TATHAM ENGINEERING

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Bridge Inspections

TOWN OF PARRY SOUND

Inspection Summary Report

File 220555 | November 20, 2020

Document Control

File:

220555

Date:

November 20, 2020

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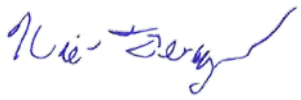	
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Issue	Date	Description
1	November 20, 2020	Final Report

Table Contents

Tables

Appendices

1 Introduction

Tatham Engineering Ltd. was retained by the Town of Parry Sound to perform detailed visual inspections for 5 bridges at various locations within town limits. 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:

- Identify maintenance, repair, rehabilitation needs and load limit posting recommendations to protect and prolong the useful life of the structures; and
- Provide a basis for a management system for the planning and funding of the recommended works.

The bridge 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 inspection of the structure. Elements are reviewed and their condition and performance are 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 a deteriorated condition state or have a performance deficiency. Maintenance needs, rehabilitation, or replacement recommendations are then determined with associated time frames 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 works. A brief listing of terms used to identify deficiencies with respect to condition or performance states are provided in Appendix A.

2 Inspection Summaries

The following summarizes the inspection observations and recommendations. In addition to the deficiencies addressed by the recommended works, a complete compilation of condition and performance information for each bridge can be found in the OSIM reports which include photos of each element. These reports are included in Appendix B.

Recommended works are categorized into maintenance or rehabilitation work. These categorizations are intended 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 engineering design and tendering of the construction works. Additional Investigations such as Material Condition Surveys, Underwater investigations, Structure Evaluations, etc. are identified both in the summaries below and the OSIM reports, along with recommendations for Enhanced OSIM Inspections which typically consist of the use of a Bridgemaster or similar bucket truck to enable a close-up within arms reach of all areas of the structure.

2.1 SEGUIN STREET BRIDGE

The Seguin Street Bridge is located on Seguin Street approximately 0.08 km west of River Street. The 55 m single span structure consists of a concrete deck on three trapezoidal weathering steel box girders supported on concrete abutments. The east abutment is founded on steel H-piles driven to bedrock, and the west abutment is founded on concrete footings on bedrock. The bridge is 20.6 m wide out to out with a clear roadway width of 15.0 m.

The bridge is in generally good condition with no evidence of foundation movements. No additional investigations are recommended at this time.

The following maintenance is recommended:

- Repair spalls in sidewalk on approaches and bridge span (1 year);
- Replace latch and repair electrical box (1 year); and
- Clean and recoat structural steel inside boxes and at exterior ends (1-5 years).

The following rehabilitation is recommended:

- Replace northeast approach barrier connection with standard connection (1-5 years).

It is proposed the next OSIM inspection occur in 2022. An Enhanced OSIM Inspection using a BridgeMaster is recommended within the next 4 years.

2.2 SEGUIN RIVER PEDESTRIAN BRIDGE

The Seguin River Pedestrian Bridge is located on a fitness trail that was converted from a former railway bed, essentially rails to trails. It is approximately 0.1 km south of the Seguin Street Bridge and crosses the Seguin River. The 12-span structure consists of nine eastern timber trestles, followed by a steel through plate girder span, a deck on steel girder span, and another steel through plate girder span.

The bridge is in generally good to fair condition with localized areas in poor condition, with no evidence of foundation movements. Some timber elements have areas of substantial rot, most notably the east abutment wall and a number of bridge curb timbers. Barrier height should be increased to 1.37 m to meet CHBDC requirements for cyclists, however 1.2 m may be used based on owner approval.

The following maintenance is recommended:

- Replace missing pickets and retaining wall barriers (urgent);
- Repair unsupported conduit at west end (urgent);
- Clean off debris from bearing seats and girders (1 year);
- Replace missing timber posts (1 year);
- Replace missing and rotten timber deck planks (1 year);
- Replace rotten timber pier brace (1 year); and
- Replace deteriorated and missing curb sections (1 year).

The following rehabilitation is recommended:

- Clean and recoat structural steel (6-10 years);
- Replace east timber abutment wall (urgent);
- Repair crack in retaining wall (1-5 years);
- Replace east wingwalls (urgent); and
- Repair west concrete abutment (6-10 years).

It is proposed that the next OSIM inspection occur in 2022. During a 2012 inspection, water levels revealed timber cribbing supporting the concrete piers. Based on visual observations from boat access, deterioration of the timber was evident and due to condition and age an Underwater Investigation is recommended with a Priority of Normal, i.e. usually within 2 years.

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 two span 26.45 m structure consists of precast concrete box girders supported on concrete abutments and pier. The bridge is 11.2 m wide out to out with a clear 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:

- Replace south utility cover (1 year);
- Repair punctured railing (1 year);
- Rout and seal cracks, repair pothole in asphalt (2 years);
- Replace damaged guide rail sections and install end treatments (1 year); and
- Concrete sidewalk repair (2 years).

There is no recommended rehabilitation at this time.

It is proposed the next OSIM inspection occur in 2022.

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 10.0 m span is a concrete rigid frame structure with vertical legs. The bridge is 11.2 m wide out to out and has a clear roadway width of 8.0 m.

The bridge is in excellent to good condition with no evidence of movement or significant deterioration. No Additional Investigations are recommended at this time.

The following maintenance is recommended:

- Rout and seal cracks in asphalt wearing surface (1 year);
- Replace missing end caps on structure barrier (1 year);
- Replace vertical joint sealant between abutment walls and wingwalls (1 year);
- Repair void at bottom of retaining wall (2 years);
- Clean sidewalks (1 year); and
- Repair concrete void in south abutment wall (1 year).

The following rehabilitation is recommended:

- Upgrade barrier connections to structure at north quadrants (1-5 years);

It is proposed the next OSIM inspection occur in 2022.

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 has 3 spans of 3.73 m, 4.18 m, and 3.53 m each. The travelled width is 3.17 m, and the overall width is 3.57 m out to out. It is currently used by pedestrian and snowmobiles and is posted to a 10-tonne limit.

The bridge is in generally good condition; However, the ballast wall and timber piles show evidence of some deterioration. The structure is currently restricted to pedestrian and snowmobile use. No Additional Investigations are recommended at this time.

The following maintenance is recommended:

- Reorient bridge signage to face approaches (1 year);
- Install slope protection in eroded areas on embankment (1 year);
- Extend bridge barrier (2 years); and
- Replace 4 OFSC trail signs and 10-tonne load limit sign (2 years).

The following rehabilitation is recommended:

- Replace deteriorated ballast walls (1-5 years).

It is proposed the next OSIM inspection occur in 2022.

3 Recommendations

Overall, these five structures are in good condition with minimal recommended maintenance and rehabilitation work. The one exception is the Seguin River Pedestrian Bridge where we recommend replacement of the east timber abutment wall and wingwalls with a priority of Urgent, the reason being the timber has severe rot and is starting to lose the capability of supporting the backfill material. The maintenance and rehabilitation activities recommended in Section 2 are suggested to be completed at all structures within the indicated time frames.

The Seguin Street Bridge is recommended for an Enhanced OSIM Inspection using a BridgeMaster is recommended within the next 4 years to enable a close-up within arms reach of all areas of the structure. The Seguin River Pedestrian Bridge is recommended for an Underwater Investigation with a Priority of Normal, i.e. usually within 2 years.

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.

Appendix A: Definitions

Definitions

To convey the results of the visual inspections, defined terms are used to identify deficiencies with respect to condition or performance states. These terms are used in accordance with the OSIM guidelines and are defined below for clarification.

CONCRETE

Delamination: A discontinuity of the surface concrete which is substantially separated but not completely detached from concrete below or above it.

Efflorescence: A deposit of salts, usually white and powdery, on the surface of concrete left behind where water percolates through the concrete and dissolves or leaches chemicals from it.

Honeycombing: The result of improper or incomplete vibration of the concrete which results in voids being left in the concrete where the mortar failed to completely fill the spaces between the coarse aggregate particles.

Scaling: The local flaking, or loss of the surface portion of concrete or mortar as a result of the freeze-thaw deterioration of concrete. It is common in non air-entrained concrete but can also occur in air-entrained concrete in the fully saturated condition. It is prone to occur in poorly finished or overworked concrete where too many fines and not enough entrained air is found near the surface.

Scour: The removal of material from the stream bed or bank due to the erosive action of moving water in the stream. Scour can also cause removal of material supporting foundations.

Spalling: This is a continuation of the delamination process whereby the actions of external loads, pressure exerted by the corrosion of reinforcement or by the formation of ice in the delaminated area results in the breaking off of delaminated concrete. Spalling may also be caused by overloading of the concrete in compression.

WOOD

Wear and Abrasion: Wear is usually the result of dynamic and/or frictional forces generated by vehicular traffic, coupled with abrasive influx of sand, dirt and debris. It can also result from the friction of ice or water-borne particles against partly or completely submerged members. Abrasion is the deterioration of concrete brought about by vehicles or snow-plough blades scraping against concrete surfaces such as decks, curbs, barrier walls or piers.

Checks and Splits: Checks are longitudinal tissue separations along the side grain of wood members occurring across or through the annual growth rings. Splits are similar to checks, with more tissue separations, extending either through the wood member or from the side into the end grain, typically at the ends of the wood member.

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.

STEEL

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

Corrosion: The deterioration of steel by chemical or electro-chemical reaction resulting from exposure to air, moisture, de-icing salts, industrial fumes and other chemicals and 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.

Patina: A relatively smooth rust layer, formed on weathering steel, which protects the underlying metal from further corrosion.

Appendix B: OSIM Forms

MTO Site Number:

Inventory Data:

Structure Name	Seguin Street Bridge								
Main Highway #	Seguin Street	On Structure	X	or Under		Service on Structure	Navig. Water	Non-Navig. Water	
							Rail	X Road	X Ped. Other
Location Description	0.081 km west of River Street					Service under:	X Navig. Water	Non-Navig. Water	
							Rail	Road	Ped. Other
Owner/Custodian	Town of Parry Sound								
MTO Region	Northeastern				Latitude	45° 20' 45" N	Longitude	80° 01' 52" W	
Regional Engineer					Heritage Designation:	X Not Cons.	Cons./Not App.	List/Not Desig.	
						Desig.	Desig./Not List	Desig. & List	
MTO Area	52 - Huntsville				Hwy Class:	Freeway	Arterial X	Collector	Local
Old County	44 - Parry Sound				Posted Speed	50	No. of Lanes	4	
Township	452 - McDougall				AADT	Unknown	% Truck	Unknown	
Structure Type 1	Box beam of girders								
Structure Material 1	Steel				Traffic Directional Bound	W-E			
Structure Type 2	Concrete deck								
Structure Material 2	Concrete				Inspection Frequency	2	(years)		
Total Deck Length	55.9	(m)			Inspection Year	2020			
Overall Str. Width	20.6	(m)			Inspection Duration	2	(hrs)		
Culvert Length	0	(m)							
Total Deck Area	1151.54	(sq.m)							
Roadway Width	15	(m)			Min. Vertical Clearance		(m)		
Skew Angle	0	(Degree)			Detour Distance	2.2	(km)		
No. of Spans	1				Fill on Structure	0	(m)		
Span Lengths	55	(m)							
For retaining wall:									
Total Wall Length		(m)			Max. Wall Height		(m)		
Total Wall Area		(sq.m)			Ave. Wall Height		(m)		
					Angle of Backfill		(Degrees)		

Historical Data

Year Built	1987	Year of superstruct. Constructed	N/A	
Last Reg. OSIM Inspection	2018	Year of Last Minor Rehab.	N/A	
Last Enh. OSIM Inspection		Year of Last Major Rehab	N/A	
		Current Load Limit	/ /	(tonnes)

