Investigation	X			
Structure Evaluation:		X		$25,000.00
Monitoring (deformations, settlements, movements, crack widths)		X		$2,500.00
Load Posting - Estimated Load			Total Cost	$32,500.00

Investigation Notes:

Updated steel thickness measurements should be completed in order to check the continued deterioration and steel section loss. A follow up structure evaluation for posting should be completed to confirm suitability for pedestrian loads. Monitor Piers for signs of movement.

Overall Structure Notes:

Overall Comments:	The bridge consists of 2 Through Girder Spans, 1 Slab on Girder Span and, 9 Timber Trestle Spans. Timber Trestle Spans are in a generally good condition. The Steel spans have medium to severe corrosion and rust. Piers have severe deterioration and spalling.
Date of Next inspection:	2020

Overall Bridge Condition

% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIp)	
				BCIp	BCI
0%	32%	10%	0%	87.30	50.66

Overal Bridge Sufficiency

Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)
0	0	0	0	50.66

Element Data:

Element Group:	Decks	Length:	98.8
Element Name:	Wearing Surface	Width:	3.45
Location:	Entire Structure	Height:	0.05
Material:	2 x 10 Timber Planks	Count:	
Element Type:		Total Quantity:	340.86
Environment:	Moderate	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		255.65	85.22		

Comments: Previously deteriorated deck boards have been replaced and have since been in good condition. Boards along center of path have wear due to snowmobile use.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐	1 Year: ☐	2 Year: ☐

Element Photo:

Description of Photo: Photo 1 - Wearing Surface

Element Photo:

Description of Photo: Photo 2 - Wearing Surface

Element Photo:

Description of Photo: Photo 3 - Wearing Surface

Element Data:

Element Group:	Decks	Length:	4.4
Element Name:	Deck Top	Width:	0.2
Location:	Steel Spans	Height:	0.4
Material:	200 mm x 400 mm Timbers	Count:	205
Element Type:	Deck Beams	Total Quantity:	288.64
Environment:	Moderate	Limited Inspection:	X
Protection System:	Preservative Treatment		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m			288.64		

Comments: Deck beams appear to be in fair condition. Only minor deterioration noted. Exposed ends were inspected but middle sections were covered by timber deck planks. 74 timbers on east through girder structure, 88 on west through girder structure, and 43 on deck-on-girder centre span. Centre span timbers are in unknown condition due to due to limited access.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year:

Element Photo:

Description of Photo: Photo 4 - Deck Timbers

Element Photo:

Description of Photo: Photo 5 - Deck Timbers

Element Photo:

Description of Photo: Photo 6 - Deck Timbers

Element Data:

Element Group:	Sidewalks / Curbs	Length:	98.8
Element Name:	Curbs	Width:	0.4
Location:	North and South Side of Deck	Height:	0.125
Material:	400 mm x 125 mm x 3960 mm	Count:	2
Element Type:	Lumber	Total Quantity:	103.74
Environment:	Severe	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		23.74	50	30	8 - Pedestrian / vehicular hazard

Comments: Minor to severe weathering and section loss in multiple sections of curb on the north and south side. Tripping hazard and unsafe to pedestrians. 6m section of curb is missing. 2 curb timbers have fully disintegrated.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	9 - Repair of Bridge Timber
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐	1 Year: X	2 Year: ☐
			Remove and replace deteriorated curb sections.	

Element Photo:

Description of Photo: Photo 7 - Timber Curb

Element Photo:

Description of Photo: Photo 8 - Timber Curb

Element Photo:

Description of Photo: Photo 9 - Timber Curb

Element Data:

Element Group:	Barriers	Length:	48 (Lumber) and 50.8 (Steel)
Element Name:	Railing Systems	Width:	n/a
Location:	Entire Bridge Length	Height:	1.067 (Lumber) and 2.44 (Steel)
Material:	Steel and Lumber	Count:	2
Element Type:	Post and Steel Barriers	Total Quantity:	198
Environment:	Moderate	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		197	0.5	0.5	8 - Pedestrian / vehicular hazard

Comments: Timber railing system on slab on girder span and timber trestle spans in good condition overall. Some posts are splitting at bolt hole locations. Height satisfies requirement of 42" from deck for pedestrians but does not satisfy height for bicycles, or for snowmobiles when snow is present on deck. Steel through girder acts as railing system on through girder spans and is in generally good condition despite its weathered surface. Southeast quadrant has 4 missing timber posts and 1 damaged timber post.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	3 - Bridge Handrail Maintenance
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: / 1 Year: X / 2 Year:
				Increase height of timber rail to satisfy CHBDC.

EleIment Photo:

Description of Photo: Photo 10 - Railing

Element Photo:

Description of Photo: Photo 11 - Railing

Element Photo:

Description of Photo: Photo 12 - Railing

Element Data:

Element Group:	Coating	Length:	
Element Name:	Structural Steel	Width:	
Location:		Height:	
Material:	Steel	Count:	
Element Type:		Total Quantity:	812.5
Environment:	Severe	Limited Inspection:	X
Protection System:	Coating		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m			305	507.5	

Comments: Coating has failed across the majority of the steel throughout. The through girder elements were repainted by the Rotary Club in 2005 but areas susceptible to debris build-up and trapped moisture have failed. Failed coating at the base of stiffeners has caused them to corrode and break away.

Recommended Work:	Rehab: [X]	Replace: [ ]	Maintenance Needs:	2 - Bridge Cleaning
Urgent: [ ]	1-5 Years: [X]	6-10 Years: [ ]	None: [ ]	Urgent: [ ] 1 Year: [X] 2 Year: [ ]
Clean and recoat steel to prevent further corrosion.			Annual cleaning of bridge will extend life of coatings and steel.	

Element Photo:

Description of Photo: Photo 13 - Steel Coating

Element Data:

Element Group:	Abutments	Length:	5
Element Name:	Abutment Walls	Width:	
Location:	West Side of Bridge	Height:	1.2
Material:	Cast-in-place Concrete	Count:	1
Element Type:		Total Quantity:	8
Environment:	Moderate	Limited Inspection:	X
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m			6	2	

Comments: Concrete abutment has a rough weathered surface and a build up of debris on bearing seats. Moderate staining and efflorescence with some deterioration present. Severe spalls visible on ballast wall.

Ballast walls hidden behind end diaphragm - not inspected.

Recommended Work:	Rehab: [X]	Replace: [ ]	Maintenance Needs:	14 - Concrete Sealing
Urgent: [ ]	1-5 Years: [X]	6-10 Years: [ ]	None: [ ]	Urgent: [ ] 1 Year: [X] 2 Year: [ ]
Repair concrete			Clean and seal concrete.	

Element Photo:

Description of Photo: Photo 14 - West Abutment

Element Photo:

Description of Photo: Photo 15 - West Abutment

Element Photo:

Description of Photo:

Element Data:

Element Group:	Abutments	Length:	5
Element Name:	Abutment Walls	Width:	
Location:	East Side of Bridge	Height:	1.2
Material:	Timber	Count:	1
Element Type:		Total Quantity:	8
Environment:	Severe	Limited Inspection:	
Protection System:	Creosote		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m			7	1	

Comments: East abutment is made up of timber posts, timber cap, and lagging. Lagging is in fair condition. Ballast wall wood has become worn and is disintegrating. Bottom ballast timber has a 300mm x 100mm section missing.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	9 - Repair of Bridge Timber
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: ☐ 2 Year: X
			replace missing and damaged lagging in abutment and ballast wall	

Element Photo:

Description of Photo: Photo 16 - East Abutment

Element Photo:

Description of Photo: Photo 17 - East Abutment

Element Photo:

Description of Photo: Photo 18 - East Abutment

Element Data:

Element Group:	Abutments	Length:	
Element Name:	Bearings	Width:	
Location:	West Abutment	Height:	
Material:	Steel	Count:	2
Element Type:		Total Quantity:	2
Environment:	Severe	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each				2	5 - Seized bearings

Comments: Bearings have seized and are fully corroded with much debris accumulated. Siezed bearings are causing some minor deterioration of the girders and the concrete near the bearing seats.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	6 - Bridge Bearing Maintenance
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: X 2 Year: ☐
			Clean debris from bearing seats.	

Element Photo:

Description of Photo: Photo 19 - West Abutment Bearings

Element Photo:

Description of Photo: Photo 20 - West Abutment Bearings

Element Photo:

Description of Photo:

Element Data:

Element Group:	Abutments	Length:	2.4
Element Name:	Wingwalls	Width:	
Location:	West Side of Structure	Height:	1.2
Material:	Concrete	Count:	2
Element Type:	Reinforced Concrete	Total Quantity:	5.76
Environment:	Moderate	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		5.76			

Comments: Concrete has a rough surface but is in good condition overall.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:
Urgent:	1-5 Years:	6-10 Years:	None: X
			Urgent: 1 Year: 2 Year:

Element Photo:

Description of Photo: Photo 21 - Southwest Wingwall

Element Data:

Element Group:	Abutments	Length:	1.8
Element Name:	Wingwalls	Width:	
Location:	East Side of Structure	Height:	0.4 average
Material:	Timber	Count:	2
Element Type:		Total Quantity:	1.44
Environment:	Moderate	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m			1.44		

Comments: Top timbers are deteriorated and require replacement. Posts are in fair condition.

Recommended Work:	Rehab: [ ]	Replace: [X]	Maintenance Needs:	2 - Bridge Cleaning
Urgent: [ ]	1-5 Years: [X]	6-10 Years: [ ]	None: [ ]	Urgent: [ ] 1 Year: [X] 2 Year: [ ]
Replace top timber in wingwall at northeast and southeast quadrants.			Remove vegetation growth on wingwall to slow deterioration of timber	

Element Photo:

Description of Photo: Photo 22 - Southeast Wingwall

Element Photo:

Description of Photo: Photo 23 - Northeast Wingwall

Element Photo:

Description of Photo:

Element Data:

Element Group:	Retaining Walls	Length:	40
Element Name:	Walls	Width:	
Location:	Southwest	Height:	1.2
Material:	CIP Concrete	Count:	1
Element Type:	Reinforced Concrete	Total Quantity:	48
Environment:	Moderate	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		46	2		

Comments: Concrete appears in good condition. 1 large crack at structure connection. A wide vertical crack was found on a previous inspection but was hidden by vegetation.

Recommended Work:	Rehab: [X]	Replace: [ ]	Maintenance Needs:	
Urgent: [ ]	1-5 Years: [X]	6-10 Years: [ ]	None: [ ]	Urgent: [ ] 1 Year: [ ] 2 Year: [ ]
Crack repair.				

Element Photo:

Description of Photo: Photo 24 - Southwest Retaining Wall

Element Data:

Element Group:	Retaining Walls	Length:	10
Element Name:	Barrier Systems on Walls	Width:	n/a
Location:	Southwest	Height:	1.076
Material:	Timber	Count:	2
Element Type:		Total Quantity:	21.52
Environment:	Moderate	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m			11.52	10	8 - Pedestrian / vehicular hazard

Comments: 17 broken or missing posts in barrier system. 20m of top rail is missing. Several post anchors have become unattached.

