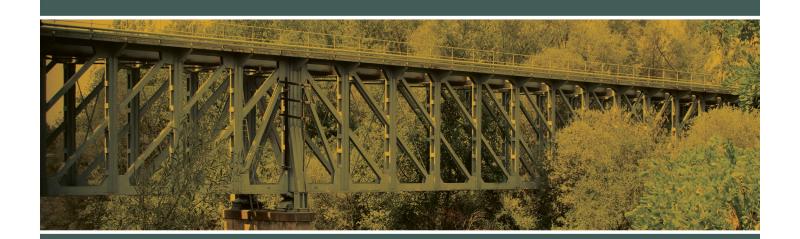


Enhancing our communities



Area Bridge Needs Study

TOWN OF GRAVENHURST

Inspection Summary Report

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219532 **Tatham Engineering Limited** The Municipality of Gravenhurst

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Bracebridge, Ontario P1L 0A1 Gravenhurst, Ontario P1P 1Z3 Date: March **T** 705-645-7756 18, 2020

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Issue	Date	Description
1	Oct. 4, 2019	Draft Report
2	March 18, 2020	Final Report

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Appendix A: OSIM Forms



1 Introduction

The purpose of the *Bridge Needs Study* is to provide a current inventory of bridge structures, and a benchmark cost analysis for construction needs/improvements.

Inventories were conducted for all structures exceeding 3 metres in span within the Town boundaries as illustrated in Figure 1. To ensure compliance with Ministry of Transportation guidelines and consistency with the previous studies, the inventories were completed in accordance with the Ontario Structure Inspection Manual¹.

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

- protect and prolong the useful life of its bridge structures;
- identify maintenance, repair and rehabilitation needs; and
- provide a basis for a management system for the planning and funding of the necessary maintenance and rehabilitation of each system.

1.1 **DEFINITIONS**

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

Corrosion: The deterioration of steel by chemical or electro-chemical reaction resulting from exposure to air, moisture, de-icing salts, industrial fumes and other chemicals and contaminants in the environment in which it is placed.

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

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



¹ Ontario Structure Inspection Manual (OSIM). Ministry of Transportation, May 2018.

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

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

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

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

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



2 Structure Investigation

All road structures with a span of 3 metres or greater, were investigated and inventoried. This chapter details the results of the inventory and identifies corresponding deficiencies.

2.1 INVENTORY & APPRAISAL GUIDELINES

The structure inventory was conducted according to the procedures set forth in the *Ontario Structure Inspection Manual* (OSIM). The OSIM sets standards for detailed visual inspection and condition rating of structures and their components. It provides a uniform inspection approach for all 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 *Ontario Structure Inspection Manual*, 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.).

Several structures were identified as requiring an enhanced OSIM inspection such as the Beau Creek bridge, Lot 31 Concession 4/5 bridge on Pinetree Road, the Lot 10/11 Concession 10 bridge on Hopkins Road, the Fire Route A1 bridge and the Lots 15/16 Concession 10 culvert. In addition to the regular element by element inspection, the enhanced OSIM includes:

- tapping all areas of concrete with a hammer to determine the limits of delamination and spalling;
- tapping all 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 all areas of steel, including connections, to ascertain section loss.



As per the Ontario Structure Inspection Manual, bridges and culverts are defined as follows:

Bridge

A structure which provides a roadway or walkway for the passage of vehicles across an obstruction, gap or facility and which is greater than 3 metres in span.

Culvert

Any bridge that is embedded in fill and is used to convey water, pedestrians or animals through it.

2.2 BRIDGE & CULVERT INVENTORY

In total, 13 structures were inventoried - 8 bridges and 5 culverts. Reviews were undertaken in late summer 2019 when water levels were lowest (thus permitting improved access). Notwithstanding, at several structures, a full review was not possible due to the high water levels. The bridge inspection forms are included in Appendix A.

2.3 BRIDGE & CULVERT ASSESSMENT

2.3.1 Identification of Needs & Improvements

For each individual bridge or culvert element, suspected performance deficiencies and maintenance needs along with recommended improvements have been identified based on the visual assessment. A summary of the assessment, as it pertains to the identified needs and deficiencies, is presented in Table 1 for the bridges and Table 2 for the culverts. In total, there are 49 deficiencies noted including 26 suspected performance deficiencies and 23 maintenance needs.

Table 1: Bridge Deficiencies

BRIDGE	ELEMENT	PERFORMANCE /MAINTENANCE ISSUE	TIMELINE FOR CORRECTION	DETAILS OF DEFICIENCY OR NEED AND RECOMMENDED STRATEGY TO ADDRESS
1 -	Deck	Performance	1-5 Years	 Patch soffit concrete
Robinson Bridge		Performance	6-10 Years	Patch waterproof & pave
Bridge		Maintenance	1 Year	Bridge cleaning
2.34 km	Joints	Maintenance	1 Year	Clean out seals
west of Highway 11	Drains	Maintenance	1 year	 Clean out wall drains
	Approaches	Maintenance	1 Year	Pothole repair
11	Barriers	Maintenance	1 Year	Clean barriers
	Retaining wall	Performance	1-5 Years	 Replace wall
4 - Beau	Deck	Performance	6-10 Years	Repave surface
Creek		Maintenance	1 Year	 Bridge and sign cleaning
Bridge		Maintenance	1 Year	 Rout and seal cracks



BRIDGE	ELEMENT Drains	PERFORMANCE /MAINTENANCE ISSUE Performance	TIMELINE FOR CORRECTION 6-10 Years	DETAILS OF DEFICIENCY OR NEED AND RECOMMENDED STRATEGY TO ADDRESS • Extend deck drains
1.5 km		Maintenance	1 Year	Surface cleaning
east of	Approaches Barrier	Maintenance	1 Year	Surface cleaningClean barriers
District	Embankment	Performance	1-5 Years	Install rock protection
Road 17 5 -	Deck	Maintenance	1-3 rears	Bridge cleaning
Kahshe River Bridge	Wingwalls	Performance	1-5 Years	 Concrete crack repair
1.22 km east of Highway 11				
6 - Lot 31, Conc 4/5	Abutments & Wingwalls	Performance	6-10 Years	 Repair timber cribs
0.441	Approaches	Performance	1-5 Years	 Install approach barrier
2.44 km north of North Muldrew Lake Road	Bridge	Maintenance	1 Year	Bridge cleaning
7 -	Deck	Maintenance	1 Year	Bridge cleaning
Narrows Road Bridge	Signs	Maintenance	1 Year	 Install object warning marker signs
0.22 km east of Highway 169				
8 -	Embankment	Performance	1-5 Years	Repair washouts
Sniders Bay	Approach guide rail	Performance	1-5 Years	 Install approach barrier
Bridge	Approaches	Maintenance	1 Year	Repair potholes
0.5 km	Deck	Maintenance	1 Year	Bridge cleaning
west of		Performance	1-5 Years	Replace
District	Barrier	Performance	1-5 Years	Replace barrier
Road 169	Signs	Maintenance	1 Year	 Add one lane tab to sign
	Abutments	Performance	1-5 Years	Concrete repairs
	Girders	Performance	1-5 Years	Replace
9 - Lot	Deck	Performance	1-5 Years	Replace running boards
10/11 Conc 10		Maintenance	1 Year	Bridge cleaning
00110 10	Approach	Performance	1-5 Years	Install approach barrier
0.57 km	Curb	Performance	1-5 Years	Replace
south of Merkley	Signs	Maintenance	1 Year	 Install 4th object warning marker sign
Road	Abutments	Performance	1-5 Years	 Replace cribs
	Embankment	Performance	1-5 Years	Repair washout



BRIDGE	ELEMENT	PERFORMANCE /MAINTENANCE ISSUE	TIMELINE FOR CORRECTION	DETAILS OF DEFICIENCY OR NEED AND RECOMMENDED STRATEGY TO ADDRESS
	Watercourse	Maintenance	1 Year	Clear debris
	Bearings	Maintenance	1 Year	Clean bearing seats
11 - Fire	Deck	Performance	1-5 Years	Replace
Route A1	Abutment	Performance	1-5 Years	Replace
Bridge	Embankment	Performance	1-5 Years	Repair washouts
1.0 km south of Merkley Road	Approaches	Performance	1-5 Years	 Install approach barrier

Table 2: Culvert Deficiencies

CULVERT	ELEMENT	PERFORMANCE /MAINTENANCE ISSUE	TIMELINE FO	AND PECOMMENDED
201 - Lots	Deck	Performance	1-5 Years	Rout & seal cracks
15/16, Conc 10		Maintenance	1 Year	Bridge cleaning
COIIC 10	Embankment	Performance	1-5 Years	 Install slope protection
1.5 km south of Merkley Road	Signs	Maintenance	1 Year	 Install object warning marker signs
202 - Lot 6, Conc 10/11	Culvert	Maintenance	1 Year	 Remove debris from overflow culvert
4.1 km east of Barkway Road				

A summary of the 26 performance deficiencies and 23 maintenance needs by time of need is provided in Table 3.

Table 3: Summary of Performance Deficiencies & Maintenance Needs

PERFORMANCE DEFICIENCY TIME OF NEED				MAINTENA TIME O			
URGENT	1-5 YRS	6-10 YRS	TOTAL	TAL URGENT <1 YEAR 1-2 YRS			
0	22	4	26	0	0	23	23

In conjunction with the identified deficiencies, the following are also noted:



- Given the condition assessment and estimated costs to repair the existing structures, complete replacement is recommended for the Fire Route A1 (11), Sniders Bay Bridge (8) and the Lot 10/11 Concession 10 bridge (9).
- Some of the existing structures' railing systems on the approach and over the structure do not meet the Bridge Code. Therefore, it is recommended that whenever major rehabilitation is planned on a bridge, the Town confirm the railing adequacy and conformance to the Bridge Code. This will be especially important when installing or replacing approach guiderail. It should be noted that the Bridge Code for railings/guiderail directly corresponds to the posted speed limit and traffic volumes. As such, the wood railings in place at some bridges can be replaced with a similar system if the traffic volumes allow it and the posted speed limit is reduced to 40 km/h (and motorists adhere to the posted speed limit).

2.3.2 Improvement Costs

Cost estimates to address the noted deficiencies are provided in Table 4 and Table 5 for bridges and culverts respectively. Where necessary, the need for additional investigations has also been identified and appropriately included in the cost estimate. Furthermore, the estimated replacement value for a number of the structures has been provided. It is recommended that the Town consider the replacement cost in addition to the required improvement costs to determine which program (ie. repair or replace) is the most cost effective. In total, the bridge improvements equate to \$2.07M whereas the culvert improvements total \$6,000.

Table 4: Bridge Improvement Costs

NO.	LOCATION	RECOMMENDE	REPLACEMENT		
NO.	LOCATION	DESCRIPTION	TIME OF NEED	ESTIMATE	VALUE
1	Robinson Bridge	 Replace retaining wall 	1-5 Years	\$50,000	
	2.34 km west of Highway 11	Patch soffit concrete	1-5 Years	\$10,000	
		Bridge cleaning	1 Year	\$1,500	
		Repave Approaches	6-10 Year	\$15,000	
		 Patch waterproof and pave 	6-10 Year	\$115,000	
		Traffic control	1-5 Years	\$10,000	
		Contingency	1-5 Years	\$25,000	
		 Mobilization and demobilization; general; insurance 	1-5 Years	\$50,000	



		RECOMMENDE	MENT		
NO.	LOCATION		TIME OF		REPLACEMENT
		DESCRIPTION	NEED	ESTIMATE	VALUE
4	Beau Creek	 Repave surface 	6-10 Year	\$40,000	
	Bridge	Bridge cleaning	1 Year	\$2,000	
		Extend deck drains	6-10 Year	\$3,000	
	1.5 km east of	Install rock	1-5 Years	\$10,000	
	District Road 17	protection	4 = 1/	44 = 000	
		Traffic control	1-5 Years	\$15,000	
		ContingencyMobilization and	1-5 Years	\$30,000	
		demobilization;	1-5 Years	\$40,000	
		general; insurance	1-3 16013	φ40,000	
5	Kahshe River	Concrete crack	1-5 Years	\$5,000	
	Bridge	repair		, , , , , ,	
		Bridge cleaning	1 Year	\$2,000	
	1.22 km east of	Rout and seal	1-5 Years	\$2,000	
	Highway 11	Sidewalk concrete	1 Year	\$1,000	
		repairs			
6	Lot 31, Conc 4/5	■ Install approach	6-10 Year	\$30,000	
		barrier			
	2.44 km north of	Bridge cleaning	1 Year	\$1,500	
	North Muldrew	Contingency	6-10 Year	\$10,000	
	Lake Road	 Mobilization & 	6-10 Year	\$40,000	
		Demobilization	C 10 V 20 "	¢E 000	
		Detour and signage	6-10 Year	\$5,000	
7	Narrows Road	Bridge cleaning	1 Year	\$1,500	
	Bridge	Install 3 object	1 Year	\$900	
		warning marker			
	0.22 km east of Highway 169	signs			
8	Sniders Bay	Demolition and	1-5 Years		\$610,000
Ü	Bridge	replacement	10 10015		φο10,000
		 Install approach rail 	1-5 Years		\$30,000
	0.5 km west of	Contingency	1-5 Years		\$70,000
	District Road 169	Traffic control	1-5 Years		\$15,000
		 Mobilization and 	1-5 Years		\$75,000
		demobilization;			
9	Lot 10/11, Conc	general; insurance • Demolition and	1-5 Years		\$225,000
J	10	replacement	± 5 1 ears		ΨΖΖΟ,000
	0.57 km south of	Traffic control	1-5 Years		\$5,000
	Merkley Road	Contingency	1-5 Years		\$50,000
		Mobilization and	1-5 Years		\$75,000
		demobilization;			
11	Fine Devil A1	general, insurance	1 5 1/2		¢070.000
11	Fire Route A1	 Demolition and replacement 	1-5 Years		\$270,000
	1.0 km south of	 Detour signage and 	1-5 Years		\$5,000
	Merkley Road	traffic control			
		Contingency	1-5 Years		\$50,000
		 Mobilization and 	1-5 Years		\$75,000
		demobilization;			
		general, insurance			



NO.	LOCATION	RECOMMENDI	REPLACEMENT		
NO.	LOCATION	DESCRIPTION	VALUE		
			TOTALS	\$515,400	\$1,555,000

Table 5: Culvert Improvement Costs

NO.	LOCATION	RECOMMEND	ED IMPROVE	MENT	REPLACEMENT
NO.	LOCATION	DESCRIPTION	TIME OF NEED	ESTIMATE	VALUE
201	Lots 15/16,	Rout & seal cracks	1-5 Years	\$1,500	
	Conc 10	Repair embankments	1-5 Years	\$1,500	
	1.5 km south of Merkley Road	 Install object warning marker signs 	1 Year	\$1,000	
		 Bridge cleaning 	1 Year	\$1,500	
202	Lot 6, Conc 10/11	 Remove debris from overflow culvert 	1 Year	\$500	
	4.1 km east of				
	Barkway Road				
			TOTALS	\$6,000	N/A

A summary of the costs by performance deficiency or maintenance need and time of need is provided in Table 6. Where the recommended solution is complete replacement those costs have been included under the appropriate timeline and necessary repair costs have been excluded.

Table 6: Summary of Performance Deficiencies & Maintenance Needs Costs

STRUCTU	COSTS	RMANCE DEF (\$1000S) F NEED	FICIENCY	MAINTENANCE NEED COSTS (\$1000S) TIME OF NEED					
URGENT	1-5 YRS	6-10 YRS	TOTAL	URGENT	<1 YEAR	1-2 YRS	TOTAL		
\$0	\$1,805	\$258	\$2,063	\$0	\$0	\$13.4	\$13.4		

2.3.3 Additional Investigation

We recommend that additional detailed investigations be completed to monitor the condition of some of the elements over time to confirm if the condition is continuing to worsen or has stabilized.

- Bridge 6 Lot 31, Conc 4/5
 - Monitor deteriorated timber and movements
- Bridge 9 Lots 10/11, Conc 10



- Monitor deteriorated timber and movements
- Bridge 11 Fire Route A1 Bridge
 - Monitor deformations and movements

The above noted additional investigations may lead to additional investigations such as load capacity assessments in the case of an underwater investigation encountering poor supporting members or it may lead to additional repairs being necessary. These investigations will also confirm the extent of necessary repairs and timing to complete the repairs allowing the Town of Gravenhurst to more accurately predict schedules and budgets.



3 Recommendations & Prioritization

All of the recommended maintenance and rehabilitation works for each of the bridges are listed in the structure summaries in Section 2. The estimated costs for the work at each of the structures is summarized in Table 4 and includes recommended time frames. As mentioned in Section 2 of this report, 'maintenance' work refers to those works that could be completed by the Town's works department, and 'rehabilitation' work refers to repair work that may require higher costs or specialized design. The costing information is preliminary and is for budgeting purposes only. Further breakdown of the estimated costs are included in Appendix A

3.1 RECOMMENDED IMPROVEMENTS

A significant amount of work is required in order to address all deficiencies noted within the Town's bridges infrastructure system, \$2.07M over 10 years, as summarized below.

\$2.07M in bridge and culvert repairs, investigations and maintenance needs over the next 10 years were identified. Of which \$1.8M for repairs in 1 to 5 years and \$258,000 for repairs in 6 to 10 years. Additionally, \$13,500 should be budgeted for maintenance items over the next two years.

3.2 PRIORITIZATION OF WORK

It is understood that the Town will not have the funding to complete all of the works immediately. The Town will therefore need to prioritize the structures to ensure that more urgently needed repairs are completed first.

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 BSI is the bridge sufficiency index which applies additional factors to the BCI based on sufficiency of the structure for the use such as reduced load posting, length of detour, geometry, and alignment.

Table 7 lists the BCI, BCIp and BSI for each of the bridges and culverts. 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.



3.3 **STUDY UPDATES**

Conditions can change based on the effect of the spring thaw, use, maintenance and other unforeseeable circumstances. The condition of the bridge system should be reviewed on a regular basis (bi-annual) to measure the effectiveness of strategies, sufficiency of funding levels, gauge the extent to which identified needs are being addressed (and if not, to what extent the element sections are deteriorating further) and to ensure the most accurate information is used to determine improvement needs and implementation timing. The condition of the structures must also be reviewed every 2 years to remain compliant with applicable regulations.

Table 7: Structure Priority List

PRIORITY	STRUCTURE NAME	ВСІР	ВСІ	BSI
	9 - Lots 10/11, Conc 10	79.45	26.21	11.21
High Priority (BSI < 40)	11 - Fire Route A1 Bridge	32.40	26.09	14.09
	8 - Sniders Bay Bridge	66.15	32.10	19.10
	6 - Lot 31, Conc 4/5	100.0	69.93	57.93
	1 - Robinson Bridge	99.3	72.70	59.70
Medium Priority	201 - Lots 15/16, Conc 10	91.50	63.37	60.37
(40 < BSI < 70)	4 - Beau Creek Bridge, Lots 15/16, Conc 6	100	74.54	61.54
	5 – Kahshe River Bridge	100	78.04	67.04
	7 - Narrows Road Bridge, Lot 28, Conc 8	100	89.38	81.38
	C10 - Seehaver Road, Lot 14, Conc 12/13	100	95.06	86.06
Low Priority (BSI > 70)	202 - Lot 6, Conc 10/11	100	98.20	94.20
	203 - Lots 15/16, Conc 12	100	100	95
	204 - Riley Lake Road Culvert	100	100	95



4 Summary

Overall most the structures within the Town are in good condition with no detailed investigations recommended in the short term and minimal rehabilitation work recommended however there are 3 structures that are recommended to be replaced. There are various maintenance activities recommended within Section 2 which we recommend be completed at all structures within the timelines noted.

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



Appendix A: OSIM Forms

								MTO Site Numb	per:		
Inventory Data:											
Structure Name	1 - Robins	son Bride	ge, Lot 2, C	Conc 6							
Main Highway#	Sparrow Route		On X Structure	or Unde	er	Service on Structure	Navig. V	X Road	on-Navig. W	Othe	er .
Location Description	2.34 km w	vest of Hiç	ghway 11			Service under:	Navig. V	Vater X N	on-Navig. W Ped[/ater Othe	er
Owner/Custodian	Gravenhu	ırst									
MTO Region	Northeaste	tern				Latitude	44° 49' 12" N	<u> </u>	<u> </u>	79° 20' 24	
Regional Engineer						Heritage Designation:	X Not Con Desig.	ns. Cons./ Desig./Not List	/Not App. [List/ľ ig. & List	Not Desig.
MTO Area	Gravenhu	urst				Hwy Class:	Freeway	Arterial	Collector	Lo	ocal X
Old County						Posted Speed	50	No. of	Lanes	1	
Township	Gravenhu	urst			ĺ	AADT	200	%	Truck	0	
Structure Type 1	Box beam	n of girde	ers								
Structure Material 1	Concrete	,			ĺ	Traffic Directional Boo	und	W-E			
Structure Type 2	Concrete	deck									
Structure Material 2	Concrete				į	Inspection Frequency	/	2		(years)	
Total Deck Length	24.8	24.8 (m)				Inspection Year		2019			
Overall Str. Width	8.5			(m)		Inspection Duration		2		(hrs)	
Culvert Length	0			(m)				•			
Total Deck Area	210.8			(sq.m)							
Roadway Width	8			(m)		Min. Vertical Clearand	ce			(m)	
Skew Angle	30			(Degree	∍)	Detour Distance		N/A		(km)	
No. of Spans	1					Fill on Structure		0		(m)	
Span Lengths	18.4				_					(m)	
For retaining wall:		_			_						
Total Wall Length	6			(m)		Max. Wall Height		2.8		(m)	
Total Wall Area	16.8			(sq.m)		Ave. Wall Height		2.8		(m)	
						Angle of Backfill				(Degree	s)
Historical Data											
Year Built	[1	1982				Year of superstruct. C	Constructed	N/A			
Last Reg. OSIM Inspe	<u> </u>	2016				Year of Last Minor Re		N/A			
Last Enh. OSIM Inspe	ection [Year of Last Major Re	ehab	N/A			
Work History: (Date/d	Lacription)					Current Load Limit	Unventigation	/ History: (Date/de	/		(tonnes)
WORK PISCOLY, (Date/u	<u>езсприот</u>						IIIVesugauon	_ MISLUTY. (Date/or	<u> въсприон</u>		

							MTO Sit	e Number:				
Field Inspection Infor	mation:											
Date of Inspection:		Augus	t 22, 2019	Type of	Inspection	n:	Х	Reg. OS	SIM	Enl	h. OSIM	
Inspected By		Kieran	Ferguson	I								
Others in Party:		None										
Eng. Access Equipment:		None										
Special Access Equipment		Clear										
Weather		Clear		Tempera	ature	20						
Additional Investigati	ons Requi	red:						riority		丁	Estimated Cost	
Material Condition Survey	•					None	N	ormal	Urgent	+	Louinatoa ooot	
Detailed Deck Condition		Х				$+\!\!-$						
Non-destructive Delam		abalt Cavarad		X				+				
Concrete Substructure		priait-Covered						$+\!\!-$				
		vey.				X				+		
Detailed Coating Condi						X				$+\!\!\!-$		
Detailed Timber Investi	•					X				+		
Post-Tensioned Strand	Investigation					X	-			—		
Underwater Investigation						Х				\bot		
Fatigue Investigation						Х						
Seismic Investigation						Х						
Structure Evaluation:						Х						
Monitoring						Х						
Deformations, Settleme	ents and Move	ements	<u>:</u>			Х						
Crack Widths:						Х						
RSS Horizontal movem	ents of face:					Х						
RSS Vertical movemen	ts of overall s	tructur	e:			Х						
RSS Local movements	or deterioration	on of fa	ce elements:			Х						
RSS Horizontal movem	ents within ov	erall s	tructure:			Х						
RSS Vertical movemen	ts within over	all stru	cture			Х						
RSS Lateral earth pres	sure at the ba	ck of fa	acing element	S		Х						
Investigation Notes:							Tota	al Cost	•		\$0.00	
Overall Structure Not	es:					•						
Recommended Work on Str	ucture		None X	Minor Rehab		Major Rehab	. [Rep	lace			
Timing of Recommended W	/ork		Urgent	X 1 to 5 ye	ars	6 to 10 y	/ears	·				
Overall Comments:		Stru	cture is in a	good conditi	on overa	II. Could ben	efit f	rom son	ne minor c	oncret	e repairs and	
Date of Next inspection:		Aug	ust 2021									
Overall Bridge Co	ndition											
% Poor in Deck	% Poor in Be	eams	% Poor in S	Substructure	% F	% Poor in Barrier Bridge Condit			ition Index (BCI or BCIp)			
0% 2% 0%						0%	Ī		BClp 99.30		BCI 72.70	
Overal Bridge Suf	ficiency					33.00			12.10			
Traffic Economic Width					Alignment Bridge Sufficiency Index (
0	3		Ę	5	<u> </u>	5				59.70)	

Element Data:									
Element Group:		Approaches		Length:		6.0 m			
Element Name:		Wearing Surface		Width:		8.0 m			
Location: East and West			Height:	Height:					
Material:		Count:		2					
Element Type:				Total Quantity: 96 sq. m			m		
Environment:		Benign		Limited Insp	Limited Inspection:				
Protection System	:	None						Performance	
Candition Data:		Units	Excellent	Good	Fair		Poor*	Deficiencies	
Condition Data: sq.m 95 1									
	Comments: Rough approaches overall. Many previously patched areas of asphalt. 1-600mm x 600mm pothole on east approach. 1-300mm								

x 300mm pothole on west approach.

Recommended Work:	Rehab: Replace:	Maintenance Needs: 12 - Bridge Surface Repair
Urgent: 1-5 Years:	6-10 Years: None: X	Urgent: 1 Year: X 2 Year:
		Pothole repair.