Work History: (Date/description)

Investigation History: (Date/description)

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

MTO Site Number:

Field Inspection Information:

Date of Inspection:	October 20, 2020	Type of Inspection:	[X] Reg. OSIM [ ] Enh. OSIM
Inspected By	Kieran Ferguson		
Others in Party:	Jesse Godin, Safety Design Systems Rescue Technician		
Eng. Access Equipment:	None		
Special Access Equipment	Access Ladder, Air Monitor, Flashlight, Restraining Harness, Retrieval System		
Weather	Overcast	Temperature	**12** °C

Additional Investigations Required:

	Priority			Estimated Cost
	None	Normal	Urgent	
Material Condition Survey				
Detailed Deck Condition Survey:	X			
Non-destructive Delamination 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	X			
Deformations, Settlements and Movements:	X			
Crack Widths:	X			
RSS Horizontal movements of face:	X			
RSS Vertical movements of overall structure:	X			
RSS Local movements or deterioration of face elements:	X			
RSS Horizontal movements within overall structure:	X			
RSS Vertical movements within overall structure	X			
RSS Lateral earth pressure at the back of facing elements	X			
Investigation Notes:		Total Cost		$0.00

Overall Structure Notes:

Recommended Work on Structure	[ ] None [X] Minor Rehab. [ ] Major Rehab. [ ] Replace
Timing of Recommended Work	[ ] Urgent [X] 1 to 5 years [ ] 6 to 10 years
Overall Comments:	Generally in good condition. Interior girder ends should be cleaned to mitigate continued corrosion. Minor deterioration of the deck and girders. An enhanced OSIM Inspection using a BridgeMaster is recommended within the next 4 years.
Date of Next inspection:	2022

Overall Bridge Condition

% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIp)	
				BCIp	BCI
1%	0%	0%	0%	99.65	87.56

Overal Bridge Sufficiency

Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)
0	5	0	0	82.56

Element Data:

Element Group:	Approaches	Length:	6.0 m
Element Name:	Wearing Surface	Width:	15.0 m
Location:	East and West	Height:	0.09 m
Material:	Asphalt	Count:	2
Element Type:		Total Quantity:	180 sq.m
Environment:	Severe	Limited Inspection:	
Protection System:	None		

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

Comments: No observed defects. Roadway has been recently paved 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 - Approach Surface.jpg

Element Photo:

Description of Photo: Photo 2 - Approach Surface.jpg

Element Photo:

Description of Photo:

Element Data:

Element Group:	Approaches	Length:	6.0 m
Element Name:	Approach Slabs	Width:	15.0 m
Location:	East and West	Height:	0.25 m
Material:	Concrete	Count:	2
Element Type:		Total Quantity:	180 sq. m
Environment:	Moderate	Limited Inspection:	X
Protection System:	None		

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

Comments: Assumed to be in good condition based on asphalt. Roadway recently repaved.

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 - Approach Slab.jpg

Element Data:

Element Group:	Approaches	Length:	6.0 m
Element Name:	Sidewalk	Width:	1.8 m
Location:	All Quadrants	Height:	
Material:	Concrete	Count:	4
Element Type:		Total Quantity:	43.2 sq. m
Environment:	Severe	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		41.79	1.4		

Comments: Light scaling typical. Three medium 200x200x25 mm deep spalls on northeast approach. 200x200x25 mm deep medium spall on southeast approach. 5.0m of medium cracks. 300 mm of narrow cracking at the edge of wingwalls.

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: ☐
			Repair spalls.	

Element Photo:

Description of Photo: Photo 4 - Approach Sidewalk.jpg

Element Photo:

Description of Photo: Photo 5 - Approach Sidewalk.jpg

Element Photo:

Description of Photo: Photo 72 - Sidewalk.jpg

Element Data:

Element Group:	Approaches	Length:	6.0 m
Element Name:	Curb/Gutters	Width:	
Location:	All Quadrants	Height:	0.14 m
Material:	Concrete	Count:	4
Element Type:		Total Quantity:	24.0 m
Environment:	Severe	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		22.5	1.5		

Comments: Localized abrasion to the tops and edges of the curb throughout. Three medium 100x300x15 mm spalls.

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 6 - Approach Curb.jpg

Element Photo:

Description of Photo: Photo 7 - Approach Curb.jpg

Element Photo:

Description of Photo: Photo 8 - Approach Curb.jpg

Element Data:

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

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

Comments: Light coating chalking typical. The northeast end is flared with a standard end terminal hidden behind a flowerbox with retaining wall. Connection to the northeast concrete barriers are substandard. Southwest corner steel beam guide rail has localized light corrosion at structure connection.

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

Urgent: [ ]	1 Year: [ ]	2 Year: [ ]

Element Photo:

Description of Photo: Photo 9 - Approach Barrier.jpg

Element Photo:

Description of Photo: Photo 10 - Approach Barrier.jpg

Element Photo:

Description of Photo: Photo 11 - Approach Barrier.jpg

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:	
Protection System:	Cast Iron Grating		

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

Comments: Light corrosion typical.

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 12 - Catchbasins.jpg

Element Photo:

Description of Photo: Photo 13 - Catchbasins.jpg

Element Photo:

Description of Photo:

Element Data:

Element Group:	Decks	Length:	55.9 m
Element Name:	Wearing Surface	Width:	15.0 m
Location:		Height:	0.09 m
Material:	Asphalt	Count:	1
Element Type:		Total Quantity:	838.5 sq. m
Environment:	Severe	Limited Inspection:	
Protection System:	None		

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

Comments: No observed defects. Roadway has been recently paved and is in excellent condition. 200 mm of abrasion. Some ponding of water along southwest edge.

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 14 - Wearing Surface.jpg

Element Data:

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

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

Comments: Assumed to be in good condition based on asphalt. Roadway has recently been paved 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 15 - Deck Top.jpg

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: Light corrosion at bottom of drain pipes typical, no other observed defects. No debris buildup in drain grating.

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 - Drains.jpg

Element Data:

Element Group:	Joints	Length:	20.6 m
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: Seals in generally good condition. Dirt and debris covering seal. Corrosion on adjacent steel armouring. No evidence of leakage or other performance deficiencies.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:

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

Element Photo:

Description of Photo: Photo 15 - Joint End Dam.jpg

Element Data:

Element Group:	Joints	Length:	15.0 m
Element Name:	Concrete End Dams	Width:	0.5 m
Location:	East and West	Height:	
Material:	Concrete	Count:	4
Element Type:		Total Quantity:	30 sq. m
Environment:	Severe	Limited Inspection:	
Protection System:	Steel Angle		

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

Comments: Light scaling and abrasion typical. Light 300x100x15 mm deep spall on east side and light 300x100x15 mm deep spall on west side. Approximately 600mm of hairline to narrow cracks.

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 - Joint End Dam.jpg

Element Photo:

Description of Photo: Photo 17 - Joint End Dam.jpg

Element Photo:

Description of Photo:

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		40.2		1	

Comments: Light corrosion typical. Localized wear and deformations typical.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:

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

Element Photo:

Description of Photo: Photo 18 - Armouring.jpg

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		311.7	1.2	0.1	

Comments: Light scaling typical. Transverse 0.5m narrow cracks along both the north and south sidewalk - 16 on the North and 27 on the South. 2.0m of transverse medium cracks on the North and 2.0m on the South. Abrasions of the curb edge along both sides of the roadway. Severe 150x600x25 mm spall. Two medium 100x300x25mm spalls. Medium 300x300x25 mm spall.

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: ☐
			Repair spalls	

Element Photo:

Description of Photo: Photo 19 - Sidewalk.jpg

Element Photo:

Description of Photo: Photo 20 - Sidewalk.jpg

Element Photo:

Description of Photo: Photo 21 - Sidewalk.jpg

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		135.8	8	0.2	

Comments: Two 100x100 mm deformations with perforations on the north side of the bridge. Localized abrasion throughout with some wear of the steel surface.

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 22 - Barrier.jpg

Element Photo:

Description of Photo: Photo 23 - Barrier.jpg

Element Photo:

Description of Photo:

Element Data:

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

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

Comments: Localized abrasion throughout, no other observed defects.

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 - Barrier.jpg

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		49.9		0.1	

Comments: Pedestrian handrail along path under the west end of the bridge. Previously noted cracked post connection has been fixed. Localized light corrosion and abrasion throughout. 0.5 mm narrow crack in the concrete base of a post.

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 25 - Lower Railing.jpg

Element Photo:

Description of Photo: Photo 26 - Lower Railing.jpg

Element Photo:

Description of Photo: Photo 27 - Lower Railing.jpg

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: Limited inspection due to duct heights. 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. Electrical box at northwest quadrant has a damaged latch and is left open.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	18 - Other
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: / 1 Year: X / 2 Year:
				Replace latch and ensure electrical box is closed and locked.

Element Photo:

Description of Photo: Photo 28 - Utilities.jpg

Element Photo:

Description of Photo: Photo 29 - Utilities.jpg

Element Photo:

Description of Photo: Photo 30 - Utilities.jpg

Element Data:

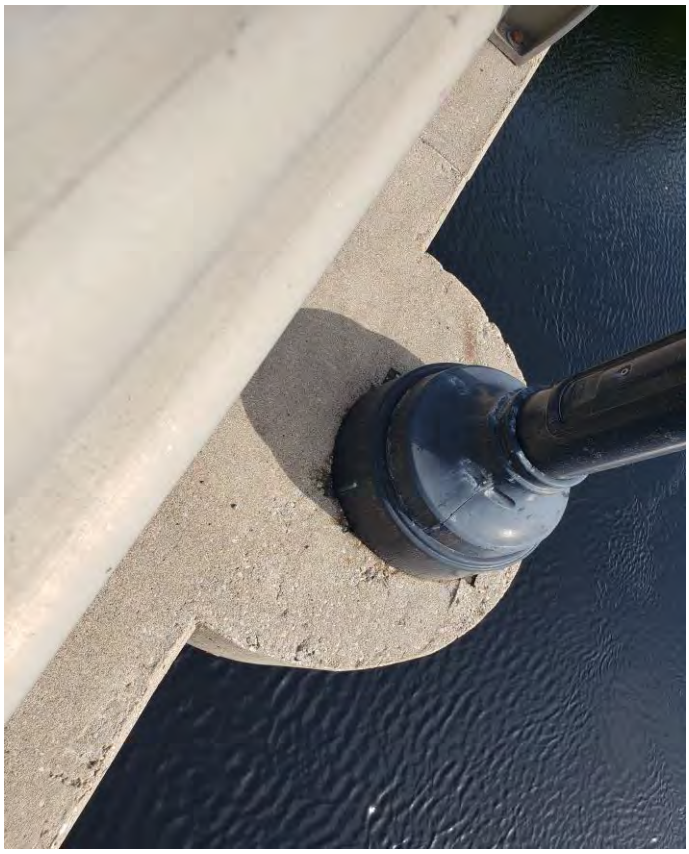
Element Group:	Accessories	Length:	
Element Name:	Other - Light Standards	Width:	
Location:		Height:	
Material:		Count:	3
Element Type:	Lighting Poles	Total Quantity:	3
Environment:		Limited Inspection:	
Protection System:			

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

Comments: No observed defects.

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 - Lights.jpg

Element Data:

Element Group:	Beams	Length:	6.8 m
Element Name:	Diaphragms	Width:	
Location:	End	Height:	2.4 m
Material:	Steel	Count:	4
Element Type:		Total Quantity:	4
Environment:	Moderate	Limited Inspection:	
Protection System:	Epoxymastic		

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

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 32 - Diaphragms.jpg

Element Data:

Element Group:	Beams	Length:	15.85 m
Element Name:	Diaphragms	Width:	0.125 m
Location:	Intermediate	Height:	2.4 m
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	75				

Comments: No observed material defects, patina is formed and uniform.

