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Bridge Needs Study

INSPECTION SUMMARY REPORT

Town of Gravenhurst

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1	August 29, 2024	Inspection Summary Report

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1 Introduction

The Town of Gravenhurst (Town) has an inventory of bridges and culverts that require regularly scheduled inspections to document their condition and performance to provide maintenance, rehabilitation, and replacement recommendations and associated costs, and to present data to enable compilation of an asset management plan.

Inspections were completed for all structures exceeding 3 metres in span within the Town boundaries as illustrated in Figures 1 to 4. To ensure compliance with Ministry of Transportation (MTO) guidelines and consistency with the previous studies, the inspections were completed in general accordance with the Ontario Structure Inspection Manual (OSIM, Ministry of Transportation, May 2018).

The completed inventories and corresponding assessments will allow the Town to:

- Maintain structures in a safe condition;
- Protect and extend the service life of structures;
- Identify maintenance, rehabilitation and replacement needs; and
- Provide a basis for a structure management system for the planning and funding of the recommendations.

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 document. 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. Typically, elements with no observed defects are categorized as Excellent, a severity of Light are categorized as Good, a severity of Medium are categorized as Fair, etc. Material Defects can be found in 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.



2 Structure Investigation

Inspections were completed for the structures within the inventory provided by the Town. In total, 17 structures were inspected: 8 bridges and 9 culverts. One bridge is the snowmobile bridge spanning over Hwy 11. At several structures access was somewhat restricted due to water levels, had a limited inspection of select elements due to lack of access such as larger bridge spans over waterways. This section details the results of the inspections and identifies corresponding deficiencies. The bridge inspection forms are included in Appendix A.

2.1 INVENTORY & APPRAISAL GUIDELINES

The structure inspections were conducted in general accordance with the procedures within the OSIM which sets standards for detailed visual inspections and condition rating of structures and their components. It provides a uniform inspection approach for structures in Ontario. A detailed visual inspection as defined in the OSIM is as follows:

An element-by-element “close-up” visual assessment of material defects, performance deficiencies and maintenance needs of a structure. Close-up is defined as “a distance close enough to determine the condition of the element”.

For each structure, a detailed visual inspection was completed including an element-by-element visual assessment of material defects, performance deficiencies and maintenance. Inspection forms, as provided in the OSIM, were completed for each structure, documenting the inspection results.

In particular, the following were observed and recorded:

- field inspection information (date, inspector, weather, etc.);
- structure information (name, location, type and crossing type);
- structure geometry (span, length, width, area and skew);
- approach road characteristics; and
- element data (for each individual structure element - abutment, deck, embankment, etc.).

2.2 STRUCTURE ASSESSMENTS

2.2.1 Identification of Needs & Improvements

For each individual structure element, confirmed or suspected condition and performance deficiencies can lead to the identification of maintenance, rehabilitation, or replacement needs. Needs then generally fall into two categories as follows:



Maintenance Needs can typically be completed by the Town's maintenance crews. These works can include annual bridge deck cleaning, installing signage, etc.

One road bridge and one culvert were identified as in need of replacement as summarized in Table 1.

Rehabilitation or Replacement Needs are typically larger scope of work projects that usually require the work to be contracted out for design and construction.

Three roadway bridge, three culverts and one snowmobile bridge were identified as in need of maintenance work as summarized in Table 2.

2.2.2 Maintenance Needs

The maintenance needs would be in addition to, or in conjunction with, routine annual bridge maintenance activities. The OSIM defines that maintenance work is any type of work that does not require the issuing of a capital construction project. It includes routine maintenance items as well as targeted structural repairs to a specific element. OSIM Section 2.6 Maintenance Needs and Table 2.6.1 Maintenance Needs provide a guideline for Routine Maintenance and Structural Maintenance Work. Who completes the Maintenance Needs in Table 2.6.1 can depend on how an owner of the assets approaches maintenance. Some owners may not have the staffing, expertise, or equipment to complete some or all items in the table, and in that case the work may need to be awarded to a contractor through a request for quote, or a tendering process.

Routine annual bridge maintenance could consist of cleaning elements that include decks, curbs and sidewalks, joints, abutment seats and bearings, and drainage systems. Other routine maintenance needs could consist of bridge surface repairs, railing system repairs, and other needs as listed in Table 2.6.1. Maintenance time frames are categorized into Urgent, 1 Year, and 2 Year.

Although there are no firm guidelines on annual maintenance expenditures, the Transportation Association of Canada (TAC) in the past has provided a general target for annual bridge maintenance funding allocation of 0.2% of the replacement value of the assets. For example, if the value of the structure assets is \$10M then \$20,000 could be considered to be set aside for annual maintenance. Each jurisdiction has their own approach to maintenance funding, however, to begin establishing or re-assessing a maintenance program this could be a starting point.

The above are guidelines that can be referenced to establish a more thorough maintenance program beyond bridge cleaning and surface repairs. The types of work within the program need to be established, who will typically complete the work, costs per work activity determined for budgeting purposes, and determining an annual budget. A key is to ensure continuity year over year to maximize the benefit of a maintenance program.



2.2.3 Rehabilitation or Replacement Needs

The Ministry uses the Bridge Condition Index (BCI) to plan rehabilitation and replacement work. A BCI range of 70-100 is considered as good and work is not usually required within the next five years. A BCI range of 40-70 is considered fair and work is usually scheduled within the next five years. A BCI less than 40 is considered poor, and work is usually scheduled within one year which is categorized as Urgent.

For each site the estimated costs include Engineering and Contingency costs, but do not include contract administration or construction inspection. For budgeting purposes, the typical Engineering and Contingency costs are typically 10% and 20% of the estimated cost of work, respectively. The breakdown of the estimated costs can be found in the OSIM forms.

2.2.4 Improvement Costs

Cost estimates for rehabilitation or replacement needs are provided in Table 1. The Table summarizes improvement costs by year, and the total improvement cost is \$1,167,000. The 10-year Capital Plan can be found in Appendix B.

2.2.5 Enhanced OSIM Inspections

The OSIM forms may identify the need for an Enhanced OSIM inspection that can include:

- special access equipment;
- tapping areas of concrete with a hammer to determine the limits of delamination and spalling;
- tapping areas of wood with a hammer to determine limits of rot, as well as selective wood coring to correlate tapping with the presence of inner rot or other damage; and
- cleaning and wire brushing areas of steel, including connections, to ascertain section loss.

No Enhanced OSIM Inspections are recommended at this time.

2.2.6 Additional Investigations

The OSIM forms may identify the need for Additional Investigations. Typical investigations are listed on Page 2 of each OSIM form. These can include:

- Material Condition Survey;
- Underwater Investigation;
- Structure Evaluation; and
- Monitoring.

No Additional Investigations are recommended at this time.



Table 1: Maintenance Needs

NO.	YEAR OF CONST.	URGENT	WITHIN 1 YEAR	WITHIN 2 YEARS
6 - Pinetree Bridge	2010	-	-	Install narrow bridge sign
7 - Narrows Road Bridge	1970	-	Clearing the beaver dam	-
11 - Fire Route A-1 Bridge	-	Install 3 Tonne load post sign	-	-
42-328 - Highway 11 Snowmobile Trail Overpass	2002	-	-	Bridge cleaning, bearing seat cleaning and replace seal at pier joint
201 - Barkway Road Culvert	1960	-	-	Install hazard warning sign
202 - Merkley Road Culvert	1980	-	Tighten cables in barrier, clear vegetation from in front of barrier, regrade road surface	-
203 - Barkway Road Culvert	2014	-	Install two object warning signs, replace damaged section of guide rail	-
C12 - Arthur Schulz Culvert	2020	-	-	Repair hole on the barrel



Table 2: Rehabilitation or Replacement Needs

NO.	YEAR OF CONST.	URGENT		WITHIN 1 YEAR		1-5 YEARS		6-10 YEARS	
		Description	Estimated Cost	Description	Estimated Cost	Description	Estimated Cost	Description	Estimated Cost
11 - Fire Route A-1 Bridge	Unknown	-	-	-	-	-	-	Replace structure	\$590,000
201 - Barkway Road Culvert	1960	-	-	-	-	Concrete lining	\$577,000	-	-
Totals			\$0		\$0		\$577,000		\$1,167,000



3 Recommendations & Prioritization

As mentioned in Section 2 of this report, ‘maintenance’ work refers to those works that could potentially be completed by the owners works department, and ‘rehabilitation’ and ‘replacement’ refers to work that may require an engineered design and tendering of the works to a contractor. The costing information is preliminary and is for budgeting purposes only.

3.1 RECOMMENDED IMPROVEMENTS

In the past two years, the Town has replaced two structures and rehabilitated three structures, which has reduced the deficiencies to be addressed in the next 10 years. The recommended improvements total \$1,167,000 in bridge and culvert rehabilitations and replacements over the next 10 years. This value does not include the cost associated with maintenance work. The work can be further broken down as follows:

- \$577,000 in the next 1-5 years
- \$590,000 in the next 6-10 years

3.2 PRIORITIZATION OF WORK

It is understood that an owner may not have the funding to complete all the works within the recommended timeframes. The distribution of work through the 10-year timeframe was distributed in a manner that provides a relatively even distribution of funding requirements, however there are opportunities to adjust to suit the owner’s needs and availability of funds. For example, replacement of 11 - Fire Route A1 Bridge could potentially be deferred by reducing risks such as load posting, installation of a temporary barrier system, etc.

In accordance with the 2009 Bridge Condition Index (BCI): An Overall Measure of Bridge Condition published by the Ministry of Transportation Ontario Engineering Standards Branch, a BCI, BCIP and BSI value was calculated for each structure. Essentially the BCI is a weighted average of the bridge elements and condition states. The BCIP is limited to only the percentage of poor condition of four main areas of the structure: deck, beams, substructure, and barrier. The BCIP for structural culverts considers culvert barrels to be a substructure element and considers barriers along the roadway. The BCIP for the retaining walls considers the walls to be substructure and considers barriers along the top of the walls to be superstructure. The BSI is the Bridge Sufficiency Index which applies additional factors to the BCI based on sufficiency of the structure for use such as Traffic (AADT and load posting), Economic (economic importance and length of detour), Width (single lane, narrow lane, etc.), and Alignment (profile or alignment).



Table 3 lists the BCI, BCIP and BSI for each structure. It is recommended that prioritization of rehabilitation occur based on the bridge sufficiency index. However, structures that have urgent action items should be addressed first. The 10-year capital plan can be found in Appendix B.

3.3 STUDY UPDATES

Conditions can change based on the effects of the weather, flood events, traffic volume and types of traffic, use of de-icing chemicals, maintenance, unforeseeable circumstances, and continued deterioration. The condition data of the bridge system is updated through the bi-annual inspections. The inspection results are used to update the effectiveness of strategies, gauge sufficiency of funding levels, identify whether needs are being addressed, document the rate of deterioration of elements, and to ensure accurate information is used to determine improvement needs and implementation timing.



Table 3: Structure Priority List

PRIORITY	STRUCTURE NAME	BCIp	BCI	BSI
(40 < BSI < 70)	11 - Fire Route A1 Bridge	89.40	58.16	41.16
	201 - Barkway Road Culvert Lots 15/16, Conc 10	36.25	19.40	17.40
	5 - Kahshe River Bridge	99.41	76.88	68.88
(BSI > 70)	6 - Pinetree Bridge	100.00	88.27	76.27
	4 - Beau Creek Bridge, Lots 15/16, Conc 6	100.00	78.78	75.78
	1 - Robinson Bridge	100.00	81.15	78.15
	7 - Narrows Road Bridge, Lot 28, Conc 8	100.00	83.04	80.04
	202 - Merkley Road Culvert Lot 6, Conc 10/11	100.00	86.52	84.52
	42-328 - Highway 11 - Snowmobile trail Overpass	100.00	88.05	87.05
	C10 - Seehaver Road, Lot 14, Conc 12/13	100.00	95.48	93.48
	9 - Lots 10/11, Conc 10	100.00	98.59	92.59
	C8 - Sniders Bay Culvert	100.00	100.00	97.00
	203 - Barkway Road Culvert Lots 15/16, Conc 12	100.00	99.48	97.48
	C12 - Arthur Schulz Culvert	99.98	99.39	97.39
	204 - Riley Lake Road Culvert	100.00	100.00	98.00
	South Kashe Lake Rd Culvert	100.00	100.00	98.00
	Laycox Road Culvert	100.00	100.00	98.00



4 Summary

The inventory of structures is generally in good condition with no Enhanced Inspections or Additional Investigations recommended. However, there is 1 structure that is recommended to be replaced and 1 culvert is recommended to be rehabilitated. There are various maintenance activities recommended with Section 2.

Should the Town have any questions or comments regarding the above, please do not hesitate to contact us.



Figure 1: Location Map 1

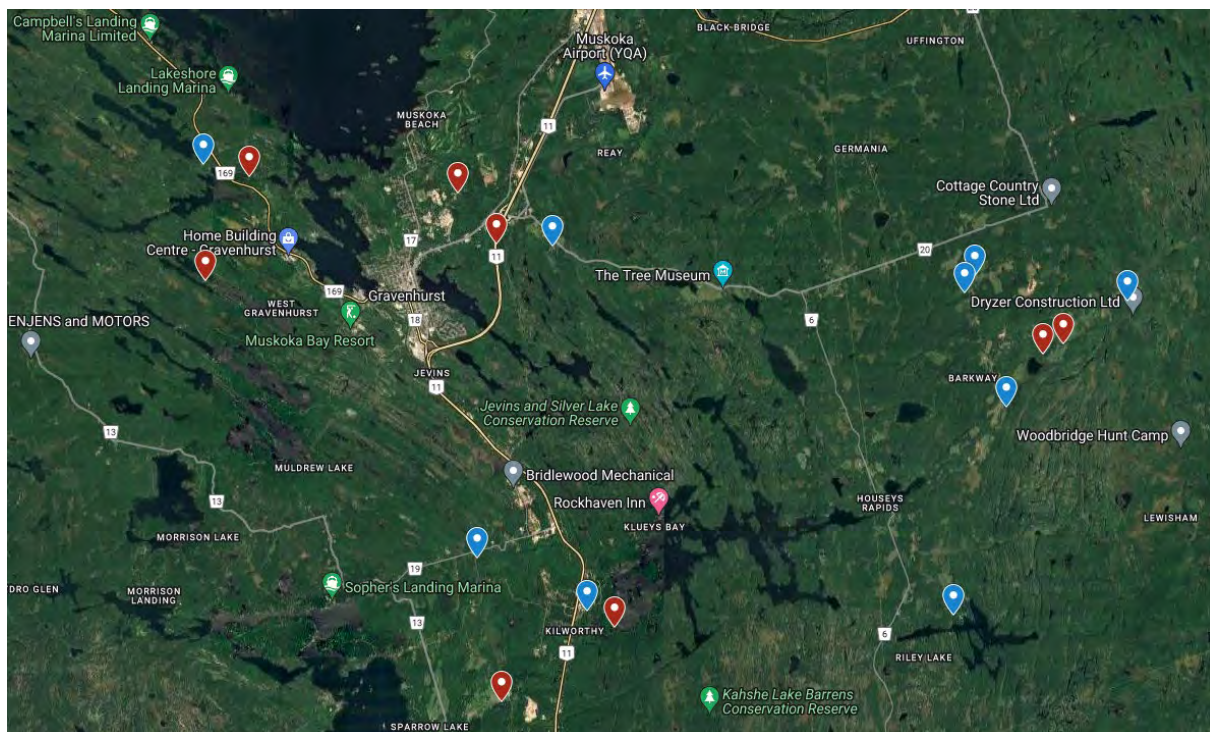


Figure 2: Location Map 2

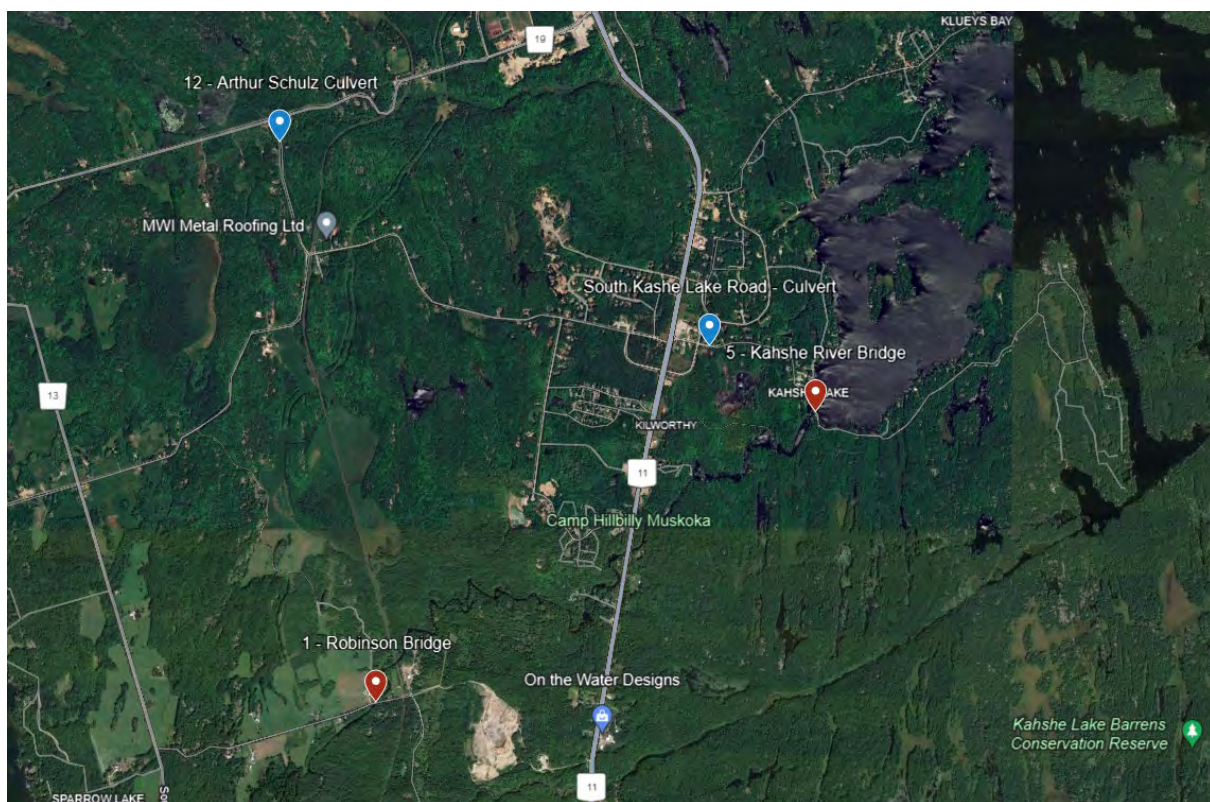


Figure 3: Location Map 3

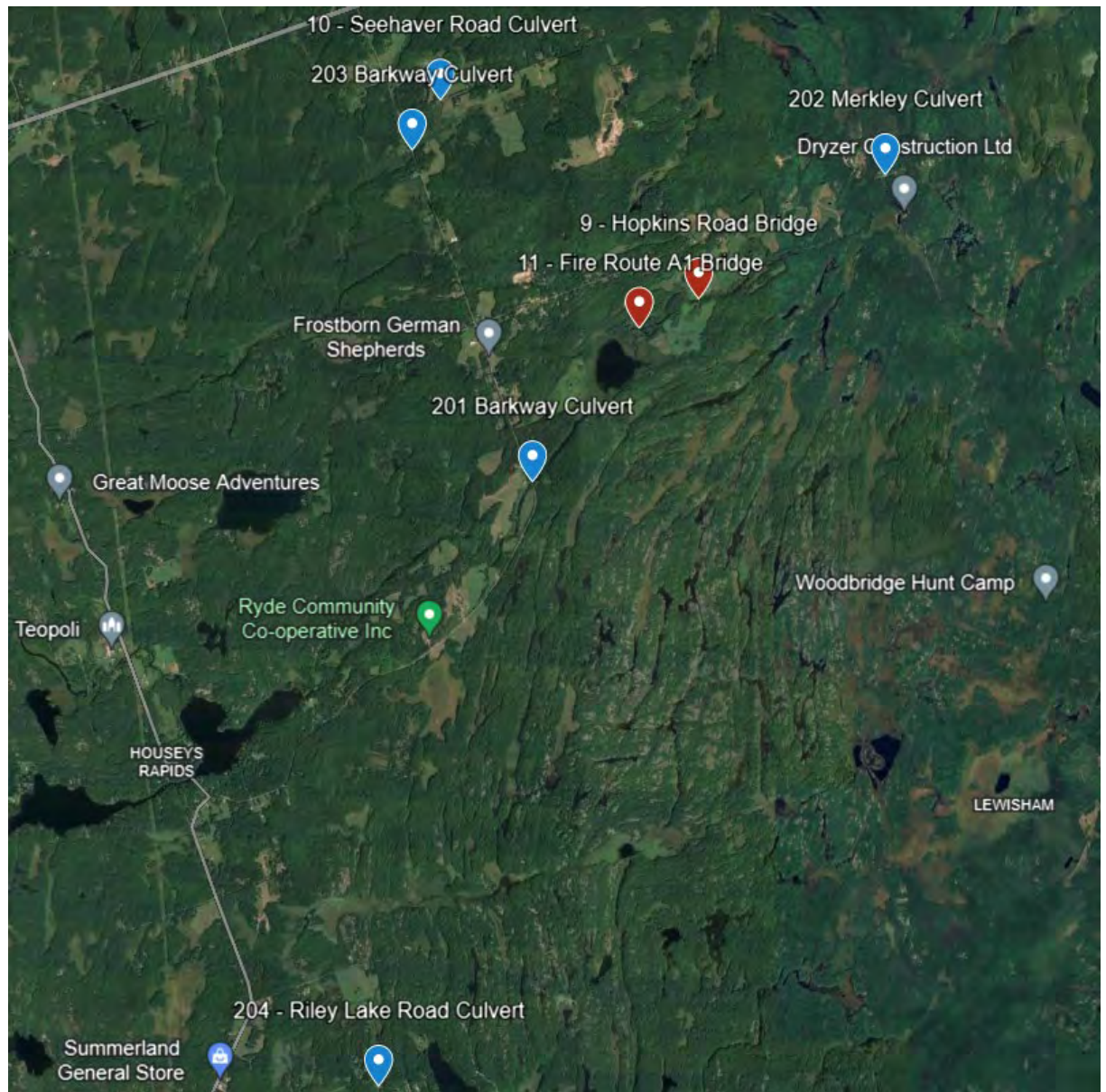
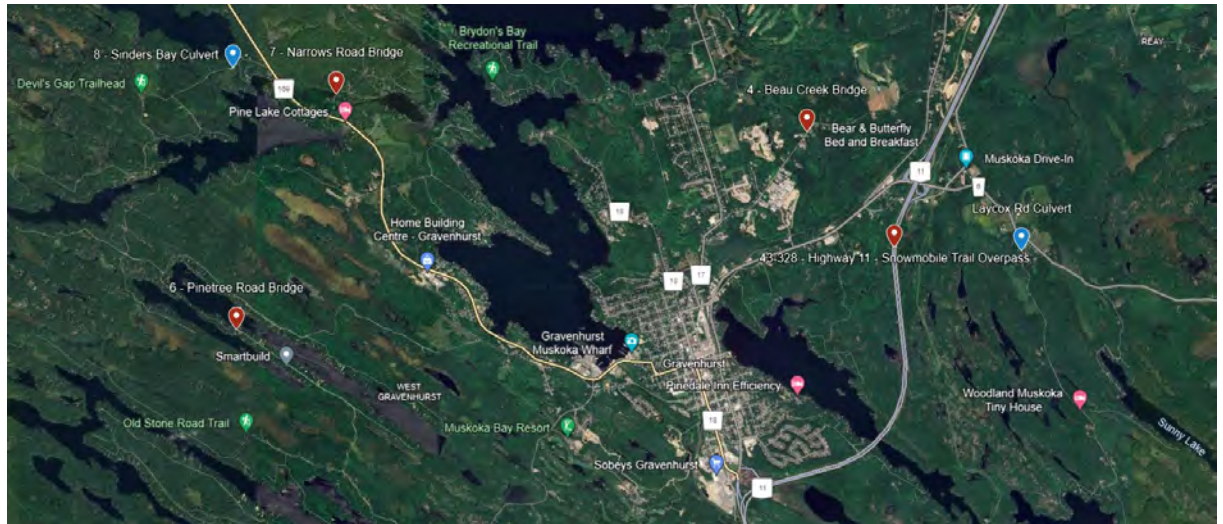


Figure 4: Location Map 4



Appendix A: OSIM Forms

Inventory Data:

Structure Name	1 - Robinson Bridge, Lot 2, Conc 6				
Main Highway #	Sparrow Lake Route "D"	On <input checked="" type="checkbox"/> or Under <input type="checkbox"/> Structure	Service on Structure	<input type="checkbox"/> Navig. Water <input type="checkbox"/> Non-Navig. Water	<input type="checkbox"/> Rail <input checked="" type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other
Location Description	2.34 km west of Highway 11	Service under:	<input type="checkbox"/> Navig. Water <input checked="" type="checkbox"/> Non-Navig. Water	<input type="checkbox"/> Rail <input type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Owner/Custodian	Gravenhurst				
MTO Region	Northeastern	Latitude	44.822642	Longitude	-79.342598
Regional Engineer		Heritage Designation:	<input checked="" type="checkbox"/> Not Cons. <input type="checkbox"/> Cons./Not App. <input type="checkbox"/> List/Not Desig. Desig. <input type="checkbox"/> Desig./Not List <input type="checkbox"/> Desig. & List		
MTO Area		Hwy Class:	Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input type="checkbox"/> Local <input checked="" type="checkbox"/>		
Old County		Posted Speed	50	No. of Lanes	2
Township	Gravenhurst	AADT	200	% Truck	0
Structure Type 1	Box Beam Girders				
Structure Material 1	Concrete				
Structure Type 2	Concrete Deck				
Structure Material 2	Concrete				
Total Deck Length	24.8	(m)	Inspection Frequency	2	(years)
Overall Str. Width	10.1	(m)	Inspection Year	odd	
Culvert Length		(m)	Inspection Duration	2	(hrs)
Total Deck Area	249.4	(sq.m)			
Roadway Width	8.0	(m)	Min. Vertical Clearance		(m)
Skew Angle	30	(Degree)	Detour Distance	8	(km)
No. of Spans	1		Fill on Structure		(m)
Span Lengths	18.4 (m)				
<u>For retaining wall:</u>					
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	1982	Year of superstruct. Constructed	
Last Reg. OSIM Inspection	2021	Year of Last Minor Rehab.	2023
Last Enh. OSIM Inspection		Year of Last Major Rehab	
		Current Load Limit	/ / (tonnes)

Work History: (Date/description)

2018 - replaced joints, barriers, and approach asphalt.
 2023 - concrete repairs along underside of box girders.

Investigation History: (Date/description)

Field Inspection Information:					
Date of Inspection:	September 11, 2023		Type of Inspection:	<input checked="" type="checkbox"/> Reg. OSIM <input type="checkbox"/> Enh. OSIM	
Inspected By	Junjie Yang				
Others in Party:					
Enh. Access Equipment:					
Special Access Equipment					
Weather	Clear	Temperature	22 °C		
Additional Investigations Required:		Priority			Estimated Cost
		None	Normal	Urgent	
Material Condition Survey					
Detailed Deck Condition Survey:		X			
Non-destructive Delamination Survey of Asphalt-Covered Deck:		X			
Concrete Substructure Condition Survey:		X			
Detailed Coating Condition Survey:		X			
Detailed Timber Investigation:		X			
Post-Tensioned Strand Investigation:		X			
Underwater Investigation		X			
Fatigue Investigation		X			
Seismic Investigation		X			
Structure Evaluation:		X			
Monitoring					
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	<input checked="" type="checkbox"/> None <input type="checkbox"/> Minor Rehab. <input type="checkbox"/> Major Rehab. <input type="checkbox"/> Replace				
Timing of Recommended Work	<input type="checkbox"/> Urgent <input type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years				
Overall Comments:	The structure is in generally good condition. No recommended work at this time.				
Date of Next inspection:	2025				
Overall Bridge Condition					
% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIP)	
0%	0%	0%	0%	BCIP 100.00	BCI 81.15
Overall Bridge Sufficiency					
Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)	
0	3	0	0	78.15	

Element Data:

Element Group:	Decks	Length:	24.8			
Element Name:	Deck Top	Width:	8.0			
Location:		Height:				
Material:	Concrete	Count:	1			
Element Type:	Distribution Slab	Total Quantity:	198.4			
Environment:	Severe	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		198.4			

Comments: **The concrete has a transversely tined surface. Light scaling, typ. Narrow cracks along longitudinal direction, note they generally align with the interface between girders. There are areas of narrow alligator and map cracking.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:			
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Concrete deck top - looking east

Element Photo:



Description of Photo: Concrete deck top - looking west

Element Photo:



Description of Photo: Narrow crack, typ.

