MUNICIPALITY OF TEMAGAMI

2023 Bridge Inspection Report

Project #23-0658
August 2023

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

TULLOCH Engineering Inc. has been retained by the Municipality of Temagami to undertake detailed visual inspections of the municipally owned bridges within their jurisdiction. In accordance with Ontario Regulation 104/97 – Standards for Bridges, the structural integrity, safety, and condition of every bridge shall be determined through the performance of at least one inspection in every second calendar year under the direction of a professional engineer and in accordance with the Ontario Structure Inspection Manual (OSIM). O. Reg. 472/10, s. 2.

The goal of the structural inspections is to ensure that an acceptable standard is being maintained for each bridge in terms of public safety, comfort, and convenience. The objectives of the inspections are as follows:

- To identify critical maintenance, rehabilitation, and or replacement needs of the bridges
- To protect and prolong the useful life of the bridges
- To provide a basis for scheduling and funding of maintenance, rehabilitation repairs, or replacement of the bridges

This report contains completed OSIM inspection forms, relevant photographs, suggested repairs, and estimated costs for repairs at each site. The bridges inspected as part of this assignment are shown on the key map provided in Figure 1 below.

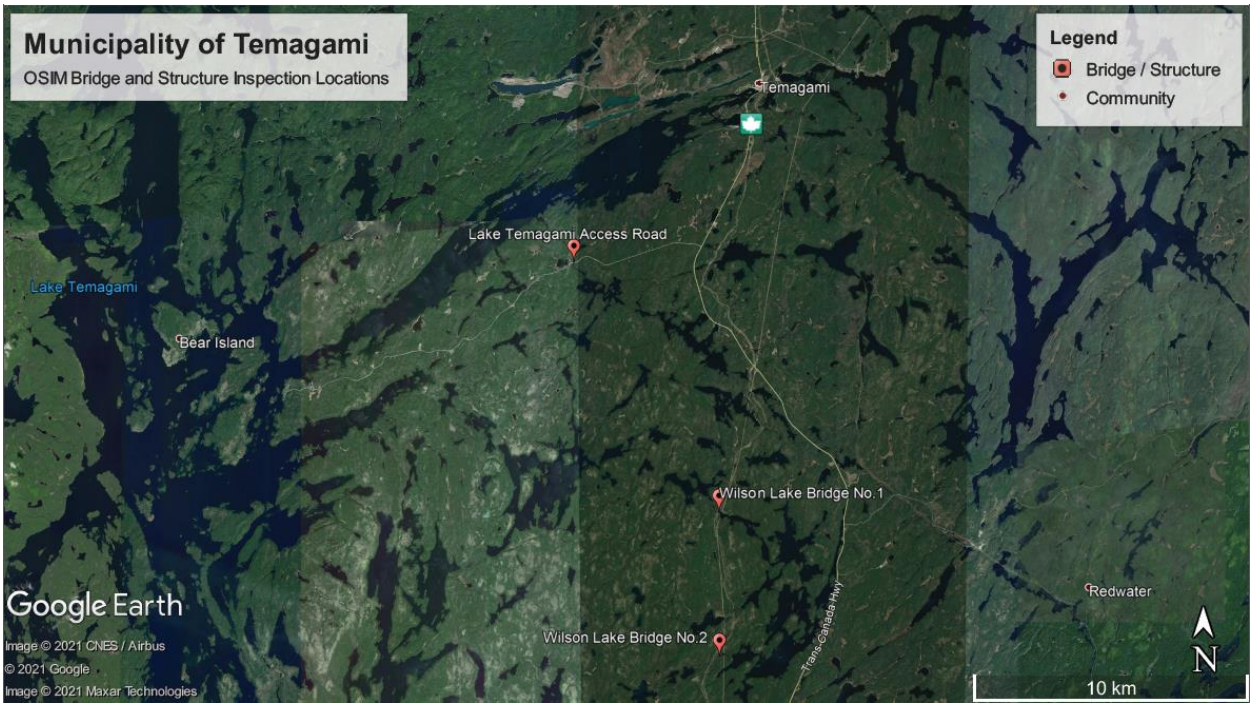


Figure 1: Key Map - Bridge Locations

1.1 Inspection Procedures

Detailed visual inspections involve a review of each primary structural element. The structural elements are identified by primary groupings and sub-groupings of each element. Material defects such as wood rot or concrete spalling were recorded and measured in the field, refer to Appendix A for a full glossary of terms for the material defects. The condition of each element is quantified and assessed with a rating of 'excellent', 'good', 'fair', or 'poor'. The condition ratings are quantified for either a portion of the total structural element or the entirety of the structural element.

2. INSPECTION SUMMARIES

The results of the detailed visual inspections are recorded using standard Ontario Structure Inspection Manual (OSIM) forms. The forms provide a report of existing data and conditions at the time of the inspection for each bridge. Results of the previous inspections completed in 2021 were used as a template for this round of inspections. Updated OSIM forms are located in Appendix B. The reports identify additional inspections required and recommended work to repair deficiencies along with a schedule for such repairs. The following summarizes the results of our inspections.

2.1 Wilson Lake Bridge No. 1

Wilson Lake Bridge No.1 is located approximately 6.8 km southwest of Highway 11 on Wilson Lake Road. The structure is a triple span of 12.2 m long and 5.9 m wide with steel girders and a timber deck and wearing surface. The last major rehab occurred in 2014, with the installation of new steel pile caps, timber ballast walls, superstructure, and railings. Overall, the structure is in good condition with a BCI of 96 and a BSI of 89. The structure requires minor maintenance and no repairs.

<u>Recommended Maintenance</u>

1 year

- Remove debris from pile caps and deck wearing surface
- Straighten wood offset blocks on the barrier posts
- Remove remnants of beaver dam under structure
- Trim back shoulder vegetation
- Clean deck wearing surface

<u>Recommended Repairs</u>

None

2.2 Wilson Lake Bridge No. 2

Wilson Lake Bridge No.2 is located approximately 12.4 km southwest of Highway 11 on Wilson Lake Road. The structure is a single span 21.3 m long 3.3 m wide Bailey Bridge consisting of 7 Bailey truss bays with a timber deck and wearing surface. The last major rehab occurred in 2011,

with the replacement of all timber bearing cribs, guide rail posts, and the correction of settlement by adding an additional layer of 200x200 mm timber sections to the bearing cribs. Overall, the structure is in poor condition with a BCI of 42 and a BSI of 32. Given the age and condition of the structure, it would be prudent to consider replacing it within the next 1-5 years. The bridge requires several maintenance and repair items completed as listed below.

Recommended Maintenance

1 year

- Monitor movement of the bearing cribs.
- Monitor for further deflection of approach ramps.
- Clean vegetation and debris from bearings, base plates, bailey panels.
- Reset the rotated wood offset blocks on the guide rail posts.
- Replace the curbs on structure wearing surface.
- Trim back the vegetation from the roadway and signage.
- Regrade potholes at approaches.

Recommended Repairs

1 – 5 years

- Replace the missing 200x200 mm timber section in the northeast bearing crib.
- Sandblast structural steel and repaint or replace members.
- Replace the damaged steel beam guide rails.
- Replace severely pitted cross bracing members.
- Replace the timber wearing surface.

2.3 Temagami Lake Access Road Bridge

Lake Temagami Access Road Bridge is located approximately 5 km west of Highway 11 on Lake Temagami Access Road. The structure is a single span 7.3 m long 8.1 m wide steel girder bridge with a fibreglass deck and asphalt wearing surface, constructed in 2010. The last major rehab occurred in 2022, with the replacement of all approaching guide rails, west gabion baskets and correction of the undermining on the west abutment wall. Overall, the structure is in good condition with a BCI of 73 and a BSI of 67, however, there is moderate undermining occurring under the east abutment wall. Given the severity of the undermining the structure requires rehabilitation within the next 1-5 years to continue to function safely.

Recommended Maintenance

1 year

- Clear the remnants of the beaver dam upstream of the structure.
- Remove the gravel from the deck and approaching wearing surface.

Recommended Repairs

1 – 5 years

- Repair the undermining of the east abutment.
- Reinstall gabion baskets after the undermining repairs are completed.

3. IMPROVEMENT COSTS

The tables below summarize the estimated cost of the repair and rehabilitation required for the deficiencies identified through the inspection process. Cost tables have been split into maintenance items and repair item costs.

Table 1: Repair Costs

Repairs	Wilson Lake Bridge No. 1	Wilson Lake Bridge No. 2	Lake Temagami Access Road Bridge	Total Cost (Sum)
Immediate	$ 0	$ 0	$ 0	$ 0
1-5 years	$ 0	$ 256,000	$ 150,000	$ 406,000
6-10 years	$ 0	$ 0	$ 0	$ 0
			Total	$ 406,000

Table 2: Maintenance Costs

Maintenance	Wilson Lake Bridge No. 1	Wilson Lake Bridge No. 2	Lake Temagami Access Road Bridge	Total Cost (Sum)
Immediate	$ 0	$ 0	$ 0	$ 0
1 year	$ 4,000	$ 5,000	$ 3,000	$ 12,000
2 years	$ 0	$ 2,000	$ 0	$ 2,000
			Total	$ 14,000

4. CONCLUSIONS AND RECOMMENDATIONS

Upon completion of the biennial structure inspections, a number of recommendations have been identified for both short and long-term planning with municipal structures.

Critical items have been noted above and should be scheduled to be undertaken by the Municipality as soon as possible/practical.

Wilson Lake Bridge No.1 is in good condition and in our opinion does not require any major maintenance or repairs.

Given the age and structural deterioration of the Wilson Lake Bridge No.2, we feel it prudent for the Township to start planning for the replacement of the structure in the next 1-5 years.

Lake Temagami Access Road Bridge has moderate erosion occurring underneath the east abutment wall. It is our recommendation that this be addressed and repaired within one year.

We trust that the contents of this report sufficiently outline the requirements for bridge maintenance, repair, and replacement. Should you have any questions or comments on the contents of this report, please do not hesitate to contact our office.