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 33 - Diaphragms.jpg

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m	55.8		0.4		

Comments: Four 200x200 mm areas of medium corrosion at the bottom flange at the drain holes. No other observed defects.

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 and recoat in conjunction with interior cleaning. Refer to Beams - Inside Boxes regarding cleaning.

Element Photo:

Description of Photo: Photo 34 - Girder Exterior End.jpg

Element Photo:

Description of Photo: Photo 35 - Girder Exterior End.jpg

Element Photo:

Description of Photo:

Element Data:

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

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

Comments: No observed material defects, patina is formed and uniform.

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 - Girder Exterior Mid.jpg

Element Photo:

Description of Photo: Photo 37 - Girder Exterior Mid.jpg

Element Photo:

Description of Photo:

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m	33.5	12.5	10		

Comments: The coating along the bottom flange and stiffeners has failed exhibiting Category 2 to 4 surface rust. Approximately 4 mm deep pitting of steel at bottom corners of box ends. Steel stiffeners have areas of localized severe corrosion with section loss on the north and south girder at both ends, with the middle girders having areas of localized light corrosion.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	2 - Bridge Cleaning
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: ☐	Urgent: ☐ 1 Year: ☒ 2 Year: ☐
			Clean and recoat the inside of north and south girder ends.	

Element Photo:

Description of Photo: Photo 38 - Interior Girder End

Element Photo:

Description of Photo: Photo 39 - Interior Girder End

Element Photo:

Description of Photo: Photo 40 - Interior Girder End

Element Photo:

Description of Photo: Photo 41 - Interior Girder End

Element Photo:

Description of Photo: Photo 42 - Interior Girder End

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m	1226.9	25			

Comments: Generally no observed material defects, patina is formed and uniform. Localized areas of medium corrosion with signs of pitting.

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 43 - Interior Girder Mid

Element Photo:

Description of Photo: Photo 44 - Interior Girder Mid

Element Photo:

Description of Photo: Photo 45 - Interior Girder Mid

Element Photo:

Description of Photo: Photo 46 - Interior Girder Mid

Element Photo:

Description of Photo:

Element Data:

Element Group:	Coatings	Length:	1.2 m
Element Name:	Structural Steel	Width:	2.2 m
Location:	Ends	Height:	2.8 m
Material:		Count:	6
Element Type:		Total Quantity:	112 sq. m
Environment:		Limited Inspection:	X
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		56	38	18	

Comments: Interior coating at ends of north and south girder have failed along the bottom flange and stiffener plates exhibiting Category 3 and 4 rusting. Category 2 to 3 rusting around the drain holes in the bottom flange. Remaing coating exhibiting chalking and Category 2 rusting, typical.

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

Element Photo:

Description of Photo: Photo 47 - Coatings

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		221.97	1.5		

Comments: Light scaling typical. Wall drains are clear. West abutment wall has been repainted, there is graffiti present. 5.73m long medium vertical crack (shown in chalk).

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

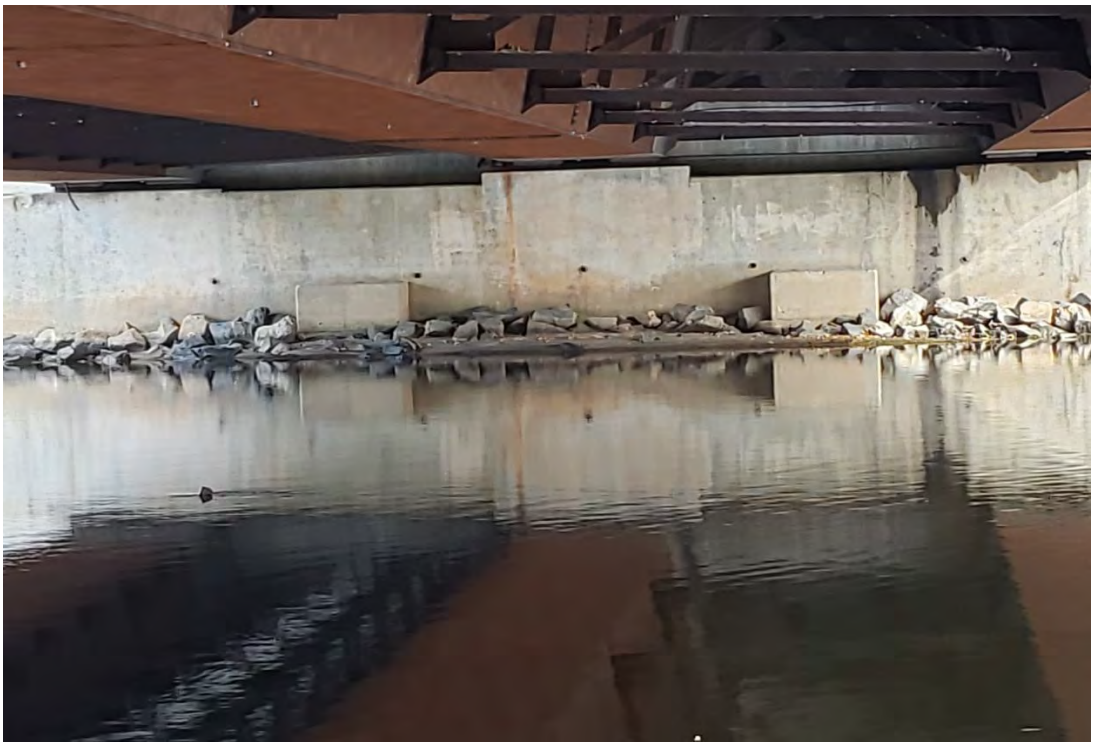
Element Photo:

Description of Photo: Photo 48 - Abutment Wall.jpg

Element Photo:

Description of Photo: Photo 49 - Abutment Wall.jpg

Element Photo:



Description of Photo: Photo 50 - Abutment Wall.jpg

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		125.72	0.25		

Comments: Limited inspection as some of the wall are hidden by the diaphragms. Light scaling typical. 1.0m medium crack.

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 51 - Ballast Wall.jpg

Element Photo:

Description of Photo: Photo 52 - Ballast Wall.jpg

Element Photo:

Description of Photo:

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		71.4			

Comments: Light scaling typical.

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 - Wingwall.jpg

Element Photo:

Description of Photo: Photo 54 - Wingwall.jpg

Element Photo:

Description of Photo:

Element Data:

Element Group:	Deck	Length:	2.0 m
Element Name:	Soffit - Inside Boxes	Width:	3.4 m
Location:	Ends	Height:	
Material:	CIP Concrete	Count:	3
Element Type:		Total Quantity:	20.4 sq. m
Environment:	Moderate	Limited Inspection:	
Protection System:			

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

Comments: Light scaling typical. Localized wet area stains on concrete at drainage tube locations.

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 55 - Interior Soffit End

Element Photo:

Description of Photo: Photo 56 - Interior Soffit End

Element Photo:

Description of Photo:

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		528.88		0.5	

Comments: Light scaling typical. Localized hairline cracking with water stains throughout soffit, 1.0m on both the north and south girders.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:

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

Element Photo:

Description of Photo: Photo 57 - Interior Soffit Mid

Element Data:

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

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

Comments: Light scaling typical.

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 58 - Mid Soffit.jpg

Element Data:

Element Group:	Decks	Length:	2.0 m
Element Name:	Soffit Thin Slab	Width:	15.3 m
Location:	End	Height:	
Material:	CIP Concrete	Count:	2
Element Type:		Total Quantity:	61.2 sq. m
Environment:	Moderate	Limited Inspection:	
Protection System:			

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

Comments: Light scaling typical.

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 59 - Soffit End.jpg

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		220.35		0.2	

Comments: Light scaling typical. 1.0m of narrow cracking with some water staining in overhang soffit.

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 60 - Exterior Soffit.jpg

Element Data:

Element Group:	Abutments	Length:	0.5 m
Element Name:	Bearings	Width:	0.6 m
Location:		Height:	0.1 m
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:	Urgent:	1 Year:	2 Year:
			X			

Element Photo:

Description of Photo: Photo 61 - Bearings.jpg

Element Photo:

Description of Photo: Photo 62 - Bearings.jpg

Element Photo:

Description of Photo:

Element Data:

Element Group:	Retaining Walls	Length:	10.05 m
Element Name:	Walls	Width:	
Location:	NW and SW Quadrants	Height:	4.0 m
Material:	Concrete	Count:	4
Element Type:	Reinforced Concrete	Total Quantity:	160.8 sq. m
Environment:	Moderate	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		160.8			

Comments: Light scaling typical. Four 50x50x15 mm light spalls on the top of the southwest retaining wall where water drains from above. Northwest retaining wall has 8.0m of narrow vertical cracking.

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 - Retaining Wall.jpg

Element Data:

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

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

Comments: No observed defects.

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 66 - Foundation.jpg

Element Data:

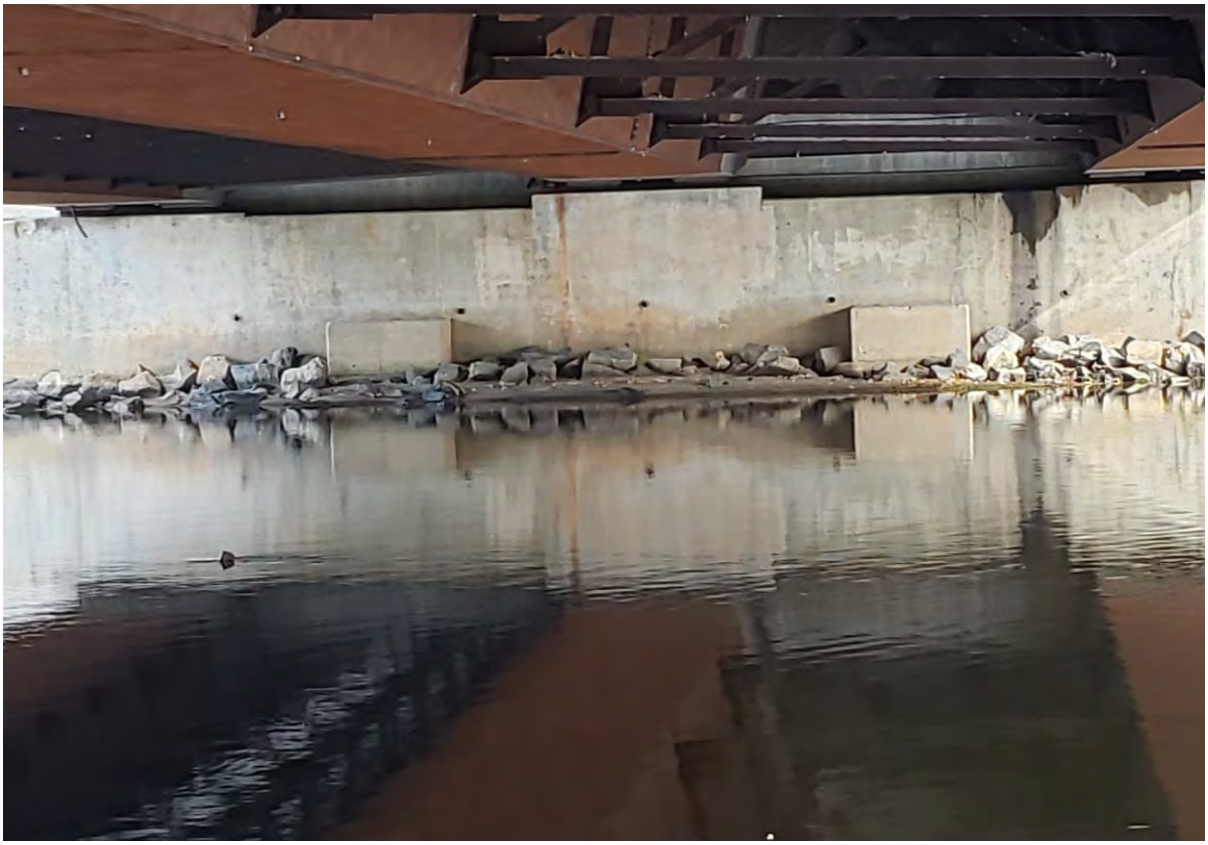
Element Group:	Foundations	Length:	
Element Name:	Foundation (below ground level)	Width:	
Location:	East	Height:	
Material:		Count:	
Element Type:	Piles	Total Quantity:	
Environment:		Limited Inspection:	
Protection System:			

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

Comments:

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 64 - Foundation.jpg

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 observed defects. No signs of scour or aggradation.