Element Data:

Element Group:	Joints	Length:	10.1			
Element Name:	Seals/sealants	Width:				
Location:		Height:				
Material:	Strip Seal	Count:	2			
Element Type:		Total Quantity:	2			
Environment:	Severe	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each	2				

Comments: No observed defects. Debris buildup in both seals, with isolated areas of asphalt in west joint.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:			
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: East joint

Element Photo:



Description of Photo: West joint

Element Photo:

Description of Photo:

Element Data:

Element Group:	Joints	Length:	10.1			
Element Name:	Concrete End Dams	Width:	0.2			
Location:		Height:				
Material:	Concrete	Count:	4			
Element Type:		Total Quantity:	8.0			
Environment:	Severe	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m	8.0				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:			
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:**Description of Photo:** East concrete end dam

Element Photo:



Description of Photo: West concrete end dam

Element Photo:

Description of Photo:

Element Data:

Element Group:	Joints		Length:	10.1		
Element Name:	Armouring/Retaining Devices		Width:			
Location:			Height:			
Material:	Steel		Count:	4		
Element Type:			Total Quantity:	40.2		
Environment:	Severe		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	m	40.2				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Joint armour device, typ.

Element Data:

Element Group:	Barriers	Length:	24.8			
Element Name:	Railing Systems	Width:				
Location:		Height:				
Material:	Steel	Count:	2			
Element Type:	Side-mounted steel beam guide rail	Total Quantity:	49.6			
Environment:	Severe	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:	Galvanizing					
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m	49.6				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:**Description of Photo:** Railing system - looking north

Element Photo:



Description of Photo: Railing system - looking south

Element Photo:

Description of Photo:

Element Data:

Element Group:	Beams/Main Longitudinal Elements	Length:	18.4			
Element Name:	Girders	Width:	1.2			
Location:		Height:	1.2			
Material:	Concrete	Count:	7			
Element Type:	Box Girders	Total Quantity:	198.7			
Environment:	Benign	Inspected	Yes <input type="checkbox"/> No <input type="checkbox"/> limited <input checked="" type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		198.7			

Comments: Inspection of bottom of girders and exterior face of girders completed. Interface between interior girders not visible for inspection. Concrete repairs completed on bottom face of girders in 2023. Light scaling, typ.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:			
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Concrete box girder, typ.

Element Photo:



Description of Photo: Concrete box girder, typ.

Element Photo:



Description of Photo: Concrete box girder, typ.

Element Photo:



Description of Photo: Concrete box girder, typ.

Element Photo:



Description of Photo: Concrete box girder, typ.

Element Data:

Element Group:	Abutments	Length:	
Element Name:	Abutment Walls	Width:	8.5
Location:	East and West	Height:	3.0 (W), 1.6 (E)
Material:	Concrete	Count:	2
Element Type:		Total Quantity:	39.1
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	sq.m		39.1

Comments: Light scaling, typ. Two narrow vertical cracks on east abutment wall, one narrow leaching crack on west abutment, two narrow vertical cracks on west abutment.

Recommended Work:	Rehab: <input type="checkbox"/> Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/> 1-5 Years: <input type="checkbox"/> 6-10 Years: <input type="checkbox"/> None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: East abutment wall

Element Photo:



Description of Photo: West abutment wall

Element Photo:



Description of Photo: Narrow vertical crack, typ.

Element Data:

Element Group:	Abutments	Length:	3.2
Element Name:	Wingwalls	Width:	
Location:		Height:	3.0
Material:	Concrete	Count:	4
Element Type:		Total Quantity:	38.4
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	sq.m		38.4

Comments: Light scaling typ. Isolated light honeycombing at cold joint.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Southwest wing wall

Element Photo:



Description of Photo: Honeycombing at cold joint

Element Photo:

Description of Photo:

Element Data:

Element Group:	Abutments	Length:	
Element Name:	Bearings	Width:	
Location:	East	Height:	
Material:	Elastomeric	Count:	14
Element Type:		Total Quantity:	14
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	each		14

Comments: Light weathering of east bearings. There are 2 bearing pads per girder.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: East abutment bearing, typ.

Element Photo:



Description of Photo: East abutment bearing, typ.

Element Photo:

Description of Photo:

Element Data:

Element Group:	Abutments	Length:	
Element Name:	Bearings	Width:	
Location:	West	Height:	
Material:	Elastomeric	Count:	14
Element Type:		Total Quantity:	14
Environment:	Benign	Inspected	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> limited <input type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	each		14
		Fair	Poor*

Performance
Deficiencies

Comments: **West bearings not accessible for inspection. It is assumed there are 2 bearing pads per girder, similar to the east bearings.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: West abutment bearing (not accessible)

Element Data:						
Element Group:	Retaining Walls		Length:	2.4		
Element Name:	Walls		Width:			
Location:	Northeast and Southeast Quadrants		Height:	1.2 (S), 1.8 (N)		
Material:	Gabion Baskets		Count:	2		
Element Type:			Total Quantity:	7.2		
Environment:	Benign		Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>		
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		7.2			
Comments: Gabion retaining walls are present on the northeast and southeast quadrants. Isolated light deformations of front face of gabion baskets. No other observed defects.						
Recommended Work:		Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:		
Urgent: <input type="checkbox"/>		1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:



Description of Photo: Northeast gabion retaining wall

Element Photo:



Description of Photo: Southeast gabion retaining wall

Element Photo:

Description of Photo:

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Streams and Waterways	Width:				
Location:		Height:				
Material:		Count:				
Element Type:		Total Quantity:	all			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	all	x				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Upstream

Element Photo:



Description of Photo: Downstream

Element Photo:

Description of Photo:

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Embankments	Width:				
Location:		Height:				
Material:	Soil, rock, grass	Count:	4			
Element Type:		Total Quantity:	4			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		4			

Comments: **Loss of material is less than 10%.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Northeast embankment

Element Data:

Element Group:	Accessories		Length:			
Element Name:	Signs		Width:			
Location:			Height:			
Material:	Steel		Count:	4		
Element Type:			Total Quantity:	4		
Environment:	Benign		Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>		
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	each	4				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:			
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Hazard warning sign, typ.

Element Data:

Element Group:	Approaches		Length:	6.0		
Element Name:	Wearing Surface		Width:	8.0		
Location:			Height:			
Material:	Asphalt		Count:	2		
Element Type:			Total Quantity:	96.0		
Environment:	Severe		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		96.0			

Comments: Light ravelling, typ.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: East approach wearing surface

Element Photo:



Description of Photo: West approach wearing surface

Element Photo:

Description of Photo:

Element Data:

Element Group:	Approaches		Length:	18.4, 33, 55.0, 18.4		
Element Name:	Barrier		Width:			
Location:			Height:			
Material:	Steel		Count:	4		
Element Type:			Total Quantity:	124.8		
Environment:	Severe		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:	Galvanizing					Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	m	123.8			1.0	

Comments: Isolated deformations noticed at several locations. No other observed defects.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Southeast approach guide rail

Element Photo:



Description of Photo: Northeast approach guide rail

Element Photo:



Description of Photo: Isolated deformation, typ.

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

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	\$0.00
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Justification:
The structure was rehabilitated in 2018 and 2023. The structure is in generally good condition. No recommended work at this time.

Inventory Data:

Structure Name	4 - Beau Creek Bridge, Lot 15/16, Conc 6 South				
Main Highway #	Jones Road	On <input checked="" type="checkbox"/> or Under <input type="checkbox"/>	Service on Structure	<input type="checkbox"/> Navig. Water <input type="checkbox"/> Non-Navig. Water	
				<input type="checkbox"/> Rail <input checked="" type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Location Description	1.5km East of District Road 17	Service under:	<input type="checkbox"/> Navig. Water <input checked="" type="checkbox"/> Non-Navig. Water	<input type="checkbox"/> Rail <input type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Owner/Custodian	Gravenhurst				
MTO Region		Latitude	44.944131	Longitude	-79.357254
Regional Engineer		Heritage Designation:	<input checked="" type="checkbox"/> Not Cons. <input type="checkbox"/> Cons./Not App. <input type="checkbox"/> List/Not Desig.		
			Desig. <input type="checkbox"/> Desig./Not List <input type="checkbox"/> Desig. & List		
MTO Area		Hwy Class:	Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input type="checkbox"/> Local <input checked="" type="checkbox"/>		
Old County		Posted Speed	50	No. of Lanes	2
Township	Gravenhurst	AADT	50-199	% Truck	0
Structure Type 1	Rigid Frame				
Structure Material 1	Concrete				
Structure Type 2					
Structure Material 2					
Total Deck Length	7.14	(m)	Inspection Frequency	2	(years)
Overall Str. Width	9.2	(m)	Inspection Year	odd	
Culvert Length		(m)	Inspection Duration	2	(hrs)
Total Deck Area	65.7	(sq.m)			
Roadway Width	8.43	(m)	Min. Vertical Clearance		(m)
Skew Angle		(Degree)	Detour Distance	6.0	(km)
No. of Spans	1		Fill on Structure		(m)
Span Lengths	6.45 (m)				
<u>For retaining wall:</u>					
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	1976	Year of superstruct. Constructed	
Last Reg. OSIM Inspection	2021	Year of Last Minor Rehab.	2023
Last Enh. OSIM Inspection		Year of Last Major Rehab	
		Current Load Limit	/ / (tonnes)

Work History: (Date/description)

2020 - new pavement
2023 - scour protection and concrete repair

Investigation History: (Date/description)

2018 - south abutment underwater inspection

Field Inspection Information:						
Date of Inspection:	September 11, 2023		Type of Inspection:	<input checked="" type="checkbox"/> Reg. OSIM	<input type="checkbox"/> Enh. OSIM	
Inspected By	Junjie Yang					
Others in Party:						
Enh. Access Equipment:						
Special Access Equipment						
Weather	Clear	Temperature	22 °C			
Additional Investigations Required:			Priority		Estimated Cost	
			None	Normal		Urgent
Material Condition Survey						
Detailed Deck Condition Survey:			X			
Non-destructive Delamination Survey of Asphalt-Covered Deck:			X			
Concrete Substructure Condition Survey:			X			
Detailed Coating Condition Survey:			X			
Detailed Timber Investigation:			X			
Post-Tensioned Strand Investigation:			X			
Underwater Investigation			X			
Fatigue Investigation			X			
Seismic Investigation			X			
Structure Evaluation:			X			
Monitoring						
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	<input checked="" type="checkbox"/> None <input type="checkbox"/> Minor Rehab. <input type="checkbox"/> Major Rehab. <input type="checkbox"/> Replace					
Timing of Recommended Work	<input type="checkbox"/> Urgent <input type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years					
Overall Comments:	The structure is in generally good condition. No recommended work at this time.					
Date of Next inspection:	2025					
Overall Bridge Condition						
% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIP)		
0	0	0	0	BCIP 100.00	BCI 78.78	
Overall Bridge Sufficiency						
Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)		
0	3	0	0	75.78		

Element Data:

Element Group:	Decks	Length:	7.14
Element Name:	Wearing Surface	Width:	8.43
Location:		Height:	
Material:	Asphalt	Count:	1
Element Type:		Total Quantity:	60.2
Environment:	Severe	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	sq.m		54.2
		Fair	Poor*
		6.0	
			Performance Deficiencies
			9 - Rough riding surface

Comments: Light ravelling and wheel track rutting, typ. Isolated medium wear and abrasion noted. Isolated rippling at both ends.

Recommended Work:	Rehab: <input type="checkbox"/> Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/> 1-5 Years: <input type="checkbox"/> 6-10 Years: <input type="checkbox"/> None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Wearing surface - looking west

Element Photo:



Description of Photo: Wearing surface - looking east

Element Photo:




Description of Photo: Ripping, typ.

Element Data:						
Element Group:	Decks		Length:	7.14		
Element Name:	Deck Top		Width:	9.19		
Location:			Height:			
Material:	Concrete		Count:	1		
Element Type:			Total Quantity:	65.7		
Environment:	Moderate		Inspected	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> limited <input type="checkbox"/>		
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		65.7			
Comments: Concrete deck top covered under asphalt wearing surface. Assumed in good condition based on the condition of asphalt wearing surface and soffit.						
Recommended Work:		Rehab: <input type="checkbox"/> Replace: <input type="checkbox"/>		Maintenance Needs:		
Urgent: <input type="checkbox"/>		1-5 Years: <input type="checkbox"/> 6-10 Years: <input type="checkbox"/> None: <input checked="" type="checkbox"/>		Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>		

Element Photo:



Description of Photo: Asphalt covered concrete deck

Element Data:						
Element Group:	Decks		Length:	7.14		
Element Name:	Soffit		Width:	9.19		
Location:			Height:			
Material:	Concrete		Count:	1		
Element Type:			Total Quantity:	65.7		
Environment:	Benign		Inspected	Yes <input type="checkbox"/> No <input type="checkbox"/> limited <input checked="" type="checkbox"/>		
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		65.7			
Comments: Light scaling, typ.						
Recommended Work:		Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:		
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>
<div> <div>Element Photo:</div>  </div>						
<div> <div>Description of Photo:</div> <div>Soffit - looking south</div> </div>						

Element Photo:



Description of Photo: Soffit - looking north

Element Photo:

Description of Photo:

Element Data:

Element Group:	Decks	Length:	
Element Name:	Drainage System	Width:	0.15
Location:		Height:	
Material:	Steel / Elastomeric	Count:	2
Element Type:		Total Quantity:	2
Environment:	Severe	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	each		2

Comments: Light corrosion on the steel. No observed defects on the 2023 elastomeric extentions.

Recommended Work:	Rehab: <input type="checkbox"/> Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/> 1-5 Years: <input type="checkbox"/> 6-10 Years: <input type="checkbox"/> None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Deck drain - extension, typ.

Element Photo:



Description of Photo: Deck drain - Steel, typ.

Element Photo:

Description of Photo:

Element Data:

Element Group:	Barriers	Length:	7.14			
Element Name:	Railing Systems	Width:				
Location:		Height:				
Material:	Steel	Count:	2			
Element Type:	Top mounted steel beam guide rail	Total Quantity:	14.3			
Environment:	Severe	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:	Galvanizing					
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m	14.3				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:**Description of Photo:** Railing syetem - looking south

Element Photo:



Description of Photo: Railing system - looking north

Element Photo:

Description of Photo:

Element Data:

Element Group:	Abutments	Length:	
Element Name:	Abutment Walls	Width:	9.2
Location:		Height:	2.0
Material:	Concrete	Count:	2
Element Type:		Total Quantity:	36.8
Environment:	Benign	Inspected	Yes <input type="checkbox"/> No <input type="checkbox"/> limited <input checked="" type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	sq.m		31.8
		Fair	Poor*

Comments: Light scaling, typ. Medium scaling along waterline, typ. Below water area not inspected due to water depth.

Recommended Work:	Rehab: <input type="checkbox"/> Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/> 1-5 Years: <input type="checkbox"/> 6-10 Years: <input type="checkbox"/> None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: West abutment wall

Element Photo:



Description of Photo: East abutment wall

Element Photo:

Description of Photo:

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Streams and Waterways	Width:				
Location:		Height:				
Material:		Count:				
Element Type:		Total Quantity:	all			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	all	x				

Comments: No observed defects. Debris buildup at upstream, however, not affecting flow.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Watercourse - looking south

Element Photo:



Description of Photo: Watercourse - looking north

Element Photo:



Description of Photo: Debris buildup at upstream

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Embankments	Width:				
Location:		Height:				
Material:	Soil, grass, rock	Count:	4			
Element Type:		Total Quantity:	4			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each	4				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

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:			Height:			
Material:	Rock, grout		Count:	4		
Element Type:			Total Quantity:	4		
Environment:	Benign		Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>		
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	each	4				
Comments: No observed defects.						
Recommended Work:		Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:		
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:



Description of Photo: Northeast slope protection

Element Data:

Element Group:	Accessories		Length:			
Element Name:	Signs		Width:			
Location:			Height:			
Material:	Steel		Count:	4		
Element Type:			Total Quantity:	4		
Environment:	Severe		Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>		
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	each		4			

Comments: **Light weathering, typ.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:			
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:**Description of Photo:** Hazard warning sign, typ.

Element Data:

Element Group:	Approaches		Length:	6.0		
Element Name:	Wearing Surface		Width:	8.43		
Location:			Height:			
Material:	Ashpalt		Count:	2		
Element Type:			Total Quantity:	101.2		
Environment:	Severe		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		96.1	5.1		

Comments: Light ravelling, typ. Light to medium wheel track rutting, typ.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Approach wearing surface - looking east

Element Photo:



Description of Photo: Approach wearing surface - looking west

Element Photo:

Description of Photo:

Element Data:

Element Group:	Approaches	Length:	28.4, 23.0, 64.0, 19.2			
Element Name:	Barrier	Width:				
Location:		Height:				
Material:	Steel	Count:	4			
Element Type:	Steel W-beam and W post	Total Quantity:	134.6			
Environment:	Severe	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:	Galvanizing					Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	m	132.6	1.7		0.3	

Comments: Recently installed barrier. One 300mm long deformation noted at the northwest approach. No other observed defects.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Approach guide rail - southeast quadrant

Element Photo:



Description of Photo: Approach guide rail - northeast quadrant

Element Photo:



Description of Photo: Deformed section

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

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	\$0.00
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Justification: The structure is in generally good condition. No recommended work at this time.
--

Inventory Data:

Structure Name	5 - Kahshe River Bridge, Lot 15, Conc 6				
Main Highway #	South Kahshe Lake Road	On <input checked="" type="checkbox"/> or Under <input type="checkbox"/>	Service on Structure	<input type="checkbox"/> Navig. Water <input type="checkbox"/> Non-Navig. Water	
				<input type="checkbox"/> Rail <input checked="" type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Location Description	1.22km east of Highway 11	Service under:	<input type="checkbox"/> Navig. Water <input checked="" type="checkbox"/> Non-Navig. Water	<input type="checkbox"/> Rail <input type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Owner/Custodian	Gravenhurst				
MTO Region	Northeastern	Latitude	44.840470	Longitude	-79.304557
Regional Engineer		Heritage Designation:	<input type="checkbox"/> Not Cons. <input checked="" type="checkbox"/> Cons./Not App. <input type="checkbox"/> List/Not Desig. Desig. <input type="checkbox"/> Desig./Not List <input type="checkbox"/> Desig. & List		
MTO Area		Hwy Class:	Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input type="checkbox"/> Local <input checked="" type="checkbox"/>		
Old County		Posted Speed	40	No. of Lanes	1
Township	Gravenhurst	AADT	200	% Truck	0
Structure Type 1	I-Beam Girders				
Structure Material 1	Steel	Traffic Directional Bound	N-S		
Structure Type 2	Concrete Deck				
Structure Material 2	Concrete	Inspection Frequency	2	(years)	
Total Deck Length	30.0	Inspection Year	odd		
Overall Str. Width	8.2	Inspection Duration	2	(hrs)	
Culvert Length					
Total Deck Area	246.0				
Roadway Width	5.46	Min. Vertical Clearance		(m)	
Skew Angle	25	Detour Distance	N/A	(km)	
No. of Spans	2	Fill on Structure		(m)	
Span Lengths	15.0, 15.0 (m)				
<u>For retaining wall:</u>					
Total Wall Length		Max. Wall Height		(m)	
Total Wall Area		Ave. Wall Height		(m)	
		Angle of Backfill		(Degrees)	

Historical Data

Year Built	2004	Year of superstruct. Constructed	
Last Reg. OSIM Inspection	2021	Year of Last Minor Rehab.	2023
Last Enh. OSIM Inspection		Year of Last Major Rehab	
		Current Load Limit	/ / (tonnes)

Work History: (Date/description)

Concrete repairs - 2023

Investigation History: (Date/description)

Field Inspection Information:				
Date of Inspection:	September 11, 2023		Type of Inspection:	<input checked="" type="checkbox"/> Reg. OSIM <input type="checkbox"/> Enh. OSIM
Inspected By	Junjie Yang			
Others in Party:				
Enh. Access Equipment:				
Special Access Equipment				
Weather	Clear	Temperature	22 °C	
Additional Investigations Required:		Priority		Estimated Cost
		None	Normal	
Material Condition Survey				
Detailed Deck Condition Survey:		X		
Non-destructive Delamination Survey of Asphalt-Covered Deck:		X		
Concrete Substructure Condition Survey:		X		
Detailed Coating Condition Survey:		X		
Detailed Timber Investigation:		X		
Post-Tensioned Strand Investigation:		X		
Underwater Investigation		X		
Fatigue Investigation		X		
Seismic Investigation		X		
Structure Evaluation:		X		
Monitoring				
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	<input checked="" type="checkbox"/> None <input type="checkbox"/> Minor Rehab. <input type="checkbox"/> Major Rehab. <input type="checkbox"/> Replace			
Timing of Recommended Work	<input type="checkbox"/> Urgent <input type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years			
Overall Comments:	The structure is in generally good condition. No recommended work at this time.			
Date of Next inspection:	2025			
Overall Bridge Condition				
% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIP)
1%	0%	2%	0%	BCIP 99.41 BCI 76.88
Overall Bridge Sufficiency				
Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)
0	3	5	0	68.88

Element Data:

Element Group:	Decks	Length:	30.0			
Element Name:	Wearing Surface	Width:	5.5			
Location:		Height:				
Material:	Asphalt	Count:	1			
Element Type:		Total Quantity:	163.8			
Environment:	Severe	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		163.8			

Comments: Light ravelling, typ.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:			
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Wearing surface

Element Data:

Element Group:	Decks	Length:	30.0
Element Name:	Deck Top	Width:	8.2
Location:		Height:	
Material:	Concrete	Count:	1
Element Type:		Total Quantity:	246.0
Environment:	Moderate	Inspected	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> limited <input type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	sq.m		246.0

Comments: **Not visible for inspection. Assumed in good condition based on the condition of wearing surface and soffit.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Asphalt covered deck top

Element Data:

Element Group:	Decks	Length:	30.0
Element Name:	Soffit	Width:	8.2
Location:		Height:	
Material:	Concrete	Count:	1
Element Type:		Total Quantity:	246.0
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	sq.m		231.2
		Fair	Poor*
		12.3	2.5

Comments: Light scaling, typ. Isolated narrow transverse cracks with efflorescence between girders. Regularly spaced narrow to medium transverse cracks with wet areas and efflorescence (stalactites) along exterior soffit.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Deck - soffit

Element Photo:



Description of Photo: Deck - soffit

Element Photo:



Description of Photo: Efflorescence on exterior soffit

Element Data:						
Element Group:	Joints		Length:	9.05		
Element Name:	Seals/sealants		Width:			
Location:			Height:			
Material:	Sealant		Count:	4		
Element Type:			Total Quantity:	4		
Environment:	Severe		Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>		
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	each		4			
Comments: Light wear, typical. Note the abutments are semi-integral.						
Recommended Work:		Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:		
Urgent: <input type="checkbox"/>		1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:



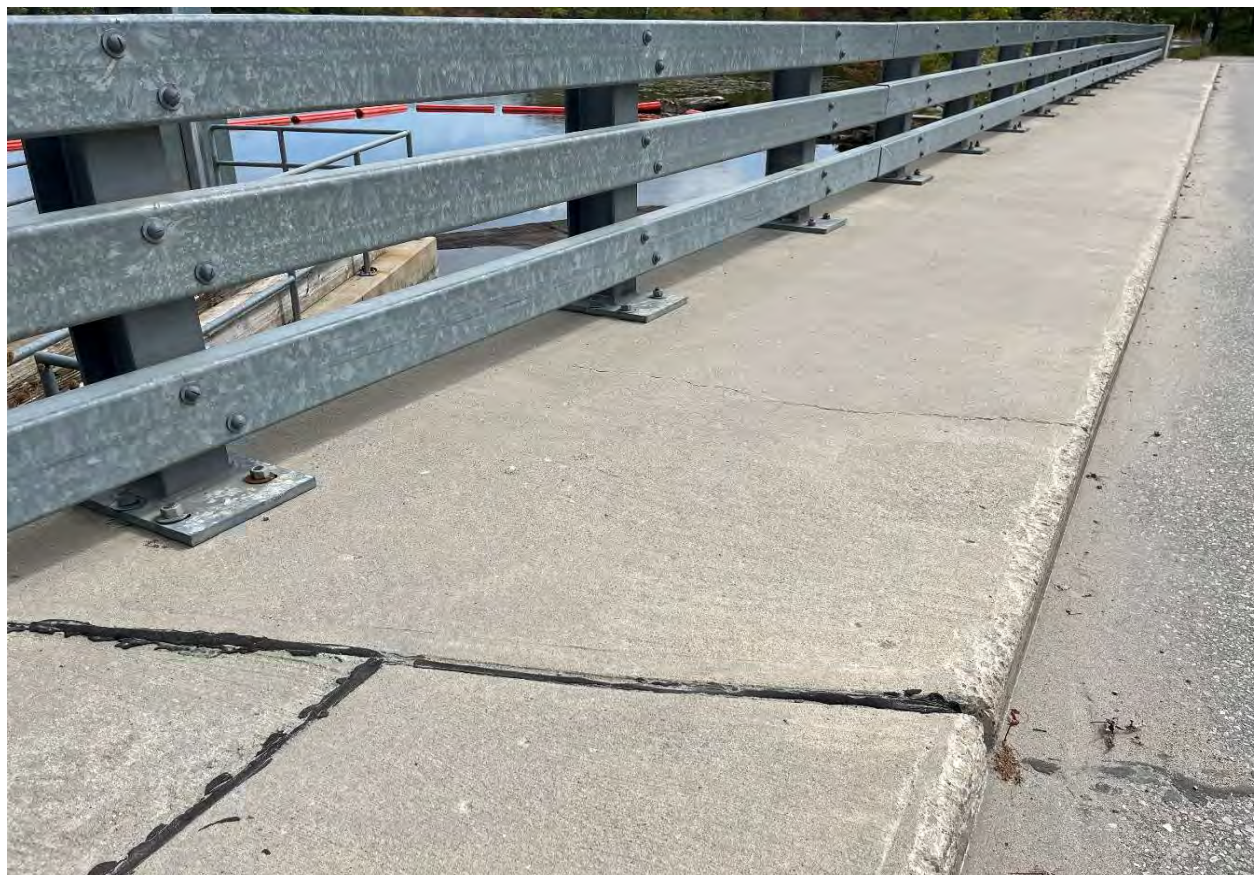
Description of Photo: Joint, typ.

Element Data:

Element Group:	Sidewalk/Curb	Length:	41.6
Element Name:	Sidewalks	Width:	2.0
Location:		Height:	0.1
Material:	Cast-in-place concrete	Count:	1
Element Type:		Total Quantity:	87.4
Environment:	Severe	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	sq.m		83.0
		Fair	Poor*
		4.4	
			Performance Deficiencies

Comments: Light scaling, typ. Light to medium abrasion along top edge full length.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Concrete sidewalk

Element Data:

Element Group:	Sidewalk/Curb	Length:	41.6
Element Name:	Curbs	Width:	0.7
Location:		Height:	0.1
Material:	Cast-in-place concrete	Count:	1
Element Type:		Total Quantity:	33.3
Environment:	Severe	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	sq.m		30.3
		Fair	Poor*
		3.0	
			Performance Deficiencies

Comments: Light scaling, typical. Isolated areas of medium scaling.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Concrete sidewalk

Element Photo:



Description of Photo: Medium scaling

Element Photo:

Description of Photo:

Element Data:						
Element Group:	Barriers		Length:	2.29		
Element Name:	Barrier/Parapet Walls		Width:	0.3		
Location:			Height:	1.05		
Material:	Cast-in-place concrete		Count:	4		
Element Type:			Total Quantity:	10.1		
Environment:	Severe		Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>		
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		9.6	0.5		
Comments: Light scaling, typ. Light to medium abrasion.						
Recommended Work:		Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:		
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:



Description of Photo: Southeast end wall

Element Photo:



Description of Photo: Northeast end wall

Element Photo:



Description of Photo: Southwest end wall

Element Data:

Element Group:	Barriers	Length:	37.03			
Element Name:	Railing Systems	Width:				
Location:		Height:				
Material:	Steel	Count:	2			
Element Type:		Total Quantity:	74.1			
Environment:	Severe	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:	Galvanizing					
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		74.1			

Comments: Light chalking of galvanized coating, typ.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: East barrier

Element Photo:



Description of Photo: West barrier

Element Photo:

Description of Photo:

Element Data:

Element Group:	Beams/Main Longitudinal Elements		Length:	30.0		
Element Name:	Girders		Width:	0.33		
Location:			Height:	0.62		
Material:	Steel		Count:	3		
Element Type:	I-Beam		Total Quantity:	200.7		
Environment:	Benign		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		200.7			

Comments: Light corrosion, typ. This may be atmospheric corrosion resistant steel (ACR) i.e. weathering steel, however unknown at this time.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Girder, typ.