Recommended Work:	Rehab: [X] Replace: [ ]	Maintenance Needs:	9 - Repair of Bridge Timber
Urgent: [X] 1-5 Years: [ ] 6-10 Years: [ ] None: [ ]		Urgent: [X] 1 Year: [ ] 2 Year: [ ]	
Replace missing and broken posts, and anchor.		Replace missing and broken pickets and top rail.	

Element Photo:

Description of Photo: Photo 25 - Timber Barrier

Element Photo:

Description of Photo: Photo 26 - Timber Barrier

Element Photo:

Description of Photo: Photo 27 - Timber Barrier

Element Data:

Element Group:	Accessories	Length:	
Element Name:	Signs	Width:	
Location:	East End	Height:	
Material:		Count:	1
Element Type:		Total Quantity:	1
Environment:	Benign	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each			1		

Comments: One sign in satisfactory condition although has been bent and damaged.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: ☐ 2 Year: ☐

Element Photo:

Description of Photo:

Photo 28 - Signs

Element Data:

Element Group:	Approaches	Length:	6
Element Name:	Wearing Surface	Width:	3
Location:	West and East End	Height:	unknown
Material:	Gravel	Count:	2
Element Type:		Total Quantity:	36
Environment:	Severe	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		36			

Comments: Approach surface is in generally good condition.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐	1 Year: ☐	2 Year: ☐

Element Photo:

Description of Photo: Photo 29 - West Approach

Element Photo:

Description of Photo: Photo 30 - East Approach

Element Photo:

Description of Photo:

Element Data:

Element Group:	Accessories	Length:	
Element Name:	Utilities (Lighting)	Width:	
Location:	Entire Structure	Height:	
Material:	Steel Light Posts	Count:	2
Element Type:		Total Quantity:	2
Environment:	Benign	Limited Inspection:	
Protection System:	Protective Coating		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each			2		

Comments: Posts appear to be in fair condtion. One light standard had a bottom housing and the other does not.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year:

Element Photo:

Description of Photo: Photo 31 - Light Standard

Element Photo:

Description of Photo: Photo 32 - Light Standard

Element Photo:

Description of Photo:

Element Data:

Element Group:	Accessories	Length:	
Element Name:	Electrical	Width:	
Location:	Entire Structure	Height:	
Material:	PVC	Count:	1
Element Type:		Total Quantity:	1
Environment:	Benign	Limited Inspection:	
Protection System:	Conduit		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each			1		16 - Other

Comments: Conduit support brackets have failed at west end and require repair.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	18 - Other
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: ☐	Urgent: X 1 Year: ☐ 2 Year: ☐
				Provide support to broken conduit.

Element Photo:

Description of Photo: Photo 33 - Broken Conduit

Element Data:

Element Group:	Approaches	Length:	3.1
Element Name:	Barriers	Width:	
Location:	NW, SW, NE, and SE Quadrants	Height:	
Material:	Lumber	Count:	
Element Type:		Total Quantity:	3.1
Environment:	Moderate	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		3.1			

Comments: Barrier on the southeast approach is good condition. No barriers are required on the west end due to the retaining wall barrier.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year:

Element Photo:

Description of Photo: Photo 34 - Southwest Approach Barrier

Element Photo:

Description of Photo: Photo 35 - No Northwest Barrier

Element Photo:

Description of Photo: Photo 36 - Southeast Approach Barrier

Element Data:

Element Group:	Beams	Length:	34.1
Element Name:	Main Beams	Width:	0.25
Location:	Timber Trestle Spans	Height:	0.4
Material:	Timber	Count:	8
Element Type:		Total Quantity:	354.64
Environment:	Severe	Limited Inspection:	
Protection System:	Creosote		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		354.65			

Comments: No deterioration noted on exposed timbers.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐	1 Year: ☐	2 Year: ☐

Element Photo:

Description of Photo: Photo 37 - Timber Beams

Element Photo:

Description of Photo: Photo 38 - Timber Beams

Element Photo:

Description of Photo:

Element Data:

Element Group:	Beams	Length:	4.6
Element Name:	Stringers	Width:	0.2
Location:	Timber Trestle Spans	Height:	0.2
Material:	Timber	Count:	114
Element Type:	Beams	Total Quantity:	428.64
Environment:	Severe	Limited Inspection:	
Protection System:	Creosote Treatment		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		428.64			

Comments: No deterioration noted on exposed timbers.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year:

Element Photo:

Description of Photo: Photo 39 - Stringer Beams

Element Photo:

Description of Photo: Photo 40 - Stringer Beams

Element Photo:

Description of Photo:

Element Data:

Element Group:	Piers	Length:	5
Element Name:	Pile Caps	Width:	0.35
Location:	Timber Trestle Spans	Height:	0.35
Material:	Timber	Count:	9
Element Type:		Total Quantity:	65.2
Environment:	Severe	Limited Inspection:	
Protection System:	Creosote		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		65.2			

Comments: 1 pile cap has a vertical split in its end. Timber is in good condition overall.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year:

Element Photo:

Description of Photo: Photo 41 - Pile Cap

Element Photo:

Description of Photo: Photo 42 - Pile Cap

Element Photo:

Description of Photo: Photo 43 - Pile Cap

Element Data:

Element Group:	Piers	Length:	5.9
Element Name:	Diagonal Bracing	Width:	0.075
Location:	Timber Trestle Spans	Height:	0.25
Material:	Timber	Count:	18
Element Type:		Total Quantity:	69
Environment:	Severe	Limited Inspection:	
Protection System:	Creosote		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		68	0.5	0.5	

Comments: One brace near east pier has significant damage and should be replaced.

Recommended Work:	Rehab: [X]	Replace: [ ]	Maintenance Needs:	
Urgent: [ ]	1-5 Years: [X]	6-10 Years: [ ]	None: [ ]	Urgent: [ ] 1 Year: [ ] 2 Year: [ ]
Replace damaged brace				

Element Photo:

Description of Photo: Photo 44 - Timber Bracing

Element Photo:

Description of Photo: Photo 45 - Timber Bracing

Element Photo:

Description of Photo:

Element Data:

Element Group:	Piers	Length:	
Element Name:	Bearings	Width:	
Location:		Height:	
Material:	Steel	Count:	10
Element Type:		Total Quantity:	10
Environment:	Severe	Limited Inspection:	X
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each			8	2	

Comments: Limited inspection due to height restriction. Deck on girder bearings appear to be severely deteriorated at east end. Some concrete spalling away and deteriorating near edges of bearings.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year:

Element Photo:

Description of Photo: Photo 46 - Pier Bearing

Element Photo:

Description of Photo: Photo 47 - Pier Bearing

Element Photo:

Description of Photo: Photo 48 - Pier Bearing

Element Data:

Element Group:	Piers	Length:	5
Element Name:	Shafts/Columns/Pile/Bents	Width:	3.5
Location:	West spans	Height:	4.83
Material:	Cast-in-place Concrete	Count:	3
Element Type:	Reinforced Concrete	Total Quantity:	246.33
Environment:	Severe	Limited Inspection:	X
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m			195.33	51.00	

Comments: Severe spalling and erosion of concrete. East pier has exposed rebar. Narrow to medium cracking with staining and efflorescence noted at all piers. Severe erosion at base of central pier at waterline.

Recommended Work:	Rehab: [X]	Replace: [ ]	Maintenance Needs:	
Urgent: [ ]	1-5 Years: [ ]	6-10 Years: [X]	None: [ ]	Urgent: [ ] 1 Year: [ ] 2 Year: [ ]

Abutments originally designed for railway loading - deterioration not anticipated to impact serviceabilty for a while. However, they should be monitored for movement if supported on cribs.

Element Photo:

Description of Photo: Photo 49 - Pier

Element Photo:

Description of Photo: Photo 50 - Pier

Element Photo:

Description of Photo: Photo 51 - Pier

Element Photo:

Description of Photo: Photo 52 - Pier

Element Photo:

Description of Photo: Photo 53 - Pier

Element Data:

Element Group:	Foundations	Length:	
Element Name:	Foundation (below ground level)	Width:	
Location:	West abutment and inwater piers	Height:	
Material:		Count:	
Element Type:	Unknown	Total Quantity:	
Environment:		Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	N/A		1			

Comments: East pier concrete is supported on timber cribs. No evidence of cribs deteriorating observed. West abutment foundation is not visible. There is no sign of movement. Upper timbers are exposed.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: ☒	Urgent: ☐ 1 Year: ☐ 2 Year: ☐

Element Photo:

Description of Photo: Photo 54 - Pier Foundation

Element Photo:

Description of Photo: Photo 55 - Pier Foundation

Element Photo:

Description of Photo: Photo 56 - Pier Foundation

Element Data:

Element Group:	Beams	Length:	14.3
Element Name:	Girders	Width:	0.43
Location:	Slab on Girder Spans	Height:	2.45
Material:	Steel	Count:	2
Element Type:		Total Quantity:	177
Environment:	Severe	Limited Inspection:	X
Protection System:	Paint		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		77		100	1 - Load carrying capacity

Comments: Web stiffener and bottom flanges have minor buckling throughout. Exposed web and bottom flanges have severe corrosion on surfaces with minimal section loss of steel.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year:

Element Photo:

Description of Photo: Photo 57 - Steel Girder

Element Photo:

Description of Photo: Photo 58 - Steel Girder

Element Photo:

Description of Photo: Photo 59 - Steel Girder

Element Data:

Element Group:	Beams	Length:	24 (average)
Element Name:	Girders	Width:	0.43
Location:	Through Girder Spans	Height:	2.45
Material:	Steel	Count:	4
Element Type:		Total Quantity:	635.5
Environment:	Severe	Limited Inspection:	X
Protection System:	Paint		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		475.5		160	1 - Load carrying capacity

Comments: Bottoms of stiffeners have generally eroded away with approximately 50% section loss. Lower ends of web stiffeners have 100% section loss due to corrosion. 100% section loss of stiffeners on north side of west through span. Not suspected to be an issue due to loads being limited to pedestrian and snowmobile loads.