Element Photo:



Description of Photo: Photo 1 - Approach Wearing Surface.jpg



Description of Photo: Photo 2 - Approach Wearing Surface.jpg

Element Photo:



Description of Photo: Photo 3 - Approach Wearing Surface.jpg

Element Data:										
Element Group:		Approaches			Length:		18	.4 m, 33 m, 55	m, 18.4	4 m
Element Name:		Barriers			Width:					
Location:		All Quadrants		Height:						
Material:		Steel		Count:		4				
Element Type:				Total Quantity:				4.8 m		
Environment: Benign				ection	1:					
Protection System	:	Galvanized Coa	ting							Performance
Condition Date:		Units	Excellent		Good		Fair	Poor*		Deficiencies
Condition Data:		m	124.8							
Comments: App	roach barrier	s have been red	ently replaced and are	in e	xcellent cond	dition.	. No dama	ge. Some dirt	on rails	3.
Recommended We	ork:		1	Maintenand	ce Needs:	2 - B	ridge Cleaning			
Urgent:	None: X]	Jrgent:	1 Year:	X	2 Year:				
							Clean dirt f	rom approach	n barrie	rs.
								-		



Description of Photo: Photo 5 - Approach Barrier.jpg



Description of Photo: Photo 6 - Approach Barrier.jpg

Element Photo:



Description of Photo: Photo 7 - Approach Barrier.jpg

Element Data:	•						
Element Group:		Accessories		Length:			
Element Name:		Signs		Width:			
Location:		All		Height:			
Material:		Steel		Count:		4	
Element Type:				Total Quanti	ty:	4	
Environment: Benign				Limited Insp	ection:		
Protection System	1:	None				Performance	
Condition Data		Units	Excellent	Good	Fair	Poor*	Deficiencies
Condition Data:		each	4				
Comments: 4 OI	bject warnin	g signs are in very (good condition.				
Recommended W	/ork:	F	ace:	Mainten	ance Needs:		
Urgent:	1-	5 Years: 6	6-10 Years:	None: X	Urgent:	1 Year:	2 Year:



Description of Photo: Photo 8 - Sign.jpg



Description of Photo: Photo 9 - Sign.jpg

Element Photo:



Description of Photo: Photo 10 - Sign.jpg



Description of Photo: Photo 11 - Sign.jpg

Element Photo:

Description of Photo:

Element Data:									
Element Group:		Deck			Length:		24.8	m	
Element Name:		Top / Wearing S	urface	Width:		8.5 m			
Location:		All		Height:					
Material:		Broom-finished	concrete	Count:		1			
Element Type:					Total Quanti	ty:	210.	8 sq. m	
Environment:		Severe			Limited Insp	ection:			
Protection System	:	None							Performance
Condition Data:		Units	Excellent		Good	Fair		Poor*	Deficiencies
Condition Data:		sq.m			210.8				
Comments: Roug	gh, scaled s	urface throughou	ıt. Minor longitudi	inal cracl	s. Minor crac	ck along ce	nterlin	e. No potholes o	or damage.
Recommended Wo	ork.		Rehab:	Replace:		Mainte	nance	Needs:	
Trocommonaca Tr	OTT.			IVIAIITE	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	110000.			
Urgent:	1-	5 Years:	6-10 Years:	10 Years: None: X		Urgent	Urgent: 1 Year:		2 Year:



Description of Photo: Photo 12 - Bridge Wearing Surface.jpg



Description of Photo: Photo 13 - Bridge Wearing Surface.jpg

Element Photo:



Description of Photo: Photo 14 - Bridge Wearing Surface.jpg

Element Data:	Element Data:									
Element Group:		Barrier			Length:		24	.8 m		
Element Name:		Hand Rail / Railing	System		Width:					
Location:		North and South S	Side		Height:					
Material:		Steel			Count:		2			
Element Type:					Total Quantity:			.6 m		
Environment:		Benign			Limited Insp	ection	1:			
Protection System	:	Galvanized								Performance
		Units	Excellent		Good		Fair	Poor	*	Deficiencies
Condition Data:		m	49.6							
Comments: Brid	ae barriers h	nave been recently	replaced and are	in exce	llent condition	on. No	o damage.	Some dirt o	n rails.	
,	3			-					-	
Recommended Wo	ork:	F	Rehab: R	eplace:			Maintenan	ce Needs:	2 -	Bridge Cleaning
Urgent: 1-5 Years: 6-10 Years:					None: X	l	Urgent:	1 Yea	r: X	2 Year:
						Clean dirt from bridge barriers.				



Description of Photo: Photo 15 - Bridge Barrier.jpg



Description of Photo: Photo 16 - Bridge Barrier.jpg

Element Photo:



Description of Photo: Photo 17 - Bridge Barrier.jpg

Element Data:										
Element Group:		Joints			Length:		8.5 m			
Element Name:		Seals/Sealants			Width:					
Location:		West/East			Height:					
Material:		Rubber Gasket			Count:		2			
Element Type:					Total Quanti	ty:	17 m			
Environment:	Benign			Limited Insp	ection:					
Protection System:		None								Performance
Candition Data		Units	Excellent		Good	Fair		Poor*		Deficiencies
Condition Data:		m	17							
Comments: Rece	ently replaced	d seals. Some dirt an	d debris inside.							
Recommended Wo	ork:	Reh	ab: Repla	ace:		Mainter	nance N	eeds:	2 - B	ridge Cleaning
Urgent:	1-5	Years: 6-10	None: X	Urgent:		1 Year:	Х	2 Year:		
						Clean s	and and	d debris fro	m sea	ıls.



Description of Photo: Photo 18 - Seal.jpg



Description of Photo: Photo 19 - Seal.jpg

Element Photo:



Description of Photo: Photo 20 - Seal.jpg

Element Data	!												
Element Group: Dra		Drainage			Length:								
		Drains			Width:		75mm	1					
Location:		North/South			Height:								
Material:					Count:			6					
Element Type:					Total Quantity:			6					
Environment:		Benign				Limited Inspection:		n:					
Protection System	າ:	None										Perfor	mance
Condition Date:		Units	E	xcellent		Good		Fair		Poo	r*	Defici	encies
Condition Data:	each							5		1			
Comments: 1 dr	ain is blocke	d. No damage	otherwise. D	rains empty	ont	o foundation	s.		•			•	
		_											
Recommended Work:		Rehab: Replace:		ace:	Ma		Maintenance Needs:		leeds:	2 - Bridge Cleaning			
Urgent:	1-	5 Years:	6-10 Year	s:		None: X		Urgent:		1 Ye	ar: X	2 Yea	ar:
							Clean out wall drain.						



Description of Photo: Photo 21 - Drain.jpg

Element Data:											
·		Abutments	Abutments				8.5 m	8.5 m			
Element Name: V		Walls			Width:						
Location:		East-West			Height:		3.0 m (W), 1.6 m (E)				
Material:		Concrete		Count:		2					
Element Type:			1			Total Quantity:		39.1 sq. m			
Environment: Benign		Benign			Limited Insp	ection:					
Protection System: None									Perform	ance	
		Units	Excellent		Good	Fair	Fair Poo		Deficien	cies	
Condition Data:		sq.m			39.1						
Comments: Slig	ntly spalled	concrete surfac	ce throughout. 2 nar	row verti	cal cracks o	n east abuti	nent w	all.			
Recommended W	ork:		Rehab:	Replace:		Mainte	nance l	Needs:			
Urgent:	1-	5 Years:	6-10 Years:		None: X	Urgent		1 Year:	2 Year:		



Description of Photo: Photo 22 - Abutment Wall.jpg



Description of Photo: Photo 23 - Abutment Wall.jpg

Element Photo:



Description of Photo: Photo 24 - Abutment Wall.jpg

Element Data:											
Element Group:		Abutments			Length: 9			9.5 m			
Element Name:		Foundation			Width: 0		0.5 เ	0.5 m			
Location:		East-West			Height: 0			0.5 m (W), 1.2 m (E)			
Material:		Concrete			Count: 2						
Element Type:					Total Quantity: 25		25.7	5.7 sq. m			
Environment:		Benign			Limited Inspection:						
Protection System:		None							Performance		
Condition Data:		Units	Excellent		Good	Fair		Poor*	Deficiencies		
		sq.m	·		24	1.7					
Comments: Moderate scaling and honeycombing of concrete surface throughout. Reinforcing extending from top on west side, 1 medium											

Comments: Moderate scaling and honeycombing of concrete surface throughout. Reinforcing extending from top on west side. 1 medium vertical crack (0.5 m). East side has a medium 9.5 m long horizontal crack.

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

Element Photo:



Description of Photo: Photo 25 - Foundation.jpg



Description of Photo: Photo 26 - Foundation.jpg

Element Photo:



Description of Photo: Photo 27 - Foundation.jpg

Element Data:									
Element Group:		Deck L		Length: 18.4		18.4	3.4 m		
Element Name:		Soffit		Width: 8.5 r		m			
Location:		All		Height:					
Material:		Concrete		Count: 1					
Element Type:				Total Quantity: 15		156.	l56.4 sq. m		
Environment:		Benign			Limited Inspection:				
Protection System	1:	None							Performance
Candition Data		Units	Excellent		Good	Fair		Poor*	Deficiencies
Condition Data:	sq.m				153			3.4	
Comments: Som	ne light mois	ture staining through	out. 8 small 200m	m x 1	100mm delar	ninations ex	posii	ng reinforcing ste	el.

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



Description of Photo: Photo 28 - Soffit.jpg



Description of Photo: Photo 29 - Soffit.jpg

Element Photo:



Description of Photo: Photo 30 - Soffit.jpg

Element Data:									
Element Group:		Abutments L		Length:	Length: 3.		3.2 m		
Element Name:		Wing Walls		Width:	Width:				
Location:		All Quadrants		Height:	Height: 3.0		0 m		
Material:		Concrete		Count:	Count: 4				
Element Type:	ient Type:		Total Quant	Total Quantity:		38.4 sq. m			
Environment:		Benign		Limited Insp	Limited Inspection:				
Protection System	1:	None						Performance	
Condition Data		Units	Excellent	Good	Fair		Poor*	Deficiencies	
Condition Data:		sq.m			38.4				
Comments: Stee	el ties stickin	g out of southwest ar	nd northwest wing	walls. Concrete	has a scaled	surface	and is in fair	condition overall.	

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



Description of Photo: Photo 31 - Wingwall.jpg



Description of Photo: Photo 32 - Wingwall.jpg

Element Photo:

Description of Photo:

Element Data:									
Element Group:	Ab	outments			Length:		2.4 m		
Element Name:	Element Name: Gabion Baskets				Width:				
Location:	Northeast and southeast quadrants				Height:		1.2 m		
Material:	aterial: Rock and steel cage			Count:		2			
Element Type:					Total Quanti	ty:	5.76 sq	Į. m	
Environment:	Be	nign			Limited Insp	ection:			
Protection System:	stem: None								Performance
O Pr D. t.	l	Jnits	Excellent		Good	Fair		Poor*	Deficiencies
Condition Data:	s	q.m			5.76				
Comments: Gabi	on walls on no	rtheast and sout	heast sides are in g	ood (condition, so	ome warping	of stee	l baskets thro	ughout.
Recommended Work: Rehab: Replace			ice:		Mainter	ance Ne	eeds:		
Urgent: 1-5 Years: 6-10 Years:				None: X	Urgent:		1 Year:	2 Year:	



Description of Photo: Photo 33 - Gabion Baskets.jpg



Description of Photo: Photo 34 - Gabion Baskets.jpg

Element Photo:



Description of Photo: Photo 35 - Gabion Baskets.jpg

Element Data:									
Element Group: Abutments L		Length:		6.0 m					
Element Name:	: Retaining Wall		Width:	Width:					
Location: Northeast quadrant		Height:	Height: 2.8 m						
Material:		Stone Masonry/Concrete		Count:	Count: 1		1		
Element Type:				Total Quant	ity:	16.8 sq. m			
Environment:		Benign		Limited Insp	ection:				
Protection System	1:	None					Performance		
Condition Data:		Units	Excellent	Good	Fair	Poor*	Deficiencies		
		sq.m			12	4.8			
Comments: Wid	e 2.8 m verti	cal crack. Retaining	wall should be replace	ced.					

Recommended Work:		Rehab: Replac	e: X	Maintenance Ne	eds:	
Urgent: 1	-5 Years: X	6-10 Years:	None:	Urgent:	1 Year:	2 Year:
Replace retaining wall.						



Description of Photo: Photo 36 - Stone Retaining Wall.jpg

Element Data:													
Element Group:		Embankment	S			Length:							
Element Name:		Embankment	S			Width:							
Location:		All			Height:								
Material:		Soil/Rock/Grass			Count:								
Element Type:					Total Quant	ity:		4					
Environment:		Benign				Limited Insp	ectio	n:					
Protection System	!	None										Performance	
0 127 5 1		Units		Exceller	nt	Good		Fair Poor*		Poor*		Deficiencies	
Condition Data:		each					4						
Comments: Very	steep emba	nkments on v	vest side	e. Southeas	t embankı	ment is a rocl	k fac	e.	•		•		
	•												
Recommended Work:			Reh	Rehab: Replace:			Maintenance Needs:						
Urgent:	1-	5 Years:	6-10	0 Years:		None: X		Urgent:		1 Year:		2 Year:	



Description of Photo: Photo 37 - Embankment.jpg



Description of Photo: Photo 38 - Embankment.jpg

Element Photo:



Description of Photo: Photo 39 - North Side.jpg



Description of Photo: Photo 40 - Rock Protection.jpg

Element Photo:



Description of Photo: Photo 41 - Rock Protection.jpg

Element Data:								
Element Group:	Watercourse		Length:	Length:				
Element Name:	Watercourse		Width:					
Location:	Under Bridge		Height:					
Material:			Count:					
Element Type:			Total Quanti					
Environment:	Benign		Limited Insp	ection:				
Protection System:	None					Performance		
Condition Data:	Units	Excellent	Good	Fair	Poor*	Deficiencies		
Condition Data.	all		1					
Comments: Flow i	is unobstructed.							
Recommended Wor	rk:	Rehab: Repl	ace:	Maintenance	e Needs:			
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent:	1 Year:	2 Year:		



Description of Photo: Photo 42 - Watercourse.jpg



Description of Photo: Photo 43 - Watercourse.jpg

Element Photo:

Description of Photo:

Repair and Reha	abilitation Required:		Prio		Estimated Structural		
Element ¹	Repair and Rehabilitation Required ²	6 to 10 Years	1 to 5 Years	Within 1 Year Urgent		Cost	
Structure	Demolition						
Structure	Replacement						
0	R						
Deck	Rehab. = Patch waterproof and pave	Х				\$115,000.00	
Sidewalk/Curb	Rehab. =						
Barrier	Replace = Retaining wall replacement		Х			\$50,000.00	
Joints	Replace =						
Beams	Rehab. = Patch soffit concrete		Х			\$10,000.00	
Abutment	Rehab. =						
Pier	Rehab. =						
Other							
Estimated Rehat	bilitated or Replacement Structure Dimensions ³ ength (m) Overall Str. Width (m)			Total Str	ructural Cost	\$175,000.00	

^{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.

Comments	Estimated Associated
	Work Cost
Repave	\$15,000.00
Detour Signage and Traffic Control	\$10,000.00
Bridge Cleaning	\$1,500.00
Contingencies	\$25,000.00
Mobilization and Demobilization; General; Insurance	\$50,000.00
	
Total Associated Work Cost	\$101,500.00
	Repave Detour Signage and Traffic Control Bridge Cleaning Contingencies Mobilization and Demobilization; General; Insurance

Total Construction Cost	\$276,500.00

Justification:

Newly installed approach and bridge barriers and expansion joints are in excellent condition but need regular cleaning. Some concrete patch repairs needed for soffit. Old masonry retaining wall is deteriorating and should be replaced.

						MTO Site Number:		
Inventory Data:								
Structure Name	4 - Beau Cree	ek Bridge, Lot 1	5/16, Con	c 6 South]	
Main Highway#	Jones Road	On X Structure	or Under	Service on Structure	Navig. V	Water Non-Navig. X Road Ped.	Water Othe	ər
Location Description		of District Road 17	7	Service under:	Navig. V	Water X Non-Navig. Road Ped.	Water Othe	ər
Owner/Custodian	Gravenhurst							
MTO Region	Northeastern			Latitude	44° 56' 24" N		79° 20' 60	•
Regional Engineer				Heritage Designation:	X Not Con		List/lesig. & List	Not Desig.
MTO Area	Gravenhurst			Hwy Class:	Freeway	Arterial Collector	: Lc	ocal X
Old County				Posted Speed	50	No. of Lanes	1	
Township	Gravenhurst			AADT	150	% Truck	0	
Structure Type 1	Rigid frame					_		_
Structure Material 1	Concrete			Traffic Directional Bo	ound	E-W]	
Structure Type 2	Concrete dec	ck					_	
Structure Material 2	Concrete			Inspection Frequence	су	2	(years)	
Total Deck Length	7.2		(m)	Inspection Year		2019	j	
Overall Str. Width	9.2		(m)	Inspection Duration		2	(hrs)	
Culvert Length	0		(m)			<u>—</u>	_	
Total Deck Area	66.24		(sq.m)					
Roadway Width	8.4		(m)	Min. Vertical Clearar	nce		(m)	
Skew Angle	0		(Degree)	Detour Distance		N/A	(km)	
No. of Spans	1			Fill on Structure		0	(m)	
Span Lengths	6.5						(m)	
For retaining wall:							_	
Total Wall Length			(m)	Max. Wall Height			(m)	
Total Wall Area			(sq.m)	Ave. Wall Height			(m)	
				Angle of Backfill			(Degree	es)
Historical Data								
Year Built	1976	6		Year of superstruct.	Constructed	N/A		
Last Reg. OSIM Inspe		ò		Year of Last Minor F		N/A		l
Last Enh. OSIM Inspe	ection			Year of Last Major F	Rehab	N/A		<u> </u>
Work History: (Date/d	Iintion)			Current Load Limit	Unication	/ /		(tonnes)
WORK HISTOLY. (Date/o	еѕсприопу				Investigation	n History: (Date/description)		

	MTO Site Number:											
Field Inspection Infor	mation:											
Date of Inspection:		Augus	t 22, 2019	Туре	of Inspection	on:		Reg. OS	SIM	X En	h. OSIM	
Inspected By		Kieran	Ferguson									
Others in Party:		None										
Eng. Access Equipment:		None										
Special Access Equipment		Clear										
Weather		Clear		Tempe	rature						20 °C	
Additional Investigati	ons Requi	red:				Nama		riority	I II		Estimated Cost	
Material Condition Survey						None	IN	lormal	Urger	וו		
Detailed Deck Condition Survey:						Х				_		
Non-destructive Delam		, of Δs	nhalt-Covere	d Deck		X						
Concrete Substructure			pridit Govere	d DCOK.		X						
Detailed Coating Condi		voy.				X				_		
Detailed Timber Investi						X				_		
Post-Tensioned Strand		X										
		X	┢			_						
Underwater Investigation										_		
Fatigue Investigation						X						
Seismic Investigation Structure Evaluation:												
		X				_						
Monitoring		X				_						
Deformations, Settleme	ents and iviove	ements	:			X				_		
Crack Widths:						Х						
RSS Horizontal movem						Х						
RSS Vertical movemen						Х						
RSS Local movements				: -		X						
RSS Horizontal movem						X						
RSS Vertical movemen						X						
RSS Lateral earth pres	sure at the ba	ick of fa	acing elemer	nts		Х						
Investigation Notes:							Tot	al Cost			\$0.00	
Overall Structure Not	es:											
Recommended Work on Str	ructure	Х	None	Minor Reha	b.	Major Rehab		Rep	lace			
Timing of Recommended W	/ork		Urgent	1 to 5 y	ears	6 to 10 y	/ears					
Overall Comments:		Stru	cture is in c	ood conditi	on overall	. but would b	enef	it from re	egular bri	idae cle	aning and a newly	
				rproofed we		•			3	J	,	
Date of Next inspection:		Aug	ust 2021									
Overall Bridge Co			-1-		•			_				
% Poor in Deck	% Poor in Be	or in Beams				Poor in Barrier		Bri		lition Ind		
0%	0%	0%				0%			BClp 100.00		BCI 74.54	
Overal Bridge Suf	ficiency				•				·			
Traffic		conomic Width				Alignment 5			Bridge S			
0	3			5						b1.54	e cleaning and a newly	

Element Data:	Element Data:									
Element Group:		Approaches			Length: 6.0 m					
Element Name:	: Wearing Surface		Width: 8.4			.4 m				
Location: West and east				Height:	Height:					
Material: Surface Treatment				Count: 2						
Element Type:					Total Quantity: 100.8 sq, m			.8 sq, m		
Environment:		Severe			Limited Inspection:					
Protection System	1:	None							Performance	
Units			Excellent		Good	Fair		Poor*	Deficiencies	
Condition Data:				95	·	5.8				
Comments: Larc	Comments: Large 1.0 m v 1.0 m v 50mm deen nothole on west side. Fair condition otherwise. Many existing natches in fair condition									

Comments: Large 1.0 m x 1.0 m x 50mm deep pothole on west side. Fair condition otherwise. Many existing patches in fair condition. Some dirt accumulation at sides of road.

Recommended Work:	Rehab: X Replac	e:	Maintenance Needs:	2 - Bridge Cleaning		
Urgent: 1-5 Yea	rs: 6-10 Years: X	None: X	Urgent: 1	/ear: X 2 Year:		
Repave surface.			Clean dirt and sand	from road.		

Element Photo:



Description of Photo: Photo 1 - Approach Wearing Surface.jpg



Description of Photo: Photo 2 - Approach Wearing Surface.jpg

Element Photo:



Description of Photo: Photo 3 - Approach Wearing Surface.jpg

Element Data:									
Element Group:	Approaches		Length:		28.4 m, 23 m,	, 64 m, 19.	2 m		
Element Name:	Barriers		Width:						
Location:	All Quadrants		Height:						
Material:	Steel / Wood		Count:		4				
Element Type:			Total Quanti	ty:	134.6 m				
Environment:	Moderate		Limited Insp	ection:					
Protection System:	Galvanized Coating						Performance		
Candition Date:	Units	Excellent	Good	Fair	Poo	or*	Deficiencies		
Condition Data:	m	134.3	0.3						
Comments: Newly installed	l approach barriers. 1-	300mm long large o	leformation on n	orthwest app	oroach. Some	dirt accui	mulation.		
•									
Recommended Work:	Re	hab: Repla	ce:	Maintena	ance Needs:	2 - B	ridge Cleaning		
Urgent:	1-5 Years: 6-7	10 Years:	None: X	Urgent:	1 Ye	ear: X	2 Year:		
				Clean di	rt from barrie	r.			



Description of Photo: Photo 4 - Approach Barrier.jpg



Description of Photo: Photo 5 - Approach Barrier.jpg

Element Photo:



Description of Photo: Photo 6 - Approach Barrier.jpg

Floment Detail										
Element Data:										
Element Group:		Accessories			Length:					
Element Name:		Signs			Width:					
Location:		All			Height:					
Material:		Steel			Count:		4			
Element Type:					Total Quanti		4			
Environment:		Benign			Limited Insp	ection:				
Protection System	:	None								Performance
Condition Data: Units		Units	Excellent		Good	F	air	Poor*		Deficiencies
Condition Data.	each 4									
Comments: 4 ob	ject warning	signs appear no	ew and are in excel	lent con	dition.					
Recommended W	ork:		Rehab:	Replace:		Ма	ntenance	e Needs:	2 - B	ridge Cleaning
Urgent:	1-	5 Years:	6-10 Years:		None: X	Urg	ent:	1 Year	r: X	2 Year:
						Cle	an off sig	gns		



Description of Photo: Photo 7 - Sign.jpg



Description of Photo: Photo 8 - Sign.jpg

Element Photo:



Description of Photo: Photo 9 - Sign.jpg



Description of Photo: Photo 10 - Sign.jpg

Element Photo:

Description of Photo:

Deck		Length:	7.2	m					
Top / Wearir	ng Surface	Width:	9.2	9.2 m					
All		Height:							
Asphalt		Count:	1						
		Total Quanti	ty: 66.	24 sq. m					
Severe		Limited Inspe	ection:		Performance				
None					Performance				
Units	Excellent	Good	Fair	Poor*	Deficiencies				
sq.m			64	2.24					
Comments: Several light (up to 5mm wide) longitudinal cracks. No potholes or missing asphalt. Heavy accumulation of dirt at curbs.									
ork:	Rehab: X Repla	ice:	Maintenand	e Needs:	15 - Rout and Seal				
1-5 Years:	6-10 Years: X	None:	Urgent:	1 Year: X	2 Year:				
			Clean dirt a	nd sand from su	rface. Rout and seal				
			cracks						
	Top / Wearing All Asphalt Severe None Units sq.m wide ork:	Top / Wearing Surface All Asphalt Severe None Units Excellent sq.m ral light (up to 5mm wide) longitudinal cracks. No ports: Rehab: X Repla	Top / Wearing Surface All Asphalt Count: Total Quanti Severe Limited Insp None Units Excellent Good sq.m ral light (up to 5mm wide) longitudinal cracks. No potholes or missi	Top / Wearing Surface All Asphalt Count: 1 Total Quantity: 66. Severe Limited Inspection: None Units Sq.m 64 Fair sq.m 64 Fral light (up to 5mm wide) longitudinal cracks. No potholes or missing asphalt. Hea Ork: Rehab: Rehab: X Replace: Urgent: Clean dirt a	Top / Wearing Surface Width: 9.2 m All Height: 1 Asphalt Count: 1 Total Quantity: 66.24 sq. m Severe Limited Inspection: None Units Excellent Good Fair Poor* sq.m 64 2.24 real light (up to 5mm wide) longitudinal cracks. No potholes or missing asphalt. Heavy accumulation ork: Rehab: X Replace: Maintenance Needs: 1-5 Years: 6-10 Years: X None: Urgent: 1 Year: X Clean dirt and sand from su				



Description of Photo: Photo 11 - Bridge Wearing Surface.jpg



Description of Photo: Photo 12 - Bridge Wearing Surface.jpg

Element Photo:

Description of Photo:

Element Data:								
Element Group:	Barrier		Length:	7	'.2 m			
Element Name:	Hand Rail / Railing	System	Width:					
Location:	North and south si	de	Height:					
Material:	Steel		Count:	2				
Element Type:			Total Quanti	ty: 1	4.4 m			
Environment:	Moderate		Limited Inspe	ection:				
Protection System:	Galvanized					Performance		
Condition Date:	Units	Excellent	Good	Fair	Poor*	Deficiencies		
Condition Data:	m	14.4						
Comments: Newly ins	stalled approach barriers. S	ome uni accumulatio	ni.					
Recommended Work:	R	Rehab: Replace	;e:	Maintena	nce Needs: 2	? - Bridge Cleaning		
Urgent:	1-5 Years: 6	6-10 Years:	None: X	Urgent:	1 Year: X	2 Year:		
				Clean dirt	t from barrier.			



Description of Photo: Photo 13 - Bridge Barrier.jpg



Description of Photo: Photo 14 - Bridge Barrier.jpg

Element Photo:



Description of Photo: Photo 15 - Bridge Barrier.jpg

Element Data:	•											
Element Group:		Drainage				Length:						
Element Name:		Drains				Width:	Width: 0.15 m					
Location:		West/East				Height:						
Material:						Count:		2)			
Element Type:						Total Quanti	ity:	2	2			
Environment:	Benign Limited Inspec					ectio	on:					
Protection System	1:	None									Performance	
Condition Data: Units		Units		Excellent		Good		Fair	Po	or*	Deficiencies	
Condition Data: each								2				
Comments: Dirt	accumulatin	ıg around draiı	n but no	t blocked. Drain:	s do n	not extend 1	50mr	m beyond	soffit which	ı is less	than standard.	
										I		
Recommended Work:				ab: X Rep	lace:			Maintena	nce Needs:	2	- Bridge Cleaning	
Urgent:	0 Years: X		None:		Urgent:	1 Y	'ear: X	2 Year:				
Consider extending drains at time of next major rehabilitation.						Clean bri	dge surface					



Description of Photo: Photo 16 - Drain.jpg



Description of Photo: Photo 17 - Drain.jpg

Element Photo:

Description of Photo:

Element Data:									
Element Group:	Abutm	ents			Length:		9.2 r	m	
Element Name:	Walls				Width:				
Location:	East-V	/est			Height:		2.0 m		
Material:	Concr	ete			Count:	2			
Element Type:					Total Quanti	ty:	36.8	sq. m	
Environment:	Benig	1			Limited Insp	ection:			
Protection System	: None								Performance
Candition Data:		Excellent	Excellent		Fair		Poor*	Deficiencies	
Condition Data:				36.8					
Comments: Wall	s have a moderate	scaled surface t	nrougnout. No	o dama	ige.				
Recommended Work: Rehab: Replace:						Mainte	nance	Needs:	
Urgent:	1-5 Years	6-10	Years:		None: X	Urgent:		1 Year:	2 Year:



Description of Photo: Photo 18 - Abutment Wall.jpg



Description of Photo: Photo 19 - Abutment Wall.jpg

Element Photo:



Description of Photo: Photo 20 - Abutment Wall.jpg

Element Data:										
Element Group:		Deck		Length:		9.2 m				
Element Name:		Soffit		Width:			6.5 m			
Location:		All		Height:	-					
Material:		Concrete		Count:		1				
Element Type:				Total Qua	ntity:	59.8 s	59.8 sq. m			
Environment:		Benign Limited In:								
Protection System	1:	None						Performance		
Condition Data:		Units	Excellent	Good	F	air	Poor*	Deficiencies		
		sq.m		59.8						
Comments: Soff	it has a light	ly scaled surf	ace throughout. No cra	cks or other dam	age. Exte	rior edges d	of soffit are wet			
Recommended W	ork:		Rehab: Re	place:	Ma	aintenance N	leeds:			
Urgent:	1	5 Years:	6-10 Years:	None:	(Urg	gent:	1 Year:	2 Year:		



Description of Photo: Photo 21 - Soffit.jpg



Description of Photo: Photo 23 - Soffit.jpg

Element Photo:



Description of Photo: Photo 24 - Soffit.jpg

Element Data:									
Element Group:		Embankments		Length:					
Element Name:		Embankments	Width:						
Location:		All	Height:	Height:					
Material: Soil/Rock/Grass			Count:		4				
Element Type:			Total Quantity: 4						
Environment:		Benign		Limited Insp	ection:				
Protection System	:	None						Performance	
One dition Date:		Units	Excellent	Good	Fair		Poor*	Deficiencies	
Condition Data:		each			4				
Comments: Stee	p with large	rock boulders, peice	es of concrete and hea	vy vegetation	ı. Some loss	of mate	erial beneath ro	ocks/concrete.	