Element Photo:



Description of Photo: Girder, typ.

Element Photo:



Description of Photo: Girder, typ.

Element Data:

Element Group:	Beams/Main Longitudinal Elements	Length:	2.6			
Element Name:	Diaphragms	Width:	0.05			
Location:		Height:	0.23			
Material:	Steel	Count:	24			
Element Type:	Channels	Total Quantity:	24			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		24			

Comments: Light corrosion, typ. This may be atmospheric corrosion resistant steel (ACR) i.e. weathering steel, however unknown at this time.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:			
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Diaphragm, typ.

Element Data:

Element Group:	Abutments	Length:	
Element Name:	Abutment Walls	Width:	8.2
Location:		Height:	1.05
Material:	Cast-in-place concrete	Count:	2
Element Type:		Total Quantity:	17.2
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	sq.m		15.5
		Fair	1.7
		Poor*	
			Performance Deficiencies

Comments: Light scaling, typ. Two narrow 1.2 m high vertical cracks. Medium scaling around base of walls.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: South abutment wall

Element Photo:



Description of Photo: North abutment wall

Element Photo:



Description of Photo: Narrow vertical crack

Element Data:

Element Group:	Abutments	Length:	5.0			
Element Name:	Wingwalls	Width:				
Location:		Height:	1.2			
Material:	Cast-in-place concrete	Count:	4			
Element Type:		Total Quantity:	24.0			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		23.0		1.0	

Comments: Light scaling, typ. Isolated delamination (0.6 x 0.15) at northwest wingwall, isolated spall (0.4 x 0.4 x 0.1) at southeast wingwall. Water leaking on face of Southeast wingwall.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:			
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Southeast wingwall

Element Photo:



Description of Photo: Isolated delamination

Element Photo:



Description of Photo: Southwest wingwall

Element Data:

Element Group:	Abutments	Length:	
Element Name:	Bearings	Width:	
Location:		Height:	
Material:	Elastomeric	Count:	6
Element Type:		Total Quantity:	6
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	each		6

Comments: **Light weathering, typ.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Bearing, typ.

Element Data:

Element Group:	Piers	Length:	8.6			
Element Name:	Shafts/Columns/Pile Bents	Width:	0.6			
Location:		Height:	1.2			
Material:	Cast-in-place concrete	Count:	1			
Element Type:		Total Quantity:	22.1			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>	
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		20.1	2.0		

Comments: Light scaling, typ. Isolated medium scaling around base of pier wall. Two medium vertical cracks on the north face.

Recommended Work:	Rehab: <input type="checkbox"/> Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/> 1-5 Years: <input type="checkbox"/> 6-10 Years: <input type="checkbox"/> None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>		

Element Photo:

Description of Photo: Pier - north face

Element Photo:



Description of Photo: Medium vertical crack

Element Photo:



Description of Photo: Medium vertical crack

Element Data:						
Element Group:	Piers		Length:			
Element Name:	Bearings		Width:			
Location:			Height:			
Material:	Elastomeric		Count:	3		
Element Type:			Total Quantity:	3		
Environment:	Benign		Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>		
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	each		3			
Comments: Light weathering, typ.						
Recommended Work:		Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:		
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:	
	
Description of Photo:	Bearing, typ.

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Streams and Waterways	Width:				
Location:		Height:				
Material:		Count:				
Element Type:		Total Quantity:	all			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	all	x				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Upstream

Element Photo:



Description of Photo: Downstream

Element Photo:



Description of Photo: Dam on east side

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Embankments	Width:				
Location:		Height:				
Material:	Soil, rock, grass	Count:	6			
Element Type:		Total Quantity:	6			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		6			

Comments: **Loss of material is less than 10%.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:**Description of Photo:** Northeast embankment

Element Photo:



Description of Photo: South embankment

Element Photo:



Description of Photo: Northwest embankment

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Slope Protection	Width:				
Location:		Height:				
Material:	Rock	Count:	6			
Element Type:		Total Quantity:	6			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		6			

Comments: Loss of material is less than 20%.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: South slope protection

Element Photo:



Description of Photo: Southwest slope protection

Element Photo:



Description of Photo: Northwest slope protection

Element Data:

Element Group:	Accessories		Length:			
Element Name:	Signs		Width:			
Location:			Height:			
Material:	Steel		Count:	6		
Element Type:			Total Quantity:	6		
Environment:	Severe		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	each	6				

Comments: 4 - Hazard warning sign, 1 - narrow bridge ahead signs, and 1 - no exit sign. No observed defects.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: One lane sign


Element Photo:



Description of Photo: Hazard warning sign

Element Photo:

Description of Photo:

Element Data:						
Element Group:	Approaches		Length:	6.0		
Element Name:	Wearing Surface		Width:	8.0		
Location:			Height:			
Material:	Asphalt		Count:	2		
Element Type:			Total Quantity:	96.0		
Environment:	Severe		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		96.0			
Comments: Light ravelling, typ. Narrow transverse crack at North approach.						
Recommended Work:		Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:		
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>
<div> <div>Element Photo:</div>  </div>						
<div> <div>Description of Photo:</div> <div>South approach wearing surface</div> </div>						

Element Photo:



Description of Photo: North approach wearing surface

Element Photo:

Description of Photo:

Element Data:

Element Group:	Approaches		Length:	25.0, 78.0, 32.0, 32.0		
Element Name:	Barrier		Width:			
Location:			Height:			
Material:	Steel		Count:	4		
Element Type:			Total Quantity:	167.0		
Environment:	Severe		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:	Galvanizing					Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	m	167.0				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Northwest approach guide rail

Element Photo:



Description of Photo: Northeast approach guide rail

Element Photo:



Description of Photo: Southeast approach guide rail

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

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	\$0.00
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Justification:
The structure was rehabilitated in 2023 with concrete repairs along the sidewalk and end walls. The structure is in generally good condition. No recommended work at this time.

Inventory Data:

Structure Name	6 - Pinetree Bridge, Lot 31, Conc 4/5				
Main Highway #	Pinetree Road	On <input checked="" type="checkbox"/> or Under <input type="checkbox"/>	Service on Structure	<input type="checkbox"/> Navig. Water <input type="checkbox"/> Non-Navig. Water	
				<input type="checkbox"/> Rail <input checked="" type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Location Description	2.44km north of North Muldrew Lake Road	Service under:	<input type="checkbox"/> Navig. Water <input checked="" type="checkbox"/> Non-Navig. Water	<input type="checkbox"/> Rail <input type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Owner/Custodian	Gravenhurst				
MTO Region	Northeastern	Latitude	44.923203	Longitude	-79.442609
Regional Engineer		Heritage Designation:	<input type="checkbox"/> Not Cons. <input checked="" type="checkbox"/> Cons./Not App. <input type="checkbox"/> List/Not Desig. Desig. <input type="checkbox"/> Desig./Not List <input type="checkbox"/> Desig. & List		
MTO Area	Gravenhurst	Hwy Class:	Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input type="checkbox"/> Local <input checked="" type="checkbox"/>		
Old County		Posted Speed	60	No. of Lanes	1
Township	Gravenhurst	AADT	20	% Truck	0
Structure Type 1	I-beam Girders				
Structure Material 1	Steel	Traffic Directional Bound	W-E		
Structure Type 2	Steel Deck				
Structure Material 2	Steel	Inspection Frequency	2	(years)	
Total Deck Length	12.6	Inspection Year	odd		
Overall Str. Width	4.7	Inspection Duration	2	(hrs)	
Culvert Length	0				
Total Deck Area	59.22	(sq.m)			
Roadway Width	4.2	Min. Vertical Clearance		(m)	
Skew Angle	0	Detour Distance	N/A	(km)	
No. of Spans	1	Fill on Structure	0	(m)	
Span Lengths	12.6 (m)				
For retaining wall:					
Total Wall Length		Max. Wall Height		(m)	
Total Wall Area		Ave. Wall Height		(m)	
		Angle of Backfill		(Degrees)	

Historical Data

Year Built	2010	Year of superstruct. Constructed	
Last Reg. OSIM Inspection	2021	Year of Last Minor Rehab.	
Last Enh. OSIM Inspection		Year of Last Major Rehab	2024
		Current Load Limit	/ / (tonnes)

Work History: (Date/description)

2024 - Bridge rehabilitation including foundation replacement, new retaining walls and approach guide rail installation

Investigation History: (Date/description)

Field Inspection Information:				
Date of Inspection:	May 10, 2024	Type of Inspection:	<input checked="" type="checkbox"/> Reg. OSIM	<input type="checkbox"/> Enh. OSIM
Inspected By	Greg McLachlan			
Others in Party:				
Enh. Access Equipment:				
Special Access Equipment				
Weather	sun/cloud	Temperature	25 °C	
Additional Investigations Required:		Priority		Estimated Cost
		None	Normal	
Material Condition Survey				
Detailed Deck Condition Survey:		X		
Non-destructive Delamination Survey of Asphalt-Covered Deck:		X		
Concrete Substructure Condition Survey:		X		
Detailed Coating Condition Survey:		X		
Detailed Timber Investigation:		X		
Post-Tensioned Strand Investigation:		X		
Underwater Investigation		X		
Fatigue Investigation		X		
Seismic Investigation		X		
Structure Evaluation:		X		
Monitoring				
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:	Bridge movement should be monitored due to crib condition		Total Cost	\$0.00
Overall Structure Notes:				
Recommended Work on Structure	<input checked="" type="checkbox"/> None <input type="checkbox"/> Minor Rehab. <input type="checkbox"/> Major Rehab. <input type="checkbox"/> Replace			
Timing of Recommended Work	<input type="checkbox"/> Urgent <input type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years			
Overall Comments:	The structure was recently rehabilitated with a new foundation, retaining walls and approach guide rail. The modular bridge is in good condition, no recommended work at this time.			
Date of Next inspection:	2025			
Overall Bridge Condition				
% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIP)
0	0	0%	0	BCIP 100.00
				BCI 88.27
Overall Bridge Sufficiency				
Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)
0	2	5	5	76.27

Element Data:

Element Group:	Decks	Length:	12.6
Element Name:	Wearing Surface	Width:	4.7
Location:		Height:	
Material:	Steel	Count:	1
Element Type:	Primer	Total Quantity:	59.2
Environment:	Moderate	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	sq.m		59.2

Comments: Light corrosion, typ.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Wearing surface, typ.

Element Data:						
Element Group:	Decks		Length:	12.6		
Element Name:	Soffit		Width:	4.7		
Location:			Height:			
Material:	Steel		Count:	1		
Element Type:	Primer		Total Quantity:	59.2		
Environment:	Benign		Inspected	Yes <input type="checkbox"/>	No <input type="checkbox"/>	limited <input checked="" type="checkbox"/>
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m	29.6	29.6			
Comments: Light corrosion along the longitudinal centerline joint, typ. Limited access to the mid span due to water depth.						
Recommended Work:		Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:		
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

A photograph showing a large pile of rocks and debris under a bridge structure, likely a culvert. The bridge has a reddish-brown metal frame. Water is flowing through the culvert, creating ripples and splashes. The rocks are of various sizes and colors, including grey, brown, and tan. In the background, a white car is visible on a road.

Description of Photo:	Soffit, typ.
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Element Data:

Element Group:	Barriers		Length:	12.6		
Element Name:	Railing Systems		Width:			
Location:	West and East		Height:			
Material:	Steel and Wood		Count:	2		
Element Type:	W-beam guide rail		Total Quantity:	25.2		
Environment:	Moderate		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:	Galvanized					Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	m		20.2	2.0	3.0	

Comments: Light weathering, typ. Light to medium checks and splits noted on the posts with isolated rot on top of several posts. 2 m long abrasion/scrape, and 3 isolated deformations noted along the rail.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Bridge barriers

Element Photo:



Description of Photo: Checks and rot on post

Element Photo:

Description of Photo:

Element Data:

Element Group:	Beams/Main Longitudinal Elements		Length:	12.6		
Element Name:	Girders		Width:	0.15		
Location:			Height:	0.45		
Material:	Steel		Count:	8		
Element Type:	I-Beam		Total Quantity:	136.1		
Environment:	Benign		Inspected	Yes <input type="checkbox"/>	No <input type="checkbox"/>	limited <input checked="" type="checkbox"/>
Protection System:	Primer					Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m	34.0	102.1			

Comments: Light corrosion, typ. Isolated loss of coating on bottom of bottom flanges, generally along the full length. Limited inspection due to water level.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Girders, typ.

Element Photo:



Description of Photo: Girders, typ.

Element Photo:



Description of Photo: Light corrosion along girders, typ.

Element Data:						
Element Group:	Beams/Main Longitudinal Elements		Length:	0.4		
Element Name:	Diaphragms		Width:	0.075		
Location:			Height:	0.075		
Material:	Steel		Count:	12		
Element Type:			Total Quantity:	12		
Environment:	Benign		Inspected	Yes <input type="checkbox"/> No <input type="checkbox"/> limited <input checked="" type="checkbox"/>		
Protection System:	primer					Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	each		12			
Comments: Light corrosion, typ. Inspection limited due to water level.						
Recommended Work:		Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:		
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:



Description of Photo: Diaphragms

Element Data:						
Element Group:	Abutments		Length:			
Element Name:	Abutment Walls		Width:	5.3		
Location:			Height:	1.65		
Material:	Concrete		Count:	2		
Element Type:	Precast		Total Quantity:	8.7		
Environment:	Benign		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m	8.7				
Comments: No observed defects.						
Recommended Work:		Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:		
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:



Description of Photo: Precast concrete abutment

Element Photo:



Description of Photo: Precast concrete abutment

Element Photo:

Description of Photo:

Element Data:						
Element Group:	Retaining Walls		Length:	5.3		
Element Name:	Walls		Width:			
Location:			Height:	0.9		
Material:	Concrete		Count:	4		
Element Type:	Precast blocks		Total Quantity:	19.1		
Environment:	Moderate		Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>		
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m	19.1				
Comments: No observed defects.						
Recommended Work:		Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:		
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:



Description of Photo: Redi-rock block retaining wall, typ.

Element Photo:



Description of Photo: Redi-rock block retaining wall, typ.

Element Photo:

Description of Photo:

Element Data:

Element Group:	Embankments & Streams		Length:			
Element Name:	Streams and Waterways		Width:			
Location:			Height:			
Material:			Count:			
Element Type:			Total Quantity:	all		
Environment:	Benign		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	all	x				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:			
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Watercourse

Element Photo:



Description of Photo: Watercourse

Element Photo:

Description of Photo:

Element Data:

Element Group:	Embankments & Streams		Length:			
Element Name:	Embankments		Width:			
Location:	All Quadrants		Height:			
Material:	Riprap		Count:	6		
Element Type:			Total Quantity:	6		
Environment:	Benign		Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>		
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	each	6				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:			
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Embankment, typ.

Element Photo:



Description of Photo: Embankment, typ.

Element Photo:

Description of Photo:

Element Data:

Element Group:	Accessories		Length:			
Element Name:	Signs		Width:			
Location:	All Quadrants		Height:			
Material:	Steel		Count:	4		
Element Type:			Total Quantity:	4		
Environment:	Benign		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	each	4				

Comments: **No observed defects. Recommend installing narrow bridge warning signs on approaches.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	18 - Other Maintenance
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input checked="" type="checkbox"/> 2 Year: <input type="checkbox"/>
			Install narrow bridge signage	

Element Photo:

Description of Photo: Hazard warning sign, typ.

Element Data:						
Element Group:	Approaches		Length:	6.0		
Element Name:	Wearing Surface		Width:	4.2		
Location:	North and South		Height:			
Material:	Gravel		Count:	2		
Element Type:			Total Quantity:	50.4		
Environment:	Moderate		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m	50.4				
Comments: No observed defects.						
Recommended Work:		Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:		
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:



Description of Photo: Approach wearing surface

Element Photo:



Description of Photo: Approach wearing surface

Element Photo:

Description of Photo:

Element Data:						
Element Group:	Approaches		Length:	8.3 / 12.3 / 8.3 / 12.3		
Element Name:	Barrier		Width:			
Location:			Height:			
Material:	Steel / Timber		Count:	4		
Element Type:	W-beam guide rail / post		Total Quantity:	42.0		
Environment:	Moderate		Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>		
Protection System:	Galvanizing					Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	m	x				
Comments: No observed defects.						
Recommended Work:		Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:		
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:



Description of Photo: Approach guide rail, typ.

Element Photo:



Description of Photo: Approach guide rail, typ.

Element Photo:



Description of Photo: Approach guide rail, typ.

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. = Rehab abutment cribs					
Pier	Rehab. =					
Other						
Estimated Rehabilitated or Replacement Structure Dimensions ³						
Total Deck Length (m)	Overall Str. Width (m)	Total Structural Cost				\$0.00

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

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

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

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

Total Construction Cost	\$0.00
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Justification:
The structure was recently rehabilitated with a new foundation, retaining walls and approach guide rail. The modular steel bridge is in good condition, no recommended work at this time.

Inventory Data:

Structure Name	7 - Narrows Road Bridge, Lot 28, Conc 8 South				
Main Highway #	Narrows Road	On <input checked="" type="checkbox"/> or Under <input type="checkbox"/>	Service on Structure	<input type="checkbox"/> Navig. Water <input type="checkbox"/> Non-Navig. Water	
				<input type="checkbox"/> Rail <input checked="" type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Location Description	0.22 km east of Highway 169	Service under:	<input type="checkbox"/> Navig. Water <input checked="" type="checkbox"/> Non-Navig. Water	<input type="checkbox"/> Rail <input type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Owner/Custodian	Gravenhurst				
MTO Region		Latitude	44.948109	Longitude	-79.427636
Regional Engineer		Heritage Designation:	<input checked="" type="checkbox"/> Not Cons. <input type="checkbox"/> Cons./Not App. <input type="checkbox"/> List/Not Desig.		
			Desig. <input type="checkbox"/> Desig./Not List <input type="checkbox"/> Desig. & List		
MTO Area		Hwy Class:	Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input type="checkbox"/> Local <input checked="" type="checkbox"/>		
Old County		Posted Speed	50	No. of Lanes	2
Township	Gravenhurst	AADT	40	% Truck	0
Structure Type 1	I-beam Girders				
Structure Material 1	Steel				
Structure Type 2	Concrete Deck				
Structure Material 2	Concrete				
Total Deck Length	4.6	(m)	Inspection Frequency	2	(years)
Overall Str. Width	7.6	(m)	Inspection Year	odd	
Culvert Length		(m)	Inspection Duration	2	(hrs)
Total Deck Area	35.0	(sq.m)			
Roadway Width	7.0	(m)	Min. Vertical Clearance		(m)
Skew Angle		(Degree)	Detour Distance	None	(km)
No. of Spans	1		Fill on Structure		(m)
Span Lengths	4.3 (m)				
<u>For retaining wall:</u>					
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	1970	Year of superstruct. Constructed	2014
Last Reg. OSIM Inspection	2021	Year of Last Minor Rehab.	
Last Enh. OSIM Inspection		Year of Last Major Rehab	2014
		Current Load Limit	/ / (tonnes)

Work History: (Date/description)

2014 Superstructure replacement and abutment refacing

Investigation History: (Date/description)

Field Inspection Information:						
Date of Inspection:	September 11, 2023		Type of Inspection:	<input checked="" type="checkbox"/> Reg. OSIM	<input type="checkbox"/> Enh. OSIM	
Inspected By	Junjie Yang					
Others in Party:						
Enh. Access Equipment:						
Special Access Equipment						
Weather	Clear	Temperature	22 °C			
Additional Investigations Required:			Priority		Estimated Cost	
			None	Normal		
Material Condition Survey						
Detailed Deck Condition Survey:			X			
Non-destructive Delamination Survey of Asphalt-Covered Deck:			X			
Concrete Substructure Condition Survey:			X			
Detailed Coating Condition Survey:			X			
Detailed Timber Investigation:			X			
Post-Tensioned Strand Investigation:			X			
Underwater Investigation			X			
Fatigue Investigation			X			
Seismic Investigation			X			
Structure Evaluation:			X			
Monitoring						
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	<input checked="" type="checkbox"/> None <input type="checkbox"/> Minor Rehab. <input type="checkbox"/> Major Rehab. <input type="checkbox"/> Replace					
Timing of Recommended Work	<input type="checkbox"/> Urgent <input type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years					
Overall Comments:	The structure is generally in excellent to good condition. The beaver dam should be cleared.					
Date of Next inspection:	2025					
Overall Bridge Condition						
% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIP)		
0%	0%	0%	0%	BCIP 100.00	BCI 83.04	
Overall Bridge Sufficiency						
Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)		
0	3	0	0	80.04		

Element Data:

Element Group:	Decks	Length:	4.62
Element Name:	Wearing Surface	Width:	7.0
Location:		Height:	
Material:	Asphalt	Count:	1
Element Type:		Total Quantity:	32.3
Environment:	Severe	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	sq.m		32.3
		Fair	Poor*

Comments: Light ravelling, typ. Narrow crack along road centerline.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Wearing surface - looking south

Element Photo:




Description of Photo: Wearing surface - looking north

Element Photo:



Description of Photo: IMG_6653.JPG

Element Data:						
Element Group:	Decks		Length:	4.62		
Element Name:	Deck Top		Width:	7.0		
Location:			Height:			
Material:	Concrete		Count:	1		
Element Type:			Total Quantity:	32.3		
Environment:	Moderate		Inspected	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	limited <input type="checkbox"/>
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		32.3			
Comments: Not visible for inspection, assumed in good condition based on the condition of asphalt and soffit.						
Recommended Work:		Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:		
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>
<div> <div>Element Photo:</div>  </div>						
Description of Photo: Asphalt covered concrete deck						

Element Data:

Element Group:	Decks	Length:	4.62
Element Name:	Soffit	Width:	7.0
Location:		Height:	
Material:	Steel	Count:	1
Element Type:		Total Quantity:	32.3
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:	Galvanizing		
Condition Data:	Units	Excellent	Good
	sq.m	32.3	

Comments: No observed defects. Note the steel decking were forms for the concrete deck.

Recommended Work:	Rehab: <input type="checkbox"/> Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/> 1-5 Years: <input type="checkbox"/> 6-10 Years: <input type="checkbox"/> None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Deck - soffit

Element Photo:



Description of Photo: Deck - soffit

Element Photo:

Description of Photo:

Element Data:

Element Group:	Barriers	Length:	4.6
Element Name:	Railing Systems	Width:	
Location:		Height:	
Material:	Steel	Count:	2
Element Type:	Side mounted thrie beam	Total Quantity:	9.2
Environment:	Severe	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:	Galvanizing		
Condition Data:	Units	Excellent	Good
	m		9.2
		Fair	Poor*

Comments: Light chalking of galvanized coating, typ.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Railing system

Element Photo:



Description of Photo: Railing system, typ.

Element Photo:

Description of Photo:

Element Data:

Element Group:	Beams/Main Longitudinal Elements		Length:	4.6		
Element Name:	Girders		Width:	0.25		
Location:			Height:	0.3		
Material:	Steel		Count:	5		
Element Type:	I-Beam / Channel section		Total Quantity:	29.9		
Environment:	Benign		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:	Galvanizing					Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m	29.9				

Comments: **No observed defects. 4 - I-Beam and 2 - Bolted channel sections.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Girder, typ.

Element Photo:



Description of Photo: Bolted channel sections

Element Photo:

Description of Photo:

Element Data:

Element Group:	Beams/Main Longitudinal Elements	Length:	1.7			
Element Name:	Diaphragms	Width:	0.065			
Location:		Height:	0.2			
Material:	Steel	Count:	12			
Element Type:	Channel section	Total Quantity:	12			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:	Galvanizing					
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each	12				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Diaphragm

Element Data:

Element Group:	Abutments	Length:	
Element Name:	Abutment Walls	Width:	7.2
Location:		Height:	1.8
Material:	Cast-in-place concrete	Count:	2
Element Type:		Total Quantity:	25.9
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	sq.m		25.9

Comments: Light scaling, typ. Staining and light erosion along the waterline.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: North abutment wall

Element Photo:



Description of Photo: South abutment wall

Element Photo:



Description of Photo: Erosion along waterline

Element Data:

Element Group:	Abutments	Length:	1.4			
Element Name:	Wingwalls	Width:				
Location:		Height:	1.2			
Material:	Cast-in-place concrete	Count:	4			
Element Type:		Total Quantity:	6.7			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		6.7			

Comments: Light scaling, typ.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Northeast wing wall


Element Photo:



Description of Photo: Southeast wing wall

Element Photo:

Description of Photo:

Element Data:						
Element Group:	Abutments	Length:				
Element Name:	Bearings	Width:				
Location:		Height:				
Material:	Steel and Elastomeric	Count:	10			
Element Type:	Plate and Elastomeric Bearing	Total Quantity:	10			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	each	10				
Comments: No observed defects.						
Recommended Work:		Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:		
Urgent: <input type="checkbox"/>		1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>
Element Photo: <div style="text-align: center;">  </div>						
Description of Photo: Bearings, typ.						

Element Data:

Element Group:	Embankments & Streams		Length:			
Element Name:	Streams and Waterways		Width:			
Location:			Height:			
Material:			Count:			
Element Type:			Total Quantity:	all		
Environment:	Benign		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	all		x			

Comments: Beaver dam buildup on upstream. No other observed defects.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	11 - Animal / Pest Control
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input checked="" type="checkbox"/> 2 Year: <input type="checkbox"/>
			Clearing the beaver dam	

Element Photo:

Description of Photo: Upstream

Element Photo:



Description of Photo: Downstream

Element Photo:



Description of Photo: Beaver dam on upstream

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Embankments	Width:				
Location:		Height:				
Material:	Soil, Rock, Grass	Count:				
Element Type:		Total Quantity:	4			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each	4				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Northeast embankment

Element Photo:



Description of Photo: Southeast embankment

Element Photo:

Description of Photo:

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Slope Protection	Width:				
Location:		Height:				
Material:	Rock	Count:	4			
Element Type:		Total Quantity:	4			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each	4				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:**Description of Photo:** Southeast slope protection

Element Photo:



Description of Photo: Northeast slope protection

Element Photo:

Description of Photo:

Element Data:

Element Group:	Accessories	Length:	
Element Name:	Signs	Width:	
Location:		Height:	
Material:	Steel	Count:	4
Element Type:		Total Quantity:	4
Environment:	Severe	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	each	4	

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/> Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/> 1-5 Years: <input type="checkbox"/> 6-10 Years: <input type="checkbox"/> None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>		

Element Photo:

Description of Photo: Hazard warning sign, typ.

Element Data:

Element Group:	Approaches		Length:	6.0		
Element Name:	Wearing Surface		Width:	7.0		
Location:			Height:			
Material:	Asphalt		Count:	2		
Element Type:			Total Quantity:	83.8		
Environment:	Severe		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		83.8			

Comments: Light ravelling, typ. Medium transverse cracks at west ends of bridge.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: South approach wearing surface

Element Photo:



Description of Photo: North approach wearing surface

Element Photo:

Description of Photo:

Element Data:

Element Group:	Approaches		Length:	49, 24, 25, 25		
Element Name:	Barrier		Width:			
Location:			Height:			
Material:	W-Beam and post		Count:	4		
Element Type:			Total Quantity:	123.0		
Environment:	Severe		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:	Galvanizing					Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	m		123.0			

Comments: Light chalking of galvanized coating, typ.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: South approach guide rail

Element Photo:



Description of Photo: North approach guide rail

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. =					
Sidewalk/Curb	Rehab. =					
Barrier	Rehab. =					
Joints	Rehab. =					
Beams	Rehab. =					
Abutment	Rehab. =					
Pier	Rehab. =					
Other						
Estimated Rehabilitated or Replacement Structure Dimensions ³		Total Structural Cost				\$0.00
Total Deck Length (m)	Overall Str. Width (m)					

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	\$0.00
-------------------------	--------

Justification:
The structure is generally in excellent to good condition. Maintenance: the beaver dam is affecting the flow and should be cleared within 1 year.

