TATHAM ENGINEERING

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Bridge Inspections

TOWN OF PARRY SOUND

Inspection Summary Report

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Issue	**Date**	**Description**
1	January 12, 2023	Inspection Summary Report

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1 Introduction

Tatham Engineering Ltd. was retained by the Town of Parry Sound to perform Detailed Visual Inspections (DVI) 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 general 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 bridges that were inspected are listed in Table 1.

Table 1: Bridge Locations

BRIDGE NAME	ROAD NAME	LOCATION
Seguin Street Bridge	Seguin Street	0.08 km West of River Street
Seguin River Pedestrian Bridge	Fitness Trail	0.10 km South of Seguin Street over Seguin River
Cascade Street Bridge No.1	Cascade Street	0.10 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 DVI's 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 inspection and terminology are in general accordance with the Ontario Ministry of Transportation (MTO) OSIM guidelines, available online under "MTO Technical Documents" at: https://www.library.mto.gov.on.ca/SydneyPLUS/TechPubs/Portal/tp/TechnicalPublications.aspx

In order to convey the results of the visual inspections, certain terms are used to identify particular deficiencies with respect to material condition and defects. Definitions of these terms can be found in the OSIM. Material defects and severity are classified and quantified, then the severity is translated to a condition state of Excellent, Good, Fair, or Poor. For example, a defect could consist of concrete scaling with a severity of Light, Medium, Severe or Very Severe. These severities are then translated to the OSIM defined condition states. Material Defects can be found in the OSIM Part 1 Section 1.2 Material Defects. Part 1 also provides material defects for various elements and associated materials. Part 2 Section 2.4 Material Condition States, 2.5 Suspected

Performance Deficiencies, and Section 2.9 Appendix A – Combined Summary of Material Defects and Condition States provide guidelines for determining the appropriate condition state of Excellent, Good, Fair, or Poor.

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 55.0 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. The sidewalks are exhibiting spalling and delaminations. The interior girder ends are corroding, with debris and moisture contributing to the deterioration. It is proposed the next OSIM inspection occur in 2024.

The following Additional Investigation is recommended:

- A Bridge Master inspection of the exterior of the girders (2 Years).

The following maintenance is recommended:

- Replace northeast approach barrier connection with standard connection (2 Years).
- Annual bridge cleaning, particularly the deck joints (1 Year).

The following rehabilitation is recommended:

- Sidewalk Concrete Repair: Includes spalls and delaminations (1-5 Years).
- Interior Girder Ends: Clean and recoat steel inside boxes to mitigate continued corrosion (1-5 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 96.5 m 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. 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. It is proposed that the next OSIM inspection occur in 2024.

The following Additional Investigation is recommended:

- An Underwater Investigation of the piers to confirm condition (2 Years).
- During a 2012 inspection, low 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.

The following maintenance is recommended:

- Clean off debris from west abutment bearing seats (1 Year).
- Ongoing timber member replacements (1 Year).

The following rehabilitation is recommended:

- Span 12 steel repairs (6-10 Years).
- West abutment concrete repair (6-10 Years).
- Three concrete piers concrete repair (6-10 Years).

2.3 CASCADE STREET BRIDGE NO.1

The two span 26.5 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. There is concrete deterioration along the top and front curb face of the sidewalk, and along the east and west exterior soffits. There are spalls and delaminations of girder soffit concrete at the girder ends. The asphalt is beginning to exhibit deterioration including rutting and cracks. No Additional Investigations are recommended at this time. It is proposed the next OSIM inspection occur in 2024.

The following maintenance is recommended:

- Repair punctured railing (2 Year).
- Replace damaged guide rail sections, rotten wood post, install end treatments (2 Year).
- Annual bridge cleaning (1 Year).

The following rehabilitation is recommended:

- Sidewalk top surface and face of curb concrete repair (1-5 Years).
- East and West exterior soffit concrete repair (1-5 Years).
- Girder soffit ends concrete repair (1-5 Years).
- Replace asphalt wearing surface, apply waterproofing membrane (1-5 Years).

2.4 CASCADE STREET BRIDGE NO.2

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. The asphalt is beginning to exhibit deterioration including rutting and cracks. No Additional Investigations are recommended at this time. There is no rehabilitation recommended. It is proposed the next OSIM inspection occur in 2024.

The following maintenance is recommended:

- Upgrade barrier connections to structure at north quadrants (2 Years).
- Replace missing end caps on structure barrier (2 Years).
- Repair concrete void in south abutment wall (2 Years).
- Repair void at bottom of retaining wall (2 Years).
- Repair north approach asphalt (2 Years).
- Annual bridge cleaning (1 Year).

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 3.2 m, and the overall width is 3.6 m out to out. It is currently used by pedestrian and snowmobiles.

The bridge is in generally good to fair condition; However, there are a number of elements exhibiting deterioration and rot. No Additional Investigations are recommended at this time. It is proposed the next OSIM inspection occur in 2024.

The following maintenance is recommended:

- Fasten loose deck planks (1 Year).
- Relocate No Motorized Vehicles signs to be more visible (1 Year).

The following rehabilitation is recommended:

- Replace deteriorated deck planks (1-5 Years).
- Replace deteriorated curbs (1-5 Years).
- Replace deteriorated stringers (1-5 Years).
- Replace south abutment ballast wall (1-5 Years).
- Replace north abutment deteriorated sills (1-5 Years).
- Replace deteriorated pier columns (1-5 Years).

3 Recommendations

Overall, these five structures are in generally good to fair condition. The following is a brief summary of key recommendations.

Seguin Street Bridge: Sidewalk concrete repairs, steel girder interior ends rehabilitation. Bridge Master inspection of the exterior of the girders estimated at $20,000.

Seguin River Pedestrian Bridge: Span 12 steel repairs, all pier concrete repairs, west abutment concrete repair. Underwater Investigation of the piers estimated at $20,000.

Cascade Street Bridge No. 1: Sidewalk and exterior deck soffit concrete repairs, asphalt replacement.

Cascade Street Bridge No. 2: Various maintenance items.

Waubuno Street Bridge: Timber replacement for stringers, pier columns, south abutment, and north abutment sills.

The following table summarizes rehabilitation costs, they do not include maintenance or Additional Investigation costs.

Table 2: Rehabilitation Costs

STRUCTURE	REHABILITATION	
	YEAR	COST
Seguin Street Bridge	1-5 Years	$271,000
Seguin Street Pedestrian Bridge	6-10 Years	$1,047,000
Cascade Street Bridge No. 1	1-5 Years	$825,000
Cascade Street Bridge No. 2	N/A	$0
Waubuno Street Bridge	1-5 Years	$140,000

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	**Cascade Street Bridge No.1**					
Main Highway #	**Cascade Street**	On [X] or Under [ ] Structure	Service on Structure	[ ] Navig. Water	[ ] Non-Navig. Water	
				[ ] Rail	[X] Road	[ ] Ped. [ ] Other
Location Description	0.05 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' 34"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 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	**2022**			
Overall Str. Width	**11.2** (m)	Inspection Duration	**2** (hrs)			
Culvert Length	(m)					
Total Deck Area	**592.5** (sq.m)					
Roadway Width	**8.5** (m)	Min. Vertical Clearance	(m)			
Skew Angle	(Degree)	Detour Distance	**2.2** (km)			
No. of Spans	**2**	Fill on Structure	**N/A** (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	**2020**	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:	**June 30, 2022**	Type of Inspection:	[X] Reg. OSIM [ ] Enh. OSIM
Inspected By	**Alison Friebel**		
Others in Party:	**None**		
Eng. Access Equipment:	**Camera, Tape measure, Hammer**		
Special Access Equipment	**None**		
Weather	**Sun/Cloud**	Temperature	**21** °C

Additional Investigations Required:	Priority			Estimated Cost
	None	Normal	Urgent	
Material Condition Survey	X			
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 in in generally good condition. Rehabilitation is recommended for the sidewalk, exterior soffits, and areas of the girder soffit at the girder ends. The asphalt wearing surface is starting to exhibit deterioration with 35% of the total area in fair condition.**
Date of Next inspection:	**2024**

Overall Bridge Condition					
% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIp)	
				BCIp	BCI
1%	1%	0%	2%	99.07	73.49

Overall Bridge Sufficiency				
Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)
0	3	0	0	70.49

Element Data:

Element Group:	**Decks**	Length:	**52.8**
Element Name:	**Wearing Surface**	Width:	**8.5**
Location:	**Deck**	Height:	**0.1**
Material:	**Asphalt**	Count:	
Element Type:		Total Quantity:	**448.8**
Environment:	**Severe**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**333.2**	**115.6**		

Comments: **Light ravelling typical. Medium wheel track rutting along wheel lines, typical. 3 light potholes. 40.0m of medium cracking and 11.5m of light cracks generally within wheel lines.**

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: Deck Wearing Surface

Element Data:

Element Group:	**Decks**	Length:	**52.8**
Element Name:	**Deck Top (with Thick Slab)**	Width:	**11.2**
Location:	**Deck**	Height:	**0.13**
Material:	**Concrete**	Count:	
Element Type:	**Cast-in-Place**	Total Quantity:	**591.4**
Environment:	**Moderate**	Inspected	Yes ☐ No ☐ limited ☒
Protection System:	**Waterproofing and Asphalt**		Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		**591.4**			

Comments: **Limited inspection. Drawings indicate a concrete distribution slab cast onto the precast concrete girders. Assumed to be in good condition based on wearing surface.**

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

Element Photo:

Description of Photo: Deck Top

Element Data:

Element Group:	**Decks**	Length:	**52.9**
Element Name:	**Soffit - Thin Slab**	Width:	**11.2**
Location:		Height:	**N/A**
Material:	**Concrete and Precast Concrete**	Count:	
Element Type:	**Cast-in-place ext. soffits, Precast Girders**	Total Quantity:	**592.5**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**567.5**	**10.0**	**15.0**	

Comments: **Limited inspection due to height. Light scaling, typical. Northeast fascia has 13 x 1.0m medium cracks with efflorescence, 4 areas of severe delamination with exposed rebar (8.0m x 500mm total) and 3 area of severe delamination (3 x 300 x 300mm). Northwest fascia has 14 x 1.0m medium cracks with efflorescence and 1 severe delamination with exposed rebar (3.0m x 300mm). Southwest fascia has 11 x 1.0m light cracks with efflorescence. Southeast fascia has 3 areas of severe delamination with exposed rebar (14.0m x 500mm total), 9 areas of 1.0m light to medium cracking with efflorescence and staining typical.**

Recommended Work:	Rehab: [X] Replace: [ ]	Maintenance Needs:	
Urgent: [ ] 1-5 Years: [X] 6-10 Years: [ ] None: [ ]		Urgent: [ ] 1 Year: [ ] 2 Year: [ ]	
Concrete repairs for the exterior soffit cast-in-place concrete			

Element Photo:

Description of Photo: Soffit Exposed Rebar and Cracks with Efflorescence, Typical

Element Photo:

Description of Photo: Soffit Exposed Rebar and Cracks with Efflorescence, Typical

Element Photo:

Description of Photo: Soffit Exposed Rebar and Cracks with Efflorescence, Typical

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**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:	**Cast Iron**		

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: [ ]	

Element Photo:

Description of Photo: Deck Drain

Element Data:

Element Group:	**Sidewalk/Curb**	Length:	**52.8**
Element Name:	**Sidewalks and Medians**	Width:	**1.8**
Location:	**East and West Sides**	Height:	**0.15**
Material:	**Concrete**	Count:	**1**
Element Type:	**Cast-in-place**	Total Quantity:	**103.0**
Environment:	**Severe**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**91.0**	**2.0**	**10.0**	

Comments: **Light scaling, typical. Three general areas of severe delamination. 4 medium to severe spalls along edge of sidewalk.**

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

Element Photo:

Description of Photo: Sidewalk

Element Photo:

Description of Photo: Sidewalk

Element Photo:

Description of Photo: Sidewalk

Element Data:

Element Group:	**Barriers**	Length:	**2.4**
Element Name:	**Railing Systems**	Width:	
Location:	**East and West Side**	Height:	**1.12**
Material:	**Aluminum**	Count:	**50**
Element Type:	**4 Rail Metal Railing - Aluminum**	Total Quantity:	**120.0**
Environment:	**Severe**	Inspected	Yes ☐ No ☐ limited ☐
Protection System:			Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*
	m		**115.6**	**2.4**	**2.0**

Comments: **West rail has 1 x 2.0m and 1 x 400mm of deformed section and 1 puncture. East rail has isolated areas of medium abrasions and 3 deformations (1 x 100 x 100mm and 2 x 100 x 300mm)**

Recommended Work:	Rehab: ☐ Replace: ☐	Maintenance Needs:	**3 - Railing System Repair**
Urgent: ☐ 1-5 Years: ☐ 6-10 Years: ☐ None: X		Urgent: ☐ 1 Year: ☐ 2 Year: X	
		Repair railing	

Element Photo:

Description of Photo: East railing system

Element Photo:

Description of Photo: West railing system

Element Photo:

Description of Photo: West railing system

Element Data:

Element Group:	**Beams/Main Longitudinal Elements**	Length:	**26.45**
Element Name:	**Girders**	Width:	**1.20**
Location:	**Below Deck**	Height:	**0.84**
Material:	**Precast Concrete**	Count:	**16**
Element Type:	**Box Girder**	Total Quantity:	**298.3**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**298.3**	**4.0**	**2.0**	

Comments: **Light scaling, typical North end of girder at abutment has 5 areas of 500 x 500mm severe delamination. Center span has several areas of 100 x 100mm delaminations. South end of girder at abutment has 2 areas of 300 x 300mm severe delaminations. Light rebar staining at girder ends typical.**

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

Element Photo:

Description of Photo: Girder Soffit

Element Photo:

Description of Photo: Girder Soffit

Element Photo:

Description of Photo: Girder Soffit

Element Data:

Element Group:	**Abutments**	Length:	
Element Name:	**Abutment Walls**	Width:	**11.1**
Location:	**North and South Ends**	Height:	**4.3**
Material:	**Concrete**	Count:	**2**
Element Type:	**Cast-in-place**	Total Quantity:	**95.5**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**81.9**	**13.5**	**0.1**	

Comments: **Light scaling, typical, with medium scaling generally within 1 m from bottom of wall. North abutment has 2 x 3.0m vertical medium crack on older concrete section. South abutment has 1 x 3.0m vertical medium crack and 2 x 300mm vertical light cracks. 100 x 300 x25mm medium spall with medium corroded rebar at bottom of south 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: North Abutment

Element Photo:

Description of Photo: South abutment

Element Photo:

Description of Photo: South abutment

Element Data:

Element Group:	**Abutments**	Length:	**6.7**
Element Name:	**Wingwalls**	Width:	
Location:	**All Quadrants**	Height:	**4.3**
Material:	**Concrete**	Count:	**4**
Element Type:	**Cast-in-place**	Total Quantity:	**114.4**
Environment:	**Benign**	Inspected	Yes ☐ No ☐ limited ☒
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**114.3**	**0.1**		

Comments: **Northwest and northeast walls have light map cracking, typical. Northeast wall has light erosion at base of wall. Southeast wall has light scaling, typical. Southwest wall has a 300mm medium crack.**

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

Element Photo:

Description of Photo: Southeast wingwall

Element Photo:

Description of Photo: Southwest wingwall

Element Photo:

Description of Photo: Northeast wingwall

Element Data:

Element Group:	**Piers**	Length:	**1.0**
Element Name:	**Shafts/Columns/Pile Bents**	Width:	**9.0**
Location:	**Center Pier**	Height:	**6.2**
Material:	**Concrete**	Count:	**1**
Element Type:	**Cast-in-place**	Total Quantity:	**213.0**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**123.0**			

Comments: **Light scaling typical. South side has 1-2.0m and 2-1.0m vertical light cracks near bottom of pier. Steel angle nosing at east side has 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: Pier