Respectfully Submitted,

TULLOCH ENGINEERING INC.

Kevin Louch, P. Eng.
Project Engineer

APPENDIX A

Glossary of Definitions

Abutment - A substructure unit which supports the end of the structure and retains the approach fill.

Auxiliary Components - Any component which does not share in the load carrying capacity of the structure.

Biennial Structure Inspection - An inspection performed in every second calendar year to assess the condition of the structure, in accordance with the methodology described in OSIM.

Bridge - A structure which provides a roadway or walkway for the passage of vehicles, pedestrians or cyclists across an obstruction, gap or facility and is greater than or equal to 3 m in span.

Bridge Condition Index (BCI) - The BCI rating is a planning tool developed by the Ontario Ministry of Transportation that helps schedule maintenance and rehabilitation work. The BCI is not used to rate or indicate the safety of a bridge. The BCI result is organized into ranges from 0 to 100. To calculate the BCI rating, the current dollar value of the bridge is divided by the replacement cost of the bridge. The replacement value is based on the cost to reconstruct a new bridge. Using this formula enables the Owner to make an informed decision about the amount of work a bridge requires and whether or not to pursue replacement over repair in the near future.

Rating	Maintenance Schedule
Good: BCI Range 70 -100	Maintenance is not usually required within the next five years
Fair: BCI Range 60 -70	Maintenance work is usually scheduled within the next five years. This is the ideal time to schedule major bridge repairs to get the most out of bridge spending.
Poor: BCI Less than 60	Maintenance work is usually scheduled within one year.

Bridge Sufficiency Index (BSI) – The BSI rating is a planning tool developed by the Ontario Ministry of Transportation. The BSI is calculated using the BCI rating less ratings for Importance Factors including Traffic, Economic Implications, Bridge Width and Bridge Profile or Alignment. It is a planning tool with a range of 0 to 100 and helps prioritize maintenance and rehabilitation work, and replacement, with bridges of equal BCI but lower BSI having importance over bridges with higher BSI.

Chord - The upper and lower main longitudinal component in trusses or arches extending the full length of the structure.

Coating - The generic term for paint, lacquer, enamel, sealers, galvanizing, metallizing, etc.

Concrete Deck Condition Survey - A detailed inspection of a concrete deck in accordance with The Structure Rehabilitation Manual.

Culvert (Structural) - A Structure that forms an opening through soil and has a span of 3 metres or more

Defect - An identifiable, unwanted condition that was not part of the original intent of design.

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

- Disintegration - Disintegration is the physical deterioration or breaking down of the concrete into small fragments or particles. The deterioration usually starts in the form of scaling and, if allowed to progress beyond the level of very severe scaling is considered as disintegration. Disintegration may be caused by de-icing chemicals, sulphates, chlorides or by frost action.

- Erosion - Erosion is the deterioration of concrete brought about by water-borne sand and gravel particles scrubbing against concrete surfaces. Similar, damage may be caused by flowing ice. Erosion is sometimes combined with the chemical action of air and water-borne pollutants which accelerate the breakdown of the concrete. Erosion is generally an indication that the concrete is not durable enough for the environment in which it has been placed.

- Corrosion of Reinforcement - Corrosion is the deterioration of reinforcement by electrolysis. The alkali content in concrete protects the reinforcement from corrosion. However, when chloride ions above a certain concentration are dissolved in water and penetrate through the concrete to the reinforcement this protection breaks down and corrosion starts. In the initial stages, corrosion may appear as a rust-stain on the concrete surface. In the advanced stages, the surface concrete above the reinforcement cracks, delaminates and spalls off exposing heavily rusted reinforcement.

- Delamination - Delamination is defined as a discontinuity of the surface concrete which is substantially separated but not completely detached from concrete below or above it. Visibly, it may appear as a solid surface but can be identified as a hollow sound by tapping or chain dragging. Delamination begins with the corrosion of reinforcement and subsequent cracking of the concrete. Delamination or debonding may also occur in concrete that has been patched or overlaid due to the continued deterioration of the older concrete. This may happen even in the absence of any rusting of reinforcing steel.

- Spalling - A spall is a fragment, which has been detached from a larger concrete mass. Spalling 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.

- Cracking - A crack is a linear fracture in concrete which extends partly or completely through the member. Cracks in concrete occur as a result of tensile stresses introduced in the concrete. Tensile stresses are initially carried by the concrete and reinforcement until the level of the tensile stresses exceeds the tensile capacity of the concrete. After this point the concrete cracks and the tensile force is transferred completely to the steel reinforcement. The crack widths and distribution is controlled by the reinforcement in reinforced and prestressed concrete, whereas in plain concrete there is no such control.

- Alkali-Aggregate Reaction - In Ontario, there exists several sources of aggregates that react adversely with the alkalis in cement to produce a highly expansive gel. Currently, these sources of reactive aggregates are generally avoided, but they do exist in many existing structures and still may occur in newer structures. The two general types of reactions in Ontario are alkali-carbonate and alkali-silica reaction. The expansion of the gel and aggregates occurs due to hydroxyl ions in the concrete pore solution, which under moist conditions, leads to cracking and deterioration of the concrete.

- Surface Defects - Surface defects are not necessarily serious in themselves; however, they are indicative of a potential weakness in the concrete, and their presence should be noted but not classified as to severity, except for honeycombing and pop-outs.

    - STRATIFICATION is the separation of the concrete components into horizontal layers in over-wetted or over-vibrated concrete. Water, laitance, mortar and coarse aggregates occupy successively lower positions. A layered structure in concrete will also result from the placing of successive batches that differ in appearance.

    - SEGREGATION is the differential concentration of the components of mixed concrete resulting in nonuniform proportions in the mass. Segregation is caused by concrete falling from a height, with the coarse aggregates settling to the bottom and the fines on top. Another form of segregation occurs where reinforcing bars prevent the uniform flow of concrete between them.

    - COLD JOINTS are produced if there is a delay between the placement of successive pours of concrete, and if an incomplete bond develops at the joint due to the partial setting of the concrete in the first pour.

    - DEPOSITS are often left behind where water percolates through the concrete and dissolves or leaches chemicals from it and deposits them on the surface.

    - HONEYCOMBING is produced due to the 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.

    - POP-OUTS are shallow, typically conical depressions, resulting from the breaking away of small portions of the concrete surface, due to the expansion of some aggregates or due to frost action. The shattered aggregate particle may be found at the bottom of the depression, with a part of the aggregate still adhering to the pop-out cone.

    - ABRASION is the deterioration of concrete brought about by vehicles or snow-plough blades scraping against concrete surfaces, such as, decks, curbs, barrier walls or piers.

- WEAR is usually the result of dynamic and/or frictional forces generated by vehicular traffic, coupled with the abrasive influx of sand, dirt, and debris. It can also result from the friction of ice or water-borne particles against partly or completely submerged members. The surface of the concrete appears polished.

- SLIPPERY CONCRETE SURFACES may result from the polishing of the concrete deck surface by the action of repetitive vehicular traffic.

Detailed Visual Inspection - An element by element visual assessment of material defects, performance deficiencies and maintenance needs of a structure.

Deterioration - A defect that has occurred over a period of time.

Distress - A defect produced by loading.

Elements - The individual parts of a structure defined for inspection purposes. Several bridge components may be grouped together to form one bridge element for inspection purposes

Environment - An element's exposure to salt spray:

- Benign - Not exposed (e.g. River Pier)
- Moderate - Exposed but element protected (e.g. Asphalt covered and waterproofed deck)
- Severe - Exposed and element not protected (e.g. Exposed concrete deck, Barrier Wall)

Evaluation - The determination of the load carrying capacity of structures in accordance with the requirements of the Canadian Highway Bridge Design Code.

Maintenance - Any action which is aimed at preventing the development of defects or preventing deterioration of a structure or its components.

Primary Components - The main load carrying components of the structure.

Rehabilitation - Any modification, alteration, retrofitting or improvement to a structure subsystem or to the structure which is aimed at correcting existing defects or deficiencies.

Remaining Service Life - Remaining Service Life is an estimate of the useful remaining life of the structure and is based on the year of construction or major rehabilitation and a service life of 50 years for culverts that are not plastic, polymer coated or concrete, 50 years for bridges constructed prior to 2000, 50 years for steel bridges and 70 years for other structures.

Repair - Any modification, alteration, retrofitting or improvement to a component of the structure which is aimed at correcting existing defects or deficiencies.

Retaining Wall - Any structure that holds back fill and is not connected to a bridge.

Secondary Components - Any component which helps to distribute loads to primary components, or carries wind loads, or stabilizes primary components.

Sign Support - A metal, concrete, or timber structure, including supporting brackets, service walks and mechanical devices where present, which support a luminaire, sign or traffic signal and which span or extend over a highway.

Span - The horizontal distance between adjacent supports of the superstructure of a bridge, or the longest horizontal dimension of the cross-section of a culvert or tunnel taken perpendicular to the walls.

Stringers - Stringers span between floor beams and provide the support for the deck above.

Structure - Bridge, culvert, tunnel, retaining wall or sign support.

Suspected Performance Deficiency - A Suspected Performance Deficiency should be recorded during an inspection, if an element's ability to perform its intended function is in question, and one or more performance defects exist.