Inventory Data:

Structure Name	8 - Sniders Bay Culvert, Lot 31, Conc 7 South				
Main Highway #	Sniders Bay Road	On <input checked="" type="checkbox"/> or Under <input type="checkbox"/>	Service on Structure	<input type="checkbox"/> Navig. Water <input type="checkbox"/> Non-Navig. Water	
				<input type="checkbox"/> Rail <input checked="" type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Location Description	0.5 km west of District Road 169	Service under:	<input type="checkbox"/> Navig. Water <input checked="" type="checkbox"/> Non-Navig. Water	<input type="checkbox"/> Rail <input type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Owner/Custodian	Gravenhurst				
MTO Region	Northeastern	Latitude	44.950927	Longitude	-79.443086
Regional Engineer		Heritage Designation:	<input type="checkbox"/> Not Cons. <input checked="" type="checkbox"/> Cons./Not App. <input type="checkbox"/> List/Not Desig. Desig. <input type="checkbox"/> Desig./Not List <input type="checkbox"/> Desig. & List		
MTO Area		Hwy Class:	Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input type="checkbox"/> Local <input checked="" type="checkbox"/>		
Old County		Posted Speed	50	No. of Lanes	2
Township		AADT	50-199	% Truck	0
Structure Type 1	Twin SPCSP Pipe Arch				
Structure Material 1	Polymer Coated Galvanized Steel	Traffic Directional Bound	E/W		
Structure Type 2					
Structure Material 2		Inspection Frequency	2	(years)	
Total Deck Length		Inspection Year	odd		
Overall Str. Width		Inspection Duration	2	(hrs)	
Culvert Length	20.0				
Total Deck Area					
Roadway Width	6.71	Min. Vertical Clearance		(m)	
Skew Angle	10	Detour Distance	None	(km)	
No. of Spans	2	Fill on Structure	0.6	(m)	
Span Lengths	3.4, 3.4 (m)				
For retaining wall:					
Total Wall Length		Max. Wall Height		(m)	
Total Wall Area		Ave. Wall Height		(m)	
		Angle of Backfill		(Degrees)	

Historical Data

Year Built	2020	Year of superstruct. Constructed	2020
Last Reg. OSIM Inspection	2021	Year of Last Minor Rehab.	
Last Enh. OSIM Inspection		Year of Last Major Rehab	
		Current Load Limit	/ / (tonnes)

Work History: (Date/description)

2020 - structure replaced
2021 - new asphalt

Investigation History: (Date/description)

Field Inspection Information:				
Date of Inspection:	September 13, 2023	Type of Inspection:	<input checked="" type="checkbox"/> Reg. OSIM	<input type="checkbox"/> Enh. OSIM
Inspected By	Junjie Yang			
Others in Party:				
Enh. Access Equipment:				
Special Access Equipment				
Weather	Clear	Temperature	22 °C	
Additional Investigations Required:		Priority		Estimated Cost
		None	Normal	
Material Condition Survey				
Detailed Deck Condition Survey:		X		
Non-destructive Delamination Survey of Asphalt-Covered Deck:		X		
Concrete Substructure Condition Survey:		X		
Detailed Coating Condition Survey:		X		
Detailed Timber Investigation:		X		
Post-Tensioned Strand Investigation:		X		
Underwater Investigation		X		
Fatigue Investigation		X		
Seismic Investigation		X		
Structure Evaluation:		X		
Monitoring				
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	<input checked="" type="checkbox"/> None <input type="checkbox"/> Minor Rehab. <input type="checkbox"/> Major Rehab. <input type="checkbox"/> Replace			
Timing of Recommended Work	<input type="checkbox"/> Urgent <input type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years			
Overall Comments:	Structure was recently replaced and is in excellent condition.			
Date of Next inspection:	2025			
Overall Bridge Condition				
% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIP)
0%	0%	0%	0%	BCIP 100.00
				BCI 100.00
Overall Bridge Sufficiency				
Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)
0	3	0	0	97.00

Element Data:

Element Group:	Culverts	Length:	20
Element Name:	Barrels	Width:	3.4
Location:		Height:	2.03
Material:	Steel	Count:	2
Element Type:	Pipe Arch	Total Quantity:	341.1
Environment:		Inspected	Yes <input type="checkbox"/> No <input type="checkbox"/> limited <input checked="" type="checkbox"/>
Protection System:	Polymer Coating		
Condition Data:	Units	Excellent	Good
	sq.m	341.1	

Comments: Inside of pipe and below water level were not inspected due to water depth. No observed defects from visible areas.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Culvert barrel, typ.

Element Photo:



Description of Photo: Culvert barrel, typ.

Element Photo:



Description of Photo: Culvert barrel, typ.

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Streams and Waterways	Width:				
Location:		Height:				
Material:		Count:				
Element Type:		Total Quantity:	all			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	all	x				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Watercourse

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Embankments	Width:				
Location:		Height:				
Material:	Granular and Rock	Count:	6			
Element Type:		Total Quantity:	6			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each	6				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Embankment, typ.

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Slope Protection	Width:				
Location:		Height:				
Material:	Rock	Count:	6			
Element Type:	Riprap	Total Quantity:	6			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		6			

Comments: Loss of material is less than 20%.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Slope protection, typ.

Element Data:

Element Group:	Accessories	Length:				
Element Name:	Signs	Width:				
Location:		Height:				
Material:	Steel	Count:	5			
Element Type:		Total Quantity:	5			
Environment:	Severe	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each	5				

Comments: 4 - hazard warning sign, 1 narrow bridge sign. No observed defects.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Narrow bridge sign

Element Data:

Element Group:	Approaches		Length:	23.7		
Element Name:	Wearing Surface		Width:	6.71		
Location:			Height:			
Material:	Asphalt		Count:	1		
Element Type:			Total Quantity:	159.0		
Environment:	Severe		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m	159.0				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:**Description of Photo:** Approach wearing surface - looking west

Element Photo:



Description of Photo: Approach wearing surface - looking east

Element Photo:

Description of Photo:

Element Data:						
Element Group:	Approaches		Length:	51.0		
Element Name:	Barrier		Width:			
Location:			Height:			
Material:	Steel		Count:	2		
Element Type:	Post and W-beam		Total Quantity:	102.0		
Environment:	Severe		Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>		
Protection System:	Galvanizing					Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	m	102.0				
Comments: No observed defects.						
Recommended Work:		Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:		
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:



Description of Photo: Approach guide rail - looking east

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

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	\$0.00
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Justification:
The structure was replaced in 2021, and is in excellent condition. No work is recommended at this time.

Inventory Data:

Structure Name	9 - Lot 10/11, Conc 10				
Main Highway #	Hopkins Road	On <input checked="" type="checkbox"/> or Under <input type="checkbox"/>	Service on Structure	<input type="checkbox"/> Navig. Water <input type="checkbox"/> Non-Navig. Water	
				<input type="checkbox"/> Rail <input checked="" type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Location Description	0.57 km south of Merkley Road	Service under:	<input type="checkbox"/> Navig. Water <input checked="" type="checkbox"/> Non-Navig. Water	<input type="checkbox"/> Rail <input type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Owner/Custodian	Gravenhurst				
MTO Region	Northeastern	Latitude	44.908187	Longitude	-79.153010
Regional Engineer		Heritage Designation:	<input checked="" type="checkbox"/> Not Cons. <input type="checkbox"/> Cons./Not App. <input type="checkbox"/> List/Not Desig. Desig. <input type="checkbox"/> Desig./Not List <input type="checkbox"/> Desig. & List		
MTO Area		Hwy Class:	Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input type="checkbox"/> Local <input checked="" type="checkbox"/>		
Old County		Posted Speed	60	No. of Lanes	1
Township		AADT	10	% Truck	0
Structure Type 1	I-Beam				
Structure Material 1	Steel				
Structure Type 2	Steel Deck				
Structure Material 2	Steel				
Total Deck Length	15.24	(m)	Inspection Frequency	2	(years)
Overall Str. Width	5.44	(m)	Inspection Year	odd	
Culvert Length		(m)	Inspection Duration	2	(hrs)
Total Deck Area	71.2	(sq.m)			
Roadway Width	4.67	(m)	Min. Vertical Clearance		(m)
Skew Angle		(Degree)	Detour Distance	None	(km)
No. of Spans	1		Fill on Structure		(m)
Span Lengths	13.4 (m)				
<u>For retaining wall:</u>					
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	2020	Year of superstruct. Constructed	
Last Reg. OSIM Inspection	2021	Year of Last Minor Rehab.	
Last Enh. OSIM Inspection		Year of Last Major Rehab	
		Current Load Limit	/ / (tonnes)

Work History: (Date/description)

Investigation History: (Date/description)

Field Inspection Information:					
Date of Inspection:	September 13, 2023		Type of Inspection:	<input checked="" type="checkbox"/> Reg. OSIM <input type="checkbox"/> Enh. OSIM	
Inspected By	Junjie Yang				
Others in Party:					
Enh. Access Equipment:					
Special Access Equipment					
Weather	Clear	Temperature	22 °C		
Additional Investigations Required:		Priority			Estimated Cost
		None	Normal	Urgent	
Material Condition Survey					
Detailed Deck Condition Survey:		X			
Non-destructive Delamination Survey of Asphalt-Covered Deck:		X			
Concrete Substructure Condition Survey:		X			
Detailed Coating Condition Survey:		X			
Detailed Timber Investigation:		X			
Post-Tensioned Strand Investigation:		X			
Underwater Investigation		X			
Fatigue Investigation		X			
Seismic Investigation		X			
Structure Evaluation:		X			
Monitoring					
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	<input checked="" type="checkbox"/> None <input type="checkbox"/> Minor Rehab. <input type="checkbox"/> Major Rehab. <input type="checkbox"/> Replace				
Timing of Recommended Work	<input type="checkbox"/> Urgent <input type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years				
Overall Comments:	The structure is in excellent condition. No recommended work at this time.				
Date of Next inspection:	2025				
Overall Bridge Condition					
% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIP)	
0%	0%	0%	0%	BCIP 100.00	BCI 98.59
Overall Bridge Sufficiency					
Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)	
0	1	5	0	92.59	

Element Data:

Element Group:	Decks	Length:	15.24			
Element Name:	Deck Top	Width:	4.67			
Location:		Height:				
Material:	Steel	Count:	1			
Element Type:	Diamond plate	Total Quantity:	71.2			
Environment:	Moderate	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:	Primer					
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m	71.2				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Deck top

Element Data:						
Element Group:	Decks		Length:	15.24		
Element Name:	Soffit		Width:	4.67		
Location:			Height:			
Material:	Steel		Count:	1		
Element Type:			Total Quantity:	71.2		
Environment:	Benign		Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>		
Protection System:	Primer					Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m	71.2				
Comments: No observed defects.						
Recommended Work:		Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:		
Urgent: <input type="checkbox"/>		1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:



Description of Photo: Deck - soffit

Element Data:

Element Group:	Barriers	Length:	15.24
Element Name:	Railing Systems	Width:	
Location:		Height:	
Material:	Wood	Count:	2
Element Type:	Raised curb	Total Quantity:	30.5
Environment:	Moderate	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:	Pressure treated		
Condition Data:	Units	Excellent	Good
	m	30.5	

Comments: No observed defects.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Raised curb

Element Data:

Element Group:	Beams/Main Longitudinal Elements		Length:	15.24		
Element Name:	Girders		Width:	0.23		
Location:			Height:	0.60		
Material:	Steel		Count:	8		
Element Type:	W-beam		Total Quantity:	230.8		
Environment:	Benign		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:	Primer					Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m	207.7	23.1			

Comments: Isolated light corrosion along bottom flange. No other observed defects.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Girder, typ.

Element Data:

Element Group:	Beams/Main Longitudinal Elements	Length:				
Element Name:	Diaphragms	Width:				
Location:		Height:				
Material:	Steel	Count:	12			
Element Type:	Channel section	Total Quantity:	12			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:	Primer					
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each	12				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: End diaphragm

Element Data:

Element Group:	Abutments	Length:	2.1
Element Name:	Abutment Walls	Width:	5.44
Location:		Height:	0.8
Material:	Timber and rock	Count:	2
Element Type:	Cribs with rock fill	Total Quantity:	8.7
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:	Pressure treated		
Condition Data:	Units	Excellent	Good
	sq.m	8.7	

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Timber crib abutment

Element Data:

Element Group:	Embankments & Streams		Length:			
Element Name:	Streams and Waterways		Width:			
Location:			Height:			
Material:			Count:			
Element Type:			Total Quantity:	all		
Environment:	Benign		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	all	x				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:			
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Watercourse

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Embankments	Width:				
Location:		Height:				
Material:	Granular	Count:	6			
Element Type:		Total Quantity:	6			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each	6				

Comments: No observed defects.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Embankment, typ.

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Slope Protection	Width:				
Location:		Height:				
Material:	Rock	Count:	6			
Element Type:		Total Quantity:	6			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each	6				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Slope protection, typ.

Element Data:

Element Group:	Accessories		Length:	
Element Name:	Signs		Width:	
Location:			Height:	
Material:	Steel		Count:	4
Element Type:			Total Quantity:	4
Environment:	Moderate		Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:				Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair
	each	4		Poor*

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Hazard warning sign, typ.

Element Data:

Element Group:	Approaches		Length:	6.0		
Element Name:	Wearing Surface		Width:	4.67		
Location:			Height:			
Material:	Gravel		Count:	2		
Element Type:			Total Quantity:	56.0		
Environment:	Moderate		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m	56.0				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Approach wearing surface

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

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

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

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

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

Total Construction Cost	\$0.00
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Justification:
The bridge was replaced in 2020. No recommended work at this time.

Inventory Data:

Structure Name	11 - Fire Route A1 Bridge				
Main Highway #	Fire Route A1	On <input checked="" type="checkbox"/> or Under <input type="checkbox"/>	Service on Structure	<input type="checkbox"/> Navig. Water <input type="checkbox"/> Non-Navig. Water	
				<input type="checkbox"/> Rail <input checked="" type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Location Description	1 km south of Merkley Road	Service under:	<input type="checkbox"/> Navig. Water <input checked="" type="checkbox"/> Non-Navig. Water	<input type="checkbox"/> Rail <input type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Owner/Custodian	Gravenhurst				
MTO Region	Northeastern	Latitude	44.905793	Longitude	-79.159892
Regional Engineer		Heritage Designation:	<input checked="" type="checkbox"/> Not Cons. <input type="checkbox"/> Cons./Not App. <input type="checkbox"/> List/Not Desig.		
			Desig. <input type="checkbox"/> Desig./Not List <input type="checkbox"/> Desig. & List		
MTO Area		Hwy Class:	Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input type="checkbox"/> Local <input checked="" type="checkbox"/>		
Old County		Posted Speed		No. of Lanes	1
Township	Gravenhurst	AADT	10	% Truck	0
Structure Type 1	Soild Slab				
Structure Material 1	Concrete				
Structure Type 2					
Structure Material 2					
Total Deck Length	11.4	(m)	Inspection Frequency	2	(years)
Overall Str. Width	2.84	(m)	Inspection Year	odd	
Culvert Length		(m)	Inspection Duration	2	(hrs)
Total Deck Area	33.06	(sq.m)			
Roadway Width	2.84	(m)	Min. Vertical Clearance	0.3	(m)
Skew Angle		(Degree)	Detour Distance	None	(km)
No. of Spans	1		Fill on Structure		(m)
Span Lengths	7.1 (m)				
<u>For retaining wall:</u>					
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	Unkown	Year of superstruct. Constructed	
Last Reg. OSIM Inspection	2021	Year of Last Minor Rehab.	
Last Enh. OSIM Inspection		Year of Last Major Rehab	
		Current Load Limit	/ / (tonnes)

Work History: (Date/description)

Investigation History: (Date/description)

Field Inspection Information:				
Date of Inspection:	September 13, 2023	Type of Inspection:	<input checked="" type="checkbox"/> Reg. OSIM	<input type="checkbox"/> Enh. OSIM
Inspected By	Junjie Yang			
Others in Party:				
Enh. Access Equipment:				
Special Access Equipment				
Weather	Clear	Temperature	22 °C	
Additional Investigations Required:		Priority		Estimated Cost
		None	Normal	Urgent
Material Condition Survey				
Detailed Deck Condition Survey:		X		
Non-destructive Delamination Survey of Asphalt-Covered Deck:		X		
Concrete Substructure Condition Survey:		X		
Detailed Coating Condition Survey:		X		
Detailed Timber Investigation:		X		
Post-Tensioned Strand Investigation:		X		
Underwater Investigation		X		
Fatigue Investigation		X		
Seismic Investigation		X		
Structure Evaluation:		X		
Monitoring				
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:	monitor for signs of movement at abutments until bridge is replaced		Total Cost \$0.00	
Overall Structure Notes:				
Recommended Work on Structure	<input type="checkbox"/> None <input type="checkbox"/> Minor Rehab. <input type="checkbox"/> Major Rehab. <input checked="" type="checkbox"/> Replace			
Timing of Recommended Work	<input type="checkbox"/> Urgent <input type="checkbox"/> 1 to 5 years <input checked="" type="checkbox"/> 6 to 10 years			
Overall Comments:	The structure does not meet current geometric design standards, no approach or bridge barriers posing a risk to users. Sag in the deck, no visible related cracks therefore likely constructed to this shape, forms possibly sagged during construction. A 3 tonne load posting should be installed. The structure is recommended to be replaced in 6-10 years.			
Date of Next inspection:	2025			
Overall Bridge Condition				
% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIP)
9.7%	0%	13.3%	0%	BCIP 89.40 BCI 58.16
Overall Bridge Sufficiency				
Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)
5	2	5	5	41.16

Element Data:

Element Group:	Decks	Length:	11.4
Element Name:	Deck Top	Width:	2.84
Location:		Height:	
Material:	Concrete	Count:	1
Element Type:		Total Quantity:	33.1
Environment:	Moderate	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>

Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		21.1	10.0	2.0	

Comments: Light to severe scaling typ. (2 sq.m in severe, 4 sq.m in medium). 3 - 300 x 300mm spalls. Full width medium crack at west abutment. Crack continues around side of deck.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input checked="" type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input checked="" type="checkbox"/>	None: <input type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Replace the bridge

Element Photo:

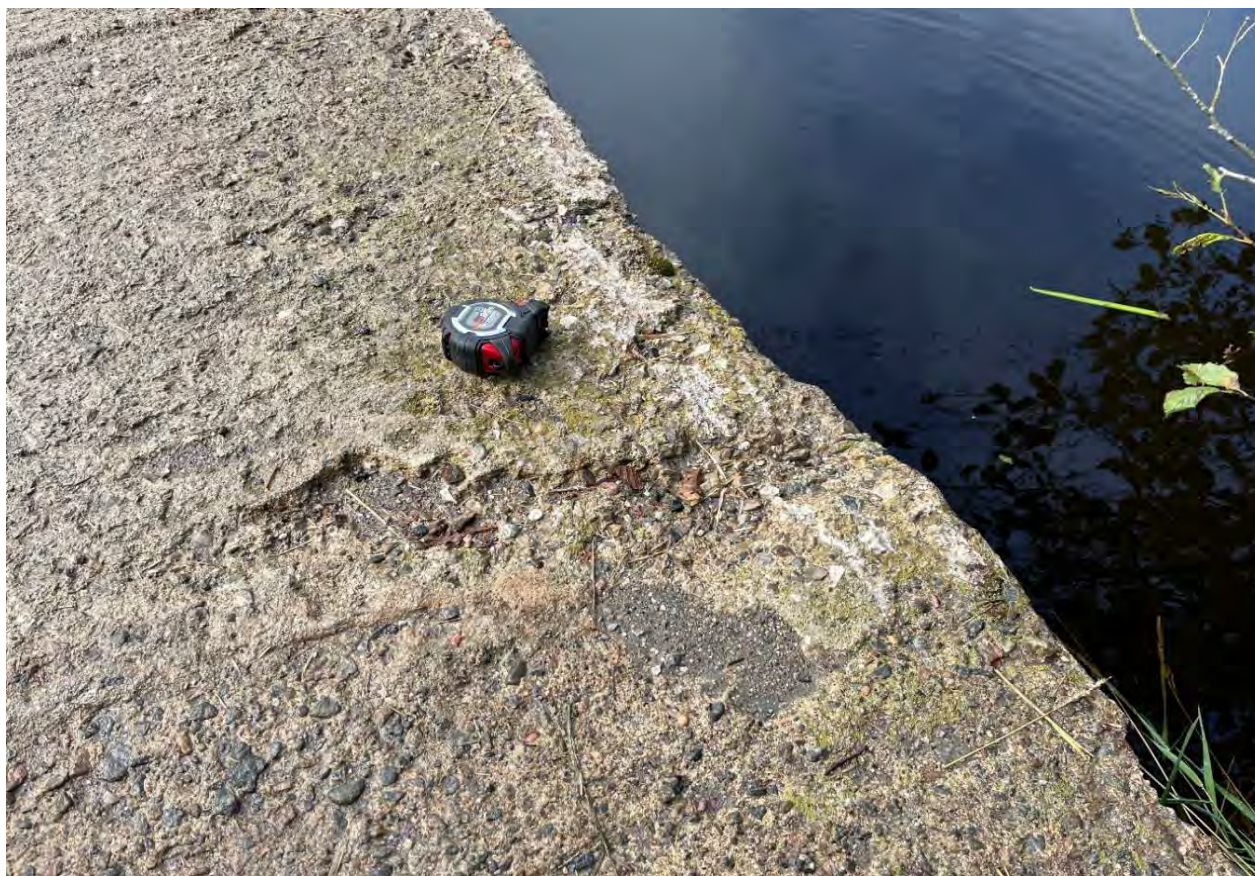
Description of Photo: Concrete deck top

Element Photo:



Description of Photo: Concrete deck top

Element Photo:



Description of Photo: Isolated concrete spall

Element Photo:



Description of Photo: Transverse crack

Element Photo:



Description of Photo: Isolated severe scaling

Element Data:						
Element Group:	Decks		Length:	7.1		
Element Name:	Soffit		Width:	2.9		
Location:			Height:			
Material:	Concrete		Count:	1		
Element Type:			Total Quantity:	20.6		
Environment:	Benign		Inspected	Yes <input type="checkbox"/> No <input type="checkbox"/> limited <input checked="" type="checkbox"/>		
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		10.6	8.0	2.0	
Comments: Light to medium scaling, typ. Isolated medium to severe honeycombing.						
Recommended Work:		Rehab: <input type="checkbox"/>	Replace: <input checked="" type="checkbox"/>	Maintenance Needs:		
Urgent: <input type="checkbox"/>		1-5 Years: <input type="checkbox"/>	6-10 Years: <input checked="" type="checkbox"/>	None: <input type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>
Replace the bridge.						

Element Photo:



Description of Photo: Deck - soffit

Element Photo:



Description of Photo: Deck - soffit

Element Photo:



Description of Photo: Deck - soffit

Element Data:

Element Group:	Abutments	Length:	2.9
Element Name:	Abutment Walls	Width:	1.3
Location:		Height:	1.0
Material:	Concrete	Count:	2
Element Type:		Total Quantity:	7.54
Environment:	Benign	Inspected	Yes <input type="checkbox"/> No <input type="checkbox"/> limited <input checked="" type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	sq.m		4.5
		Fair	Poor*
		2.0	1.0

Comments: Below water level not inspected due to water depth. Light to medium scaling, typ. Severe 600x600x600mm spall and concrete disintegration at north abutment.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input checked="" type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input checked="" type="checkbox"/>	None: <input type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	
Concrete repair			

Element Photo:

Description of Photo: North abutment wall

Element Photo:



Description of Photo: North abutment wall

Element Photo:



Description of Photo: South abutment wall

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Streams and Waterways	Width:				
Location:		Height:				
Material:		Count:				
Element Type:		Total Quantity:	all			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	all	x				

Comments: No observed defects. Water depth over 2.4 m.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Watercourse

Element Photo:



Description of Photo: Watercourse

Element Photo:

Description of Photo:

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Embankments	Width:				
Location:		Height:				
Material:	Soil, Rock, Grass	Count:	4			
Element Type:		Total Quantity:	4			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		4			

Comments: **Very steep and heavily vegetated. No other observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

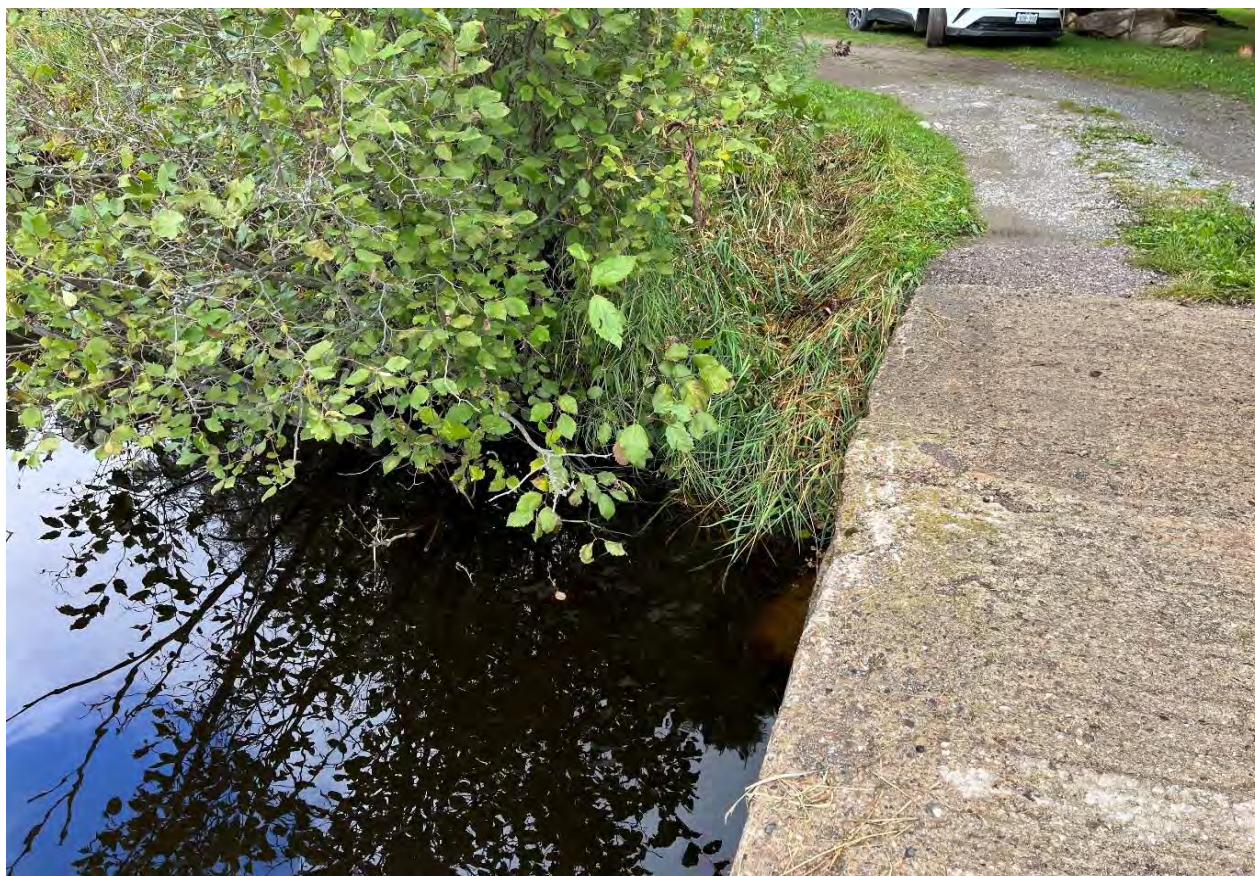
Description of Photo: Embankment, typ.

Element Photo:



Description of Photo: Embankment, typ.

Element Photo:




Description of Photo: Embankment, typ.

Element Data:						
Element Group:	Accessories		Length:			
Element Name:	Signs		Width:			
Location:			Height:			
Material:	Steel		Count:			
Element Type:			Total Quantity:	2		
Environment:	Benign		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	each		2			
Comments: Light weathering, typ.						
Recommended Work:		Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	18 - Other Maintenance	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input checked="" type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>
				Install a 3 Tonne load post sign.		