Recommended Work:	Rehab: [X]	Replace: [ ]	Maintenance Needs:	
Urgent: [ ]	1-5 Years: [X]	6-10 Years: [ ]	None: [ ]	Urgent: [ ] 1 Year: [ ] 2 Year: [ ]
Clean and recoat structural steel				

Element Photo:

Description of Photo: Photo 60 - Steel through girder

Element Photo:

Description of Photo: Photo 61 - Steel through girder

Element Photo:

Description of Photo: Photo 62 - Steel through girder

Element Data:

Element Group:	Beams	Length:	3.96
Element Name:	Diaphragms	Width:	
Location:	Deck on Girder Span	Height:	2.45
Material:	Steel	Count:	5
Element Type:		Total Quantity:	5
Environment:	Severe	Limited Inspection:	X
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each			5		

Comments: Diaphragms have moderate corrosion throughout.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year:

Element Photo:

Description of Photo: Photo 63 - Steel Diaphragm

Element Photo:

Description of Photo: Photo 64 - Steel Diaphragm

Element Photo:

Description of Photo:

Element Data:

Element Group:	Beams	Length:	4.4
Element Name:	Floor Beams	Width:	
Location:	Through Girder Spans	Height:	
Material:	Steel	Count:	15
Element Type:		Total Quantity:	15
Environment:	Severe	Limited Inspection:	X
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		15			

Comments: Inaccesible for measurement. Moderate corroded surface throughout. No section loss of steel is visible.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐	1 Year: ☐	2 Year: ☐

Element Photo:

Description of Photo: Photo 65 - Steel Floor Beams

Element Photo:

Description of Photo: Photo 66 - Steel Floor Beams

Element Photo:

Description of Photo:

Element Data:

Element Group:	Embankments & Streams	Length:	
Element Name:	Embankments	Width:	
Location:	NW, SW, NE, and SE Quadrants	Height:	
Material:	Trees, Shrubs, and Earth	Count:	4
Element Type:	Vegetation	Total Quantity:	4
Environment:	Moderate	Limited Inspection:	
Protection System:	Vegetation		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		4			

Comments: No apparent material loss. Embankments are vegetated and appear stable.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: ☐ 2 Year: ☐

Element Photo:

Description of Photo: Photo 67 - Southwest Embankment

Element Photo:

Description of Photo: Photo 68 - Southeast Embankment

Element Photo:

Description of Photo: Photo 69 - East Embankment

Element Data:

Element Group:	Embankments & Streams	Length:	
Element Name:	Streams & Waterways	Width:	
Location:	North and South	Height:	
Material:		Count:	
Element Type:		Total Quantity:	1
Environment:	Benign	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	all	1				

Comments: Waterway is free flowing and is free of debris.

Recommended Work:	Rehab: ☐ Replace: ☐	Maintenance Needs:	
Urgent: ☐ 1-5 Years: ☐	6-10 Years: ☐ None: X	Urgent: ☐ 1 Year: ☐	2 Year: ☐

Element Photo:

Description of Photo:

Photo 70 - Waterway

Repair and Rehabilitation Required:			Priority				Estimated Structural Cost
Element[1]	Repair and Rehabilitation Required[2]		6 to 10 Years	1 to 5 Years	Within 1 Year	Urgent	
Demolition							
Replacement							
Beams/MLEs	Rehab. =	Clean and recoat		X			$400,000.00
Abutments	Rehab. =	Repair concrete		X			$12,000.00
Retaining Wall	Rehab. =	Repair concrete		X			$7,500.00
Retaining Wall Barrier	Rehab. =	Repair barrier				X	$2,000.00
Piers	Rehab. =	Repair concrete, replace deteriorated timbers	X				$500,000.00
Wingwalls	Rehab. =	Replace deteriorated timbers		X			$12,000.00
Estimated Rehabilitated or Replacement Structure Dimensions[3]							
Total Deck Length (m)		Overall Str. Width (m)				Total Structural Cost	$933,500.00

1 - Indicate specific costs for structure replacement OR for rehabilitation under the given headings.

2 - Give a very brief description of the rehabilitation work required.

3 - Estimated structure dimensions after completion of the proposed work - if it is expected to change.

Associated Work	Comments	Estimated Associated Work Cost
Approaches		
Detours	Trail Closure Signage	$1,000.00
Traffic Control		
Utilities		
Other	Engineering and Contingency	$100,000.00
	Mobilization / Demobilization, General, Insurance	$100,000.00
	Access / Dewatering / Environmental	$150,000.00
	Total Associated Work Cost	$351,000.00

Total Construction Cost	$1,284,500.00

Justification:
Main Structural Steel on through Girder and Deck on Girder spans has loss of coating with moderate to severe corrosion of the members and areas of localized section loss. Estimate 1-5 Years for sand blast and repainting of structural steel elements. Concrete abutment has surface defects and recomend rehabilitation work to extend life. Barrier on path at the southwest quadrant has deteriorated and requires repairs. Piers have deteriorated, especially around the waterline. Recommended budgeting for rehabilitation work to repair piers in 10 years. An underwater investigation is recommended to confirm the extent of repairs required.

Inventory Data:

Structure Name	Cascade Street Bridge No. 1								
Main Hwy/Road #	Cascade Street	On	X	Under		Crossing Type:	Navig. Water		Non-Navig. Water	X
							Rail		Road		Ped.		Other	
Road Name	Cascade Street								
Structure Location	0.095 km east of Water Street								
Latitude	45° 21' 01" N			Longitude	80° 01' 33" W				
Owner(s)	Town of Parry Sound	Heritage Designation:	Not Cons.	X	Cons./Not App.		List/Not Desig.		
			Desig./Not List		Desig. & List				
MTO Region	50 - Northeastern	Road Class:	Freeway		Arterial		Collector	X	Local	
MTO District	52 - Huntsville	Posted Speed	40		No. of Lanes	2			
Old County	44 - Parry Sound	AADT	Unknown		% Trucks	Unknown			
Geographic Twp.	452 - McDougall	Special Routes:	Transit		Truck		School		Bicycle	
Structure Type	4 - Box Beam Girder (Concrete)	Detour Length Around Bridge	2.2	(km)					
Total Deck Length	52.9 (m)	Fill on Structure	0	(m)					
Overall Str. Width	11.2 (m)	Skew Angle	0.0	(Degrees)					
Total Deck Area	592.5 (sq.m)	Direction of Structure	N-S						
Roadway Width	8.5 (m)	No. of Spans	2						
Span Lengths	26.45, 26.45 (m)								

Historical Data:

Year Built	1981	Year of Last Major Rehab.	2009	
Last OSIM Inspection	2015	Last Evaluation		
Last Enhanced OSIM Inspection		Current Load Limit	/ /	(tonnes)
Enhanced Access Equipment (ladder, boat, lift, etc.)		Load Limit By-Law #		
Last Underwater Inspection		By-Law Expiry Date		
Last Condition Survey		Min. Vertical Clearance		(m)

Rehab. History: (Date/description)

2009 - Conversion to semi-integral abutments, the removal of asphalt pavement and waterproofing, full depth and partial depth concrete removals, cast-in-place reinforced concrete, concrete patching, galvanic anodes, replacing damaged pedestrian railing panels, traffic control, steel beam guide rail, hot-mix asphalt paving, bridge deck waterproofing and other miscellaneous works.

Field Inspection Information:			
Date of Inspection:	June 28, 2018	Type of Inspection:	[X] OSIM [ ] Enhanced OSIM
Inspector:	Kieran Ferguson		
Others in Party:	None		
Access Equipment Used:	None		
Weather:	Overcast / Sunny		
Temperature:	24 °C		

Additional Investigations Required:	Priority			Estimated Cost
	None	Normal	Urgent	
Material Condition Survey				
Detailed Deck Condition Survey:	X			
Non-destructive Delam. Survey of Asphalt-Covered Deck:	X			
Concrete Substructure Condition Survey:	X			
Detailed Coating Condition Survey:	X			
Detailed Timber Investigation:	X			
Post-Tensioned Strand Investigation:	X			
Underwater Investigation	X			
Fatigue Investigation	X			
Seismic Investigation	X			
Structure Evaluation:	X			
Monitoring (deformations, settlements, movements, crack widths)	X			
Load Posting - Estimated Load			Total Cost	$0.00

Investigation Notes:

Overall Structure Notes:	
Overall Comments:	The bridge is in a generally very good condition. Minimal wear and tear. No major performance deficiencies.
Date of Next inspection:	2020

Overall Bridge Condition					
% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIp)	
				BCIp	BCI
0%	0%	0%	0%	100.00	71.73

Overal Bridge Sufficiency				
Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)
0	3	0	0	68.73

Element Data:

Element Group:	Decks	Length:	52.8
Element Name:	Wearing Surface	Width:	8.5
Location:	Deck	Height:	0.08
Material:	Asphalt	Count:	
Element Type:		Total Quantity:	448.8
Environment:	Severe	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		323.8	100	25	

Comments: Medium wear and abrasion in wheel ruts. Longitudinal and transverse cracking in middle of southbound lane. Rough, scoured surface throughout. Long but minor cracking along the centerline. 300mm x 300mm pothole.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	15 - Rout and Seal
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year: X
			Rout and seal cracks. Fill in depression at south end.	

Elelment Photo:

Description of Photo: Photo 1 - Wearing Surface

Element Photo:

Description of Photo: Photo 2 - Wearing Surface

Element Photo:

Description of Photo: Photo 3 - Wearing Surface

Element Data:

Element Group:	Decks	Length:	52.8
Element Name:	Deck Top	Width:	11.2
Location:	Deck	Height:	0.125
Material:	Concrete	Count:	
Element Type:		Total Quantity:	591.36
Environment:	Moderate	Limited Inspection:	X
Protection System:	Waterproofing and Asphalt Pavement		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		591.36			

Comments: Limited Inspection. Condition based on condition of asphalt wearing surface above the deck.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year:

Elelment Photo:

Description of Photo: Photo 4 - Deck Top

Element Data:

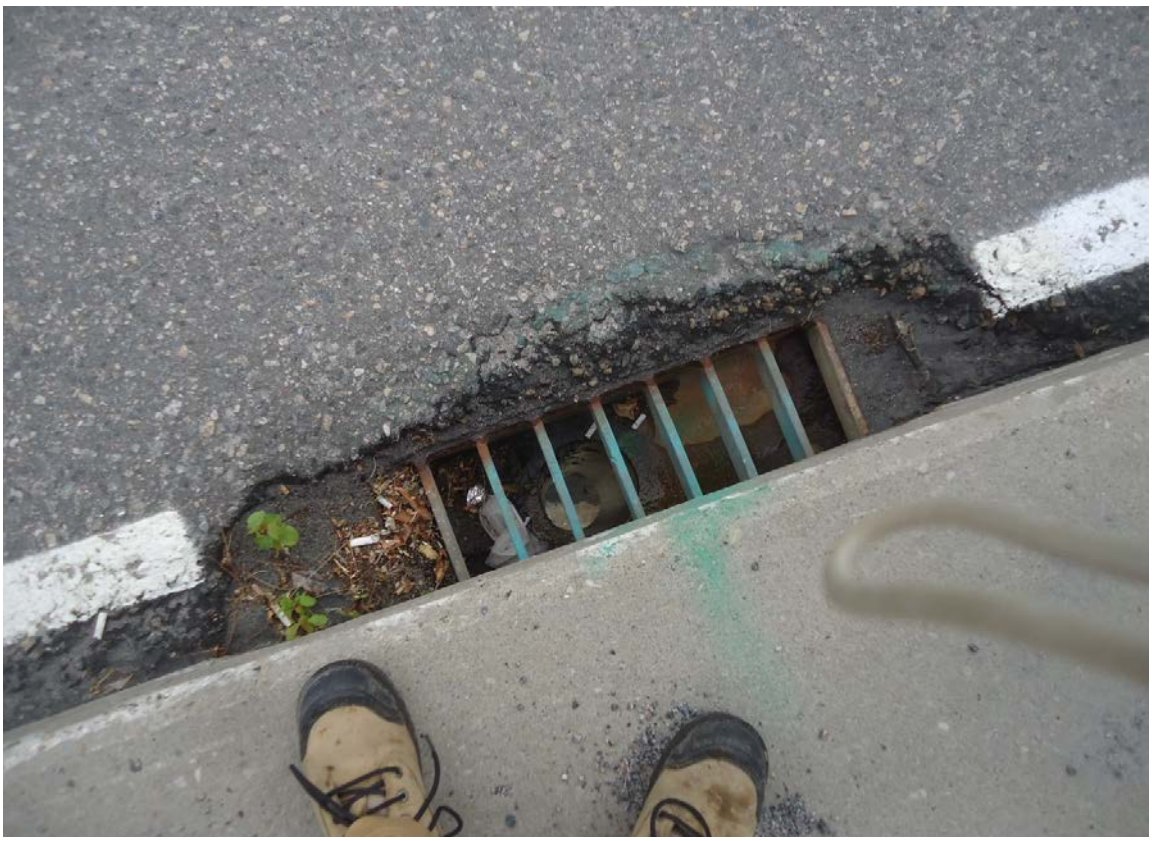
Element Group:	Decks	Length:	
Element Name:	Drainage System	Width:	
Location:	East and West Side	Height:	
Material:	Cast Iron Grate - CSP Pipe	Count:	
Element Type:		Total Quantity:	4
Environment:	Severe	Limited Inspection:	
Protection System:	Cast Iron Grate		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each			3	1	11 - Deck drainage

Comments: Asphalt in moderately poor condition around grate. The drains are in fair condition. Dirt and debris has clogged northeast drain. Other drain pipes appeared clear.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	2 - Bridge Cleaning
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: X 2 Year: ☐
			Clean out deck drains.	