APPENDIX B

OSIM Forms

Ontario Structure Inspection Manual – Inspection Form **MTO Site Number:**

Inventory Data:

Structure Name	Wilson Lake Road Bridge 1				
Main Highway #		On ☑ or Under ☐ Structure	Service on structure:	☐ Navig. Water ☐ Non-Navig. Water ☐ Rail ☑ Road ☐ Ped. ☐ Other	
Location description	6.8 km Southwest of Hwy 11		Service under	☐ Navig. Water ☑ Non-Navig. Water ☐ Rail ☐ Road ☐ Ped. ☐ Other	
Owner/Custodian	Municipality of Temagami		LHRS:		LHRS offset:	
MTO Region	Northern		Latitude:	46° 55' 28" N	Longitude:	79° 48' 35" W
Regional Engineer			Heritage Designation:	☑ Not Cons. ☐ Cons./not App. ☐ List/not Desig. ☐ Desig./not List ☐ Desig. & List	
MTO Area	Sudbury		Hwy Class:	Freeway ☐ Arterial ☐ Collector ☐ Local ☑	
Old County			Posted Speed		No. of Lanes	2
Township	Temagami		AADT		% Truck	
Structure Type 1	Girder		Travel Stream	E	
Structure Material 1	Steel		Traffic Directional Bound	S-N	
Structure Type 2	Deck		Inspection Route Sequence		
Structure Material 2	Timber		Inspection Frequency	2	(years)
Total Deck Length	12.2 (m)		Inspection Year	2023	
Overall Str. Width	5.9 (m)		Inspection Duration		(hrs)
Culvert length	(m)		Interchange Number		
Total Deck Area	72.0 (sq.m)		Interchange Structure Number		
Roadway Width	5.2 (m)		Min. Vertical Clearance		(m)
Skew Angle	0 (Degree)		Detour Distance		(km)
No. of Spans	3		Fill on Structure		(m)
Span Lengths	North 3.9; 4.2; 3.9 South				(m)

<u>For retaining wall:</u>

Total Wall Length	(m)		Max. Wall Height		(m)
Total Wall Area	(sq.m)		Ave. Wall Height		(m)
			Angle of Backfill		(Degree)

Rev 2018

Historical Data:

Year Built		Year of superstruct. constructed	
Last Reg OSIM Inspection	2021	Year of Last Minor Rehab.	
Last Enh. OSIM Inspection		Year of Last Major Rehab.	Aug 2014
		Current Load Limit	(tonnes)

Work History: (Date/description) 2014: New steel pile caps, timber ballast walls. Entirely new superstructure and railing.

Investigation History: (Date/description)

Scheduled Improvements:

Regional Priority Number Programmed Work Year

Nature of Program Work: None

Appraisal Indices:		Comments
Fatigue	None	
Seismic	None	
Scour	None	
Flood	None	
Barrier	None	
Curb	None	
Load Capacity	None	

Field Inspection Information:			
Date of Inspection:	June 20, 2023	Type of Inspection:	☑ Reg. OSIM ☐ Enh. OSIM
Inspected By:	Kevin Louch, P.Eng.		
Others in Party:	Kaitlyn Hunt		
Enh. Access Equipment:	Measuring Tape, Camera, Hammer		
Special Access Equipment:			
Weather:	Sunny	Temperature:	26°C

Additional Investigations Required:	Priority		
	None	Normal	Urgent
Material Condition Survey	✔		
Detailed Deck Condition Survey:	✔		
Non-destructive Delamination Survey of Asphalt-Covered Deck:	✔		
Concrete Substructure Condition Survey:	✔		
Detailed Coating Condition Survey:	✔		
Detailed Timber Investigation	✔		
Post-Tensioned Strand Investigation	✔		
Underwater Investigation:	✔		
Fatigue Investigation:	✔		
Seismic Investigation:	✔		
Structure Evaluation:	✔		
Monitoring	✔		
Deformations, Settlements and Movements:	✔		
Crack Widths:	✔		
RSS Horizontal movements of face:	✔		
RSS Vertical movements of overall structure:	✔		
RSS Local movements or deterioration of facing elements:	✔		
RSS Horizontal movements within overall structure:	✔		
RSS Vertical movements within overall structure:	✔		
RSS Lateral earth pressure at the back of facing elements:	✔		
Investigation Notes: No further investigation required.			

Overall Structure Notes:	Overall Bridge Condition: BCI 96
Recommended Work on Structure:	☑ None ☐ Minor Rehab. ☐ Major Rehab. ☐ Replace
Timing of Recommended Work:	☐ 1 to 5 years ☐ 6 to 10 years
Overall Comments:	No work needed, only maintenance on wearing surface and stream. Overall in good condition.
Date of Next Inspection:	2025

Suspected Performance Deficiencies

01 Load carrying capacity
02 Excessive deformations (deflections & rotations)
03 Continuing settlement
04 Continuing movements
05 Seized bearings
06 Bearing not uniformly loaded/unstable
07 Jammed expansion joint
08 Pedestrian/vehicular hazard
09 Rough riding surface
10 Surface ponding
11 Deck/Wall drainage
12 Slippery surfaces
13 Flooding/channel blockage
14 Undermining of foundation
15 Unstable embankments
16 Other performance deficiencies

Maintenance Needs

01 N/A
02 Bridge Cleaning
03 Railing System Repair
04 N/A
05 Bridge Deck Joint Repair
06 N/A
07 Structural Steel Repair
08 Concrete Repair
09 Timber Repair
10 Works for Modular bridges
11 Animal/Pest Control
12 Bridge Surface Repair
13 Erosion Control at Bridges
14 Concrete Sealing
15 N/A
16 Works for Drainage System
17 Scaling (Loose Concrete or ACR Steel)
18 Other Maintenance

Municipal Structure Inspection Form
Wilson Lake Road Bridge 1

MTO Site Number:

Repair and Rehabilitation Required:		Priority			Estimated Construction Cost
Element	Repair and Rehabilitation Required	6 to 10 years	1 to 5 years	Urgent	
				Total Cost	$0

Associated Work:	Comments	Estimated Cost
Other:	Engineering (15%)	$0
Contingencies:	Contingency (10%)	$0
	Total Cost	$0

Total Repair and Rehabilitation Cost	$0

Replacement Cost	$0

Maintenance Required		Priority			Estimated Construction Cost
Element	Repair and Rehabilitation Required	2 year	Within 1 year	Urgent	
Streams	Remove daming under bridge		x		$1,000
Deck WS	Remove gravel and sand from top		x		$1,000
Abutment Pile Caps	Remove debris from top of cap		x		$500
Barrier Post	Straighten offset block		x		$500
Approach WS	Trim back vegetation		x		$1,000
				Total Maintenance Cost	$4,000

Justification:

Municipal Structure Inspection Form
Wilson Lake Road Bridge 1

MTO Site Number:

Section View: Facing South

Elevation View: Facing North

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 1 **MTO Site Number:**

Element Data

Element Group:	Abutments		Length:	0.25	(m)
Element Name:	Pile Cap		Width:	5.94	(m)
Location:	North and South Abutments		Height:	0.25	(m)
Material:	Steel		Count:	2	each
Element Type:	W 250x73		Total Quantity:	11.9	(m^2)
Environment:	(Benign) / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	Steel Coating			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	(m^2) / m / each / % / all	11.9			

None

Comments: Light corrosion and flaking of steel coating. Light debris on top of pile cap steel beams.

Performance Deficiencies:

Recommended Work: ☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None

Maintenance Needs: ☐ Urgent ☑ 1 Year ☐ 2 Year

Timeframe: ☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years

Remove debris from pile caps.

Comments:

Element Photos

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 1 **MTO Site Number:**

Element Data

Element Group:	Abutments		Length:	0.3	(m)
Element Name:	Pile Bents		Width:	0.3	(m)
Location:	North and South Abutments		Height:	0.4	(m)
Material:	Wood		Count:	10	each
Element Type:	Timber Piles		Total Quantity:	3.8	(m^2)
Environment:	Benign (Moderate) Severe		Limited Insp'n:	☑	
Protection System:	Creoste			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	(m²) m / each / % / all		3	0.8		None

Comments: Crack in south abutment diagonal brace.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab	☐ Major Rehab	**Maintenance Needs:**
	☐ Replace	☑ None	☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent	☐ 1 - 5 Years	☐ 6 - 10 Years
Comments:			

Element Photos

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 1 **MTO Site Number:**

Element Data

Element Group:	Abutments		Length:	n/a	(m)
Element Name:	Ballast Walls		Width:	7.14	(m)
Location:	North and South Abutments		Height:	0.84	(m)
Material:	Wood		Count:	2	each
Element Type:	Dimension Lumber		Total Quantity:	12.0	(m^2)
Environment:	Benign / (Moderate) / Severe		Limited Insp'n:	☑	
Protection System:	Treated				

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	(m^2) / m / each / % / all	12				None

Comments: Minor splits in timber ballast wall.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None	**Maintenance Needs:**	☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years		
Comments:			

Element Photos

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 1 **MTO Site Number:**

Element Data

Element Group:	Piers		Length:	0.25	(m)
Element Name:	Pile Caps		Width:	5.94	(m)
Location:	North and South Piers		Height:	0.25	(m)
Material:	Steel		Count:	2	each
Element Type:	W 250x73		Total Quantity:	11.9	(m^2)
Environment:	(Benign) / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	Steel Coating			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	(m^2) / m / each / % / all	11.5	0.4		

Performance Deficiencies: None

Comments: Light corrosion and flaking of steel coating.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab	☐ Major Rehab	**Maintenance Needs:**
	☐ Replace	☑ None	☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent	☐ 1 - 5 Years	☐ 6 - 10 Years
Comments:			

Element Photos

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 1 **MTO Site Number:**

Element Data

Element Group:	Piers		Length:	0.3	(m)
Element Name:	Pile Bents		Width:	0.3	(m)
Location:	North and South Piers		Height:	1.3	(m)
Material:	Wood		Count:	10	each
Element Type:	Timber Pile		Total Quantity:	12.3	(m^2)
Environment:	(Benign) / Moderate / Severe		Limited Insp'n:	☑	
Protection System:	Creosote			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	(m²) / m / each / % / all		11.3	1		None

Comments:

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None	**Maintenance Needs:**	☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years		
Comments:			

Element Photos

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 1 **MTO Site Number:**

Element Data

Element Group:	Main Longitudinal Elements		Length:	4	(m) total of both ends
Element Name:	Girders		Width:	0.177	(m)
Location:	Ends		Height:	0.403	(m)
Material:	Steel		Count:	5	each
Element Type:	W 410x54		Total Quantity:	26.7	(m^2)
Environment:	Benign / (Moderate) / Severe		Limited Insp'n:	☐	
Protection System:	Steel Coating			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	(m²) / m / each / % / all	26	0.7			None