Element Data:

Element Group:	**Piers**	Length:	
Element Name:	**Bearings**	Width:	
Location:	**Center Pier**	Height:	
Material:	**Elastomeric**	Count:	**8**
Element Type:		Total Quantity:	**8**
Environment:	**Moderate**	Inspected	Yes [ ] No [X] limited [ ]
Protection System:			

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

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

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

Element Photo:

Description of Photo: Pier Bearings

Element Data:

Element Group:	**Retaining Walls**	Length:	**10.0**
Element Name:	**Walls**	Width:	
Location:	**SW Embankment**	Height:	**1.2**
Material:	**Gabion Baskets**	Count:	**1**
Element Type:	**Rock**	Total Quantity:	**12.0**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**12.0**			

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: [ ]	

Element Photo:

Description of Photo: Retaining Wall

Element Data:

Element Group:	**Embankments & Streams**	Length:	
Element Name:	**Streams and Waterways**	Width:	
Location:	**East and West**	Height:	
Material:	**Bedrock**	Count:	**All**
Element Type:		Total Quantity:	
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
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: [ ]	

Element Photo:

Description of Photo: Streams and Waterways

Element Data:

Element Group:	**Embankments & Streams**	Length:	
Element Name:	**Embankments**	Width:	
Location:	**SW, SE and NW Quadrants**	Height:	
Material:	**Trees, Shrubs and Earth**	Count:	**3**
Element Type:	**Vegetation**	Total Quantity:	**3**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

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

Comments: **All 3 embankments are heavily vegetated. Light erosion on northwest quadrant. No embankment element present on northeast so it is part of structure.**

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: SW Embankment

Element Photo:

Description of Photo: NW Embankment

Element Photo:

Description of Photo:

Element Data:

Element Group:	**Approaches**	Length:	**6.9**
Element Name:	**Wearing Surface**	Width:	**8.5**
Location:	**North and South**	Height:	**0.10**
Material:	**Asphalt**	Count:	**2**
Element Type:		Total Quantity:	**116.5**
Environment:	**Severe**	Inspected	Yes ☐ No ☐ limited ☐
Protection System:			Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		**116.5**	**13.7**		

Comments: **Light raveling, typical. North approach has 8.0m of light cracks in wheel rut and 150x150mm loss of bond around catch basin. South has 3.5m of light cracks. Light to medium rutting along wheel lines.**

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

Element Photo:

Description of Photo: South approach

Element Photo:

Description of Photo: North approach

Element Photo:

Description of Photo: North approach

Element Data:

Element Group:	**Approaches**	Length:	**6.9**
Element Name:	**Approach Slab**	Width:	**8.5**
Location:	**North and south**	Height:	**0.26**
Material:	**Concrete**	Count:	**2**
Element Type:	**Solid Slab**	Total Quantity:	**116.5**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:	**Asphalt Wearing Surface**		Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		**116.5**			

Comments: **Approach slabs are assumed 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: [ ]

Element Photo:

Description of Photo: Approach slab

Element Data:

Element Group:	**Approaches**	Length:	**46.0**
Element Name:	**Barrier**	Width:	
Location:	**NW, SE and SW Quadrants**	Height:	
Material:	**Steel**	Count:	**1**
Element Type:	**Steel beam Guide Rail on Steel Posts**	Total Quantity:	**46.0**
Environment:	**Severe**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:	**Galvanized**		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m	**8.0**	**22.0**	**12.0**	**4.0**	**8 - Pedestrian / vehicular hazard**

Comments: **Northwest is in excellent condition. Remaining rails have localized light corrosion typical. No guide rail northeast approach. Southwest end termination has medium corrosion, full length deformations and 4 rotten wood posts. Southwest W-beam has 2.5m of deformations and two 300x300mm deformations. The end terminal has deficient height and end block is rotated sideways. Southeast has abrasion deformations and it's bridge connection has deficient height.**

Recommended Work:	Rehab: [ ] Replace: [ ]	Maintenance Needs:	**3 - Railing System Repair**
Urgent: [ ] 1-5 Years: [ ] 6-10 Years: [ ] None: [X]		Urgent: [ ] 1 Year: [ ] 2 Year: [X]	
		Replaced damaged rail sections, rotten wood post and install end treatments at the south approach.	

Element Photo:

Description of Photo: Approach Barrier

Element Photo:

Description of Photo: Approach Barrier

Element Photo:

Description of Photo: Approach Barrier

Element Data:

Element Group:	**Approaches**	Length:	**6.9**
Element Name:	**Curb and Gutters**	Width:	**0.3**
Location:	**West Side**	Height:	**0.14**
Material:	**Concrete**	Count:	**2**
Element Type:	**Curb**	Total Quantity:	**6.0**
Environment:	**Severe**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**6.0**			

Comments: **Light scaling and abrasions typical. Northwest curb has 2 light 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: Northwest curb

Element Photo:

Description of Photo: Southwest curb

Element Photo:

Description of Photo:

Element Data:

Element Group:	**Approaches**	Length:	**6.85**
Element Name:	**Sidewalk/Curb**	Width:	**1.8**
Location:	**East Side**	Height:	**0.14**
Material:	**Concrete**	Count:	**2**
Element Type:	**Sidewalk**	Total Quantity:	**26.6**
Environment:	**Moderate**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		**26.1**	**0.5**		

Comments: **Light scaling typical. Abrasion and wear along sidewalk edge. Southeast has 2-1.0m diagonal light cracks and northeast has 1-1.8m medium crack at joint.**

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: Approach sidewalk

Element Photo:

Description of Photo: Approach Sidewalk

Element Photo:

Description of Photo:

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	
Structure	Demolition					
Structure	Replacement					
OR						
Deck	Rehab. = Repair exterior soffit concrete		X			$150,000.00
Sidewalk/Curb	Rehab. = Repair delaminated areas		X			$125,000.00
Barrier	Rehab. =					
Joints	Rehab. =					
Beams	Rehab. = Repair soffit concrete		X			$75,000.00
Abutment	Rehab. =					
Pier	Rehab. =					
Other	Asphalt Wearing Surface and Waterproofing					$100,000.00
Estimated Rehabilitated or Replacement Structure Dimensions[3]						
Total Deck Length (m)	Overall Str. Width (m)				Total Structural Cost	$450,000.00

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	Replace damaged rail sections, install end treatment	$10,000.00
Detours		
Traffic Control		$80,000.00
Utilities		
Other	Engineering and Contingency	$100,000.00
	General, Mobilization/Demobilization, Access, General	$185,000.00
	Total Associated Work Cost	$375,000.00

Total Construction Cost	$825,000.00

Justification:

Rehabilitation is recommended for the sidewalk top and front face surfaces, exterior soffits, and areas of the girder soffit at the girder ends. The asphalt wearing surface is starting to exhibit deterioration with 35% of the total area in fair condition and could be considered for replacing with new aspahlt with waterproofing membrane, costs include this work.

MTO Site Number:

Inventory Data:

Structure Name	**Cascade Street Bridge No.2**				
Main Highway #	**Cascade Street**	On [X] or Under [ ] Structure	Service on Structure	[ ] Navig. Water [ ] Non-Navig. Water [ ] Rail [X] Road [ ] Ped. [ ] Other	
Location Description	0.019km east of Water St.		Service under:	[ ] Navig. Water [X] Non-Navig. Water [ ] Rail [ ] Road [X] Ped. [ ] Other	
Owner/Custodian	Town of Parry Sound				
MTO Region	North Eastern	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	**Unknown**	% 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	**2022**		
Overall Str. Width	**11.2** (m)	Inspection Duration	**2** (hrs)		
Culvert Length	(m)				
Total Deck Area	**128.8** (sq.m)				
Roadway Width	**8.0** (m)	Min. Vertical Clearance	**3.6** (m)		
Skew Angle	**10** (Degree)	Detour Distance	**2.4** (km)		
No. of Spans	**1**	Fill on Structure	**0** (m)		
Span Lengths	**10.0** (m)				
For retaining wall:					
Total Wall Length	**6.0** (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	**2020**	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:	**June 30, 2021**	Type of Inspection:	[X] Reg. OSIM [ ] Enh. OSIM
Inspected By	**Alison Friebel**		
Others in Party:	**None**		
Eng. Access Equipment:	**Hammer, Camera and Tape measure**		
Special Access Equipment	**None**		
Weather	**Sun/clouds**	Temperature	**15** °C

Additional Investigations Required:	Priority			Estimated Cost
	None	Normal	Urgent	
Material Condition Survey	X			
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. There is some approach asphalt deterioration. The north approach barriers to bridge connection are substandard and should be considered to be upgraded to meet the current standard, this was considered as a maintenance item.**
Date of Next inspection:	**2024**

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%	2%	2%	98.89	71.94

Overall Bridge Sufficiency				
Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)
0	3	0	0	68.94

Element Data:

Element Group:	**Decks**	Length:	**11.2**
Element Name:	**Wearing Surface**	Width:	**8.5**
Location:	**Deck**	Height:	**0.09**
Material:	**Asphalt**	Count:	**1**
Element Type:		Total Quantity:	**95.2**
Environment:	**Severe**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**75.7**	**18.0**	**1.5**	

Comments: **Light raveling, typical. Light to medium rutting along wheel lines, typical. 12 m of medium cracking along centerline, and a 6 m severe crack. 8.5m medium cracks at both abutment. 1.2 m x 800mm medium loss of bond at centerline at north 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: Deck wearing surface

Element Data:

Element Group:	**Decks**	Length:	**11.2**
Element Name:	**Deck Top (with Thick Slab)**	Width:	**8.5**
Location:	**Deck**	Height:	**Varies**
Material:	**Concrete**	Count:	**1**
Element Type:	**Cast-in-Place**	Total Quantity:	**95.2**
Environment:	**Moderate**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:	**Asphalt**		

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

Comments: **Limited inspection. Assumed to be in good condition based on wearing 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: Deck top

Element Data:

Element Group:	**Decks**	Length:	**10.2**
Element Name:	**Soffit - Thick Slab**	Width:	**11.2**
Location:		Height:	**N/A**
Material:	**Concrete**	Count:	**1.0**
Element Type:	**Cast-in-Place**	Total Quantity:	**113.7**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**107.7**	**3.0**	**3.0**	

Comments: **Limited inspection due to height. Light scaling, typical. 14.0m of medium cracks with efflorescence extending to 2m away from abutments. 12.0m of medium cracks. 12.0m of light cracks along centerline. Five 300mm light cracks on west fascia. Four light cracks on east fascia. Isolated areas of light staining.**

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: Soffit typical

Element Photo:

Description of Photo: Cracks with Efflorescence

Element Photo:

Description of Photo: Soffit fascia

Element Data:

Element Group:	**Decks**	Length:	
Element Name:	**Drainage System**	Width:	
Location:		Height:	
Material:		Count:	
Element Type:		Total Quantity:	**N/A**
Environment:	**Severe**	Inspected	Yes ☐ No ☐ limited ☐
Protection System:			Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*	
	each					

Comments: **No deck drains, drainage provided by surface sheet flow. The abutment walls have 8 drain pipes with isolated areas of light debris build up at bottom of drains.**

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

Element Photo:

Description of Photo: Abutment Wall Drain Pipe, Typical

Element Data:

Element Group:	**Sidewalk/Curb**	Length:	**11.2**
Element Name:	**Sidewalks and Medians**	Width:	**1.4**
Location:	**East and West Side of Deck**	Height:	**0.14**
Material:	**Concrete**	Count:	**2**
Element Type:	**Cast-in-place**	Total Quantity:	**33.4**
Environment:	**Severe**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**33.0**	**0.4**		

Comments: **Light scaling typical. 1.5m medium crack 2.0m south of north joint. 2.0m of light cracks at northeast quadrant. East sidewalk has light abrasions and areas of rust staining. West sidewalk has one 400mm light crack. West sidewalk has sand and debris deposits along 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: [ ]	
		Remove debris build-up	

Element Photo:

Description of Photo: East sidewalk

Element Photo:

Description of Photo: West sidewalk

Element Photo:

Description of Photo: East sidewalk light cracks

Element Data:

Element Group:	**Barriers**	Length:	**15.0**
Element Name:	**Railing Systems**	Width:	
Location:	**East and West Side**	Height:	**1.12**
Material:	**Aluminum and Concrete**	Count:	**2**
Element Type:	**4 Rail Metal Railing - Aluminum**	Total Quantity:	**30.0**
Environment:	**Severe**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		**15.5**	**14.0**	**0.5**	

Comments: **East side has localized abrasion and localized deformations on all 4 rails the entire length. Two end caps missing at north ends. One 50mm x 50mm deformation on east rail. Concrete barriers have light scaling typical. South east concrete barrier has isolated areas of light spalls at corners. Four light cracks at northeast concrete barrier.**

Recommended Work:	Rehab: [ ] Replace: [ ]	Maintenance Needs:	**3 - Railing System Repair**
Urgent: [ ] 1-5 Years: [ ] 6-10 Years: [ ] None: [X]		Urgent: [ ] 1 Year: [ ] 2 Year: [X]	
		Replace missing end caps.	

Element Photo:

Description of Photo: Railing System, Abrasions, Typical

Element Photo:

Description of Photo: Concrete End Wall, Typical

Element Photo:

Description of Photo: East Railing System

Element Data:

Element Group:	**Abutments**	Length:	
Element Name:	**Abutment Walls**	Width:	**11.3**
Location:	**North and South**	Height:	**5.1**
Material:	**Concrete**	Count:	**2**
Element Type:	**Cast-in-place**	Total Quantity:	**115.6**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**106.7**	**5.0**	**5.0**	

Comments: **Light scaling, typical. Light erosion at both ends of the footings. 4.0m of light cracking. 15.0m of medium cracking. 800mm of severe cracking at center of footing. Bottom of south wall has localized area of very severe scouring with a 500mm x 300mm x 100mm deep void with water churning within the void. 300mm x 100mm light scouring @ northwest corner. Severe scaling 200mm from bottom of wall for the full length on bridge on both sides. 400mm x 200mm spall at south footing.**

Recommended Work:	Rehab: [ ] Replace: [ ]	Maintenance Needs:	**8 - Concrete Repair**
Urgent: [ ] 1-5 Years: [ ] 6-10 Years: [ ] None: [X]		Urgent: [ ] 1 Year: [ ] 2 Year: [X]	
		Repair concrete void.	

Element Photo:

Description of Photo: South Abutment

Element Photo:

Description of Photo: Northwest Corner

Element Photo:

Description of Photo: South Abutment, Note Void at End of Footing

Element Data:

Element Group:	**Abutments**	Length:	**6.7**
Element Name:	**Wingwalls**	Width:	
Location:	**All Quadrants**	Height:	**4.9**
Material:	**Concrete**	Count:	**4**
Element Type:	**Cast-in-place**	Total Quantity:	**132.4**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**126.9**	**4.5**	**1.0**	

Comments: **Light scaling typical. Southwest wingwall has light diagonal 2.0m cracks. Southeast has 1.5m of medium vertical cracking at the center of the wall. All wingwalls have a severe 500mm long horizontal crack the width of the abutment wall at the top of wingwall at bearing seat. Medium scaling on the southeast wingwall 600mm(H) x 6.0m(L) and 2.0m light vertical crack and 2 x 60mm x 20mm medium scaling.**

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: Northwest wingwall

Element Photo:

Description of Photo: Wingwall

Element Photo:

Description of Photo: Northeast wingwall

Element Data:

Element Group:	**Retaining Walls**	Length:	**15.0**
Element Name:	**Walls**	Width:	
Location:	**Southwest Quadrant**	Height:	**1.8**
Material:	**Mortar and Stone**	Count:	**1**
Element Type:		Total Quantity:	**27.0**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**14.4**	**12.2**	**0.5**	

Comments: **Retaining wall is possibly part of the Cascade Street Generating Station operated by Bracebridge Generation. Light to medium loss of mortar and stones typical. Efflorescence deposits throughout emanating from the mortar. Severe scouring 1.5m x 300 x 300mm and medium scouring 0.6 x 75 x 250mm at bottom center of wall with loss of mortar and stones.**

Recommended Work:	Rehab: [ ] Replace: [ ]	Maintenance Needs:	18 - Other Maintenance
Urgent: [ ] 1-5 Years: [ ] 6-10 Years: [ ] None: [X]		Urgent: [ ] 1 Year: [ ] 2 Year: [X]	
		Repair scouring at bottom of retaining wall. Confirm if this element belongs to the generation facility prior to undertaking repairs.	