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 - Waterway.jpg

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 observed defects.

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 68 - Embankment.jpg

Element Photo:

Description of Photo: Photo 69 - Embankment.jpg

Element Photo:

Description of Photo: Photo 70 - Embankment.jpg

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: No observed defects for rock protection in front of east abutment. West side has < 20% 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 71 - Slope Protection.jpg

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						
Barrier						
Joints						
Beams						
Abutment						
Soffit						
Estimated Rehabilitated or Replacement Structure Dimensions[3]						
Total Deck Length (m)	Overall Str. Width (m)				Total Structural Cost	$0.00

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	$190,000.00

Justification:
Generally in good condition. Interior girder ends should be cleaned to mitigate continued corrosion. Minor deterioration of the deck and girders. The northeast approach barrier connection should be replaced with a standard connection.

MTO Site Number:

Inventory Data:

Structure Name	Seguin River Pedestrian Bridge								
Main Highway #	Parry Sound Fitness Trail	On [X] Structure	or Under [ ]	Service on Structure	[ ] Navig. Water	[ ] Non-Navig. Water	[ ] Rail	[ ] Road	[X] Ped. [ ] Other
Location Description	0.1 km South of Seguin Street			Service under:	[X] Navig. Water	[ ] Non-Navig. Water	[ ] Rail	[ ] Road	[ ] Ped. [ ] Other
Owner/Custodian	Town of Parry Sound								
MTO Region	Northeastern	Latitude	45° 20' 45" N	Longitude	80° 01' 52" W				
Regional Engineer		Heritage Designation:	[X] Not Cons.	[ ] Cons./Not App.	[ ] List/Not Desig.	Desig.	[ ] Desig./Not List	[ ] Desig. & List	
MTO Area	52 - Huntsville	Hwy Class:	Freeway [ ]	Arterial [ ]	Collector [ ]	Local [X]			
Old County	44 - Parry Sound	Posted Speed	0	No. of Lanes	0				
Township	452 - McDougall	AADT	0	% Truck	0				
Structure Type 1	Timber deck								
Structure Material 1	Timber	Traffic Directional Bound	W-E						
Structure Type 2	Steel Frame								
Structure Material 2	Steel	Inspection Frequency	2	(years)					
Total Deck Length	96.5 (m)	Inspection Year	2020						
Overall Str. Width	4.6 (m)	Inspection Duration	2	(hrs)					
Culvert Length	0 (m)								
Total Deck Area	332.93 (sq.m)								
Roadway Width	3.45 (m)	Min. Vertical Clearance		(m)					
Skew Angle	0 (Degree)	Detour Distance	N/A	(km)					
No. of Spans	12	Fill on Structure	0	(m)					
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)								
For retaining wall:									
Total Wall Length	(m)	Max. Wall Height	(m)						
Total Wall Area	(sq.m)	Ave. Wall Height	(m)						
		Angle of Backfill	(Degrees)						

Historical Data

Year Built	1920	Year of superstruct. Constructed	N/A	
Last Reg. OSIM Inspection	2018	Year of Last Minor Rehab.	N/A	
Last Enh. OSIM Inspection		Year of Last Major Rehab	N/A	
		Current Load Limit	/ /	(tonnes)

Work History: (Date/description)

1990 - Converted from a railway traffic bridge to a pedestrian bridge
2014 / 2015 - Deteriorated timber planks and railing pickets replaced

Investigation History: (Date/description)

2007 - Condition Survey and an evaluation for load capacity was completed
2008 - Additional steel thickness measurements completed to confirm web thickness

MTO Site Number:

Field Inspection Information:

Date of Inspection:	October 20, 2020	Type of Inspection:	[X] Reg. OSIM [ ] Enh. OSIM
Inspected By	Kieran Ferguson		
Others in Party:	None		
Eng. Access Equipment:	None		
Special Access Equipment	None		
Weather	Overcast	Temperature	**12** °C

Additional Investigations Required:

	Priority			Estimated Cost
	None	Normal	Urgent	
Material Condition Survey				
Detailed Deck Condition Survey:	X			
Non-destructive Delamination 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		**$20,000.00**
Fatigue Investigation	X			
Seismic Investigation	X			
Structure Evaluation:	X			
Monitoring	X			
Deformations, Settlements and Movements:	X			
Crack Widths:	X			
RSS Horizontal movements of face:	X			
RSS Vertical movements of overall structure:	X			
RSS Local movements or deterioration of face elements:	X			
RSS Horizontal movements within overall structure:	X			
RSS Vertical movements within overall structure	X			
RSS Lateral earth pressure at the back of facing elements	X			

Investigation Notes:

Total Cost $20,000.00

Overall Structure Notes:

Recommended Work on Structure	[ ] None [X] Minor Rehab. [ ] Major Rehab. [ ] Replace
Timing of Recommended Work	[X] Urgent [ ] 1 to 5 years [ ] 6 to 10 years
Overall Comments:	The east abutment wall, ballast wall and wingwalls have severe to very severe rot throughout and are recommended to be replaced. Several curb timbers and deck planks are missing or have severe to very severe rot and are recommended to be replaced.
Date of Next inspection:	2022

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	64.36

Overal Bridge Sufficiency

Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)
0	0	0	0	64.36

Element Data:

Element Group:	Approaches	Length:	6.0 m
Element Name:	Wearing Surface	Width:	3.0 m
Location:	West and East End	Height:	
Material:	Gravel	Count:	2
Element Type:		Total Quantity:	36.0 sq. m
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 with light wear, typical.

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 - Approach Surface

Element Photo:

Description of Photo: Photo 2 - Approach Surface.jpg

Element Photo:

Description of Photo:

Element Data:

Element Group:	Approaches	Length:	3.1 m
Element Name:	Barriers	Width:	
Location:	SE Quadrant	Height:	1.0 m
Material:	Lumber	Count:	
Element Type:		Total Quantity:	3.1 m
Environment:	Moderate	Limited Inspection:	
Protection System:			

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

Comments: Southeast barrier light weathering typical. No barriers are required on the north 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 3 - Approach Barrier

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		324.26	9.6	7	

Comments: Boards along center of path exhibit light to medium wear, likely due to snowmobile use. 9 deck boards have light to severe rot. 1.5m x 250mm section of deck board missing at east end.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	9 - Repair of Bridge Timber
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: ☐	Urgent: ☐ 1 Year: X 2 Year: ☐
				Replace missing and rotting timber planks.

Element Photo:

Description of Photo:

Photo 4 - Wearing Surface.jpg

Element Photo:

Description of Photo: Photo 5 - Wearing Surface.jpg

Element Photo:

Description of Photo: Photo 6 - Wearing Surface.jpg

Element Data:

Element Group:	Decks	Length:	4.4 m
Element Name:	Deck Top	Width:	0.25 m
Location:	Steel Spans	Height:	0.25 m
Material:	250 mm x 250 mm Timbers	Count:	205
Element Type:	Deck Beams	Total Quantity:	902 sq. m
Environment:	Moderate	Limited Inspection:	X
Protection System:	Preservative Treatment		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		847.88	45.10	9.02	

Comments: Light weathering typical. Localized light to severe checks and splits typical. 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:	Urgent:	1 Year:	2 Year:
			X			

Element Photo:

Description of Photo: Photo 7 - Deck Top

Element Photo:

Description of Photo: Photo 8 - Deck Top.jpg

Element Photo:

Description of Photo:

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		36.89	20.75	46.1	8 - Pedestrian / vehicular hazard

Comments: Light to severe weathering, checks and splits typical. 8.0m section of curb is missing and 2 curb timbers have very severe rot resulting in tripping hazards. Two 1.0 m gaps where it appears the timber curb has been removed. 60m of severe to very severe rot.

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 deteriorated and missing curb sections.	

Element Photo:

Description of Photo: Photo 9 - Curb

Element Photo:

Description of Photo: Photo 10 - Curb.jpg

Element Photo:

Description of Photo: Photo 11 - Curb.jpg

Element Data:

Element Group:	Barriers	Length:	48.0 m (Lumber) and 50.8 m (Steel)
Element Name:	Railing Systems	Width:	n/a
Location:	Entire Bridge Length	Height:	1.067 m (Lumber) and 2.44 m (Steel)
Material:	Steel and Lumber	Count:	2
Element Type:	Post and Steel Barriers	Total Quantity:	198 m
Environment:	Moderate	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		196	0.5	1.5	8 - Pedestrian / vehicular hazard

Comments: Timber railing system generally in good condition overall. Some posts have light splintering at bolt hole locations. Steel through girder acts as railing system on through girder spans and is in generally good condition. Southeast quadrant has 5 missing timber posts and 1 damaged timber post. 1.0m of damaged and missing timber along bottom rail. Height should be increased to 1.37 m to meet CHBDC requirements for cyclists, however 1.2m can be used based on owner approval.

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 posts. Height should be increased to meet CHBDC requirements for cyclists	

Elelment Photo:

Description of Photo: Photo 12 - Railing

Element Photo:

Description of Photo: Photo 13 - Railing.jpg

Element Photo:

Description of Photo:

Element Data:

Element Group:	Accessories	Length:	
Element Name:	Signs	Width:	
Location:	East End	Height:	
Material:		Count:	2
Element Type:		Total Quantity:	2
Environment:	Benign	Limited Inspection:	
Protection System:			

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

Comments: One warning sign in poor condition and has been damaged, bent and is weathered. One No Motorized Vehicles sign 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 14 - Signs

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 are generally in good condition. 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:

Element Photo:

Description of Photo: Photo 16 - Lighting.jpg

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 17 - Utilities

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		140	336.25	336.25	

Comments: The Through Girders interior faces were painted by the Rotary Club in 2005 and are generally in good condition. The remaining Through and Deck Plate Girder coatings are generally in fair to poor condition through Category 3 and 4 rust conditions.

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

Element Photo:

Description of Photo: Photo 18 - Coatings.jpg

Element Photo:

Description of Photo: Photo 60 - Coatings.jpg

Element Photo:

Description of Photo: Photo 61 - Coatings.jpg

Element Data:

Element Group:	Abutments	Length:	5.0 m
Element Name:	Abutment Walls	Width:	
Location:	West Side of Bridge	Height:	1.2 m
Material:	Cast-in-place Concrete	Count:	1
Element Type:		Total Quantity:	8.0 sq. m
Environment:	Moderate	Limited Inspection:	X
Protection System:			

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

Comments: Light scaling typical. Evidence of wet areas with efflorescence and localized light to severe disintegration around edges. Some spalls have wet areas and efflorescence. Very severe 1,000x250x75 mm disintegration. Severe 1,500x600x25 deep scaling and disintegration. Two very severe 1,500x50x25 mm deep spalls. Medium 200x250x25 mm spall. Ballast wall behind end diaphragm and not inspected.