Comments: Light corrosion and flaking of steel coating.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years	
Comments:		

Element Photos

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 1 **MTO Site Number:**

Element Data

Element Group:	Main Longitudinal Elements		Length:	8.22	(m)
Element Name:	Girders		Width:	0.177	(m)
Location:	Middle		Height:	0.403	(m)
Material:	Steel		Count:	5	each
Element Type:	W 410x54		Total Quantity:	55.0	(m^2)
Environment:	(Benign) / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	Steel Coating			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	(m^2) / m / each / % / all	54.5	0.5		

Comments: Light corrosion and flaking of steel coating.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab	☐ Major Rehab	**Maintenance Needs:**
	☐ Replace	☑ None	☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years	☐ 6 - 10 Years	
Comments:			

Element Photos

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 1 **MTO Site Number:**

Element Data

Element Group:	Main Longitudinal Elements				Length:	1.22	(m)
Element Name:	Diaphragm				Width:	0.065	(m)
Location:	End (at abutments)				Height:	0.254	(m)
Material:	Steel				Count:	4	each side
Element Type:	C 250x23				Total Quantity:	8	each
Environment:	Benign / (Moderate) / Severe				Limited Insp'n:	☐	
Protection System:	Steel Coating					Performance Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor		
	m² / m / (each) / % / all	8				None	

Comments: Light corrosion and flaking of steel coating.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years	
Comments:		

Element Photos

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 1 **MTO Site Number:**

Element Data

Element Group:	Main Longitudinal Elements		Length:	1.22	(m)
Element Name:	Diaphragm		Width:	0.065	(m)
Location:	Intermediate (at piers)		Height:	0.254	(m)
Material:	Steel		Count:	4	each side
Element Type:	C 250x23		Total Quantity:	8	each
Environment:	Benign / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	Steel Coating			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	m² / m / each / % / all	8				None

Comments: Light corrosion and flaking of steel coating.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years	
Comments:		

Element Photos

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 1 **MTO Site Number:**

Element Data

Element Group:	Coating	Length:	n/a	(m)	
Element Name:	Structural Steel	Width:	n/a	(m)	
Location:	Ends	Height:	n/a	(m)	
Material:	Epoxy Paint	Count:	n/a	each	
Element Type:	Epoxy-Zinc Epoxy-Polyurethane	Total Quantity:	32.9	(m^2)including diaphragm	
Environment:	Benign / (Moderate) / Severe	Limited Insp'n:	☐		
Protection System:	Steel Coating				

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	(m^2) / m / each / % / all	22.9	10			None

Comments: Light flaking of coating throughout.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years	
Comments:		

Element Photos

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 1 **MTO Site Number:**

Element Data

Element Group:	Coating		Length:	n/a	(m)
Element Name:	Structural Steel		Width:	n/a	(m)
Location:	Middle		Height:	n/a	(m)
Material:	Epoxy Paint		Count:	n/a	each
Element Type:	Epoxy -Zinc Epoxy Ployurethane		Total Quantity:	61.2	(m^2)
Environment:	(Benign) / Moderate / Severe		Limited Insp'n:	☑	
Protection System:	Steel Coating			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	(m^2) / m / each / % / all	55.7	5.5			None

Comments: Light flaking of coating throughout.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab	☐ Major Rehab	**Maintenance Needs:**
	☐ Replace	☑ None	☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years	☐ 6 - 10 Years	
Comments:			

Element Photos

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 1 **MTO Site Number:**

Element Data

Element Group:	Decks		Length:	12.22	(m)
Element Name:	Deck Top		Width:	5.5	(m)
Location:	-		Height:	0.19	(m)
Material:	Wood		Count:	n/a	each
Element Type:	Dimension Lumber		Total Quantity:	67.21	(m²)
Environment:	Benign / (Moderate) / Severe		Limited Insp'n:	☑	
Protection System:	Wood Preservative Treatment			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	(m²) / m / each / % / all	65	2.21		

Comments: Hidden under deck wearing surface. Appears to be in good condition based on board ends and soffit. Light twisting and checking in board ends.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years	
Comments:		

Element Photos

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 1 **MTO Site Number:**

Element Data

Element Group:	Decks		Length:	12.22	(m)
Element Name:	Soffit		Width:	5.0	(m)
Location:	-		Height:	n/a	(m)
Material:	Wood		Count:	n/a	each
Element Type:	Dimension Lumber		Total Quantity:	61.1	(m²)
Environment:	(Benign) / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	Wood Preservative Treatment			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	(m²) / m / each / % / all	59.6	1.5		

Comments: Moisture stains throughout.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years	
Comments:		

Element Photos

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 1 **MTO Site Number:**

Element Data

Element Group:	Deck		Length:	12.22	(m)
Element Name:	Wearing Surface		Width:	4.9	(m)
Location:	-		Height:	n/a	(m)
Material:	Wood		Count:	n/a	each
Element Type:	Dimension Wood		Total Quantity:	59.9	(m²)
Environment:	Benign / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	-			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	m² / m / each / % / all	50	9.9			None

Comments: Covered in sand and gravel. Light wear in timber running boards.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None	**Maintenance Needs:**	☐ Urgent ☑ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years	**Remove gravel and sand from wearing surface.**	
Comments:			

Element Photos

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 1 **MTO Site Number:**

Element Data

Element Group:	Sidewalks/Curbs		Length:	12.22	(m)
Element Name:	Curbs		Width:	0.14	(m)
Location:	East and West sides		Height:	0.14	(m)
Material:	Wood		Count:	2	each
Element Type:	Dimension Lumber		Total Quantity:	6.84	(m²)
Environment:	Benign / Moderate / (Severe)		Limited Insp'n:	☐	
Protection System:	Wood Preservative Treatment			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	(m²) / m / each / % / all	6	0.84		

Comments: Light weather checks. Wide splits in the top of curbs.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years	
Comments:		

Element Photos

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 1 **MTO Site Number:**

Element Data

Element Group:	Barriers		Length:	0.19	(m)
Element Name:	Posts		Width:	0.19	(m)
Location:	East and West side		Height:	0.9	(m)
Material:	Wood		Count:	11	each side
Element Type:	Dimension Lumber		Total Quantity:	22	each
Environment:	Benign / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	Wood Preservative Treatment			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	m² / m / each / % / all	15	7			None

Comments: One offset block twisted at the northwest side of structure. Light rotting on the top of all posts.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None	**Maintenance Needs:** ☐ Urgent ☑ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years	**Straighten offset blocks**
Comments:		

Element Photos

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 1 **MTO Site Number:**

Element Data

Element Group:	Barriers		Length:	3.81	(m)
Element Name:	Railing Systems		Width:	n/a	(m)
Location:	East and West sides of Deck		Height:	0.9	(m)
Material:	Steel		Count:	10	each side
Element Type:	Flex Beam		Total Quantity:	38.1	(m)
Environment:	Benign / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	Galvanized			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	m^2 / m / each / % / all	37.1	1			None

Comments:

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab	☐ Major Rehab	**Maintenance Needs:**
	☐ Replace	☑ None	☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years	☐ 6 - 10 Years	
Comments:			

Element Photos

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 1 **MTO Site Number:**

Element Data

Element Group:	Approaches		Length:	6	(m)
Element Name:	Wearing Surface		Width:	4.9	(m)
Location:	East and West Approaches		Height:	n/a	(m)
Material:	Gravel		Count:	2	each
Element Type:	-		Total Quantity:	58.8	(m²)
Environment:	Benign / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	-			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	m² / m / each / % / all		58.8			None

Comments: Gravel approaching wearing surface. Light vegetation over sides of approaching entrances.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab	☐ Major Rehab	**Maintenance Needs:**
	☐ Replace	☑ None	☐ Urgent ☑ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years	☐ 6 - 10 Years	**Trim back excess vegetation.**
Comments:			

Element Photos

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 1 **MTO Site Number:**

Element Data

Element Group:	Approaches		Length:	n/a	(m)
Element Name:	Signage		Width:	n/a	(m)
Location:	North and South Approaches		Height:	n/a	(m)
Material:	-		Count:	2	each side
Element Type:	-		Total Quantity:	4	each
Environment:	Benign / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	-			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	m² / m / each / % / all	4				None

Comments:

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab	☐ Major Rehab	**Maintenance Needs:**
	☐ Replace	☑ None	☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years	☐ 6 - 10 Years	
Comments:			

Element Photos

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 1 **MTO Site Number:**

Element Data

Element Group:	Embankments and Streams		Length:	n/a	(m)
Element Name:	Streams and Waterways		Width:	n/a	(m)
Location:	-		Height:	n/a	(m)
Material:	-		Count:	1	each
Element Type:	-		Total Quantity:	1	all
Environment:	Benign / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	-			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	m² / m / each / % (all)		1			None

Comments: Light beaver dam noted at the middle of structure.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None	**Maintenance Needs:** ☐ Urgent ☑ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years	**Remove beaver dam.**
Comments:		

Element Photos

Comments:

Ontario Structure Inspection Manual – Inspection Form **MTO Site Number:**

Inventory Data:

Structure Name	Wilson Lake Road Bridge 2				
Main Highway #		On ☑ or Under ☐ Structure	Service on structure:	☐ Navig. Water ☐ Non-Navig. Water ☐ Rail ☑ Road ☐ Ped. ☐ Other	
Location description	12.4 km Southwest of Hwy 11		Service under	☐ Navig. Water ☑ Non-Navig. Water ☐ Rail ☐ Road ☐ Ped. ☐ Other	
Owner/Custodian	Municipality of Temagami		LHRS:		LHRS offset:	
MTO Region	Northern		Latitude:	46° 52' 38" N	Longitude:	79° 48' 36" W
Regional Engineer			Heritage Designation:	☑ Not Cons. ☐ Cons./not App. ☐ List/not Desig. ☐ Desig./not List ☐ Desig. & List	
MTO Area	Sudbury		Hwy Class:	Freeway ☐ Arterial ☐ Collector ☐ Local ☑	
Old County			Posted Speed		No. of Lanes	1
Township	Temagami		AADT		% Truck	
Structure Type 1	Bailey Bridge (Triple-Single)		Travel Stream	W	
Structure Material 1	Steel		Traffic Directional Bound	S-N	
Structure Type 2	Deck		Inspection Route Sequence		
Structure Material 2	Wood		Inspection Frequency	2	(years)
Total Deck Length	21.3	(m)	Inspection Year	2023	
Overall Str. Width	5.49	(m)	Inspection Duration		(hrs)
Culvert length		(m)	Interchange Number		
Total Deck Area	116.9	(sq.m)	Interchange Structure Number		
Roadway Width	3.3	(m)	Min. Vertical Clearance		(m)
Skew Angle	0	(Degree)	Detour Distance		(km)
No. of Spans	1		Fill on Structure		(m)
Span Lengths	21.3 (7 bays)				(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)

Rev 2018

Historical Data:

Rev 2018

Year Built		Year of superstruct. constructed	
Last Reg OSIM Inspection	2021	Year of Last Minor Rehab.	
Last Enh. OSIM Inspection		Year of Last Major Rehab.	2011
		Current Load Limit	50/36/21 (tonnes)

Work History: (Date/description)

2011: Replaced all bearing timbers and approaching guide rail posts. Raised north end of bridge by installing additional bearing timbers to correct settlement.