Recommended Work:		Rehab: X	Replace:		Maintenance Needs:		
Urgent: 1-	5 Years: X	6-10 Years:		None:	Urgent:	1 Year:	2 Year:
Install rock protection around abutments.							



Description of Photo: Photo 25 - Embankment.jpg



Description of Photo: Photo 26 - Embankment.jpg

Element Photo:



Description of Photo: Photo 27 - Embankment.jpg

Element Data:								
Element Group:	Watercourse	Watercourse						
Element Name:	ne: Watercourse			Width:				
Location:	Under Bridge		Height:					
Material:					Count:			
Element Type:	Гуре:			Total Quantity: 1				
Environment:	Benign	Benign			nspection:			
Protection System:	None	None						
Condition Data:	Units	Excellent	Good	Fair	Poor*	Deficiencies		
	all		1					
Comments: Flow is u	inobstructed.							
Recommended Work: Rehab: Replace:			ace:	Maintenance Needs:				
Urgent:	1-5 Years: 6-1	10 Years:	None: X	Urgent:	1 Year:	2 Year:		



Description of Photo: Photo 28 - Waterway.jpg



Description of Photo: Photo 29 - Waterway.jpg

Element Photo:

Description of Photo:

Repair and Reha	bilitation Required:		Prio	ority		Estimated Structural
Element ¹	Repair and Rehabilitation Required ²	6 to 10 Years	1 to 5 Years	Within 1 Year	Urgent	Cost
Structure	Demolition					
Structure	Replacement					
0	R					
Deck	Rehab. = Repave surface	Х				\$40,000.00
Sidewalk/Curb	Rehab. =					
Barrier	Replace =					
Joints	Replace =					
Beams	Rehab. =					
Abutment	Rehab. =					
Pier	Rehab. =					
Drainage	Rehab. = Extend deck drains	Х				\$3,000.00
Other	Rehab. = Install rock protection		Х			\$10,000.00
Estimated Rehal Total Deck L	pilitated or Replacement Structure Dimensions ³ ength (m) Overall Str. Width (m)			Total Str	ructural Cost	\$53,000.00

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

- $\ensuremath{\text{2}}$ 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		\$15,000.00
Utilities		
Other	Bridge cleaning	\$2,000.00
	Contingencies	\$30,000.00
	Mobilization and Demobilization; General; Insurance	\$40,000.00
	Total Associated Work Cost	\$87,000.00

Total Construction Cost	\$140,000.00

		4:6:		а.	
	ШC	tifi	ca		۱n:
·	uJ		vu		_

Newly installed guide rail system in excellent condition but will benefit from regular bridge cleaning. Bridge condition rating would improve with a newly paved and waterproofed wearing surface.

								MTO Site N	lumber:		
Inventory Data:											
Structure Name	5 - Kahshe Riv	er Bridge, Lot	t 15, Conc	6							
Main Highway #	South Kahshe Lake Road	e On X Structure		r [Service on Structure		Navig. W	X Road	Non-Navig. V	Othe	er
Location Description	1.22 km east of	Highway 11		_	Service under:		Navig. W	/ater >	Non-Navig. V	Vater Othe	er .
Owner/Custodian	Gravenhurst			_	コ						
MTO Region	Northeastern				Latitude	4	14° 50' 24" N		·	79° 17' 60	
Regional Engineer					Heritage Designation:		Not Cons	s. XCo	ons./Not App. ListDes	List/lig. & List	Not Desig.
MTO Area	Gravenhurst			Н	lwy Class:	Fr	reeway	Arterial	Collector	Lo	ocal X
Old County				Р	osted Speed		40	No	o. of Lanes	1	
Township	Gravenhurst			Α	ADT		200		% Truck	0	
Structure Type 1	I-Beam or Gird	ers									
Structure Material 1	Steel			T	raffic Directional B	3ouna	d	N-S			
Structure Type 2	Concrete deck										
Structure Material 2	Concrete			Ir	nspection Frequenc	су		2		(years)	
Total Deck Length	41.6		(m)	Ir	nspection Year			2019			
Overall Str. Width	8.2		(m)	In	nspection Duration	ı		2		(hrs)	
Culvert Length	0		(m)								
Total Deck Area	341.12		(sq.m)								
Roadway Width	5.5		(m)	M	lin. Vertical Cleara	ance				(m)	
Skew Angle	0		(Degree)) D	etour Distance			N/A		(km)	
No. of Spans	2			F	ill on Structure			0		(m)	
Span Lengths	15, 15									(m)	
For retaining wall:											
Total Wall Length			(m)	Μ	Max. Wall Height					(m)	
Total Wall Area			(sq.m)	Α	ve. Wall Height					(m)	
				Α	angle of Backfill					(Degree	es)
Historical Data											
Year Built	2004			Y	ear of superstruct.	. Cor	nstructed	N/A			
Last Reg. OSIM Inspe					ear of Last Minor F			N/A	<u> </u>		
Last Enh. OSIM Inspe	ection				ear of Last Major F		ab	N/A			· · · · · · · · · · · · · · · · · · ·
Work History: (Date/d	intion)			C	Current Load Limit		a rectigation	History (De	ate/description)		(tonnes)
WORK PISCOLY, (Date/o	<u>еѕсприоп</u>						<u>Hvesugauoii</u>	MISLUIY. (Da	<u>пе/иеѕспрпоп</u>		

									MTO Sit	e Numbei	r:		
Field Inspection Info	rmation:												
Date of Inspection:		Augus	t 22, 2019		Type of In	spection	n:	Х	Reg. OS	IM	En	nh. OSIM	
Inspected By		Kieran	Ferguson	1									
Others in Party:		None											
Eng. Access Equipment:		None											
Special Access Equipment		Clear											
Weather		Clear			Temperatu	ıre						20	°C
Additional Investigat	ions Requi	red:			'				riority			Estimated Co	st
,	•						None	N	ormal	Urger	nt		
Material Condition Survey	C						V	-			_		
Detailed Deck Condition Non-destructive Delam		v of Ao	abalt Cava	rad Dag	ale:		X	-					
			pnait-Cove	rea Dec	CK:		X				_		
Concrete Substructure		rvey:					X				_		
Detailed Coating Cond							Х						
Detailed Timber Invest							Х						
Post-Tensioned Strand	Investigation	:					Х						
Underwater Investigation							Х						
Fatigue Investigation							Х						
Seismic Investigation							Х						
Structure Evaluation:							Х						
Monitoring							Х						
Deformations, Settleme	ents and Move	ements	:				Х						
Crack Widths:							Х						
RSS Horizontal moven	nents of face:						Х						
RSS Vertical movemen	nts of overall s	structure	e:				Х						
RSS Local movements	or deteriorati	on of fa	ce elemen	ts:			Х						
RSS Horizontal moven	nents within o	verall st	tructure:				Х						
RSS Vertical movemer	nts within over	all stru	cture				X						
RSS Lateral earth pres				ents			X						
Investigation Notes:			<u> </u>					Tota	al Cost		!	\$0.00	
Overall Structure Not	es:												
Recommended Work on St			None	Mine	or Rehab.		Major Rehab			lace			
,			<u> </u>						i.ch	nac e			
Timing of Recommended V	Vork	ш	Urgent		1 to 5 year		6 to 10 y						
Overall Comments:		Stru	cture is ge	enerally	y in a good	l condi	tion overall.	Bridg	e would	benefit 1	from reg	gular cleaning.	
Date of Next inspection:		Aug	ust 2021										
Overall Bridge Co	ndition												
% Poor in Deck	% Poor in B	Beams									ondition Index (BCI or BCIp)		
0%	0%			0%			0% B0			BClp 100.00	p BCI 00 78.04		
Overal Bridge Su	fficiency				•		,						
Traffic	Econom	ic		Width			Alignment		Bridge Sufficiency Index (BSI)				
0	1			5			5	67.04					

Element Data:											
Element Group:		Approaches				Length:) m		
Element Name:		Wearing Surfac	е			Width:			5 m		
Location:		North and south	n			Height:					
Material:					Count:		2				
Element Type:	nent Type:					Total Quanti	ity:	66	sq. m		
Environment:		Benign				Limited Insp	ection	:			
Protection System		None									Performance
Units				Excellent		Good		Fair	Poor*		Deficiencies
Condition Data:		sq.m				66					
Comments: No c	racks or poth	holes. Asphalt is	s in go	od condition.	Some	dirt accumula	ation a	at sides o	f road.		
Decemmended We	nele:		Dalaal	🗖 🕟				Maintanan	ce Needs:	2.0	ridge Cleaning
Recommended Wo	JIK.		Rehal	D: RE	eplace:		ľ	viaintenan	ce needs.	2-6	ridge Cleaning
Urgent:	1-5	Years:	6-10	Years:		None: X] u	Jrgent:	1 Year:	X	2 Year:
							С	lean dirt	from surface.		



Description of Photo: Photo 1 - Approach Wearing Surface.jpg



Description of Photo: Photo 2 - Approach Wearing Surface.jpg

Element Photo:

Description of Photo:

Element Data:											
Element Group:		Approaches			Length:			25 m, 78 m, 32 m, 32 m			
Element Name:		Barriers			Width:						
Location:		All Quadrants			Height:						
Material:		Steel			Count:			4			
Element Type:	Element Type:				Total Quantity:			sq. m			
Environment:		Benign			Limited Inspection:						
Protection System	1:	Galvanized Coating							Performance		
Condition Date:		Units	Excellent		Good	Fair		Poor*	Deficiencies		
Condition Data: m		167									
Comments: Newly installed end treatments and bolted connections are in excellent condition. Steel has no damage and minimal scrapes.											

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



Description of Photo: Photo 3 - Approach Barrier.jpg



Description of Photo: Photo 4 - Approach Barrier.jpg

Element Photo:



Description of Photo: Photo 5 - Approach Barrier.jpg

Element Data:						
Element Group:	Accessories		Length:			
Element Name:	Signs		Width:			
Location:	All		Height:			
Material:	Steel		Count:	4		
Element Type:			Total Quanti	ty: 4		
Environment:	Benign		Limited Inspe	ection:		
Protection System:	None					Performance
Condition Data	Units	Excellent	Good	Fair	Poor*	Deficiencies
Condition Data:	each	4				
Comments: 4 object v	warning signs are in gre	eat condtion.				
-						
Recommended Work:		Rehab: Replac	ce:	Maintenance	Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent:	1 Year:	2 Year:



Description of Photo: Photo 6 - Sign.jpg



Description of Photo: Photo 7 - Sign.jpg

Element Photo:



Description of Photo: Photo 8 - Sign.jpg



Description of Photo: Photo 9 - Sign.jpg

Element Photo:

Description of Photo:

Deck		Length:		41.6 m		
Top / Wearing Sur	face	Width:		5.5 m		
All		Height:				
Asphalt		Count:		1		
		Total Quantit	:y:	228.8 sq. m		
Benign		Limited Inspe	ection:			
None					Performance	
Units	Excellent	Good	Fair	Poor*	Deficiencies	
sq.m		228.8				
ks or potholes. Asphalt is in	n good condition. Som	ne dirt accumula	tion at edges	3.	•	
: F	Replac	e:	Maintena	ance Needs:	2 - Bridge Cleaning	
1-5 Years: 6	5-10 Years:	None: X	Urgent:	1 Year:	2 Year: X	
			Surface	should be cleane	d.	
	Top / Wearing Sur All Asphalt Benign None Units sq.m cks or potholes. Asphalt is ir	Top / Wearing Surface All Asphalt Benign None Units Excellent sq.m cks or potholes. Asphalt is in good condition. Som	Top / Wearing Surface All Asphalt Count: Total Quantif Benign None Units Excellent Good sq.m 228.8 cks or potholes. Asphalt is in good condition. Some dirt accumula	Top / Wearing Surface All Asphalt Count: Total Quantity: Benign Limited Inspection: None Units Excellent Good Fair sq.m 228.8 cks or potholes. Asphalt is in good condition. Some dirt accumulation at edges Rehab: Replace: None: None: X Urgent:	Top / Wearing Surface All Asphalt Count: Total Quantity: Benign Limited Inspection: None Units Excellent Good Fair Poor* sq.m 228.8 cks or potholes. Asphalt is in good condition. Some dirt accumulation at edges. Rehab: Replace: Maintenance Needs:	



Description of Photo: Photo 10 - Bridge Wearing Surface.jpg

Element Data:											
Element Group:		Barrier			Length:			36.6 m			
Element Name:		Hand Rail / Railing System			Width:						
Location:		West and east side			Height:						
Material:		Steel			Count: 2			2			
Element Type:) :				,			? m			
Environment:		Benign			Limited Inspection:						
Protection System	:	Galvanized							Performance		
Candition Data		Units	Excellent		Good	ood Fair		Poor*	Deficiencies		
Condition Data:		m	72		1.2						
Comments: Stee	Comments: Steel barrier is in very good condition overall. Minor scrapes and scratches throughout steel surface.										

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



Description of Photo: Photo 11 - Bridge Barrier.jpg



Description of Photo: Photo 12 - Bridge Barrier.jpg

Element Photo:



Description of Photo: Photo 13 - Bridge Barrier.jpg

Element Data:								
Element Group: Barrier Length:						2.4 m		
Element Name: Hand Rail / Railing System			System	Width:		0.3 m		
Location: Each quadrant Height:				1.05 m				
Material: Concrete Count:				4				
Element Type:				Total Quant	,	10.1 sq. m		
Environment:		Benign		Limited Insp	ection:			
Protection System	n:	Galvanized					Performance	
Canditian Data		Units	Excellent	Good	Fair	Poor*	Deficiencies	
Condition Data:		sq.m	0.6					
Comments: Con	icrete is gene	rally in good condi	tion overall. Some sp	palls on concret	e edges.			
Recommended W	/ork:	R	ehab: Replac	ce:	Mainter	nance Needs:		
Urgent:	1-	5 Years: 6	-10 Years:	None: X	Urgent:	1 Year:	2 Year:	



Description of Photo: Photo 14 - Concrete Barrier.jpg



Description of Photo: Photo 15 - Concrete Barrier.jpg

Element Photo:



Description of Photo: Photo 16 - Concrete Barrier.jpg

Element Data:						
Element Group:	Joints		Length:	8.2	m	
Element Name: Seals/Sealants			Width:			
Location:	North/South		Height:			
Material:	Rubber		Count:	4		
Element Type:			Total Quanti	ty: 32 .	8 m	
Environment:	Benign		Limited Insp	ection:		
Protection System:	None					Performance
Condition Data:	Units	Excellent	Good	Fair	Poor*	Deficiencies
Condition Data.	m		32.8			
Comments: Seals are	e in good condition overa	ıll.				
	-					
Recommended Work:		Rehab: Repla	200.	Maintenand	e Needs	
TOCOMMINICIACO TYORK.		iteliab. Iteliab	ace	Walltonand	c Necus.	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent:	1 Year:	2 Year:



Description of Photo: Photo 17 - Seal.jpg



Description of Photo: Photo 18 - Seal.jpg

Element Photo:



Description of Photo: Photo 19 - Seal.jpg

Element Data:												
Element Group:		Sidewalks ar	nd curbs			Leng	gth:		41.6	m		
Element Name:		Sidewalks ar	nd Curbs			Widt	:h:		0.7 r	n (S), 2.0) m (N)	
Location:		West and eas	st			Heig	ıht:		0.1 r	n		
Material:	Concrete				Cou	nt:		2				
Element Type:						Tota	ıl Quanti	ty:	120.	6 sq. m		
Environment:		Benign				Limi	ted Inspe	ection:				
Protection System	:	None										Performance
Oandition Date:		Units		Excel	lent	Goo	d	Fair		Po	or*	Deficiencies
Condition Data:		sq.m				115	5	5.6				
Comments: Mine	or spalling al	ong edges th	roughout	. 1-300 m	ım x 100	mm spal	l on sou	uthwest cor	ner. S	idewalks	are ver	y dirty.
Recommended W	ork:		Reha	b:	Replac	ce:		Mainte	nance	Needs:	2 -	- Bridge Cleaning

None: X

Urgent:

Clean dirt from sidewalks.

1 Year: X

2 Year:

Element Photo:

Urgent:

1-5 Years:

6-10 Years:



Description of Photo: Photo 20 - Curb.jpg



Description of Photo: Photo 21 - Curb.jpg

Element Photo:



Description of Photo: Photo 22 - Curb.jpg



Description of Photo: Photo 23 - Sidewalk.jpg

Element Photo:



Description of Photo: Photo 24 - Sidewalk.jpg



Description of Photo: Photo 25 - Sidewalk.jpg

Element Photo:

Description of Photo:

Element Data:								
Element Group:		Beam		Length:		30 m		
Element Name:		Girders		Width:				
Location:		Under Deck		Height:				
Material:		Steel		Count:		4		
Element Type:				Total Quant	•	120 m		
Environment:		Benign		Limited Insp	ection:			
Protection System	1:							Performance
O-ndition Date:		Units	Excellent	Good	Fair		Poor*	Deficiencies
Condition Data:		m		120				
Comments: Mod	lerate corros	ion on flanges throu	ghout. No section I	oss observed.				
			<u></u>		_		_	
Recommended W	ork:	Re	hab: Repla	ce:	Mainten	ance Need	ls:	
Urgent:	1-	5 Years: 6-	10 Years:	None: X	Urgent:		1 Year:	2 Year:



Description of Photo: Photo 26 - Girder.jpg



Description of Photo: Photo 27 - Girder.jpg

Element Photo:

Description of Photo:

Element Data:										
Element Group:		Beam			Length:		2.6 m			
Element Name:		Diaphragms			Width:		0.05 m	1		
Location:		Between gird	ers		Height:		0.2 m			
Material:		Steel			Count:		20			
Element Type:					Total Quant	ity:	52			
Environment:		Benign			Limited Insp	ection:				
Protection System	າ:								Perform	ance
Oandition Date:		Units	Excelle	ent	Good	Fair		Poor*	Deficie	ncies
Condition Data:		m			52					
Comments: Mod	derate corros	tion across si	urface throughout.	No section	n loss observ	ed.				
			_							
Recommended W	ork:		Rehab:	Replace:		Maint	enance N	leeds:		
Urgent:	1-	5 Years:	6-10 Years:		None: X	Urgen	t: 🔲	1 Year:	2 Year	:



Description of Photo: Photo 28 - Diaphragm.jpg

Element Data:							
Element Group:		Beam		Length:			
Element Name: Bearings			,	Width:			
Location:		Under Girders		Height:			
Material:		Elastomeric		Count:		8	
Element Type:				Total Quant	ity:	8	
Environment:		Benign		Limited Insp	ection:		
Protection System	1:						Performance
O		Units	Excellent	Good	Fair	Poor*	Deficiencies
Condition Data:		each	8				
Comments: Bea	rings are in e	excellent condition. N	o damage.		•	•	
Recommended W	ork:	Reh	nab: Repla	ace:	Mainten	ance Needs:	
Urgent:	1-	5 Years: 6-1	0 Years:	None: X	Urgent:	1 Year:	2 Year:



Description of Photo: Photo 29 - Bearing.jpg

Element Data:								
Element Group:	Deck		Length:	30 n	n			
Element Name:	Soffit		Width:	8.2	8.2 m			
Location:	All							
Material:	Concrete	Count:	1					
Element Type:			Total Quanti	ity: 246	sq. m			
Environment:	Benign		Limited Insp	ection:				
Protection System:	None					Performance		
Condition Data	Units	Excellent	Good	Fair	Poor*	Deficiencies		
Condition Data:	sq.m		246					
Comments: Conc	crete is in good condition	overall. No damage or cr	Tacks.					
Recommended Wo	ork:	Rehab: Repl	lace:	Maintenance	Needs:			
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent:	1 Year:	2 Year:		



Description of Photo: Photo 30 - Soffit.jpg

Element Data:									
Element Group: Abutments			L	₋ength:		8.2 r	m		
Element Name: Walls			V	Nidth:					
Location: North and south			H	Height:		1.2 r	m		
Material: Concrete				Count: 2					
Element Type:					Total Quantity: 19.6		8 sq. m		
Environment:	nvironment: Benign			L	_imited Insp	ection:			
Protection System	m: None							Performance	
Candition Data		Units	Excellent	(Good	Fair		Poor*	Deficiencies
Condition Data:		sq.m			18	1.68			
Comments: 2 na	Comments: 2 narrow 1.2 m vertical cracks. Light scaling of concrete around base of walls								

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



Description of Photo: Photo 31 - Abutment Wall.jpg

Element Data:								
Element Group:		Piers		Length:		8.2 m		
Element Name: Column Width:								
Location:		Middle		Height:		1.2 m		
Material:		Concrete		Count:		2 (faces of pier)		
Element Type:				Total Quanti	ty:	19.68 sq. m		
Environment:		Benign		Limited Insp	ection:			
Protection System	า:	None					Performan	ice
Condition Data:		Units	Excellent	Good	Fair	Poor*	Deficienci	es
Condition Data.		sq.m		19.68				
Comments: Ligh	nt scaling of	concrete around bas	se of pier wall. No o	racks or delamin	ations.			
Recommended W	/ork:	Re	hab: Repla	ace:	Mainter	nance Needs:		
Urgent:	1-	5 Years: 6-	10 Years:	None: X	Urgent:	1 Year:	2 Year:	



Description of Photo: Photo 32 - Pier.jpg

Element Data:								
Element Group:		Abutments		Length:		8.6 m		
Element Name: Foundati				Width:		0.6 m		
Location: East-West				Height:		0.6 m		
Material: Concrete Coun						2		
Element Type:				Total Quan	tity:	20.64 s	sq. m	
Environment:		Benign		Limited Ins	pection:			
Protection System) :	None						Performance
One dition Date:		Units	Excellent	Good	Fair		Poor*	Deficiencies
Condition Data:		sq.m		20	0.64			
Comments: Hear	vily honeyco	ombed surface. N	o large cracks.					

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



Description of Photo: Photo 33 - Foundations.jpg

Element Data:									
Element Group:		Pier		Length:		8.6 m			
Element Name:		Foundation		Width:		0.6 m			
Location:		Center Pier		Height:		0.6 m			
Material:		Concrete		Count:		2			
Element Type:					Total Quantity: 2		20.64 sq. m		
Environment:		Benign		Limited Insp	ection:				
Protection System	1:	None						Performance	
Condition Data		Units	Excellent	Good	Fair		Poor*	Deficiencies	
Condition Data:		sq.m		20	0.64				
Comments: Sim	ilar to abutm	ent foundations, con	crete has heavily h	oneycombed su	ırface. No lar	ge cracks	•		

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



Description of Photo: Photo 34 - Pier Foundations.jpg

Element Data:								
Element Group:		Abutments		Length:		5.0 m		
Element Name:		Wingwalls	ngwalls V		Width:			
Location:		All Quadrants	Quadrants H			1.2 m		
Material:		Concrete	oncrete		Count: 4			
Element Type:				Total Quan	Total Quantity: 12.0 sq. m		m	
Environment:		Benign	Benign		Limited Inspection:			
Protection System:		None					Performance	
Condition Date:		Units	Excellent	Good	Fair	Poor*	Deficiencies	
Condition Data:		sq.m		10.8	1.2			
Comments: Light	scaling of	concrete around b	ase of walls. Wide ver	tical crack on s	outhwest wir	ngwall.		

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



Description of Photo: Photo 35 - Wingwall.jpg

Element Data:	1								
Element Group:		Embankment	s		Length:				
Element Name:		Embankment	s		Width:				
Location:		All			Height:				
Material:		Soil/Rock/Gra	ass		Count:				
Element Type:					Total Quant	ity:	4		
Environment:		Benign			Limited Insp	ection	1:		
Protection System	1:	Rock							Performance
Canditian Data		Units		Excellent	Good		Fair	Poor*	Deficiencies
Condition Data:		each			4				
Comments: Rip	rap providin	g stable slope	s.						
Recommended W	ork:		Reh	ab: Repla	ace:		Maintenanc	e Needs:	
Urgent:	1-	5 Years:	6-1	0 Years:	None: X]	Jrgent:	1 Year:	2 Year:



Description of Photo: Photo 36 - Embankment.jpg



Description of Photo: Photo 37 - Embankment.jpg

Element Photo:



Description of Photo: Photo 38 - Embankment.jpg

Element Data:						
Element Group:	Watercourse		Length:			
Element Name:	Watercourse		Width:			
Location:	Under Bridge		Height:			
Material:			Count:			
Element Type:			Total Quanti			
Environment:	Benign	<u> </u>	Limited Insp	ection:		
Protection System:	None					Performance
Condition Data:	Units	Excellent	Good	Fair	Poor*	Deficiencies
Condition Data.	all		1			
Comments: Flow	is unobstructed.					
Recommended Wor	rk: Re	hab: Repl	ace:	Maintenand	e Needs:	
Urgent:	1-5 Years: 6-	10 Years:	None: X	Urgent:	1 Year:	2 Year:



Description of Photo: Photo 39 - Watercourse.jpg

Repair and Reha	abilitation Required:		Pric	Estimated Structural		
Element ¹	Repair and Rehabilitation Required ²	6 to 10 Years	1 to 5 Years	Within 1 Year	Urgent	Cost
Structure	Demolition					
Structure	Replacement					
OR						
Deck	Replace =					
Sidewalk/Curb	Rehab. =					
Barrier	Replace =					
Joints	Replace =					
Beams	Rehab. =					
Abutment	Rehab. =					
Pier	Rehab. =					
Wingwall	Rehab. = Concrete crack repair		Х			\$5,000.00
Other						
Estimated Rehal Total Deck L	bilitated or Replacement Structure Dimensions ³ Length (m) Overall Str. Width (m)			Total St	ructural Cost	\$5,000.00

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

Comments	Estimated Associated
	Work Cost
Rout and seal	\$2,000.00
Bridge Cleaning	\$2,000.00
Sidewalk concrete repair	\$1,000.00
Total Associated Work Cost	\$5,000.00
	Rout and seal Bridge Cleaning Sidewalk concrete repair

Total Construction Cost \$10,000.00

Justification:			
Bridge would benefit from re	egular cleaning.		