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

Element Photo:

Description of Photo:

Photo 19 - Abutment Wall.jpg

Element Photo:

Description of Photo: Photo 20 - Abutment Wall.jpg

Element Photo:

Description of Photo: Photo 21 - Abutment Wall.jpg

Element Data:

Element Group:	Abutments	Length:	6 m
Element Name:	Abutment Walls	Width:	
Location:	East Side of Bridge	Height:	1.6 m
Material:	Timber	Count:	1
Element Type:		Total Quantity:	9.6 sq. m
Environment:	Severe	Limited Inspection:	
Protection System:	Creosote		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m				9.6	

Comments: Very severe rot throughout with portions of the abutment wall starting to fail. 300mm dia. wingwall piles on each side of abutment wall also have very severe rot starting at top of pile and extending downwards.

Recommended Work:	Rehab: [ ]	Replace: [X]	Maintenance Needs:
Urgent: [X]	1-5 Years: [ ]	6-10 Years: [ ]	None: [ ]
Replace abutment wall.			

Urgent: [ ]	1 Year: [ ]	2 Year: [ ]

Element Photo:

Description of Photo: Photo 22 - Abutment Wall.jpg

Element Photo:

Description of Photo: Photo 23 - Abutment Wall.jpg

Element Photo:

Description of Photo: Photo 24 - Abutment Wall.jpg

Element Data:

Element Group:	Abutments	Length:	
Element Name:	Piles	Width:	300mm dia.
Location:	East Side of Bridge	Height:	0.6 m
Material:	Timber	Count:	6
Element Type:		Total Quantity:	3.6 m
Environment:	Severe	Limited Inspection:	
Protection System:	Creosote		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		3.6			

Comments: Light weathering typcial. Localized light checks and splits.

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 25 - Abutment Piles.jpg

Element Data:

Element Group:	Abutments	Length:	4.3 m
Element Name:	Pile Cap	Width:	0.3 m
Location:	East Side of Bridge	Height:	0.3 m
Material:	Timber	Count:	1
Element Type:		Total Quantity:	5.16 sq. m
Environment:	Severe	Limited Inspection:	
Protection System:	Creosote		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		5.16			

Comments: Light weathering typical. Localized light checks and splits.

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 26 - Abutment Pile Cap.jpg

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		

Comments: Bearings have medium corrosion with debris accumulating around the bearings. Girders and bracing above bearings have moderate corrosion and the concrete below the bearing seats have minor delaminations and spalls.

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 27 - Bearings

Element Photo:

Description of Photo: Photo 28 - Bearings.jpg

Element Photo:

Description of Photo:

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		5.66	0.1		

Comments: Light scaling typical. Only southwest wingwall is visible. Medium 150x150x25 mm deep spall and four medium 250x50x15 mm deep spalls. Some efflorescence at the connection to the abutment.

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 - Wingwalls

Element Data:

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

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

Comments: Very severe rot throughout.

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

Element Photo:

Description of Photo:

Photo 30 - Wingwall Piers.jpg

Element Data:

Element Group:	Retaining Walls	Length:	40.0 m
Element Name:	Walls	Width:	
Location:	Southwest	Height:	1.2 m
Material:	CIP Concrete	Count:	1
Element Type:	Reinforced Concrete	Total Quantity:	48 sq. m
Environment:	Moderate	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		47.45	0.25	0.3	

Comments: Light scaling typical. 1.2m long wide crack at structure connection. 1.0m long medium horizontal crack.

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 31 - Retaining Wall.jpg

Element Data:

Element Group:	Retaining Walls	Length:	10.0 m
Element Name:	Barrier Systems on Walls	Width:	n/a
Location:	Southwest	Height:	1.076 m
Material:	Timber	Count:	2
Element Type:		Total Quantity:	21.52 m
Environment:	Moderate	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m			18	3.52	8 - Pedestrian / vehicular hazard

Comments: Light weathering typical. 17 broken or missing posts. 3.0m of top rail is missing. Several post anchors have become unattached.

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

Element Photo:

Description of Photo: Photo 32 - Railing

Element Photo:

Description of Photo: Photo 33 - Railing.jpg

Element Photo:

Description of Photo: Photo 34 - Railing.jpg

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		353.39	1.25		

Comments: Light weathering typical. 5.0m long medium check on southeast exterior beam.

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 35 - Timber Beams

Element Data:

Element Group:	Beams	Length:	4.6 m
Element Name:	Stringers	Width:	0.25 m
Location:	Timber Trestle Spans	Height:	0.25 m
Material:	Timber	Count:	114
Element Type:	Beams	Total Quantity:	524.4 sq. m
Environment:	Severe	Limited Inspection:	
Protection System:	Creosote Treatment		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		521.76	2.64		

Comments: Light weathering typical. Localized light to medium checks and splits typical.

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 - Stringers

Element Photo:

Description of Photo: Photo 37 - Stringers.jpg

Element Photo:

Description of Photo:

Element Data:

Element Group:	Piers	Length:	5.0 m
Element Name:	Pile Caps	Width:	0.35 m
Location:	Timber Trestle Spans	Height:	0.35 m
Material:	Timber	Count:	6
Element Type:		Total Quantity:	42 sq. m
Environment:	Severe	Limited Inspection:	
Protection System:	Creosote		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		39.5	2.1	0.4	

Comments: Light weathering typical. Localized light to severe medium checks and splits typical.

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 38 - Pile Cap.jpg

Element Photo:

Description of Photo: Photo 39 - Pile Cap.jpg

Element Photo:

Description of Photo:

Element Data:

Element Group:	Piers	Length:	
Element Name:	Piles	Width:	0.3 m dia.
Location:	Timber Trestle Spans	Height:	3.0 m ave.
Material:	Timber	Count:	36
Element Type:		Total Quantity:	108 m
Environment:	Severe	Limited Inspection:	
Protection System:	Creosote		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		101.5	5.4	1.1	

Comments: Light weathering typical. Localized light to severe medium checks and splits typical.

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 40 - Piles.jpg

Element Photo:

Description of Photo: Photo 41 - Piles.jpg

Element Photo:

Description of Photo: Photo 42 - Piles.jpg

Element Data:

Element Group:	Piers	Length:	5.9 m
Element Name:	Diagonal Bracing	Width:	0.075 m
Location:	Timber Trestle Spans	Height:	0.25 m
Material:	Timber	Count:	18
Element Type:		Total Quantity:	106.2 m
Environment:	Moderate	Limited Inspection:	
Protection System:	Creosote		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		90.3	10.6	5.3	

Comments: One brace near east pier has severe rot. Localized light to severe medium checks and splits typical.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	9 - Repair of Bridge Timber
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: ☐	Urgent: ☐ 1 Year: ☒ 2 Year: ☐
			Replace damaged brace.	

Element Photo:

Description of Photo: Photo 43 - Bracing.jpg

Element Data:

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

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

Comments: Limited inspection due to height restriction. Deck on girder bearings appear to have medium corrosion at east end. Remaining bearings assumed to be in fair condition as a result of medium corrosion.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:

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

Element Photo:

Description of Photo: Photo 44 - Pier Bearings

Element Photo:

Description of Photo: Photo 45 - Pier Bearing.jpg

Element Photo:

Description of Photo: Photo 46 - Pier Bearing.jpg

Element Data:

Element Group:	Piers	Length:	5.0 m
Element Name:	Shafts/Columns/Pile/Bents	Width:	3.5 m
Location:	West spans	Height:	4.83 m
Material:	Cast-in-place Concrete	Count:	3
Element Type:	Reinforced Concrete	Total Quantity:	246.33 sq. m
Environment:	Moderate	Limited Inspection:	X
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		123.17	61.58	61.58	

Comments: Limited inspection due to lack of access. Light to very severe scaling and large areas of light to severe disintegration. East pier has localized exposed rebar. Narrow to medium cracking with staining and efflorescence noted at all piers. Areas of light to 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 at this time or into the near future.

Element Photo:

Description of Photo: Photo 47 - Piers

Element Photo:

Description of Photo: Photo 48 - Piers.jpg

Element Photo:

Description of Photo: Photo 49 - Piers.jpg

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: 2012 inspection water levels revealed timber cribbing supporting the concrete piers. Based on visual observations from boat access, deterioration of the timber was evident and due to condition and age an underwater inspection is recommended.

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 52 - Foundations.jpg

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		128	44	5	

Comments: Light to medium corrosion typical. Web stiffener and bottom flanges have localized deformations throughout, especially on north side. Localized areas of web and bottom flanges have areas of severe corrosion.

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 - Girders.jpg

Element Photo:

Description of Photo: Photo 54 - Girders.jpg

Element Photo:

Description of Photo:

Element Data:

Element Group:	Beams	Length:	24.0 m (average)
Element Name:	Girders	Width:	0.43 m
Location:	Through Girder Spans	Height:	2.45 m
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		566	63	6.5	

Comments: Light corrosion typical. Significant areas of the bottoms of stiffeners have medium to very severe corrosion with up to approximately 50% section loss. Several bottoms of stiffeners have very severe corrosion with up to 100% section loss, particularly the north side of the west through span.

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

Urgent: [ ]	1 Year: [ ]	2 Year: [ ]

Element Photo:

Description of Photo: Photo 55 - Girders.jpg

Element Data:

Element Group:	Beams	Length:	3.96 m
Element Name:	Bracing	Width:	
Location:	Deck on Girder Span	Height:	2.45 m
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		3	2		

Comments: Light to medium corrosion typical.

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 - Diaphragms.jpg

Element Data:

Element Group:	Beams	Length:	4.4 m
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: Limited inspection due to lack of access. Light corrosion typical.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:

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

Element Photo:

Description of Photo: Photo 57 - Floor Beams

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		

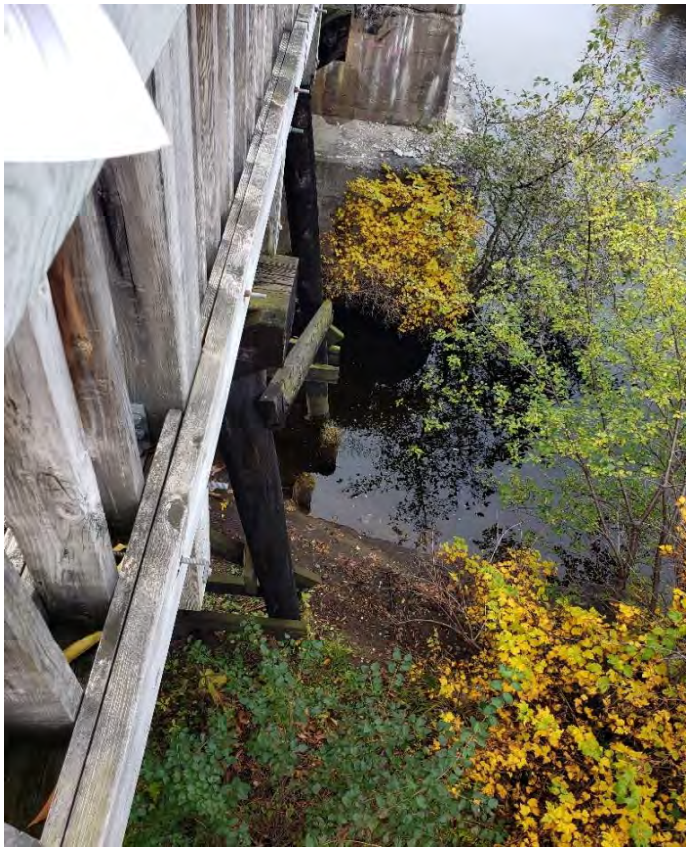
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each	4				

Comments: No observed defects. Embankments are vegetated and appear stable.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:

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

Element Photo:



Description of Photo: Photo 58 - Embankments

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: No observed defects. Waterway is free flowing and is free of debris.