Rev 2018

Investigation History: (Date/description)

Scheduled Improvements:

Regional Priority Number | Programmed Work Year

Nature of Program Work: None

Appraisal Indices:		Comments
Fatigue	None	
Seismic	None	
Scour	None	
Flood	None	
Barrier	None	
Curb	None	
Load Capacity	None	

Field Inspection Information:			
Date of Inspection:	June 20, 2023	Type of Inspection:	☑ Reg. OSIM ☐ Enh. OSIM
Inspected By:	Kevin Louch, P.Eng.		
Others in Party:	Kaitlyn Hunt		
Enh. Access Equipment:	Measuring Tape, Camera, Hammer		
Special Access Equipment:			
Weather:	Sunny	Temperature:	28 °C

Additional Investigations Required:	Priority		
	None	Normal	Urgent
Material Condition Survey	✔		
Detailed Deck Condition Survey:	✔		
Non-destructive Delamination Survey of Asphalt-Covered Deck:	✔		
Concrete Substructure Condition Survey:	✔		
Detailed Coating Condition Survey:	✔		
Detailed Timber Investigation	✔		
Post-Tensioned Strand Investigation	✔		
Underwater Investigation:	✔		
Fatigue Investigation:	✔		
Seismic Investigation:	✔		
Structure Evaluation:	✔		
Monitoring	✔		
Deformations, Settlements and Movements:		✔	
Crack Widths:	✔		
RSS Horizontal movements of face:	✔		
RSS Vertical movements of overall structure:	✔		
RSS Local movements or deterioration of facing elements:	✔		
RSS Horizontal movements within overall structure:	✔		
RSS Vertical movements within overall structure:	✔		
RSS Lateral earth pressure at the back of facing elements:	✔		
Investigation Notes: No further investigation required.			

Overall Structure Notes:	Overall Bridge Condition: BCI 42
Recommended Work on Structure:	☐ None ☐ Minor Rehab. ☐ Major Rehab. ☑ Replace
Timing of Recommended Work:	☑ 1 to 5 years ☐ 6 to 10 years
Overall Comments:	Curbs are heavily deteriorated, deck wearing surface and barrier rails in poor condition, missing timber bearing section, and pitted cross bracing members.
Date of Next Inspection:	2025

Suspected Performance Deficiencies

01 Load carrying capacity
02 Excessive deformations (deflections & rotations)
03 Continuing settlement
04 Continuing movements
05 Seized bearings
06 Bearing not uniformly loaded/unstable
07 Jammed expansion joint
08 Pedestrian/vehicular hazard
09 Rough riding surface
10 Surface ponding
11 Deck/Wall drainage
12 Slippery surfaces
13 Flooding/channel blockage
14 Undermining of foundation
15 Unstable embankments
16 Other performance deficiencies

Maintenance Needs

01 N/A
02 Bridge Cleaning
03 Railing System Repair
04 N/A
05 Bridge Deck Joint Repair
06 N/A
07 Structural Steel Repair
08 Concrete Repair
09 Timber Repair
10 Works for Modular bridges
11 Animal/Pest Control
12 Bridge Surface Repair
13 Erosion Control at Bridges
14 Concrete Sealing
15 N/A
16 Works for Drainage System
17 Scaling (Loose Concrete or ACR Steel)
18 Other Maintenance

Municipal Structure Inspection Form
Wilson Lake Road Bridge 2

MTO Site Number:

Repair and Rehabilitation Required:		Priority			Estimated Construction Cost
Element	Repair and Rehabilitation Required	6 to 10 years	1 to 5 years	Urgent	
Bearing Cribs	Reset/reinstall missing timber		x		$1,000
Deck WS	Replace		x		$40,000
Floor Beams/Stringers	Sandblast and paint or replace		x		$100,000
Barrier Rails	Replace damaged sections		x		$40,000
Cross Bracing	Replace pitted braces		x		$75,000
				Total Cost	$256,000

Associated Work:	Comments	Estimated Cost
Other:	Engineering (15%)	$38,400
Contingencies:	Contingency (10%)	$25,600
	Total Cost	$64,000

Total Repair and Rehabilitation Cost	$320,000

Replacement Cost	$700,000

Maintenance Required		Priority			Estimated Construction Cost
Element	Repair and Rehabilitation Required	2 year	Within 1 year	Urgent	
Abutments/Ramps	Monitor for movement	x			$2,000
Bailey Panel/Bearings	Remove vegetation		x		$1,000
Approaches	Regrade		x		$2,000
Barrier Post	Rotate blocks back straight		x		$1,000
Deck WS	Replace curbs		x		$1,000
			Total Maintenance Cost		$7,000

Justification:

Municipal Structure Inspection Form
Wilson Lake Road Bridge 2

MTO Site Number:

Section View: Facing North

Elevation View: Facing East

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 2 **MTO Site Number:**

Element Data

Element Group:	Abutments		Length:	n/a	(m)
Element Name:	Bearing Cribs		Width:	2.0	(m)
Location:	North and South		Height:	0.85	(m)
Material:	Wood		Count:	4	each
Element Type:	Bearing Timbers		Total Quantity:	6.8	(m^2)
Environment:	(Benign) / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	Treated			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	(m^2) / m / each / % / all			6.8	

None

Comments: Separate bearing crib constructed with 200x200 mm treated timber under each Bailey base plate. Northeast bearing crib is missing timber section. Minor rotation and settlement of northeast bearing crib.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab	☐ Major Rehab	**Maintenance Needs:**
	☑ Replace	☐ None	☐ Urgent ☐ 1 Year ☑ 2 Year
Timeframe:	☐ Urgent ☑ 1 - 5 Years	☐ 6 - 10 Years	**Monitor for movement.**
Comments: Reset bearing crib and reinstall missing timber section at northeast crib.			

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 2 **MTO Site Number:**

Element Data

Element Group:	Abutments		Length:	n/a	(m)
Element Name:	Bearings		Width:	n/a	(m)
Location:	North and South		Height:	n/a	(m)
Material:	Steel		Count:	8	each
Element Type:	Bailey Bearing		Total Quantity:	8	each
Environment:	Benign / (Moderate) / Severe		Limited Insp'n:	☑	
Protection System:	Galvanized			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	m² / m / (each) / % / all			8	

Performance Deficiencies: None

Comments: Bearing covered with vegetation and debris. Moderate corrosion noted on exposed steel.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None	**Maintenance Needs:** ☐ Urgent ☑ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years	**Clear vegetation from bearing.**
Comments:		

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 2 **MTO Site Number:**

Element Data

Element Group:	Abutments		Length:	n/a	(m)
Element Name:	Base Plate		Width:	n/a	(m)
Location:	North and South		Height:	n/a	(m)
Material:	Steel		Count:	4	each
Element Type:	Bailey Base Plate		Total Quantity:	4	each
Environment:	Benign / (Moderate) / Severe		Limited Insp'n:	☑	
Protection System:	Galvanized			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	m² / m / (each) / % / all			4	

None

Comments: Bearing covered with vegetation and debris. Moderate corrosion noted on exposed steel.

Performance Deficiencies:

Recommended Work: ☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None

Maintenance Needs: ☐ Urgent ☑ 1 Year ☐ 2 Year

Timeframe: ☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years

Clear vegetation from bearing.

Comments:

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 2 **MTO Site Number:**

Element Data

Element Group:	Main Longitudinal Elements		Length:	n/a	(m)
Element Name:	Floor Beams		Width:	n/a	(m)
Location:	-		Height:	n/a	(m)
Material:	Steel		Count:	14	each
Element Type:	Bailey Transom		Total Quantity:	14	each
Environment:	(Benign) / Moderate / Severe		Limited Insp'n:	☑	
Protection System:	Galvanized			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	m² / m / (each) / % / all			14	

None

Comments: Load carry capacity deficiences (2 transoms per bay). Medium corrosion noted.

Performance Deficiencies:

Recommended Work: ☑ Minor Rehab ☐ Major Rehab ☐ Replace ☐ None

Maintenance Needs: ☐ Urgent ☐ 1 Year ☐ 2 Year

Timeframe: ☐ Urgent ☑ 1 - 5 Years ☐ 6 - 10 Years

Comments: Sandblast structural steel and repaint, or replace bridge.

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 2 **MTO Site Number:**

Element Data

Element Group:	Main Longitudinal Elements		Length:	n/a	(m)
Element Name:	Stringers		Width:	n/a	(m)
Location:	-		Height:	n/a	(m)
Material:	Steel		Count:	45	each
Element Type:	Bailey Stringer		Total Quantity:	45	each
Environment:	(Benign) / Moderate / Severe		Limited Insp'n:	☑	
Protection System:	Galvanized			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	m² / m / (each) / % / all			45	

None

Comments: Visual deflection noted when vehicle crosses the bridge. Medium corrosion noted.