Elelment Photo:



Description of Photo: Photo 5 - Drain

Element Photo:

Description of Photo: Photo 6 - Drain

Element Photo:

Description of Photo:

Element Data:

Element Group:	Sidewalks / Curbs	Length:	52.8
Element Name:	Sidewalks	Width:	1.8
Location:	East Side of Bridge	Height:	0.15
Material:	Concrete	Count:	1
Element Type:		Total Quantity:	102.96
Environment:	Severe	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		90	12.96		

Comments: Generally fair-to-good condition. 0.5 m long transverse crack at the south connection between deck and approach. Minor abrasion along edge. 2 cracks full width of sidewalk 3 m north of north drain. Longitudinal crack 1.2 m long 0.6 m from north connection between deck and approach. Minor scrapes and gouges throughout. Light rebar staining and some heavy cracking at north end. 300mm x 500mm delamination. Some map cracking along curb.

Recommended Work:	Rehab: [X]	Replace: [ ]	Maintenance Needs:	
Urgent: [ ]	1-5 Years: [X]	6-10 Years: [ ]	None: [ ]	Urgent: [ ] 1 Year: [ ] 2 Year: [ ]
Concrete repair				

Elelment Photo:

Description of Photo: Photo 7 - East Sidewalk

Element Photo:

Description of Photo: Photo 8 - East Sidewalk

Element Photo:

Description of Photo: Photo 9 - East Sidewalk

Element Data:

Element Group:	Sidewalks / Curbs	Length:	52.8
Element Name:	Curbs	Width:	0.9
Location:	West Side of Bridge	Height:	0.15
Material:	Concrete	Count:	1
Element Type:		Total Quantity:	55.44
Environment:	Severe	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		53	2.44		

Comments: Minor abrasion along length. In good condition overall. Minor rust staining.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐	1 Year: ☐	2 Year: ☐

Elelment Photo:

Description of Photo:

Photo 10 - West Curb

Element Photo:

Description of Photo: Photo 11 - West Curb

Element Photo:

Description of Photo: Photo 12 - West Curb

Element Data:

Element Group:	Barriers	Length:	2.4
Element Name:	Railing Systems	Width:	
Location:	East and West Side	Height:	1.12
Material:	Aluminum	Count:	50
Element Type:	4 Rail Metal Railing - Aluminum	Total Quantity:	120
Environment:	Severe	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		100	19	1	8 - Pedestrian / vehicular hazard

Comments: West side is in excellent condition with the exception of 2 small dents. Recent welded connection between aluminum rail units. East side has some minor abrasion and scraping and one small dent.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐	1 Year: ☐	2 Year: ☐

Elelment Photo:

Description of Photo:

Photo 13 - Railing

Element Photo:

Description of Photo: Photo 14 - Railing

Element Photo:

Description of Photo: Photo 15 - Railing

Element Data:

Element Group:	Abutments	Length:	
Element Name:	Abutment Walls	Width:	11.1
Location:	North and South	Height:	4.3
Material:	Concrete	Count:	2
Element Type:		Total Quantity:	95.46
Environment:	Moderate	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		90	5.46		

Comments: North: 2 - 3 mm (+/-) cracks from footing to new concrete at bearing located in the middle and on the west side of the wall (based on previous assessment). South: 3 - 3 mm (+/-) cracks from footing to new concrete at bearing evenly spaced across wall. Middle crack continues into footing. North wall has a moderately scoured surface at the bottom of the wall.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: ☐ 2 Year: ☐

Elelment Photo:

Description of Photo: Photo 16 - North Abutment

Element Photo:

Description of Photo: Photo 17 - North Abutment

Element Photo:

Description of Photo: Photo 18 - South Abutment

Element Data:

Element Group:	Abutments	Length:	6.65
Element Name:	Wingwalls	Width:	n/a
Location:	All Quadrants	Height:	4.3
Material:	CIP Concrete	Count:	4
Element Type:	Reinforced Concrete	Total Quantity:	114.38
Environment:	Moderate	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		50	60	4.38	

Comments: Northwest and northeast have many moderate transverse cracks and water staining. South wingwalls are in better condition.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: ☒	Urgent: ☐ 1 Year: ☐ 2 Year: ☐

Elelment Photo:

Description of Photo: Photo 19 - Northeast Wingwall

Element Photo:

Description of Photo: Photo 20 - Northwest Wingwall

Element Photo:

Description of Photo: Photo 21 - Southwest Wingwall

Element Data:

Element Group:	Foundations	Length:	n/a
Element Name:	Foundation (below ground level)	Width:	n/a
Location:	North and South	Height:	n/a
Material:	Concrete	Count:	n/a
Element Type:	Spread footing	Total Quantity:	n/a
Environment:	Moderate	Limited Inspection:	X
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	N/A		1	1		

Comments: North foundation has a very scoured surface with several minor vertical cracks. South foundation has several minor vertical cracks. Partially visible.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:
Urgent:	1-5 Years:	6-10 Years:	None: X
Urgent:	1 Year:	2 Year:	

Elelment Photo:

Description of Photo: Photo 22 - North Foundation

Element Photo:

Description of Photo: Photo 23 - North Foundation

Element Photo:

Description of Photo: Photo 24 - South Foundation

Element Data:

Element Group:	Embankments & Streams	Length:	
Element Name:	Streams & Waterways	Width:	
Location:	East and West	Height:	
Material:	Bedrock	Count:	
Element Type:		Total Quantity:	All
Environment:	Severe	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	all		X			

Comments: Very minor erosion at north abutment wall and on west side of pier.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐	1 Year: ☐	2 Year: ☐

Elelment Photo:

Description of Photo: Photo 25 - Waterway

Element Data:

Element Group:	Embankments & Streams	Length:	
Element Name:	Embankments	Width:	
Location:	SW, SE, and NW Quadrants	Height:	
Material:	Trees, Shrubs, Earth	Count:	3
Element Type:	Vegetation	Total Quantity:	3
Environment:	Benign	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		2	1		

Comments: All three embankments are heavily vegetated. Some moderate erosion on northwest quadrant. No embankment present on northeast

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	13 - Erosion Control at Bridges
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: ☐ 2 Year: X
			Provide slope protection	

Elelment Photo:

Description of Photo: Photo 26 - Northwest Embankment

Element Photo:

Description of Photo: Photo 27 - Northeast Embankment

Element Photo:

Description of Photo: Photo 28 - South Embankment

Element Data:

Element Group:	Approaches	Length:	6.85
Element Name:	Wearing Surface	Width:	8.5
Location:	North and South	Height:	0.09
Material:	Asphalt	Count:	2
Element Type:		Total Quantity:	116.45
Environment:	Severe	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		100	16.45		

Comments: North approach has 4 transverse cracks, full width and filled with sealant. South approach has 1 transverse joint sealed.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐	1 Year: ☐	2 Year: ☐

Elelment Photo:

Description of Photo: Photo 29 - Approach Wearing Surface

Element Photo:

Description of Photo: Photo 30 - Approach Wearing Surface

Element Photo:

Description of Photo:

Element Data:

Element Group:	Approaches	Length:	600 mm
Element Name:	Drainage	Width:	600 mm
Location:	North and South	Height:	
Material:	Concrete	Count:	4
Element Type:	600 mm x 600 mm Catchbasin	Total Quantity:	4
Environment:	Severe	Limited Inspection:	
Protection System:	Cast Iron Frame and Grate		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		4			

Comments: Debris has collected at the side of the road around the catchbasin inlets. Asphalt has chipped away around each catchbasin.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	2 - Bridge Cleaning
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: X 2 Year: ☐
			Clean bridge and approach	

Elelment Photo:

Description of Photo: Photo 31 - Catchbasin

Element Photo:

Description of Photo: Photo 32 - Catchbasin

Element Photo:

Description of Photo: Photo 33 - Catchbasin

Element Data:

Element Group:	Approaches	Length:	6.85
Element Name:	Curb/Gutters	Width:	
Location:	West	Height:	0.14
Material:	Concrete	Count:	2
Element Type:		Total Quantity:	13.7
Environment:	Severe	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		13.6	0.1		

Comments: Overall good condition. 150mm long chip in new concrete at north end. Minor chipping in curb at joint/wingwall connection.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	8 - Repair of Bridge Concrete
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: X 2 Year: ☐
			Patch concrete.	

Elelment Photo:

Description of Photo: Photo 34 - Northwest Approach Curb

Element Data:

Element Group:	Approaches	Length:	6.85
Element Name:	Sidewalk	Width:	1.8
Location:	East Side	Height:	0.14
Material:	Concrete	Count:	2
Element Type:	Solid Slab	Total Quantity:	26.578
Environment:	Severe	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		15	11.575		

Comments: Sidewalk is in generally good condition. Minor scrapes and gouges throughout. Light rebar staining and some heavy cracking at north end. Some map cracking along curb.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: ☒	Urgent: ☐	1 Year: ☐	2 Year: ☐

Elelment Photo:

Description of Photo: Photo 35 - Northeast Approach Sidewalk

Element Photo:

Description of Photo: Photo 36 - Southeast Approach Sidewalk

Element Photo:

Description of Photo:

Element Data:

Element Group:	Accessories	Length:	
Element Name:	Utilities	Width:	0.075
Location:	Overhead/East Side	Height:	
Material:		Count:	2
Element Type:	Rigid PVC Conduit	Total Quantity:	2
Environment:	Benign	Limited Inspection:	X
Protection System:	Conduit		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		2			

Comments: Overhead hydro and electical conduit along east side of bridge appear to be in good condition. Light poles appear satisfactory. Utility coverings have been replaced.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year:

Elelment Photo:

Description of Photo: Photo 37 - Utility Cover

Element Data:

Element Group:	Approaches	Length:	46
Element Name:	Barriers	Width:	
Location:	NW, SE, and SW Quadrants	Height:	
Material:	Steel	Count:	
Element Type:	Steel Beam Guide Rail on Steel Posts	Total Quantity:	46
Environment:	Severe	Limited Inspection:	
Protection System:	Galvanized		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		22		24	8 - Pedestrian / vehicular hazard

Comments: Northwest rail is in good condition. No guide rail at northeast approach. Southwest has 1 very damaged end termination and has 5 dents. The end terminal has deficient height and end block is sideways. Southeast has 1 end termination and 1 connection has deficient height.