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 - 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	Replace =	Replace east abutment wall				X	$20,000.00
Abutments	Rehab. =	Repair concrete	X				$12,000.00
Retaining Wall	Rehab.=	Repair concrete		X			$7,500.00
Retaining Wall Barrier							
Piers							
Wingwalls	Rehab. =	Replace east wingwalls		X			$12,000.00
Deck							
Estimated Rehabilitated or Replacement Structure Dimensions[3]							
Total Deck Length (m)		Overall Str. Width (m)				Total Structural Cost	$451,500.00

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	$802,500.00

Justification:
The east abutment wall, ballast wall and wingwalls have severe to very severe rot throughout and are recommended to be replaced. Several curb timbers and deck planks are missing or have severe to very severe rot throughout and are recommended to be replaced. The west through truss has several vertical stiffeners with 100% sections loss at the interface with the bottom flange, however load carrying capacity is not a concern at this time. Barrier height should be increased to 1.37 m to meet CHBDC requirements for cyclists, however 1.2m can be used based on owner approval. Concrete abutment and piers, steel girder repairs, and coating of steel elements is recommended to be considered in a 6-10 year time frame to prolong the structure's service life.

MTO Site Number:

Inventory Data:

Structure Name	Cascade Street Bridge No. 1								
Main Highway #	Cascade Street	On Structure [X]	or Under [ ]	Service on Structure	[ ] Navig. Water	[ ] Non-Navig. Water	[ ] Rail	[X] Road	[X] Ped. [ ] Other
Location Description	0.095 km east of Water Street			Service under:	[ ] Navig. Water	[X] Non-Navig. Water	[ ] Rail	[ ] Road	[ ] Ped. [ ] Other
Owner/Custodian	Town of Parry Sound								
MTO Region	Northeastern	Latitude	45° 21' 01" N	Longitude	80° 01' 33" W				
Regional Engineer		Heritage Designation:	[X] Not Cons.	[ ] Cons./Not App.	[ ] List/Not Desig.	Desig.	[ ] Desig./Not List	[ ] Desig. & List	
MTO Area	52 - Huntsville	Hwy Class:	Freeway [ ]	Arterial [X]	Collector	Local [ ]			
Old County	44 - Parry Sound	Posted Speed	40	No. of Lanes	2				
Township	452 - McDougall	AADT	Unknown	% Truck	Unknown				
Structure Type 1	Box beam of girders								
Structure Material 1	Concrete	Traffic Directional Bound	N-S						
Structure Type 2	Concrete deck								
Structure Material 2	Concrete	Inspection Frequency	2	(years)					
Total Deck Length	52.9 (m)	Inspection Year	2020						
Overall Str. Width	11.2 (m)	Inspection Duration	2	(hrs)					
Culvert Length	0 (m)								
Total Deck Area	592.5 (sq.m)								
Roadway Width	8.5 (m)	Min. Vertical Clearance		(m)					
Skew Angle	0 (Degree)	Detour Distance	2.2	(km)					
No. of Spans	2	Fill on Structure	0	(m)					
Span Lengths	26.45, 26.45 (m)								
For retaining wall:									
Total Wall Length	(m)	Max. Wall Height	(m)						
Total Wall Area	(sq.m)	Ave. Wall Height	(m)						
		Angle of Backfill	(Degrees)						

Historical Data

Year Built	1981	Year of superstruct. Constructed	N/A	
Last Reg. OSIM Inspection	2018	Year of Last Minor Rehab.	N/A	
Last Enh. OSIM Inspection		Year of Last Major Rehab	2009	
		Current Load Limit	/ /	(tonnes)

Work History: (Date/description)	Investigation History: (Date/description)

MTO Site Number:

Field Inspection Information:

Date of Inspection:	October 21, 2020	Type of Inspection:	[X] Reg. OSIM [ ] Enh. OSIM
Inspected By	Kieran Ferguson		
Others in Party:	None		
Eng. Access Equipment:	None		
Special Access Equipment	None		
Weather	Overcast/Light Rain	Temperature	**10** °C

Additional Investigations Required:

	Priority			Estimated Cost
	None	Normal	Urgent	
Material Condition Survey				
Detailed Deck Condition Survey:	X			
Non-destructive Delamination 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	X			
Deformations, Settlements and Movements:	X			
Crack Widths:	X			
RSS Horizontal movements of face:	X			
RSS Vertical movements of overall structure:	X			
RSS Local movements or deterioration of face elements:	X			
RSS Horizontal movements within overall structure:	X			
RSS Vertical movements within overall structure	X			
RSS Lateral earth pressure at the back of facing elements	X			
Investigation Notes:		Total Cost		$0.00

Overall Structure Notes:

Recommended Work on Structure	[ ] None [X] Minor Rehab. [ ] Major Rehab. [ ] Replace
Timing of Recommended Work	[ ] Urgent [X] 1 to 5 years [ ] 6 to 10 years
Overall Comments:	The bridge is in generally good condition. No significant performance deficiencies.
Date of Next inspection:	2022

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	74.40

Overal Bridge Sufficiency

Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)
0	3	0	0	71.40

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		113.95	1.25	1.25	

Comments: Light ravelling typical. North: 2.0m of narrow cracking. South: 5.0m of wide cracking and 5.0m of medium cracking at transverse joint. Some medium progressive edge cracking around each catchbasin.

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 1 - Approach Surface

Element Data:

Element Group:	Approaches	Length:	6.85 m
Element Name:	Slabs	Width:	8.5 m
Location:	North and South	Height:	0.255 m
Material:	Concrete	Count:	2
Element Type:	Solid Slab	Total Quantity:	116.45 sq. m
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 good condition based on asphalt condition.

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 2 - Approach Slab

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: Light corrosion typical. Some debris has collected on the road surface around the catchbasin inlets, no obstruction to drainage.

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 3 - Approach Catchbasin

Element Photo:

Description of Photo: Photo 4 - Approach Catchbasin.jpg

Element Photo:

Description of Photo: Photo 5 - Approach Catchbasin.jpg

Element Data:

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

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

Comments: Light scaling typical. Four medium 150x100x25 mm spalls.

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 6 - Approach Curb

Element Photo:

Description of Photo: Photo 7 - Approach Curb.jpg

Element Photo:

Description of Photo: Photo 8 - Approach Curb.jpg

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		24.828	1.3	0.45	

Comments: Light scaling typical. Longitudinal 1.8m wide crack. Some abrasion and wear along curb edge resulting in localized medium spalls.

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 9 - Approach Sidewalk

Element Data:

Element Group:	Approaches	Length:	46.0 m
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:	46.0 m
Environment:	Severe	Limited Inspection:	
Protection System:	Galvanized		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m	8	42		4	8 - Pedestrian / vehicular hazard

Comments: Northwest is in excellent condition. Remaining rails have localized light corrosion typical. No guide rail at northeast approach. Southwest end termination has medium corrosion and full length deformations. SW W-beam has 2.5m of deformations and two 300x300 mm deformations. The end terminal has deficient height and end block is rotated sideways. Southeast has some abrasion deformations and it's bridge connection has deficient height.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	**18 - Other**
Urgent: ☐	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 10 - Approach Barrier

Element Photo:

Description of Photo: Photo 11 - Approach Barrier.jpg

Element Photo:

Description of Photo: Photo 12 - Approach Barrier.jpg

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		247.8	161	40	9 - Rough riding surface

Comments: Light ravelling typical. Medium ravelling along curbs and centreline typical. Severe 300x300x25 mm and 500x500x25 mm deep potholes. 11.5 m of narrow cracks. Two medium wheel track ruts each 2.0 m long. Northbound land has curbside severe wheel track rut 52.8 m long x 25 mm deep. Southbound lane has two severe wheel track ruts 52.8 m long x 25mm deep.

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 potholes.	

Elelment Photo:

Description of Photo: Photo 13 - Wearing Surface.jpg

Element Photo:

Description of Photo: Photo 14 - Wearing Surface.jpg

Element Photo:

Description of Photo: Photo 15 - Wearing Surface.jpg

Element Data:

Element Group:	Decks	Length:	52.8 m
Element Name:	Deck Top	Width:	11.2 m
Location:	Deck	Height:	0.125 m
Material:	Concrete	Count:	
Element Type:		Total Quantity:	591.36 sq. m
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. Deck top 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 16 - 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		4			

Comments: Light corrosion typical. No evidence of clogging.

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 17 - Drains

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		99.4	1.6	1.96	

Comments: Very severe 1,000x400x25 mm deep spall. Severe 600x300x25 mm deep spall. 4.5 m of wide cracking. 6.4 m of medium cracking. Medium 300x300x25 mm deep spall. Severe 1,200x150x25 mm deep spall with exposed rebar. Medium 300x100x50 mm deep spall. Medium 200x100x25 mm deep spall.

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

Elelment Photo:

Description of Photo: Photo 18 - Sidewalk

Element Photo:

Description of Photo: Photo 19 - Sidewalk.jpg

Element Photo:

Description of Photo: Photo 20 - Sidewalk.jpg

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		55.24	0.1	0.1	

Comments: 300mm of medium cracking. Medium 300x100x25 mm deep spall. Two medium 200x200x25 mm deep spalls with exposed corroding rebar.

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 21 - Curb

Element Photo:

Description of Photo: Photo 22 - Curb.jpg

Element Photo:

Description of Photo: Photo 23 - Curb.jpg

Element Data:

Element Group:	Barriers	Length:	2.4 m
Element Name:	Railing Systems	Width:	
Location:	East and West Side	Height:	1.12 m
Material:	Aluminum	Count:	50
Element Type:	4 Rail Metal Railing - Aluminum	Total Quantity:	120.0 m
Environment:	Severe	Limited Inspection:	
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		114	4	2	8 - Pedestrian / vehicular hazard

Comments: West side is in good condition with the exception of a 2.0m deformed section with some small localized punctures. Welded connection between aluminum rail units. East side has some medium abrasion and localized deformations: one 100x100 mm deformation and two 100x300 mm deformations.

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:
			Repair punctured railing	

Elelment Photo:

Description of Photo: Photo 24 - Railing

Element Photo:

Description of Photo: Photo 25 - Railing.jpg

Element Photo:

Description of Photo: Photo 26 - Railing.jpg

Element Data:

Element Group:	Accessories	Length:	
Element Name:	Utilities	Width:	0.075 m
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		1		1	

Comments: Overhead hydro and electical conduit along east side of bridge appear to be in good condition. Light poles appear to be in good condition. South utility access cover has a wide crack through the center. North utility access cover is in good condition.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	18 - Other
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: X 2 Year:
			Replace south utility covering.	

Elelment Photo:

Description of Photo: Photo 27 - Utilities

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		93.36	2	0.1	

Comments: South: 8.0 m of medium vertical cracking. 100x300x25 mm deep medium spall with medium corroded rebar. North abutment is inaccessible due to fast flowing water.

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 28 - Abutment Wall

Element Photo:

Description of Photo: Photo 29 - Abutment Wall.jpg

Element Photo:

Description of Photo: Photo 30 - Abutment Wall.jpg

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		114.28	0.1		

Comments: Southwest wingwall has 300 mm of medium vertical cracking. North wingwalls were inaccessible due to fast flowing water.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:

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

Elelment Photo:

Description of Photo: Photo 31 - Wingwall

Element Photo:

Description of Photo: Photo 32 - Wingwall.jpg

Element Photo:

Description of Photo:

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:	2
Element Type:	Spread footing	Total Quantity:	n/a
Environment:	Moderate	Limited Inspection:	X
Protection System:			

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

Comments: South: Two 600 mm long medium cracks in exposed portion of foundation footing. North footing is inaccessible due to fast flowing water.