								MTO Site Nun	nber:		
Inventory Data:											
Structure Name	6 - Lot 3	31, Conc 4	/5								
Main Highway #	Pinetre	ee Road	On X Structure	or Unde	er	Service on Structure	Navig. V	X Road	Non-Navig. W	Othe	er.
Location Description	2.44 km	north of N	orth Muldre	w Lake R	Road	d Service under:	Navig. V	Vater X Road	Non-Navig. W	/ater Othe	er:
Owner/Custodian	Gravenh	nurst									
MTO Region	Northeas	stern				Latitude	44° 55' 12" N	l Long	itude	79° 25' 48	3" W
Regional Engineer						Heritage Designation:	Not Con Desig.	s. X Cons	s./Not App. [t Desi	List/lg. & List	Not Desig.
MTO Area	Gravenh	hurst				Hwy Class:	Freeway	Arterial	Collector	Lo	ocal X
Old County						Posted Speed	60	No. o	of Lanes	1	
Township	Gravenh	hurst				AADT	20		% Truck	0	
Structure Type 1	I-Beam	or Girders	3								
Structure Material 1	Steel					Traffic Directional Boo	und	W-E			
Structure Type 2	Concret	te deck									
Structure Material 2	Concret	te				Inspection Frequency	y	2		(years)	
Total Deck Length	12.6	2.6 (m)			Inspection Year		2019				
Overall Str. Width	4.7	` '			Inspection Duration		2		(hrs)		
Culvert Length	0			(m)							
Total Deck Area	59.22			(sq.m)							
Roadway Width	4.2			(m)		Min. Vertical Clearand	ce			(m)	
Skew Angle	0			(Degree)	Detour Distance		N/A (km)			
No. of Spans	1					Fill on Structure		0		(m)	
Span Lengths	4.3									(m)	
For retaining wall:											
Total Wall Length				(m)		Max. Wall Height				(m)	
Total Wall Area				(sq.m)		Ave. Wall Height				(m)	
						Angle of Backfill				(Degree	es)
Historical Data											
Year Built		Unknowr	n			Year of superstruct. C	Constructed	N/A			
Last Reg. OSIM Inspe		2016				Year of Last Minor Re		N/A			
Last Enh. OSIM Inspe	ction	<u></u>				Year of Last Major Re	ehab	N/A			(4)
Work History: (Date/de	escription)				Current Load Limit	Unvestigation	History: (Date/	description)		(tonnes)
2010 - Lessard bridge cribs.		-	ar pads with	n timber s	leep	pers beyond existing	mvooagaaon	Thotory. (Bato)	<u>400011p11011.j</u>		

MTO Site Number:												
Field Inspection Infor	mation:											
Date of Inspection:		Septer	mber 4, 2019	Type of	Inspection	on:		Reg. OS	IM	X En	h. OSIM	
Inspected By		Kieran	Ferguson	I								
Others in Party:		None										
Eng. Access Equipment:		None										
Special Access Equipment		None										
Weather		Overc	ast	Tempera	ature						18 °C	
Additional Investigati	ons Requi	red:				None		riority ormal	Urger	nt	Estimated Cost	
Material Condition Survey						INOTIC	IN	Ulliai	Olgei	11		
Detailed Deck Conditio	n Survey					Х						
Non-destructive Delam		v of As	nhalt-Covered	Deck:		X						
Concrete Substructure			priait-oovered	DCCK.		X						
Detailed Coating Condi		vey.				X				-		
Detailed Timber Investi						X				-		
Post-Tensioned Strand	investigation					Х				_		
Underwater Investigation						Х				_		
Fatigue Investigation						Х						
Seismic Investigation						X	-					
Structure Evaluation:						Х	<u> </u>					
Monitoring	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,											
Deformations, Settleme	ents and Move	ements	:					X			\$5,000.00	
Crack Widths:						Х						
RSS Horizontal movem						Х						
RSS Vertical movemen						Х						
RSS Local movements						X						
RSS Horizontal movem	nents within o	verall s	tructure:			Х						
RSS Vertical movemen	nts within over	all stru	cture			Х						
RSS Lateral earth pres	sure at the ba	ck of fa	acing elements	3		Х						
Investigation Notes:	Timber cribs	shoul	d be monitored	I for moveme	ent.		Tota	al Cost			\$0.00	
Overall Structure Not	es:											
Recommended Work on Str	ructure	Х	None I	Minor Rehab		Major Rehab	. [Rep	lace			
Timing of Recommended W	/ork		Urgent	1 to 5 ye	ars	6 to 10 y	/ears					
Overall Comments:		Stee	el is generally	in good cor	ndition o	verall. Howey	/er. c	ribs con	tinue to	display o	ongoing	
			erioration and									
Date of Next inspection:		Aug	ust 2021									
Overall Bridge Co	ndition											
% Poor in Deck	% Poor in B	eams			Poor in Barrier		Bri	dge Cond	dition Ind	ex (BCI or BClp)		
0%	0%		0%	6		0%	Ì		BClp 100.00	p BCI		
Overal Bridge Suf	ridge Sufficiency								. 55.00			
Traffic	Econom	ic	Wid						Bridge S	dge Sufficiency Index (BSI)		
0	2		5			5		57.93				

Element Data:	i i							
Element Group:		Approaches		Length:		6.0 m		
Element Name:		Wearing Surface		Width:		4.2 m		
Location:		North and south		Height:				
Material:		Surface Treatment		Count:		2		
Element Type:				Total Quan	tity:	50.4 sq. m		
Environment:		Benign		Limited Ins	pection:			
Protection System	1:	None					Performance	
O TITLE DATE	Units Excellent Good		Fair	Poor*	Deficiencies			
Condition Data:		sq.m	q.m 50.4					
Comments: Mine	or grooves u	nder wheel tracks.	No potholes in grav	el. Finer granule	s pushed to	sides. Steep approa	ch on south.	
Recommended W	ork:	R	ehab: Repl	ace:	Mainter	nance Needs:		
Urgent:	1-	5 Years: 6	-10 Years:	None: X	Urgent:	1 Year:	2 Year:	



Description of Photo: Photo 1 - Approach Wearing Surface.jpg



Description of Photo: Photo 2 - Approach Wearing Surface.jpg

Element Photo:

Element Data:									
Element Group:		Accessories			Length:				
Element Name:		Signs			Width:				
Location:		All			Height:				
Material:		Steel			Count:		4		
Element Type:			Total Quantity:			ty:	4		
Environment:		Benign	Limited Inspection			ection:			
Protection System	:	None							Performance
Condition Data:		Units Excellent			Good	Fa	ir	Poor*	Deficiencies
Condition Data.	each 4								
Comments: Obje	ect warning s	signs are in good	condtion over	all.					
_	_								
Recommended W	ork:		Rehab:	Replac	ce:	Mai	itenance	e Needs:	
Urgent:	1-	5 Years:	6-10 Years:		None: X	Urge	nt:	1 Year:	2 Year:



Description of Photo: Photo 3 - Sign.jpg



Description of Photo: Photo 4 - Sign.jpg

Element Photo:

Element Data:								
Element Group:	Deck		Length:		12.6 m			
Element Name:	Top / Wearing	Surface	Width:		4.7 m			
Location:	All		Height:		59.2 sq. m			
Material:	Steel		Count:		1			
Element Type:			Total Quantit	ty:				
Environment:	Benign		Limited Inspe	ection:				
Protection System:	None					Performan	ce	
Cardition Data	Units	Good	Fair	Poor*	Deficiencie	es		
Condition Data:	sq.m		59.2					
Comments: Steel de	eck has no cracks or der	nts. Dirt and sand is pusl	hed to sides and	center.				
				_				
Recommended Work:		Rehab: Repla	ice:	Mainten	ance Needs:	2 - Bridge Cleaning		
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent:	1 Year:	X 2 Year:		
				Clean di	rt from surface.			



Description of Photo: Photo 5 - Bridge Wearing Surface.jpg



Description of Photo: Photo 6 - Bridge Wearing Surface.jpg

Element Photo:



Description of Photo: Photo 7 - Bridge Wearing Surface.jpg



Description of Photo: Photo 8 - Bridge Wearing Surface.jpg

Element Photo:

Element Data:									
Element Group:		Barrier			Length:		12.6	m	
Element Name:		Railing System	<u> </u>		Width:				
Location:		lest and East			Height:				
Material:	Steel				Count: 2				
Element Type:					Total Quanti	ity:	25.2	m	
Environment:		Benign			Limited Inspection:				
Protection System	1:	Galvanized							Performance
Units Excellent			Good	Fair		Poor*	Deficiencies		
Condition Data: m				20	5.2				
Comments: Barrier rails have minor warping at ends. 2.0 m long scrape. 3 minor dents. 14 timber posts are in good condition. 2 posts									

Comments: Barrier rails have minor warping at ends. 2.0 m long scrape. 3 minor dents. 14 timber posts are in good condition. 2 posts have impact damage.

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

Element Photo:



Description of Photo: Photo 9 - Bridge Barrier Rail.jpg



Description of Photo: Photo 10 - Bridge Barrier Rail.jpg

Element Photo:



Description of Photo: Photo 11 - Bridge Barrier Rail.jpg



Description of Photo: Photo 12 - Barrier Post.jpg

Element Photo:



Description of Photo: Photo 13 - Barrier Post.jpg



Description of Photo: Photo 14 - Barrier Post.jpg

Element Photo:

Element Data:							
Element Group:	Beam		Length:	12.	6 m		
Element Name:	Girders		Width:	0.1	0.15 m		
Location:	Under Deck		Height:	0.4	0.45 m		
Material:	Steel		Count:	8	8		
Element Type:		Total Quant).8 m		
Environment:	Benign		ection:				
Protection System:						Performance	
Candition Data:	Units	Excellent	Good	Fair	Poor*	Deficiencies	
Condition Data:	m		100.8				
Comments: Mino	r corrosion along botton	n flange throughout. No d	ents or section los	SS.	•		
	_						
Recommended Wo	rk:	Rehab: Repl	ace:	Maintenance	e Needs:		
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent:	1 Year:	2 Year:	



Description of Photo: Photo 15 - Girders.jpg



Description of Photo: Photo 16 - Girders.jpg

Element Photo:



Description of Photo: Photo 17 - Girders.jpg

Element Data:								
Element Group:	Beam		Length:	0.4	4 m			
Element Name:	Diaphragms		Width:	0.	0.075 m			
Location:	Under Deck		Height:	0.	0.075 m			
Material:	Steel		Count:	12				
Element Type:			Total Quant	ity: 4.	4.8 m			
Environment:	Benign		Limited Insp	ection:				
Protection System:	Galvanized					Performance		
Condition Date:	Units	Excellent	Good	Fair	Poor*	Deficiencies		
Condition Data:	m 4.8							
Comments: 2-75 mi	n x 75 mm angles. Minor	corrosion along steel t	throughout. No de	ents or section	loss.			
Recommended Work		Rehab: Repl	ace:	Maintenan	ce Needs:			
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent:	1 Year:	2 Year:		



Description of Photo: Photo 18 - Diaphragms.jpg



Description of Photo: Photo 19 - Diaphragms.jpg

Element Photo:

Element Group:		Deck				Length:		12.	12.6 m			
Element Name:		Soffit				Width:		4.7	m			
Location:		All				Height:						
Material:		Steel				Count:			1			
Element Type:						Total Quant	Total Quantity:					
Environment:		Benign	·			Limited Insp	pection:					
Protection System	1:	None									Pe	erformance
Candition Date:		Units		Excelle	ent	Good		Fair	Po	or*	D	eficiencies
Condition Data:		sq.m				59.2						
Comments: Stee	el deck has n	o cracks or de	ents.									
Recommended W	ork:		Reha	ab:	Replace	e:	N	1aintenanc	e Needs:			
Urgent:	1-	5 Years:	6-10	Years:		None: X] U	rgent:] 1 Y	ear:	2	? Year:

Element Data:



Description of Photo: Photo 20 - Soffit.jpg



Description of Photo: Photo 21 - Soffit.jpg

Element Photo:



Description of Photo: Photo 22 - Soffit.jpg

Element Data:							
Element Group:	Abutments		Length:	4.	4.7 m		
Element Name:	Cribs	Cribs Width: 2.0 m					
Location:	North and South	h and South Height: 2.2 m					
Material:	Timber and Stone	Count: 2					
Element Type:			Total Quant	ity: 38	3.3 sq. m		
Environment:	Benign		Limited Insp	pection:			
Protection System:	None					Performance	
Condition Date: Units Excellent		Good	Fair	Poor*	Deficiencies		
Condition Data:	sq.m			28	10.3		

Comments: Cribs made of 200 mm x 200 mm timber beams have heavy decay on the bottom and top members. Horizontal members in the center of the crib height have less deterioration. All timber was very soft when gouge tested. Bridge supported on timber sleepers beyond cribs.

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

Element Photo:



Description of Photo: Photo 23 - Crib.jpg



Description of Photo: Photo 24 - Crib.jpg

Element Photo:



Description of Photo: Photo 25 - Crib.jpg



Description of Photo: Photo 26 - Crib.jpg

Element Photo:

Element Data:						
Element Group:	Embankments		Length:			
Element Name:	Embankments		Width:			
Location:	All		Height:			
Material:	Soil/Rock/Grass		Count:			
Element Type:			Total Quanti	ty: 4		
Environment:	Benign		Limited Insp	ection:		
Protection System:	: None					Performance
Condition Data:	Units	Excellent	Good	Fair	Poor*	Deficiencies
Condition Data:	each		4			
Comments: Larg	e boulders appear to be solid					
Recommended Wo	ork:	Rehab: Repla	ace:	Maintenance	e Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent:	1 Year:	2 Year:



Description of Photo: Photo 27 - Embankment.jpg



Description of Photo: Photo 28 - Embankment.jpg

Element Photo:



Description of Photo: Photo 29 - Embankment.jpg

						ı		
Element Data:								
Element Group:	Watercourse	•	Length:	Length:				
Element Name:	Watercourse							
Location:	Under Bridge		Height:					
Material:			Count:					
Element Type:			Total Quanti	ty: 1				
Environment:	Benign		Limited Insp	ection:				
Protection System:	None					Performance		
Condition Data:	Units	Excellent	Good	Fair	Poor*	Deficiencies		
Condition Data:	all		1					
Comments: Flow is	unobstructed. Moderate veg	etation and branch	es along bottom.					
			_					
Recommended Work:	R	ehab: Repla	ace:	Maintenar	ce Needs:			
Urgent:	1-5 Years: 6	-10 Years:	None: X	Urgent:	1 Year:	2 Year:		



Description of Photo: Photo 30 - Watercourse.jpg



Description of Photo: Photo 31 - Watercourse.jpg

Element Photo:



Description of Photo: Photo 32 - Watercourse.jpg

Repair and Reha	bilitation Required:		Prio	Estimated Structural		
Element ¹	Repair and Rehabilitation Required ²	6 to 10 Years	1 to 5 Years	Within 1 Year	Urgent	Cost
Structure	Demolition					
Structure	Replacement					
0	R					
Deck	Replace =					
Sidewalk/Curb	Rehab. =					
Barrier	Replace =					
Joints	Replace =					
Beams	Rehab. =					
Abutment	Rehab. =					
Pier	Rehab. =					
Other	Timber crib repairs	X				\$10,000.00
Estimated Rehat			Total St	ructural Cost	\$10,000.00	

^{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 Approach Barrier System	\$30,000.00
Detours	Detour Signage and Traffic Control	\$5,000.00
Traffic Control		
Utilities		
Other	Bridge Cleaning	\$1,500.00
	Contingencies	\$10,000.00
	Mobilization and Demobilization; General; Insurance	\$40,000.00
	Total Associated Work Cost	\$86,500.00

Total Construction Cost	\$96,500.00

Justification:

Timber cribs have heavy decay on the bottom and top members. Horizontal members in the center of the crib height have less deterioration. All timber was very soft when gouge tested. Until crib replacement is an option, it is recommended that this bridge to be monitored for continued movement. Approach guide rail should be installed.

<u></u>					MTO Site Number:		
Inventory Data:							
Structure Name	7. Narrows Road	l Bridge, Lot 28, Con	nc 8 South]	
Main Highway #	Narrows Road	On X or Unde Structure	Service on Structure	Navig. \	X Road Ped.	Othe	ər
Location Description	0.22 km east of Hi	ighway 169	Service under:	Navig. \	Water X Non-Navig. \ Road Ped.	Water Othe	er
Owner/Custodian	Gravenhurst						!
MTO Region	Northeastern		Latitude	44° 57' 0" N		79° 25' 12	
Regional Engineer			Heritage Designation:	X Not Cor Desig.		List/lesig. & List	/Not Desig.
MTO Area	Gravenhurst		Hwy Class:	Freeway	Arterial Collector	Lc	ocal X
Old County			Posted Speed	50	No. of Lanes	1	
Township	Gravenhurst		AADT	40	% Truck	0	
Structure Type 1	I-Beam or Girders	S					
Structure Material 1	Steel		Traffic Directional	l Bound	W-E]	
Structure Type 2	Concrete deck						İ
Structure Material 2	Concrete		Inspection Freque	ency	2	(years)	ļ
Total Deck Length	5.8	(m)	Inspection Year		2019]	ĺ
Overall Str. Width	7.2	(m)	Inspection Duration	on	2	(hrs)	
Culvert Length	0	(m)					
Total Deck Area	41.76	(sq.m)					
Roadway Width	6.7	(m)	Min. Vertical Clea	arance		(m)	
Skew Angle	0	(Degree	e) Detour Distance		N/A	(km)	
No. of Spans	1		Fill on Structure		0	(m)	
Span Lengths	3					(m)	
For retaining wall:							
Total Wall Length		(m)	Max. Wall Height			(m)	
Total Wall Area		(sq.m)	Ave. Wall Height			(m)	
			Angle of Backfill			(Degree	es)
Historical Data							
Year Built	2014		Year of superstruc	ct. Constructed	N/A		
Last Reg. OSIM Inspe	<u></u>		Year of Last Mino		N/A		1
Last Enh. OSIM Inspe	ection		Year of Last Majo		2014		
Work History: (Date/d	description)		Current Load Limi		n History: (Date/description)		(tonnes)
2014 - Superstructure		lbutment refacing.		<u>mveouganor</u>	THIStory. (Dater accomplishing		

					MTO Sit	e Number:	:					
Field Inspection Info	rmation:											
Date of Inspection:		Septer	mber 2, 20	19	Type of I	nspectio	n:	X	Reg. OS	SIM	En	h. OSIM
Inspected By		Kieran	ieran Ferguson									
Others in Party:		None										
Eng. Access Equipment:		None	one									
Special Access Equipment		None										
Weather		Overc	ast		Temperat	ure						20 °C
Additional Investigations Required:							N.		riority	I 11		Estimated Cost
Material Condition Survey							None	N	lormal	Urgen	τ	
Detailed Deck Condition	on Survey.						Х					
Non-destructive Delar		v of Δe	nhalt-Cove	rad Da	ck·		X				-	
Concrete Substructure			priait-cove	ieu Dei	CK.		X				_	
Detailed Coating Cond		ivey.					X				-	
Detailed Coating Cond Detailed Timber Invest							X					
Post-Tensioned Strand							X					
Underwater Investigation	ı invesilgalion											
0							X	-				
Fatigue Investigation							X				_	
Seismic Investigation							X				_	
Structure Evaluation:							X	-				
Monitoring	(1 N.)	1.					X	-				
Deformations, Settlem	ents and Mov	ements	:				X					
Crack Widths:							Х					
RSS Horizontal moven							Х					
RSS Vertical movemen							Х					
RSS Local movements				ıts:			Х					
RSS Horizontal moven							Х					
RSS Vertical movemer							Х					
RSS Lateral earth pres	ssure at the ba	ack of fa	acing eleme	ents			Х					
Investigation Notes:								Tot	al Cost			\$0.00
Overall Structure Not	tes:											
Recommended Work on St	ructure	Х	None	Min	or Rehab.		Major Rehab		Rep	lace		
Timing of Recommended V	Vork		Urgent		1 to 5 yea	irs	6 to 10 y	ears				
Overall Comments:		Stru	cture is q	enerall	y in good	conditi	on overall.					
			·	,	, 0							
Date of Next inspection:		Aug	just 2021									
Overall Bridge Co	ndition											
% Poor in Deck	% Poor in Beams % Poor in Substructure			% F	Poor in Barrier		Bri		ndition Index (BCI or BCIp)			
0%	0%			0%			0%			BClp 100.00		BCI 89.38
Overal Bridge Su	fficiency											, 55.55
Traffic	Econom	ic		Width			Alignment			Bridge Su	ufficiency	y Index (BSI)
0	3			3			2		81.38			

Element Data:								
Element Group:	Į.	Approaches		Length:		6.0 m		
Element Name:	t Name: Wearing Surface			Width:		6.7 m		
Location:	E	East and West	Height:					
Material: Surface Treatment			Count:		2			
Element Type:				Total Quant	ity:	80.4 sq. m		
Environment:		Benign		Limited Insp	ection:			
Protection System	: 1	None					Performance	
O		Units	Excellent	Good	Fair	Poor*	Deficiencies	
Condition Data:		sq.m		80.4				
Comments: Sma	II cracks at co	onnection to brid	ge. Slightly rough surf	ace throughout	. No potholes			
Recommended Wo	ork:	F	Rehab: Replac	ce:	Maintena	tenance Needs:		
Urgent:	1-5	Years:	6-10 Years:	None: X	Urgent:	1 Year:	2 Year:	
				_				



Description of Photo: Photo 1 - Approach Wearing Surface.jpg



Description of Photo: Photo 2 - Approach Wearing Surface.jpg

Element Photo:

									ı
Element Data:	l I								
Element Group:		Approaches			Length: 49 m, 24 r			m, 24 m, 25m, 25ı	m
Element Name:		Barriers			Width:				
Location:		All Quadrants			Height:				
Material:		Steel / Wood			Count:		4		
Element Type:					Total Quantity: 123 m				
Environment:		Benign			Limited Insp	ection	:		
Protection System):	Galvanized							Performance
Candition Date:		Units	Excellent		Good		Fair	Poor*	Deficiencies
Condition Data:		m	123						
Comments: Very	/ minor scrap	oes throughout. N	lo damage.		-				
-	-	-	-						
Recommended W	ork:		Rehab: Repla	ace:		N	Maintenance	e Needs:	
Urgent:	1-	5 Years:	6-10 Years:		None: X	U	Jrgent:	1 Year:	2 Year:



Description of Photo: Photo 3 - Approach Rail.jpg



Description of Photo: Photo 4 - Approach Rail.jpg

Element Photo:



Description of Photo: Photo 5 - Approach Rail.jpg

Element Data:						
Element Group:	Accessories		Length:			
Element Name:	Signs		Width:			
Location:	All		Height:			
Material:	Steel		Count:	1		
Element Type:			Total Quant	•		
Environment:	Benign		Limited Insp	ection:		
Protection System:	None					Performance
Candition Data:	Units	Excellent	Good	Fair	Poor*	Deficiencies
Condition Data:	each		1			
Comments: Only 1	object warning sign at	northeast approach.				
-	•	• •				
Recommended Work	« :	Rehab: Repl	ace:	Maintenance	Needs:	18 - Other
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent:	1 Year: X	2 Year:
				Add 3 more	object warning s	signs.
					-	



Description of Photo: Photo 6 - Sign.jpg

Element Data:								
Element Group:	Deck			Length:		5.8 m		
Element Name:	Top / Weari	ng Surface		Width:		6.7 m		
Location:	All			Height:				
Material:	Asphalt			Count:		1		
Element Type:				Total Quanti	ty:	38.9 sq. m		
Environment:	Benign			Limited Insp	ection:			
Protection System	: None						Performance	
Condition Data:	Units	Excellent		Good	Fair	Poor*	Deficiencies	
Condition Data.	sq.m			38.9				
	Ill cracks at connection t d pushed to side of road		rough s	urface throug	ghout. No pot	holes. Minor center	line crack. Dirt and	
Recommended W	ork:	Rehab: F	Replace:		Maintena	ance Needs:		
Urgent:	1-5 Years:	6-10 Years:		None: X	Urgent:	1 Year:	2 Year:	



Description of Photo: Photo 7 - Bridge Wearing Surface.jpg



Description of Photo: Photo 8 - Bridge Wearing Surface.jpg

Element Photo:



Description of Photo: Photo 9 - Bridge Wearing Surface.jpg

Element Data:						
Element Group:	Barrier		Length:	5.8	m	
Element Name:	Hand Rail / Rai	ling System	Width:			
Location:	North and Sou	th Side	Height:			
Material:	Steel / Wood		Count:	2		
Element Type:			Total Quanti	•	6 m	
Environment:	Benign		Limited Inspe	ection:		
Protection System:	Galvanized					Performance
Condition Date:	Units	Excellent	Good	Fair	Poor*	Deficiencies
Condition Data:	m	11.6				
Comments: Very mi	inor scrapes throughout.	No damage.				
Recommended Work:		Rehab: Repla	ce:	Maintenance	e Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent:	1 Year:	2 Year:



Description of Photo: Photo 10 - Bridge Barrier.jpg



Description of Photo: Photo 11 - Bridge Barrier.jpg

Element Photo:



Description of Photo: Photo 12 - Bridge Barrier.jpg

Element Data:							
Element Group:		Deck		Length:		5.8 m	
Element Name:		Soffit		Width:		7.2 m	
Location:		All		Height:			
Material:		Steel		Count:		1	
Element Type:				Total Quant	ity:	41.8 sq. m	
Environment:		Benign		Limited Insp	ection:		
Protection System	1:	None					Performance
Condition Data:		Units	Excellent	Good	Fair	Poor*	Deficiencies
Condition Data.		sq.m	41.8				
Comments: Mine	or leakage fr	om above. No dam	nage in steel.				
Recommended W	ork:		Rehab: Repl	ace:	Mainte	nance Needs:	
Urgent:	1-	5 Years:	6-10 Years:	None: X	Urgent:	1 Year:	2 Year:



Description of Photo: Photo 13 - Metal Soffit.jpg



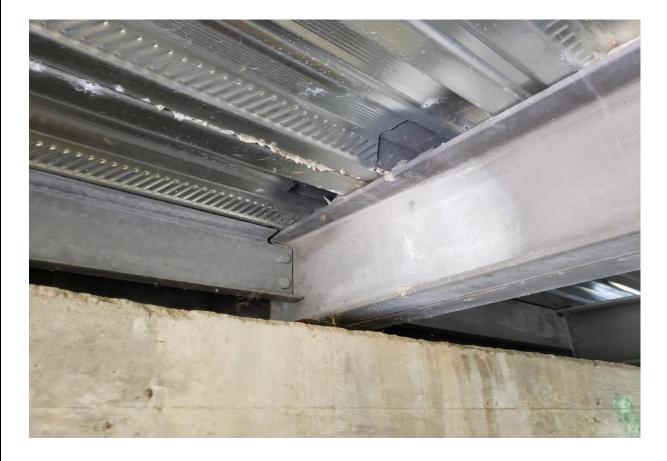
Description of Photo: Photo 14 - Metal Soffit.jpg

Element Photo:



Description of Photo: Photo 15 - Metal Soffit.jpg

Element Data:							
Element Group:	Beam		Length:		4.6 m		
Element Name:	Girders		Width:		0.2 m		
Location:	Under Deck		Height:		0.3 m		
Material:	Steel		Count:		5		
Element Type:			Total Quanti	•	23 m		
Environment:	Benign		Limited Insp	ection:			
Protection System:	Galvanized						Performance
Condition Date:	Units	Excellent	Good	Fair		Poor*	Deficiencies
Condition Data:	m	23					
Comments: No damage to s	teel. Minor staining al	ong ballast walls.					
Recommended Work:	Reh	nab: Replace	e:	Mainten	ance Ne	eeds:	
Urgent: 1	-5 Years: 6-1	0 Years:	None: X	Urgent:		1 Year:	2 Year:
				ı			



Description of Photo: Photo 16 - Girder.jpg



Description of Photo: Photo 17 - Girder.jpg

Element Photo:



Description of Photo: Photo 18 - Girder.jpg

Element Data:								
Element Group:	Beam			Length:		1.7 r	n	
Element Name:	Diaphrag			Width:		0.06		
Location:	Between	Girders		Height:		0.2 r	n	
Material:	Steel			Count:		4		
Element Type:				Total Quan	•	6.8 n	n	
Environment:	Benign			Limited Ins	pection:			
Protection System:	Galvaniz	ed						Performance
Condition Data:	Units		Excellent	Good	Fair		Poor*	Deficiencies
Condition Data.	m			6.8				
Comments: No da	nmage to steel.							
Recommended Wor	rk:	Reh	ab: Repla	ace:	Mainter	nance	Needs:	
Urgent:	1-5 Years:	6-10) Years:	None: X	Urgent:		1 Year:	2 Year:



Description of Photo: Photo 19 - Diaphragm.jpg



Description of Photo: Photo 20 - Diaphragm.jpg

Element Photo:

Description of Photo:

Element Data:								
Element Group:		Abutments		Length:		7.2 m		
Element Name:		Walls		Width:				
Location:		East-West		Height:		1.2 m		
Material:		Concrete		Count:		2		
Element Type:				Total Quant	ity:	8.64 s	q. m	
Environment:		Benign		Limited Insp	ection:			
Protection System	:	None						Performance
Canditian Data		Units	Excellent	Good	Fair		Poor*	Deficiencies
Condition Data:		sq.m		8.2	0.44			
Comments: Seve	eral 200 mm	x 200 mm spalls alor	ig outer edges. Oth	erwise concrete	is in good o	onditio	on.	