Element Photo:

Description of Photo: Retaining wall

Element Data:

Element Group:	**Embankments & Streams**	Length:	
Element Name:	**Streams and Waterways**	Width:	
Location:	**East and West**	Height:	
Material:	**Exposed Bedrock**	Count:	
Element Type:		Total Quantity:	**All**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
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.**

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: Waterway

Element Data:

Element Group:	**Embankments & Streams**	Length:	
Element Name:	**Embankments**	Width:	
Location:	**NE, SW, NW Quadrants**	Height:	
Material:	**Vegetation, shrubs and rocks**	Count:	**3**
Element Type:		Total Quantity:	**3**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:	**Rip Rap**		Performance Deficiencies

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

Comments: **Northeast embankment has light undermining at waterline. Southwest embankment has light scouring at waterline. 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: Northeast embankment

Element Photo:

Description of Photo: Southwest embankment

Element Photo:

Description of Photo: Northwest embankment

Element Data:

Element Group:	**Embankments & Streams**	Length:	
Element Name:	**Slope Protection**	Width:	
Location:	**NE and NW Quadrants**	Height:	
Material:	**150mm - 300mm Stone**	Count:	**2**
Element Type:	**Rip Rap**	Total Quantity:	**2**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
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: [ ]	

Element Photo:

Description of Photo: Slope Protection

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**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

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

Comments: **Bridge freezes sign is in good condition. Tab portion has light map 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: Sign

Element Data:

Element Group:	**Accessories**	Length:	
Element Name:	**Utilities**	Width:	
Location:	**Within North Sidewalk**	Height:	
Material:	**PVC**	Count:	**2**
Element Type:	**Rigid Conduit**	Total Quantity:	**2**
Environment:	**Benign**	Inspected	Yes [ ] No [X] limited [ ]
Protection System:			

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

Comments: **As-built drawings indicate 2-75mm diameter conduits are within the east sidewalk, they are not visible.**

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

Element Photo:

Description of Photo: Utilities

Element Data:

Element Group:	**Approaches**	Length:	**6.0**
Element Name:	**Wearing Surface**	Width:	**8.5**
Location:	**North and South**	Height:	**0.10**
Material:	**Asphalt**	Count:	**2**
Element Type:		Total Quantity:	**102.0**
Environment:	**Severe**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**89.0**	**10.0**	**3.0**	

Comments: **North approach has 21.0m of medium cracking and 0.5 x 6.0m of loss of bond. South approach has 8.5 of medium cracking.**

Recommended Work:	Rehab: [ ] Replace: [ ]	Maintenance Needs:	**12 - Bridge Surface Repair**
Urgent: [ ] 1-5 Years: [ ] 6-10 Years: [ ] None: [X]		Urgent: [ ] 1 Year: [ ] 2 Year: [X]	
		Repair asphalt	

Element Photo:

Description of Photo: North Approach

Element Photo:

Description of Photo: South Approach

Element Photo:

Description of Photo:

Element Data:

Element Group:	**Approaches**	Length:	**52.0**
Element Name:	**Barrier**	Width:	
Location:	**All Quadrants**	Height:	
Material:	**Steel, Timber, Concrete, Aluminum**	Count:	
Element Type:	**Steel Beam Guide Rail**	Total Quantity:	**52.0**
Environment:	**Severe**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:	**Galvanized**		Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*
	m		**47.5**	**4.0**	**0.5**

Comments: **Northeast rail has substandard connection to bridge, approach rail has 1 missing bolt, three posts with 50x50mm splintering and localized light abrasions. Northwest rail has substandard connection to bridge, with medium corrosion towards the end of the rail. Southeast rail concrete wall has light scaling, typical. An approach to the connection upgrades would be to install the additional transition posts, then schedule the full upgrades for a future rehabilitation, costs provided are for the post upgrades only.**

Recommended Work:	Rehab: [ ] Replace: [ ]	Maintenance Needs:	**3 - Railing System Repair**
Urgent: [ ] 1-5 Years: [ ] 6-10 Years: [ ] None: [X]		Urgent: [ ] 1 Year: [ ] 2 Year: [X]	
		Upgrade NE and NW barrier to bridge connection	

Element Photo:

Description of Photo: Northeast approach barrier

Element Photo:

Description of Photo: Northwest approach barrier

Element Photo:

Description of Photo: Southeast approach barrier

Element Data:

Element Group:	**Approaches**	Length:	**6.0**
Element Name:	**Curb and Gutters**	Width:	
Location:	**All Quadrants**	Height:	**0.2**
Material:	**Concrete**	Count:	**4**
Element Type:		Total Quantity:	**23.2**
Environment:	**Severe**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

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

Comments: **Light scaling, typical. Some debris along gutters, no obstruction to drainage. Light abrasions along curb edges typical and light spall at southwest curb.**

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: Approach curb

Element Data:

Element Group:	**Approaches**	Length:	**6.0**
Element Name:	**Sidewalk/Curb**	Width:	**1.4**
Location:	**NE and SE Quadrants**	Height:	**0.14**
Material:	**Concrete**	Count:	**2**
Element Type:		Total Quantity:	**32.4**
Environment:	**Severe**	Inspected	Yes ☐ No ☐ limited ☐
Protection System:			Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		**32.4**			

Comments: **Light scaling, typical. No other observed defects.**

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

Element Photo:

Description of Photo: Approach sidewalk

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	
Structure	Demolition					
Structure	Replacement					
OR						
Deck	Rehab. =					
Sidewalk/Curb	Rehab. =					
Barrier	Rehab. =					
Joints	Rehab. =					
Beams	Rehab. =					
Abutment	Rehab. =					
Pier	Rehab. =					
Other	Maintenance = N Approach Barriers					**$5,000.00**
Estimated Rehabilitated or Replacement Structure Dimensions[3]						
Total Deck Length (m)	Overall Str. Width (m)				Total Structural Cost	**$5,000.00**

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

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

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

Associated Work	Comments	Estimated Associated Work Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Other		
	Total Associated Work Cost	**$0.00**

Total Construction Cost	**$5,000.00**

Justification:

The north approach barriers to bridge connection are substandard and should be considered to be upgraded to meet the current standard, this was considered as a maintenance item. An approach to the connection upgrades would be to install the additional transition posts, then schedule the full upgrades for a future rehabilitation, costs provided are for the post upgrades only.

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	0.1km 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' 33" N	Longitude	80° 01' 53" 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	**E-W**						
Structure Type 2	**Steel Frame**								
Structure Material 2	**Steel**	Inspection Frequency	**2**	(years)					
Total Deck Length	**96.5** (m)	Inspection Year	**2022**						
Overall Str. Width	**4.6** (m)	Inspection Duration	**2**	(hrs)					
Culvert Length	**0** (m)								
Total Deck Area	**332.9** (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		(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 (east to west)** (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	**2020**	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
2022 - Deteriorated timber planks replaced and railing installed at east approach

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:	**June 29, 2022**	Type of Inspection:	[X] Reg. OSIM [ ] Enh. OSIM
Inspected By	**Alison Friebel**		
Others in Party:	**Brian Wood P.Eng.**		
Eng. Access Equipment:	**None**		
Special Access Equipment	**None**		
Weather	**Sun**	Temperature	**23** °C

Additional Investigations Required:

	Priority			Estimated Cost
	None	Normal	Urgent	
Material Condition Survey	X			
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 [ ] Minor Rehab. [X] Major Rehab. [ ] Replace
Timing of Recommended Work	[ ] Urgent [ ] 1 to 5 years [X] 6 to 10 years
Overall Comments:	**The bridge is in generally fair to good condition. An underwater investigation is recommended for the piers to confirm concrete condition. Rehabilitation is recommended to complete Span 12 steel repairs, and concrete repairs for the three concrete piers within the waterway.**
Date of Next inspection:	**2024**

Overall Bridge Condition

% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIp)	
				BCIp	BCI
1%	1%	2%	0%	98.84	63.14

Overall Bridge Sufficiency

Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)
0	0	0	0	63.14

Element Data:

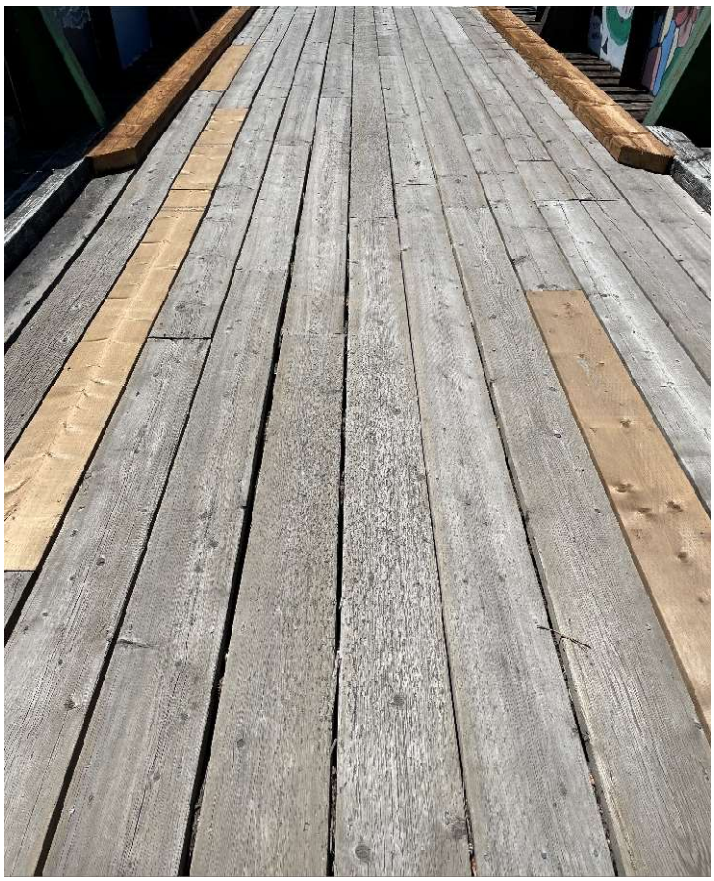
Element Group:	**Decks**	Length:	**98.8**
Element Name:	**Wearing Surface**	Width:	**3.5**
Location:		Height:	**0.1**
Material:	**2x10 Timber Planks**	Count:	**1**
Element Type:		Total Quantity:	**340.9**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m	**10.0**	**325.4**	**5.0**	**0.5**	

Comments: **Boards along center of path have light wear. Light to medium checks typical. Severe split board at west end.**

Recommended Work:	Rehab: [ ] Replace: [ ]	Maintenance Needs:	**12 - Bridge Surface Repair**
Urgent: [ ] 1-5 Years: [ ] 6-10 Years: [ ] None: [X]		Urgent: [ ] 1 Year: [ ] 2 Year: [X]	
		Replace 1 split board	

Element Photo:

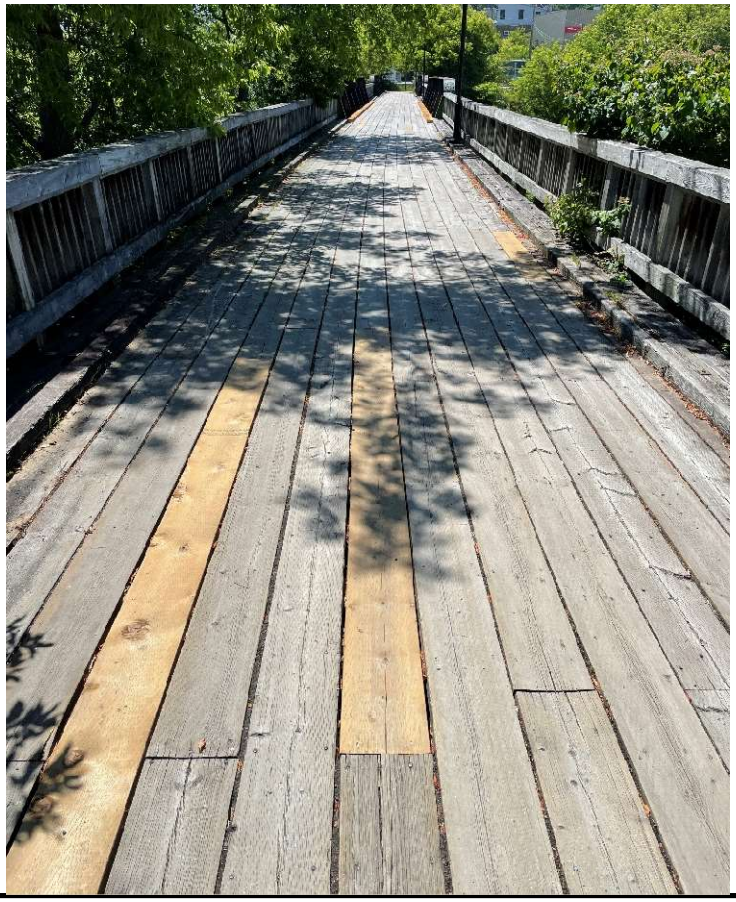


Description of Photo: Deck Wearing Surface

Element Photo:

Description of Photo: Deck Wearing Surface

Element Photo:



Description of Photo: Deck Wearing Surface

Element Data:

Element Group:	**Decks**	Length:	**4.4**
Element Name:	**Deck Top**	Width:	**0.25**
Location:		Height:	**0.25**
Material:	**Timber**	Count:	**205**
Element Type:	**Transverse Cross Ties**	Total Quantity:	**902.0**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:	**Pressure Treated**		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**846.5**	**46.0**	**9.5**	

Comments: **Light weathering typical. Localized light to severe checks and splits typical. Moisture indicated in timbers. Northeast end, one cross ties has severe rot at end of member. Limited inspection due to middle section of timbers covered by timber deck.**

Note: 74 timers at east end, 88 at north end, and 43 along centre of bridge.

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: Deck Top

Element Photo:

Description of Photo: Deck Top

Element Photo:

Description of Photo: Deck Top

Element Data:

Element Group:	**Sidewalk/Curb**	Length:	**98.8**
Element Name:	**Curbs**	Width:	**0.4**
Location:	**North and South Side of Deck**	Height:	**0.125**
Material:	**Timber**	Count:	**2**
Element Type:	**4 m long sections**	Total Quantity:	**207.5**
Environment:	**Moderate**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m	**25.4**	**129.6**	**38.5**	**14.0**	**8 - Pedestrian / vehicular hazard**

Comments: **Light to medium weathering, checks and splits, typical. Severe rot, north side 6 timbers and south side 3 timbers.**

Recommended Work:	Rehab: [ ] Replace: [ ]	Maintenance Needs:	**9 - Timber Repair**
Urgent: [ ] 1-5 Years: [ ] 6-10 Years: [ ] None: [X]		Urgent: [ ] 1 Year: [X] 2 Year: [ ]	
		Replace rotten timbers	

Element Photo:

Description of Photo: Curb

Element Photo:

Description of Photo: Curb

Element Photo:

Description of Photo: Curb

Element Data:

Element Group:	**Barriers**	Length:	**48.0 (Timber), 50.8 (Steel)**
Element Name:	**Railing Systems**	Width:	
Location:	**Length of Bridge**	Height:	**1.2 (Timber), 2.5 (Steel)**
Material:	**Steel and Timber**	Count:	**2**
Element Type:	**Post and Steel Barriers**	Total Quantity:	**198.0**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		**197.6**	**0.2**	**0.2**	

Comments: **Timber railing system is in generally good condition. 1 missing timber post at northeast and 1 split timber post at southeast. Isolated areas of light splintering at bolt hole locations. Steel through girder span girders acts as railing system and is in generally good condition with light corrosion, typical. Consider increasing timber barrier height to 1.37 m to meet current code requirements for cyclists, however 1.2m can be used based on owner approval.**

Recommended Work:	Rehab: [ ] Replace: [ ]	Maintenance Needs:	**3 - Railing System Repair**
Urgent: [ ] 1-5 Years: [ ] 6-10 Years: [ ] None: [X]		Urgent: [ ] 1 Year: [X] 2 Year: [ ]	
		Replace 2 timber posts.	