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

Elelment Photo:

Description of Photo: Photo 33 - Foundation

Element Photo:

Description of Photo: Photo 34 - Foundation.jpg

Element Photo:

Description of Photo:

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: No observed defects.

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 35 - 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		3			

Comments: All three embankments are heavily vegetated. Some light erosion on northwest quadrant. No embankment element present on northeast as it's part of the structure.

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 - Embankment

Element Photo:

Description of Photo: Photo 37 - Embankment.jpg

Element Photo:

Description of Photo: Photo 38 - Embankment.jpg

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		297.9	0.4		

Comments: Light scaling typical. Four 300x300 mm medium delaminations along the south girder ends with light rebar 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 39 - Girders

Element Photo:

Description of Photo: Photo 40 - Girders.jpg

Element Photo:

Description of Photo: Photo 41 - Girders.jpg

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. 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:	

Elelment Photo:

Description of Photo: Photo 42 - Pier Bearings

Element Data:

Element Group:	Piers	Length:	1.0 m
Element Name:	Shaft/Column	Width:	9.0 m
Location:	Center of Bridge	Height:	6.15 m
Material:	Concrete	Count:	1
Element Type:		Total Quantity:	123.0 sq. m
Environment:	Moderate	Limited Inspection:	X
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		123			

Comments: Not accessible for inspection. Appears to be in good condition. Previous report notes two 3.0 m long narrow vertical cracks on south side. Exposed pier footing has localized light erosion.

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 43 - Pier

Element Data:

Element Group:	Retaining Wall	Length:	10.0 m
Element Name:	Wall	Width:	
Location:	SW Embankment	Height:	1.2 m
Material:	Gabion Baskets	Count:	1
Element Type:	Rock	Total Quantity:	12 sq. m
Environment:	Moderate	Limited Inspection:	
Protection System:			

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

Comments: No evidence of settlement or sliding. Minor deviations in horizontal alignment.

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 - Stone Baskets

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						
Estimated Rehabilitated or Replacement Structure Dimensions[3]						
Total Deck Length (m)	Overall Str. Width (m)				Total Structural Cost	$0.00

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 rail 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	$32,500.00

Justification:
Damaged guide rail sections should be replaced and an end treatment installed.

MTO Site Number:

Inventory Data:

Structure Name	Cascade Street Bridge No. 2								
Main Highway #	Cascade Street	On Structure	X	or Under		Service on Structure	Navig. Water	Non-Navig. Water	
							Rail	X Road	Ped.	Other
Location Description	0.019 km east of Water Street					Service under:	Navig. Water	X Non-Navig. Water	
							Rail	Road	Ped.	Other
Owner/Custodian	Town of Parry Sound								
MTO Region	Northeastern				Latitude	45° 21' 02" N		Longitude	80° 01' 35" W
Regional Engineer					Heritage Designation:	X Not Cons.	Cons./Not App.	List/Not Desig.	
						Desig.	Desig./Not List	Desig. & List	
MTO Area	52 - Huntsville				Hwy Class:	Freeway	Arterial	Collector X	Local
Old County	44 - Parry Sound				Posted Speed	40		No. of Lanes	2
Township	452 - McDougall				AADT	Uknown		% Truck	Unknown
Structure Type 1	Rigid Frame Vertical Leg								
Structure Material 1	Concrete				Traffic Directional Bound	N-S			
Structure Type 2	Concrete deck								
Structure Material 2	Concrete				Inspection Frequency	2	(years)		
Total Deck Length	11.5	(m)			Inspection Year	2020			
Overall Str. Width	11.2	(m)			Inspection Duration	2	(hrs)		
Culvert Length	0	(m)							
Total Deck Area	128.8	(sq.m)							
Roadway Width	8	(m)			Min. Vertical Clearance	3.6	(m)		
Skew Angle	10	(Degree)			Detour Distance	2.2	(km)		
No. of Spans	1				Fill on Structure	0	(m)		
Span Lengths	10	(m)							
For retaining wall:									
Total Wall Length	6	(m)			Max. Wall Height	2.8	(m)		
Total Wall Area	16.8	(sq.m)			Ave. Wall Height	2.8	(m)		
					Angle of Backfill		(Degrees)		

Historical Data

Year Built	1984	Year of superstruct. Constructed	N/A	
Last Reg. OSIM Inspection	2018	Year of Last Minor Rehab.	N/A	
Last Enh. OSIM Inspection		Year of Last Major Rehab	Unknown	
		Current Load Limit	/ /	(tonnes)

Work History: (Date/description)	Investigation History: (Date/description)

MTO Site Number:

Field Inspection Information:

Date of Inspection:	October 21, 2020	Type of Inspection:	[X] Reg. OSIM [ ] Enh. OSIM
Inspected By	Kieran Ferguson		
Others in Party:	None		
Eng. Access Equipment:	None		
Special Access Equipment	None		
Weather	Overcast/Light Rain	Temperature	**10** °C

Additional Investigations Required:

	Priority			Estimated Cost
	None	Normal	Urgent	
Material Condition Survey				
Detailed Deck Condition Survey:	X			
Non-destructive Delamination 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	X			
Deformations, Settlements and Movements:	X			
Crack Widths:	X			
RSS Horizontal movements of face:	X			
RSS Vertical movements of overall structure:	X			
RSS Local movements or deterioration of face elements:	X			
RSS Horizontal movements within overall structure:	X			
RSS Vertical movements within overall structure	X			
RSS Lateral earth pressure at the back of facing elements	X			
Investigation Notes:		Total Cost		$0.00

Overall Structure Notes:

Recommended Work on Structure	[ ] None [X] Minor Rehab. [ ] Major Rehab. [ ] Replace
Timing of Recommended Work	[ ] Urgent [X] 1 to 5 years [ ] 6 to 10 years
Overall Comments:	The bridge is generally in good condition. Approach asphalt repairs plus deck rout & seal, structure barrier connections, repair footing (void), repair mortar and stone retaining wall.
Date of Next inspection:	2022

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%	99.25	72.88

Overal Bridge Sufficiency

Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)
0	3	0	0	69.88

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		87.4	2.5	0.1	

Comments: North: 8.5m of medium cracking. South: 5.0m narrow transverse cracks in northbound lane. Severe 300x300x25 mm pothole on north approach.

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

Elelment Photo:

Description of Photo: Photo 1 - Approach Surface

Element Photo:

Description of Photo: Photo 2 - Approach Surface.jpg

Element Photo:

Description of Photo: Photo 3 - Approach Surface.jpg

Element Data:

Element Group:	Approaches	Length:	5.3 m
Element Name:	Sidewalks	Width:	1.35 m
Location:	NE and SE Quadrants	Height:	0.14 m
Material:	Concrete	Count:	2
Element Type:		Total Quantity:	15.8 sq. m
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 sidewalk concrete has light scaling typical.

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 - Approach Sidewalk

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		23.1	0.1		

Comments: Light scaling typical. Some debris has collected along the gutters, no obstruction to drainage. South quadrants have light abrasion minor scraping at edge along entire length.

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 5 - Approach Curb

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. Light corrosion typical. Some debris has collected on the road surface around the catchbasin inlets, no obstruction to drainage.

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 6 - Approach Catchbasin

Element Data:

Element Group:	Approaches	Length:	46.0 m
Element Name:	Barriers	Width:	
Location:	NW, NE, SE, and SW Quadrants	Height:	
Material:	Steel	Count:	
Element Type:	Steel Beam Guide rail	Total Quantity:	46.0 m
Environment:	Severe	Limited Inspection:	
Protection System:	Galvanized		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		42.5	3	0.5	

Comments: Northeast rail has a substandard connection to bridge, missing bolt, 2 damaged posts, three 50x50 mm deformations and localized light abrasion deformations. Northwest rail has a rotated block and medium corrosion of the end termination and a substandard connection to bridge. Southeast rail is in good condition. Southwest rail is in good condition. No end treatments are provided on guiderail terminations and are not needed due to the presence of barrier curb.

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

Elelment Photo:

Description of Photo: Photo 7 - Approach Barrier

Element Photo:

Description of Photo: Photo 8 - Approach Barrier.jpg

Element Photo:

Description of Photo: Photo 9 - Approach Barrier.jpg

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		77.6	16.1	1.5	9 - Rough riding surface

Comments: 18.2m of medium cracking. 4.0m of wide and 4.0m of medium cracking at north tranverse joint. 2.0m of wide and 2.0m of medium cracking at south transverse joint. 11.2x0.3 m strip of medium ravelling on east and west side generally along the wheel tracks. Each lane has a 11.2x0.3 m strip of medium loss of bond.

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.	

Elelment Photo:

Description of Photo: Photo 10 - Wearing Surface.jpg

Element Photo:

Description of Photo: Photo 11 - Wearing Surface.jpg

Element Photo:

Description of Photo: Photo 12 - Wearing Surface.jpg

Element Data:

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

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

Comments: Limited inspection. Deck top 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 13 - Deck Top

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		105.68	7.5	0.5	

Comments: Limited Inspection. Five 300 mm narrow cracks on west fascia with wet areas. Four 300 mm narrow cracks on east fascia. Four 3.0m medium cracks with efflorescence and four additional 3.0m medium cracks. Three 2.0m medium 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 14 - Soffit

Element Photo:

Description of Photo: Photo 15 - Soffit.jpg

Element Photo:

Description of Photo: Photo 16 - Soffit.jpg

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. Light sediment buildup along curb throughout. Abutment wall drains below deck are free of obstruction.

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 17 - Abutment Wall Drain

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		31.13	2.25		

Comments: Light scaling typical. 1.5m medium crack 2.0m south of north joint. East sidewalk edge along traffic face has light abrasion along entire length and 1.5m of medium cracks. Localized light abrasion along traffic face. Light rust staining along the east traffic face. West sidewalk has sand deposits along the raised curb.

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 18 - Sidewalk

Element Photo:

Description of Photo: Photo 19 - Sidewalk.jpg

Element Photo:

Description of Photo: Photo 20 - Sidewalk.jpg

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		14.4	13.9	0.5	8 - Pedestrian / vehicular hazard

Comments: West side railing system is generally in good condition. East side has localized abrasion and localized deformations on all 4 rails entire length, north end missing 2 caps. 50x50 mm gouge 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 caps.	

Elelment Photo:

Description of Photo: Photo 21 - Barrier

Element Photo:

Description of Photo: Photo 22 - Railing.jpg

Element Photo:

Description of Photo: Photo 23 - Railing.jpg

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 is in good 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:

Elelment Photo:

Description of Photo: Photo 24 - Signs

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 visible. Overhead hydro 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 25 - Overhead Hydro

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		112.32	3	0.25	

Comments: Light erosion at both ends of the footings. 4.0m of narrow cracking. 10.0m of medium cracking. 800mm of wide cracking at center of footing. Bottom of south wall has a localized area of very severe erosion with a 400x300x200 mm deep void with water churning within the void.

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:
			Repair concrete void.	

Elelment Photo:

Description of Photo: Photo 26 - Abutment Wall

Element Photo:

Description of Photo: Photo 27 - Abutment Wall.jpg

Element Photo:

Description of Photo: Photo 28 - Abutment Wall.jpg

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		127.89	4	0.5	

Comments: Light scaling typical. Southwest wingwall has a diagonal 1.0m long hairline crack. Southeast has 1.5m of medium vertical cracking at the center of the wall. All wingwalls have a wide 500mm long horizontal crack the width of the abutment wall at the top of wingwall and bearing seat. Medium scaling on the southeast wingwall 600mm high x 6.0m long.