Recommended Work:	Rehab: [X]	Replace: [ ]	Maintenance Needs:	
Urgent: [X]	1-5 Years: [ ]	6-10 Years: [ ]	None: [ ]	Urgent: [ ] 1 Year: [ ] 2 Year: [ ]
Replace damaged guide rail sections and install end treatments at the south approach.				

Elelment Photo:

Description of Photo: Photo 38 - Southeast Approach Rail

Element Photo:

Description of Photo: Photo 39 - Southwest Approach Rail

Element Photo:

Description of Photo: Photo 40 - Northwest Approach Rail

Element Data:

Element Group:	Approaches	Length:	6.85
Element Name:	Slabs	Width:	8.5
Location:	North and South	Height:	0.255
Material:	Concrete	Count:	2
Element Type:	Solid Slab	Total Quantity:	116.45
Environment:	Moderate	Limited Inspection:	X
Protection System:	Asphalt Wearing Surface		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		116.45			

Comments: Approach slabs appear to be in satisfactory condition with minimal adverse effects to the asphalt wearing surface. Cacking of asphalt at end of approach slab.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	15 - Rout and Seal
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐	1 Year: X	2 Year: ☐
			Rout and Seal	

Elelment Photo:

Description of Photo: Photo 41 - Approach Slab

Element Data:

Element Group:	Beams/Main Longitudinal Elements	Length:	26.45
Element Name:	Girders	Width:	1.2
Location:	Below Deck	Height:	0.838
Material:	Concrete	Count:	16
Element Type:	Beam	Total Quantity:	298.3
Environment:	Moderate	Limited Inspection:	
Protection System:	Deck and Asphalt Wearing Surface		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		298.3			

Comments: Girders in good condition overall. Some light rebar staining along edge of abutments, and hairline cracks

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year:

Elelment Photo:

Description of Photo: Photo 42 - Underside of Girders

Element Photo:

Description of Photo: Photo 43 - Underside of Girders

Element Photo:

Description of Photo:

Element Data:

Element Group:	Piers	Length:	
Element Name:	Bearings	Width:	
Location:	Pier	Height:	
Material:		Count:	8
Element Type:		Total Quantity:	8
Environment:	Moderate	Limited Inspection:	X
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		8			

Comments: Not accessible for inspection. Appears to be in good condition.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐	1 Year: ☐	2 Year: ☐

Elelment Photo:

Description of Photo: Photo 44 - Pier Bearings

Element Data:

Element Group:	Piers	Length:	1
Element Name:	Shaft/Column	Width:	9
Location:	Center of Bridge	Height:	6.15
Material:	Concrete	Count:	1
Element Type:		Total Quantity:	123
Environment:	Moderate	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		122.5	0.5		

Comments: Vertical cracks in middle of footing and half way up on column on north side. 2 vertical cracks on south side, one in center and one on west starting in footing and going half way up column. The pier is in good condition overall. Foundation has a scoured surface but has no damage.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year:

Elelment Photo:

Description of Photo: Photo 45 - Pier

Element Photo:

Description of Photo: Photo 46 - Pier

Element Photo:

Description of Photo:

Element Data:

Element Group:	Retaining Wall	Length:	10
Element Name:	Wall	Width:	
Location:	SW Embankment	Height:	1.2
Material:	Gabion Baskets	Count:	1
Element Type:	Rock	Total Quantity:	12
Environment:	Moderate	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		12			

Comments: There appears to be no settlement, shifting, or sliding.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐	1 Year: ☐	2 Year: ☐

Elelment Photo:

Description of Photo: Photo 47 - Gabion Retaining Wall

Repair and Rehabilitation Required:		Priority				Estimated Structural Cost
Element[1]	Repair and Rehabilitation Required[2]	6 to 10 Years	1 to 5 Years	Within 1 Year	Urgent	
Demolition						
Replacement						
Sidewalk	concrete repair		X			$5,000.00
Estimated Rehabilitated or Replacement Structure Dimensions[3]						
Total Deck Length (m)	Overall Str. Width (m)				Total Structural Cost	$5,000.00

1 - Indicate specific costs for structure replacement OR for rehabilitation under the given headings.

2 - Give a very brief description of the rehabilitation work required.

3 - Estimated structure dimensions after completion of the proposed work - if it is expected to change.

Associated Work[4]	Comments	Estimated Associated Work Cost
Approaches	Replace damaged sections, install end treatment	$10,000.00
Detours		
Traffic Control		$2,500.00
Utilities		
Other	Engineering and Contingency	$10,000.00
	Mobilization/Demobilization, General, Insurance	$10,000.00
	Total Associated Work Cost	$32,500.00

Total Construction Cost	$37,500.00

Justification:
Damaged guide rail sections should be replaced and an end treatment installed. Concrete repair will extend the life of the sidewalk.

Inventory Data:

Structure Name	Cascade Street Bridge No. 2						
Main Hwy/Road #	Cascade Street	On [X]	Under [ ]	Crossing Type:	Navig. Water [ ]	Non-Navig. Water [X]	
					Rail [ ]	Road [ ]	Ped. [ ] Other [ ]
Road Name	Cascade Street						
Structure Location	0.019 km east of Water Street						
Latitude	45° 21' 02" N			Longitude	80° 01' 35" W		
Owner(s)	Town of Parry Sound			Heritage Designation:	Not Cons. [X]	Cons./Not App. [ ]	List/Not Desig. [ ]
					Desig./Not List [ ]	Desig. & List [ ]	
MTO Region	50 - Northeastern			Road Class:	Freeway [ ]	Arterial [ ]	Collector [ ] Local [X]
MTO District	52 - Huntsville			Posted Speed	Not Posted	No. of Lanes	2
Old County	44 - Parry Sound			AADT	Unknown	% Trucks	Unknown
Geographic Twp.	452 - McDougall			Special Routes:	Transit [ ]	Truck [ ]	School [ ] Bicycle [ ]
Structure Type	15 - Rigid Frame - Vertical Legs			Detour Length Around Bridge	2.2	(km)	
Total Deck Length	11.5	(m)		Fill on Structure	0	(m)	
Overall Str. Width	11.2	(m)		Skew Angle	10.0	(Degrees)	
Total Deck Area	128.8	(sq.m)		Direction of Structure	N-S		
Roadway Width	8	(m)		No. of Spans	1		
Span Lengths	10	(m)					

Historical Data:

Year Built	1984	Year of Last Major Rehab.	unknown	
Last OSIM Inspection	2015	Last Evaluation		
Last Enhanced OSIM Inspection		Current Load Limit	/ /	(tonnes)
Enhanced Access Equipment (ladder, boat, lift, etc.)		Load Limit By-Law #		
Last Underwater Inspection		By-Law Expiry Date		
Last Condition Survey		Min. Vertical Clearance	3.6	(m)

Rehab. History: (Date/description)

Field Inspection Information:

Date of Inspection:	June 28, 2018	Type of Inspection:	[X] OSIM [ ] Enhanced OSIM
Inspector:	Kieran Ferguson		
Others in Party:	None		
Access Equipment Used:	None		
Weather:	Overcast / Sunny		
Temperature:	24 °C		

Additional Investigations Required:

	Priority			Estimated Cost
	None	Normal	Urgent	
Material Condition Survey				
Detailed Deck Condition Survey:	X			
Non-destructive Delam. Survey of Asphalt-Covered Deck:	X			
Concrete Substructure Condition Survey:	X			
Detailed Coating Condition Survey:	X			
Detailed Timber Investigation:	X			
Post-Tensioned Strand Investigation:	X			
Underwater Investigation	X			
Fatigue Investigation	X			
Seismic Investigation	X			
Structure Evaluation:	X			
Monitoring (deformations, settlements, movements, crack widths)	X			
Load Posting - Estimated Load			Total Cost	$0.00

Investigation Notes:

Overall Structure Notes:

Overall Comments:	The bridge is generally in good condition. Footings and wingwalls have cracks that require sealing. The exposed foundation should be protected against further erosion. Repairs to asphalt surface in future, guide rail requires upgrades to satisfy MTO standards. The deck surface, catchbasins and gutters should be cleaned to improve drainage.
Date of Next inspection:	2020

Overall Bridge Condition

% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIp)	
				BCIp	BCI
0%	0%	3%	2%	99.29	71.72

Overal Bridge Sufficiency

Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)
0	3	0	0	68.72

Element Data:

Element Group:	Decks	Length:	11.2
Element Name:	Wearing Surface	Width:	8.5
Location:	Entire Deck Area	Height:	0.09
Material:	Asphalt	Count:	1
Element Type:		Total Quantity:	95.2
Environment:	Severe	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		68	16	11.2	9 - Rough riding surface

Comments: General ravelling at edge of pavement on east and west side. Minor abrasion under wheel load with exposed aggregate. Debris from the road has collected in the gutters. Asphalt has rough scoured surface throughout. 1 moderate longitudinal crack and 3 minor transverse cracks.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	15 - Rout and Seal
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: / 1 Year: X / 2 Year:
				Rout and seal asphalt cracks. Clean off bridge deck.

Elelment Photo:

Description of Photo: Photo 1 - Wearing Surface

Element Photo:

Description of Photo: Photo 2 - Wearing Surface

Element Photo:

Description of Photo: Photo 3 - Wearing Surface

Element Data:

Element Group:	Decks	Length:	11.2
Element Name:	Deck Top	Width:	8.5
Location:	Entire Deck Top	Height:	varies
Material:	Concrete	Count:	1
Element Type:	Solid Slab	Total Quantity:	95.2
Environment:	Moderate	Limited Inspection:	X
Protection System:	Asphalt		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		95.2			

Comments: Not visible. Deck appears to be in good condition based on asphalt condition

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year:

Elelment Photo:

Description of Photo:

Photo 4 - Deck Top

Element Data:

Element Group:	Decks	Length:	10.15
Element Name:	Soffit - Thick Slab	Width:	11.2
Location:	Entire Deck Soffit	Height:	Varies
Material:	Concrete	Count:	1
Element Type:	Solid Slab	Total Quantity:	113.68
Environment:	Moderate	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		103.68	10		

Comments: Five minor cracks on west fascia. Four minor cracks on east fascia. Five longitudinal and two transverse on soffit. Concrete Is in good condition overall.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐	1 Year: ☐	2 Year: ☐

EleIment Photo:

Description of Photo: Photo 5 - Soffit

Element Photo:

Description of Photo: Photo 6 - Soffit

Element Photo:

Description of Photo: Photo 7 - Soffit

Element Data:

Element Group:	Decks	Length:	
Element Name:	Drainage System	Width:	
Location:	Entire Deck Area	Height:	
Material:		Count:	1
Element Type:		Total Quantity:	1
Environment:	Severe	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	all		X			

Comments: No deck drains. Drainage provided by surface sheet flow. Sediiment buildup along curb throughout.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	2 - Bridge Cleaning
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: X 2 Year:
				Clean bridge surfaces.