Performance Deficiencies:

Recommended Work: ☑ Minor Rehab ☐ Major Rehab ☐ Replace ☐ None

Maintenance Needs: ☐ Urgent ☐ 1 Year ☐ 2 Year

Timeframe: ☐ Urgent ☑ 1 - 5 Years ☐ 6 - 10 Years

Comments: Sandblast structural steel and repaint, or replace bridge.

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 2 **MTO Site Number:**

Element Data

Element Group:	Approaches		Length:	3.3	(m)
Element Name:	Approach Ramps		Width:	3.6	(m)
Location:	North and South		Height:	0.13	(m)
Material:	Steel		Count:	2	each
Element Type:	Bailey Ramp		Total Quantity:	23.8	(m^2)
Environment:	Benign / (Moderate) / Severe		Limited Insp'n:	☑	
Protection System:	Galvanized			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	(m²) / m / each / % / all		10	8.8	5

Performance Deficiencies: None

Comments: Permenant deformation at ramps where vehicles enter onto bridge.

Performance Deficiencies:

Recommended Work: ☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None

Maintenance Needs: ☐ Urgent ☐ 1 Year ☑ 2 Year

Timeframe: ☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years

Monitor for further deflection.

Comments:

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 2 **MTO Site Number:**

Element Data

Element Group:	Barrier		Length:	0.2	(m)
Element Name:	Posts		Width:	0.2	(m)
Location:	West and East sides		Height:	1.0	(m)
Material:	Wood		Count:	9	each
Element Type:	Post		Total Quantity:	9	each
Environment:	Benign / (Moderate) / Severe		Limited Insp'n:	☐	
Protection System:	-			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	m² / m / (each) / % / all			6	3	None

Comments: Wood offset blocks twisted at northeast and southeast corner.

Performance Deficiencies:

Recommended Work: ☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None

Maintenance Needs: ☐ Urgent ☑ 1 Year ☐ 2 Year

Timeframe: ☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years

Reset rotated offset blocks.

Comments:

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 2 **MTO Site Number:**

Element Data

Element Group:	Barrier		Length:	3.81	(m)
Element Name:	Railing System		Width:	n/a	(m)
Location:	West and East sides		Height:	0.7	(m)
Material:	Steel		Count:	22	each
Element Type:	Flex Beam		Total Quantity:	83.8	(m)
Environment:	Benign / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	Galvanized			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	m^2 / m / each / % / all		30	40	13.8	None

Comments: SBGR end treatments are not as per OPSD Standards for approach terminal end treatments. Minor impact damage throughout. Sever damage to section on northeast end. Snowplow damage throughout.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab	☐ Major Rehab	**Maintenance Needs:**
	☑ Replace	☐ None	☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent	☑ 1 - 5 Years	☐ 6 - 10 Years
Comments: Replace damaged SBGR.			

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 2 **MTO Site Number:**

Element Data

Element Group:	Deck		Length:	27.4	(m) including ramps
Element Name:	Deck Top		Width:	3.6	(m)
Location:	-		Height:	0.038	(m)
Material:	Wood		Count:	n/a	each
Element Type:	Dimension Lumber		Total Quantity:	98.6	(m^2)
Environment:	Benign / (Moderate) / Severe		Limited Insp'n:	☑	
Protection System:	Treated			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	(m²) / m / each / % / all		49.3	49.3		None

Comments: Dimensional 38x140 mm timber boards under wearing surface. Minor splits and deterioration noted throughout. Top inspection obscured by timber deck wearing surface.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab	☐ Major Rehab	**Maintenance Needs:**
	☐ Replace	☑ None	☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years	☐ 6 - 10 Years	
Comments:			

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 2 **MTO Site Number:**

Element Data

Element Group:	Deck		Length:	27.4	(m) including ramps
Element Name:	Wearing Surface		Width:	3.3	(m)
Location:	-		Height:	0.038	(m)
Material:	Wood		Count:	n/a	each
Element Type:	Dimension Lumber		Total Quantity:	90.4	(m^2)
Environment:	Benign / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	-			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	m^2 / m / each / % / all			30	60.4	None

Comments: Timber curbs are in poor condition. Bolts are bent and wood is split with checking throughout. Curb is broken throughout sections. Cracking throughout with moderate wearing in wheel path. Visual settelment at north bearing.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab	☐ Major Rehab	**Maintenance Needs:**
	☑ Replace	☐ None	☐ Urgent ☑ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years	☑ 6 - 10 Years	**Replace timber Curbs.**
Comments: Replace timber wearing surface.			

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 2 **MTO Site Number:**

Element Data

Element Group:	Truss		Length:	n/a	(m)
Element Name:	Bailey Panel		Width:	n/a	(m)
Location:	East and West		Height:	n/a	(m)
Material:	Steel		Count:	42	each
Element Type:	Bailey Panels		Total Quantity:	42	each
Environment:	Benign / (Moderate) / Severe		Limited Insp'n:	☐	
Protection System:	Galvanized			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	m² / m / (each) / % / all			42	

None

Comments: Load carry capacity deficiency, one raker at southeast corner deformed. Severe corrosion and flaking of paint noted throughout. Exterior panels appear to be older than the interior two runs with severe galvanize flaking. Tree protruding up at west side.

Performance Deficiencies:

Recommended Work: ☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None

Maintenance Needs: ☐ Urgent ☑ 1 Year ☐ 2 Year

Timeframe: ☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years

Remove all vegetation in paneling.

Comments:

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 2 **MTO Site Number:**

Element Data

Element Group:	Truss		Length:	n/a	(m)
Element Name:	Cross Braces		Width:	n/a	(m)
Location:	Under		Height:	n/a	(m)
Material:	Steel		Count:	14	each
Element Type:	Cross Bracing		Total Quantity:	14.0	each
Environment:	Benign / (Moderate) / Severe		Limited Insp'n:	☐	
Protection System:	-			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	m² / m / (each) / % / all			13	1

Comments: Moderate corrosion throughout. One cross bracing at south side has severe pitting.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab	☐ Major Rehab	**Maintenance Needs:**
	☑ Replace	☐ None	☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent	☑ 1 - 5 Years ☐ 6 - 10 Years	
Comments: Replace severely pitted cross bracing members.			

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 2 **MTO Site Number:**

Element Data

Element Group:	Approaches		Length:	6	(m)
Element Name:	Wearing Surface		Width:	4	(m)
Location:	North and South		Height:	n/a	(m)
Material:	Granular		Count:	2	each
Element Type:	-		Total Quantity:	48.0	(m^2)
Environment:	Benign / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	-			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	(m^2) / m / each / % / all		40	4	4	None

Comments: Potholes at north approach and south ramping.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None	**Maintenance Needs:**	☐ Urgent ☑ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years	**Regrade potholes and ramping.**	
Comments:			

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 2 **MTO Site Number:**

Element Data

Element Group:	Embankments and Streams		Length:	n/a	(m)
Element Name:	Streams and Waterways		Width:	n/a	(m)
Location:	-		Height:	n/a	(m)
Material:	-		Count:	1	each
Element Type:	-		Total Quantity:	1	all
Environment:	Benign / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	-			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	m² / m / each / % / all		1			None

Comments: Streams and embankments are in good condition.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years	
Comments:		

Comments:

Municipal Structure Inspection Form

Wilson Lake Road Bridge 2 **MTO Site Number:**

Element Data

Element Group:	Approaches		Length:	n/a	(m)
Element Name:	Signage		Width:	n/a	(m)
Location:	North and South		Height:	n/a	(m)
Material:	-		Count:	6	each
Element Type:	-		Total Quantity:	6.0	each
Environment:	Benign / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	-			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	m² / m / each / % / all		5	1		None

Comments: Vegetation has encroached on roadway, partially obscuring signage.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None	**Maintenance Needs:** ☐ Urgent ☑ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years	**Clear vegetation**
Comments:		

Comments:

Ontario Structure Inspection Manual – Inspection Form **MTO Site Number:**

Inventory Data:

Structure Name	Temagami Lake Access Road Bridge				
Main Highway #		On ☑ or Under ☐ Structure	Service on structure:	☐ Navig. Water ☐ Non-Navig. Water ☐ Rail ☑ Road ☐ Ped. ☐ Other	
Location description	5.0 km West of Hwy 11		Service under	☐ Navig. Water ☑ Non-Navig. Water ☐ Rail ☐ Road ☐ Ped. ☐ Other	
Owner/Custodian	Municipality of Temagami	LHRS:		LHRS offset:	
MTO Region	Northern	Latitude:	47° 00' 21" N	Longitude:	79° 52' 47" W
Regional Engineer		Heritage Designation:	☑ Not Cons. ☐ Cons./not App. ☐ List/not Desig. ☐ Desig./not List ☐ Desig. & List		
MTO Area	Sudbury	Hwy Class:	Freeway ☐ Arterial ☐ Collector ☐ Local ☑		
Old County		Posted Speed	50 km/h	No. of Lanes	2
Township	Temagami	AADT		% Truck	
Structure Type 1	Girder	Travel Stream	N		
Structure Material 1	Steel	Traffic Directional Bound	W-E		
Structure Type 2	Deck	Inspection Route Sequence			
Structure Material 2	Wood/Fiber Glass	Inspection Frequency	2	(years)	
Total Deck Length	7.3 (m)	Inspection Year	2023		
Overall Str. Width	8.1 (m)	Inspection Duration		(hrs)	
Culvert length	(m)	Interchange Number			
Total Deck Area	59.1 (sq.m)	Interchange Structure Number			
Roadway Width	7.9 (m)	Min. Vertical Clearance		(m)	
Skew Angle	30 (Degree)	Detour Distance		(km)	
No. of Spans	1	Fill on Structure		(m)	
Span Lengths	6.15			(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)	

Rev 2018

Historical Data:

Year Built	2010	Year of superstruct. constructed	
Last Reg OSIM Inspection	2021	Year of Last Minor Rehab.	
Last Enh. OSIM Inspection		Year of Last Major Rehab.	2022
		Current Load Limit	(tonnes)

Work History: (Date/description) 2022: West abutment undermining grouted solid, signs and guide rails replaced.