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



Description of Photo: Photo 21 - Abutment Wall.jpg



Description of Photo: Photo 22 - Abutment Wall.jpg

Element Photo:



Description of Photo: Photo 23 - Abutment Wall.jpg

Element Data:									
Element Group:		Abutments			Length:		7.2 m		
Element Name:		Foundation			Width:		3.0 m		
Location:		Beneath Brid	ge		Height:				
Material:		Concrete			Count:		1		
Element Type:					Total Quantit	y:	21.6 sq. m		
Environment:		Benign			Limited Inspe	ection:			
Protection System	1:	None							Performance
Condition Data		Units	Excellent		Good	Fair	Po	oor*	Deficiencies
Condition Data:		sq.m				21.6			
Comments: Very	/ rough surfa	ace due to ero	sion but still intact.						
Recommended W	ork:		Rehab:	Replace:		Mainten	ance Needs:		
Urgent:	1-	5 Years:	6-10 Years:		None: X	Urgent:	1\	/ear:	2 Year:



Description of Photo: Photo 24 - Foundation.jpg



Description of Photo: Photo 25 - Foundation.jpg

Element Photo:



Description of Photo: Photo 26 - Foundation.jpg

Element Data:								
Element Group:	Abut	ments		Length:		1.4 m		
Element Name:	Wing	walls		Width:				
Location:	All Q	uadrants		Height:		1.2 m		
Material:	Cond	rete		Count:		4		
Element Type:				Total Qua	•	3.36 sq.	m	
Environment:	Beni			Limited In	spection:			
Protection System			_					Performance
Canditian Data	Unit	ts	Excellent	Good	Fair		Poor*	Deficiencies
Condition Data:	sq.ı	n		3.36				
Comments: Con	crete is in good co	ondition.						
Recommended W	ork:	Rel	hab: Rep	ace:	Maint	enance Ne	eds:	
Urgent:	1-5 Year	rs: 6-1	10 Years:	None:	(Urgen	:: 🔲	1 Year:	2 Year:



Description of Photo: Photo 27 - Wingwall.jpg



Description of Photo: Photo 28 - Wingwall.jpg

Element Photo:



Description of Photo: Photo 29 - Wingwall.jpg

Element Data:												
Element Group:		Embankment	S			Length:						
Element Name:		Embankment	S			Width:						
Location:		All				Height:						
Material:		Soil/Rock/Gra	ass			Count:						
Element Type:						Total Quanti	ity:	4	4			
Environment:		Benign				Limited Insp	ectio	on:				
Protection System):	None									Performan	се
Candition Date:		Units		Excellent		Good		Fair		Poor*	Deficiencie	es
Condition Data:		each				4						
Comments: Roc	k embankme	ents are stable	and int	act.								
										_		
Recommended W	ork:		Reh	nab: Repl	ace:			Maintena	ince Needs	s:		
Urgent:	1-	5 Years:	6-1	0 Years:		None: X		Urgent:	1	Year:	2 Year:	



Description of Photo: Photo 30 - Embankments.jpg

Element Data:						
Element Group:	Watercourse		Length:			
Element Name:	Watercourse		Width:			
Location:	Under Bridge		Height:			
Material:			Count:			
Element Type:			Total Quanti	ty: 1		
Environment:	Benign		Limited Insp	ection:		
Protection System:	None			·		Performance
Cardition Date:	Units	Excellent	Good	Fair	Poor*	Deficiencies
Condition Data:	all		1			
Comments: Flow i	is unobstructed. Heavy v	regetation at north end.	-			
	-					
Recommended Wor	·k:	Rehab: Repl	ace:	Maintenance	e Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent:	1 Year:	2 Year:



Description of Photo: Photo 31 - Watercourse.jpg

Repair and Reha	bilitation Required:		Pric	ority		Estimated Structural
Element ¹	Repair and Rehabilitation Required ²	6 to 10 Years	1 to 5 Years	Within 1 Year	Urgent	Cost
Structure	Demolition					
Structure	Replacement					
0	R					
Deck	Replace =					
Sidewalk/Curb	Rehab. =					
Barrier	Replace =					
Joints	Replace =					
Beams	Rehab. =					
Abutment	Rehab. =					
Pier	Rehab. =					
Other						
	oilitated or Replacement Structure Dimensions ³					
Total Deck L	ength (m) Overall Str. Width (m)			Total Str	ructural 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	Bridge Cleaning	\$1,500.00
	Install 3 Object Warning Marker Signs	\$900.00
	Total Associated Work Cost	\$2,400.00
	Total Our devetor Out	40.400.00
	Total Construction Cost	\$2,400.00

Justification:	
Bridge is in a generally good condition.	
Bridge is in a generally good condition.	

						MTO Site Number:		
Inventory Data:								
Structure Name	8 - Sniders Bay	/ Bridge, Lot 31, Cond	ວ 7 Sou	uth]	
Main Highway #	Sniders Bay Road	On X or Und Structure	er _	Service on Structure	Navig. W	X Road Ped.	Othe	ər
Location Description	0.5 km west of C	District Road 169		Service Navig. under: Rail		Nater X Non-Navig. \ Road Ped.	Water Othe	ər
Owner/Custodian	Gravenhurst			コ				
MTO Region	Northeastern			Latitude	44° 57' 0" N		79° 27' 0	
Regional Engineer				Heritage Designation:	Not Con		List/l	Not Desig.
MTO Area	Gravenhurst] H	lwy Class:	Freeway	Arterial Collector	Lc	ocal X
Old County			P	osted Speed	50	No. of Lanes	1	
Township	Gravenhurst		A	ADT	140	% Truck	0	
Structure Type 1	T-Beam		Ī					
Structure Material 1	Concrete] T	raffic Directional Bo	ound	W-E]	
Structure Type 2	Concrete deck		Ī					
Structure Material 2	Concrete			nspection Frequenc	;у	2	(years)	
Total Deck Length	7.2	7.2 (m)				2019	j	
Overall Str. Width	5.7	(m)	In	nspection Duration		2	(hrs)	
Culvert Length	0	(m)						
Total Deck Area	41.04	(sq.m)						
Roadway Width	4.4	(m)	M	lin. Vertical Clearar	nce		(m)	
Skew Angle	0	(Degree	e) D	etour Distance		N/A	(km)	
No. of Spans	1		Fi	ill on Structure		0	(m)	
Span Lengths	5.8						(m)	
For retaining wall:								
Total Wall Length		(m)	M	lax. Wall Height			(m)	
Total Wall Area		(sq.m)	A	ve. Wall Height			(m)	
			A	ingle of Backfill			(Degree	es)
Historical Data								
Year Built	1930		Y	ear of superstruct.	Constructed	N/A		
Last Reg. OSIM Inspe				ear of Last Minor R		N/A		l
Last Enh. OSIM Inspe	ection			ear of Last Major R	tehab	N/A		
Work History: (Date/d	description)		U	Current Load Limit	Unvestigation	History: (Date/description)		(tonnes)
Work History, (Datora	<u>езоприоту</u>				<u>IIIV63ugauo.ii</u>	Tilstory. (Date/description)		

						MTO Site Number:						
Field Inspection Infor	mation:											
Date of Inspection:	;	September	2, 2019	Type of	Inspection	on:	X Reg.	OSIM	En	h. OSIM		
Inspected By		Kieran Ferç	guson	1								
Others in Party:	ı	None										
Eng. Access Equipment:		None										
Special Access Equipment		None	ue									
Weather		Overcast		Tempera	ıture					20 °C		
Additional Investigation	ons Requir	ed:				Nama	Priority			Estimated Cost		
Material Condition Survey						None	Norma	l Urger	וו			
Detailed Deck Condition	o Survav.					Х						
Non-destructive Delami		of Δsnhalt.	Covered De	ock.		X						
Concrete Substructure			OOVCICG DC	OK.		X						
Detailed Coating Condi		vey.				X						
						X	-		-			
Detailed Timber Investig	•											
Post-Tensioned Strand	investigation.					X			_			
Underwater Investigation						Х						
Fatigue Investigation						Х						
Seismic Investigation						X						
Structure Evaluation:						Х						
Monitoring						Х						
Deformations, Settleme	ents and Move	ments:				Х						
Crack Widths:						Х						
RSS Horizontal movem						X						
RSS Vertical movemen						X						
RSS Local movements						X						
RSS Horizontal movem	ents within ov	erall structu	ıre:			Х						
RSS Vertical movemen	ts within overa	all structure				Х						
RSS Lateral earth press	sure at the ba	ck of facing	elements			Х						
Investigation Notes:						Total Cost				\$0.00		
Overall Structure Note	es:					•						
Recommended Work on Str	ucture	None	e Mir	nor Rehab		Major Rehab	. X	Replace				
Timing of Recommended W	ork	Urge	ent X	1 to 5 ye	ars	6 to 10 y	/ears					
Overall Comments:		Structure	e is general	in poor c	ondition	overall. The	bridae sh	ould be repl	aced.			
	Comments: Structure is general in poor condi											
Date of Next inspection:	of Next inspection: August 2021											
Overall Bridge Co	ndition	August 2										
% Poor in Deck	% Poor in Be	deams % Poor in Substructure %				Poor in Barrier		Bridge Cond	lition Ind	ey (BCI or BCIn)		
60%	17%	70	15%	J. GOLGI G	/01	BClp			adon mud	tion Index (BCI or BCIp) BCI		
Overal Bridge Suf								66.15		32.10		
Traffic	Economi	c	Width			Alignment		Bridge S	ufficiency	y Index (BSI)		
0	3		5			5			19.10			

Element Data:										
Element Group:		Approaches			Length:			6.0 m		
Element Name:		Wearing Surface			Width:		4.4 m			
Location:		East and West			Height:					
Material:		Surface Treatment			Count:		2			
Element Type:					Total Quantity: 5		52.8 sq. m			
Environment:		Benign			Limited Inspection:					
Protection System:	•	None							Performance	
Oandition Date		Units	Excellent		Good	Fair		Poor*	Deficiencies	
Condition Data:		sq.m			47.8	5				
		ounced lip at bridge c vest approach. 300 mi				•	y whe	el rutting in asp	halt. 400 mm x 400	

Recommended Work:

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

Repair potholes.

Element Photo:



Description of Photo: Photo 1 - Approach Wearing Surface.jpg



Description of Photo: Photo 2 - Approach Wearing Surface.jpg

Element Photo:



Description of Photo: Photo 3 - Approach Wearing Surface.jpg

Element Data:	1								
Element Group:		Deck		Length:		7.2 m			
Element Name:		Top / Wearing Sι	ırface	Width:		4.4 m			
Location:		All		Height:					
Material:		Asphalt		Count:		1			
Element Type:				Total Quanti	ty:	31.7 sq. m			
Environment:		Benign		Limited Insp	ection:				
Protection System):	None						Performance	
Condition Date:		Units	Excellent	Good	Fair	Poo	or*	Deficiencies	
Condition Data:	sq.m 23.7				8				
Comments: Hear	vy wheel trea	ading leading to le	oss of asphalt. Rough	n, scaled surface t	hroughout. H	leavy dirt bui	ldup at ed	dges.	
Recommended W	ork:		Rehab: Repl	ace:	Mainten	ance Needs:	2 - I	Bridge Cleaning	
Urgent:	1-	5 Years:	6-10 Years:	None: X	Urgent:	1 Ye	ear: X	2 Year:	
					Surface	should be cle	eaned.		



Description of Photo: Photo 4 - Bridge Wearing Surface.jpg



Description of Photo: Photo 5 - Bridge Wearing Surface.jpg

Element Photo:



Description of Photo: Photo 6 - Bridge Wearing Surface.jpg

Element Data:									
Element Group:		Barrier		Length: 7.2		ا 7.2	7.2 m		
Element Name:		Railing System			Width: 0.46		∙6 m		
Location:		North and South Side		Height: 0.9 n) m			
Material:		Concrete		Count: 2					
Element Type:					Total Quantity: 14.4		m		
Environment:		Benign			Limited Inspection:				
Protection System	1:								Performance
Canditian Data		Units	Excellent		Good	Fair		Poor*	Deficiencies
Condition Data: m					11	·	3.4		
Comments: Northeast corner struck by vehicle and is heavily damaged, 5x 300 mm x 300 mm snalls on south side, 3x 300 mm x 300 mm									

Comments: Northeast corner struck by vehicle and is heavily damaged. 5x 300 mm x 300 mm spalls on south side. 3x 300 mm x 300 mm spalls on north side. Some cracks in posts.

Recommended Work:		Rehab: Replace	e: X	Maintenance Ne	eds:	
Urgent:	1-5 Years: X	6-10 Years:	None:	Urgent:	1 Year:	2 Year:
Replace barrier system.						

Element Photo:



Description of Photo: Photo 7 - Bridge Barrier.jpg



Description of Photo: Photo 8 - Bridge Barrier.jpg

Element Photo:



Description of Photo: Photo 9 - Bridge Barrier.jpg

El t Data								
Element Data:	1							
Element Group:		Accessories		Length:				
Element Name:		Signs		Width:				
Location:		All		Height:				
Material:		Steel		Count:		5		
Element Type:				Total Quanti	•	5		
Environment:		Benign		Limited Insp	ection:			
Protection System	1:	None		Good				Performance
Condition Data:		Units	Excellent	Fair	Po	or*	Deficiencies	
Condition Data.	each 3				2			
Comments: 4 ob	ject warning	signs; 1 is cracl	ked and bent, one has	minor bends. 1 C	ne Lane Brid	dge sign in go	ood condit	ion.
Recommended W	ork:		Rehab: Repl	ace:	Mainten	nance Needs:		18 - Other
Urgent:	1-	5 Years:	6-10 Years:	None: X	Urgent:	1 Y	ear: X	2 Year:
					Add one	e lane tab to n	narrow stru	ucture sign



Description of Photo: Photo 10 - Sign.jpg



Description of Photo: Photo 11 - Signs.jpg

Element Photo:



Description of Photo: Photo 12 - Signs.jpg

Element Data:									
Element Group:		Deck		Length: 5		5.8 ו	5.8 m		
Element Name:		Soffit			Width: 5.7 i		m		
Location:		All			Height:				
Material:		Concrete		Count: 1					
Element Type:					Total Quantity: 33.		33.1	sq. m	
Environment:		Benign			Limited Inspection:				
Protection System	:	None							Performance
Candition Data		Units	Excellent		Good	Fair		Poor*	Deficiencies
Condition Data:		sq.m				13.1		20	
Comments: Large 400 mm x 400 mm spalls occur approximately every 2.0 m. Delaminations throughout. Exposed corroded reinforcing									

Comments: Large 400 mm x 400 mm spalls occur approximately every 2.0 m. Delaminations throughout. Exposed corroded reinforcing steel.

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

Element Photo:



Description of Photo: Photo 13 - Soffit.jpg



Description of Photo: Photo 14 - Soffit.jpg

Element Photo:



Description of Photo: Photo 15 - Soffit.jpg

Element Data:									
Element Group:		Beam			Length:		5.8 ı	m	
Element Name:		Girders			Width: 0.3 i		3 m		
Location:		Under Deck		Height: 0.4 r		l m			
Material:		Concrete		Count: 4		4			
Element Type:					Total Quantity: 23.2		23.2	. m	
Environment:		Benign			Limited Inspection:				
Protection System	1:								Performance
Canditian Data		Units	Excellent		Good	Fair		Poor*	Deficiencies
Condition Data:		m				19.2		4	
Comments: Eac	Comments: Each girder has approximately 3x 300 mm x 300 mm spalls exposing rebar, especially along soffit connections. Delaminated								

Comments: Each girder has approximately 3x 300 mm x 300 mm spalls exposing rebar, especially along soffit connections. Delaminated concrete throughout.

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

Element Photo:



Description of Photo: Photo 16 - Girder.jpg



Description of Photo: Photo 17 - Girder.jpg

Element Photo:



Description of Photo: Photo 18 - Girder.jpg

Element Data:												
Element Group: Abutmer		nents			Length:		5.	5.7 m				
Element Name:	Walls	Walls			Width:							
Location:	East-West	East-West			Height:		1.	1.2 m				
Material:	Concrete	Concrete			Count:		2					
Element Type:					Total Quantity:		13	13.7 sq. m				
Environment: Benign					Limited Inspection:		:					
Protection System										Performanc	е	
O Tiller Date	Units	Exc	cellent		Good		Fair		oor*		Deficiencies	S
Condition Data:	sq.m						11.7		2			
Comments: Bott	om 200 mm of wall is hea	vily eroded. Sca	aled concr	ete s	surface throu	ghout						
Recommended W	Rehab: X	Rehab: X Replace:			N	Maintenance Needs:						
Urgent:	1-5 Years: X	6-10 Years			None:	U	Irgent:	1	Year:		2 Year:	
Concrete repairs												



Description of Photo: Photo 19 - Abutment Wall.jpg



Description of Photo: Photo 20 - Abutment Wall.jpg

Element Photo:



Description of Photo: Photo 21 - Abutment Wall.jpg

Element Data:									
Element Group:	ement Group: Embankments				Length:				
Element Name:	·				Width:				
Location:	ocation: All				Height:				
Material: Soil/Rock/Grass			Count:						
Element Type:			Total Quantity: 4						
Environment:	Benign		Limited Inspection:						
Protection System:	None					Performance			
Condition Data	Units	Excellent	Good	Fair	Poor*	Deficiencies			
Condition Data:	each				4				
Comments: Steep embankn	nents with heavy v	egetation. Edges of roadv	vay starting to	erode near bri	dge.				
·	-		-		_				
Recommended Work:		Maintenanc	e Needs:						
Urgent: 1	-5 Years: X	6-10 Years:	None:	Urgent:	1 Year:	2 Year:			
Repair washout.									



Description of Photo: Photo 22 - Embankment.jpg



Description of Photo: Photo 23 - Embankment.jpg

Element Photo:



Description of Photo: Photo 24 - Embankment.jpg

						-
Element Data:						
Element Group:	Watercourse		Length:			
Element Name:	Watercourse		Width:			
Location:	Under Bridge		Height:			
Material:			Count:			
Element Type:			Total Quanti	ty: 1		
Environment:	Benign		Limited Insp	ection:		
Protection System:	None					Performance
Candition Date:	Units	Excellent	Good	Fair	Poor*	Deficiencies
Condition Data:	all			1		
Comments: Flow is une	obstructed. Heavy veget		•	•		
Recommended Work:	ce:	Maintenan	ce Needs:			
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent:	1 Year:	2 Year:



Description of Photo: Photo 25 - Watercourse.jpg

Repair and Reha	abilitation Required:		Pric	ority		Estimated Structural
Element ¹	Repair and Rehabilitation Required ²	6 to 10 Years	1 to 5 Years	Within 1 Year	Urgent	Cost
Structure	Demolition					
Structure	Replacement		Х			\$610,000.00
C	DR .					
Deck	Rehab. = Waterproof and Pave					
Deck	Rehab. = Concrete Repairs					
Barrier	Replace = Replace Barrier					
Joints	Replace =					
Beams	Rehab. = Concrete Repairs					
Abutment	Rehab. = Concrete Repairs					
Embankments	Rehab. = Repair washout					
Other						
Estimated Reha Total Deck I			Total Str	ructural Cost	\$610,000.00	

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

Associated Work	Comments	Estimated Associated
		Work Cost
Approaches	Install approach guide rail system	\$30,000.00
Detours		
Traffic Control		\$15,000.00
Utilities		
Other	Contingencies	\$70,000.00
	Mobilization and Demobilization; General; Insurance	\$75,000.00
	Total Associated Work Cost	\$190,000.00
		-

Total Construction C	Cost \$800,000.00

Justification:
Due to extensive concrete repairs to barriers, deck, soffit, girders and abutment walls; we recommend the structure to be replaced.

<u></u>					MTO Site Number:		
Inventory Data:							
Structure Name	9 - Lot 10/11, Con	nc 10]	
Main Highway #	Hopkins Road	On X or Und	der Service on Structure	Rail	X Road Ped.	Othe	ər
Location Description	0.57 km south of N	vlerkley Road	Service under:	Navig. \	Water X Non-Navig. \ Road Ped.	Water Othe	ər
Owner/Custodian	Gravenhurst						
MTO Region	Northeastern		Latitude	44° 54' 36"		79° 9' 0'	
Regional Engineer			Heritage Designation:	X Not Con Desig.		List/l	Not Desig.
MTO Area	Gravenhurst		Hwy Class:	Freeway	Arterial Collector	Lc	ocal X
Old County			Posted Speed	60	No. of Lanes	1	
Township	Gravenhurst		AADT	10	% Truck	0	
Structure Type 1	I-Beam or Girders	S]				
Structure Material 1	Steel		Traffic Directions	al Bound	N-S]	
Structure Type 2	Concrete deck]				
Structure Material 2	Concrete		Inspection Frequ	uency	2	(years)	
Total Deck Length	10.8	(m)	Inspection Year		2019]	
Overall Str. Width	4.3	(m)	Inspection Durat	tion	2	(hrs)	
Culvert Length	0	(m)					
Total Deck Area	46.44	(sq.m)					
Roadway Width	3.5	(m)	Min. Vertical Cle	arance		(m)	
Skew Angle	0	(Degree	ee) Detour Distance	!	N/A	(km)	
No. of Spans	1		Fill on Structure		0	(m)	
Span Lengths	5.6					(m)	
For retaining wall:							
Total Wall Length		(m)	Max. Wall Heigh	nt		(m)	
Total Wall Area		(sq.m)	Ave. Wall Height	t		(m)	
			Angle of Backfill			(Degree	es)
Historical Data							
Year Built	1920		Year of superstr	ruct. Constructed	N/A		
Last Reg. OSIM Inspe	<u></u>		Year of Last Min		N/A		ļ
Last Enh. OSIM Inspe	ection		Year of Last Maj	•	N/A		
Work History: (Date/d	laccrintion)		Current Load Lir		h History: (Date/description)	5	(tonnes)
2017 - Deck replacen				11100034	1111000 y. (2000, 2000, p)		

								MTO Site	e Number:			
Field Inspection Info	rmation:											
Date of Inspection:	\top	Septer	mber 4, 20	19	Type of	Inspection	on:		Reg. OS	IM	X Enl	h. OSIM
Inspected By		Kieran	Fergusor	1								
Others in Party:		None										
Eng. Access Equipment:		None										
Special Access Equipment		None										
Weather		Overca	vercast Temperature 18 °								18 °C	
Additional Investigat	ions Requi	red:					None		riority Iormal	Urgent	\Box	Estimated Cost
Material Condition Survey							None	 '	IOIIIIai	Orgent	+	
Detailed Deck Condition	on Survey						Х				_	
Non-destructive Delan		v of Asi	nhalt-Cove	red De	ck.		X				+	
Concrete Substructure		<u> </u>	pridit 0010	100 20	<u> </u>		X				_	
Detailed Coating Cond							X				+	
Detailed Timber Invest							X	1			+	
Post-Tensioned Strand		1:					X				+	
Underwater Investigation	<u></u>	•					X	1			+	
Fatigue Investigation							X	1			+	
Seismic Investigation							X				\top	
Structure Evaluation:							X				+	
Monitoring							X				\top	
Deformations, Settlem	ents and Mov	ements	:						Χ		\top	\$5,000.00
Crack Widths:							Х					, .,
RSS Horizontal mover	nents of face:						Х				\top	
RSS Vertical movemen	nts of overall s	structur	e:				X	1				
RSS Local movements				nts:			X				\top	
RSS Horizontal mover	nents within o	verall s	tructure:				Х				+	
RSS Vertical movemen	nts within over	rall stru	cture				Х				_	
RSS Lateral earth pres	ssure at the ba	ack of fa	acing elem	ents			Х				+	
Investigation Notes:			<u> </u>					Tot	al Cost			\$5,000.00
Overall Structure No	tes:											
Recommended Work on St	tructure	П	None	Min	or Rehab.		Major Rehab).	X Rep	lace		
Timing of Recommended V	Vork		Urgent	X	1 to 5 year	ars	6 to 10	years				
Overall Comments:		The t	imber crib	s supp	orting th	is bridg	e are in very	poor	conditio	n and nee	d to be	replaced. Until
Ovordin Commonito.					-	-	-	•				ment. Other timber
												arrier system
		woul	d improve	safety	·. ·				•	•		·
Date of Next inspection:		Aug	ust 2021									
Overall Bridge Co	ondition											
% Poor in Deck	% Poor in B	eams	% Poor i	n Subs	tructure	% F	Poor in Barrier	ſ	Brid		ion Inde	ex (BCI or BClp)
7%	5%			100%			9%	BClp BCl			BCI 26.21	
Overal Bridge Su	fficiency											
Traffic	Econom	ic		Width	<u> </u>		Alignment			Bridge Sut	fficienc	y Index (BSI)
4	2			5		4			11.21			

Element Data:										
Element Group:		Approaches			Length: 6.0 m			m		
Element Name:		Wearing Surface	Wearing Surface		Width: 3.5		3.5	5 m		
Location:		North and south			Height:					
Material:		Surface Treatment			Count: 2					
Element Type:					Total Quantity: 42		42 s	12 sq. m		
Environment:		Benign			Limited Inspection:					
Protection System	1:	None							Performance	
0 122 D 1		Units	Excellent		Good	Fair		Poor*	Deficiencies	
Condition Data:		sq.m			38	4				
Comments: Eart	Comments: Earth and gravel surface, 300 mm x 300 mm depression on west approach. Some of path eroding into watercourse on the east									

Comments: Earth and gravel surface. 300 mm x 300 mm depression on west approach. Some of path eroding into watercourse on the east side.

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

Element Photo:



Description of Photo: Photo 1 - Approach Wearing Surface.jpg



Description of Photo: Photo 2 - Approach Wearing Surface.jpg

Element Photo:



Description of Photo: Photo 3 - Approach Wearing Surface.jpg



Description of Photo: Photo 4 - Approach Wearing Surface.jpg

Element Photo:

Description of Photo:

=									
Element Data:	 								
Element Group:		Accessories			Length:				
Element Name:		Signs			Width:				
Location:		All			Height:				
Material:		Steel	<u> </u>		Count:		3	<u> </u>	
Element Type:					Total Quanti		3	<u> </u>	
Environment:					Limited Insp	ection	n:		
Protection System	1:	None							Performance
Condition Data:		Units	Excellent		Good		Fair	Poor*	Deficiencies
Condition Data.		each			3				
Comments: 3 ob	ject warning	signs in good c	ondition.						
Recommended W	ork.		Rehab:	Replace:		П	Maintenance	Needs:	18 - Other
Trecommended W	OIK.		ixeriab.	Neplace.		_	Maintonano	Nocus.	TO GUILOI
Urgent:	1	5 Years:	6-10 Years:		None: X		Urgent:	1 Year: X	2 Year:
						4	4th object w	arning sign shoเ	uld be installed.