Element Photo:

Description of Photo: Railing System

Element Photo:

Description of Photo: Railing System

Element Photo:

Description of Photo: Railing System

Element Data:

Element Group:	**Beams/Main Longitudinal Elements**	Length:	**22.6**
Element Name:	**Girders**	Width:	**0.5**
Location:	**Span 10 from east**	Height:	**2.45**
Material:	**Steel**	Count:	**2**
Element Type:	**Through Plate Girder**	Total Quantity:	**311.9**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**263.6**	**45.2**	**3.1**	

Comments: **Light corrosion, typical. Assumed medium corrosion along bottom components, and isolated locations of severe corrosion based on Span 12 steel through plate girder observations.**

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: Inside Face of Girder

Element Data:

Element Group:	**Beams/Main Longitudinal Elements**	Length:	**14.3**
Element Name:	**Girders**	Width:	**0.5**
Location:	**Span 11 from east**	Height:	**2.0**
Material:	**Steel**	Count:	**2**
Element Type:	**Deck Plate Girders**	Total Quantity:	**171.6**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**141.3**	**28.6**	**1.7**	

Comments: **Light corrosion, typical. Assumed medium corrosion along bottom components, and isolated locations of severe corrosion based on Span 12 steel through plate girder observations.**

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: Elevation View

Element Data:

Element Group:	**Beams/Main Longitudinal Elements**	Length:	**25.5**
Element Name:	**Girders**	Width:	**0.5**
Location:	**Span 12 from east**	Height:	**2.5**
Material:	**Steel**	Count:	**2**
Element Type:	**Through Plate Girders**	Total Quantity:	**357.0**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**297.1**	**51.0**	**8.9**	

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 along the north side.**

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

Element Photo:

Description of Photo: DSCN8335.JPG

Element Photo:

Description of Photo: Exterior Face, Note Corrosion at Bottom of Stiffeners

Element Photo:

Description of Photo: View Towards Abutment

Element Data:

Element Group:	**Beams/Main Longitudinal Elements**	Length:	**4.6**
Element Name:	**Crossties**	Width:	**0.25**
Location:	**Timber Trestle Spans**	Height:	**0.25**
Material:	**Timber**	Count:	**114**
Element Type:	**Cross Tie**	Total Quantity:	**524.4**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:	**Creosote**		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**466.7**	**52.4**	**5.2**	

Comments: **Light weathering typical. Localized light to medium checks and splits, typical. Isolated severe 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: Crossties

Element Photo:

Description of Photo: Crossties

Element Photo:

Description of Photo: Crossties

Element Data:

Element Group:	**Beams/Main Longitudinal Elements**	Length:	**4.4**
Element Name:	**Floor Beams**	Width:	**0.3**
Location:	**Spans 10 and 12**	Height:	**0.6**
Material:	**Steel**	Count:	**15**
Element Type:	**Through Plate Girders**	Total Quantity:	**118.8**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**79.2**	**1.2**		

Comments: **Limited inspection due to lack of access. Light corrosion, typical. Assumed isolated areas of medium 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: Floor Beams

Element Data:

Element Group:	**Beams/Main Longitudinal Elements**	Length:	**34.1**
Element Name:	**Stringers**	Width:	**0.25**
Location:	**Timber Trestle Spans**	Height:	**0.4**
Material:	**Timber**	Count:	**8**
Element Type:		Total Quantity:	**354.6**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:	**Creosote**		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		**333.4**	**17.7**	**3.5**	

Comments: **Light weathering, typical. Light to medium checks and splits, typical. Isolated severe 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: Stringers

Element Photo:

Description of Photo: Stringers

Element Photo:

Description of Photo: Stringers

Element Data:

Element Group:	**Bracing**	Length:	**5.9**
Element Name:	**Bracing**	Width:	**0.8**
Location:	**Timber Trestle Spans**	Height:	**0.25**
Material:	**Timber**	Count:	**18**
Element Type:		Total Quantity:	**106.2**
Environment:	**Benign**	Inspected	Yes ☐ No ☐ limited ☐
Protection System:	**Creosote**		Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*	
	m		**99.8**	**5.3**	**1.1**	

Comments: **Localized light to severe checks and splits, typical. One brace near first east pier has severe rot at the end of the member.**

Recommended Work:	Rehab: ☐ Replace: ☐	Maintenance Needs:	**9 - Timber Repair**
Urgent: ☐ 1-5 Years: ☐ 6-10 Years: ☐ None: **X**		Urgent: ☐ 1 Year: ☐ 2 Year: **X**	
		Replace damaged brace	

Element Photo:

Description of Photo: Bracing

Element Data:

Element Group:	**Coating**	Length:	
Element Name:	**Structural Steel**	Width:	
Location:		Height:	
Material:	**Paint**	Count:	
Element Type:		Total Quantity:	**840.5**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:			Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**168.1**	**168.1**	**504.3**	

Comments: **The two Through Plate Girder spans, interior faces, were painted by the Rotary Club in 2005 and the paint is in generally good condition. The remaining coatings are generally in poor condition with some fair, in combination with Category 2 and 3 rust conditions, and isolated Category 4 rust conditions.**

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: Coating

Element Photo:

Description of Photo: Coating

Element Photo:

Description of Photo: Coating

Element Data:

Element Group:	**Abutments**	Length:	**6.4**
Element Name:	**Abutment Walls**	Width:	
Location:	**East Abutment**	Height:	**1.6**
Material:	**Timber**	Count:	**1**
Element Type:		Total Quantity:	**10.2**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:	**Pressure Treated**		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m	**9.7**	**0.5**			

Comments: **Recently replaced. Isolated areas of light checks.**

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: East Abutment

Element Data:

Element Group:	**Abutments**	Length:	**5.0**
Element Name:	**Abutment Walls**	Width:	
Location:	**West Abutment**	Height:	**1.2**
Material:	**Concrete**	Count:	**1**
Element Type:	**Cast-in-Place**	Total Quantity:	**6.0**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**2.7**	**2.0**	**1.3**	

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 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: West Abutment

Element Photo:

Description of Photo: West Abutment

Element Photo:

Description of Photo: West Abutment

Element Data:

Element Group:	**Abutments**	Length:	**2.4**
Element Name:	**Wingwalls**	Width:	
Location:	**West Abutment, South Side**	Height:	**1.2**
Material:	**Concrete**	Count:	**2**
Element Type:	**Cast-in-Place**	Total Quantity:	**5.8**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**5.2**	**0.5**	**0.1**	

Comments: **Light scaling, typical. Isolated medium scaling. Medium 150x150x30mm deep spall and four medium 250x50x15mm 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: Wingwall

Element Data:

Element Group:	**Abutments**	Length:	
Element Name:	**Bearings**	Width:	
Location:	**West Abutment**	Height:	
Material:	**Steel**	Count:	**2**
Element Type:		Total Quantity:	**2**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:			

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

Comments: **Bearings have medium corrosion with debris accumulating around the bearings.**

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 debris from bearing seat.	

Element Photo:

Description of Photo: Bearings

Element Photo:

Description of Photo: Bearings

Element Photo:

Description of Photo:

Element Data:

Element Group:	**Piers**	Length:	
Element Name:	**Shafts/Columns/Pile Bents**	Width:	**0.3 dia.**
Location:	**East Abutment**	Height:	**0.6**
Material:	**Timber**	Count:	**6**
Element Type:		Total Quantity:	**3.4**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:	**Creosote**		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**3.4**			

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: Piles

Element Data:

Element Group:	**Piers**	Length:	
Element Name:	**Shafts/Columns/Pile Bents**	Width:	**0.3 dia.**
Location:	**Timber Trestle Spans**	Height:	**3.0**
Material:	**Timber**	Count:	**36**
Element Type:		Total Quantity:	**102.0**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:	**Creosote**		Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		**95.9**	**5.1**	**1.0**	

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: Piles

Element Data:

Element Group:	**Piers**	Length:	**5.0**
Element Name:	**Shafts/Columns/Pile Bents**	Width:	**3.5**
Location:	**Spans 10, 11, and 12**	Height:	**4.8**
Material:	**Concrete**	Count:	**3**
Element Type:	**Cast-in-Place**	Total Quantity:	**297.3**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**174.9**	**61.2**	**61.2**	

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 all piers 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 load carrying capacity at this time. Future repairs should be planned for.			

Element Photo:

Description of Photo: West Pier West Face

Element Photo:

Description of Photo: West Pier East Face

Element Photo:

Description of Photo: Centre Pier East Face

Element Data:

Element Group:	**Piers**	Length:	**4.3**
Element Name:	**Caps**	Width:	**0.3**
Location:	**East Abutment**	Height:	**0.3**
Material:	**Timber**	Count:	**1**
Element Type:		Total Quantity:	**5.2**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:	**Creosote**		Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**5.2**			

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: Pile Cap

Element Data:

Element Group:	**Piers**	Length:	**5.0**
Element Name:	**Caps**	Width:	**0.35**
Location:	**Timber Trestle Spans**	Height:	**0.35**
Material:	**Timber**	Count:	**6**
Element Type:		Total Quantity:	**42.0**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:	**Creosote**		Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		**37.4**	**4.2**	**0.4**	

Comments: **Light weathering, typical. Localized light to severe medium 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: Pile Cap

Element Data:

Element Group:	**Piers**	Length:	
Element Name:	**Bearings**	Width:	
Location:		Height:	
Material:	**Steel**	Count:	**12**
Element Type:		Total Quantity:	**12**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:			

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

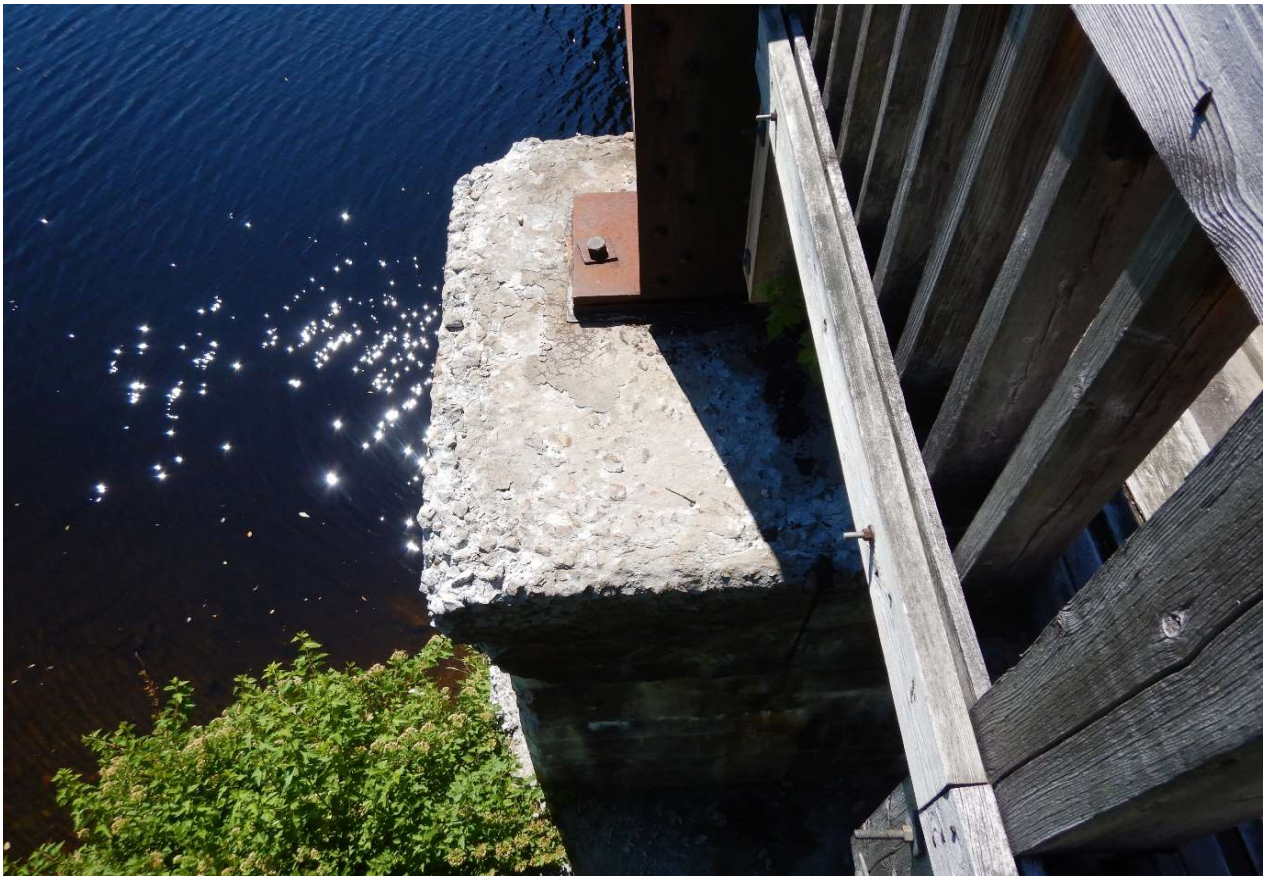
Comments: **Limited inspection due to height restriction. Deck Plate Girder span, bearings appear to have medium corrosion at east end. Remaining bearings assumed to be in good to fair condition as a result of corrosion.**

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: Pier Bearings

Element Photo:



Description of Photo: Pier Bearings

Element Photo:

Description of Photo: Pier Bearings

Element Data:

Element Group:	**Retaining Walls**	Length:	**40.0**
Element Name:	**Walls**	Width:	
Location:	**Southwest**	Height:	**1.2**
Material:	**Concrete**	Count:	**2**
Element Type:	**Cast-in-Place**	Total Quantity:	**96.0**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**96.0**			

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: Retaining Wall

Element Data:

Element Group:	**Retaining Walls**	Length:	**40.0**
Element Name:	**Railing System on Walls**	Width:	
Location:	**Southwest**	Height:	**1.1**
Material:	**Timber**	Count:	**2**
Element Type:		Total Quantity:	**80.0**
Environment:	**Benign**	Inspected	Yes ☐ No ☐ limited ☐
Protection System:			Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*	
	m		**50.0**	**20.0**	**10.0**	

Comments: **Light weathering, typical. 18 broken post or missing posts. 3.0m of top rail is missing. Several post anchors have become unattached.**

Recommended Work:	Rehab: ☐ Replace: ☐	Maintenance Needs:	**3 - Railing System Repair**
Urgent: ☐ 1-5 Years: ☐ 6-10 Years: ☐ None: ☒		Urgent: ☐ 1 Year: ☐ 2 Year: ☒	
		Replace missing and broken pickets, anchors and top rail.	