Element Photo:



Description of Photo: Sign

Element Data:						
Element Group:	Approaches		Length:	6		
Element Name:	Wearing Surface		Width:	2.9		
Location:			Height:			
Material:	Gravel		Count:	2		
Element Type:			Total Quantity:	34.8		
Environment:	Benign		Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>		
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		29.8	5.0		
Comments: Earth and gravel approaches light to medium erosion at NE corner. Light settlement at the abutments.						
Recommended Work:		Rehab: <input type="checkbox"/> Replace: <input type="checkbox"/>		Maintenance Needs:		
Urgent: <input type="checkbox"/> 1-5 Years: <input type="checkbox"/> 6-10 Years: <input type="checkbox"/> None: <input checked="" type="checkbox"/>		Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>				
Element Photo:						
						
Description of Photo: Approach wearing surface						

Element Photo:



Description of Photo: Approach wearing surface

Element Photo:



Description of Photo: Erosion at approach wearing surface

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	X				\$20,000.00
Structure	Replacement	X				\$500,000.00
OR						
Deck	Rehab. =					
Sidewalk/Curb	Rehab. =					
Barrier	Rehab. =					
Joints	Rehab. =					
Beams	Rehab. =					
Abutment	Rehab. =					
Pier	Rehab. =					
Other						
Estimated Rehabilitated or Replacement Structure Dimensions ³						
Total Deck Length (m)	Overall Str. Width (m)	Total Structural Cost				\$520,000.00

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	Full closure	\$10,000.00
Utilities		
Other	Engineering and Contingency	\$60,000.00
Total Associated Work Cost		\$70,000.00

Total Construction Cost	\$590,000.00
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Justification:
<p>The bridge is in generally fair to poor condition. It is geometrically inadequate, there are no approach or bridge barriers posing a risk to users. There is a sag in the deck but no visible related cracks, therefore likely constructed to this shape, forms possibly sagged during construction. Adjacent homeowner noted the bridge can be occasionally overtopped during flood events. Note: A "Review for Load Posting" letter by Tatham Engineering dated August 11, 2016 recommended a 3 Tonne Load posting should be installed prior to replacement to reduce risk, this work is not completed. The estimated replacement cost is based on a single lane prefabricated bridge structure with a new substructure, deck and barrier system, plus approach barrier system.</p>

Inventory Data:

Structure Name	42-328 - Highway 11 - Snowmobile Trail Overpass				
Main Highway #	11	On <input type="checkbox"/> or Under <input checked="" type="checkbox"/>	Service on Structure	<input type="checkbox"/> Navig. Water <input type="checkbox"/> Non-Navig. Water	
				<input type="checkbox"/> Rail <input type="checkbox"/> Road <input checked="" type="checkbox"/> Ped. <input checked="" type="checkbox"/> Other	
Location Description	Over Hwy 11, 800m South of Doe Lake Road		Service under:	<input type="checkbox"/> Navig. Water <input type="checkbox"/> Non-Navig. Water	
				<input type="checkbox"/> Rail <input checked="" type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Owner/Custodian	Town of Gravenhurst				
MTO Region		Latitude	44.931926	Longitude	-79.344299
Regional Engineer		Heritage Designation:	<input checked="" type="checkbox"/> Not Cons. <input type="checkbox"/> Cons./Not App. <input type="checkbox"/> List/Not Desig.		
			Desig. <input type="checkbox"/> Desig./Not List <input type="checkbox"/> Desig. & List		
MTO Area		Hwy Class:	Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input type="checkbox"/> Local <input checked="" type="checkbox"/>		
Old County		Posted Speed	N/A	No. of Lanes	1
Township		AADT	N/A	% Truck	N/A
Structure Type 1	Half-Through (Pony) Truss				
Structure Material 1	Steel		Traffic Directional Bound	E-W	
Structure Type 2	Deck				
Structure Material 2	Concrete		Inspection Frequency	2	(years)
Total Deck Length	73.0	(m)	Inspection Year	Odd	
Overall Str. Width	3.8	(m)	Inspection Duration	2	(hrs)
Culvert Length		(m)			
Total Deck Area	277.4	(sq.m)			
Roadway Width	3.4	(m)	Min. Vertical Clearance		(m)
Skew Angle		(Degree)	Detour Distance		(km)
No. of Spans	2		Fill on Structure		(m)
Span Lengths	40.0 / 33.0 (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	2002	Year of superstruct. Constructed	
Last Reg. OSIM Inspection	2021	Year of Last Minor Rehab.	
Last Enh. OSIM Inspection		Year of Last Major Rehab	
		Current Load Limit	/ 10 / (tonnes)

Work History: (Date/description)

2019 - replacement of one bearing and pier concrete repair

Investigation History: (Date/description)

Field Inspection Information:						
Date of Inspection:	October 18, 2023	Type of Inspection:	<input checked="" type="checkbox"/> Reg. OSIM	<input type="checkbox"/> Enh. OSIM		
Inspected By	David Middlebrook					
Others in Party:						
Enh. Access Equipment:						
Special Access Equipment						
Weather	Cloudy	Temperature	5 °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	<input checked="" type="checkbox"/> None <input type="checkbox"/> Minor Rehab. <input type="checkbox"/> Major Rehab. <input type="checkbox"/> Replace					
Timing of Recommended Work	<input type="checkbox"/> Urgent <input type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years					
Overall Comments:	This bridge is in generally excellent to good condition. Maintenance: Replace centre joint compression seal, bridge surface cleaning, and bearing seat cleaning.					
Date of Next inspection:	2025					
Overall Bridge Condition						
% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIP)		
0%	0%	0%	0%	BCIP	BCI	
				100.00	90.53	
Overall Bridge Sufficiency						
Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)		
0	1	0	0	89.53		

Element Data:

Element Group:	Decks	Length:	73.4			
Element Name:	Deck Top	Width:	3.8			
Location:		Height:				
Material:	Cast-in-place concrete	Count:	1			
Element Type:		Total Quantity:	278.9			
Environment:	Moderate	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		278.9			

Comments: Light scaling, typ. Debris on both sides of deck top.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	2 - Bridge Cleaning
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input checked="" type="checkbox"/>
				Bridge Cleaning

Element Photo:

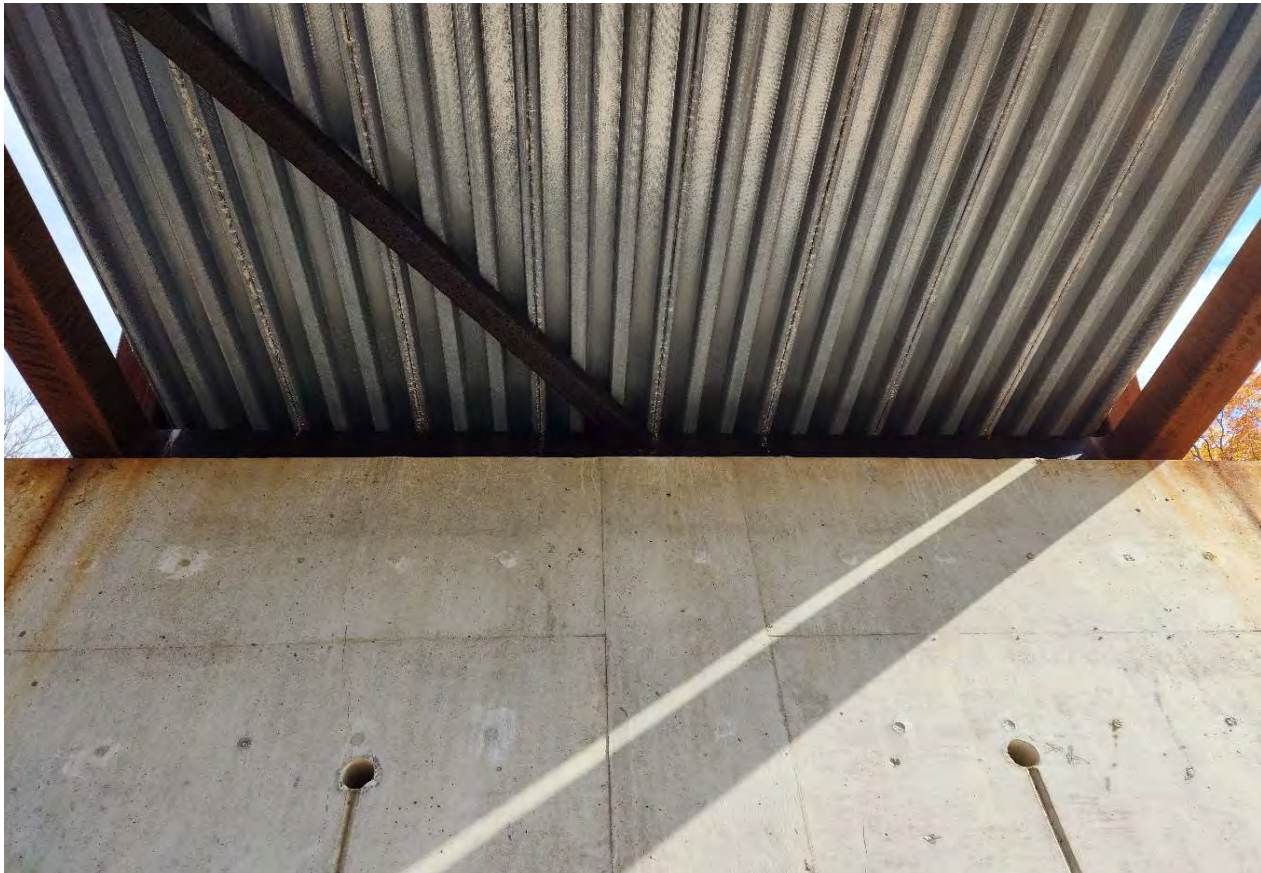
Description of Photo: Deck top

Element Data:

Element Group:	Decks	Length:	73.4
Element Name:	Soffit	Width:	3.8
Location:		Height:	
Material:	Cast-in-place concrete	Count:	1
Element Type:		Total Quantity:	278.9
Environment:	Benign	Inspected	Yes <input type="checkbox"/> No <input type="checkbox"/> limited <input checked="" type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	sq.m	110.4	168.5

Comments: Isolated efflorescence and deposits noted along some of the longitudinal joints in the corrugated metal decking. Light corrosion noted at welded connections between decking and transverse floor beams. No access for inspection due to height and traffic volume: Condition data, comments, and photos carried over from the 2021 inspection.

Recommended Work:	Rehab: <input type="checkbox"/> Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/> 1-5 Years: <input type="checkbox"/> 6-10 Years: <input type="checkbox"/> None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Deck - soffit

Element Data:

Element Group:	Joists	Length:	3.8			
Element Name:	Seals/sealants	Width:				
Location:		Height:				
Material:	Elastomeric	Count:	3			
Element Type:	Compression Seal	Total Quantity:	3			
Environment:	Moderate	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each			2	1	

Comments: Joints filled with debris, narrow cracking, minor displacement/deterioration noted, however abutment joints appear to be functioning. Centre joint at pier has a gap and is leaking.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	18 - Other Maintenance
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input checked="" type="checkbox"/>
				Replace centre seal

Element Photo:

Description of Photo: Seal joint, typ.

Element Photo:



Description of Photo: Seal joint, typ.

Element Photo:

Description of Photo:

Element Data:

Element Group:	Sidewalk/Curb	Length:	73.4
Element Name:	Curbs	Width:	0.15
Location:		Height:	0.2
Material:	Cast-in-place concrete	Count:	2
Element Type:	Barrier Curb	Total Quantity:	51.4
Environment:	Moderate	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	sq.m		51.4
		Fair	Poor*

Comments: Light scaling, typ. No other observed defects.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Curb, typ.

Element Data:

Element Group:	Barriers		Length:	73.4		
Element Name:	Railing Systems		Width:			
Location:			Height:			
Material:	Steel		Count:	2		
Element Type:	Thrie Beam		Total Quantity:	146.8		
Environment:	Moderate		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:	Galvanizing					Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	m	146.8				

Comments: The thrie beam barrier is fastened to the truss using welds. Surface staining throughout from the truss weathering steel. No observed defects.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Railing, typ.

Element Data:

Element Group:	Barriers	Length:	73.0			
Element Name:	Railing Systems	Width:	0.1			
Location:		Height:	0.1			
Material:	Steel	Count:	6			
Element Type:	HSS section	Total Quantity:	438.0			
Environment:	Moderate	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:	ACR steel					
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m	438.0				

Comments: No observed defects.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Railing, typ.

Element Data:

Element Group:	Beams/Main Longitudinal Elements	Length:	3.8			
Element Name:	Floor Beams	Width:	0.1			
Location:		Height:	0.2			
Material:	Steel	Count:	31			
Element Type:	HSS	Total Quantity:	70.7			
Environment:	Benign	Inspected	Yes <input type="checkbox"/> No <input type="checkbox"/> limited <input checked="" type="checkbox"/>			
Protection System:	ACR steel					
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m	60.0	10.7			

Comments: Generally uniform patina. Some discolouration at welded connections. No other observed defects. Limited inspection due to height and traffic volume: Condition data, comments, and photos carried over from the 2021 inspection.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Floor beam, typ.

Element Data:

Element Group:	Trusses/Arches	Length:	69.7			
Element Name:	Top Chords	Width:	0.25			
Location:		Height:	0.25			
Material:	Steel	Count:	2			
Element Type:	HSS	Total Quantity:	139.4			
Environment:	Moderate	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:	ACR steel					
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m	139.7				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:**Description of Photo:** Truss - top chord

Element Data:

Element Group:	Trusses/Arches		Length:	73.4		
Element Name:	Bottom Chords		Width:	0.25		
Location:			Height:	0.25		
Material:	Steel		Count:	2		
Element Type:	HSS		Total Quantity:	146.8		
Environment:	Moderate		Inspected	Yes <input type="checkbox"/>	No <input type="checkbox"/>	limited <input checked="" type="checkbox"/>
Protection System:	ACR steel					Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m	120.0	26.8			

Comments: **Generally uniform patina. Some discolouration at welded connections. No other observed defects. Limited inspection due to height and traffic volume: Condition data, comments, and photos carried over from the 2021 inspection.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Truss - bottom chord

Element Data:

Element Group:	Trusses/Arches	Length:	2.5			
Element Name:	Verticals/Diagonals	Width:	0.15			
Location:		Height:	0.15			
Material:	Steel	Count:	108			
Element Type:	HSS	Total Quantity:	162.0			
Environment:	Moderate	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:	ACR steel					
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m	166.9				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:**Description of Photo:** Truss - vertical / diagonal member

Element Data:

Element Group:	Trusses/Arches	Length:				
Element Name:	Connections	Width:				
Location:	Exterior	Height:				
Material:	Steel	Count:	182			
Element Type:	Welded Connections	Total Quantity:	182			
Environment:	Moderate	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:	ACR steel					
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each	182				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Weld Connections

Element Data:

Element Group:	Bracing	Length:	6.3
Element Name:	Bracing	Width:	0.1
Location:		Height:	0.1
Material:	Steel	Count:	15
Element Type:	HSS	Total Quantity:	15
Environment:	Benign	Inspected	Yes <input type="checkbox"/> No <input type="checkbox"/> limited <input checked="" type="checkbox"/>
Protection System:	ACR steel		
Condition Data:	Units	Excellent	Good
	each		15

Comments: Relatively uniform patina. Some discolouration at welded connections. No other observed defects. No access for inspection due to height and traffic volume: Condition data, comments, and photos carried over from the 2021 inspection.

Recommended Work:	Rehab: <input type="checkbox"/> Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/> 1-5 Years: <input type="checkbox"/> 6-10 Years: <input type="checkbox"/> None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>	

Element Photo:

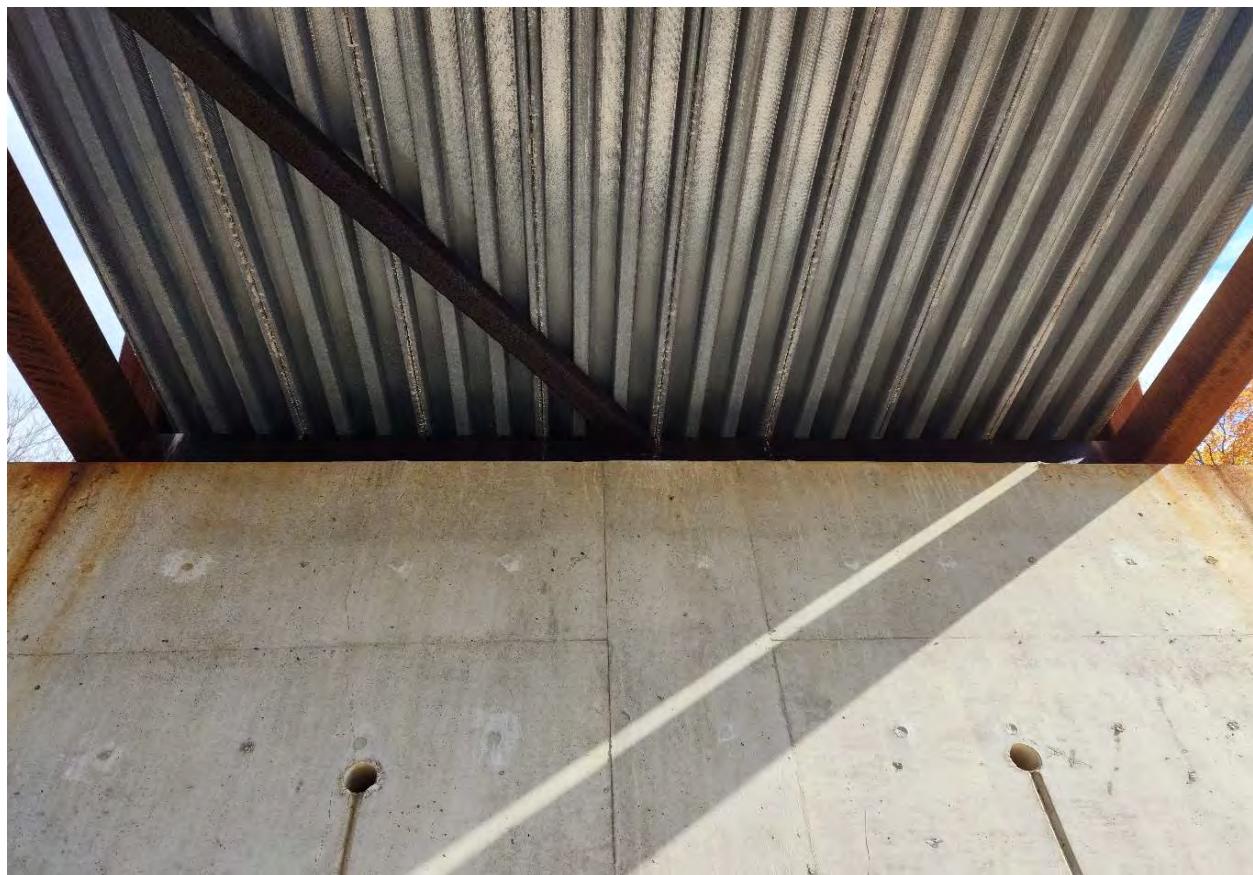
Description of Photo: Bracing

Element Data:

Element Group:	Abutments	Length:				
Element Name:	Abutment Walls	Width:	5.05			
Location:		Height:	2.5			
Material:	Cast-in-place concrete	Count:	2			
Element Type:	Conventional Closed	Total Quantity:	25.3			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m		25.3			

Comments: Light scaling, typ. Corrosion staining near bearing seats along top edge.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Abutment wall

Element Data:

Element Group:	Abutments	Length:	
Element Name:	Ballast Walls	Width:	5.05
Location:		Height:	0.5
Material:	Cast-in-place concrete	Count:	2
Element Type:		Total Quantity:	5.1
Environment:	Moderate	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	sq.m		3.1
		Fair	Poor*
		2.0	
			Performance Deficiencies

Comments: Light scaling, typ. Isolated efflorescence build-up, and light staining.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Ballast wall, typ.

Element Data:						
Element Group:	Abutments		Length:	3.0		
Element Name:	Wingwalls		Width:			
Location:			Height:	1.3		
Material:	Cast-in-place concrete		Count:	4		
Element Type:	Reinforced Concrete		Total Quantity:	15.6		
Environment:	Benign		Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>		
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		15.6			
Comments: Light scaling, typ. Light water staining from drain pipes. Several unplugged tie-holes from formwork.						
Recommended Work:		Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:		
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:



Description of Photo: Wing wall, typ.

Element Data:

Element Group:	Abutments	Length:	
Element Name:	Bearings	Width:	
Location:		Height:	
Material:	Neoprene	Count:	4
Element Type:	Elastomeric Pad	Total Quantity:	4
Environment:	Benign	Inspected	Yes <input type="checkbox"/> No <input type="checkbox"/> limited <input checked="" type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	each		4

Comments: **Some debris build-up around bearing seat. Light weathering of the elastomer. No other observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/> Replace: <input type="checkbox"/>	Maintenance Needs:	2 - Bridge Cleaning
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
			Clean bearing seat.

Element Photo:

Description of Photo: Bearing pad, typ.

Element Data:

Element Group:	Piers	Length:	1.0
Element Name:	Shafts/Columns/Pile Bents	Width:	2.0
Location:		Height:	4.0
Material:	Cast-in-place concrete	Count:	1
Element Type:	Reinforced concrete	Total Quantity:	24.0
Environment:	Severe	Inspected	Yes <input type="checkbox"/> No <input type="checkbox"/> limited <input checked="" type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	sq.m		24.0
		Fair	Poor*

Comments: Light scaling, typ. No access for inspection due to height and traffic volume. 2019 concrete repair to bearing seat. Condition data, comments, and photos carried over from the 2021 inspection.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>

Element Photo:

Description of Photo: Concrete Pier

Element Data:						
Element Group:	Piers		Length:	1.45		
Element Name:	Caps		Width:	5.05		
Location:			Height:	1.3		
Material:	Cast-in-place concrete		Count:	1		
Element Type:	Reinforced concrete		Total Quantity:	31.5		
Environment:	Moderate		Inspected	Yes <input type="checkbox"/> No <input type="checkbox"/> limited <input checked="" type="checkbox"/>		
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		31.5			
Comments: Light scaling, typ. Light corrosion staining on face of cap. Spall at bearing seat and horizontal concrete crack repaired in 2019. No access for inspection due to height and traffic volume.						
Recommended Work:		Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:		
Urgent: <input type="checkbox"/>		1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>	

Element Photo:



Description of Photo: Pier cap, typ.

Element Data:

Element Group:	Piers	Length:	
Element Name:	Bearings	Width:	
Location:		Height:	
Material:	Neoprene	Count:	4
Element Type:	Elastomeric Pad	Total Quantity:	4
Environment:	Benign	Inspected	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> limited <input type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	each		4

Comments: **Assumed light weathering, typ. No access for inspection due to height and traffic volume: Condition data, comments, and photos carried over from the 2021 inspection.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Bearing, typ.

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Embankments	Width:				
Location:		Height:				
Material:	Soil, grass	Count:	6			
Element Type:		Total Quantity:	6			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		6			

Comments: **Loss of material is less than 10%.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:**Description of Photo:** Embankment, typ.

Element Data:

Element Group:	Accessories	Length:				
Element Name:	Signs	Width:				
Location:		Height:				
Material:	Steel	Count:	6			
Element Type:		Total Quantity:	6			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each	6				

Comments: 4 hazard markers present, 2-10 tonne load limit signs. No observed defects.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Load post sign and hazard warning sign

Element Data:

Element Group:	Approaches	Length:	6.0			
Element Name:	Wearing Surface	Width:	3.8			
Location:		Height:	0.1			
Material:	Gravel	Count:	2			
Element Type:		Total Quantity:	45.6			
Environment:	Moderate	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m	45.6				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:			
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Approach wearing surface

Element Photo:



Description of Photo: Approach wearing surface, typ.

Element Photo:

Description of Photo:

Element Data:

Element Group:	Approaches	Length:	19.0			
Element Name:	Barrier	Width:				
Location:		Height:	0.7			
Material:	Steel	Count:	4			
Element Type:	W-Beam with steel posts	Total Quantity:	76.0			
Environment:	Moderate	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:	Galvanizing					
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	m		76.0			

Comments: Transitions from thrie-beam on the bridge to W-beam. Several missing bolts noted on the east approach post connections. No other observed defects.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:			
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Approach guide rail, typ.

Element Photo:



Description of Photo: Approach guide rail, typ.

Element Photo:



Description of Photo: Approach guide rail transition

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

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	\$0.00
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Justification:
The structure is in generally excellent to good condition. No rehabilitation work is recommended at this time. Maintenance: replace centre joint seal, bridge surface cleaning and bearing seat cleaning.

Inventory Data:

Structure Name	201 - Lots 15/16, Conc 10				
Main Highway #	Barkway Road	On <input checked="" type="checkbox"/> or Under <input type="checkbox"/>	Service on Structure	<input type="checkbox"/> Navig. Water	<input type="checkbox"/> Non-Navig. Water
				<input type="checkbox"/> Rail	<input checked="" type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other
Location Description	1.5 km south of Merkley Road	Service under:	<input type="checkbox"/> Navig. Water	<input checked="" type="checkbox"/> Non-Navig. Water	
			<input type="checkbox"/> Rail	<input type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Owner/Custodian	Gravenhurst				
MTO Region	Northeastern	Latitude	44.893186	Longitude	-79.172277
Regional Engineer		Heritage Designation:	<input checked="" type="checkbox"/> Not Cons.	<input type="checkbox"/> Cons./Not App.	<input type="checkbox"/> List/Not Desig.
			Desig.	<input type="checkbox"/> Desig./Not List	<input type="checkbox"/> Desig. & List
MTO Area		Hwy Class:	Freeway <input type="checkbox"/>	Arterial <input type="checkbox"/>	Collector <input type="checkbox"/> Local <input checked="" type="checkbox"/>
Old County		Posted Speed	50	No. of Lanes	2
Township	Gravenhurst	AADT	200-499	% Truck	0
Structure Type 1	SPCSP Pipe Arch				
Structure Material 1	Steel	Traffic Directional Bound	N-S		
Structure Type 2					
Structure Material 2		Inspection Frequency	2	(years)	
Total Deck Length	6.4 (m)	Inspection Year	odd		
Overall Str. Width	(m)	Inspection Duration	2	(hrs)	
Culvert Length	24.4 (m)				
Total Deck Area	156.2 (sq.m)				
Roadway Width	6.2 (m)	Min. Vertical Clearance	3.6	(m)	
Skew Angle	(Degree)	Detour Distance	20	(km)	
No. of Spans	1	Fill on Structure	2	(m)	
Span Lengths	6.4 (m)				
<u>For retaining wall:</u>					
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	1960	Year of superstruct. Constructed	
Last Reg. OSIM Inspection	2021	Year of Last Minor Rehab.	
Last Enh. OSIM Inspection		Year of Last Major Rehab	
		Current Load Limit	/ / (tonnes)

Work History: (Date/description)

Investigation History: (Date/description)

Field Inspection Information:					
Date of Inspection:	September 13, 2023	Type of Inspection:	<input checked="" type="checkbox"/> Reg. OSIM	<input type="checkbox"/> Enh. OSIM	
Inspected By	Junjie Yang				
Others in Party:					
Enh. Access Equipment:					
Special Access Equipment					
Weather	Drizzle	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 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	<input type="checkbox"/> None <input type="checkbox"/> Minor Rehab. <input checked="" type="checkbox"/> Major Rehab. <input type="checkbox"/> Replace				
Timing of Recommended Work	<input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years				
Overall Comments:	This culvert is generally in fair to poor condition. Severe corrosion and perforations noted along waterline. Isolated section loss at inlet. We expect the rate of corrosion will lead to increasing perforations, and rehabilitation should be planned for 1-5 years.				
Date of Next inspection:	2025				
Overall Bridge Condition					
% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIP)	
0%	0%	75%	0%	BCIP 36.25	BCI 19.40
Overall Bridge Sufficiency					
Traffic 0	Economic 2	Width 0	Alignment 0	Bridge Sufficiency Index (BSI)	
				17.40	

Element Data:

Element Group:	Culverts	Length:	24.4			
Element Name:	Barrels	Width:	6.4			
Location:		Height:	4.0			
Material:	Steel	Count:	1			
Element Type:	Pipe Arch	Total Quantity:	398.4			
Environment:	Benign	Inspected	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/> limited <input type="checkbox"/>
Protection System:	Galvanizing					Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m			99.6	298.8	1 - Load carrying capacity

Comments: **Severe corrosion and perforations noted at 100mm above waterline. Isolated section loss at culvert inlet. Medium corrosion from 100mm to 400mm above waterline for full length of culvert. Assumed light to severe corrosion along invert. Light chalking of the galvanized coating starting 400mm above the waterline.**

Recommended Work:	Rehab: <input checked="" type="checkbox"/> Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/> 1-5 Years: <input checked="" type="checkbox"/> 6-10 Years: <input type="checkbox"/> None: <input type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>		
Culvert lining			

Element Photo:

Description of Photo: Culvert barrel outlet

Element Photo:



Description of Photo: Severe corrosion and deterioration

Element Photo:



Description of Photo: Section loss at inlet

Element Photo:



Description of Photo: Severe deterioration and perforation

Element Photo:



Description of Photo: Severe corrosion and deterioration

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Streams and Waterways	Width:				
Location:		Height:				
Material:		Count:				
Element Type:		Total Quantity:	all			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	all		x			

Comments: 1 fallen tree is near culvert inlet. Vegetation and branches in culvert inlet. No other observed defects.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Upstream

Element Photo:



Description of Photo: Fallen tree at upstream

Element Photo:



Description of Photo: Downstream

Element Data:

Element Group:	Embankments & Streams		Length:			
Element Name:	Embankments		Width:			
Location:			Height:			
Material:	Soil, grass and rock		Count:	4		
Element Type:			Total Quantity:	4		
Environment:	Benign		Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>		
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	each		4			

Comments: **Loss of material is less than 10%. Steep slopes with heavy vegetation.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:			
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Embankment, typ.