Description of Photo: Photo 5 - Sign.jpg



Description of Photo: Photo 6 - Sign.jpg

Element Photo:



Description of Photo: Photo 7 - Sign.jpg

Element Data:								
Element Group:		Deck	Deck			10.8 m		
Element Name:		Top / Wearing Surfa	Width: Height:		4.3 m			
Location:		All	· · · · · · · · · · · · · · · · · · ·					
Material:		Wood	Count:		1			
Element Type:	nent Type:			Total Quant	ity:	46.4 sq. m		
Environment:		Benign		Limited Insp	ection:			
Protection System	:	None					Performance	
Condition Date:		Units	Excellent	Good	Fair	Poor*	Deficiencies	
Condition Data:		sq.m		44	2.4			
Comments: Damaged wood at ends due to machinery. Dirt and debris built up between running boards. Large sag in surface 2.0 m from north approach. Running boards have numerous splits. Roadway granulars are accumulating on deck.								

Recommended Work:	Rehab: Replace: X	Maintenance Needs: 2 - Bridge Cleaning
Urgent: 1-5 Years: X	6-10 Years: None:	Urgent: 1 Year: X 2 Year:
Replace timber running boards.		Surface should be cleaned.



Description of Photo: Photo 8 - Bridge Surface.jpg



Description of Photo: Photo 9 - Bridge Surface.jpg

Element Photo:



Description of Photo: Photo 10 - Bridge Surface.jpg



Description of Photo: Photo 11 - Bridge Surface.jpg

Element Photo:

Description of Photo:

Element Data:	1							
Element Group: Sidewalks and Curbs		Length:	12	.0 m				
Element Name:		Curbs		Width:	Width: 0.15		5 m	
Location: North and South Side			Height:	Height: 0.15 m				
Material:	Timber			Count:	2			
Element Type:	Element Type:		Total Quan	Total Quantity: 24 m		m		
Environment:		Benign		Limited Insp	Limited Inspection:			
Protection System):	None					Performance	
Condition Data:		Units	Excellent	Good	Fair	Poor*	Deficiencies	
		m			22	2		
Commonts: Curl	h hae minor	enlite throughout but	is in fair conditio	n othorwica Wo	nd is soft when	nouge tested		

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



Description of Photo: Photo 12 - Curb.jpg



Description of Photo: Photo 13 - Curb.jpg

Element Photo:

Description of Photo:

										ı
Element Data:	I I									
Element Group:		Beam			Length:		10.8 m	n		
Element Name:		Girders			Width:		0.15 n	n		
Location:		Under Deck					0.6 m			
Material:		Steel	Steel				2			
Element Type:			То				21.4 m	n		
Environment:		Benign		Limited Insp	ection:					
Protection System):									Performance
Condition Date:		Units	Excellent		Good	Fair		Poo	or*	Deficiencies
Condition Data:		m				21.4				
Comments: Stee	l has a weat	hered surface throu	ghout but no signif	ican	t damage or	section loss	Some	stainin	g along	bottom flange.
Recommended W	ork:	R	ehab: Repla	ace:		Mainter	ance N	Needs:	2 -	Bridge Cleaning
Urgent:	1-	5 Years: 6	-10 Years:		None: X	Urgent:		1 Ye	ear: X	2 Year:
						Clean b	earing	seats.		
							-			



Description of Photo: Photo 14 - Girder.jpg



Description of Photo: Photo 15 - Girder.jpg

Element Photo:



Description of Photo: Photo 16 - Girder.jpg

Element Data:						
Element Group:	Beam		Length:	2.7	m	
Element Name:	Ballast Beam		Width:	£.1		
Location:	Behind Cribs U	Jnder Deck	Height:	0.6	m	
Material:	Steel		Count:	2		
Element Type:			Total Quanti	ty: 5.4	m	
Environment:	Benign		Limited Insp	ection:		
Protection System:						Performance
Candition Data:	Units	Excellent	Good	Fair	Poor*	Deficiencies
Condition Data:	m			5.4		
Comments: Steel	has a weathered surface t	hroughout but no signifi	cant damage or	section loss. Son	ne staining alon	g bottom flange.
Recommended Wo	ork:	Rehab: Repla	ice:	Maintenance	e Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent:	1 Year:	2 Year:



Description of Photo: Photo 17 - Ballast Beam.jpg



Description of Photo: Photo 18 - Ballast Beam.jpg

Element Photo:



Description of Photo: Photo 19 - Ballast Beam.jpg

Element Data:									
Element Group:		Beam			Length:		10.8 m		
Element Name:		Bottom Girders			Width: 0.6		0.6 ו	0.6 m	
Location:		Under Deck			Height:		0.15	i m	
Material: Steel		Coun		Count: 2		2	2		
Element Type:					Total Quanti	ity:	21.4	l m	
Environment:		Benign			Limited Inspection:				
Protection System):								Performance
		Units	Excellent		Good	Fair		Poor*	Deficiencies
Condition Data: m						21.4			
Comments: Bas	e for girders	above. Steel has a we	eathered surface	throu	ighout but no	o significant	dam	age or section lo	ss. Some staining

Comments: Base for girders above. Steel has a weathered surface throughout but no significant damage or section loss. Some staining along bottom flange.

Recommended Work:		Rehab: Replac	e:	Maintenance N	eeds:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent:	1 Year:	2 Year:

Element Photo:



Description of Photo: Photo 20 - Bottom Beam.jpg



Description of Photo: Photo 21 - Bottom Beam.jpg

Element Photo:



Description of Photo: Photo 22 - Bottom Beam.jpg

Element Group:		Deck		Length:	Length: 10.8 m			
Element Name:		Soffit		Width:	110			
Location:		All		Height:				
Material:		Wood		Count:		1		
Element Type:				Total Quan	tity:	46.4 sq. m		
Environment:		Benign		Limited Ins	pection:			
Protection System	1:	None						Performance
Candition Data		Units	Excellent	Good	Fair	Poo	or*	Deficiencies
Condition Data:		sq.m			43.4	3	3	
Comments: Son	ne staining fr	om deck abov	e. Edges have knicks	and splits.				
Recommended W	ork:		Rehab: Re	eplace:	Mainter	nance Needs:		
Urgent:	1-	5 Years:	6-10 Years:	None: X	Urgent:	1 Y	ear:	2 Year:

Element Data:



Description of Photo: Photo 23 - Soffit.jpg



Description of Photo: Photo 24 - Soffit.jpg

Element Photo:



Description of Photo: Photo 25 - Soffit.jpg

Element Data:						
Element Group:	Abutments	2.1	2.1 m			
Element Name:	Cribs		Width:	2.1 m		
Location:	East-West	Height:	1.3	m		
Material:	Timber with St	2				
Element Type:					l sq. m	
Environment:	Benign		ection:			
Protection System	: None					Performance
Candition Data:	Units	Excellent	Good	Fair	Poor*	Deficiencies
Condition Data:	sq.m				16.4	
Comments: Woo	od is very soft when gouge t	tested. Some members	have moved out o	of position.		
Recommended W	ork:	Rehab: Repl	ace: X	Maintenance	e Needs:	
Urgent:	1-5 Years: X	6-10 Years:	None:	Urgent:	1 Year:	2 Year:
Replace cribs.						



Description of Photo: Photo 26 - Crib.jpg



Description of Photo: Photo 27 - Crib.jpg

Element Photo:



Description of Photo: Photo 28 - Crib.jpg



Description of Photo: Photo 29 - Crib.jpg

Element Photo:

Description of Photo:

Element Data:	ı						
Element Group:		Embankments					
Element Name:		Embankments		Width:			
Location:	ion: All Height:						
Material:							
Element Type:	ement Type: Total Quantity:					4	
Environment:		Benign		Limited Insp	ection:		
Protection System	1:	None					Performance
Condition Date:		Units	Excellent	Good	Fair	Poor*	Deficiencies
Condition Data:		each			3	1	
Comments: Stee	ep embankme	ents with heavy v	egetation. Edges of ro	padway starting t	o erode into	slope.	•
Recommended W	ork:		Rehab: X Repla	ace:	Mainten	ance Needs:	
Urgent:	1-	5 Years: X	6-10 Years:	None:	Urgent:	1 Year:	2 Year:
Repair washout.							



Description of Photo: Photo 30 - Embankment.jpg



Description of Photo: Photo 31 - Embankment.jpg

Element Photo:

Description of Photo:

Element Data													
Element Group:	Element Group: Watercourse Length:												
Element Name:	me: Watercourse				Widt	h:							
Location:		Under Bridge			Heig	ht:							
Material:						Cou	nt:						
Element Type:							I Quantity	ty:	1				
Environment:		Benign					ted Inspe	ection:					
Protection System	າ:	None										Performance	
Condition Date:		Units		Excelle	ent	Goo	d		Fair	Р	oor*	Deficiencies	
Condition Data:		all							1				
Comments: Flow	v is unobstru	ucted. Branch	is stuck	under brid	dge.								
Recommended W	/ork·		Reha	ıh.	Repla	CE.		N	//aintenan	ce Needs:		18 - Other	
Ttocommonaca Tt	Ont.		TCHA	ю. Ш	Поріа	ос		.,	naintonain				
Urgent:	1-	5 Years:	6-10	Years:		Nor	ne: X	U	rgent:	1	Year: X	2 Year:	
								C	lear debri	is from w	atercours	е	



Description of Photo: Photo 32 - Waterway.jpg

Repair and Reha	abilitation Required:		Prio	rity		Estimated Structural
Element ¹	Repair and Rehabilitation Required ²	6 to 10 Years	1 to 5 Years	Within 1 Year	Urgent	Cost
Structure	Demolition		Х			\$50,000.00
Structure	Replacement					\$175,000.00
0	R					
Deck	Replace =					
Sidewalk/Curb	Rehab. =					
Barrier	Replace =					
Joints	Replace =					
Beams	Rehab. =					
Abutment	Replace =					
Pier	Rehab. =					
Other						
Estimated Rehat	center (m) Overall Str. Width (m)		- 1	Total St	ructural Cost	\$225,000.00

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

- $\ensuremath{\text{2}}$ 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	Detour Signage and Traffic Control	\$5,000.00
Traffic Control		
Utilities		
Other		
	Contingencies	\$50,000.00
	Mobilization and Demobilization; General; Insurance	\$75,000.00
	Total Associated Work Cost	\$130,000.00
	Total Construction Cost	\$355,000.00

Justification:

The timber cribs supporting this bridge are in very poor condition and need to be replaced. Until replacement we recommend that the bridge be monitored for continued movement. Timber running boards and curbs are in a poor condition and should also be replaced. An approach barrier system would improve roadside safety.

						MTO Site Number:		
Inventory Data:								
Structure Name	11 - Fire Route A	A1 Bridge	_]	
Main Highway#	Fire Route A1	On X or Und Structure	ler	Service on Structure	Navig. W	Nater Non-Navig. \ X Road Ped.	Water Othe	ər
Location Description	1.0 km south of N	Verkley Road		Service under:	Navig. W	Vater X Non-Navig. \ Road Ped.	Water Othe	ər
Owner/Custodian	Gravenhurst		_					
MTO Region	Northeastern		_	Latitude	44° 53' 60" N		79° 9' 36	
Regional Engineer				Heritage Designation:	Not Con		List/l	Not Desig.
MTO Area	Gravenhurst]	Hwy Class:	Freeway	Arterial Collector	Lc	ocal X
Old County]	Posted Speed	50	No. of Lanes	1	
Township	Gravenhurst]	AADT	10	% Truck	0	
Structure Type 1	Solid slab		Ī					
Structure Material 1	Concrete		Ī	Traffic Directional Boo	und	W-E]	
Structure Type 2			Ī					
Structure Material 2]	Inspection Frequency	y	2	(years)	
Total Deck Length	11.4	(m)	-	Inspection Year		2019	j	
Overall Str. Width	2.9	(m)		Inspection Duration		2	(hrs)	
Culvert Length	0	(m)					_	
Total Deck Area	33.06	(sq.m)						
Roadway Width	2.9	(m)		Min. Vertical Clearand	се		(m)	
Skew Angle	0	(Degre	e)	Detour Distance		N/A	(km)	
No. of Spans	1			Fill on Structure		0	(m)	
Span Lengths	7.1						(m)	
For retaining wall:			_				_	
Total Wall Length		(m)		Max. Wall Height			(m)	
Total Wall Area		(sq.m)		Ave. Wall Height			(m)	
				Angle of Backfill			Degree	es)
Historical Data								
Year Built	Unknov	wn		Year of superstruct. C	Constructed	N/A		
Last Reg. OSIM Inspe	<u> </u>			Year of Last Minor Re		N/A		l
Last Enh. OSIM Inspe	ection			Year of Last Major Re	ehab	N/A		ļ
Work History: (Date/d	intion)			Current Load Limit	Unventigation	History: (Date/description)	3	(tonnes)
Work History, (Date/o	<u>ессприон</u>				IIIVESUYAUOII	Misiory. (Date/description)		

									MTO Sit	e Numbe	er:		
Field Inspection Info	rmation:												
Date of Inspection:		Septe	mber 4, 2	2019	Type of	Inspection	on: Reg. OSIM X Enh. OSIM						
Inspected By		Kierar	Fergus	on	I.								
Others in Party:		None											
Eng. Access Equipment:		None											
Special Access Equipment		None											
Weather		Overc	ast		Tempera	ature						18	°C
Additional Investigations Required:							None		riority	Hrao	nt	Estimated Cos	st
Material Condition Survey							None	IN	ormal	Urge	nı,		
Detailed Deck Condition	on Survey:						Х						
Non-destructive Delan		v of As	phalt-Co	vered [Deck:		X						
Concrete Substructure							X						
Detailed Coating Cond							X						
Detailed Timber Invest	tigation:						Х						
Post-Tensioned Strand	d Investigation	1:					Х						
Underwater Investigation							Х						
Fatigue Investigation							Х						
Seismic Investigation							Х						
Structure Evaluation:							Х						
Monitoring													
Deformations, Settlem	ents and Mov	ements	:						X			\$5,000.00	
Crack Widths:							Х						
RSS Horizontal mover							Х						
RSS Vertical movemen							Х						
RSS Local movements				ents:			Х						
RSS Horizontal mover							Х						
RSS Vertical movemen							Х						
RSS Lateral earth pres					manta until h	ridas is	Х						
Investigation Notes: Mo	onitor for signs	S OI IIIO	replace		nents until b	riuge is	Total Cost \$0.00						
Overall Structure Not	tes:												
Recommended Work on St	ructure		None		/linor Rehab		Major Rehab	. [X Rep	lace			
Timing of Recommended V	Vork		Urgent		X 1 to 5 ye	ars	6 to 10 y	/ears					
Overall Comments:		This	bridge	is no l	onger in a	stable co	ondition and i	it is r	ecomme	nded th	at it be r	eplaced. Until	
	This bridge is no longer in a stable condition and it is recommended that it be replacement it is recommended that this bridge be monitored for continued movel								•				
Date of Next inspection:		Aug	ust 202'	1	_								
Overall Bridge Co	ondition												
% Poor in Deck	% Poor in B	Beams			Poor in Barrier			Bridge Condition Index (BCI or BCIp))		
91%	91%		26%			0%		BClp 32.40		BCI 26.09			
Overal Bridge Su	fficiency												
Traffic	Econom	ic		Wid	th		Alianment			Bridge S	Sufficienc	v Index (BSI)	

14.09

Element Data:											
Element Group:		Approaches				Length:			6.0 m		
Element Name:		Wearing Surface			Width:		2.9 m				
Location:		East and West			Height:						
Material:		Surface Treatment				Count:		2			
Element Type:						Total Quantity:		34.8	sq. m		
Environment:		Benign				Limited Insp	ection:		-		
Protection System	:	None								Performance	
Condition Data:		Units		Excellent		Good	Fair		Poor*	Deficiencies	
		sq.m					33		1.8		
Comments: Earth and gravel approaches. Minor to moderate washouts on 2 corners. Minor settlement at bridge connection.											
Recommended We	ork:		Reh	ab: Repl	ace:		Mainter	nance	Needs:		
Urgent:	1-	5 Years:	6-10	0 Years:		None: X	Urgent:		1 Year:	2 Year:	



Description of Photo: Photo 1 - Approach Wearing Surface.jpg



Description of Photo: Photo 2 - Approach Wearing Surface.jpg

Element Photo:

Description of Photo:

Element Data:										
Element Group: Deck				Length:			11.4 m			
Element Name:	ne: Top / Wearing Surface			Width: 2.9 m			m			
Location:	Location: All			Height:						
Material: Concrete			Count: 1							
Element Type:			Total Qua		Total Quant	Quantity: 33.1		1 sq. m		
Environment: Benign				Limited Inspection:						
Protection System	:	None						Performance		
Condition Data:		Units	Excellent		Good	Fair		Poor*	Deficiencies	
	sq.m					28.1		5		
Comments: Concrete has a rough, spalled surface throughout, 3x 300 mm x 300 mm spalls. Full width crack at abutment connection.										

Comments: Concrete has a rough, spalled surface throughout. 3x 300 mm x 300 mm spalls. Full width crack at abutment connection.

Crack continues around sides of deck.

Recommended Work:		Rehab: Replac	e: X	Maintenance Ne	eds:	
Urgent:	1-5 Years: X	6-10 Years:	None:	Urgent:	1 Year:	2 Year:

Element Photo:



Description of Photo: Photo 3 - Bridge Wearing Surface.jpg



Description of Photo: Photo 4 - Bridge Wearing Surface.jpg

Element Photo:



Description of Photo: Photo 5 - Bridge Wearing Surface.jpg



Description of Photo: Photo 6 - Bridge Wearing Surface.jpg

Element Photo:



Description of Photo: Photo 7 - Bridge Wearing Surface.jpg

Element Data:										
Element Group: Deck						7.1 m				
Element Name: Soffit				Width:		2.9 m				
Location:	ocation: All			Height:						
Material: Concrete				Count:		1				
Element Type:				Total Quant	ity:	20.6 sq. m				
Environment:		Benign		Limited Insp	ection:					
Protection System	າ:	None					Performance			
O	Units		Excellent	Good	Fair	Poor*	Deficiencies			
Condition Data:	sq.m				5					
Comments: Concrete is heavily delaminated, with honeycombing and a spalled surface throughout.										
Recommended W	ork:	R	lehab: Repl	ace: X	Mainten	ance Needs:				
Urgent:	1-	5 Years: X 6	S-10 Years:	None:	Urgent:	1 Year:	2 Year:			
	•					_	_			



Description of Photo: Photo 8 - Soffit.jpg



Description of Photo: Photo 9 - Soffit.jpg

Element Photo:



Description of Photo: Photo 10 - Soffit.jpg

Element Data:	1							
Element Group: Abutments			Length: 2.9			m		
Element Name: Walls			Width: 1			m		
Location:		East-West		Height:		0.7 ı	m	
Material:		Concrete		Count:		2		
Element Type:				Total Quanti	ty:	7.7	sq. m	
Environment:		Benign		Limited Inspection:				
Protection System	1:	None						Performance
Candition Data:		Units	Excellent	Good	Fair		Poor*	Deficiencies
Condition Data:		sq.m			5.7		2	
Commenter Lare	40 COO 100 14	600 mm v 600 mm an	مسلبيطه ماسه مسياله	 Canarata ha	ven en el	ماما	fooo thecombo	ıt Erasian bas

Comments: Large 600 mm x 600 mm x 600 mm spall in north abutment. Concrete has a very spalled surface throughout. Erosion has significantly worn away at the sides of abutments.

Recommended Work:	Rehab: Repla	ce: X Mainter	nance Needs:	
Urgent: 1-5 Years	s: X 6-10 Years:	None: Urgent:	1 Year:	2 Year:

Element Photo:



Description of Photo: Photo 11 - Abutment.jpg



Description of Photo: Photo 12 - Abutment.jpg

Element Photo:



Description of Photo: Photo 13 - Abutment.jpg



Description of Photo: Photo 14 - Abutment.jpg

Element Photo:

Description of Photo:

Element Data:								
Element Group:	Embankments		Length:					
Element Name:	Embankments		Width:					
Location:	All		Height:	Height:				
Material:	Soil/Rock/Grass	5	Count:	4				
Element Type:			Total Quanti	ity: 4				
Environment:	Benign		Limited Insp	ection:				
Protection System:	None			-		Performance		
Condition Data:	Units	Excellent	Good	Fair	Poor*	Deficiencies		
Condition Data:	each				4			
Comments: Very s	steep and heavily vegetated	1. Minor washouts near t	oridge.					
Recommended Wor	k:	Rehab: X Replac	ce:	Maintenand	ce Needs:			
Urgent:	1-5 Years: X	6-10 Years:	None:	Urgent:	1 Year:	2 Year:		
Repair washouts.								



Description of Photo: Photo 15 - Embankment.jpg



Description of Photo: Photo 16 - Embankment.jpg

Element Photo:

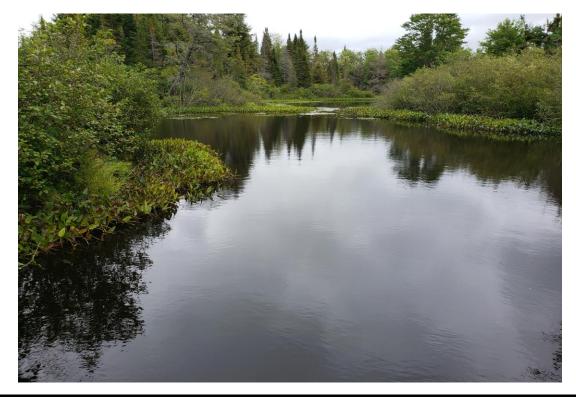


Description of Photo: Photo 17 - Embankment.jpg

Element Data:	!									
Element Group:		Watercourse			Length:					
Element Name:		Watercourse			Width:					
Location:		Under Bridge			Height:					
Material:					Count:					
Element Type:					Total Quanti	ty:	1			
Environment:		Benign			Limited Insp	ection:				
Protection System	1:	None							Performance	
0 111 0		Units		Excellent	Good	Fair		Poor*	Deficiencies	
Condition Data:		all			1					
Comments: Flov	v is unobstru	ucted.								
Recommended W	ork:		Reh	ab: Repl	ace:	Maint	enance	e Needs:		
Urgent:	1-	5 Years:	6-1	0 Years:	None: X	Urgen	t:	1 Year:	2 Year:	



Description of Photo: Photo 18 - Watercourse.jpg



Description of Photo: Photo 19 - Watercourse.jpg

Element Photo:

Description of Photo:

Repair and Reha	bilitation Required:		Prio	ority		Estimated Structural
Element ¹	Repair and Rehabilitation Required ²	6 to 10 Years	1 to 5 Years	Within 1 Year	Urgent	Cost
Structure	Demolition					
Structure	Replacement		Х			\$270,000.00
Ol	R					
Deck	Replace =					
Sidewalk/Curb	Rehab. =					
Barrier	Replace =					
Joints	Replace =					
Beams	Rehab. =					
Abutment	Rehab. =					
Embankments	Rehab. =					
Other						
Total Deck L	ength (m) Overall Str. Width (m)			Total St	ructural Cost	\$270,000.00

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

- $\ensuremath{\text{2}}$ 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	Detour Signage and Traffic Control	\$5,000.00
Traffic Control		
Utilities		
Other		
	Contingencies	\$50,000.00
	Mobilization and Demobilization; General; Insurance	\$75,000.00
	Total Associated Work Cost	\$130,000.00

Total Construction Cost	\$400,000.00

Justification:

This bridge is no longer in a stable condition and it is recommended that it be replaced. The estimated replacement cost of \$400,000 is based on a single lane structure width of 5 m with a new substructure, deck and curb and barrier system. An approach barrier system should also be constructed to impose safety.

							MTO Site Number:		
Inventory Data:									
Structure Name	201 - Lots	s 15/16, Cond	c 10						
Main Highway#	Barkway	. D I	n X or tructure	or Under	Service on Structure	Navig. V	Water Non-Na	avig. Water	ner
Location Description	1.5 km soı	uth of Merkle	y Road		Service under:	Navig. V	Water X Non-Na	avig. Water edOth	ner
Owner/Custodian	Gravenhur	rst							
MTO Region	Northeaste	ern			Latitude	44° 53' 60" N		79° 10' 4	-
Regional Engineer					Heritage Designation:	X Not Con Desig.	ns. Cons./Not A	App. List	t/Not Desig. t
MTO Area	Gravenhu	urst			Hwy Class:	Freeway	Arterial Colle	ector L	ocal X
Old County					Posted Speed	50	No. of Lanes	s 1	
Township	Gravenhu	urst			AADT	180	% Truck	k 0	
Structure Type 1	Multi-Plat	te Arch CSP	Culvert						
Structure Material 1	Steel				Traffic Directional Bo	Bound	N-S		
Structure Type 2									
Structure Material 2					Inspection Frequence	cy	2	(years))
Total Deck Length	6.4		(n	m)	Inspection Year		2019		
Overall Str. Width	0		(n	m)	Inspection Duration	1	2	(hrs)	
Culvert Length	24.4		(n	m)					
Total Deck Area	156.2		(s	sq.m)					
Roadway Width	6.2		(n	m)	Min. Vertical Cleara	ince		(m)	
Skew Angle	0		(C	Degree)	Detour Distance		N/A	(km)	
No. of Spans	1				Fill on Structure		0	(m)	
Span Lengths	6.4							(m)	
For retaining wall:	_			_					
Total Wall Length			(n	m)	Max. Wall Height			(m)	
Total Wall Area			(s	sq.m)	Ave. Wall Height			(m)	
					Angle of Backfill			(Degre	es)
Historical Data									
Year Built	[1	1960			Year of superstruct.	. Constructed	N/A]
Last Reg. OSIM Inspe	<u> </u>	2016			Year of Last Minor F		N/A		j
Last Enh. OSIM Inspe	ection _				Year of Last Major F	Rehab	N/A] . ,
Work History: (Date/d					Current Load Limit	Unvectigation	History: (Date/descrip	/ 3	(tonnes)
WOIN THISTORY, LDGIG/G	<u>езсприон</u>					IIIVestigation	_MISIOLY: (Date/desonip	<u>uonj</u>	

								MTO Sit	e Number:	•		
Field Inspection Info	rmation:											
Date of Inspection:		Septem	ber 4, 2019	Type of	Inspection	n:		Reg. OS	SIM	X En	h. OSIM	
Inspected By		Kieran F	Cieran Ferguson									
Others in Party:		None										
Eng. Access Equipment:		None										
Special Access Equipment		None										
Weather		Overcas	st	Tempera	ature		18 °C					
Additional Investigat	Additional Investigations Required:								Urgen	t	Estimated Cost	
Material Condition Survey						None		ormal	o i goii	\vdash		
Detailed Deck Condition	on Survey:					Х				\top		
Non-destructive Delan		v of Asph	halt-Covered D	eck:		X				_		
Concrete Substructure						X				_		
Detailed Coating Cond						X				+		
Detailed Timber Invest						X				+		
Post-Tensioned Strand						X			•	$+\!\!\!-$		
Underwater Investigation	u investigation	l.				X				$+\!\!\!\!+$		
•										-		
Fatigue Investigation						X	-			$-\!\!\!\!+\!\!\!\!-$		
Seismic Investigation						X				+		
Structure Evaluation:						X				$+\!\!\!-$		
Monitoring	anta and Marri					X				$+\!\!\!\!+$		
Deformations, Settlem	ents and Move	ements:				Х						
Crack Widths:						Х				—		
RSS Horizontal moven						Х						
RSS Vertical movemen						Х						
RSS Local movements						Х						
RSS Horizontal moven						Х						
RSS Vertical movemen						Х						
RSS Lateral earth pres	ssure at the ba	ack of fac	cing elements			Х						
Investigation Notes:						Total Cost \$0.				\$0.00		
Overall Structure Not	tes:											
Recommended Work on St	tructure		None X M	inor Rehab		Major Rehab	.	Rep	olace			
Timing of Recommended V	Vork		Jrgent)	1 to 5 ye	ars	6 to 10 y	ears					
Overall Comments:		This	steel CSP culv	vert has mo	oderate o	corrosion det	erior	ation at	its base. I	out is o	therwise in fairly	
											ert to be monitored	
	ila tilat i	0. 00.0 0	. 0.0	J. 41 1		cuit						
		101 00	ontinued corro)31011.								
Date of Next inspection:		Augu	ıst 2021									
Overall Bridge Co	ondition											
% Poor in Deck	% Poor in B	eams	% Poor in Sub	structure	% F	oor in Barrier		Bri		tion Ind	ex (BCI or BClp)	
10%	10%		10%			0%			BClp 91.50		BCI 63.37	
Overal Bridge Su	fficiency								01.00		55.01	
Traffic	Econom	ic I	Width	 า		Alignment			Bridge Si	ıfficienc	y Index (BSI)	
0	0		2	-		1			go oc	60.37		

Element Data:			_							
Element Group:		Approaches			Length:		6.0	m (Each Approac	h)	
Element Name:		Wearing Surface			Width:	6.2 m				
Location:		Both Sides			Height:					
Material:		Asphalt					2			
Element Type:		Total Quantity:			ty:	37.	2 sq. m			
Environment:		Moderate	loderate Limited Inspect							
Protection System									Performance	
Candition Data:		Units	Excellent		Good	Fa	r	Poor*	Deficiencies	
Condition Data:		sq.m			36.2 1					
Comments: 1 mo	oderate 6.2 n	ı long crack. 5.0 m l	ong minor crack. 1 r	nino	or 6.2 m long	crack. N	potho	oles.		
Recommended W	ork:	Re	ehab: X Repla	ce:		Mair	tenanc	e Needs:		
Urgent:	1-	5 Years: X 6-	10 Years:		None: X	Urge	nt:	1 Year:	2 Year:	
Rout and seal cra	acks.									