Elelment Photo:

Description of Photo: Photo 8 - Sand Buildup

Element Data:

Element Group:	Sidewalks and Curbs	Length:	11.2
Element Name:	Sidewalks	Width:	1.35
Location:	East and West Side of Deck	Height:	0.14
Material:	Concrete	Count:	2
Element Type:	Solid Slab	Total Quantity:	33.38
Environment:	Severe	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		30	3.38		

Comments: West sidewalk has lots of sand, a full width crack 2 m south of north joint. Generally excellent/good condition. East sidewalk has minor scraping at edge along entire length and 2 half sidewalk width cracks. Some moderate scouring on vertical curb surface. Some light rebar staining throughout the east side.

Recommended Work:	Rehab: ☐ Replace: ☐	Maintenance Needs:	2 - Bridge Cleaning
Urgent: ☐ 1-5 Years: ☐ 6-10 Years: ☐ None: X		Urgent: ☐ 1 Year: X 2 Year: ☐	
		Clean sidewalks.	

Elelment Photo:

Description of Photo: Photo 9 - West Side - Wide Curb

Element Photo:

Description of Photo: Photo 10 - East Sidewalk

Element Photo:

Description of Photo: Photo 11 - East Sidewalk

Element Data:

Element Group:	Barriers	Length:	2.4
Element Name:	Railing Systems	Width:	
Location:	East and West Side of Deck	Height:	1.12
Material:	Aluminum	Count:	12
Element Type:	4 Rail Metal Railing - Aluminum	Total Quantity:	28.8
Environment:	Severe	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		25.8	2.5	0.5	8 - Pedestrian / vehicular hazard

Comments: West side railing system is in good condition. East side has minor scraping of all 4 rails entire length, north end missing cap on second lowest rail. 1 damaged cap. 1 dent on east side.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	3 - Bridge Handrail Maintenance
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: X 2 Year: ☐
			Replace missing end cap.	

EleIment Photo:

Description of Photo:

Photo 12 - Barrier

Element Photo:

Description of Photo: Photo 13 - Barrier

Element Photo:

Description of Photo: Photo 14 - Barrier

Element Data:

Element Group:	Abutments	Length:	
Element Name:	Abutment Walls	Width:	11.33
Location:	North and South	Height:	5.1
Material:	Concrete	Count:	2
Element Type:		Total Quantity:	115.57
Environment:	Moderate	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		109.57	6		

Comments: Three vertical cracks on the north abutment wall and seven vertical cracks on the south abutment wall. Minor scour and minor exposed aggregate throughout. Lower south wall has a large diagonal crack at footing, a 25 mm wide crack at center of footing with severe scour and exposed aggregate at both ends of the footings. Moisture staining of the surface above the waterline.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: ☒	Urgent: ☐ 1 Year: ☐ 2 Year: ☐

Elelment Photo:

Description of Photo: Photo 15 - South Abutment

Element Photo:

Description of Photo: Photo 16 - North Abutment

Element Photo:

Description of Photo:

Element Data:

Element Group:	Abutments	Length:	6.7
Element Name:	Wingwalls	Width:	
Location:	All Quadrants	Height:	4.94
Material:	Concrete	Count:	4
Element Type:	Wall	Total Quantity:	132.39
Environment:	Moderate	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		113.39	15	4	

Comments: Caulking at the northwest wingwall joint is gone. 50% of caulking of the southwest wingwall joint is gone, minor scour at the bottom of the wall and a diagonal crack. Southeast has minor cracking for the entire height at the center of the wall and minor scour at the bottom. All wingwalls have a large horizontal crack the width of the abutment wall at the top of wingwall and bearing seat. The concrete on all walls is generally in good condition.

Recommended Work:	Rehab: [X]	Replace: [ ]	Maintenance Needs:	
Urgent: [ ]	1-5 Years: [X]	6-10 Years: [ ]	None: [ ]	Urgent: [ ] 1 Year: [ ] 2 Year: [ ]
Repair horizontal crack at wingwall and bearing seat and install joint sealant.				

Elelment Photo:

Description of Photo: Photo 17 - Northwest Wingwall

Element Photo:

Description of Photo: Photo 18 - Northeast Wingwall

Element Photo:

Description of Photo: Photo 19 - Southeast Wingwall

Element Data:

Element Group:	Foundations	Length:	
Element Name:	Foundation (below ground level)	Width:	
Location:	South and North	Height:	
Material:	Concrete	Count:	
Element Type:	Spread Footing	Total Quantity:	
Environment:	Severe	Limited Inspection:	X
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	N/A					

Comments: Some erosion exists along the base of the abutment walls where water is ponding. Concrete has a scoured surface overall.

Recommended Work:	Rehab: [X] Replace: [ ]	Maintenance Needs:	
Urgent: [ ] 1-5 Years: [X] 6-10 Years: [ ] None: [ ]		Urgent: [ ] 1 Year: [ ] 2 Year: [ ]	
Provide steel plate with sealed perimeter against the footing at the south abutment and wingwalls to minimize scour rate.			

EleIment Photo:

Description of Photo: Photo 20 - North Foundation

Element Photo:

Description of Photo: Photo 21 - South Foundation

Element Photo:

Description of Photo:

Element Data:

Element Group:	Embankments & Streams	Length:	
Element Name:	Streams & Waterways	Width:	
Location:	East and West	Height:	
Material:	Exposed Bedrock	Count:	
Element Type:		Total Quantity:	
Environment:	Benign	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	all		X			

Comments: Channel consists of exposed bedrock and appears to be used as an overflow for an upstream dam. Minimal flow most of the time.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: ☐ 2 Year: ☐

EleIment Photo:

Description of Photo: Photo 22 - Waterway

Element Data:

Element Group:	Embankments & Streams	Length:	
Element Name:	Embankments	Width:	
Location:	NE and NW Quadrants	Height:	
Material:	Vegetation, shrubs, earth	Count:	2
Element Type:		Total Quantity:	2
Environment:	Moderate	Limited Inspection:	
Protection System:	Stone Protection		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each	2				

Comments: No signs of erosion or migration of material.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: ☐ 2 Year: ☐

Element Photo:

Description of Photo: Photo 23 - Northwest Embankment

Element Data:

Element Group:	Embankments & Streams	Length:	
Element Name:	Slope Protection	Width:	
Location:	NE and NW Quadrants	Height:	
Material:	150mm - 300mm Rip Rap	Count:	2
Element Type:	Hand Laid Rip Rap	Total Quantity:	2
Environment:	Benign	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each	2				

Comments: Excellent slope protection and condition.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:
Urgent:	1-5 Years:	6-10 Years:	None: X
Urgent:	1 Year:	2 Year:	

Elelment Photo:

Description of Photo: Photo 24 - Northeast Slope Protection

Element Data:

Element Group:	Retaining Wall	Length:	15
Element Name:	Wall	Width:	
Location:	SW Quadrant	Height:	1.8
Material:	Mortar and Stone	Count:	1
Element Type:		Total Quantity:	27
Environment:	Benign	Limited Inspection:	X
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		20	7		

Comments: Retaining wall part of hydro facility. Appears to be abandoned without any maintenance. Wall appears to be serving its purpose and does not appear to be sliding or moving. Some significant loss of mortar between stone units and moderate efflorescence.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year:

Elelment Photo:

Description of Photo: Photo 25 - Southwest Retaining Wall

Element Photo:

Description of Photo: Photo 26 - Southwest Reataining Wall

Element Photo:

Description of Photo: Photo 27 - Southwest Retaining Wall

Element Data:

Element Group:	Accessories	Length:	
Element Name:	Signs	Width:	
Location:	Northwest Approach	Height:	
Material:	Steel	Count:	1
Element Type:		Total Quantity:	1
Environment:	Benign	Limited Inspection:	
Protection System:	Galvanized		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each			1		

Comments: Bridge Freezes sign appears to be in a satisfactory condition. Tab portion has minor map cracking.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐	1 Year: ☐	2 Year: ☐

EleIment Photo:

Description of Photo: Photo 28 - Sign

Element Data:

Element Group:	Approaches	Length:	5.3
Element Name:	Wearing Surface	Width:	8.5
Location:	North and South	Height:	0.09
Material:	Asphalt	Count:	2
Element Type:		Total Quantity:	90
Environment:	Severe	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		40	47	3	

Comments: North Side west gutter asphalt is +/- 50 mm higher than gutter and northbound lane contains transverse cracks and a small pot hole. South Side has minor transverse cracks in northbound lane.

Recommended Work:	Rehab: [X]	Replace: [ ]	Maintenance Needs:	**15 - Rout and Seal**
Urgent: [ ]	1-5 Years: [ ]	6-10 Years: [X]	None: [ ]	Urgent: [ ] 1 Year: [X] 2 Year: [ ]
Resurface asphalt pavement.			Rout and seal asphalt cracks.	

EleIment Photo:

Description of Photo: Photo 29 - South Approach Surface

Element Photo:

Description of Photo: Photo 30 - North Approach Surface

Element Photo:

Description of Photo:

Element Data:

Element Group:	Approaches	Length:	
Element Name:	Drainage	Width:	
Location:	North and South	Height:	
Material:	600mm x 600mm Catch Basin	Count:	3
Element Type:		Total Quantity:	3
Environment:	Severe	Limited Inspection:	
Protection System:	Cast Iron Grate		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		3			

Comments: Catchbasins located at northeast, southeast and southwest approaches. They appear to be in good condition and performing as intended.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	2 - Bridge Cleaning
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: X 2 Year:
			Clean approaches.	

EleIment Photo:

Description of Photo: Photo 31 - Catchbasin

Element Data:

Element Group:	Approaches	Length:	5.3
Element Name:	Curb/Gutters	Width:	
Location:	All Quadrants	Height:	0.15
Material:	Concrete	Count:	4
Element Type:		Total Quantity:	23.2
Environment:	Severe	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		23.2			

Comments: Generally good conditon. Debris from the road has collected in the gutters. Rust staining along the top of curb. No damage.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	2 - Bridge Cleaning
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: X 2 Year:
			Clean out gutters.	