Element Data:

Element Group:	Approaches		Length:	18.4		
Element Name:	Wearing Surface		Width:	6.2		
Location:			Height:			
Material:	Asphalt		Count:	1		
Element Type:			Total Quantity:	114.1		
Environment:	Severe		Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>		
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		111.6	2.0	0.5	

Comments: Light ravelling, typ. 1 medium 6.2 m long transverse crack. 1 light 5.0 m long crack. Isolated severe abrasion noted at 1 location.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Approach wearing surface

Element Photo:



Description of Photo: Transverse crack

Element Photo:



Description of Photo: Isolated severe abrasion

Element Data:

Element Group:	Approaches		Length:	43.0		
Element Name:	Barrier		Width:			
Location:			Height:			
Material:	Wood and Steel		Count:	2		
Element Type:	Wood Post and Steel Cable		Total Quantity:	86.0		
Environment:	Severe		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	m		86.0			

Comments: No damage to steel cables. Some area of cables sagging. 48 wood posts have light splitting. No other observed defects.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	18 - Other Maintenance
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input checked="" type="checkbox"/>
			Install hazard warning sign.	

Element Photo:

Description of Photo: Approach guide rail, typ.

Element Photo:



Description of Photo: Approach guide rail, typ.

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. =					
Sidewalk/Curb	Rehab. =					
Barrier	Rehab. =					
Joints	Rehab. =					
Beams	Rehab. =					
Abutment	Rehab. =					
Pier	Rehab. =					
Other	Culvert lining		X			\$350,000.00
Estimated Rehabilitated or Replacement Structure Dimensions ³						
Total Deck Length (m)	Overall Str. Width (m)	Total Structural Cost				\$350,000.00

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	Install hazard signs	\$2,000.00
Detours		
Traffic Control	Road closure	\$10,000.00
Utilities		
Other	Engineering	\$55,000.00
	Contingency	\$80,000.00
	Dewatering	\$80,000.00
Total Associated Work Cost		\$227,000.00
Total Construction Cost		\$577,000.00

Justification:
<p>This culvert is generally in fair to poor condition. Severe corrosion and perforation noted along waterline, and section loss noted at the inlet. We expect the rate of corrosion will lead to increasing perforations and separation, and rehabilitation should be planned for 1-5 years. The pricing above assumes cast in place culvert relining across the bottom and extending above waterline. Maintenance: Hazard warning signs be installed at the ends of the guide rail for improved roadside safety.</p>

Inventory Data:

Structure Name	202 - Lot 6, Conc 10/11				
Main Highway #	Merkley Road	On <input checked="" type="checkbox"/> or Under <input type="checkbox"/>	Service on Structure	<input type="checkbox"/> Navig. Water <input type="checkbox"/> Non-Navig. Water	<input type="checkbox"/> Rail <input checked="" type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other
Location Description	4.1km east of Barkway Road	Service under:	<input type="checkbox"/> Navig. Water <input checked="" type="checkbox"/> Non-Navig. Water	<input type="checkbox"/> Rail <input type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Owner/Custodian	Gravenhurst				
MTO Region	Northeastern	Latitude	44.918352	Longitude	-79.131408
Regional Engineer		Heritage Designation:	<input type="checkbox"/> Not Cons. <input checked="" type="checkbox"/> Cons./Not App. <input type="checkbox"/> List/Not Desig. Desig. <input type="checkbox"/> Desig./Not List <input type="checkbox"/> Desig. & List		
MTO Area		Hwy Class:	Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input type="checkbox"/> Local <input checked="" type="checkbox"/>		
Old County		Posted Speed	50	No. of Lanes	2
Township	Gravenhurst	AADT	50	% Truck	0
Structure Type 1	CSP Round Pipe				
Structure Material 1	Steel	Traffic Directional Bound	N-S		
Structure Type 2					
Structure Material 2					
Total Deck Length	10.0 (m)	Inspection Frequency	2 (years)		
Overall Str. Width		Inspection Year	odd		
Culvert Length	20.0 (m)	Inspection Duration	2 (hrs)		
Total Deck Area	106.1 (sq.m)				
Roadway Width	7.5 (m)	Min. Vertical Clearance		(m)	
Skew Angle		Detour Distance	None (km)		
No. of Spans	3	Fill on Structure	1.0 / 2.0 (m)		
Span Lengths	3.6 / 1.5 / 1.5 (m)				
<u>For retaining wall:</u>					
Total Wall Length		Max. Wall Height		(m)	
Total Wall Area		Ave. Wall Height		(m)	
		Angle of Backfill		(Degrees)	

Historical Data

Year Built	1980	Year of superstruct. Constructed	
Last Reg. OSIM Inspection	2021	Year of Last Minor Rehab.	
Last Enh. OSIM Inspection		Year of Last Major Rehab	2018
		Current Load Limit	/ / (tonnes)

Work History: (Date/description)

2018 - Structure Replaced, new polymer coated CSP alongside two existing galvanized CSP's.

Investigation History: (Date/description)

Field Inspection Information:						
Date of Inspection:	September 13, 2023		Type of Inspection:	<input checked="" type="checkbox"/> Reg. OSIM	<input type="checkbox"/> Enh. OSIM	
Inspected By	Junjie Yang					
Others in Party:						
Enh. Access Equipment:						
Special Access Equipment						
Weather	Clear	Temperature	25 °C			
Additional Investigations Required:			Priority		Estimated Cost	
			None	Normal	Urgent	
Material Condition Survey						
Detailed Deck Condition Survey:			X			
Non-destructive Delamination Survey of Asphalt-Covered Deck:			X			
Concrete Substructure Condition Survey:			X			
Detailed Coating Condition Survey:			X			
Detailed Timber Investigation:			X			
Post-Tensioned Strand Investigation:			X			
Underwater Investigation			X			
Fatigue Investigation			X			
Seismic Investigation			X			
Structure Evaluation:			X			
Monitoring						
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	<input checked="" type="checkbox"/> None <input type="checkbox"/> Minor Rehab. <input type="checkbox"/> Major Rehab. <input type="checkbox"/> Replace					
Timing of Recommended Work	<input type="checkbox"/> Urgent <input type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years					
Overall Comments:	The new 3.6 m polymer coated CSP culvert is in excellent condition. The two 1.5 m galvanized CSP's are generally in good condition. Maintenance: potholes should be repaired, loose cable on the approach guide rail should be tightened to improve road side safety with 1 year.					
Date of Next inspection:	2025					
Overall Bridge Condition						
% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIP)		
0	0	0	0	BCIP	BCI	
				100.00	86.52	
Overall Bridge Sufficiency						
Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)		
0	2	0	0	84.52		

Element Data:

Element Group:	Culverts	Length:	20.0
Element Name:	Barrels	Width:	3.6
Location:		Height:	3.6
Material:	Steel	Count:	1
Element Type:	CSP Round Pipe	Total Quantity:	226.1
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:	Polymer Coated		
Condition Data:	Units	Excellent	Good
	sq.m	226.1	

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Culvert barrel outlet

Element Photo:



Description of Photo: Culvert barrel - east face

Element Photo:



Description of Photo: Culvert barrel - west face

Element Photo:



Description of Photo: Culvert barrel, typ.

Element Photo:

Description of Photo:

Element Data:

Element Group:	Culverts	Length:	22
Element Name:	Barrels	Width:	1.5
Location:		Height:	1.5
Material:	Steel	Count:	2
Element Type:	CSP Round Pipe	Total Quantity:	207.4
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:	Galvanized		
Condition Data:	Units	Excellent	Good
	sq.m		206.9
		Fair	Poor*
			0.5
			Performance Deficiencies

Comments: Light chalking of the galvanizing coatings, typ. Light corrosion along and below waterline throughout both culverts. Isolated deformations at north ends.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Culvert barrel inlet

Element Photo:



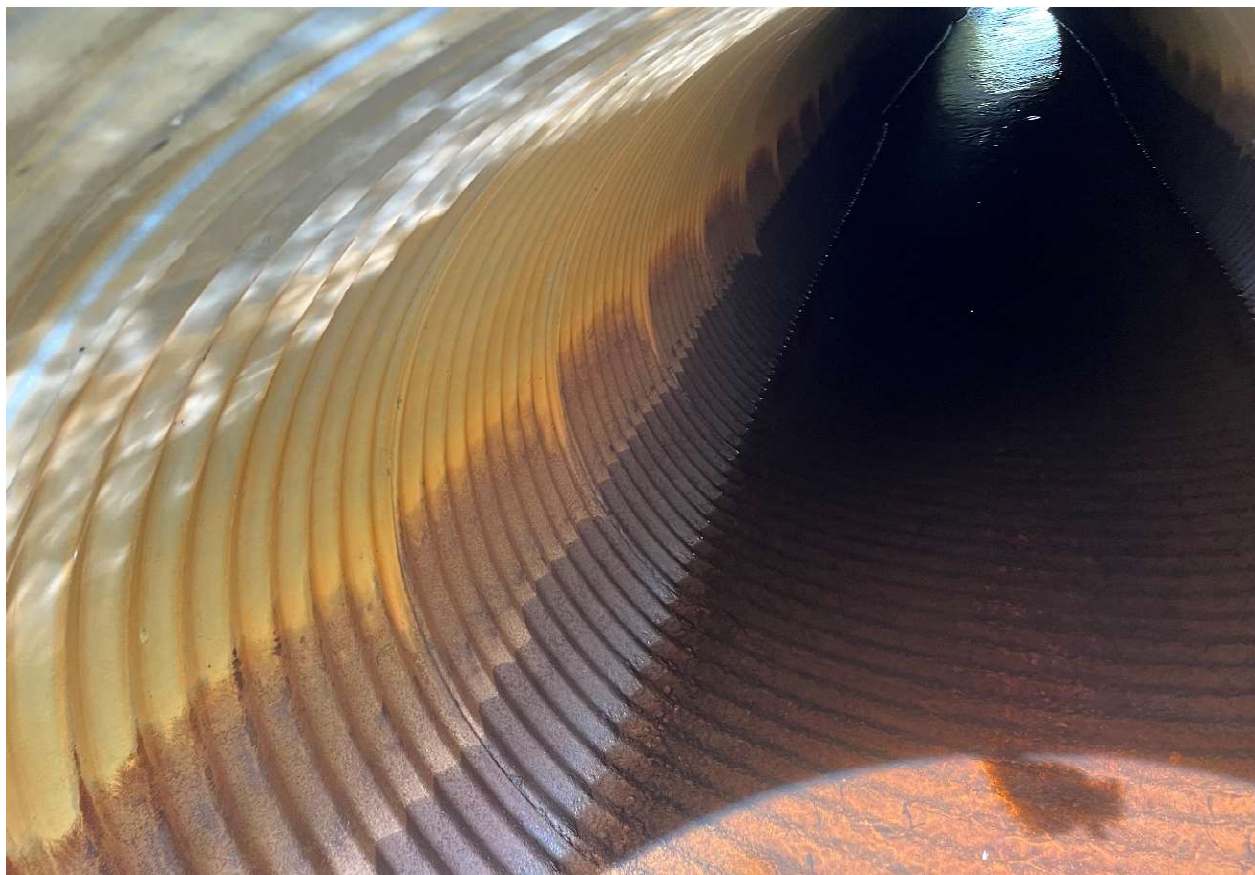
Description of Photo: Deformation at north inlet

Element Photo:



Description of Photo: Culvert barrel, typ.

Element Photo:



Description of Photo: Culvert barrel, typ.

Element Photo:



Description of Photo: Culvert barrel, typ.

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Streams and Waterways	Width:				
Location:		Height:				
Material:		Count:				
Element Type:		Total Quantity:	all			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	all	x				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Downstream

Element Photo:



Description of Photo: Upstream

Element Photo:

Description of Photo:

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Embankments	Width:				
Location:		Height:				
Material:	Rocks, grass	Count:	8			
Element Type:	Riprap	Total Quantity:	8			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each	8				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:**Description of Photo:** Embankment at galvanized CSP culverts

Element Photo:



Description of Photo: Embankment at polymer coated CSP culvert

Element Photo:



Description of Photo: Embankment at polymer coated CSP culvert

Element Data:							
Element Group:	Approaches			Length:	22.0		
Element Name:	Wearing Surface			Width:	6.7		
Location:				Height:			
Material:	Gravel			Count:	1		
Element Type:				Total Quantity:	147.4		
Environment:	Moderate			Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:							Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*		
	sq.m		143.4	3.0	1.0	9 - Rough riding surface	

Comments: Light to medium wheel track rutting, typ. Multiple potholes

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	12 - Bridge Surface Repair
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input checked="" type="checkbox"/> 2 Year: <input type="checkbox"/>
				Regrade gravel

Element Photo:



Description of Photo: Approach wearing surface - looking east

Element Photo:



Description of Photo: Pothole, typ.

Element Photo:



Description of Photo: Pothole, typ.

Element Data:

Element Group:	Approaches		Length:	59.6		
Element Name:	Barrier		Width:			
Location:			Height:			
Material:	Steel and wood		Count:	2		
Element Type:	Wood post and steel cable		Total Quantity:	119.2		
Environment:	Moderate		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:	Galvanizing					Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	m		119.2			

Comments: **Loose cables throughout. No other observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	3 - Railing System Repair	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input checked="" type="checkbox"/> 2 Year: <input type="checkbox"/>
				Tighten cables, clear vegetation from in front of barrier	

Element Photo:

Description of Photo: Approach guide rail

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

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	\$0.00
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Justification:
The polymer coated CSP culvert is in excellent condition. The galvanized CSP culverts are in good condition. Maintenance: potholes should be repaired, loose cable on the approach guide rail should be tightened to improve road side safety with 1 year.

Inventory Data:

Structure Name	203 - Lots 15/16, Conc 12				
Main Highway #	Barkway Road	On <input checked="" type="checkbox"/> or Under <input type="checkbox"/>	Service on Structure	<input type="checkbox"/> Navig. Water <input type="checkbox"/> Non-Navig. Water	
				<input type="checkbox"/> Rail <input checked="" type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Location Description	0.33km South of Seehaver Road	Service under:	<input type="checkbox"/> Navig. Water <input checked="" type="checkbox"/> Non-Navig. Water	<input type="checkbox"/> Rail <input type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Owner/Custodian	Gravenhurst				
MTO Region	Northeastern	Latitude	44.920392	Longitude	-79.186214
Regional Engineer		Heritage Designation:	<input type="checkbox"/> Not Cons. <input checked="" type="checkbox"/> Cons./Not App. <input type="checkbox"/> List/Not Desig. Desig. <input type="checkbox"/> Desig./Not List <input type="checkbox"/> Desig. & List		
MTO Area		Hwy Class:	Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input type="checkbox"/> Local <input checked="" type="checkbox"/>		
Old County		Posted Speed	50	No. of Lanes	2
Township	Gravenhurst	AADT	92	% Truck	0
Structure Type 1	Twin SPCSP Arch Pipe				
Structure Material 1	Steel	Traffic Directional Bound	N-S		
Structure Type 2					
Structure Material 2					
Total Deck Length	11.0 (m)	Inspection Frequency	2 (years)		
Overall Str. Width	(m)	Inspection Year	odd		
Culvert Length	18.6 (m)	Inspection Duration	2 (hrs)		
Total Deck Area	163.7 (sq.m)				
Roadway Width	6.75 (m)	Min. Vertical Clearance	(m)		
Skew Angle	(Degree)	Detour Distance	18 (km)		
No. of Spans	2	Fill on Structure	0.75 (m)		
Span Lengths	4.4, 4.4 (m)				
<u>For retaining wall:</u>					
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	2014	Year of superstruct. Constructed	
Last Reg. OSIM Inspection	2021	Year of Last Minor Rehab.	
Last Enh. OSIM Inspection		Year of Last Major Rehab	
		Current Load Limit	/ / (tonnes)

Work History: (Date/description)

Investigation History: (Date/description)

Field Inspection Information:					
Date of Inspection:	September 13, 2023		Type of Inspection:	<input checked="" type="checkbox"/> Reg. OSIM <input type="checkbox"/> Enh. OSIM	
Inspected By	Junjie Yang				
Others in Party:					
Enh. Access Equipment:					
Special Access Equipment					
Weather	Clear	Temperature	22 °C		
Additional Investigations Required:		Priority			Estimated Cost
		None	Normal	Urgent	
Material Condition Survey					
Detailed Deck Condition Survey:		X			
Non-destructive Delamination Survey of Asphalt-Covered Deck:		X			
Concrete Substructure Condition Survey:		X			
Detailed Coating Condition Survey:		X			
Detailed Timber Investigation:		X			
Post-Tensioned Strand Investigation:		X			
Underwater Investigation		X			
Fatigue Investigation		X			
Seismic Investigation		X			
Structure Evaluation:		X			
Monitoring					
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	<input checked="" type="checkbox"/> None <input type="checkbox"/> Minor Rehab. <input type="checkbox"/> Major Rehab. <input type="checkbox"/> Replace				
Timing of Recommended Work	<input type="checkbox"/> Urgent <input type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years				
Overall Comments:	The structure is in excellent condition. Maintenance work includes repairs to the damaged section of the guide rail, along with installation of hazard warning signs.				
Date of Next inspection:	2025				
Overall Bridge Condition					
% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIP)	
0%	0%	0%	0%	BCIP 100.00	BCI 99.48
Overall Bridge Sufficiency					
Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)	
0	2	0	0	97.48	

Element Data:

Element Group:	Culverts	Length:	18.5
Element Name:	Barrels	Width:	4.4
Location:		Height:	2.9
Material:	Steel	Count:	2
Element Type:	Pipe Arch	Total Quantity:	424.1
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:	Polymer Coated		
Condition Data:	Units	Excellent	Good
	sq.m	424.1	

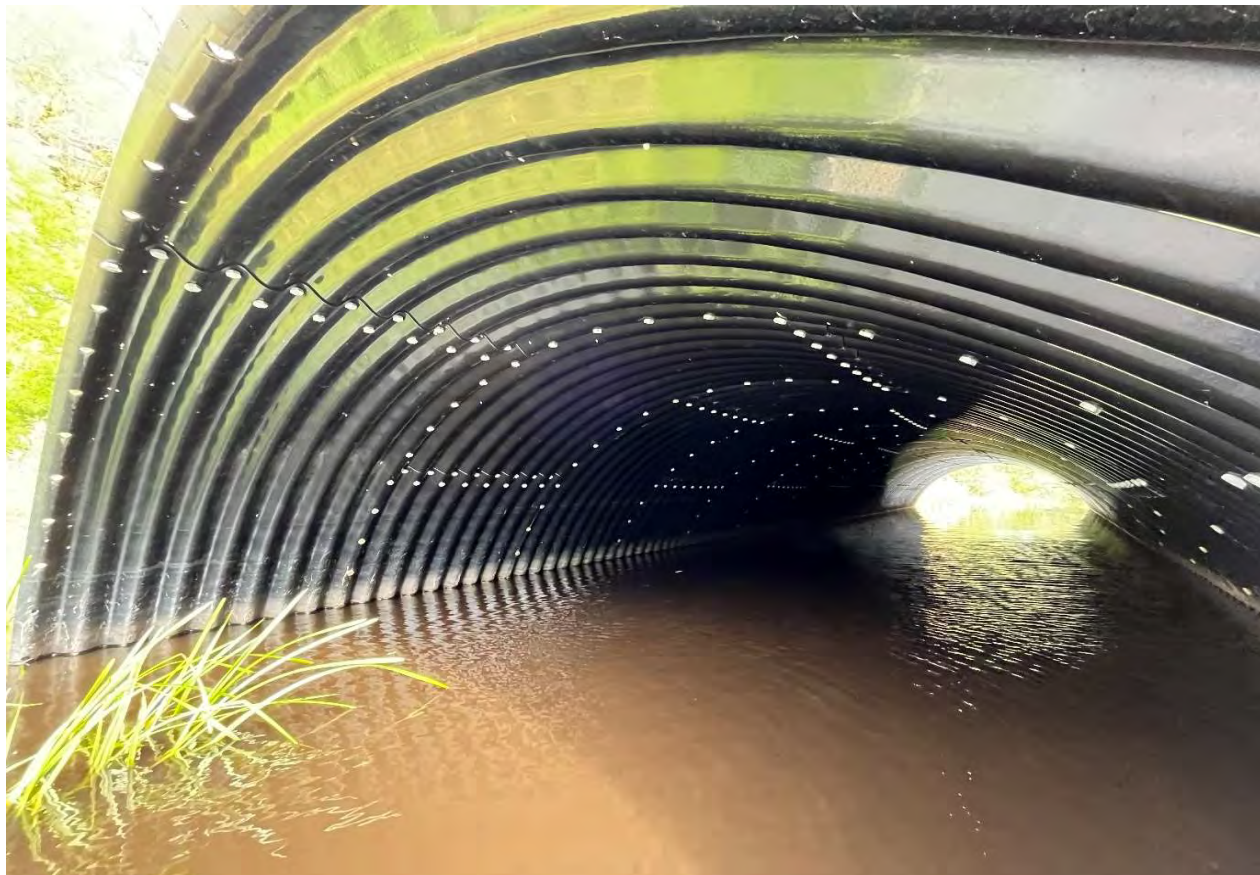
Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

Description of Photo: Culvert barrel, typ.

Element Photo:



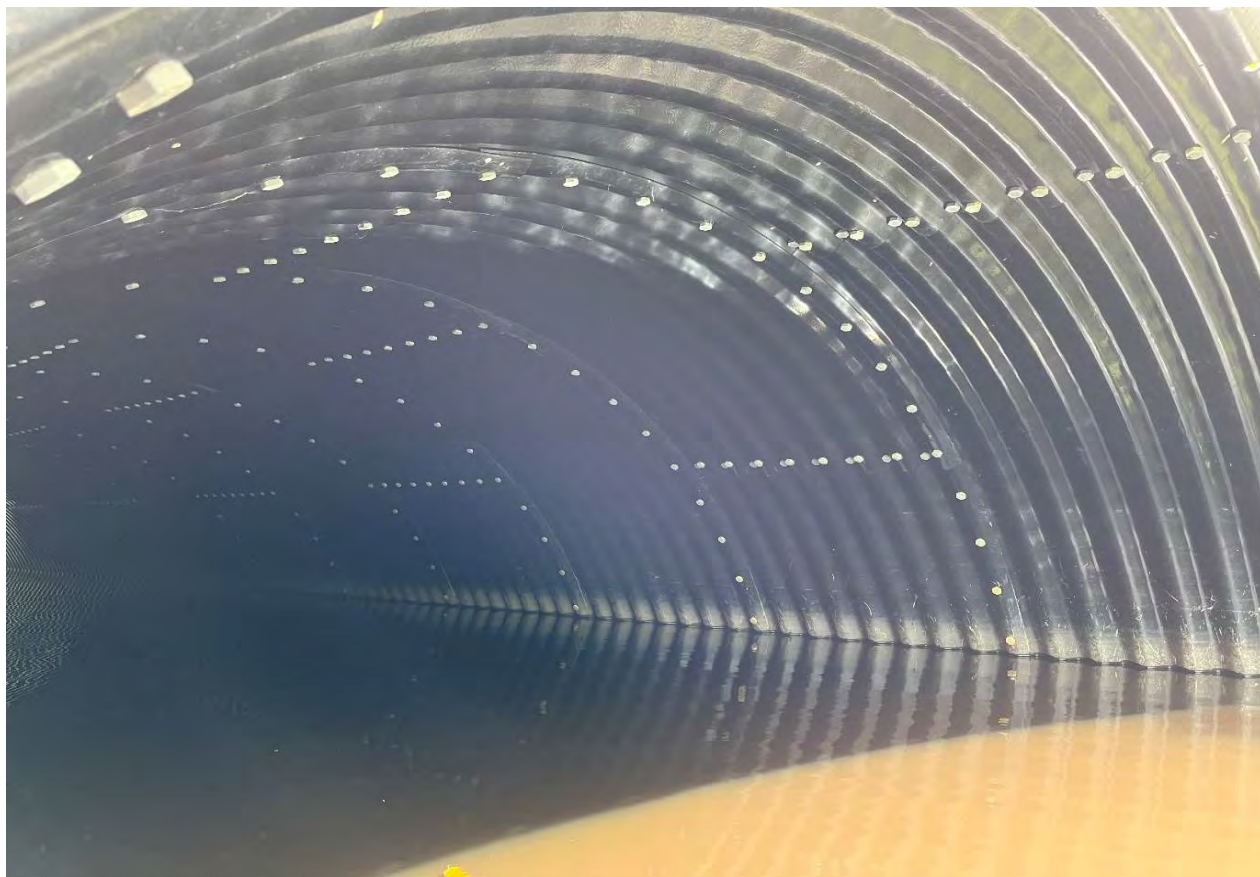
Description of Photo: Culvert barrel, typ.

Element Photo:



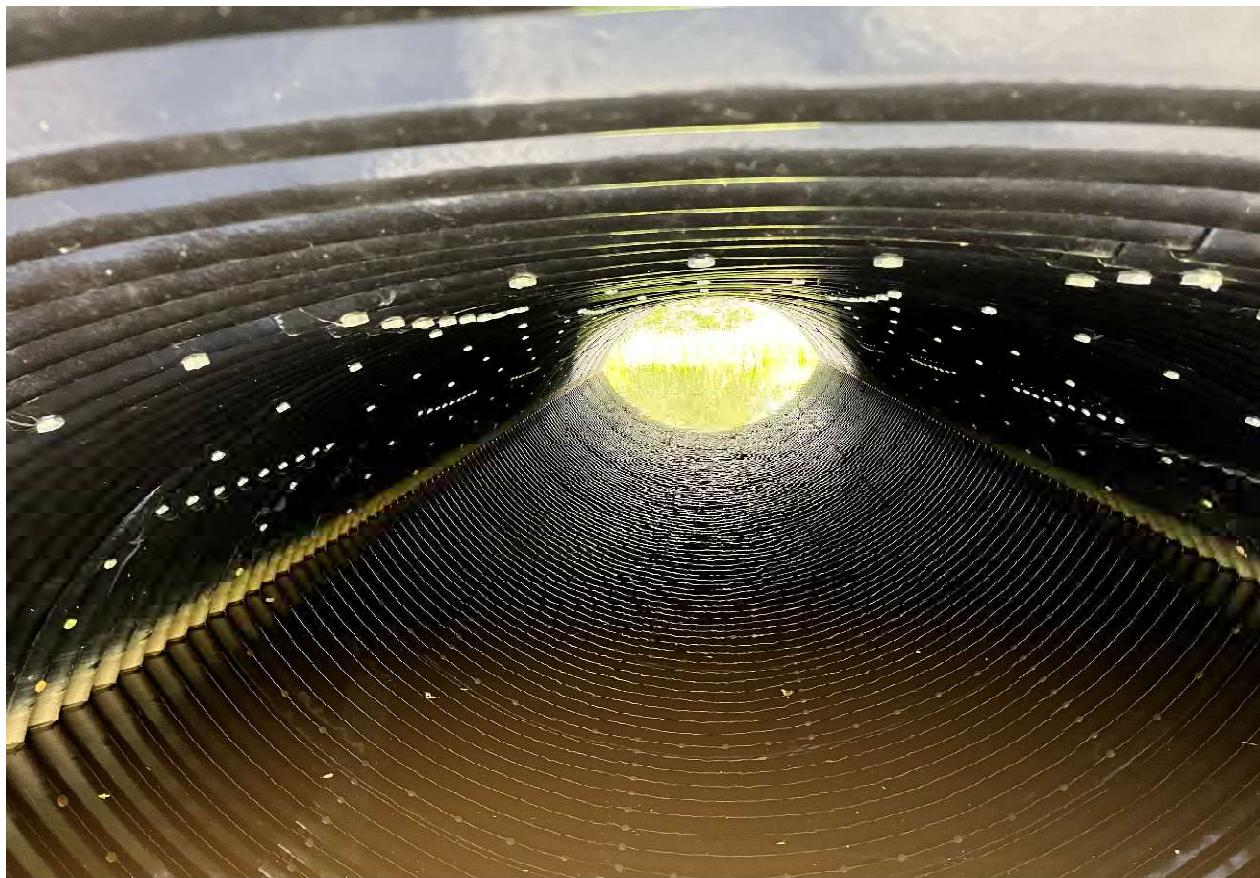
Description of Photo: Culvert barrel, typ.