Element Photo:

Description of Photo: Railing System

Element Photo:

Description of Photo: Railing System

Element Photo:

Description of Photo: Railing System

Element Data:

Element Group:	**Embankments & Streams**	Length:	
Element Name:	**Streams and Waterways**	Width:	
Location:	**North and South**	Height:	
Material:		Count:	
Element Type:		Total Quantity:	**1**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

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

Comments: **Armour around east end barriers. Waterway is free flowing. 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: Waterway Looking Upstream

Element Photo:

Description of Photo: Waterway Looking Downstream

Element Photo:

Description of Photo: Waterway Looking Upstream

Element Data:

Element Group:	**Embankments & Streams**	Length:	
Element Name:	**Embankments**	Width:	
Location:	**All Quadrants**	Height:	
Material:	**Trees, Shrubs and Earth**	Count:	**4**
Element Type:	**Vegetation**	Total Quantity:	**4**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			Performance Deficiencies

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

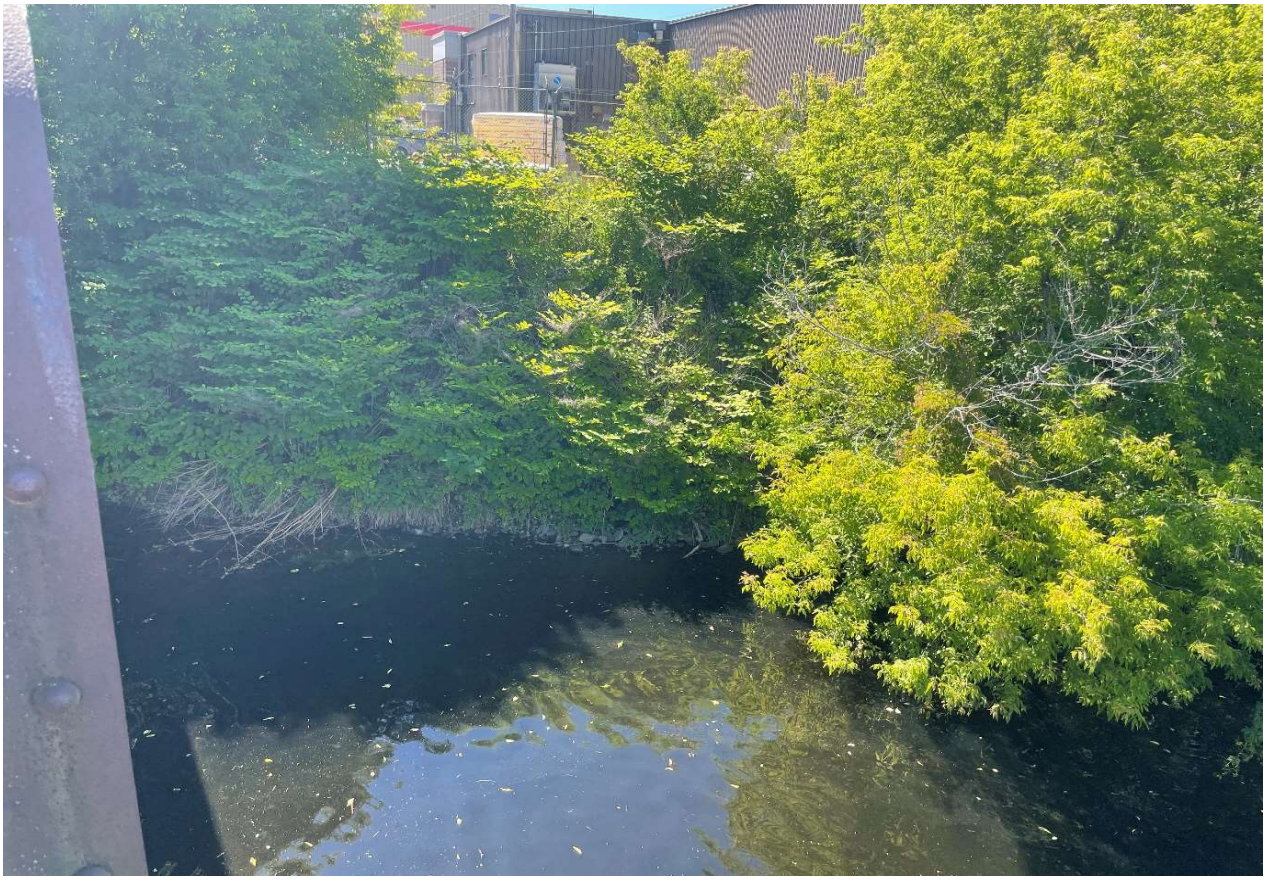
Comments: **No observed defects. Embankments are vegetated and appear stable.**

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

Element Photo:

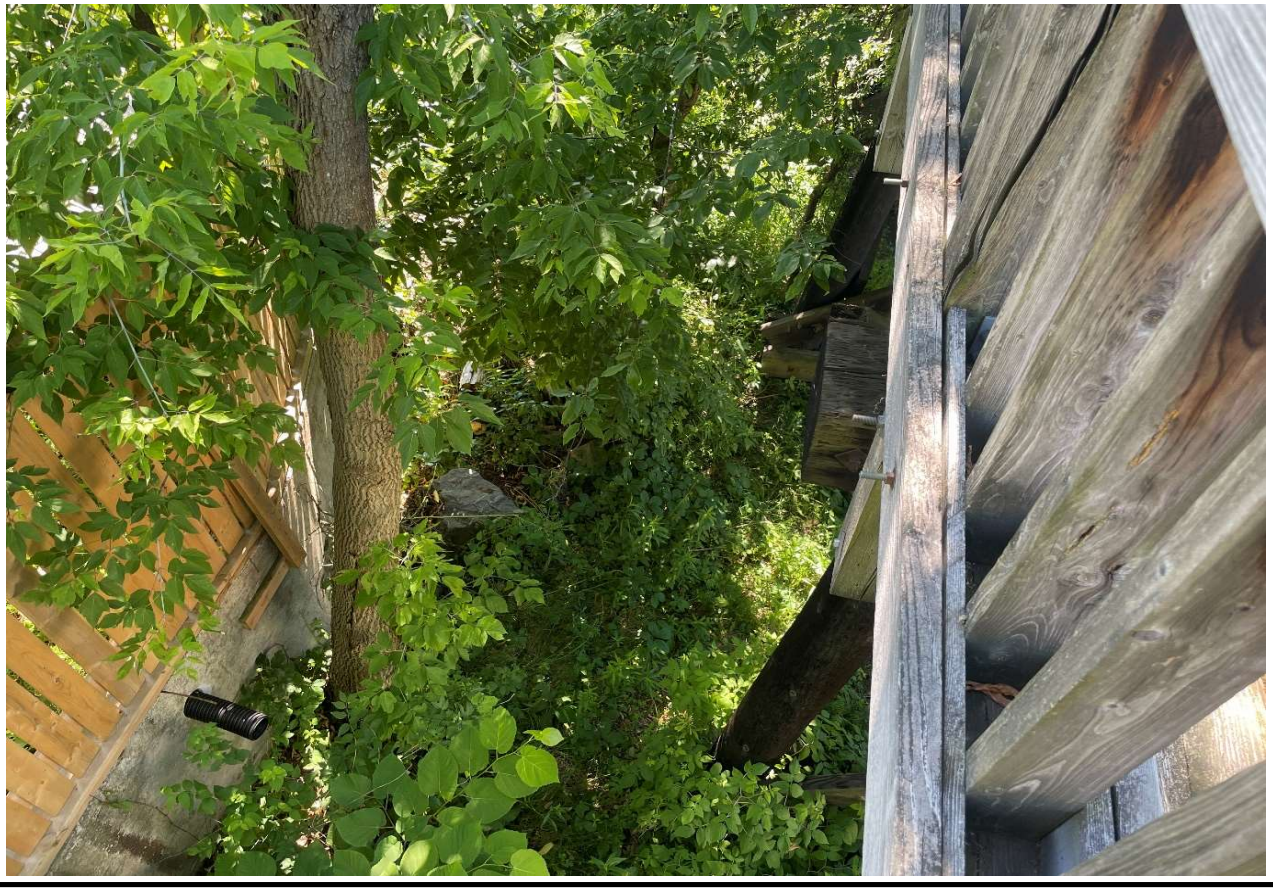
Description of Photo: Embankment

Element Photo:



Description of Photo: Embankment

Element Photo:



Description of Photo: Embankment

Element Data:

Element Group:	**Accessories**	Length:	
Element Name:	**Signs**	Width:	
Location:	**East End**	Height:	
Material:		Count:	**3**
Element Type:		Total Quantity:	**3**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			Performance Deficiencies

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

Comments: **One caution sign in poor condition and has been damaged, bent and is weathered. One stop sign ahead sign has graffiti.**

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: Signs

Element Data:

Element Group:	**Accessories**	Length:	
Element Name:	**Utilities**	Width:	
Location:	**Along Bridge**	Height:	
Material:	**Steel Light Posts**	Count:	**4**
Element Type:	**Lighting**	Total Quantity:	**4**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:	**Paint**		

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

Comments: **Posts are in good condition. One light stand missing bottom housing.**

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: Light Utility

Element Data:

Element Group:	**Accessories**	Length:	
Element Name:	**Other**	Width:	
Location:	**Length of Structure**	Height:	
Material:	**PVC**	Count:	**1**
Element Type:	**Electrical**	Total Quantity:	**1**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:	**Conduit**		

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

Comments: **Conduit repaired from previous inspection. 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: Electrical Utilities

Element Data:

Element Group:	**Approaches**	Length:	**6.0**
Element Name:	**Wearing Surface**	Width:	**3.0**
Location:	**West and East End**	Height:	
Material:	**Gravel**	Count:	**2**
Element Type:		Total Quantity:	**36.0**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**36.0**			

Comments: **Light wear typical. 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: Approach Surface

Element Data:

Element Group:	**Approaches**	Length:	**3.65**
Element Name:	**Barrier**	Width:	
Location:	**East End**	Height:	**1.1(SW), 1.3 (SE)**
Material:	**Timber**	Count:	**2**
Element Type:		Total Quantity:	**7.3**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:	**Pressure Treated**		Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m	**6.6**	**0.7**			

Comments: **One 3.0m light check at southeast top timber. 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: Approach Barrier

Repair and Rehabilitation Required:		Priority				Estimated Structural Cost
Element[1]	Repair and Rehabilitation Required[2]	6 to 10 Years	1 to 5 Years	Within 1 Year	Urgent	
Structure	Demolition					
Structure	Replacement					
OR						
Deck	Rehab. =					
Sidewalk/Curb	Rehab. =					
Barrier	Rehab. =					
Joints	Rehab. =					
Beams	Rehab. = Repair steel	X				$80,000.00
Abutment	Rehab. = Repair Concrete	X				$15,000.00
Pier	Rehab. = Repair Concrete	X				$600,000.00
Wingwalls	Rehab. =					
Retaining Wall	Rehab. =					
Estimated Rehabilitated or Replacement Structure Dimensions[3]						
Total Deck Length (m)	Overall Str. Width (m)				Total Structural Cost	$695,000.00

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		
Detours	**Trail Closure Signage**	**$2,000.00**
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	**$352,000.00**

Total Construction Cost	**$1,047,000.00**

Justification:

The most westerly Span 12 Through Plate Girder has several vertical stiffeners with 100% section loss at the interface with the bottom flange, and there is isolated severe corrosion and section loss on other members generally towards the abutment, however load carrying capacity is not a concern at this time. The three concrete piers supporting Spans 10, 11 and 12 have severe concrete deterioration along the waterline. Rehabilitation is recommended to include Span 12 steel repairs and concrete repairs for the three piers. For maintenance, timber member replacements will be ongoing, and the west abutment bearings should be cleaned to remove debris and other deleterious material. Note that the barrier height could be considered to be increased to 1.37 m to meet current code requirements for cyclists, however 1.2 m can be used based on owner approval.

MTO Site Number:

Inventory Data:

Structure Name	**Seguin Street Bridge**				
Main Highway #	**Seguin Street**	On [X] or Under [ ] Structure	Service on Structure	[ ] Navig. Water [ ] Non-Navig. Water [ ] Rail [X] Road [X] Ped. [ ] Other	
Location Description	0.08km 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' 37" 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	**Trapezoidal Box Beam Girders**				
Structure Material 1	**Weathering Steel**	Traffic Directional Bound	**W-E**		
Structure Type 2	**Concrete Deck**				
Structure Material 2	**Cast-in-Place Concrete**	Inspection Frequency	**2** (years)		
Total Deck Length	**55.9** (m)	Inspection Year	**2022**		
Overall Str. Width	**20.6** (m)	Inspection Duration	**3** (hrs)		
Culvert Length	**0** (m)				
Total Deck Area	**1151.54** (sq.m)				
Roadway Width	**15.0** (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	**55.0** (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	**1987**		
Last Reg. OSIM Inspection	**2020**	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:	**June 29, 2022**	Type of Inspection:	☐ Reg. OSIM ☐ Enh. OSIM
Inspected By	**Alison Friebel**		
Others in Party:	**Brian Wood P.Eng, Bill Glover Rescue Technician from Safety Design Systems**		
Eng. Access Equipment:	**Tape measure and Camera**		
Special Access Equipment	**Access ladder, Air monitor, Flashlight, Restraining harness, Retrieval system**		
Weather	**Sun and Cloud**	Temperature	**20** °C

Additional Investigations Required:

	Priority			Estimated Cost
	None	Normal	Urgent	
Material Condition Survey	X			
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 / Boat Access 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: "Underwater/Boat Access Investigation" refers to using a Bridgemaster to inspect outside faces of box girders, and	**Total Cost**			**$20,000.00**

Overall Structure Notes:

Recommended Work on Structure	☐ None ☒ Minor Rehab. ☐ Major Rehab. ☐ Replace
Timing of Recommended Work	☐ Urgent ☒ 1 to 5 years ☐ 6 to 10 years
Overall Comments:	**Bridge is in generally good condition. Rehabilitation is recommended to clean inside of girder ends and apply a new coating, repair sidewalk concrete, and upgrade approach guide rail to bridge connections. Built in 1987, a Bridgemaster inspection of the exterior of the girders should be undertaken, it is unknown when if any previous Bridgemaster inspection was conducted.**
Date of Next inspection:	**2024**

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%	99.87	81.72

Overall Bridge Sufficiency

Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)
0	5	0	0	76.72

Element Data:

Element Group:	**Decks**	Length:	**55.9**
Element Name:	**Wearing Surface**	Width:	**15.0**
Location:		Height:	**0.1**
Material:	**Asphalt**	Count:	**1**
Element Type:		Total Quantity:	**838.5**
Environment:	**Severe**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**726.7**	**111.8**		

Comments: **Light ravelling, typical. Center 2 lanes have medium wheel rutting full length of bridge (55.9m x 0.5m x 4).**

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: Wearing Surface

Element Data:

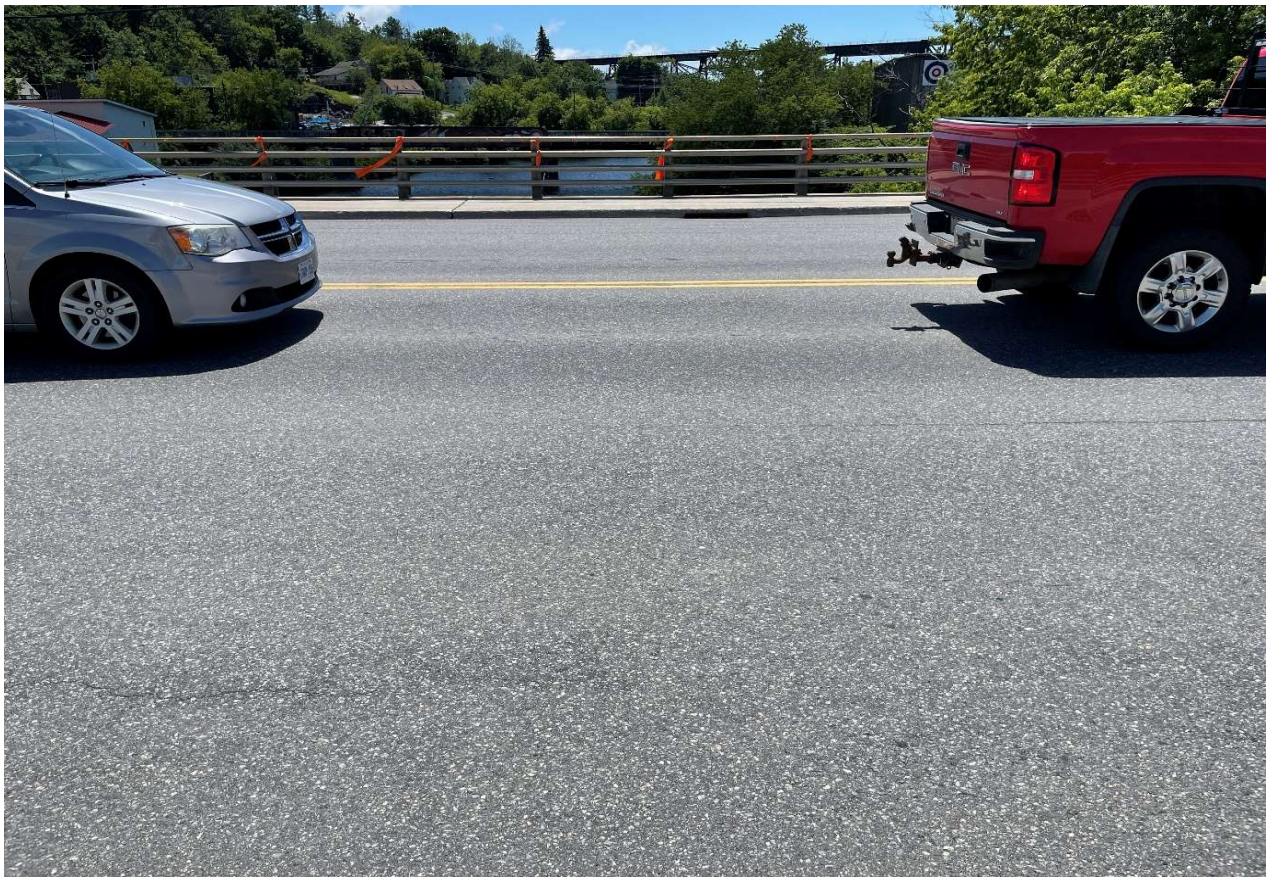
Element Group:	**Decks**	Length:	**55.9**
Element Name:	**Deck Top (with Thin Slab)**	Width:	**20.6**
Location:		Height:	**0.25**
Material:	**Concrete**	Count:	**1**
Element Type:	**Cast-in-Place**	Total Quantity:	**1151.5**
Environment:	**Moderate**	Inspected	Yes [ ] No [X] limited [ ]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**1151.5**			

Comments: **Assumed to be in good condition based on asphalt.**

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: Deck Top

Element Data:

Element Group:	**Decks**	Length:	**55.9**
Element Name:	**Soffit - Thin Slab**	Width:	**14.0**
Location:	**Exterior Soffit**	Height:	
Material:	**Concrete**	Count:	**1**
Element Type:	**Cast-in-Place**	Total Quantity:	**782.6**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**772.6**	**8.0**	**2.0**	

Comments: **Light scaling typical. Narrow to medium cracks with some water staining along overhang soffit at regular intervals (+/- 2.0m c/c avg.). Several cracks with wet areas and leachate deposits.**

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: Exterior Soffit

Element Photo:

Description of Photo: Exterior Soffit

Element Photo:

Description of Photo: Interior Soffit

Element Data:

Element Group:	**Decks**	Length:	**55.9**
Element Name:	**Soffit - Inside Boxes**	Width:	**2.2**
Location:	**Inside Boxes**	Height:	
Material:	**Concrete**	Count:	**3**
Element Type:	**Cast-in-Place**	Total Quantity:	**368.9**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**363.9**	**4.0**	**1.0**	

Comments: **Light scaling, typical. North girder soffit has 4.0 m of narrow to medium cracks with efflorescence. South girder soffit has isolated areas of efflorescence built up at slab and girder top flange interface, and one 0.5 m crack with efflorescence. Remainder of soffit areas have several narrow to medium transverse 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: North Girder Interior Soffit

Element Photo:

Description of Photo: South Girder Interior Soffit

Element Photo:

Description of Photo: South Girder Interior Soffit

Element Data:

Element Group:	**Decks**	Length:	**0.5**
Element Name:	**Drainage System**	Width:	**0.2**
Location:	**Along face of sidewalks**	Height:	
Material:	**Steel**	Count:	**8**
Element Type:	**Metal Drain Pipes**	Total Quantity:	**8**
Environment:	**Severe**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:	**Hot Dip galvanizing**		Performance Deficiencies

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

Comments: **Light corrosion at bottom of drain pipes, typical. No other observed defects. No debris buildup in drain grates.**

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: Drainage

Element Data:

Element Group:	**Joints**	Length:	**20.6**
Element Name:	**Seals/sealants**	Width:	
Location:	**East and West**	Height:	
Material:	**Neoprene**	Count:	**2**
Element Type:	**Strip Seal**	Total Quantity:	**2**
Environment:	**Severe**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

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

Comments: **Seals are in generally good condition. No evidence of leakage or other performance deficiencies.**

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 joint gap and seals yearly.	

Element Photo:

Description of Photo: Joint Seals

Element Data:

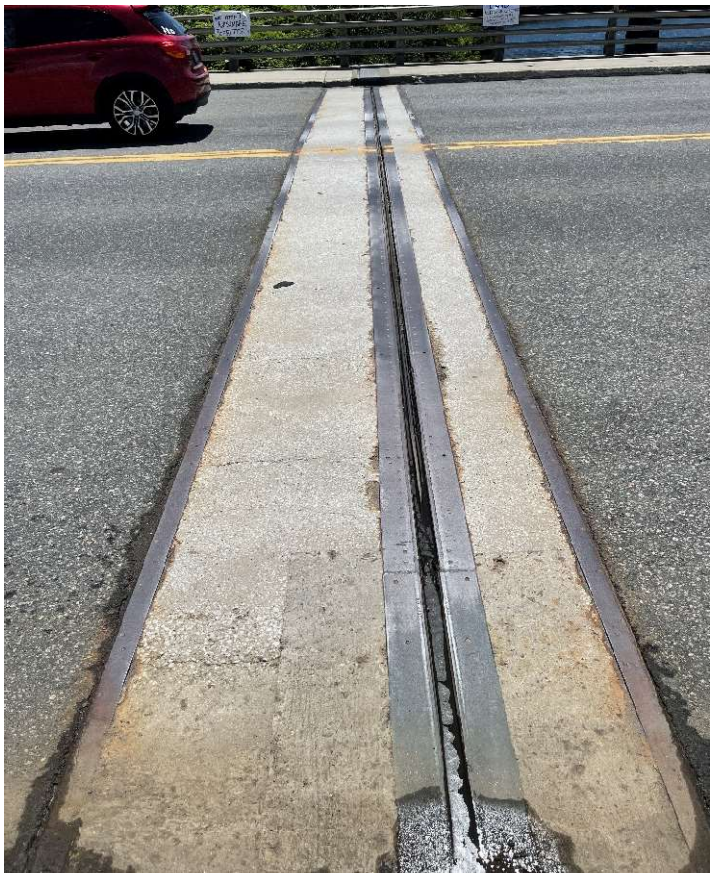
Element Group:	**Joints**	Length:	**15.0**
Element Name:	**Concrete End Dams**	Width:	**0.5**
Location:	**East and West**	Height:	
Material:	**Concrete**	Count:	**4**
Element Type:		Total Quantity:	**30.0**
Environment:	**Severe**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**30.0**			

Comments: **Light scaling and abrasions typical. Light 300 x100 x15mm spall on east side and 2 light 300x100x15mm spall on west side. Approximately 1.0m of light 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: Joint Concrete End Dam

Element Photo:

Description of Photo: Joint Concrete End Dam

Element Photo:

Description of Photo:

Element Data:

Element Group:	**Joints**	Length:	**20.6**
Element Name:	**Armouring/Retaining Devices**	Width:	
Location:	**East and West**	Height:	
Material:	**Steel**	Count:	**8**
Element Type:	**Angle**	Total Quantity:	**164.8**
Environment:	**Severe**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		**160.8**	**4.0**		

Comments: **Light corrosion typical. Isolated deformations within wheel lines, 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: Joint Armour

Element Data:

Element Group:	**Sidewalk/Curb**	Length:	**55.9**
Element Name:	**Sidewalks and Medians**	Width:	**2.8**
Location:	**North and South**	Height:	**0.25**
Material:	**Concrete**	Count:	**2**
Element Type:	**Sidewalk**	Total Quantity:	**313.0**
Environment:	**Severe**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**307.7**	**3.1**	**2.2**	**8 - Pedestrian / vehicular hazard**

Comments: **Light scaling, typical. Wear and abrasions along top edges, typical. North sidewalk has 11 - 2.0 m narrow to medium cracks, 2 - 1.5m narrow cracks and 1 light spall. South sidewalk has 13 - 2.0m light to medium cracks, severe 2.0x0.6 m spall with rebar exposed rebar, 300x300x25mm medium spall at east end, and 3-500x100mm light spalls. One 1.0x1.0m area of delamination.**

Recommended Work:	Rehab: [X]	Replace: [ ]	Maintenance Needs:	
Urgent: [ ]	1-5 Years: [X]	6-10 Years: [ ]	None: [ ]	Urgent: [ ] 1 Year: [ ] 2 Year: [ ]
Repair spalls and delamination area.				

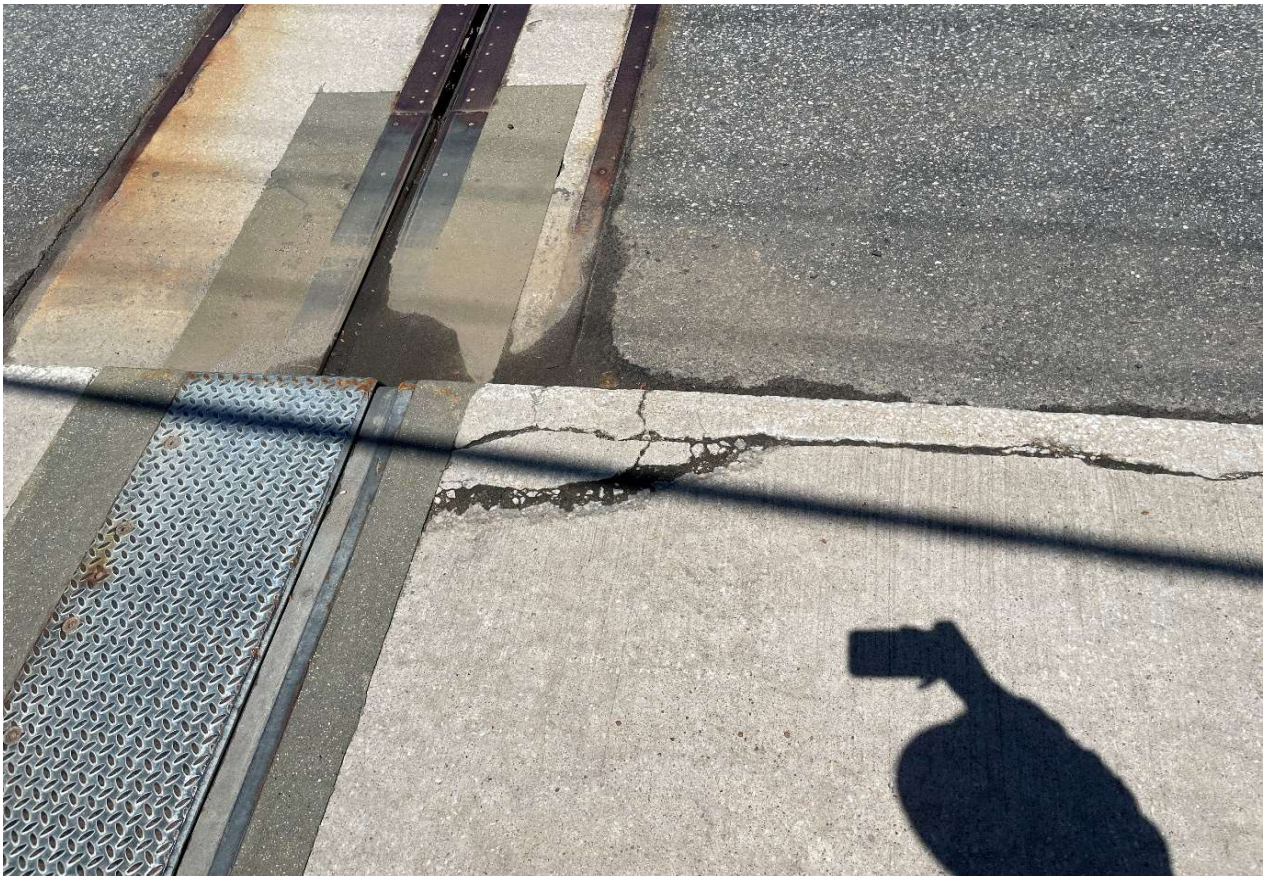
Element Photo:

Description of Photo: Sidewalk Concrete Spall and Delanination

Element Photo:

Description of Photo: Sidewalk Concrete Delamination

Element Photo:



Description of Photo: Sidewalk Concrete Delamination

Element Data:

Element Group:	**Barriers**	Length:	**72.0**
Element Name:	**Railing Systems**	Width:	
Location:	**North and South**	Height:	
Material:	**Aluminum**	Count:	**2**
Element Type:	**4 Rail Metal Railing**	Total Quantity:	**144.0**
Environment:	**Severe**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*	
	m		**135.8**	**8.0**	**0.2**	

Comments: **Two 100x100mm deformations with perforations on north rail. Localized abrasions throughout with some wear of aluminum 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: Railing System

Element Photo:

Description of Photo: Railing System

Element Photo:

Description of Photo: Railing System

Element Data:

Element Group:	**Beams/Main Longitudinal Elements**	Length:	**2**
Element Name:	**Girders Exterior**	Width:	**2.2**
Location:	**Ends**	Height:	**2.8**
Material:	**Steel**	Count:	**6**
Element Type:	**Trapezoidal Box**	Total Quantity:	**93.6**
Environment:	**Moderate**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:	**Weathering Steel with Epoxymastic Coating**		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**93.0**	**0.6**		

Comments: **Five 200x200mm areas of medium corrosion at the bottom flange at drain holes. Light corrosion at top of southwest girder.**

Recommended Work:	Rehab: [X] Replace: [ ]	Maintenance Needs:	
Urgent: [ ] 1-5 Years: [ ] 6-10 Years: [X] None: [ ]		Urgent: [ ] 1 Year: [ ] 2 Year: [ ]	
Clean and recoat in conjunction with interior cleaning. Refer to Beams - Inside Boxes regarding cleaning.			

Element Photo:

Description of Photo: Girder - Exterior End

Element Photo:

Description of Photo: Girder - Exterior End

Element Photo:

Description of Photo: Girder - Exterior End

Element Data:

Element Group:	**Beams/Main Longitudinal Elements**	Length:	**52.7**
Element Name:	**Girders Exterior**	Width:	**2.2**
Location:	**Middle**	Height:	**2.8**
Material:	**Steel**	Count:	**3**
Element Type:	**Trapezoidal Box**	Total Quantity:	**1233.2**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:	**Weathering Steel**		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m	**1233.2**				

Comments: **No observed defects. Patina is formed and uniform. Limited access, observations from embankments.**

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: Girders - Exterior Middle

Element Data:

Element Group:	**Beams/Main Longitudinal Elements**	Length:	**55.9**
Element Name:	**Inside boxes**	Width:	**2.2**
Location:	**North Girder**	Height:	**2.8**
Material:	**Steel**	Count:	**1**
Element Type:	**Trapezoidal Box**	Total Quantity:	**436.0**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:	**Weathering Steel with Epoxymastic Coating at Ends**		Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m	**414.0**	**12.0**	**7.0**	**3.0**	

Comments: **Medium corrosion along bottom, 8.0mx200mm at west and east end of girder. The coating along the bottom flange and stiffeners has failed exhibiting Category 2 to 4 surface rust at west end. 1 sq.m of white deposits on bottom. Steel stiffeners have areas of localized severe corrosion with section loss at ends of girder. 20m from west end 4.0m of efflorescence deposits at top flange and deck interface. Both ends have significant build-up of debris.**

Recommended Work:	Rehab: [X] Replace: [ ]	Maintenance Needs:	
Urgent: [ ] 1-5 Years: [X] 6-10 Years: [ ] None: [ ]		Urgent: [ ] 1 Year: [ ] 2 Year: [ ]	
Clean debris from girder ends, recoat the girder ends.			