EleIment Photo:

Description of Photo: Photo 32 - Approach Curb

Element Photo:

Description of Photo: Photo 33 - Approach Curb

Element Photo:

Description of Photo:

Element Data:

Element Group:	Approaches	Length:	5.3
Element Name:	Sidewalks	Width:	1.35
Location:	NE and SE Quadrants	Height:	0.14
Material:	Concrete	Count:	2
Element Type:		Total Quantity:	15.8
Environment:	Severe	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		15.8			

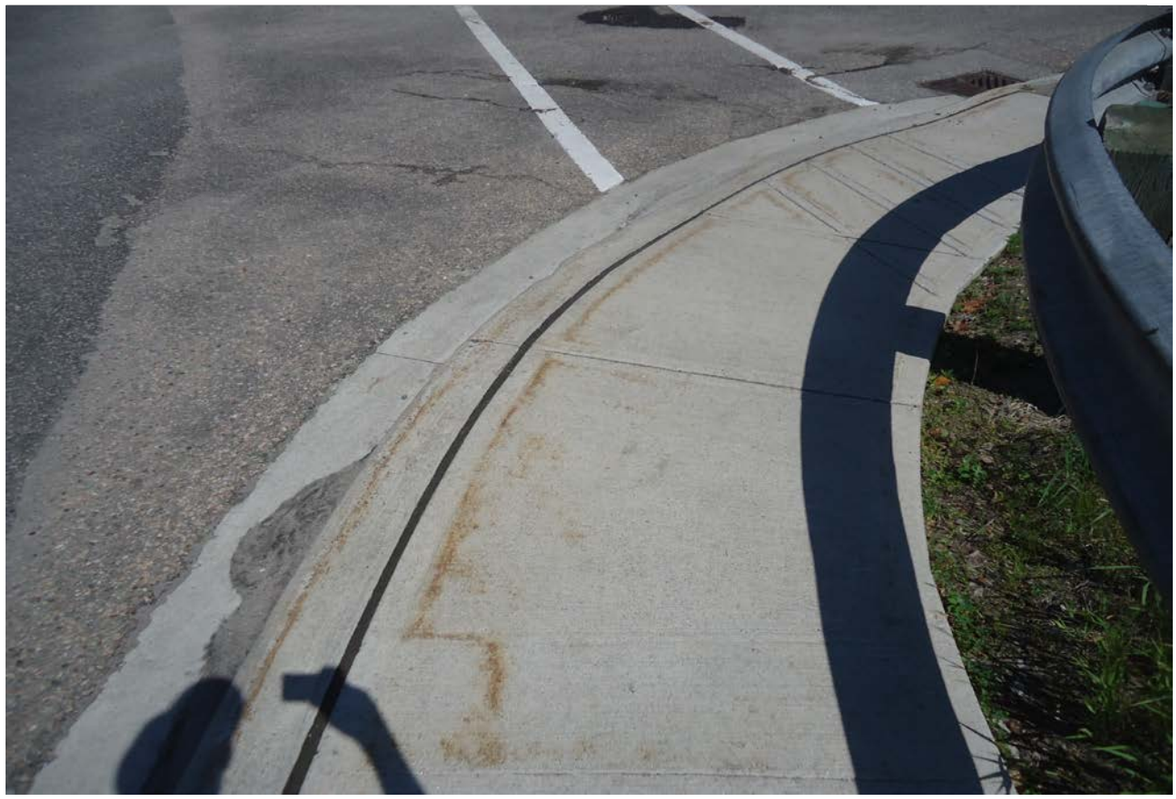
Comments: Northeast concrete sidewalk was previously replaced. Remaining old sidewalk is in good condition. Debris from the road and embankments has collected at the edge of the sidewalk.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	2 - Bridge Cleaning
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: X 2 Year: ☐
			Clean off sidewalk.	

Elelment Photo:

Description of Photo: Photo 34 - Southeast Approach Sidewalk

Element Photo:



Description of Photo: Photo 35 - Northeast Approach Sidewalk

Element Photo:

Description of Photo:

Element Data:

Element Group:	Accessories	Length:	
Element Name:	Utilities	Width:	
Location:	Overhead and Beside Deck	Height:	
Material:	PVC	Count:	2
Element Type:	Rigid Conduit	Total Quantity:	2
Environment:	Benign	Limited Inspection:	X
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each			2		

Comments: 75 mm diameter conduit duct not observed. Overhead hydro appears satisfactory.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year:

Elelment Photo:

Description of Photo: Photo 36 - Overhead Wires

Element Data:

Element Group:	Approaches	Length:	46
Element Name:	Barriers	Width:	
Location:	NW, NE, SE, and SW Quadrants	Height:	
Material:	Steel	Count:	
Element Type:	Steel Beam Guiderail	Total Quantity:	46
Environment:	Severe	Limited Inspection:	
Protection System:	Galvanized		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		40		6	

Comments: Northeast rail has a substandard connection to bridge, missing bolt, no deflection, 2 damaged posts, several dents and minor scraping. Northwest rail has a block twisted and medium rust at end termination and a substandard connection to bridge. Southest rail is in good condition. Southwest rail is in good condition. No end treatments are provided on guiderail terminations and are not likely needed due to the presence of barrier curb.

Recommended Work:	Rehab: [ ]	Replace: [X]	Maintenance Needs:	
Urgent: [X]	1-5 Years: [ ]	6-10 Years: [ ]	None: [ ]	Urgent: [ ] 1 Year: [ ] 2 Year: [ ]
Upgrade structure barrier connections.				

EleIment Photo:

Description of Photo: Photo 37 - Northeast Approach Barrier

Element Photo:

Description of Photo: Photo 38 - Northwest Approach Barrier

Element Photo:

Description of Photo: Photo 39 - Northwest Approach Barrier

Repair and Rehabilitation Required:		Priority				Estimated Structural Cost
Element[1]	Repair and Rehabilitation Required[2]	6 to 10 Years	1 to 5 Years	Within 1 Year	Urgent	
Demolition						
Replacement						
Wingwalls	Rehab. = Repair Concrete		X			$12,000.00
Foundation	Rehab. = Install Protection		X			$16,500.00
Estimated Rehabilitated or Replacement Structure Dimensions[3]						
Total Deck Length (m)	Overall Str. Width (m)				Total Structural Cost	$28,500.00

1 - Indicate specific costs for structure replacement OR for rehabilitation under the given headings.
2 - Give a very brief description of the rehabilitation work required.
3 - Estimated structure dimensions after completion of the proposed work - if it is expected to change.

Associated Work[4]	Comments	Estimated Associated Work Cost
Approaches	Upgrade Barrier Connections	$10,000.00
Detours		
Traffic Control		$2,500.00
Utilities		
Other	Engineering and Contingency	$30,000.00
	Mobilization and Demobilization; General; Insurance	$30,000.00
	Access and Dewatering	$25,000.00
	Total Associated Work Cost	$97,500.00

Total Construction Cost	$126,000.00

Justification:

The wingwalls and foundation all have moderate to severe cracks that require rehabilitation. Steel armouring should be installed around the footing to prevent further erosion. Recommended time to carry out the work is within the next 1-5 years. The structure barrier connections at the north approach are substandard and should be upgraded to meet the current standard. It is recommended that this work be completed immediately to improve safety.

Inventory Data:

Structure Name	Waubuno Street Bridge						
Main Hwy/Road #		On [ ]	Under [X]	Crossing Type:	Navig. Water [ ]	Non-Navig. Water [ ]	
					Rail [ ]	Road [ ]	Ped. [X] Other [X]
Road Name	Waubuno Street						
Structure Location	Waubuno Street at Georgian Bay						
Latitude	45° 20' 34" N			Longitude	80° 02' 27" W		
Owner(s)	Town of Parry Sound			Heritage Designation:	Not Cons. [X]	Cons./Not App. [ ]	List/Not Desig. [ ]
					Desig./Not List [ ]	Desig. & List [ ]	
MTO Region	50 - Northeastern			Road Class:	Freeway [ ]	Arterial [ ]	Collector [ ] Local [X]
MTO District	52 - Huntsville			Posted Speed	50	No. of Lanes	1
Old County	44 - Parry Sound			AADT	unknown	% Trucks	unknown
Geographic Twp.	452 - McDougall			Special Routes:	Transit [ ]	Truck [ ]	School [ ] Bicycle [X]
Structure Type	6 - Timber Girder Bridge			Detour Length Around Bridge	N/A	(km)	
Total Deck Length	12.81	(m)		Fill on Structure	0	(m)	
Overall Str. Width	3.57	(m)		Skew Angle	0.0	(Degrees)	
Total Deck Area	45.7	(sq.m)		Direction of Structure	N-S		
Roadway Width	3.17	(m)		No. of Spans	3		
Span Lengths	3.73, 4.18, 3.53	(m)					

Historical Data:

Year Built	1920	Year of Last Major Rehab.	unknown	
Last OSIM Inspection	2015	Last Evaluation		
Last Enhanced OSIM Inspection		Current Load Limit	/ / 10	(tonnes)
Enhanced Access Equipment (ladder, boat, lift, etc.)		Load Limit By-Law #		
Last Underwater Inspection		By-Law Expiry Date		
Last Condition Survey		Min. Vertical Clearance	2.96	(m)

Rehab. History: (Date/description)

2012 - New Deck Boards Installed in a few locations.

Field Inspection Information:			
Date of Inspection:	June 27, 2018	Type of Inspection:	[X] OSIM [ ] Enhanced OSIM
Inspector:	Kieran Ferguson		
Others in Party:	None		
Access Equipment Used:	None		
Weather:	Light Rain / Overcast		
Temperature:	21 °C		

Additional Investigations Required:	Priority			Estimated Cost
	None	Normal	Urgent	
Material Condition Survey				
Detailed Deck Condition Survey:	X			
Non-destructive Delam. Survey of Asphalt-Covered Deck:	X			
Concrete Substructure Condition Survey:	X			
Detailed Coating Condition Survey:	X			
Detailed Timber Investigation:	X			
Post-Tensioned Strand Investigation:	X			
Underwater Investigation	X			
Fatigue Investigation	X			
Seismic Investigation	X			
Structure Evaluation:	X			
Monitoring (deformations, settlements, movements, crack widths)	X			
Load Posting - Estimated Load			Total Cost	$0.00

Investigation Notes:

Overall Structure Notes:	
Overall Comments:	Overall the bridge is in good condition. Bridge components such as the ballast walls, barriers, signage, piles and curbs require repair or replacement.
Date of Next inspection:	2020

Overall Bridge Condition					
% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIp)	
				BCIp	BCI
0%	0%	4%	2%	99.00	68.29

Overal Bridge Sufficiency				
Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)
2	0	0	0	66.29

Element Data:

Element Group:	Decks	Length:	12.81
Element Name:	Deck Top	Width:	3.57
Location:		Height:	0.038
Material:	Wood	Count:	1
Element Type:	Wood Planks	Total Quantity:	45.73
Environment:	Moderate	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		45.23	0.5		

Comments: Some minor abrasion of the timber planks likely caused by snowmobile tracks. Minor splitting of boards throughout.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	2 - Bridge Cleaning
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: X 2 Year:
			Clean bridge deck surface.	

Element Photo:

Description of Photo:

Photo 1 - Deck Top

Element Photo:

Description of Photo: Photo 2 - Deck Top

Element Photo:

Description of Photo: Photo 3 - Deck Top

Element Data:

Element Group:	Sidewalks / Curbs	Length:	12.81
Element Name:	Curb	Width:	0.2
Location:		Height:	
Material:	Wood	Count:	2
Element Type:		Total Quantity:	25.62
Environment:	Moderate	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m			24.42	1.2	

Comments: General weathering of 200x200 timber curbs. Splitting was noted for the length of each curb. The southwest section (1.2 m long) is rotten and should be replaced. Old wood in fair to poor condition. Wood is soft near board ends.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	9 - Repair of Bridge Timber
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: / 1 Year: X / 2 Year:
				Replace one section of curb at southwest corner.