Recommended Work:	Rehab: ☐	Replace: ☐	Maintenance Needs:	18 - Other
Urgent: ☐	1-5 Years: ☐	6-10 Years: ☐	None: ☐	Urgent: ☐ 1 Year: X 2 Year: ☐
				Replace vertical joint sealant between abutment wall and wingwall at all 4 quadrants

Elelment Photo:

Description of Photo: Photo 29 - Wingwall

Element Photo:

Description of Photo: Photo 30 - Wingwall.jpg

Element Photo:

Description of Photo: Photo 31 - Wingwall.jpg

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:	Moderate	Limited Inspection:	X
Protection System:			

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

Comments: No evidence of movements or other performance deficiencies.

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 32 - Foundation

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: No observed defects. Channel consists of exposed bedrock and is a spillway channel 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: ☐

Elelment Photo:

Description of Photo: Photo 33 - 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 observed defects.

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 34 - 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: No observed defects.

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 35 - Slope Protection

Element Data:

Element Group:	Retaining Wall	Length:	15.0 m
Element Name:	Wall	Width:	
Location:	SW Quadrant	Height:	1.8 m
Material:	Mortar and Stone	Count:	1
Element Type:		Total Quantity:	27.0 sq. m
Environment:	Benign	Limited Inspection:	X
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		20	6.85	0.15	

Comments: Retaining wall part of hydro facility. Localized light loss of mortar and stones.-Efflorescence deposits throughout emanating from the mortar. Severe 1,500x300x300mm deep void at bottom center of wall with loss of mortar and stones.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:	18 - Other
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Year: 2 Year: X
			Repair void at bottom of retaining wall	

Elelment Photo:

Description of Photo: Photo 36 - Retaining Wall

Element Photo:

Description of Photo: Photo 37 - Retaining Wall With Missing Stones.jpg

Element Photo:

Description of Photo: Photo 38 - Retaining Wall.jpg

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						
Foundation						
Estimated Rehabilitated or Replacement Structure Dimensions[3]						
Total Deck Length (m)	Overall Str. Width (m)				Total Structural Cost	$0.00

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	$97,500.00

Justification:

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 in 1-5 years to improve safety.

MTO Site Number:

Inventory Data:

Structure Name	Waubuno Street Bridge								
Main Highway #	Waubuno Street	On Structure	X	or Under		Service on Structure	Navig. Water	Non-Navig. Water	
							Rail	Road	X Ped.	Other
Location Description	Waubuno Street at Georgian Bay					Service under:	Navig. Water	Non-Navig. Water	
							Rail	X Road	Ped.	Other
Owner/Custodian	Town of Parry Sound								
MTO Region	Northeastern				Latitude	45° 20' 34" N		Longitude	780° 02' 27" W
Regional Engineer					Heritage Designation:	X Not Cons.	Cons./Not App.	List/Not Desig.	
						Desig.	Desig./Not List	Desig. & List	
MTO Area	52 - Huntsville				Hwy Class:	Freeway	Arterial	Collector	Local X
Old County	44 - Parry Sound				Posted Speed	50		No. of Lanes	1
Township	452 - McDougall				AADT	Unknown		% Truck	Unknown
Structure Type 1	Timber Girder								
Structure Material 1	Timber				Traffic Directional Bound	N-S			
Structure Type 2									
Structure Material 2					Inspection Frequency	2	(years)		
Total Deck Length	12.81	(m)			Inspection Year	2022			
Overall Str. Width	3.57	(m)			Inspection Duration	2	(hrs)		
Culvert Length	0	(m)							
Total Deck Area	45.7	(sq.m)							
Roadway Width	3.17	(m)			Min. Vertical Clearance	2.96	(m)		
Skew Angle	0	(Degree)			Detour Distance	N/A	(km)		
No. of Spans	1				Fill on Structure	0	(m)		
Span Lengths	3.73, 4.18, 3.53						(m)		
For retaining wall:									
Total Wall Length		(m)			Max. Wall Height		(m)		
Total Wall Area		(sq.m)			Ave. Wall Height		(m)		
					Angle of Backfill		(Degrees)		

Historical Data

Year Built	1920	Year of superstruct. Constructed	N/A	
Last Reg. OSIM Inspection	2018	Year of Last Minor Rehab.	N/A	
Last Enh. OSIM Inspection		Year of Last Major Rehab	Unknown	
		Current Load Limit	/ / 10	(tonnes)

Work History: (Date/description)	Investigation History: (Date/description)

MTO Site Number:

Field Inspection Information:

Date of Inspection:	October 21, 2020	Type of Inspection:	[X] Reg. OSIM [ ] Enh. OSIM
Inspected By	Kieran Ferguson		
Others in Party:	None		
Eng. Access Equipment:	None		
Special Access Equipment	None		
Weather	Overcast/Light Rain	Temperature	**10** °C

Additional Investigations Required:

	Priority			Estimated Cost
	None	Normal	Urgent	
Material Condition Survey				
Detailed Deck Condition Survey:	X			
Non-destructive Delamination 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	X			
Deformations, Settlements and Movements:	X			
Crack Widths:	X			
RSS Horizontal movements of face:	X			
RSS Vertical movements of overall structure:	X			
RSS Local movements or deterioration of face elements:	X			
RSS Horizontal movements within overall structure:	X			
RSS Vertical movements within overall structure	X			
RSS Lateral earth pressure at the back of facing elements	X			
Investigation Notes:		Total Cost		$0.00

Overall Structure Notes:

Recommended Work on Structure	[ ] None [X] Minor Rehab. [ ] Major Rehab. [ ] Replace
Timing of Recommended Work	[ ] Urgent [X] 1 to 5 years [ ] 6 to 10 years
Overall Comments:	This bridge is in generally good condition. Bridge elements such as ballast wall timbers, and signage require repair or replacement.
Date of Next inspection:	2022

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	70.58

Overal Bridge Sufficiency

Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)
2	0	0	0	68.58

Element Data:

Element Group:	Approaches	Length:	6.0 m
Element Name:	Wearing Surface	Width:	3.6 m
Location:	North and South of Bridge	Height:	
Material:	Earth	Count:	2
Element Type:		Total Quantity:	43.2 sq. m
Environment:	Severe	Limited Inspection:	
Protection System:	None		

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

Comments: Light wear typical.

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 - Approach Surface.jpg

Element Photo:

Description of Photo: Photo 2 - Approach Surface.jpg

Element Photo:

Description of Photo:

Element Data:

Element Group:	Accessories	Length:	
Element Name:	Signs	Width:	
Location:	North and South of Bridge	Height:	
Material:	Steel	Count:	10
Element Type:		Total Quantity:	
Environment:	Severe	Limited Inspection:	
Protection System:	None		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		4	6		8 - Pedestrian / vehicular hazard

Comments: 10-tonne load limit signs are in good condition on south approach but is missing on north approach. Clearance sign is bent and worn at corners. Still in good condition. Four OFSC trail signs are no longer present. One No Motorized Vehicles sign at each end of bridge. One object warning sign on south barrier.

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 and 10-tonne load limit sign.

Element Photo:

Description of Photo: Photo 3 - Signs.jpg

Element Photo:

Description of Photo: Photo 4 - Signs.jpg

Element Photo:

Description of Photo: Photo 5 - Signs.jpg

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	1				

Comments: Limited inspection due to cable height. Overhead cables appear to be in excellent condition, is free of damage and is performing as intended.

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 6 - Overhead Hydro.jpg

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		43.53	2.2		

Comments: Light weathering typical. Localized medium checks 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 7 - Deck.jpg

Element Photo:

Description of Photo: Photo 8 - Deck.jpg

Element Photo:

Description of Photo: Photo 9 - Deck.jpg

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		23.24	1.2	1.2	

Comments: 1.2m of 200x200 mm curb has been replaced on the southwest section. Light weathering typical. Localized light to severe checks 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 10 - Curb.jpg

Element Photo:

Description of Photo: Photo 11 - Curb.jpg

Element Photo:

Description of Photo: Photo 12 - Curb.jpg

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		25.62			

Comments: Light weathering typical. Previously noted damaged pickets have been replaced.

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
			Extend barrier along approaches to provide protection at embankments.	

Element Photo:

Description of Photo:

Photo 13 - Barrier.jpg

Element Photo:

Description of Photo: Photo 14 - Barrier.jpg

Element Photo:

Description of Photo: Photo 15 - Barrier.jpg

Element Data:

Element Group:	Barriers	Length:	0.089 m
Element Name:	Posts	Width:	0.089 m
Location:		Height:	0.99 m
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		16	2		

Comments: Light weathering typical. 2 posts exhbiting medium splintering, likely from grooming operations. Previously noted damaged post has been replaced.

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
			Extend barrier along approaches to provide protection at embankments.	

Element Photo:

Description of Photo: Photo 16 - Post.jpg

Element Photo:

Description of Photo: Photo 17 - Post.jpg

Element Photo:

Description of Photo: Photo 18 - Post.jpg

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		36.04			

Comments: Light weathering typical. Overhead light crushing on the east exterior beam, likely from vehicle impact. West side and east sides show light crushing, likely from vehicle impact.

Recommended Work:	Rehab:	Replace:	Maintenance Needs:

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

Element Photo:

Description of Photo: Photo 19 - Beams.jpg

Element Photo:

Description of Photo: Photo 20 - Beams.jpg

Element Photo:

Description of Photo: Photo 21 - Beams.jpg

Element Data:

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

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

Comments: Only ends of stringers were visible for inspetion. Light to medium checks and splits typical.

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 22 - Stringers.jpg

Element Photo:

Description of Photo: Photo 23 - Stringers.jpg

Element Photo:

Description of Photo: Photo 24 - Stringers.jpg

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		2.6	0.1	1.6	

Comments: North: One transverse ballast wall timber has very severe rot. South: One transverse ballast wall timber has very severe rot at ends. One medium end split. 3 timber sills have been replaced.

Recommended Work:	Rehab: [ ]	Replace: [X]	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 25 - Abutment Wall.jpg

Element Photo:

Description of Photo: Photo 26 - Abutment Wall.jpg

Element Photo:

Description of Photo: Photo 27 - Abutment Wall.jpg

Element Data:

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

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m	2.5	42.62	0.5		

Comments: Light weathering typical. Newer timber pile cap with medium end splits. Southwest pile has been replaced. Light crushing on outer plies, likely from vehicle collisions.

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 - Piers.jpg

Element Photo:

Description of Photo: Photo 29 - Piers.jpg

Element Photo:

Description of Photo: Photo 30 - Piers.jpg

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:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		3	1		

Comments: Medium erosion at the northwest corner and below north abutment timbers resulting in some loss of material at edges of path. Light erosion at all quadrants.

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 at eroded areas.	

Element Photo:

Description of Photo: Photo 31 - Embankment.jpg

Element Photo:

Description of Photo: Photo 32 - Embankment.jpg

Element Photo:

Description of Photo: Photo 33 - Embankment.jpg

Element Data:

Element Group:		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 generally in good condition. North end has some medium loss of material with some rock protection appearing 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 34 - Slope Protection.jpg

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						
Abutment	Rehab. = Replace Ballast Walls		X			$15,000.00
Estimated Rehabilitated or Replacement Structure Dimensions[3]						
Total Deck Length (m)	Overall Str. Width (m)				Total Structural Cost	$15,000.00

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	Comments	Estimated Associated Work Cost
Approaches	Extend approach barriers	$15,000.00
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	$56,000.00
	Total Construction Cost	$71,000.00

Justification:

The deteriorated ballast wall timbers should be replaced as the rot will continue to progress affecting performance relating to retaining of backfill material.