Element Photo:



Description of Photo: Culvert barrel, typ.

Element Photo:



Description of Photo: Culvert barrel, typ.

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Streams and Waterways	Width:				
Location:		Height:				
Material:		Count:				
Element Type:		Total Quantity:	all			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	all	x				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Watercourse

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Embankments	Width:				
Location:		Height:				
Material:	Rocks	Count:	6			
Element Type:	Riprap	Total Quantity:	6			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each	6				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: West embankment

Element Photo:



Description of Photo: East embankment

Element Photo:



Description of Photo: Embankment, typ.

Element Data:

Element Group:	Accessories		Length:			
Element Name:	Signs		Width:			
Location:			Height:			
Material:	Steel		Count:	2		
Element Type:			Total Quantity:	2		
Environment:	Severe		Inspected	Yes <input type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>		
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	each	1		1		

Comments: **Two hazard warning signs are missing. One hazard warning sign is deformed.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	18 - Other Maintenance
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input checked="" type="checkbox"/> 2 Year: <input type="checkbox"/>
			Install two hazard warning signs.	

Element Photo:

Description of Photo: Hazard warning sign, typ.

Element Data:

Element Group:	Approaches		Length:	23.0		
Element Name:	Wearing Surface		Width:	6.75		
Location:			Height:			
Material:	Asphalt		Count:	1		
Element Type:			Total Quantity:	155.3		
Environment:	Severe		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m	150.3	5.0			

Comments: **No observed defects. Isolated light alligator cracking.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Approach wearing surface - looking north

Element Photo:



Description of Photo: Approach wearing surface - looking south

Element Photo:



Description of Photo: Alligator crack

Element Data:						
Element Group:	Approaches		Length:	85.0, 70.0		
Element Name:	Barrier		Width:			
Location:			Height:			
Material:	Steel		Count:	2		
Element Type:	Posts and W-beam		Total Quantity:	155.0		
Environment:	Severe		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:	Galvanizing					Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	m	151.0			4.0	
Comments: Impact damage to the W-beam with three posts tilted on the west side of the road. No other observed defects.						
Recommended Work:		Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs: 3 - Railing System Repair		
Urgent: <input type="checkbox"/>		1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/> 2 Year: <input checked="" type="checkbox"/>
				Replace section with damaged rail and tilted posts.		

Element Photo:



Description of Photo: Northwest quadrant approach guide rail

Element Photo:



Description of Photo: Approach guide rail - impacted damage

Element Photo:



Description of Photo: Approach guide rail - impacted damage

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

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	\$0.00
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Justification:
The structure is generally in excellent condition. Maintenance includes repairing the damaged section of the guide rail, and installation of two hazard warning signs.

Inventory Data:

Structure Name	204 - Riley Lake Road Culvert				
Main Highway #	Riley Lake Road	On <input checked="" type="checkbox"/> or Under <input type="checkbox"/>	Service on Structure	<input type="checkbox"/> Navig. Water <input type="checkbox"/> Non-Navig. Water	
				<input type="checkbox"/> Rail <input checked="" type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Location Description	1.7km east of Housey's Rapids Road	Service under:	<input type="checkbox"/> Navig. Water <input checked="" type="checkbox"/> Non-Navig. Water	<input type="checkbox"/> Rail <input type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Owner/Custodian	Gravenhurst				
MTO Region	Northeastern	Latitude	44.843573	Longitude	-79.190106
Regional Engineer		Heritage Designation:	<input checked="" type="checkbox"/> Not Cons. <input type="checkbox"/> Cons./Not App. <input type="checkbox"/> List/Not Desig.		
			Desig. <input type="checkbox"/> Desig./Not List <input type="checkbox"/> Desig. & List		
MTO Area		Hwy Class:	Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input type="checkbox"/> Local <input checked="" type="checkbox"/>		
Old County		Posted Speed	50	No. of Lanes	2
Township	Gravenhurst	AADT	168	% Truck	0
Structure Type 1	Twin CSP Round Pipe				
Structure Material 1	Steel	Traffic Directional Bound	E-W		
Structure Type 2					
Structure Material 2		Inspection Frequency	2	(years)	
Total Deck Length	6	Inspection Year	odd		
Overall Str. Width		Inspection Duration	2	(hrs)	
Culvert Length	23.1				
Total Deck Area	138.6				
Roadway Width	6.1	Min. Vertical Clearance		(m)	
Skew Angle	20	Detour Distance	None	(km)	
No. of Spans	2	Fill on Structure	0.6	(m)	
Span Lengths	2.0, 2.0 (m)				
<u>For retaining wall:</u>					
Total Wall Length		Max. Wall Height		(m)	
Total Wall Area		Ave. Wall Height		(m)	
		Angle of Backfill		(Degrees)	

Historical Data

Year Built	2015	Year of superstruct. Constructed	
Last Reg. OSIM Inspection	2021	Year of Last Minor Rehab.	
Last Enh. OSIM Inspection		Year of Last Major Rehab	
		Current Load Limit	/ / (tonnes)

Work History: (Date/description)

Culvert was replaced in 2015

Investigation History: (Date/description)

Field Inspection Information:						
Date of Inspection:	September 13, 2023		Type of Inspection:	<input checked="" type="checkbox"/> Reg. OSIM	<input type="checkbox"/> Enh. OSIM	
Inspected By	Junjie Yang					
Others in Party:						
Enh. Access Equipment:						
Special Access Equipment						
Weather	Clear		Temperature	22 °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	<input checked="" type="checkbox"/> None <input type="checkbox"/> Minor Rehab. <input type="checkbox"/> Major Rehab. <input type="checkbox"/> Replace					
Timing of Recommended Work	<input type="checkbox"/> Urgent <input type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years					
Overall Comments:	Culvert was replaced in 2015, is polymer coated, and is in excellent condition.					
Date of Next inspection:	2025					
Overall Bridge Condition						
% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIP)		
0	0	0	0	BCIP 100.00	BCI 100.00	
Overall Bridge Sufficiency						
Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)		
0	2	0	0	98.00		

Element Data:

Element Group:	Culverts	Length:	23.1
Element Name:	Barrels	Width:	2.0
Location:		Height:	2.0
Material:	Steel	Count:	2
Element Type:	Round Pipe	Total Quantity:	290.1
Environment:	Benign	Inspected	Yes <input type="checkbox"/> No <input type="checkbox"/> limited <input checked="" type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	sq.m	290.1	

Comments: Inside of pipe and below waterline were not accessible for inspection. No observed defects.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

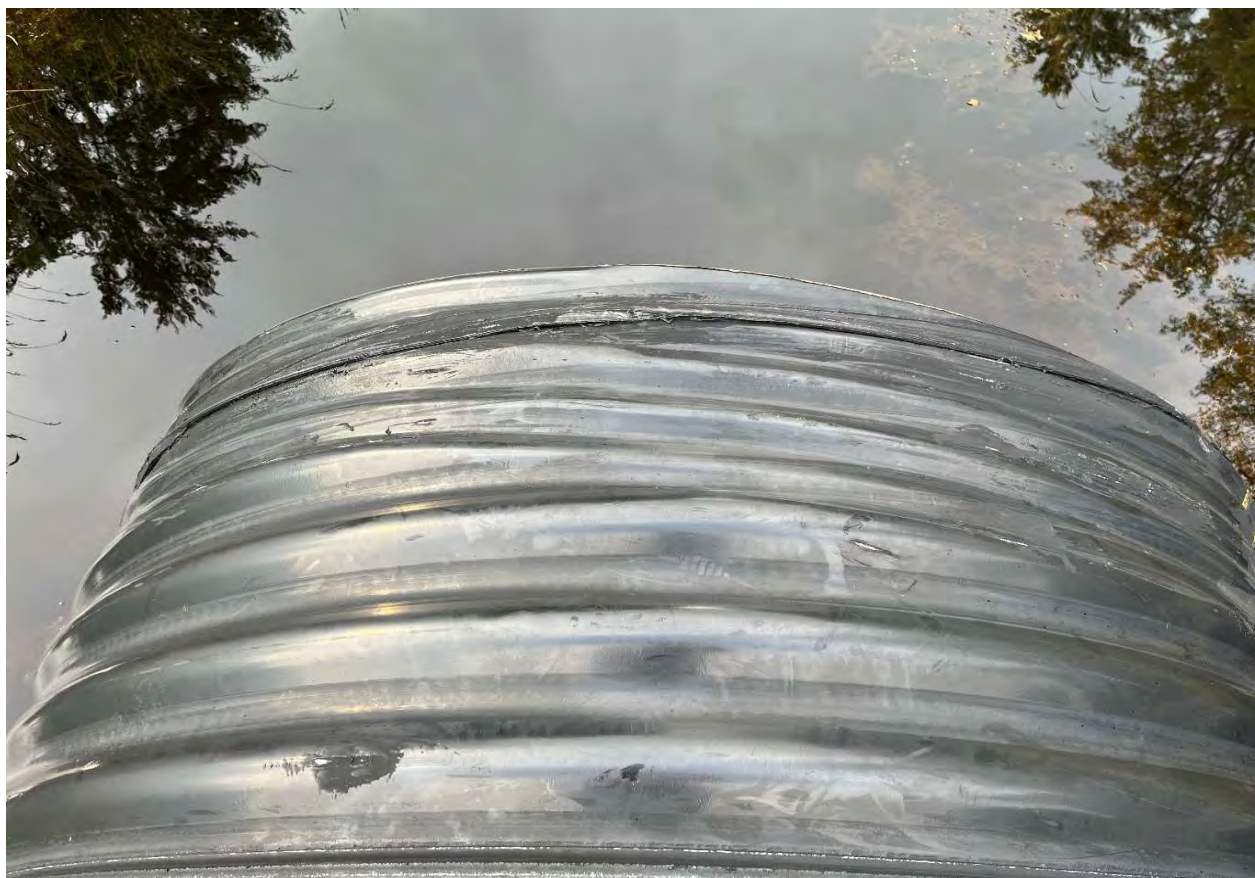
Description of Photo: Culvert barrels ,typ.

Element Photo:



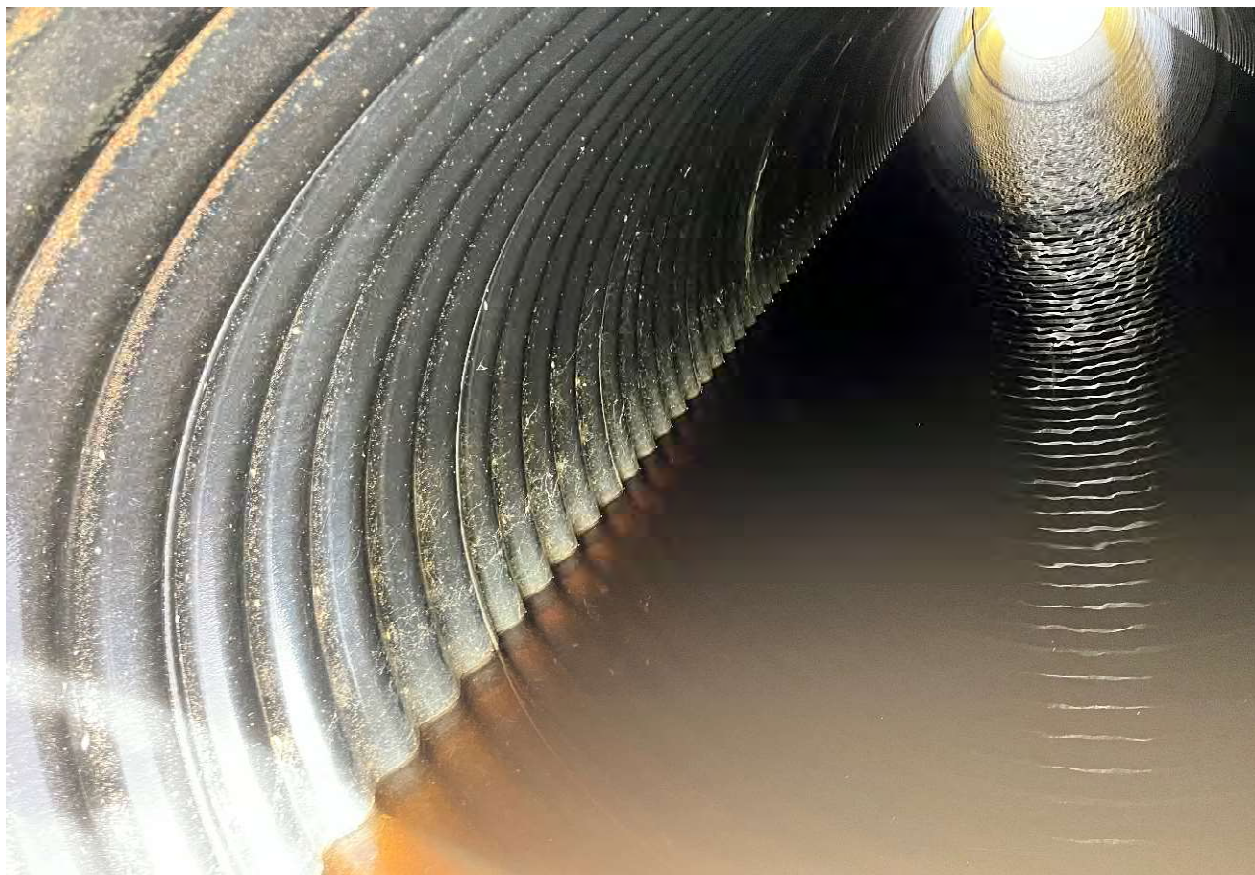
Description of Photo: Culvert barrel, typ.

Element Photo:



Description of Photo: Culvert end

Element Photo:



Description of Photo: Culvert barrel, typ.

Element Photo:



Description of Photo: Culvert barrel, typ.

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Streams and Waterways	Width:				
Location:		Height:				
Material:		Count:				
Element Type:		Total Quantity:	all			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	all	x				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Watercourse

Element Photo:



Description of Photo: Watercourse

Element Photo:

Description of Photo:

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Embankments	Width:				
Location:		Height:				
Material:	Grass, rock	Count:	6			
Element Type:		Total Quantity:	6			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each	6				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Embankment, typ.

Element Photo:



Description of Photo: Embankment, typ.

Element Photo:



Description of Photo: Embankment, typ.

Element Data:

Element Group:	Embankments & Streams		Length:	
Element Name:	Slope Protection		Width:	
Location:			Height:	
Material:	Rip rap	Count:	6	
Element Type:	Angular rock	Total Quantity:	6	
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:				Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair
	each	6		
				Poor*

Comments: **Loss of material is less than 20%.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo:

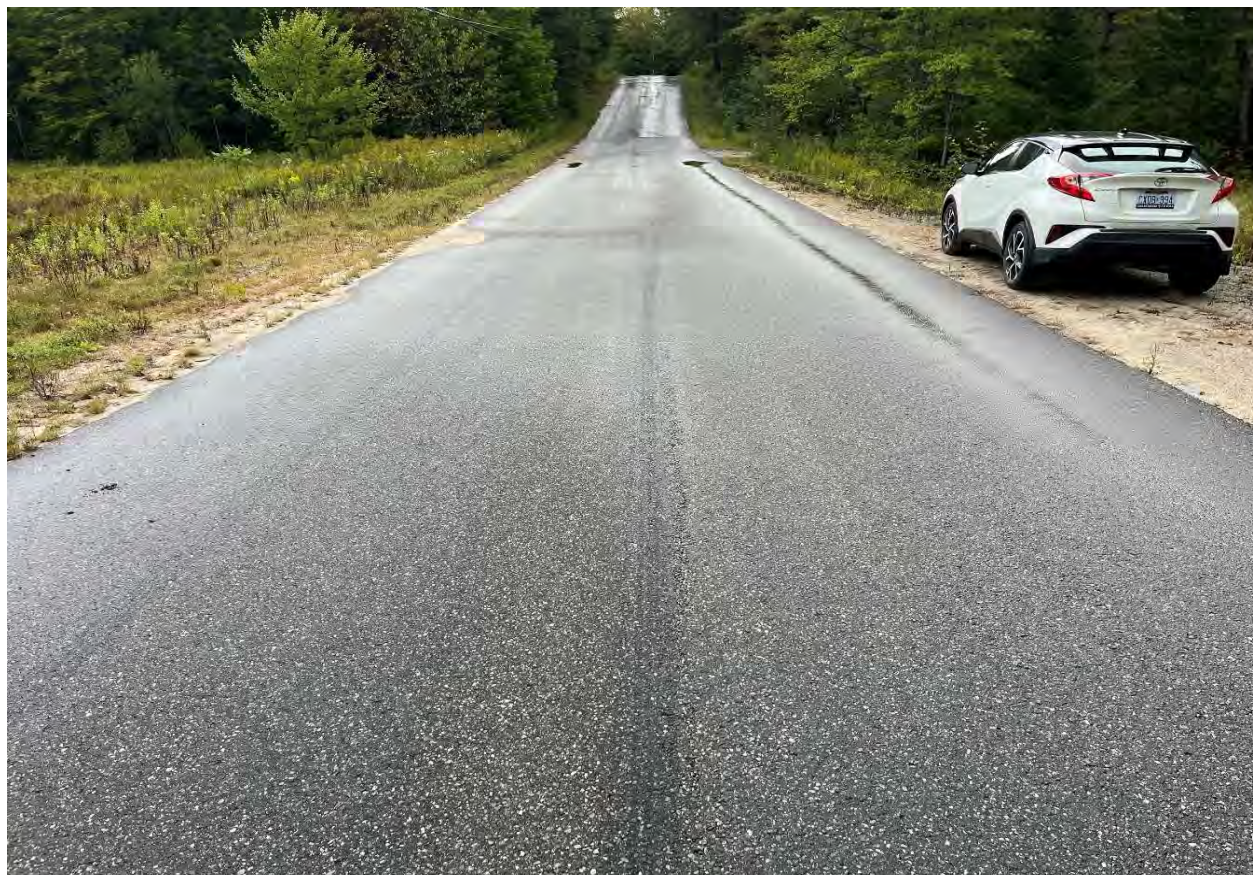
Description of Photo: Slope protection, typ.

Element Data:

Element Group:	Approaches		Length:	18.0		
Element Name:	Wearing Surface		Width:	6.2		
Location:			Height:			
Material:	Asphalt		Count:	1		
Element Type:			Total Quantity:	111.6		
Environment:	Severe		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m	111.1	0.5			

Comments: **No observed defects. One narrow transverse crack.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Approach wearing surface - looking east

Element Photo:



Description of Photo: Approach wearing surface - looking west

Element Photo:



Description of Photo: Transverse crack

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

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

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

Justification:
The structure was recently replaced and is in excellent condition. No recommended work at this time.

Inventory Data:

Structure Name	C10 - Seehaver Road, Lot 14, Conc 12/13				
Main Highway #	Seehaver Road	On <input checked="" type="checkbox"/> or Under <input type="checkbox"/>	Service on Structure	<input type="checkbox"/> Navig. Water <input type="checkbox"/> Non-Navig. Water	
				<input type="checkbox"/> Rail <input checked="" type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Location Description	0.35km east of Barkway Road	Service under:	<input type="checkbox"/> Navig. Water <input checked="" type="checkbox"/> Non-Navig. Water	<input type="checkbox"/> Rail <input type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Owner/Custodian	Gravenhurst				
MTO Region	Northeastern	Latitude	44.924497	Longitude	-79.182953
Regional Engineer		Heritage Designation:	<input checked="" type="checkbox"/> Not Cons. <input type="checkbox"/> Cons./Not App. <input type="checkbox"/> List/Not Desig.		
			Desig. <input type="checkbox"/> Desig./Not List <input type="checkbox"/> Desig. & List		
MTO Area		Hwy Class:	Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input type="checkbox"/> Local <input checked="" type="checkbox"/>		
Old County		Posted Speed	50	No. of Lanes	2
Township	Gravenhurst	AADT	50-199	% Truck	0
Structure Type 1	Twin SPCSP Arch Culvert				
Structure Material 1	Steel	Traffic Directional Bound	E-W		
Structure Type 2					
Structure Material 2		Inspection Frequency	2	(years)	
Total Deck Length	7.6	(m)	Inspection Year	odd	
Overall Str. Width		(m)	Inspection Duration	2	(hrs)
Culvert Length	18.7	(m)			
Total Deck Area	142.1	(sq.m)			
Roadway Width	5.8	(m)	Min. Vertical Clearance		(m)
Skew Angle		(Degree)	Detour Distance	6	(km)
No. of Spans	2		Fill on Structure	0.6	(m)
Span Lengths	3.8, 3.8 (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	2012	Year of superstruct. Constructed	
Last Reg. OSIM Inspection	2021	Year of Last Minor Rehab.	
Last Enh. OSIM Inspection		Year of Last Major Rehab	
		Current Load Limit	/ / (tonnes)

Work History: (Date/description)

Investigation History: (Date/description)

Field Inspection Information:						
Date of Inspection:	September 13, 2023		Type of Inspection:	<input checked="" type="checkbox"/> Reg. OSIM	<input type="checkbox"/> Enh. OSIM	
Inspected By	Junjie Yang					
Others in Party:						
Enh. Access Equipment:						
Special Access Equipment						
Weather	Clear	Temperature	22 °C			
Additional Investigations Required:			Priority		Estimated Cost	
			None	Normal		
Material Condition Survey						
Detailed Deck Condition Survey:			X			
Non-destructive Delamination Survey of Asphalt-Covered Deck:			X			
Concrete Substructure Condition Survey:			X			
Detailed Coating Condition Survey:			X			
Detailed Timber Investigation:			X			
Post-Tensioned Strand Investigation:			X			
Underwater Investigation			X			
Fatigue Investigation			X			
Seismic Investigation			X			
Structure Evaluation:			X			
Monitoring						
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	<input checked="" type="checkbox"/> None <input type="checkbox"/> Minor Rehab. <input type="checkbox"/> Major Rehab. <input type="checkbox"/> Replace					
Timing of Recommended Work	<input type="checkbox"/> Urgent <input type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years					
Overall Comments:	Culverts are in excellent condition, no recommended work at this time.					
Date of Next inspection:	2025					
Overall Bridge Condition						
% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIP)		
0%	0%	0%	0%	BCIP 100.00	BCI 95.48	
Overall Bridge Sufficiency						
Traffic 0	Economic 2	Width 0	Alignment 0	Bridge Sufficiency Index (BSI)		
				93.48		

Element Data:

Element Group:	Culverts	Length:	18.7			
Element Name:	Barrels	Width:	3.8			
Location:		Height:	2.7			
Material:	Steel	Count:	2			
Element Type:	Pipe Arch	Total Quantity:	387.7			
Environment:	Benign	Inspected	Yes <input type="checkbox"/> No <input type="checkbox"/> limited <input checked="" type="checkbox"/>			
Protection System:	Polymer Coated					
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	sq.m	385.7	2.0			

Comments: Limited inspection due to water depth. Light corrosion visible on bolts. Scratches in the coating with light corrosion on top exposed surface at the southeast end. No other observed defects.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

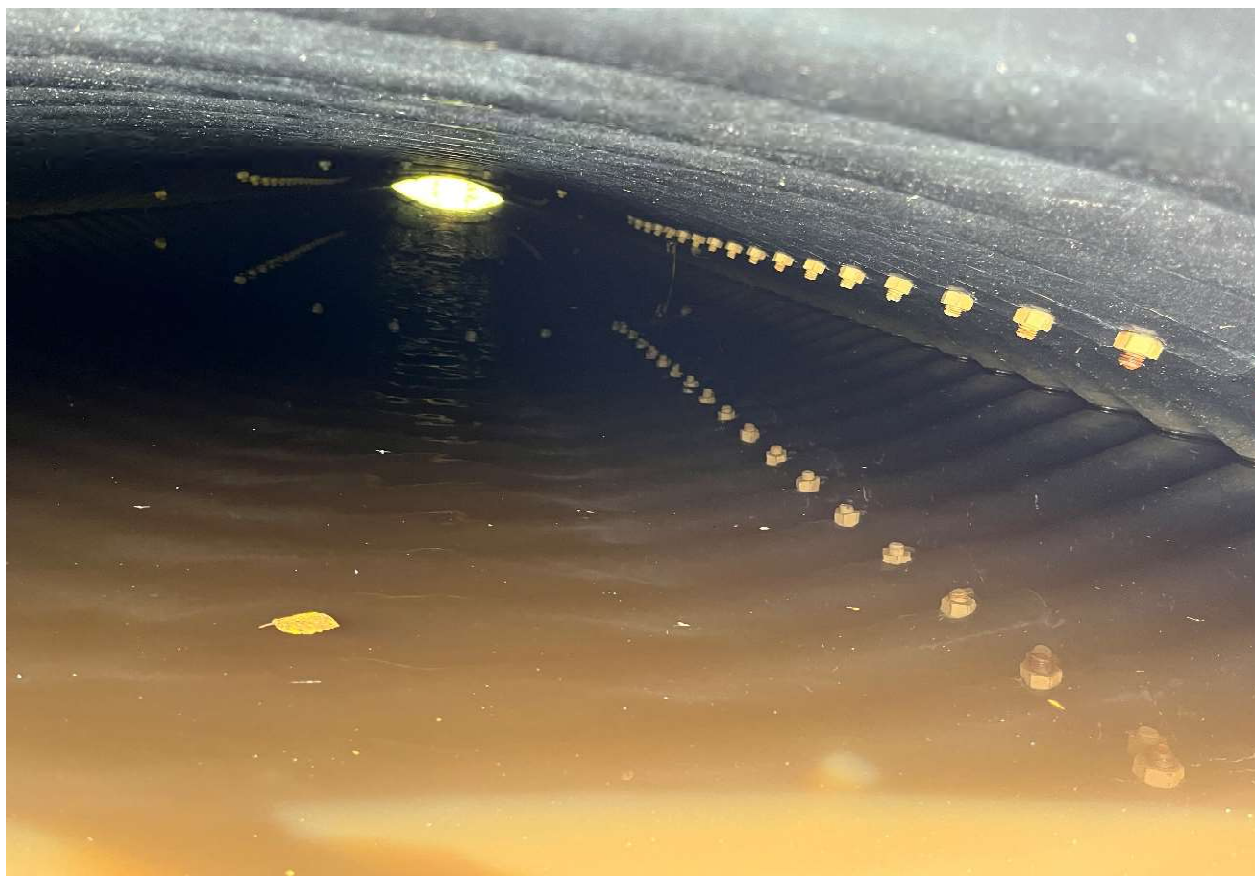
Description of Photo: Culvert barrel, typ.

Element Photo:



Description of Photo: Culvert barrel, typ.

Element Photo:



Description of Photo: Culvert barrel, typ.

Element Photo:



Description of Photo: Scratch on the coating

Element Photo:



Description of Photo: Culvert barrel, typ.

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Streams and Waterways	Width:				
Location:		Height:				
Material:		Count:				
Element Type:		Total Quantity:	all			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	all	x				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Watercourse

Element Photo:



Description of Photo: Watercourse

Element Photo:

Description of Photo:

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Embankments	Width:				
Location:		Height:				
Material:	Rocks	Count:	6			
Element Type:	Riprap	Total Quantity:	6			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each	6				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Embankment, typ.

Element Photo:



Description of Photo: Embankment, typ.