Description of Photo: Photo 1 - Approach Wearing Surface.jpg



Description of Photo: Photo 2 - Approach Wearing Surface.jpg

Element Photo:



Description of Photo: Photo 3 - Approach Wearing Surface.jpg

Element Data:										
Element Group:		Approach			Length:		86 m			
Element Name:		Railing System			Width:					
Location:		Each side of roa	d		Height:					
Material:		3 Cable and Wo	od Post		Count:		2			
Element Type:					Total Quanti	ty:	86 n	n		
Environment:		Moderate			Limited Insp	ection:				
Protection System:	:	None							Performance	
Candition Data		Units	Excellent		Good	Good Fair		Poor*	Deficiencies	
Condition Data:		m		81			5			
Comments: Som	e slightly lo	ose cables. No d	amage to steel. 48 wo	od po	osts have mir	nor kni	icks in pos	t and minor splitt	ting.	
Recommended Wo	ork:		Rehab: Rep	olace:		М	laintenance	Needs:		
Urgent:	1-	5 Years:	6-10 Years:		None: X	Ur	rgent:	1 Year:	2 Year:	



Description of Photo: Photo 4 - Approach Barrier.jpg



Description of Photo: Photo 5 - Approach Barrier.jpg

Element Photo:



Description of Photo: Photo 6 - Approach Barrier.jpg



Description of Photo: Photo 7 - Approach Barrier Post.jpg

Element Photo:



Description of Photo: Photo 8 - Approach Barrier Post.jpg



Description of Photo: Photo 9 - Approach Barrier Post.jpg

Element Photo:

Description of Photo:

Element Data:							
Element Group:		Culvert	2	24.4 m			
Element Name:		CSP Culvert		Width:	6	6.4 m	
Location: Beneath roadway Height: 4.0 m						l.0 m	
Material: Corrugated Steel Count: 1							
Element Type:				Total Quan	tity: 2	24.4 m	
Environment:		Moderate		Limited Inspection:			
Protection System	:	Galvanized					Performance
Units		Excellent	Good	Good Fair		Deficiencies	
Condition Data: m		m		18.4	3.5	2.5	

Comments: Heavy corrosion 200 mm above water line for full length of culvert. Moderate corrosion from 200 mm to 800 mm above water line for full length of culvert. Steel is in good condition above 800 mm above the water line. Several perforations exist due to corrosion at culvert ends, especially at culvert inlet.

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

Element Photo:



Description of Photo: Photo 10 - Culvert.jpg



Description of Photo: Photo 11 - Culvert.jpg

Element Photo:

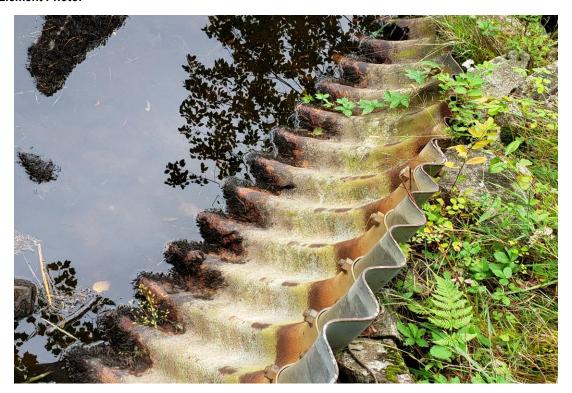


Description of Photo: Photo 12 - Culvert.jpg



Description of Photo: Photo 13 - Culvert.jpg

Element Photo:



Description of Photo: Photo 14 - Culvert.jpg

Streams & Wate	rways	Longth				
	rways	Longth				
Embankments		Lengin.	Length:			
	-	Width:				
All quadrants		Height:				
		Count:	4			
		Total Quant	ty: 4			
Benign		Limited Insp	ection:			
			_		Performance	
Units	Excellent	Good	Fair	Poor*	Deficiencies	
each			4			
n neavy vegetation. Son	ne erosion of stopes i	ias occurred.				
	Rehab: X Rep	lace:	Maintenance	Needs:		
1-5 Years: X	6-10 Years:	None:	Urgent:	1 Year:	2 Year:	
1.						
	All quadrants Benign Units each heavy vegetation. Son	All quadrants Benign Units Excellent each n heavy vegetation. Some erosion of slopes I	All quadrants Height: Count: Total Quanti Benign Units Excellent Good each n heavy vegetation. Some erosion of slopes has occurred. Rehab: X Replace: 1-5 Years: X 6-10 Years: None:	All quadrants Count: 4 Total Quantity: 4 Benign Limited Inspection: Units Excellent Good Fair each 4 heavy vegetation. Some erosion of slopes has occurred. Rehab: X Replace: 1-5 Years: X 6-10 Years: None: Urgent:	All quadrants Count: Total Quantity: Benign Limited Inspection: Units Excellent Good Fair Poor* each All quadrants Fair Poor* each An heavy vegetation. Some erosion of slopes has occurred. Rehab: X Replace: None: Urgent: 1 Year:	



Description of Photo: Photo 15 - Embankment.jpg



Description of Photo: Photo 16 - Embankment.jpg

Element Photo:



Description of Photo: Photo 17 - Embankment.jpg

Element Data:								
Element Group:	Streams & W	aterways	Length:	Length:				
Element Name:	Waterway	-	Width:					
Location:	Both sides of	roadway	Height:					
Material:			Count:	1				
Element Type:			Total Quanti	ty: 1				
Environment:	Benign		Limited Inspe	ection:				
Protection System:						Performance		
Condition Data:	Units	Excellent	Good	Fair	Poor*	Deficiencies		
Condition Data.	all				x			
Comments: 1 faller	n tree is in culvert inlet.	Moderate vegetation and	branches in culv	ert inlet.				
Recommended Work	K:	Rehab: Repla	ace:	Maintenance	e Needs:			
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent:	1 Year:	2 Year:		



Description of Photo: Photo 18 - Watercourse.jpg



Description of Photo: Photo 19 - Watercourse.jpg

Element Photo:



Description of Photo: Photo 20 - Watercourse.jpg



Description of Photo: Photo 21 - Watercourse.jpg

Element Photo:

Description of Photo:

Repair and Reha	bilitation Required:		Pric		Estimated Structural	
Element ¹	Repair and Rehabilitation Required ²	6 to 10 Years	1 to 5 Years	Within 1 Year	Urgent	Cost
Structure	Demolition					
Structure	Replacement					
0	R					
Deck	Rehab. = Rout and seal cracks		Х			\$1,500.00
Sidewalk/Curb	Rehab. =					
Barrier	Rehab. =					
Joints	Rehab. =					
Beams	Rehab. =					
Abutment	Rehab. =					
Embankment	Rehab. = Repair embankments		Х			\$1,500.00
Other						
Total Deck L	pilitated or Replacement Structure Dimensions ³ ength (m) Overall Str. Width (m)			Total St	ructural Cost	\$3,000.00

^{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	\$1,000.00
Detours		
Traffic Control		
Utilities		
Other	Bridge Cleaning	\$1,500.00
	Total Associated Work Cost	\$2,500.00
	Total Construction Cost	\$5,500.00

Justification:

This steel CSP culvert has moderate corrosion deterioration at its base, but is otherwise in fairly good condition. We recommend hazard signs to be installed, minor embankment repairs and asphalt crack repairs on the wearing surface. We recommend that the erosion of steel at the base of this culvert to be monitored for continued corrosion.

					MTO Site Number:		
Inventory Data:							
Structure Name	202 - Lot 6, Conc	; 10/11]	
Main Highway #	Merkley Road	On X or Unde Structure	Service on Structure	Navig. W	X Road Ped.	Othe	er
Location Description	4.1 km east of Bar	rkway Road	Service under:	Navig. W	Vater X Non-Navig. \ Road Ped.	Water Othe	er
Owner/Custodian	Gravenhurst						
MTO Region	Northeastern		Latitude	44° 54' 36" N		79° 9' 0'	
Regional Engineer			Heritage Designation:	Not Con		List/lsig. & List	Not Desig.
MTO Area	Gravenhurst		Hwy Class:	Freeway	Arterial Collector	Lc Lc	ocal X
Old County			Posted Speed	50	No. of Lanes	1	
Township	Gravenhurst		AADT	50	% Truck	0	
Structure Type 1	CSP Culvert						
Structure Material 1	Steel		Traffic Directional Bo	ound	N-S]	
Structure Type 2							
Structure Material 2			Inspection Frequency	у	2	(years)	
Total Deck Length	5.8	(m)	Inspection Year		2019]	
Overall Str. Width	0	(m)	Inspection Duration		2	(hrs)	
Culvert Length	20	(m)					
Total Deck Area	106.1	(sq.m)					
Roadway Width	7.5	(m)	Min. Vertical Clearan	nce		(m)	
Skew Angle	0	(Degree)	e) Detour Distance		N/A	(km)	
No. of Spans	1		Fill on Structure		3	(m)	
Span Lengths	3.6					(m)	
For retaining wall:							
Total Wall Length		(m)	Max. Wall Height			(m)	
Total Wall Area		(sq.m)	Ave. Wall Height			(m)	
			Angle of Backfill			(Degree	es)
Historical Data							
Year Built	1980		Year of superstruct.	Constructed	N/A		
Last Reg. OSIM Inspe			Year of Last Minor R		2018		ļ
Last Enh. OSIM Inspe	ection	<u> </u>	Year of Last Major R	Rehab	N/A		L //
Work History: (Date/d	description)		Current Load Limit	Unvestigation	History: (Date/description)		(tonnes)
2018 - Structure repla				iiivoongaas	Tilotory. (Dateraccompact)		

						I	MTO Site	e Number:					
Field Inspection Info	rmation:												
Date of Inspection:		Septe	mber 2, 2	2019	Type of	Inspection	on:	Х	Reg. OS	IM	En	h. OSIM	
Inspected By		Kierar	Fergus	on									
Others in Party:		None											
Eng. Access Equipment:		None	ne										
Special Access Equipment		None	ne										
Weather		Overc	ast		Tempera	ıture						18	°C
Additional Investigat	ions Requi	red:					None		riority	Urgoni	\blacksquare	Estimated Cos	st
Material Condition Survey							None	INC	ormal	Urgent	-		
Detailed Deck Condition	on Survey:						Х				_		
Non-destructive Delan		v of As	phalt-Co	vered [Deck:		X				+		
Concrete Substructure			p. 10.11 0 0				X	1			+		
Detailed Coating Cond		- ,					X				\neg		
Detailed Timber Invest							Х				\dashv		
Post-Tensioned Strand		1:					Х				\dashv		
Underwater Investigation							Х				\top		
Fatigue Investigation							Χ						
Seismic Investigation							Х						
Structure Evaluation:							Х						
Monitoring							Х						
Deformations, Settlem	ents and Mov	ements) :				Х						
Crack Widths:							X						
RSS Horizontal mover							Х						
RSS Vertical movemen							X						
RSS Local movements				ents:			Х						
RSS Horizontal mover							Х				—		
RSS Vertical movemen							Х						
RSS Lateral earth pres	ssure at the ba	ack of f	acing ele	ments			Х						
Investigation Notes:								Tota	al Cost			\$0.00	
Overall Structure No	tes:												
Recommended Work on St	tructure	Х	None	N	linor Rehab		Major Rehab). [Rep	lace			
Timing of Recommended V	Vork		Urgent		1 to 5 ye	ars	6 to 10 y	years					
Overall Comments:		Cul	vert has	been r	ecently rep	laced ar	nd is in an ex	cellen	t condit	tion overa	 II.		
					, .								
Date of Next inspection:		Aug	just 202	1									
Overall Bridge Co	ondition												
% Poor in Deck	% Poor in B	eams	% Poo	r in Su	bstructure	% F	Poor in Barrier	r	Bri	dge Condi	tion Ind	ex (BCI or BCIp)
0%	0%			0%			0%	Ī		BClp 100.00		BCI 98.20	
Overal Bridge Su	fficiency											, 00.20	
Traffic	Econom	ic	I	Widt	h		Alignment			Bridge Su	fficienc	v Index (BSI)	

94.20

Element Data:	1						
Element Group:		Approaches		Length:		6.0 m	
Element Name:		Wearing Surface		Width:		6.7 m	
Location:		Both Sides		Height:			
Material:		Gravel		Count:		2	
Element Type:				Total Quanti	ty:	40.2 sq. m	
Environment:		Moderate		Limited Insp	ection:		
Protection System	1:						Performance
Candition Data:		Units	Excellent	Good	Fair	Poor*	Deficiencies
Condition Data:		sq.m		40.2	40.2		
Comments: Son	ne separation	n of granules unde	er wheel tracks. Grave	el surface. No pot	holes.		
Recommended W	ork:		Rehab: Repla	ace:	Maintena	ance Needs:	
Urgent:	1-	5 Years:	6-10 Years:	None: X	Urgent:	1 Year:	2 Year:



Description of Photo: Photo 1 - Approach Wearing Surface.jpg



Description of Photo: Photo 3 - Approach Wearing Surface.jpg

Element Photo:



Description of Photo: Photo 4 - Wearing Surface.jpg



Description of Photo: Photo 5 - Wearing Surface.jpg

Element Photo:

Description of Photo:

-: 454						
Element Data:						
Element Group:	Approach		Length:	71.2	2 m	
Element Name:	Railing Syste		Width:			
Location:	Each side of		Height:			
Material:	3 Cable and	Wood Post	Count:	2		
Element Type:			Total Quanti	,	.4 m	
Environment:	Moderate		Limited Insp	ection:		
Protection System:	: None					Performance
Condition Data	Units	Excellent	Good	Fair	Poor*	Deficiencies
Condition Data:	m	135	7.4			
Comments: Som	e loose cables throughou	ut. All posts are in good co	ondition. Recently	y installed.		
Recommended Wo	ork:	Rehab: Repla	ace:	Maintenance	e Needs:	
		Tropic		- Indintoriano	-	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent:	1 Year:	2 Year:



Description of Photo: Photo 6 - Barrier.jpg



Description of Photo: Photo 7 - Barrier.jpg

Element Photo:



Description of Photo: Photo 8 - Barrier.jpg

Element Data:												
Element Group:	ent Group: Culvert					Length:		20	20.0 m			
Element Name:		Culvert Barrel				Width:		3.	3.6 m diameter			
Location:		Beneath road	dway			Height:						
Material:		CSP				Count:		1				
Element Type:						Total Quanti	ity:	20	.0 m			
Environment:		Moderate				Limited Insp	ectio	n:				
Protection System	1:	Polymer Coa	ted								P	Performance
Canditian Data		Units		Excellent		Good	Fair			Poor*		Deficiencies
Condition Data:		m		20								
Comments: Rec	ently installe	a. in excellen	t conditi	on.								
Recommended W	ork:		Reh	ab: Repl	ace:			Maintenan	ce Ne	eds:		
Urgent:	1-	5 Years:	6-10	0 Years:		None: X		Urgent:		1 Year:		2 Year:



Description of Photo: Photo 9 - Culvert.jpg



Description of Photo: Photo 10 - Culvert.jpg

Element Photo:

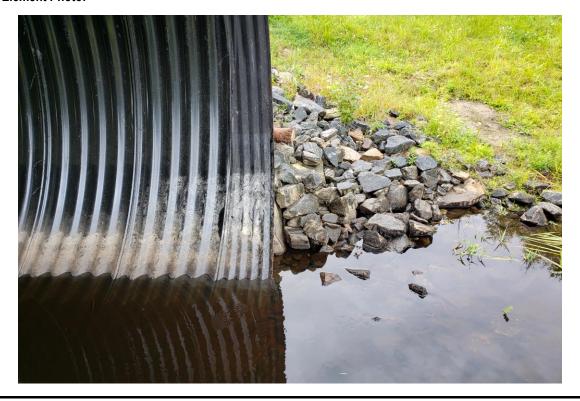


Description of Photo: Photo 11 - Culvert.jpg



Description of Photo: Photo 12 - Culvert.jpg

Element Photo:



Description of Photo: Photo 13 - Culvert.jpg

Element Data:									
Element Group:		Culvert		Length:		22.0 m			
Element Name:		Overflow Culverts				1.5 m diameter			
Location:		Beneath roadway	,						
Material:		CSP	SP			2			
Element Type:			Total Quant	ity:	44.0 m				
Environment:		Moderate		Limited Insp	ection:				
Protection System	1:						Performance		
Condition Date:		Units	Excellent	Good	Fair	Poor*	Deficiencies		
Condition Data:		m	33	7	4				
	•	ed. Some light dama	ge on north ends. Lo	g is stuck in no	rthernmost	overflow culvert. Son	ne very minor sag		

and deflection in center of span.

Recommended Work:		Rehab: Replace:		Maintenance Needs:	18 - Other
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent: 1 Y	'ear: X 2 Year:
				Remove debris from	overflow culvert

Element Photo:



Description of Photo: Photo 14 - Overflow Culvert.jpg



Description of Photo: Photo 15 - Overflow Culvert with minor sag.jpg

Element Photo:



Description of Photo: Photo 16 - Overflow Culvert.jpg



Description of Photo: Photo 17 - Overflow Culvert.jpg

Element Photo:



Description of Photo: Photo 18 - Overflow Culvert.jpg

Element Data:										
Element Group:		Streams & Wate	rways		Length:					
Element Name:		Embankments			Width:					
Location:		All quadrants	·		Height:			·		
Material:					Count:		4			
Element Type:					Total Quanti		4			
Environment:				ection:						
Protection System):								Performance	
Condition Data:		Units	Excellent		Good	Fai	•	Poor*	Deficiencies	
		each	4							
Comments: Rip	rap embankr	nents appear to l	e stable and in go	od cond	dition.					
Recommended W	ork:	_	Rehab: R	eplace:		Main	Maintenance Needs:			
Urgent:	1-	5 Years:	6-10 Years:		None: X	Urge	nt:	1 Year:	2 Year:	



Description of Photo: Photo 19 - Embankment.jpg



Description of Photo: Photo 20 - Embankment.jpg

Element Photo:



Description of Photo: Photo 21 - Embankment.jpg

-: (D (
Element Data:								
Element Group:	Streams & W	aterways	Length:					
Element Name:	Waterway		Width:					
Location:	Both sides of	roadway	Height:					
Material:			Count:	1				
Element Type:			Total Quanti					
Environment:	Benign		Limited Insp	ection:				
Protection System:					Performance			
Condition Data:	Units	Excellent	Good	Fair	Poor*	Deficiencies		
Condition Data.	all		x					
Comments: No ok	struction in flow.							
Recommended Wo	rk:	Rehab: Repl	ace:	Maintenance	Maintenance Needs:			
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent:	1 Year:	2 Year:		



Description of Photo: Photo 22 - Watercourse.jpg

Repair and Reha	bilitation Required:		Prio	ority		Estimated Structural
Element ¹	Repair and Rehabilitation Required ²	6 to 10 Years	1 to 5 Years	Within 1 Year	Urgent	Cost
Structure	Demolition					
Structure	Replacement					
0	R					
Deck	Rehab. =					
Sidewalk/Curb	Rehab. =					
Barrier	Rehab. =					
Joints	Rehab. =					
Beams	Rehab. =					
Abutment	Rehab. =					
Pier	Rehab. =					
Other						
Estimated Rehat Total Deck L	bilitated or Replacement Structure Dimensions ³ ength (m) Overall Str. Width (m)			Total Sti	ructural Cost	\$0.00

- Indicate specific costs for structure replacement OR for rehabilitation under the given headings.
 Give a very brief description of the rehabilitation work required.
 S 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 Associated Work Cost	\$0.00

Total Construction Cost	\$0.00

Justification:					
Culvert has be	een recently replaced	and is in a good conditi	on overall.		

							MTO Site Number:		
Inventory Data:									
Structure Name	203 - Lots	s 15/16, Conc 12		_					
Main Highway#	Barkway I	Road On Structi		er 	Service on Structure	Navig. W	X Road Ped.	Othe	er
Location Description	0.33 km so	outh of Seehaver	· Road		Service under:	Navig. V	Water X Non-Navig	y. Water Othe	er
Owner/Custodian	Gravenhurs	rst		_					
MTO Region	Northeaste	ern		_	Latitude	44° 53' 60" N		79° 10' 4	•
Regional Engineer					Heritage Designation:	Not Con Desig.		. List/ Desig. & List	/Not Desig.
MTO Area	Gravenhur	rst		l	Hwy Class:	Freeway	Arterial Collecto	or La	ocal X
Old County				į	Posted Speed	50	No. of Lanes	1	
Township	Gravenhur	rst		ļ	AADT	92	% Truck	0	
Structure Type 1	CSP Arch	Culvert		l					
Structure Material 1	Steel			ĺ	Traffic Directional Boo	und	N-S		
Structure Type 2				ĺ					
Structure Material 2				ĺ	Inspection Frequency	y	2	(years)	
Total Deck Length	8.8		(m)		Inspection Year		2019		
Overall Str. Width	0		(m)		Inspection Duration		2	(hrs)	
Culvert Length	18.6		(m)						
Total Deck Area	163.7		(sq.m)						
Roadway Width	6.75		(m)		Min. Vertical Clearand	ce		(m)	
Skew Angle	0		(Degree	e)	Detour Distance		18	(km)	
No. of Spans	2				Fill on Structure		0.75	(m)	
Span Lengths	4.4, 4.4							(m)	
For retaining wall:									
Total Wall Length			(m)		Max. Wall Height			(m)	
Total Wall Area			(sq.m)		Ave. Wall Height			(m)	
			_		Angle of Backfill			(Degree	es)
Historical Data									
Year Built	20	2014			Year of superstruct. C	Constructed	N/A		
Last Reg. OSIM Inspe	<u> </u>	2016			Year of Last Minor Re		N/A		1
Last Enh. OSIM Inspe	ection _		⊒		Year of Last Major Re	ehab	N/A		
Work History: (Date/d	description)				Current Load Limit	Unvestigation	History: (Date/description	/	(tonnes)
Work History. (Date)	<u>езсприот</u>					IIIV63ugauon	Tilstory. (Data/dosoription	П	

								MTO Sit	e Number	:	
Field Inspection Infor	mation:										
Date of Inspection:		Septer	mber 2, 2019	Type of	Inspection	n:	Х	Reg. OS	IM	Enl	h. OSIM
Inspected By		Kieran	Ferguson								
Others in Party:		None									
Eng. Access Equipment:		None									
Special Access Equipment		None									
Weather		Overca	ast	Temper	ature						18 °C
Additional Investigati	ons Requi	red:		·			_	riority	1	丌	Estimated Cost
Material Condition Survey	•					None		lormal	Urgen	t	Louinatod Goot
Detailed Deck Condition	n Curvov:					Х	+			+	
Non-destructive Delam		ν of Λει	shalt Covered	I Dock:		X	+			$+\!\!\!-$	
Concrete Substructure			priait-Covered	Deck.		X					
		rvey.								_	
Detailed Coating Condi						Х	+			_	
Detailed Timber Investi						Х				_	
Post-Tensioned Strand	Investigation	ı:				Х	-			-	
Underwater Investigation						Х				Щ	
Fatigue Investigation						Х					
Seismic Investigation						Х					
Structure Evaluation:						Х					
Monitoring						Х					
Deformations, Settleme	ents and Move	ements	:			Χ					
Crack Widths:						Х					
RSS Horizontal movem	nents of face:					Х					
RSS Vertical movemen	nts of overall s	structur	e:			Х					
RSS Local movements	or deteriorati	on of fa	ce elements:			Х					
RSS Horizontal movem	nents within o	verall s	tructure:			Х					
RSS Vertical movemen	nts within over	rall stru	cture			Х				\neg	
RSS Lateral earth pres	sure at the ba	ack of fa	acing element	S		Х				$\overline{}$	
Investigation Notes:						<u> </u>			\$0.00		
Overall Structure Not	es:										
Recommended Work on Str	ructure	Тх	None	Minor Rehab		Major Rehat	n.	Ren	lace		
Timing of Recommended W			Urgent	1 to 5 ye		6 to 10		<u> </u>			
Overall Comments:	VOIK		vert was repla				•		ition over		
Overall Comments.		Cuit	reit was repla	aceu III 2014	anu is y	enerally in e.	XCEIR	ent conu	ition over	all.	
Date of Next inspection:		Aug	ust 2021								
Overall Bridge Co	ndition										
% Poor in Deck	% Poor in B	eams	% Poor in S	Substructure	% F	oor in Barrie	r	Bri		ition Inde	ex (BCI or BCIp)
0%	0%		0	%		BClp			BClp 100.00	BCI 100.00	
Overal Bridge Suf	ficiency										,
Traffic	Econom	ic	Wie	dth		Alignment			Bridae Sı	ufficiency	v Index (BSI)
0	2			2		1			Bridge Sufficiency Index (BSI) 95.00		

Element Data:							
Element Group:	Approaches		Length:		6.0 m		
Element Name:	Wearing Surface		Width:		6.75 m		
Location:	North and south		Height:				
Material:	Asphalt		Count:		2		
Element Type:					81.0 sq. m		
Environment: Moderate Limited Ins							
Protection System:						Performance	
Condition Data	Units	Excellent	Good	Fair	Poor*	Deficiencies	
Condition Data:	sq.m	81					
Comments: Fairly recently	repaved. Asphalt is in (good condition ove	rall. No cracks o	or potholes.	Smooth surface.		
Recommended Work:	Reh	nab: Replac	ce:	Mainten	Maintenance Needs:		
Urgent:	1-5 Years: 6-1	0 Years:	None: X	Urgent:	1 Year:	2 Year:	