Investigation History: (Date/description)

Scheduled Improvements:

Regional Priority Number Programmed Work Year

Nature of Program Work: None

Appraisal Indices:		Comments
Fatigue	None	
Seismic	None	
Scour	None	
Flood	None	
Barrier	None	
Curb	None	
Load Capacity	None	

Field Inspection Information:			
Date of Inspection:	June 20, 2023	Type of Inspection:	☑ Reg. OSIM ☐ Enh. OSIM
Inspected By:	Kevin Louch, P.Eng.		
Others in Party:	Kaitlyn Hunt		
Enh. Access Equipment:	Measuring Tape, Camera, Hammer		
Special Access Equipment:			
Weather:	Sunny	Temperature:	27 °C

Additional Investigations Required:	Priority		
	None	Normal	Urgent
Material Condition Survey	✔		
Detailed Deck Condition Survey:	✔		
Non-destructive Delamination Survey of Asphalt-Covered Deck:	✔		
Concrete Substructure Condition Survey:	✔		
Detailed Coating Condition Survey:	✔		
Detailed Timber Investigation	✔		
Post-Tensioned Strand Investigation	✔		
Underwater Investigation:	✔		
Fatigue Investigation:	✔		
Seismic Investigation:	✔		
Structure Evaluation:	✔		
Monitoring	✔		
Deformations, Settlements and Movements:	✔		
Crack Widths:	✔		
RSS Horizontal movements of face:	✔		
RSS Vertical movements of overall structure:	✔		
RSS Local movements or deterioration of facing elements:	✔		
RSS Horizontal movements within overall structure:	✔		
RSS Vertical movements within overall structure:	✔		
RSS Lateral earth pressure at the back of facing elements:	✔		
Investigation Notes: No further investigation required.			

Overall Structure Notes:	Overall Bridge Condition: BCI 73
Recommended Work on Structure:	☐ None ☐ Minor Rehab. ☑ Major Rehab. ☐ Replace
Timing of Recommended Work:	☑ 1 to 5 years ☐ 6 to 10 years
Overall Comments:	East bin wall now undermined similar to west wall - to be repaired.
Date of Next Inspection:	2025

Suspected Performance Deficiencies

01 Load carrying capacity
02 Excessive deformations (deflections & rotations)
03 Continuing settlement
04 Continuing movements
05 Seized bearings
06 Bearing not uniformly loaded/unstable
07 Jammed expansion joint
08 Pedestrian/vehicular hazard
09 Rough riding surface
10 Surface ponding
11 Deck/Wall drainage
12 Slippery surfaces
13 Flooding/channel blockage
14 Undermining of foundation
15 Unstable embankments
16 Other performance deficiencies

Maintenance Needs

01 N/A
02 Bridge Cleaning
03 Railing System Repair
04 N/A
05 Bridge Deck Joint Repair
06 N/A
07 Structural Steel Repair
08 Concrete Repair
09 Timber Repair
10 Works for Modular bridges
11 Animal/Pest Control
12 Bridge Surface Repair
13 Erosion Control at Bridges
14 Concrete Sealing
15 N/A
16 Works for Drainage System
17 Scaling (Loose Concrete or ACR Steel)
18 Other Maintenance

Municipal Structure Inspection Form
Temagami Lake Access Road Bridge

MTO Site Number:

Repair and Rehabilitation Required:		Priority			Estimated Construction Cost
Element	Repair and Rehabilitation Required	6 to 10 years	1 to 5 years	Urgent	
Abutment Wall	Rehabilitation of East Undermining		x		$60,000
Slope protection	Rehabilitation of East Gabions		x		$30,000
				Total Cost	$90,000

Associated Work:	Comments	Estimated Cost
Other:	Engineering (15%)	$13,500
Contingencies:	Contingency (10%)	$9,000
	Total Cost	$22,500

Total Repair and Rehabilitation Cost	$112,500

Replacement Cost	$600,000

Maintenance Required		Priority			Estimated Construction Cost
Element	Repair and Rehabilitation Required	2 year	Within 1 year	Urgent	
Streams	Remove daming		x		$1,000
Approach WS	Remove gravel on top		x		$1,000
Deck WS	Removal gravel on top		x		$1,000
			Total Maintenance Cost		$3,000

Justification:

Municipal Structure Inspection Form
Temagami Lake Access Road Bridge

MTO Site Number:

Section View: West

Elevation View: North

Comments:

Municipal Structure Inspection Form
Temagami Lake Access Road Bridge

MTO Site Number:

Element Data

Element Group:	Abutments		Length:	n/a	(m)
Element Name:	Abutment Wall		Width:	11.36	(m)
Location:	West and East		Height:	1.22	(m)
Material:	Steel		Count:	2	each
Element Type:	Steel Panels		Total Quantity:	27.7	(m^2)
Environment:	(Benign) / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	Steel Coating			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	(m^2) / m / each / % / all		22.2		5.5

Comments: Moderate undermining of the abutment wall in the northeast quadrant. Large crack noted in southeast corner of bridge's concrete ballast wall. Steel coating flaking and light corrosion at the base of abutment wall.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab	☑ Major Rehab	**Maintenance Needs:**
	☐ Replace	☐ None	☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☑ 1 - 5 Years	☐ 6 - 10 Years	
Comments: Repair the undermining of the east abutment wall.			

Element Photos

Comments:

Municipal Structure Inspection Form
Temagami Lake Access Road Bridge

MTO Site Number:

Element Data

Element Group:	Abutments		Length:	2.15	(m)
Element Name:	Wingwall		Width:	n/a	(m)
Location:	NE, NW, SE, SW		Height:	0.9	(m) avg
Material:	Steel		Count:	4	each
Element Type:	Steel Panel		Total Quantity:	7.8	(m^2)
Environment:	(Benign) / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	Steel Coating			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	(m²) / m / each / % / all		7	0.8		None

Comments: Steel coating flaking and light corrosion at wingwall bases.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab	☐ Major Rehab	**Maintenance Needs:**
	☐ Replace	☑ None	☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent	☐ 1 - 5 Years	☐ 6 - 10 Years
Comments:			

Element Photos

Comments:

Municipal Structure Inspection Form
Temagami Lake Access Road Bridge

MTO Site Number:

Element Data

Element Group:	Main Longitudinal Elements		Length:	2	(m) both ends total
Element Name:	Girders		Width:	0.31	(m)
Location:	Ends		Height:	0.3	(m)
Material:	Steel		Count:	5	each
Element Type:	W Section		Total Quantity:	15.3	(m^2)
Environment:	Benign / (Moderate) / Severe		Limited Insp'n:	☐	
Protection System:	Steel Coating			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	(m²) / m / each / % / all		15	0.3	

Comments: Moderate corrosion showing through steel coating on central beam at west abutment wall.

Performance Deficiencies:

Recommended Work: ☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None

Maintenance Needs: ☐ Urgent ☐ 1 Year ☐ 2 Year

Timeframe: ☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years

Comments:

Element Photos

Comments:

Municipal Structure Inspection Form
Temagami Lake Access Road Bridge

MTO Site Number:

Element Data

Element Group:	Main Longitudinal Elements		Length:	5.3	(m)
Element Name:	Girders		Width:	0.31	(m)
Location:	Middle		Height:	0.3	(m)
Material:	Steel		Count:	5	each
Element Type:	W Section		Total Quantity:	40.5	(m²)
Environment:	(Benign) / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	Steel Coating			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	
	(m²) / m / each / % / all		39	1.5		

Comments: Numerous redundant bolt holes were observed in the girders bottom flange. Girders were pre-assembled into groups with 3 and 2 girders respectively and jointed together in the field with one single transverse link member at the mid-span.

Performance Deficiencies:

Recommended Work: ☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None

Maintenance Needs: ☐ Urgent ☐ 1 Year ☐ 2 Year

Timeframe: ☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years

Comments:

Element Photos

Comments:

Municipal Structure Inspection Form

Temagami Lake Access Road Bridge **MTO Site Number:**

Element Data

Element Group:	Main Longitudinal Elements				Length:	2.06	(m)
Element Name:	Diaphragms				Width:	0.1	(m)
Location:	End				Height:	0.15	(m)
Material:	Steel				Count:	6	each
Element Type:	L-section				Total Quantity:	6	each
Environment:	Benign / Moderate / Severe				Limited Insp'n:	☑	
Protection System:	Steel Coating					Performance Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor		
	m² / m / each / % / all		6			None	

Comments: No end diaphragm between two pre-assembled girder sections.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years	
Comments:		

Element Photos

Comments:

Municipal Structure Inspection Form
Temagami Lake Access Road Bridge **MTO Site Number:**

Element Data

Element Group:	Main Longitudinal Elements		Length:	2.06, 1	(m)
Element Name:	Diaphragms		Width:	0.31	(m)
Location:	Intermediate		Height:	0.3	(m)
Material:	Steel		Count:	6-2.06, 3-1	(m) each
Element Type:	W Section		Total Quantity:	9	each
Environment:	Benign / Moderate / Severe		Limited Insp'n:	☑	
Protection System:	Steel Coating			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	m² / m / each / % / all		7	2		None

Comments: No intermediate diaphragms between two pre-assembled sections, only one link member.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years	
Comments:		

Element Photos

Comments:

Municipal Structure Inspection Form
Temagami Lake Access Road Bridge **MTO Site Number:**

Element Data

Element Group:	Coating		Length:	n/a	(m)
Element Name:	Structural Steel		Width:	n/a	(m)
Location:	Ends		Height:	n/a	(m)
Material:	-		Count:	n/a	each
Element Type:	-		Total Quantity:	17.4	(m^2)
Environment:	Benign / (Moderate) / Severe		Limited Insp'n:	☐	
Protection System:	-				