Element Photo:

Description of Photo:

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Slope Protection	Width:				
Location:		Height:				
Material:	Rock	Count:	6			
Element Type:		Total Quantity:	6			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	each		6			

Comments: Loss of material is less than 20%.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

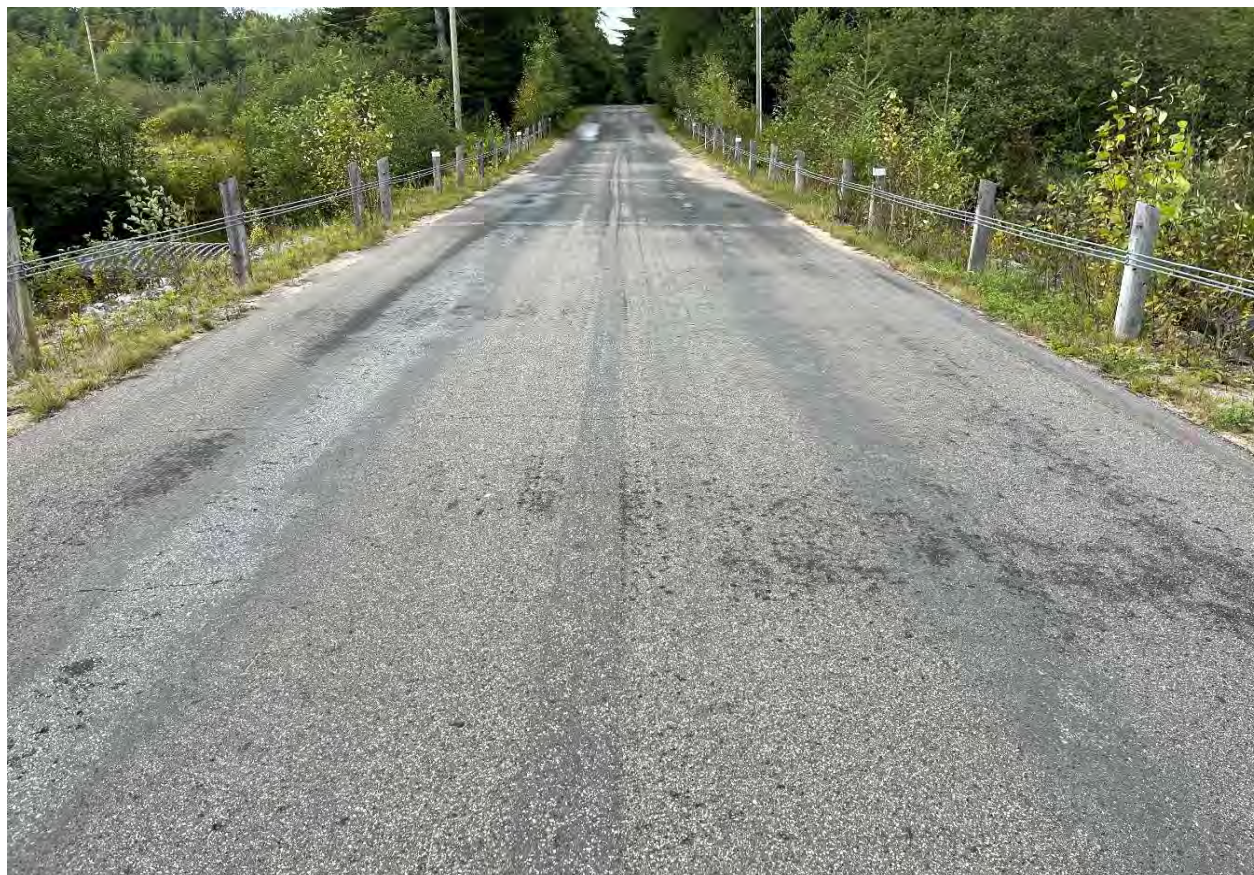
Description of Photo: Slope protection, typ.

Element Data:

Element Group:	Approaches		Length:	19.6		
Element Name:	Wearing Surface		Width:	5.8		
Location:			Height:			
Material:	Asphalt		Count:	1		
Element Type:			Total Quantity:	113.7		
Environment:	Severe		Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>		
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m		110.1	3.6		

Comments: Light ravelling, typ. 5 - full width light to medium transverse cracks.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Approach wearing surface - looking east

Element Photo:



Description of Photo: Approach wearing surface - looking west

Element Photo:



Description of Photo: Transverse crack

Element Data:

Element Group:	Approaches		Length:	86.0		
Element Name:	Barrier		Width:			
Location:			Height:			
Material:	Steel and Wood		Count:	2		
Element Type:	Wood post and steel cable		Total Quantity:	172.0		
Environment:	Severe		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	m		162.0	10.0		

Comments: Light to medium splits in posts, typ. No other observed defects.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: South approach guide rail

Element Photo:



Description of Photo: North approach guide rail

Element Photo:



Description of Photo: Post deterioration, typ.

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

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	\$0.00
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Justification: Culverts are in excellent condition. No recommended work at this time.

Inventory Data:

Structure Name	C12 - Arthur Schulz Culvert				
Main Highway #	Arthur Schulz Road	On <input checked="" type="checkbox"/> or Under <input type="checkbox"/>	Service on Structure	<input type="checkbox"/> Navig. Water <input type="checkbox"/> Non-Navig. Water	
				<input type="checkbox"/> Rail <input checked="" type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Location Description	0.1 km South of Beiers Rd (Muskoka Road 19)	Service under:	<input type="checkbox"/> Navig. Water <input checked="" type="checkbox"/> Non-Navig. Water	<input type="checkbox"/> Rail <input type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Owner/Custodian	Gravenhurst				
MTO Region	Northeastern	Latitude	44.857054	Longitude	-79.350935
Regional Engineer		Heritage Designation:	<input checked="" type="checkbox"/> Not Cons. <input type="checkbox"/> Cons./Not App. <input type="checkbox"/> List/Not Desig. Desig. <input type="checkbox"/> Desig./Not List <input type="checkbox"/> Desig. & List		
MTO Area		Hwy Class:	Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input type="checkbox"/> Local <input checked="" type="checkbox"/>		
Old County		Posted Speed	50	No. of Lanes	2
Township	Gravenhurst	AADT	300	% Truck	
Structure Type 1	CSP Round Pipe				
Structure Material 1	Steel	Traffic Directional Bound	N-S		
Structure Type 2					
Structure Material 2					
Total Deck Length	15.4 (m)	Inspection Frequency	2 (years)		
Overall Str. Width	8.1 (m)	Inspection Year	odd		
Culvert Length	15.0 (m)	Inspection Duration	2 (hrs)		
Total Deck Area	124.74 (sq.m)				
Roadway Width	7.1 (m)	Min. Vertical Clearance			
Skew Angle	(Degree)	Detour Distance	8.0 (km)		
No. of Spans	3	Fill on Structure			
Span Lengths	3.3, 3.3, 3.3 (m)				
<u>For retaining wall:</u>					
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	2020	Year of superstruct. Constructed	
Last Reg. OSIM Inspection	2021	Year of Last Minor Rehab.	
Last Enh. OSIM Inspection		Year of Last Major Rehab	
		Current Load Limit	/ / (tonnes)

Work History: (Date/description)

2020: Culvert was replaced

Investigation History: (Date/description)

Field Inspection Information:						
Date of Inspection:	September 13, 2023		Type of Inspection:	<input checked="" type="checkbox"/> Reg. OSIM	<input type="checkbox"/> Enh. OSIM	
Inspected By	Junjie Yang					
Others in Party:						
Enh. Access Equipment:						
Special Access Equipment						
Weather	Clear	Temperature	22 °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 mov SPCSP Arch Culvert			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	<input checked="" type="checkbox"/> None <input type="checkbox"/> Minor Rehab. <input type="checkbox"/> Major Rehab. <input type="checkbox"/> Replace					
Timing of Recommended Work	<input type="checkbox"/> Urgent <input type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years					
Overall Comments:	The structure is in excellent condition. Small hole on the north culvert wall to be repaired.					
Date of Next inspection:	2025					
Overall Bridge Condition						
% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIP)		
0%	0%	0%	0%	BCIP 99.98	BCI 99.39	
Overall Bridge Sufficiency						
Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)		
0	2	0	0	97.39		

Element Data:

Element Group:	Culverts	Length:	15.0			
Element Name:	Barrels	Width:	3.3			
Location:		Height:	3.3			
Material:	Steel	Count:	3			
Element Type:	CSP Round Pipe	Total Quantity:	466.3			
Environment:	Benign	Inspected	Yes	<input checked="" type="checkbox"/>	No	<input type="checkbox"/> limited <input type="checkbox"/>
Protection System:	Polymer Coated					Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m	456.5	9.3		0.5	

Comments: A 150 mm long hole noted on the north culvert east end, likely occurred during construction. The middle culvert is slightly sag at the mid span. Light deformation and light corrosion noted at culvert end. No other observed defects.

Recommended Work:	Rehab: <input type="checkbox"/> Replace: <input type="checkbox"/>	Maintenance Needs:	18 - Other Maintenance
Urgent: <input type="checkbox"/> 1-5 Years: <input type="checkbox"/> 6-10 Years: <input type="checkbox"/> None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input checked="" type="checkbox"/>	Repair hole	

Element Photo:

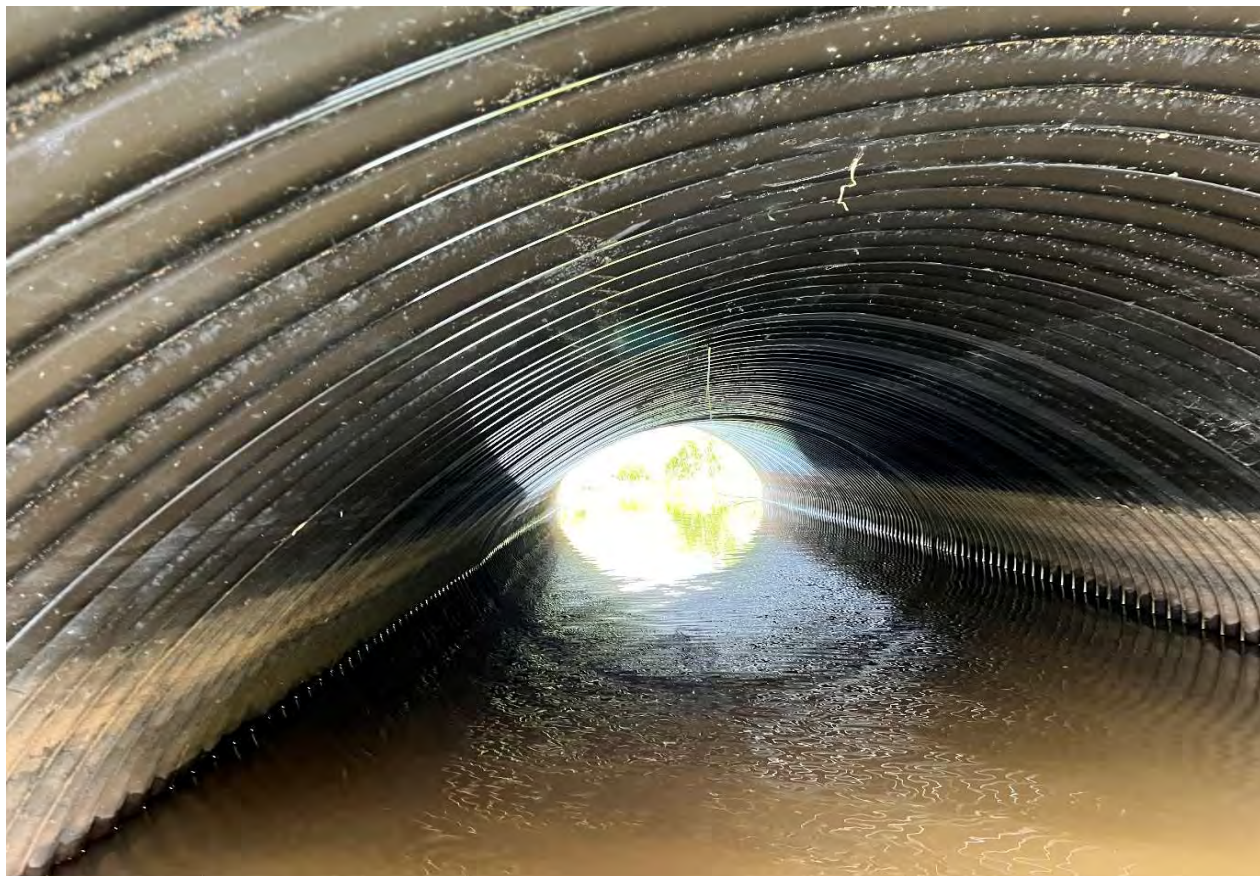
Description of Photo: Culvert barrel, typ.

Element Photo:



Description of Photo: Damage on culvert barrel

Element Photo:



Description of Photo: Culvert barrel, typ.

Element Photo:



Description of Photo: Sag at mid area

Element Photo:



Description of Photo: Deformation at culvert barrel end

Element Data:

Element Group:	Embankments & Streams	Length:				
Element Name:	Streams and Waterways	Width:				
Location:		Height:				
Material:		Count:				
Element Type:		Total Quantity:	all			
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>			
Protection System:						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Performance Deficiencies
	all	x				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Watercourse

Element Photo:



Description of Photo: Watercourse

Element Photo:

Description of Photo:

Element Data:

Element Group:	Embankments & Streams		Length:			
Element Name:	Embankments		Width:			
Location:			Height:			
Material:	Stone		Count:	8		
Element Type:			Total Quantity:	8		
Environment:	Benign		Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>		
Protection System:	Rip Rap					Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	each	8				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	--	Maintenance Needs:	--
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:**Description of Photo:** Embankment, typ.

Element Photo:



Description of Photo: Embankment, typ.

Element Photo:



Description of Photo: Embankment, typ.

Element Data:

Element Group:	Embankments & Streams		Length:			
Element Name:	Slope Protection		Width:			
Location:			Height:			
Material:	Rock		Count:	8		
Element Type:			Total Quantity:	8		
Environment:	Benign		Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>		
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	each		8			

Comments: **Loss of material is less than 20%.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Slope protection

Element Data:

Element Group:	Approaches		Length:	26.6		
Element Name:	Wearing Surface		Width:	7.1		
Location:			Height:			
Material:	Asphalt		Count:	1		
Element Type:			Total Quantity:	189.2		
Environment:	Severe		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m	189.2				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:**Description of Photo:** Approach wearing surface - looking north

Element Photo:



Description of Photo: Approach wearing surface - looking south

Element Photo:



Description of Photo: Approach wearing surface

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

1 - Indicate specific costs for structure 7.1

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		\$0.00

Justification:
Culvert was replaced in 2020 with 3 polymer coated culvert barrels. Maintenance: repairs to the hole on the north barrel. Otherwise structure is in excellent condition.

Inventory Data:

Structure Name	Laycox Road Culvert				
Main Highway #	11	On <input checked="" type="checkbox"/> or Under <input type="checkbox"/>	Service on Structure	<input type="checkbox"/> Navig. Water <input type="checkbox"/> Non-Navig. Water	<input type="checkbox"/> Rail <input checked="" type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other
Location Description	0.17 km south of Doe Lake Rd	Service under:	<input type="checkbox"/> Navig. Water <input checked="" type="checkbox"/> Non-Navig. Water	<input type="checkbox"/> Rail <input type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Owner/Custodian	Township of Gravenhurst				
MTO Region		Latitude	44.931585	Longitude	-79.325326
Regional Engineer		Heritage Designation:	<input checked="" type="checkbox"/> Not Cons. <input type="checkbox"/> Cons./Not App. <input type="checkbox"/> List/Not Desig. Desig. <input type="checkbox"/> Desig./Not List <input type="checkbox"/> Desig. & List		
MTO Area		Hwy Class:	Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input type="checkbox"/> Local <input checked="" type="checkbox"/>		
Old County		Posted Speed	50	No. of Lanes	2
Township	Gravenhurst	AADT	0-49	% Truck	
Structure Type 1	Round Pipe				
Structure Material 1	HDPE				
Structure Type 2					
Structure Material 2					
Total Deck Length	14.9	(m)	Inspection Frequency	2	(years)
Overall Str. Width		(m)	Inspection Year	odd	
Culvert Length	8.6	(m)	Inspection Duration	2	(hrs)
Total Deck Area	128.1	(sq.m)			
Roadway Width	7.0	(m)	Min. Vertical Clearance		(m)
Skew Angle		(Degree)	Detour Distance	0.6	(km)
No. of Spans	2		Fill on Structure	0.9	(m)
Span Lengths	1.2 / 1.2 (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	2023	Year of superstruct. Constructed	
Last Reg. OSIM Inspection	None	Year of Last Minor Rehab.	
Last Enh. OSIM Inspection		Year of Last Major Rehab	
		Current Load Limit	/ / (tonnes)

Work History: (Date/description)

Structure was replaced in 2023.

Investigation History: (Date/description)

Field Inspection Information:				
Date of Inspection:	October 18, 2023	Type of Inspection:	<input checked="" type="checkbox"/> Reg. OSIM	<input type="checkbox"/> Enh. OSIM
Inspected By	David Middlebrook			
Others in Party:				
Enh. Access Equipment:				
Special Access Equipment				
Weather	Clear	Temperature	10 °C	
Additional Investigations Required:		Priority		Estimated Cost
		None	Normal	Urgent
Material Condition Survey				
Detailed Deck Condition Survey:				
Non-destructive Delamination Survey of Asphalt-Covered Deck:				
Concrete Substructure Condition Survey:				
Detailed Coating Condition Survey:				
Detailed Timber Investigation:				
Post-Tensioned Strand Investigation:				
Underwater Investigation				
Fatigue Investigation				
Seismic Investigation				
Structure Evaluation:				
Monitoring				
Deformations, Settlements and Movements:				
Crack Widths:				
RSS Horizontal movements of face:				
RSS Vertical movements of overall structure:				
RSS Local movements or deterioration of face elements:				
RSS Horizontal movements within overall structure:				
RSS Vertical movements within overall structure				
RSS Lateral earth pressure at the back of facing elements				
Investigation Notes:			Total Cost	\$0.00
Overall Structure Notes:				
Recommended Work on Structure	<input checked="" type="checkbox"/> None <input type="checkbox"/> Minor Rehab. <input type="checkbox"/> Major Rehab. <input type="checkbox"/> Replace			
Timing of Recommended Work	<input type="checkbox"/> Urgent <input type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years			
Overall Comments:	The structure was replaced in 2023, and is in excellent condition.			
Date of Next inspection:	2025			
Overall Bridge Condition				
% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIP)
0%	0%	0%	0%	BCIP 100.00
				BCI 100.00
Overall Bridge Sufficiency				
Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)
0	2	0	0	98.00

Element Group:	Culverts			Length:	8.6	
Element Name:	Barrels			Width:	1.2	
Location:				Height:	1.2	
Material:	HDPE			Count:	2	
Element Type:	Round Pipe			Total Quantity:	64.8	
Environment:	Benign			Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m	64.8				

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Laycox Rd Culvert

Element Photo:



Description of Photo: Culvert barrel, typ.

Element Photo:

Description of Photo:

Element Data:

Element Group:	Embankments & Streams	Length:	
Element Name:	Streams and Waterways	Width:	
Location:		Height:	
Material:		Count:	
Element Type:		Total Quantity:	all
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	all	x	
		Fair	Poor*
			Performance Deficiencies

Comments: No observed defects.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Watercourse

Element Photo:



Description of Photo: Watercourse

Element Photo:

Description of Photo:

Element Data:

Element Group:	Embankments & Streams	Length:	
Element Name:	Embankments	Width:	
Location:		Height:	
Material:		Count:	6
Element Type:		Total Quantity:	6
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	each	6	
		Fair	Poor*
			Performance Deficiencies

Comments: No observed defects.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
			Urgent: <input type="checkbox"/>
			1 Year: <input type="checkbox"/>
			2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Embankment, typ.

Element Photo:



Description of Photo: Embankment, typ.

Element Photo:

Description of Photo:

Element Data:

Element Group:	Embankments & Streams	Length:	
Element Name:	Slope Protection	Width:	
Location:		Height:	
Material:	Rock	Count:	6
Element Type:	Riprap	Total Quantity:	6
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	each	6	
		Fair	Poor*
			Performance Deficiencies

Comments: No observed defects.

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Slope protection, typ.

Element Data:

Element Group:	Approaches	Length:	14.9
Element Name:	Wearing Surface	Width:	7.0
Location:		Height:	
Material:	Asphalt	Count:	1
Element Type:		Total Quantity:	104.3
Environment:	Severe	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>

Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m	104.3				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Approach wearing surface - looking north

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

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	\$0.00
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Justification:
The structure was replaced in 2023, and is in excellent condition. No recommended work at this time.

Inventory Data:

Structure Name	South Kashe Lake Road Culvert				
Main Highway #	11	On <input checked="" type="checkbox"/> or Under <input type="checkbox"/>	Service on Structure	<input type="checkbox"/> Navig. Water <input type="checkbox"/> Non-Navig. Water	
				<input type="checkbox"/> Rail <input checked="" type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Location Description	0.08km east of Tryon Dr	Service under:	<input type="checkbox"/> Navig. Water <input checked="" type="checkbox"/> Non-Navig. Water	<input type="checkbox"/> Rail <input type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other	
Owner/Custodian	Township of Gravenhurst				
MTO Region		Latitude	44.844513	Longitude	-79.313739
Regional Engineer		Heritage Designation:	<input checked="" type="checkbox"/> Not Cons. <input type="checkbox"/> Cons./Not App. <input type="checkbox"/> List/Not Desig.		
			Desig. <input type="checkbox"/> Desig./Not List <input type="checkbox"/> Desig. & List		
MTO Area		Hwy Class:	Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input type="checkbox"/> Local <input checked="" type="checkbox"/>		
Old County		Posted Speed	40	No. of Lanes	2
Township	Gravenhurst	AADT	50-199	% Truck	
Structure Type 1	Round Pipe				
Structure Material 1	HDPE	Traffic Directional Bound	E-W		
Structure Type 2					
Structure Material 2		Inspection Frequency	2	(years)	
Total Deck Length	13.5	(m)	Inspection Year	odd	
Overall Str. Width		(m)	Inspection Duration	2	(hrs)
Culvert Length	21.0	(m)			
Total Deck Area	283.5	(sq.m)			
Roadway Width	7.0	(m)	Min. Vertical Clearance		(m)
Skew Angle		(Degree)	Detour Distance	None	(km)
No. of Spans	1		Fill on Structure	0.6	(m)
Span Lengths	1.5				(m)
<u>For retaining wall:</u>					
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	2023	Year of superstruct. Constructed	
Last Reg. OSIM Inspection		Year of Last Minor Rehab.	
Last Enh. OSIM Inspection		Year of Last Major Rehab	
		Current Load Limit	/ / (tonnes)

Work History: (Date/description)

The structure was replaced in 2023.

Investigation History: (Date/description)

Field Inspection Information:				
Date of Inspection:	October 18, 2023	Type of Inspection:	<input checked="" type="checkbox"/> Reg. OSIM	<input type="checkbox"/> Enh. OSIM
Inspected By	David Middlebrook			
Others in Party:				
Enh. Access Equipment:				
Special Access Equipment				
Weather	Clear	Temperature	10 °C	
Additional Investigations Required:		Priority		Estimated Cost
		None	Normal	
Material Condition Survey				
Detailed Deck Condition Survey:				
Non-destructive Delamination Survey of Asphalt-Covered Deck:				
Concrete Substructure Condition Survey:				
Detailed Coating Condition Survey:				
Detailed Timber Investigation:				
Post-Tensioned Strand Investigation:				
Underwater Investigation				
Fatigue Investigation				
Seismic Investigation				
Structure Evaluation:				
Monitoring				
Deformations, Settlements and Movements:				
Crack Widths: Gravenhurst				
RSS Horizontal movements of face:				
RSS Vertical mov Round Pipe				
RSS Local movements or deterioration of face elements:				
RSS Horizontal movements within overall structure:				
RSS Vertical movements within overall structure				
RSS Lateral earth pressure at the back of facing elements				
Investigation Notes:		Total Cost		\$0.00
Overall Structure Notes:				
Recommended Work on Structure	<input checked="" type="checkbox"/> None <input type="checkbox"/> Minor Rehab. <input type="checkbox"/> Major Rehab. <input type="checkbox"/> Replace			
Timing of Recommended Work	<input type="checkbox"/> Urgent <input type="checkbox"/> 1 to 5 years <input type="checkbox"/> 6 to 10 years			
Overall Comments:	The structure was replaced in 2023, and is in excellent condition.			
Date of Next inspection:	2025			
Overall Bridge Condition				
% Poor in Deck	% Poor in Beams	% Poor in Substructure	% Poor in Barrier	Bridge Condition Index (BCI or BCIP)
0%	0%	0%	0%	BCIP 100.00
				BCI 100.00
Overall Bridge Sufficiency				
Traffic	Economic	Width	Alignment	Bridge Sufficiency Index (BSI)
0	2	0	0	98.00

Element Data:

Element Group:	Culverts	Length:	21
Element Name:	Barrels	Width:	1.5
Location:		Height:	1.5
Material:	HDPE	Count:	1
Element Type:	Round Pipe	Total Quantity:	98.9
Environment:	Benign	Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>
Protection System:			
Condition Data:	Units	Excellent	Good
	sq.m	98.9	
		Fair	Poor*

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>
Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>	

Element Photo: Gravenhurst



Description of Photo: Culvert barrel, typ.

Element Photo:



Description of Photo: Culvert barrel, typ.

Element Photo:

Description of Photo:

Element Data:						
Element Group:	Embankments & Streams		Length:			
Element Name:	Streams and Waterways		Width:			
Location:			Height:			
Material:			Count:			
Element Type:			Total Quantity:	all		
Environment:	Benign		Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>		
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	all	x				
Comments: No observed defects.						
Recommended Work:		Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:		
Urgent: <input type="checkbox"/>		1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>	

Element Photo:
 Gravenhurst



Description of Photo:
 Watercourse

Element Photo:



Description of Photo: Watercourse

Element Photo:

Description of Photo:

Element Data:

Element Group:	Embankments & Streams		Length:			
Element Name:	Embankments		Width:			
Location:			Height:			
Material:			Count:	4		
Element Type:			Total Quantity:	4		
Environment:	Benign		Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>		
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	each	4				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:			
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo:

Description of Photo: Embankment, typ.

Element Data:						
Element Group:	Embankments & Streams		Length:			
Element Name:	Slope Protection		Width:			
Location:			Height:			
Material:	Rock		Count:	4		
Element Type:	Riprap		Total Quantity:	4		
Environment:	Benign		Inspected	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> limited <input type="checkbox"/>		
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	each	4				
Comments: No observed defects.						
Recommended Work:		Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:		
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/>	1 Year: <input type="checkbox"/>	2 Year: <input type="checkbox"/>

Element Photo: Gravenhurst



Description of Photo: Slope protection, typ.

Element Data:

Element Group:	Approaches		Length:	13.5		
Element Name:	Wearing Surface		Width:	7.0		
Location:			Height:			
Material:	Asphalt		Count:	1		
Element Type:			Total Quantity:	94.5		
Environment:	Severe		Inspected	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	limited <input type="checkbox"/>
Protection System:						Performance Deficiencies
Condition Data:	Units	Excellent	Good	Fair	Poor*	
	sq.m	94.5				

Comments: **No observed defects.**

Recommended Work:	Rehab: <input type="checkbox"/>	Replace: <input type="checkbox"/>	Maintenance Needs:	
Urgent: <input type="checkbox"/>	1-5 Years: <input type="checkbox"/>	6-10 Years: <input type="checkbox"/>	None: <input checked="" type="checkbox"/>	Urgent: <input type="checkbox"/> 1 Year: <input type="checkbox"/> 2 Year: <input type="checkbox"/>

Element Photo: Gravenhurst**Description of Photo:** Approach wearing surface, typ.

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

- 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	\$0.00
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Justification:
Structure was replaced in 2023, and is in excellent condition. No recommended work at this time.

Appendix B: 10-Year Capital Plan

2023 Inspection Cycle: 10 Year Implementation Plan

Project Title and description	OSIM ID	Structure Type	Current Load Limit	Year Built	Major Rehab	Time of Need	BSI											
								1 - 5 Years					6 - 10 Years					
								2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	Total
Bridges and Culverts																		
Replacement																		
Fire Route A1 Bridge	11	bridge	-	unknown	n/a	6 - 10 Years	41.16								\$ 590,000			\$ 590,000
Rehabilitation																		
Barkway Road Culvert	201	culvert	-	1960	n/a	1 - 5 Years	17.40				\$ 577,000							\$ 577,000
No Work Recommended																		
Robinson's Bridge	1	bridge	-	1982	2023	n/a	78.15											\$ -
Beau Creek Bridge	4	bridge	-	1976	2023	n/a	75.78											\$ -
Kahshe River Bridge	5	bridge	-	2004	2023	n/a	68.88											\$ -
Pinetree Bridge	6	bridge	-	2010	2024	n/a	76.27											\$ -
Narrows Road Bridge	7	bridge	-	1970	2014	n/a	80.04											\$ -
Hopkins Road Bridge	9	bridge	-	2020	n/a	n/a	92.59											\$ -
Highway 11 Snowmobile Bridge	42-328	bridge	-	2002	2019	n/a	89.53											\$ -
Merkley Road Culvert	202	culvert	-	2018	2018	n/a	84.52											\$ -
Barkway Road Culvert	203	culvert	-	2014	n/a	n/a	97.48											\$ -
Riley Lake Culvert	204	culvert	-	2015	n/a	n/a	98.00											\$ -
Sniders Bay Culvert	C8	culvert	-	2020	n/a	n/a	97.00											\$ -
Seehaver Road Culvert	C10	culvert	-	2014	n/a	n/a	93.48											\$ -
Arthur Schulz Road Culvert	C12	culvert	-	2019	n/a	n/a	97.39											\$ -
South Kashe Lake Rd Culvert	None	culvert	-	2023	n/a	n/a	98.00											\$ -
Laycox Road Culvert	None	culvert	-	2023	n/a	n/a	98.00											\$ -
Total																		\$ 1,167,000