Element Photo:

Description of Photo: Photo 4 - Curb

Element Photo:

Description of Photo: Photo 5 - Curb

Element Photo:

Description of Photo: Photo 6 - Curb

Element Data:

Element Group:	Barriers	Length:	12.81
Element Name:	Railing Systems	Width:	
Location:	East and West	Height:	1.3
Material:	Wood	Count:	2
Element Type:	Wood rail > 83 mm thick	Total Quantity:	25.62
Environment:	Moderate	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m			25.62		1 - Load carrying capacity

Comments: Moderate weathering of the timber handrails and pickets. 9 pickets at the southeast corner are damaged and/or rotated. Railing system does not meet requirements for height or load capacity for snowmobile use. No missing or deteriorated areas of wood.

Recommended Work:	Rehab: [ ]	Replace: [X]	Maintenance Needs:	3 - Bridge Handrail Maintenance
Urgent: [ ]	1-5 Years: [X]	6-10 Years: [ ]	None: [ ]	Urgent: [ ] 1 Year: [X] 2 Year: [ ]
Replace barrier with CHBDC code-compliant barrier that meets standards for pedestrian and snowmobile use. Extend barrier along approaches to provide protection at embankments.			Replace damaged pickets.	

Element Photo:

Description of Photo: Photo 7 - Railing

Element Photo:

Description of Photo: Photo 8 - Railing

Element Photo:

Description of Photo: Photo 9 - Railing

Element Data:

Element Group:	Barriers	Length:	
Element Name:	Posts	Width:	0.089x0.089
Location:		Height:	0.99
Material:	Wood	Count:	18
Element Type:		Total Quantity:	18
Environment:	Moderate	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		15	2	1	1 - Load carrying capacity

Comments: Timber posts are moderately weathered. 3 damaged posts on east side appear to have been scraped by the groomer. 1 is severely damaged. Railing system does not meet requirements for height or load capacity for snowmobile use.

Recommended Work:	Rehab: [ ]	Replace: [X]	Maintenance Needs:	
Urgent: [ ]	1-5 Years: [X]	6-10 Years: [ ]	None: [ ]	Urgent: [ ] 1 Year: [ ] 2 Year: [ ]
Replace barrier with code compliant barrier. Extend barrier along approaches to provide protection at embankments.				

Element Photo:

Description of Photo:

Photo 10 - Post

Element Photo:

Description of Photo: Photo 11 - Post

Element Photo:

Description of Photo: Photo 12 - Post

Element Data:

Element Group:	Beams	Length:	3.73 m, 4.18 m, 3.53 m
Element Name:	Floor Beams	Width:	0.25
Location:	Under Stringers	Height:	0.45
Material:	Wood	Count:	18
Element Type:	Rectangular Solid	Total Quantity:	36.04
Environment:	Severe	Limited Inspection:	
Protection System:	Creosote Treatment		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		35.54	0.5		

Comments: General overall weathering was noted, but they appear to be in good condition. Overhead light collision damage on the east exterior beam and 6 interior beams. West side and east sides show minor collision damage.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: ☒	Urgent: ☐ 1 Year: ☐ 2 Year: ☐

Element Photo:

Description of Photo: Photo 13 - Floor Beams

Element Photo:

Description of Photo: Photo 14 - Floor Beams

Element Photo:

Description of Photo: Photo 15 - Floor Beams

Element Data:

Element Group:	Beams	Length:	3.57
Element Name:	Stringers	Width:	0.2
Location:	Under deck	Height:	0.2
Material:	Wood	Count:	42
Element Type:	Rectangular Solid	Total Quantity:	42
Environment:	Severe	Limited Inspection:	
Protection System:	Creosote Treatment		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		22	20		

Comments: Splitting noted in 20 of the timbers.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: ☐ 2 Year: ☐

Element Photo:

Description of Photo:

Photo 16 - Stringers

Element Photo:

Description of Photo: Photo 17 - Stringers

Element Photo:

Description of Photo: Picture 045 - Overhead Clearance Sign

Element Data:

Element Group:	Abutments	Length:	
Element Name:	Abutment Walls	Width:	3.36
Location:		Height:	0.685
Material:	Wood	Count:	2
Element Type:	Crib	Total Quantity:	4.3
Environment:	Severe	Limited Inspection:	X
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		2.8	0.5	1	

Comments: 3 longitudinal members were previously replaced at the north side and 2 longitudinal members were replaced at the south side.3 timber members on the north end has splitting and 1 has rot forming. 1 timber member has rot forming on the south side. Ballast wall is severely deteriorated on north end.

Recommended Work:	Rehab: [X]	Replace: [ ]	Maintenance Needs:	
Urgent: [ ]	1-5 Years: [X]	6-10 Years: [ ]	None: [ ]	Urgent: [ ] 1 Year: [ ] 2 Year: [ ]
Replace ballast wall timbers both ends.				

Element Photo:

Description of Photo: Photo 18 - Abutment

Element Photo:

Description of Photo: Photo 19 - Abutment

Element Photo:

Description of Photo: Photo 20 - Abutment

Element Data:

Element Group:	Piers	Length:	4.35
Element Name:	Shafts/Columns/Pile Bents	Width:	0.3
Location:		Height:	2.52
Material:	Wood	Count:	2
Element Type:	Timber Piles with Capping Beam	Total Quantity:	45.62
Environment:	Severe	Limited Inspection:	
Protection System:	Creosote Treatment		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		38.62	5	2	

Comments: Overall in good condition. Newer timber pile cap. Splits in ends of new pile cap. Bracing is in good condition but appears weathered. Southwest pile has 50% disintegration due to white rot which was visible in the interior of the wood. Piles have a very weathered surface overall. Minor vehicle collision marks on outer piles. All piles recieved a sounding and penetration test and all other piles besides the southwest pile show no signs of soft or deteriorated wood.

Recommended Work:	Rehab: [ ]	Replace: [X]	Maintenance Needs:	
Urgent: [ ]	1-5 Years: [X]	6-10 Years: [ ]	None: [ ]	Urgent: [ ] 1 Year: [ ] 2 Year: [ ]
Replace southwest pile.				

Element Photo:

Description of Photo:

Photo 21 - Timber Pile

Element Photo:

Description of Photo: Photo 22 - Timber Pile

Element Photo:

Description of Photo: Photo 23 - Timber Pile

Element Photo:

Description of Photo: Photo 24 - Timber Pile

Element Photo:

Description of Photo: Photo 25 - Timber Pile

Element Data:

Element Group:	Embankments & Streams	Length:	
Element Name:	Embankments	Width:	
Location:		Height:	
Material:		Count:	6
Element Type:		Total Quantity:	6
Environment:		Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		6			

Comments: Some erosion at the northwest corner and below north abutment timbers, resulting in some loss of material. Appear to be stable.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	13 - Erosion Control at Bridges
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐ 1 Year: X 2 Year: ☐
			Install slope protection in eroded areas on embankment.	

Element Photo:

Description of Photo: Photo 26 - Embankment

Element Photo:

Description of Photo: Photo 27 - Embankment

Element Photo:

Description of Photo: Picture 045 - Overhead Clearance Sign

Element Data:

Element Group:	Embankments & Streams	Length:	
Element Name:	Slope Protection	Width:	
Location:		Height:	
Material:		Count:	2
Element Type:	Rock Protection	Total Quantity:	2
Environment:		Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		1	1		

Comments: South end rock protection in good condition no loss of material. North end rock protection appears to be minimal, and remaining rocks appear to have fallen to the base of the slope.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	13 - Erosion Control at Bridges
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: X 2 Year:
			Install slope protection on north abutment interior face.	

Element Photo:

Description of Photo: Photo 28 - Slope Protection

Element Photo:

Description of Photo: Photo 29 - Slope Protection

Element Photo:

Description of Photo: Photo 30 - Slope Protection

Element Data:

Element Group:	Approaches	Length:	6
Element Name:	Wearing Surface	Width:	3.6
Location:	North and South of Bridge	Height:	
Material:	Earth	Count:	2
Element Type:		Total Quantity:	43.2
Environment:	Severe	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		43.2			

Comments: Overall good condition.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year:

Element Photo:

Description of Photo: Photo 31 - Approach

Element Photo:

Description of Photo: Photo 32 - Approach

Element Photo:

Description of Photo: Picture 045 - Overhead Clearance Sign

Element Data:

Element Group:	Accessories	Length:	
Element Name:	Signs	Width:	
Location:	North and South of Bridge	Height:	
Material:	Steel	Count:	7
Element Type:		Total Quantity:	
Environment:	Severe	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		3	4		8 - Pedestrian / vehicular hazard

Comments: Two 10-tonne load limit signs are in good condition on approaches. Clearance sign is bent at corners. Still in good condition. Four OFSC trail signs are no longer present.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	18 - Other
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: X	Urgent: ☐	1 Year: X	2 Year: ☐
			Reorient signs. Replace 4 OFSC trail signs.	

Element Photo:

Description of Photo:

Photo 33 - Sign

Element Photo:

Description of Photo: Photo 34 - Sign

Element Photo:

Description of Photo: Photo 35 - Sign

Element Data:

Element Group:	Accessories	Length:	
Element Name:	Utilities	Width:	
Location:	North and South of Bridge	Height:	
Material:	Steel	Count:	2
Element Type:		Total Quantity:	2
Environment:	Severe	Limited Inspection:	X
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		2			

Comments: Good condition.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year:

Element Photo:

Description of Photo: Photo 36 - Utility

Repair and Rehabilitation Required:		Priority				Estimated Structural Cost
Element[1]	Repair and Rehabilitation Required[2]	6 to 10 Years	1 to 5 Years	Within 1 Year	Urgent	
Barrier	Rehab. = Replace Barrier		X			$27,500.00
Abutment	Rehab. = Replace Ballast Walls		X			$15,000.00
	Rehab. = Replace Pile		X			$5,000.00

Estimated Rehabilitated or Replacement Structure Dimensions[3]					
Total Deck Length (m)		Overall Str. Width (m)		Total Structural Cost	$47,500.00

1 - Indicate specific costs for structure replacement OR for rehabilitation under the given headings.
2 - Give a very brief description of the rehabilitation work required.
3 - Estimated structure dimensions after completion of the proposed work - if it is expected to change.

Associated Work	Comments	Estimated Associated Work Cost
Approaches		
Detours	Closure Signage, Barricades, Etc...	$1,000.00
Traffic Control		
Utilities		
Other	Engineering & Contingency	$25,000.00
	Mobilization / Demobilization; General; Insurance	$15,000.00
	Total Associated Work Cost	$41,000.00

Total Construction Cost	$88,500.00

Justification:

Barrier system is substandard for snowmobile use and should be replaced immediately. The rotten ballast wall timbers are not likely to continue performing adequately into the future. They should be replaced to ensure that backfill is retained behind the abutment. The southwest timber pile is severely damaged and needs to be replaced in the next 1 year.