Element Photo:

Description of Photo: East Girder End

Element Photo:

Description of Photo: North Girder

Element Photo:

Description of Photo: West Girder End

Element Data:

Element Group:	**Beams/Main Longitudinal Elements**	Length:	**55.9**
Element Name:	**Inside boxes**	Width:	**2.2**
Location:	**Center Girder**	Height:	**2.8**
Material:	**Steel**	Count:	**1**
Element Type:	**Trapezoidal Box**	Total Quantity:	**436.0**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:	**Weathering Steel with Epoxymastic Coating at Ends**		Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m	**434.0**	**2.0**			

Comments: **8.0mx100mm of light corrosion along bottom flange at east end of girder. One area of white deposits on the bottom flange. Both ends have some build-up of debris.**

Recommended Work:	Rehab: [X] Replace: [ ]	Maintenance Needs:	
Urgent: [ ] 1-5 Years: [X] 6-10 Years: [ ] None: [ ]		Urgent: [ ] 1 Year: [ ] 2 Year: [ ]	
Clean debris from girder ends, recoat the girder ends.			

Element Photo:

Description of Photo: Center Girder West End

Element Photo:

Description of Photo: Center Girder East End

Element Photo:

Description of Photo: Center Girder

Element Data:

Element Group:	**Beams/Main Longitudinal Elements**	Length:	**55.9**
Element Name:	**Inside boxes**	Width:	**2.2**
Location:	**South Girder**	Height:	**2.8**
Material:	**Steel**	Count:	**1**
Element Type:	**Trapezoidal Box**	Total Quantity:	**436.0**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:	**Weathering Steel with Epoxymastic Coating at Ends**		Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m	**408.0**	**15.0**	**10.0**	**3.0**	

Comments: **Light to medium corrosion along bottom, 15.0mx200mm at west and 6.0mx100mm at east end of girder. The coating along the bottom flange and stiffeners has failed exhibiting Category 2 to 4 surface rust at west end. One section of girder has light corrosion (4.0x2.2m) on bottom. Steel stiffeners have areas of localized severe corrosion with section loss at ends of girder. 20m from west end 4.0m of effloresecence at top flange and deck interface. Isolated areas of effloresecence deposits with corrosion on webs and top flange. Both ends have significant build-up of debris.**

Recommended Work:	Rehab: [X] Replace: [ ]	Maintenance Needs:	
Urgent: [ ] 1-5 Years: [X] 6-10 Years: [ ] None: [X]		Urgent: [ ] 1 Year: [ ] 2 Year: [ ]	
Clean debris from girder ends, recoat the girder ends.			

Element Photo:

Description of Photo: Girder West End

Element Photo:

Description of Photo: South Girder

Element Photo:

Description of Photo: South Girder

Element Photo:

Description of Photo: South Girder

Element Photo:

Description of Photo: South Girder

Element Data:

Element Group:	**Beams/Main Longitudinal Elements**	Length:	**6.8**
Element Name:	**Diaphragms (steel, wood, etc.)**	Width:	
Location:	**End**	Height:	**2.4**
Material:	**Steel**	Count:	**4**
Element Type:		Total Quantity:	**4**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:	**Weathering Steel and Paint**		

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

Comments: **Graffiti was present at the west end, but no deterioration of the steel was noted. The coating appears to still be in good condition. Northwest end diaphragm bottom flange hasareas of light 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: End Diaphragms

Element Data:

Element Group:	**Beams/Main Longitudinal Elements**	Length:	**15.85**
Element Name:	**Diaphragms (steel, wood, etc.)**	Width:	**0.15**
Location:	**Intermediate**	Height:	**2.4**
Material:	**Steel**	Count:	**75**
Element Type:		Total Quantity:	**75**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:	**Weathering Steel**		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each	**75**				

Comments: **No observed 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: Diaphragms

Element Data:

Element Group:	**Coating**	Length:	**2**
Element Name:	**Structural Steel**	Width:	**2.2**
Location:	**End of Girders**	Height:	**2.8**
Material:		Count:	**6**
Element Type:		Total Quantity:	**93.6**
Environment:	**Moderate**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**45.0**	**30.6**	**18.0**	

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. Remaining coating exhibiting chalking and Category 2 rusting, typical.**

Recommended Work:	Rehab: [X] Replace: [ ]	Maintenance Needs:	
Urgent: [ ] 1-5 Years: [X] 6-10 Years: [ ] None: [X]		Urgent: [ ] 1 Year: [ ] 2 Year: [ ]	
Clean debris from girder ends, recoat the girder ends.			

Element Photo:

Description of Photo: Coating

Element Data:

Element Group:	**Abutments**	Length:	
Element Name:	**Abutment Walls**	Width:	**19.5**
Location:		Height:	**5.7**
Material:	**Concrete**	Count:	**2**
Element Type:	**Conventional Closed**	Total Quantity:	**223.5**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**222.0**	**1.5**		

Comments: **Light scaling, typical. Wall drains are clear. West abutment wall has been repainted, there is graffiti present. 5.7m long medium vertical crack (shown in chalk). 4.0m of light 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: Abutment Wall

Element Photo:

Description of Photo: Abutment Wall

Element Photo:

Description of Photo: Abutment Wall

Element Data:

Element Group:	**Abutments**	Length:	
Element Name:	**Ballast Walls**	Width:	**19.5**
Location:		Height:	**3.2**
Material:	**Concrete**	Count:	**2**
Element Type:		Total Quantity:	**126.0**
Environment:	**Moderate**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:			Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		**125.2**	**0.8**		

Comments: **Limited inspection, portions hidden by the diaphragms. Light scaling, typical. 3.0m medium crack at southwest area.**

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: Ballast Wall

Element Data:

Element Group:	**Abutments**	Length:	**8.5**
Element Name:	**Wingwalls**	Width:	
Location:	**All Quadrants**	Height:	**2.1**
Material:	**Concrete**	Count:	**4**
Element Type:	**Cast-in-Place**	Total Quantity:	**71.4**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

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

Comments: **Light scaling, typical. 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: Wingwall

Element Data:

Element Group:	**Abutments**	Length:	**0.5**
Element Name:	**Bearings**	Width:	**0.6**
Location:	**Bearings Seats**	Height:	**0.1**
Material:	**Elastomeric**	Count:	**6**
Element Type:		Total Quantity:	**6**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [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 are in good condition.**

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

Element Photo:

Description of Photo: Bearings

Element Data:

Element Group:	**Retaining Walls**	Length:	**40.2**
Element Name:	**Walls**	Width:	
Location:	**NW and SW Quadrants**	Height:	**4.0**
Material:	**Concrete**	Count:	**1**
Element Type:	**Cast-in-Place**	Total Quantity:	**160.8**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**159.8**	**1.0**		

Comments: **Light scaling, typical. Northwest side has cracks at 7th and 11th railing post and one 300x500mm light spall. Southwest side has medium cracks at 1st, 2nd and 7th railing 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: Retaining Wall

Element Photo:

Description of Photo: Retaining Wall

Element Photo:

Description of Photo: Retaining Wall

Element Data:

Element Group:	**Retaining Walls**	Length:	**50.0**
Element Name:	**Railing System on Walls**	Width:	
Location:	**Under Bridge**	Height:	
Material:	**Steel**	Count:	**1**
Element Type:	**Pedestrian Handrail**	Total Quantity:	**50.0**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:	**Hot-Dip Galvanized**		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		**50.0**			

Comments: **Pedestrian handrail along path under the west end of the bridge. 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: Retaining Wall Railing

Element Photo:

Description of Photo: Retaining Wall Railing

Element Photo:

Description of Photo: Retaining Wall Railing

Element Data:

Element Group:	**Embankments & Streams**	Length:	
Element Name:	**Streams and Waterways**	Width:	
Location:		Height:	
Material:		Count:	
Element Type:	**Waterway**	Total Quantity:	**1**
Environment:	**Benign**	Inspected	Yes ☐ No ☐ limited ☐
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: ☐	

Element Photo:

Description of Photo: Waterway

Element Data:

Element Group:	**Embankments & Streams**	Length:	
Element Name:	**Embankments**	Width:	
Location:	**All Quadrants**	Height:	
Material:	**Trees, Vegetation**	Count:	**4**
Element Type:		Total Quantity:	**4**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

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: Embankments

Element Data:

Element Group:	**Embankments & Streams**	Length:	
Element Name:	**Slope Protection**	Width:	
Location:		Height:	
Material:	**Rocks and Gabion Basket**	Count:	**2**
Element Type:		Total Quantity:	**2**
Environment:		Inspected	Yes [ ] No [ ] limited [X]
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 along gabion baskets beneath walkway along the waterline.**

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: Rock Protection

Element Data:

Element Group:	**Accessories**	Length:	
Element Name:	**Utilities**	Width:	
Location:		Height:	
Material:		Count:	**6**
Element Type:	**Various**	Total Quantity:	**6**
Environment:		Inspected	Yes [ ] No [ ] limited [X]
Protection System:			

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

Comments: **Limited inspection due to access. There is gas line supported along the north face of the bridge, insulated pipe (likely a watermain) under the north interior soffit, electrical and bell also appear to be supported under the north interior soffit. There are some punctures in the watermain insulation protective covering. Electrical lines are also supported along both ballast walls. The drawings indicate that there could also be hydro ducts within the sidewalks. Electrical box at northwest quadrant has a damaged latch and can be opened.**

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

Element Photo:

Description of Photo: Utilities

Element Photo:

Description of Photo: Utilities

Element Photo:

Description of Photo: Utilities

Element Data:

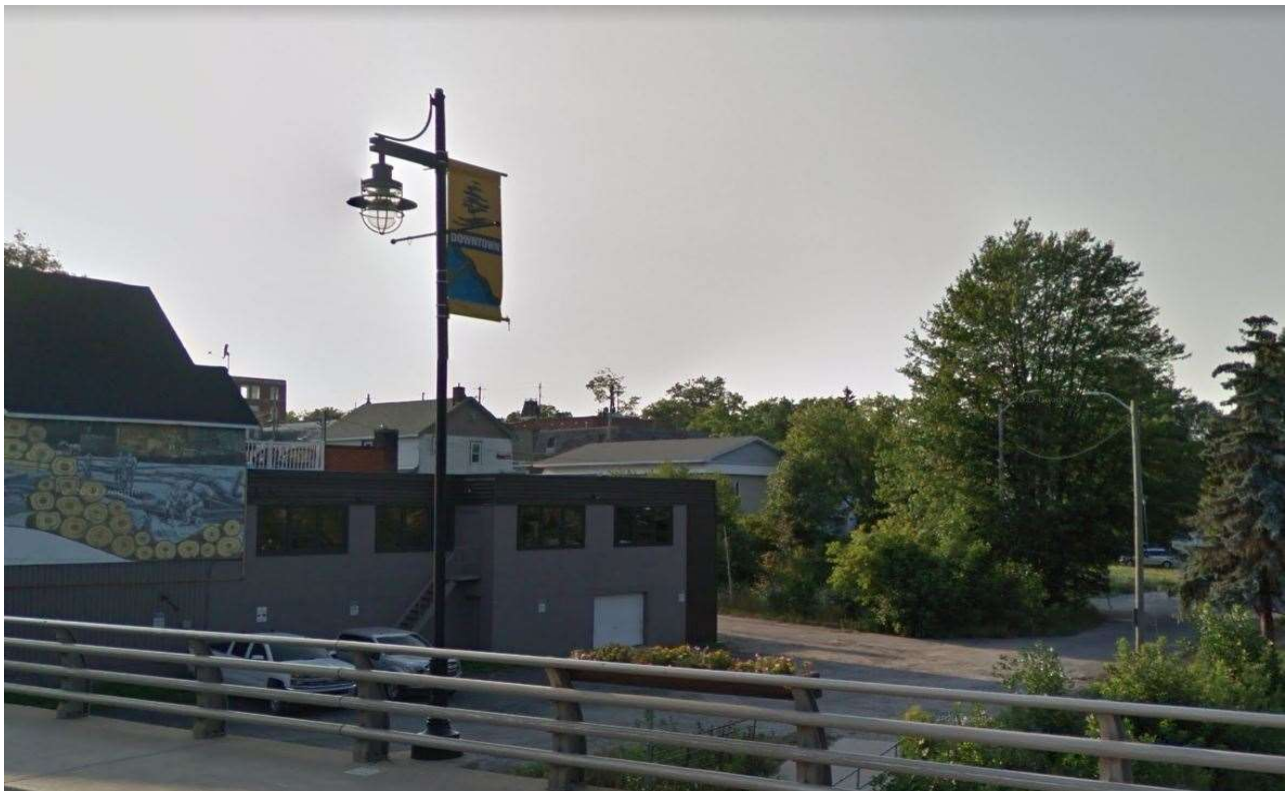
Element Group:	**Accessories**	Length:	
Element Name:	**Other**	Width:	
Location:		Height:	
Material:		Count:	**3**
Element Type:	**Light Poles**	Total Quantity:	**3**
Environment:	**Moderate**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

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: Light Post

Element Data:

Element Group:	**Approaches**	Length:	**6.0**
Element Name:	**Wearing Surface**	Width:	**15.0**
Location:	**East and West**	Height:	**0.1**
Material:	**Asphalt**	Count:	**2**
Element Type:		Total Quantity:	**180.0**
Environment:	**Severe**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**175.1**	**4.9**		

Comments: **Light ravelling, typical. West lane has medium wheel rutting 6.0m x 500 x 8mm. Southeast 7m of medium transverse cracks. Medium loss of bond (300mm x 300mm).**

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: West Approach

Element Photo:

Description of Photo: East Approach

Element Photo:

Description of Photo:

Element Data:

Element Group:	**Approaches**	Length:	**6.0**
Element Name:	**Approach Slab**	Width:	**15.0**
Location:	**East and West end**	Height:	**0.25**
Material:	**Concrete**	Count:	**2**
Element Type:		Total Quantity:	**180.0**
Environment:	**Moderate**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:			Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**180.0**			

Comments: **Assumed to be in good condition based on asphalt.**

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: Approach Slab

Element Data:

Element Group:	**Approaches**	Length:	**14.6 (NE) , 11.0 (SW)**
Element Name:	**Barrier**	Width:	
Location:	**SW and NE Quadrants**	Height:	
Material:	**Steel Beam Guiderail**	Count:	**2**
Element Type:	**Beam**	Total Quantity:	**25.6**
Environment:	**Moderate**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:	**Galvanized**		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m	**10.5**	**14.6**		**0.5**	**8 - Pedestrian / vehicular hazard**

Comments: **Light coating chalking typical. Northeast end is flared with a standard end terminal hidden behind flower box with retaining wall. 3 posts have top rot. Connection to the north east barriers are substandard. Southwest rail has been replaced but has a substandard connection at bridge.**

Recommended Work:	Rehab: [X] Replace: [ ]	Maintenance Needs:	
Urgent: [ ] 1-5 Years: [X] 6-10 Years: [ ] None: [ ]		Urgent: [ ] 1 Year: [ ] 2 Year: [ ]	
Replace substandard connections approach barrier to bridge connections			

Element Photo:

Description of Photo: Southwest Barrier

Element Photo:

Description of Photo: Southwest Barrier

Element Photo:

Description of Photo: Southwest Barrier

Element Data:

Element Group:	**Approaches**	Length:	**6.0**
Element Name:	**Sidewalk/Curb**	Width:	**1.8**
Location:	**All Quadrants**	Height:	
Material:	**Concrete**	Count:	**4**
Element Type:		Total Quantity:	**43.2**
Environment:	**Severe**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			Performance Deficiencies

Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		**38.9**	**4.3**		

Comments: **Light scaling, typical. 4 medium 200x200x 25mm spalls on northeast approach. 200x200x25mm medium spall, 4.5m of medium cracks and 2 - 400 x 400mm spalls on southeast approach. 7.5 of medium cracks on southwest approach. 3.0m of medium cracks and 2.0x 50mm medium spall on northwest approach. 300mm of narrow cracking at the edge of wingwalls.**

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: Approach Sidewalk

Element Photo:

Description of Photo: Approach Sidewalk

Element Photo:

Description of Photo: Approach Sidewalk

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	
Structure	Demolition					
Structure	Replacement					
OR						
Deck	Rehab. =					
Sidewalk/Curb	Rehab. = Concrete Repairs		**X**			**$11,000.00**
Barrier	Rehab. =					
Joints	Rehab. =					
Beams	Rehab. =		**X**			**$60,000.00**
Abutment	Rehab. =					
Pier	Rehab. =					
Other						
Estimated Rehabilitated or Replacement Structure Dimensions[3]						
Total Deck Length (m)	Overall Str. Width (m)				Total Structural Cost	**$71,000.00**

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	**Upgrade Approach Barrier to Bridge Connections**	**$20,000.00**
Detours		
Traffic Control	**Barriers, flagging, etc.**	**$20,000.00**
Utilities		
Other	**Engineering and contingency**	**$80,000.00**
	Mobilization/Demobilization, General, Insurance	**$50,000.00**
	Enviromental and Access	**$30,000.00**
	Total Associated Work Cost	**$200,000.00**

Total Construction Cost	**$271,000.00**

Justification:

Interior girder ends recommended to be cleaned and re-coated to mitigate continued corrosion. The approach guide rail connections to the bridge should be replaced with standard connections. The sidewalk concrete should be repaired to prevent tripping hazard to pedestrians and to maintain its safe use.