Description of Photo: Photo 1 - Approach Wearing Surface.jpg



Description of Photo: Photo 2 - Approach Wearing Surface.jpg

Element Photo:



Description of Photo: Photo 3 - Approach Wearing Surface.jpg

Element Data:	I I								
Element Group:		Approach		Length:		85 .0 m, 70.0 m			
Element Name:		Railing System		Width:					
Location:		Each side of road		Height:					
Material:		Steel		Count:		2			
Element Type:				Total Quanti	ity:	155.0 m			
Environment:		Moderate		Limited Insp	ection:				
Protection System	otection System: None						Performance		
Candition Date:		Units	Excellent	Good	Fair	Poor*	Deficiencies		
Condition Data:		m	155						
Comments: No d	lefects in ste	eel. No scrapes or c	lents.						
Recommended Wo	ork:	R	Rehab: Repla	ace:	Maintena	ance Needs:			
Urgent:	1-	5 Years: 6	6-10 Years:	None: X	Urgent:	1 Year:	2 Year:		



Description of Photo: Photo 4 - Approach Barrier.jpg



Description of Photo: Photo 5 - Approach Barrier.jpg

Element Photo:



Description of Photo: Photo 6 - Approach Barrier.jpg

Acc	cessories		Length:			
Sig	ns		Width:			
All	Four Corners		Height:			
l:			Count:	3		
				•		
Ber	nign		Limited Inspe	ection:		
			·	·		Performance
U	Inits	Excellent	Good	Fair	Poor*	Deficiencies
ea	ach		1	1	1	
ject warning sig	n is missing. 1 ob	ject warning sign i	s heavily scrape	d. 1 object wa	rning sign is in goo	d condition.
,	, -			·		
ork:	Reh	nab: Repla	ce:	Maintenar	nce Needs:	
1-5 Ye	ears: 6-1	0 Years:	None:	Urgent:	1 Year:	2 Year:
			<u> </u>			
	Ac Sig All Be	Accessories Signs All Four Corners Benign Units each ject warning sign is missing. 1 ob	Accessories Signs All Four Corners Benign Units Excellent each ject warning sign is missing. 1 object warning sign is	Accessories Signs Width: All Four Corners Height: Count: Total Quanti Benign Limited Inspect Units Excellent Good each 1 ject warning sign is missing. 1 object warning sign is heavily scrape Ork: Rehab: Replace:	Accessories Signs Width: All Four Corners Height: Count: Total Quantity: Limited Inspection: Units Excellent Good Fair each 1 1 ject warning sign is missing. 1 object warning sign is heavily scraped.	Accessories Length:



Description of Photo: Photo 7 - Sign.jpg



Description of Photo: Photo 8 - Sign.jpg

Element Photo:



Description of Photo: Photo 9 - Sign.jpg

Element Data:								
Element Group:		Culvert		Length:	1	8.5 m		
Element Name:		CSP Culvert		Width:	4	4.4 m		
Location:		Beneath roadway		Height:	2	2.9 m		
Material:		Corrugated Steel		Count:	1			
Element Type:				Total Quanti	ity:	8.5 m		
Environment:		Moderate		Limited Insp	ection:			
Protection System:	:	Ploymer Coated					Performance	
Condition Data:	Units	Excellent	Good	Fair	Poor*	Deficiencies		
Condition Data:		m	18.5					
Comments: Culv	ert is in goo	d condition overall.	No damage.					
Recommended Wo	ork:	R	ehab: Repla	ace:	Maintena	nce Needs:		
Urgent:	1-	5 Years: 6	i-10 Years:	None:	Urgent:	1 Year:	2 Year:	



Description of Photo: Photo 10 - Culverts.jpg



Description of Photo: Photo 11 - Culvert.jpg

Element Photo:



Description of Photo: Photo 12 - Culverts.jpg

Element Data:						
Element Group:	Streams & Wa	nterways	Length:			
Element Name:	Embankment	S	Width:			
Location:	All quadrants		Height:			
Material:			Count:	4		
Element Type:			Total Quanti	ty: 4		
Environment:	Benign		Limited Insp	ection:		
Protection System:						Performance
Condition Data:	Units	Excellent	Good	Fair	Poor*	Deficiencies
Condition Data:	each	4				
Comments: Rip ra	ap embankments are stab	le and in great condition.	i			
		-				
Recommended Wo	rk:	Rehab: Repla	ace:	Maintenance	e Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent:	1 Year:	2 Year:



Description of Photo: Photo 13 - Embankment.jpg



Description of Photo: Photo 14 - Embankment.jpg

Element Photo:

Description of Photo:

Element Data:						
Element Group:	Streams & W	aterways	Length:			
Element Name:	Waterway	-	Width:			
Location:	Both sides o	f roadway	Height:			
Material:			Count:	1		
Element Type:		·	Total Quant	ity: 1		
Environment:	Benign		Limited Insp	ection:		
Protection System:						Performance
Condition Data:	Units	Excellent	Good	Fair	Poor*	Deficiencies
Condition Data:	all		х			
Comments: Flow	is ubobstructed.	<u>-</u>				,
Recommended Wor	rk:	Rehab: Rep	lace:	Maintenance	e Needs:	
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent:	1 Year:	2 Year:



Description of Photo: Photo 15 - Watercourse.jpg



Description of Photo: Photo 16 - Watercourse.jpg

Element Photo:

Description of Photo:

Repair and Reha	bilitation Required:		Pric	ority		Estimated Structural	
Element ¹	Repair and Rehabilitation Required ²	6 to 10 Years	1 to 5 Years	Within 1 Year	Urgent	Cost	
Structure	Demolition						
Structure	Replacement						
0	R						
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 L	ength (m) Overall Str. Width (m)			Total St	ructural 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

Justification:		

					MTO Site Number:		
Inventory Data:							
Structure Name	204 - Riley Lake	Road Culvert					
Main Highway #	Riley Lake Road	On X or Unde Structure	Service on Structure	Navig. V	X Road Ped.	Othe	ər
Location Description	1.7 km east of Ho	usey's Rapids Road	Service under:	Navig. \	Water X Non-Navig. Road Ped.	Water Othe	ər
Owner/Custodian	Gravenhurst						
MTO Region	Northeastern		Latitude	44° 50' 24" N		79° 12' 0	
Regional Engineer			Heritage Designation:	X Not Cor Desig.		List/lesig. & List	Not Desig.
MTO Area	Gravenhurst		Hwy Class:	Freeway	Arterial Collector	r Lc	ocal X
Old County			Posted Speed	50	No. of Lanes	1	
Township	Gravenhurst		AADT	168	% Truck	0	
Structure Type 1	CSP Arch Culver	rt					
Structure Material 1	Steel		Traffic Directional B	Bound	W-E		
Structure Type 2							
Structure Material 2			Inspection Frequer	ncy	2	(years)	
Total Deck Length	4	(m)	Inspection Year		2019		
Overall Str. Width	0	(m)	Inspection Duration	'n	2	(hrs)	
Culvert Length	23.1	(m)				_	
Total Deck Area	92.4	(sq.m)					
Roadway Width	6.2	(m)	Min. Vertical Clear	rance		(m)	
Skew Angle	0	(Degree)	e) Detour Distance		N/A	(km)	
No. of Spans	2		Fill on Structure		0.6	(m)	
Span Lengths	2.2, 2.2					(m)	
For retaining wall:							
Total Wall Length		(m)	Max. Wall Height			(m)	
Total Wall Area		(sq.m)	Ave. Wall Height			(m)	
			Angle of Backfill			(Degree	es)
Historical Data							
Year Built	2015		Year of superstruct	t. Constructed	N/A		
Last Reg. OSIM Inspe	<u> </u>		Year of Last Minor		N/A		ĺ
Last Enh. OSIM Inspe	ection		Year of Last Major		N/A		
Work History: (Date/d	Teresintian)		Current Load Limit		n History: (Date/description)		(tonnes)
Work History, (Date/o	<u>esoriptiorij</u>			IIIVesugation	<u>ΤΠΙΝΙΟΙ Υ. (Dαισ/ασσυτιμιίοι η</u>	L	

MTO Site Number:													
Field Inspection Info	rmation:										,		
Date of Inspection:		Septer	mber 2, 2019	Type of	Inspection	on:	Х	Reg. OS	SIM	En	h. OSIM		
Inspected By		Kieran	Ferguson						·-				
Others in Party:		None											
Eng. Access Equipment:		None											
Special Access Equipment		None											
Weather		Overca	ast	Tempera	ature						18 ℃		
Additional Investigat	ions Requi	red:				None		riority	Hraon		Estimated Cost		
Material Condition Survey						None	IN	lormal	Urger	11			
Detailed Deck Condition	on Curvov					Х	1			-			
Non-destructive Delar		v of Ao	shalt Cayarad	Dook		X				-			
Concrete Substructure			Jilait-Covered	Deck.						-			
		rvey.				X	1			$-\!\!\!+\!\!\!\!-$			
Detailed Coating Cond						X				$-\!\!\!\!+\!\!\!\!\!-$			
Detailed Timber Invest						X							
Post-Tensioned Strand	d Investigation	l:				Х				$-\!\!\!\!\!+\!\!\!\!\!\!-$			
Underwater Investigation						Х							
Fatigue Investigation						Х							
Seismic Investigation						Х				$-\!$			
Structure Evaluation:						X							
Monitoring						X							
Deformations, Settlem	ents and Mov	ements	<u> </u>			X							
Crack Widths:						Х							
RSS Horizontal mover	ments of face:					Х							
RSS Vertical movemen	nts of overall s	structure	э:			Х							
RSS Local movements	s or deteriorati	on of fa	ice elements:			Х							
RSS Horizontal mover	nents within o	verall st	tructure:			Х							
RSS Vertical movemen	nts within over	rall stru	cture			Х							
RSS Lateral earth pres	ssure at the ba	ack of fa	acing elements	}		Х							
Investigation Notes:							Tot	al Cost	•	•	\$0.00		
Overall Structure Not	tes:												
Recommended Work on St	tructure	Тх	None I	Minor Rehab		Major Rehab).	Rep	olace				
Timing of Recommended V	Vork		Urgent	1 to 5 ye	ars	6 to 10 y	vears						
Overall Comments:		_	ert was repla						ition.				
Date of Next inspection:		Aug	ust 2021										
Overall Bridge Co													
% Poor in Deck	% Poor in B	eams	% Poor in Su	ubstructure	% F					ondition Index (BCI or BCIp)			
0%	0%		0%		0% BClp 100.00			BClp 100.00	D BCI 00 100.00				
Overal Bridge Su	fficiency												
Traffic	Econom	ic	Wid	lth		Alignment			Bridge S	ufficienc	y Index (BSI)		
0	2		2			1 95.00							

Element Data:												
Element Group:		Approaches				Length:			6.0 m			_
Element Name:		Wearing Surf			Width:			6.2 m				
Location:		East and wes	t			Height:						
Material:		Asphalt				Count:			2			
Element Type:						Total Quant	ity:		74.4 sc	դ. m		
Environment:		Moderate				Limited Insp	ectio	n:				
Protection System	1:										Performance	
O		Units		Excellent		Good		Fair		Poor*	Deficiencies	
Condition Data:		sq.m		74.4								
Comments: Smo	ooth asphalt	surface. No po	otholes o	r cracks.								
Recommended W	ork:		Rehal	b: Rep	lace:			Maintena	ance Ne	eeds:		
Urgent:	1-	5 Years:	6-10	Years:		None: X		Urgent:		1 Year:	2 Year:	
								I				



Description of Photo: Photo 1 - Approach Wearing Surface.jpg



Description of Photo: Photo 2 - Approach Wearing Surface.jpg

Element Photo:



Description of Photo: Photo 3 - Approach Wearing Surface.jpg

Element Data:	•									
Element Group:		Culvert			Length:		23.1	m		
Element Name:		CSP Culvert			Width:			2.0 m diameter		
Location:		Beneath roadway			Height:					
Material:		Corrugated Steel Count:					2			
Element Type:				Total Quanti	ity:	46.2	? m			
Environment:		Moderate			Limited Insp	ection:				
Protection System	1:	Ploymer Coated							Performance	
Caradition Date:		Units	Excellent		Good	Fair		Poor*	Deficiencies	
Condition Data:		m	46.2			,	·	·		
Comments: Son	ne vegetation	n in culvert. No dama	ge - is in good con	ditic	on overall. Cu	ılvert was re	cent	y replaced.		
				 -					 	
Recommended W	ork:	Re	hab: Repla	ice:		Mainter	ance	e Needs:		
Urgent:	1-	5 Years: 6-	10 Years:		None: X	Urgent:		1 Year:	2 Year:	



Description of Photo: Photo 4 - Culverts.jpg



Description of Photo: Photo 5 - Culvert.jpg

Element Photo:



Description of Photo: Photo 6 - Culvert.jpg



Description of Photo: Photo 7 - Culvert.jpg

Element Photo:

Description of Photo:

Element Data:	:								
Element Group:		Streams & Water	ways		Length:				
Element Name:		Embankments	-		Width:				
Location:		All quadrants			Height:				
Material:		·			Count:		4		
Element Type:					Total Quanti	ity:	4		
Environment:		Benign			Limited Insp	ection:			
Protection System	1:								Performance
Condition Data:		Units	Excellent		Good	F	air	Poor*	Deficiencies
Condition Data.		each	4						
Comments: Rip	rap embankr	ments are stable a	nd in very good o	condition	١.				
-									
						_			
Recommended W	ork:		Rehab: F	Replace:		Ma	intenance	e Needs:	
Urgent:	1-	5 Years:	6-10 Years:		None: X	Urg	ent:	1 Year:	2 Year:



Description of Photo: Photo 8 - Embankment.jpg



Description of Photo: Photo 9 - Embankment.jpg

Element Photo:

Description of Photo:

Flowert Deter							
Element Data:							
Element Group:	Streams & V	Vaterways	Length:				
Element Name:	Waterway		Width:				
Location:	Both sides of	of roadway	Height:				
Material:			Count:	1			
Element Type:			Total Quant	•			
Environment:	Benign		Limited Insp	ection:			
Protection System:						Performance	
Condition Data:	Units	Excellent	: Good	Fair	Poor*	Deficiencies	
Condition Data:	all		x				
Comments: No o	bstruction to flow. Water						
Recommended Wo	ork:	Rehab:	Maintenance	Maintenance Needs:			
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent:	1 Year:	2 Year:	



Description of Photo: Photo 10 - Watercourse.jpg



Description of Photo: Photo 11 - Watercourse.jpg

Element Photo:

Description of Photo:

Repair and Reha	bilitation Required:		Prio	Estimated Structural			
Element ¹	Repair and Rehabilitation Required ²	6 to 10 Years	11 to 5 Years		Urgent	Cost	
Structure	Demolition						
Structure	Replacement						
0	R						
Deck	Rehab. =						
Sidewalk/Curb	Rehab. =						
Barrier	Rehab. =						
Joints	Rehab. =						
Beams	Rehab. =						
Abutment	Rehab. =						
Pier	Rehab. =						
Other							
Estimated Rehat Total Deck L			Total Sti	ructural Cost	\$0.00		

- Indicate specific costs for structure replacement OR for rehabilitation under the given headings.
 Give a very brief description of the rehabilitation work required.
 S 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
	T. () () () ()	
	Total Construction Cost	\$0.00

Justification:			
Culvert was replaced in 2015 and is currently in	excellent condition.		

						MTO Site Number:		
Inventory Data:								
Structure Name	C10 - Seehaver	Road, Lot 14, Conc 1	12-13 N	New				
Main Highway#	Seehaver Road	On X or Und Structure	er	Service on Structure	Navig. V	X Road Ped.	. Water	er
Location Description	0.35 km east of B	sarkway Road		Service under:	Navig. V	Water X Non-Navig. Road Ped.	. Water	er
Owner/Custodian	Gravenhurst			コ				
MTO Region	Northeastern			Latitude	44° 55' 48" N		79° 9' 36	•
Regional Engineer				Heritage Designation:	X Not Con Desig.		List/ esig. & List	/Not Desig.
MTO Area	Gravenhurst		ј н	lwy Class:	Freeway	Arterial Collecto	or Lo	ocal X
Old County			P	osted Speed	50	No. of Lanes	1	
Township	Gravenhurst		A	ADT	55	% Truck	0	
Structure Type 1	CSP Arch Culver	rt	l					
Structure Material 1	Steel		Tr	raffic Directional Bo	Sound	W-E		
Structure Type 2			ĺ					
Structure Material 2] In	nspection Frequenc	су	2	(years)	
Total Deck Length	7.6	(m)	In	nspection Year		2019		
Overall Str. Width	0	(m)	In	nspection Duration	I	2	(hrs)	
Culvert Length	18.7	(m)						
Total Deck Area	142.1	(sq.m)						
Roadway Width	5.8	(m)	M	lin. Vertical Cleara	ince		(m)	
Skew Angle	0	(Degree	e) D	etour Distance		N/A	(km)	
No. of Spans	2			ill on Structure		0.6	(m)	
Span Lengths	3.8, 3.8						(m)	
For retaining wall:								
Total Wall Length		(m)	M	Max. Wall Height			(m)	
Total Wall Area		(sq.m)	A	ve. Wall Height			(m)	
	_		Α	angle of Backfill			(Degree	es)
Historical Data								
Year Built	2012		Y	ear of superstruct.	. Constructed	N/A		
Last Reg. OSIM Inspe				Year of Last Minor Rehab.		N/A	ĺ	
Last Enh. OSIM Inspe	ection			ear of Last Major F	Rehab	N/A		
Work History: (Date/d	intion)		C	Current Load Limit	Unvectigation	h History: (Date/description	<u>'</u>	(tonnes)
WOIN HISTORY, (Date/o	<u>езоприоп</u>				IIIVestigation	Πίδισι γ. (Dαισ/ασσστιμιίστ	1	

				MTO Sit	e Number:							
Field Inspection Infor	rmation:											
Date of Inspection:		Septer	mber 2, 2019	n: X Reg. OSIM			IM [Enh. OSIM				
Inspected By		Kieran Ferguson										
Others in Party:		None										
Eng. Access Equipment:		None										
Special Access Equipment		None										
Weather		Overc	ast	Temper	ature						20 °C	
Additional Investigati	ions Requi	red:				Priority Estimate					Estimated Cost	
Material Condition Survey						None	l N	ormal	Urgen			
Detailed Deck Condition	on Survov:					Х	-			-		
Non-destructive Delam		ν of Λε	nhalt Covere	d Dock:		X				_		
Concrete Substructure			priait-Covere	u Deck.		X				_		
Detailed Coating Cond		ivey.										
						X						
Detailed Timber Invest						X	-			_		
Post-Tensioned Strand	investigation	l .				X				_		
Underwater Investigation						X	-			_		
Fatigue Investigation						X	-			_		
Seismic Investigation						Х						
Structure Evaluation:						Х						
Monitoring	(I.M.	1.				Х						
Deformations, Settleme	ents and Move	ements	:			Х	ļ			_		
Crack Widths:						Х						
RSS Horizontal moven						Х						
RSS Vertical movemen						Х						
RSS Local movements				:		Х	ļ					
RSS Horizontal moven						X						
RSS Vertical movemer						X						
RSS Lateral earth pres	ssure at the ba	ack of fa	acing elemen	its		X						
Investigation Notes:						Total Cost \$0.00					\$0.00	
Overall Structure Not	tes:											
Recommended Work on St	ructure	Х	None	Minor Rehab). <u> </u>	Major Rehab		Rep	lace			
Timing of Recommended V	Vork		Urgent	1 to 5 ye	ears	6 to 10 y	/ears	·				
Overall Comments: Culvert was replaced in 2012 at						urrently in ve	rv ac	od cond	dition ove	rall.		
		•	, ,									
Date of Next inspection: August 2021												
Overall Bridge Condition												
% Poor in Deck % Poor in Be			Beams			Poor in Barrier		Bri		ndition Index (BCI or BCIp)		
0%			(0%		0%			BClp 100.00		BCI 95.06	
Overal Bridge Sur	fficiency				-							
Traffic Economic Width						Alignment Bridge Sufficiency Ind						
0	2		5			2		86.06				

						ı
Element Data:						
Element Group: Approaches		Length:	6.0	m (Each Approac	ch)	
Element Name:	Wearing Surfac	е	Width:	5.8	m	
Location:	Both Sides		Height:			
Material:	Asphalt		Count:	2		
Element Type:			Total Quanti		6 sq. m	
Environment:	Moderate		Limited Inspe	ection:		
Protection System:				<u> </u>		Performance
Condition Date:	Units	Excellent	Good	Fair	Poor*	Deficiencies
Condition Data:	sq.m	69.6				
Comments: Aspha	Ilt surface is smooth. No p	otholes or cracks.			•	•
-						
Recommended Wor	k:	Rehab: Repla	ehab: Replace: N			
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent:	1 Year:	2 Year:



Description of Photo: Photo 1 - Approach Wearing Surface.jpg



Description of Photo: Photo 2 - Approach Wearing Surface.jpg

Element Photo:

Description of Photo:

Element Data:							
Element Group:	Approach			Length:		86.0 m	
Element Name:		ailing System		Width:			
Location:		ach side of road		Height:			
Material:	3	Cable and Wood	Post	Count:		2	
Element Type:				Total Quanti	ty:	172.0 m	
Environment:		oderate		Limited Insp	ection:		
Protection System	i: No	one					Performance
Canditian Data		Units	Excellent	Good	Fair	Poor*	Deficiencies
Condition Data:		m	167	5			
Comments: Som	е кпіскѕ іп юр	IS OT POSIS. Cable	es and posts are oth	erwise in great o	onaition ove	rall.	
Recommended Work: Rehab: Replac			ace:	Mainten	ance Needs:		
Urgent:	1-5 Y	/ears: 6	-10 Years:	None: X	Urgent:	1 Year:	2 Year:



Description of Photo: Photo 3 - Approach Barrier.jpg



Description of Photo: Photo 4 - Approach Barrier.jpg

Element Photo:



Description of Photo: Photo 5 - Approach Barrier.jpg

Element Data:									
Element Group:		Culvert			Length:		18.7	m	
Element Name:		CSP Culvert			Width:		3.8 m		
Location:		Beneath roadway			Height:		2.7 m		
Material:	Corrugated Steel		Count:		2				
Element Type:	Element Type:			Total Quantity:		37.4 m			
Environment:		Moderate			Limited Inspection:				
Protection System	:	Ploymer Coated							Performance
Condition Data		Units	Excellent		Good	Fair		Poor*	Deficiencies
Condition Data:		m	37		0.4				
Comments: Dirt on culvert exterior. Some bolts have minor corrosion. Culverts have no damage and are in excellent condition overall.									

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

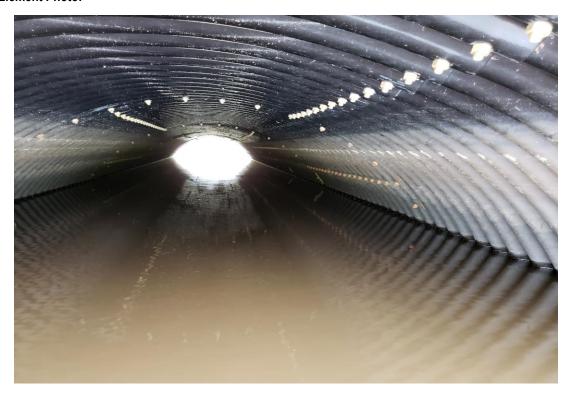


Description of Photo: Photo 6 - Culvert.jpg

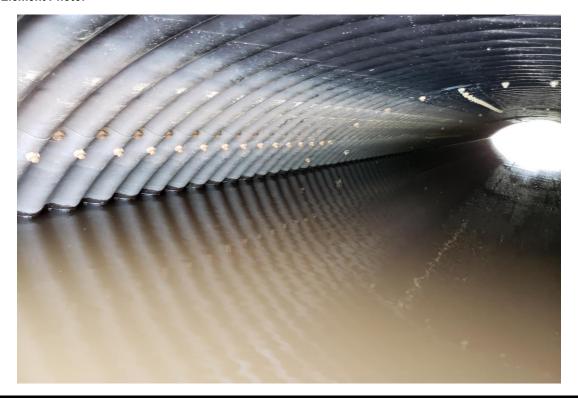


Description of Photo: Photo 7 - Culvert.jpg

Element Photo:



Description of Photo: Photo 8 - Culvert.jpg



Description of Photo: Photo 9 - Culvert.jpg

Element Photo:



Description of Photo: Photo 10 - Culvert.jpg

Streams & Waterway	S	Length:			
Embankments		Width:			
All quadrants		Height:			
		Count:		4	
		Total Quanti	ity:	4	
Benign		Limited Insp	ection:		
					Performance
Units	Excellent	Good	Fair	Poor*	Deficiencies
each	4				
ments are stable and	are in excellent cond	ition overall.			
Reh	ab: Replace	:	Mainten	ance Needs:	
5 Years: 6-1	0 Years:	None: X	Urgent:	1 Year:	2 Year:
	Embankments All quadrants Benign Units each ments are stable and a	Benign Units Excellent each 4 ments are stable and are in excellent cond	Embankments All quadrants Count: Total Quant Benign Limited Insp Units Excellent Good each 4 ments are stable and are in excellent condition overall. Rehab: Replace:	Embankments All quadrants Count: Total Quantity: Benign Limited Inspection: Units Excellent Good Fair each 4 ments are stable and are in excellent condition overall. Rehab: Replace: Mainten	Embankments All quadrants Count: Total Quantity: Benign Limited Inspection: Units Excellent Good Fair Poor* each 4 ments are stable and are in excellent condition overall. Rehab: Replace: Maintenance Needs:



Description of Photo: Photo 11 - Embankment.jpg



Description of Photo: Photo 12 - Embankment.jpg

Element Photo:



Description of Photo: Photo 13 - Embankment.jpg

Clament Date:							
Element Data:							
Element Group:	Streams & W	aterways	Length:				
Element Name:	Waterway		Width:				
Location:	Both sides of	f roadway	Height:				
Material:			Count:	1			
Element Type:			Total Quanti	•			
Environment:	Benign		Limited Insp	ection:			
Protection System:						Performance	
Condition Data:	Units	Excellent	Good	Fair	Poor*	Deficiencies	
Condition Data:	all		x				
Comments: No ol	bstruction to flow.						
			<u></u>				
Recommended Wo	ork:	Rehab: Replace: Mai			aintenance Needs:		
Urgent:	1-5 Years:	6-10 Years:	None: X	Urgent:	1 Year:	2 Year:	



Description of Photo: Photo 14 - Watercourse.jpg



Description of Photo: Photo 15 - Watercourse.jpg

Element Photo:

Description of Photo:

Repair and Rehabilitation Required:			Prio	Estimated Structural		
Element ¹	Repair and Rehabilitation Required ²	6 to 10 Years	1 to 5 Years	Within 1 Year	Urgent	Cost
Structure	Demolition					
Structure	Replacement					
0	R					
Deck	Rehab. =					
Sidewalk/Curb	Rehab. =					
Barrier	Rehab. =					
Joints	Rehab. =					
Beams	Rehab. =					
Abutment	Rehab. =					
Pier	Rehab. =					
Other						
Estimated Rehat			Total Sti	ructural Cost	\$0.00	

- Indicate specific costs for structure replacement OR for rehabilitation under the given headings.
 Give a very brief description of the rehabilitation work required.
 S 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
	T. () () () ()	
	Total Construction Cost	\$0.00

Justification:	
Culvert was replaced in 2012 and is currently in very good condition overall.	