MTO Site Number:

Inventory Data:

Structure Name	**Waubuno Street Bridge**						
Main Highway #	**Waubuno Street**	On [X] Structure	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	80° 02' 28"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	**N/A**	No. of Lanes	**Pathway**
Township	**452 - McDougall**			AADT	**N/A**	% Truck	**Unknown**
Structure Type 1	**Timber Stringers**						
Structure Material 1	**Timber**			Traffic Directional Bound	**N-S**		
Structure Type 2	**Timber Deck**						
Structure Material 2	**Timber**			Inspection Frequency	**2**	(years)	
Total Deck Length	**12.9**	(m)		Inspection Year	**2022**		
Overall Str. Width	**3.6**	(m)		Inspection Duration	**2**	(hrs)	
Culvert Length		(m)					
Total Deck Area	**46.1**	(sq.m)					
Roadway Width	**3.2**	(m)		Min. Vertical Clearance	**2.96**	(m)	
Skew Angle		(Degree)		Detour Distance	**N/A**	(km)	
No. of Spans	**3**			Fill on Structure	**N/A**	(m)	
Span Lengths	**3.73, 4.18, 3.53**					(m)	
For retaining wall:							
Total Wall Length		(m)		Max. Wall Height	**N/A**	(m)	
Total Wall Area		(sq.m)		Ave. Wall Height	**N/A**	(m)	
				Angle of Backfill	**N/A**	(Degrees)	

Historical Data

Year Built	**1981**	Year of superstruct. Constructed	**N/A**	
Last Reg. OSIM Inspection	**2020**	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:	**June 29, 2022**	Type of Inspection:	[X] Reg. OSIM [ ] Enh. OSIM
Inspected By	**Alison Friebel**		
Others in Party:	**Brian Wood, P.Eng.**		
Eng. Access Equipment:	**Camera, Tape measure, Hammer**		
Special Access Equipment	**None**		
Weather	**Sun**	Temperature	**24** °C

Additional Investigations Required:	Priority			Estimated Cost
	None	Normal	Urgent	
Material Condition Survey	X			
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 [ ] Minor Rehab. [X] Major Rehab. [ ] Replace
Timing of Recommended Work	[ ] Urgent [X] 1 to 5 years [ ] 6 to 10 years
Overall Comments:	**The bridge has a number of timber members with rot, with replacement of these members recommended. The key members consist of pier columns and stringers.**
Date of Next inspection:	**2024**

Overall Bridge Condition					
% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIp)	
				BCIp	BCI
2%	5%	20%	0%	94.48	54.96

Overall Bridge Sufficiency				
Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)
2	0	0	0	52.96

Element Data:

Element Group:	**Decks**	Length:	**12.8**
Element Name:	**Deck Top**	Width:	**3.6**
Location:		Height:	**0.04**
Material:	**Wood**	Count:	**1**
Element Type:	**Wood Planks**	Total Quantity:	**46.1**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**42.0**	**3.0**	**1.1**	

Comments: **Light weathering, typical. Light to medium checks, typical. 1 plank end at south end has raised 15mm. Severe rot in 10 planks (6 - 500 x 250mm and 4 - 300 x 250mm).**

Recommended Work:	Rehab: [ ] Replace: [ ]	Maintenance Needs:	**9 - Timber Repair**
Urgent: [ ] 1-5 Years: [X] 6-10 Years: [ ] None: [ ]		Urgent: [ ] 1 Year: [X] 2 Year: [ ]	
Replace rottent planks		**Fasten loose planks**	

Element Photo:

Description of Photo: Deck Top

Element Photo:

Description of Photo: Deck Top rot

Element Photo:

Description of Photo: Deck Top rot

Element Data:

Element Group:	**Sidewalk/Curb**	Length:	**12.8**
Element Name:	**Curbs**	Width:	**0.2**
Location:		Height:	**0.2**
Material:	**Wood**	Count:	**2**
Element Type:		Total Quantity:	**10.2**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**6.7**	**1.5**	**2.0**	

Comments: **Light weathering, typical. Light to severe checks, typical. 6.0m of very severe rot through timbers.**

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

Element Photo:

Description of Photo: Curb

Element Photo:

Description of Photo: Curb

Element Photo:

Description of Photo: Curb

Element Data:

Element Group:	**Barriers**	Length:	**12.8**
Element Name:	**Railing Systems**	Width:	
Location:	**East and West**	Height:	**1.3**
Material:	**Wood**	Count:	**2**
Element Type:	**Wood Rail > 83mm Thick**	Total Quantity:	**25.6**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

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

Comments: **Light weathering, typical. Lose connection at east rail 4th 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: Railing

Element Data:

Element Group:	**Barriers**	Length:	**0.14**
Element Name:	**Posts**	Width:	**0.14**
Location:		Height:	**1.0**
Material:	**Wood**	Count:	**18**
Element Type:	**6x6 Timber Post**	Total Quantity:	**18**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		**16**	**2**		

Comments: **Light weathering typical. 2 posts exhibit some medium splintering.**

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: Railing Post

Element Data:

Element Group:	**Beams/Main Longitudinal Elements**	Length:	**3.6**
Element Name:	**Crossties**	Width:	**0.20**
Location:	**Under Deck**	Height:	**0.20**
Material:	**Wood**	Count:	**42**
Element Type:	**8x8 Timbers**	Total Quantity:	**60.0**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:	**Creosote**		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**43.5**	**15.0**	**1.5**	

Comments: **Only ends of crossties were visible for inspection. Light to medium checks and splits typical. Isolated severe 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: Crossties

Element Photo:

Description of Photo: Crossties

Element Photo:

Description of Photo:

Element Data:

Element Group:	**Beams/Main Longitudinal Elements**	Length:	**3.73, 4.18, 3.53**
Element Name:	**Stringers**	Width:	**0.25**
Location:		Height:	**0.45**
Material:	**Wood**	Count:	**18**
Element Type:	**Rectangular Solid**	Total Quantity:	**288.3**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:	**Creosote**		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**244.1**	**28.8**	**15.4**	**1 - Load carrying capacity**

Comments: **Light weathering typical. Isolated medium to severe checks and splits. Center span light splintering on the east and west exterior stringers, likely from vehicle impact. North span center stringer 2.0m of rot from abutment with severe bulging, 2nd girder from west 2.0m of rot from abutment, 6th stringer has 1.0m of rot from abutment with severe bulging and 8th stringer has 1.0m of rot from abutment. South span at pier 3rd and 7th stringer has 1.0m of rot from pier, 7th stringer has 1.0 of rot from abutment. Center span at south pier 9th stringer has 1.0m of rot from pier and 8th stringer has 1.0m of rot from north pier.**

Recommended Work:	Rehab: [X] Replace: [ ]	Maintenance Needs:	
Urgent: [ ] 1-5 Years: [X] 6-10 Years: [ ] None: [ ]		Urgent: [ ] 1 Year: [ ] 2 Year: [ ]	
Replace 8 rotten stringers			

Element Photo:

Description of Photo: Centre span 9th stringer

Element Photo:

Description of Photo: North span 5th stringer rot and bulging

Element Photo:

Description of Photo: South span 7th stringer rot

Element Data:

Element Group:	**Abutments**	Length:	
Element Name:	**Abutment Walls/Sill**	Width:	**3.4**
Location:		Height:	**0.69**
Material:	**Wood**	Count:	**2**
Element Type:	**Timber Wall**	Total Quantity:	**4.6**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**2.8**	**1.2**	**0.6**	

Comments: **Light weathering, typical. Isolated severe checks and splits. North sill has severe rot in 3rd and 6th timbers from west. South sill has severe check at 4th timber from west.**

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

Element Photo:

Description of Photo: Sill

Element Photo:

Description of Photo: Sill Check

Element Photo:

Description of Photo: Sill Rot

Element Data:

Element Group:	**Abutments**	Length:	
Element Name:	**Ballast Walls**	Width:	**3.4**
Location:		Height:	**0.70**
Material:	**Wood**	Count:	**2**
Element Type:	**Timber Wood**	Total Quantity:	**4.7**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:			

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m			**2.4**	**2.4**	**1 - Load carrying capacity**

Comments: **Medium weathering throughout. Very severe rot at south ballast wall.**

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

Element Photo:

Description of Photo: South Ballast Wall, Rot

Element Photo:

Description of Photo: South Ballast Wall, Rot

Element Photo:

Description of Photo:

Element Data:

Element Group:	**Piers**	Length:	**0.30**
Element Name:	**Shafts/Columns/Pile Bents**	Width:	**0.30**
Location:		Height:	**2.52**
Material:	**Wood**	Count:	**12**
Element Type:	**Timber Columns with Capping Beam**	Total Quantity:	**36.3**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:	**Creosote**		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**17.5**	**3.6**	**15.1**	**1 - Load carrying capacity**

Comments: **Light weathering, typical. Newer timber pile cap with medium end splits. Southwest pile has been replaced. Light splintering on outer piles, likely from vehicle collisions. North pier has full height rot in column 1, 2 and 5. South pier has full height rot in 4th column and rot in top half of column 5.**

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

Element Photo:

Description of Photo: North Pier, Column 1

Element Photo:

Description of Photo: North Pier, Column 2

Element Photo:

Description of Photo: North Pier, Column 5

Element Photo:

Description of Photo: North Pier

Element Photo:

Description of Photo: South Pier

Element Data:

Element Group:	**Piers**	Length:	**4.35**
Element Name:	**Caps**	Width:	**0.30**
Location:		Height:	**0.30**
Material:	**Wood**	Count:	**2**
Element Type:	**Timber Cap**	Total Quantity:	**5.6**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:	**Creosote**		

Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		**4.0**	**1.6**		

Comments: **Light weathering, light to medium checks, 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: Pier Cap

Element Data:

Element Group:	**Embankments & Streams**	Length:	
Element Name:	**Embankments**	Width:	
Location:	**All Quadrants**	Height:	
Material:	**Soil, Rocks and Shrubs**	Count:	**4**
Element Type:		Total Quantity:	**4**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
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:	
Urgent: [ ] 1-5 Years: [ ] 6-10 Years: [ ] None: [X]		Urgent: [ ] 1 Year: [ ] 2 Year: [ ]	

Element Photo:

Description of Photo: Northwest Embankment

Element Photo:

Description of Photo: Southwest Embankment

Element Photo:

Description of Photo: Northeast Embankment

Element Data:

Element Group:	**Embankments & Streams**	Length:	
Element Name:	**Slope Protection**	Width:	
Location:		Height:	
Material:	**Rock**	Count:	**2**
Element Type:	**Rock Protection**	Total Quantity:	**2**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

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

Comments: **South end 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:	
Urgent: [ ] 1-5 Years: [ ] 6-10 Years: [ ] None: [X]		Urgent: [ ] 1 Year: [ ] 2 Year: [ ]	

Element Photo:

Description of Photo: South slope protection

Element Photo:

Description of Photo: North slope protection

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:	**3**
Element Type:		Total Quantity:	**3**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

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

Comments: **Clearance sign is bent and worn at corners. Still in good condition. 2 no motorized vehicles signs bent and not easily visible.**

Recommended Work:	Rehab: [ ] Replace: [ ]	Maintenance Needs:	**18 - Other Maintenance**
Urgent: [ ] 1-5 Years: [ ] 6-10 Years: [ ] None: [X]		Urgent: [ ] 1 Year: [ ] 2 Year: [X]	
		Relocate no motorized vehicles to be easily visible.	

Element Photo:

Description of Photo: No motorized vehicles sign

Element Photo:

Description of Photo: Clearance sign

Element Photo:

Description of Photo:

Element Data:

Element Group:	**Accessories**	Length:	
Element Name:	**Utilities**	Width:	
Location:	**North and South of Bridge**	Height:	
Material:		Count:	**1**
Element Type:	**Cable**	Total Quantity:	**1**
Environment:	**Benign**	Inspected	Yes [ ] No [ ] limited [X]
Protection System:			

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

Comments: **Limited inspection due to cable height. Does not appear to be properly supported.**

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: Utility

Element Data:

Element Group:	**Approaches**	Length:	**6.0**
Element Name:	**Wearing Surface**	Width:	**3.6**
Location:	**North and South end of Bridge**	Height:	
Material:	**Gravel**	Count:	**2**
Element Type:		Total Quantity:	**43.2**
Environment:	**Benign**	Inspected	Yes [X] No [ ] limited [ ]
Protection System:			

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

Comments: **Light rutting. 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: Approach looking south

Element Photo:

Description of Photo: Approach looking north

Element Photo:

Description of Photo:

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	
Structure	Demolition					
Structure	Replacement					
OR						
Deck	Rehab. = Replace Rotten Planks		**X**			**$2,000.00**
Sidewalk/Curb	Rehab. = Replace Rotten Curbs		**X**			**$5,000.00**
Barrier	Rehab. =					
Joints	Rehab. =					
Beams	Rehab. = Replace Rotten Stringers		**X**			**$50,000.00**
Abutment	Rehab. = Replace Ballast Wall		**X**			**$12,000.00**
Pier	Rehab. = Replace Rotten Columns		**X**			**$11,000.00**
Other						
Estimated Rehabilitated or Replacement Structure Dimensions[3]						
Total Deck Length (m)	Overall Str. Width (m)				Total Structural Cost	**$80,000.00**

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		
Detours		
Traffic Control		**$5,000.00**
Utilities		
Other	**Engineering and Contingency**	**$15,000.00**
	General, Mobilization/Demobilization, Access, General	**$40,000.00**
	Total Associated Work Cost	**$60,000.00**

Total Construction Cost	**$140,000.00**

Justification:

The deteriorated timber deck, curbs, ballast wall, stringers and columns should be replaced as the rot will continue to progress. Signs of bulging and deterioration are already evident for severe rot.