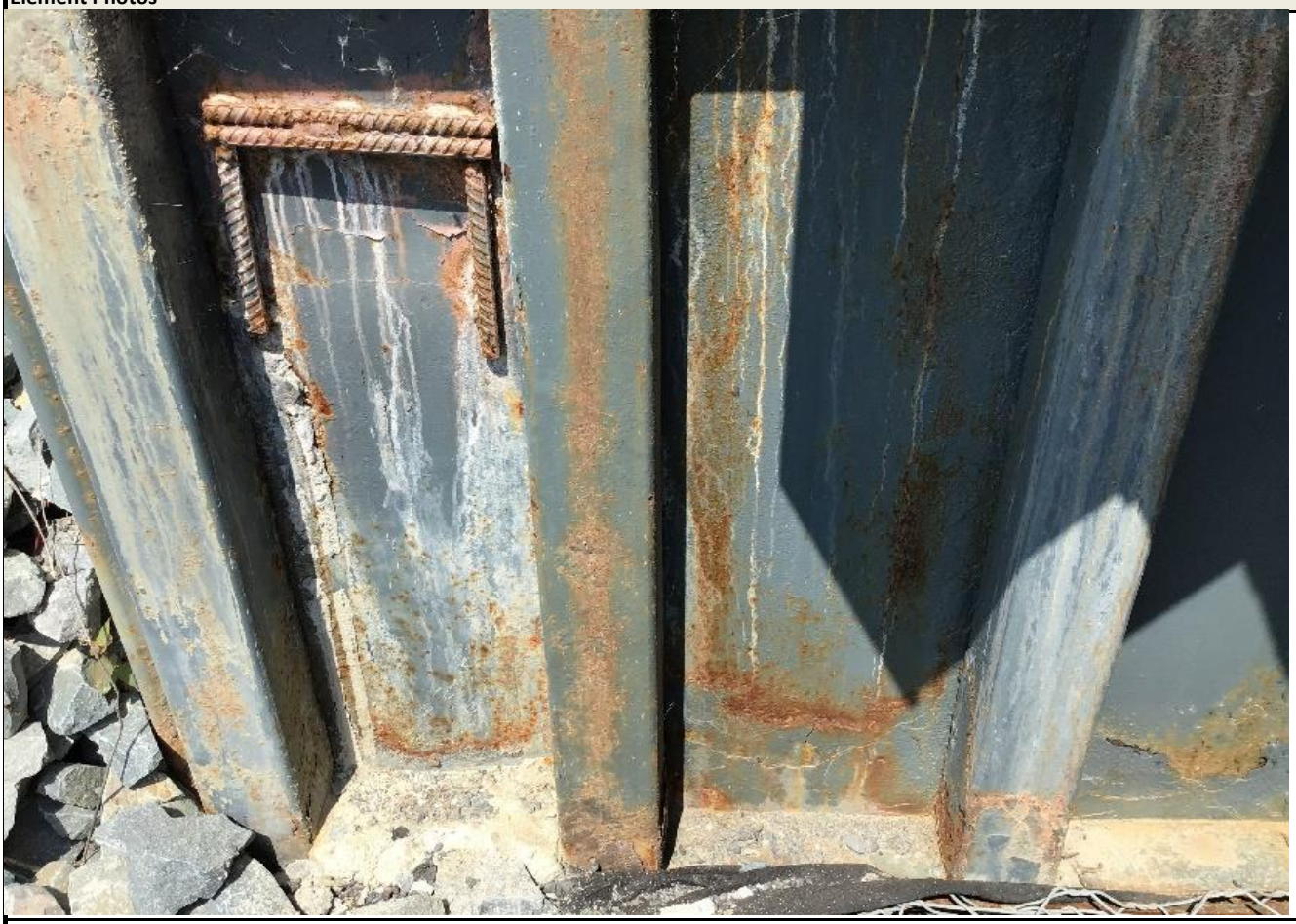
Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	(m^2) / m / each / % / all		15.4	2		None

Comments: Steel structure has been repainted. Light corrosion and efflorescence at bottom middle of west abutment wall. Moderate corrosion at the bottom of central girder at west abutment wall.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab	☐ Major Rehab	**Maintenance Needs:**
	☐ Replace	☑ None	☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years	☐ 6 - 10 Years	
Comments:			

Element Photos



Comments:

Municipal Structure Inspection Form

Temagami Lake Access Road Bridge **MTO Site Number:**

Element Data

Element Group:	Coating		Length:	n/a	(m)
Element Name:	Structural Steel		Width:	n/a	(m)
Location:	Middle		Height:	n/a	(m)
Material:	-		Count:	n/a	each
Element Type:	-		Total Quantity:	62.5	(m^2)
Environment:	(Benign) / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	-				

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	(m^2) / m / each / % / all		60	2.5		None

Comments: Steel structure repainted. Light corrosion on middle girder

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab	☐ Major Rehab	**Maintenance Needs:**
	☐ Replace	☑ None	☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years	☐ 6 - 10 Years	
Comments:			

Element Photos

Comments:

Municipal Structure Inspection Form
Temagami Lake Access Road Bridge

MTO Site Number:

Element Data

Element Group:	Decks		Length:	7.3	(m)
Element Name:	Deck Top		Width:	8.1	(m)
Location:	-		Height:	0.2	(m)
Material:	Wood-Fibre Glass		Count:	n/a	each
Element Type:	Transverse Laminate Deck		Total Quantity:	59.1	(m²)
Environment:	Benign / (Moderate) / Severe		Limited Insp'n:	☑	
Protection System:	Treated			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	(m²) / m / each / % / all		59.1			None

Comments: Deck top covered by 125 mm of gravel and surface treatment, condition unkown. Based on wearing surface and soffit.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab	☐ Major Rehab	**Maintenance Needs:**
	☐ Replace	☑ None	☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years	☐ 6 - 10 Years	
Comments:			

Element Photos

Comments:

Municipal Structure Inspection Form
Temagami Lake Access Road Bridge

MTO Site Number:

Element Data

Element Group:	Deck		Length:	6.2	(m)
Element Name:	Wearing Surface		Width:	7.8	(m)
Location:	Deck		Height:	0.05	(m)
Material:	Surface Treatment		Count:	2	each
Element Type:	-		Total Quantity:	96.72	(m²)
Environment:	Benign / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	-			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	m² / m / each / % / all		30	62.72	4	None

Comments: Raveling at the north and south edges of wearing surface. Moderate snowplow scrapes on surface and covered in gravel patches.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab	☐ Major Rehab	**Maintenance Needs:**
	☐ Replace	☑ None	☐ Urgent ☑ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years	☐ 6 - 10 Years	**Remove gravel from wearing surface.**
Comments:			

Element Photos

Comments:

Municipal Structure Inspection Form
Temagami Lake Access Road Bridge

MTO Site Number:

Element Data

Element Group:	Decks		Length:	6.15	(m)
Element Name:	Soffit		Width:	6.6	(m)
Location:	-		Height:	n/a	(m)
Material:	Wood-Fibre Glass		Count:	n/a	each
Element Type:	-		Total Quantity:	40.6	(m²)
Environment:	(Benign) / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	-				

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	(m²) / m / each / % / all		40.6			None

Comments: Structural steel repainted.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab	☐ Major Rehab	**Maintenance Needs:**
	☐ Replace	☑ None	☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years	☐ 6 - 10 Years	
Comments:			

Element Photos

Comments:

Municipal Structure Inspection Form
Temagami Lake Access Road Bridge

MTO Site Number:

Element Data

Element Group:	Barriers		Length:	7.33	(m)
Element Name:	Railing Systems		Width:	n/a	(m)
Location:	North and South sides of Deck		Height:	0.74	(m)
Material:	Steel		Count:	2	each side
Element Type:	HSS 100x100		Total Quantity:	29.3	(m^2)
Environment:	Benign / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	Steel Coating			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	m^2 / m / each / % / all		28	1.3		None

Comments: Light corrosion on HSS and minor scratches from snowplow.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab	☐ Major Rehab	**Maintenance Needs:**
	☐ Replace	☑ None	☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years	☐ 6 - 10 Years	
Comments:			

Element Photos

Comments:

Municipal Structure Inspection Form
Temagami Lake Access Road Bridge

MTO Site Number:

Element Data

Element Group:	Barriers		Length:	0.2	(m)
Element Name:	Posts		Width:	0.2	(m)
Location:	North and South sides of Deck		Height:	0.77	(m)
Material:	Steel		Count:	4	each side
Element Type:	W Sections		Total Quantity:	8.0	each
Environment:	Benign / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	Steel Coating			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	m² / m / each / % / all		8			None

Comments: Steel barriers repainted. Light corrosion and light flaking on barrier base on road side.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab	☐ Major Rehab	**Maintenance Needs:**
	☐ Replace	☑ None	☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent	☐ 1 - 5 Years	☐ 6 - 10 Years
Comments:			

Element Photos

Comments:

Municipal Structure Inspection Form
Temagami Lake Access Road Bridge

MTO Site Number:

Element Data

Element Group:	Approaches		Length:	15	(m)
Element Name:	Barrier		Width:	n/a	(m)
Location:	East and West Approaches		Height:	0.90	(m)
Material:	Steel		Count:	2	each side
Element Type:	Steel Beam Guid Rail		Total Quantity:	60.0	(m)
Environment:	Benign / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	Galvanized			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	m^2 / m / each / % / all	60			

Performance Deficiencies: None

Comments: Barrier replaced in 2022. Minor post damage at southeast corner (local).

Performance Deficiencies:

Recommended Work: ☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None

Maintenance Needs: ☐ Urgent ☐ 1 Year ☐ 2 Year

Timeframe: ☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years

Comments:

Element Photos

Comments:

Municipal Structure Inspection Form
Temagami Lake Access Road Bridge

MTO Site Number:

Element Data

Element Group:	Approaches		Length:	0.2	(m)
Element Name:	Barrier Posts		Width:	0.2	(m)
Location:	East and West Approaches		Height:	0.90	(m)
Material:	Wood		Count:	2	each side
Element Type:	Dimension Lumber		Total Quantity:	4	each
Environment:	Benign / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	Treated			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	m² / m / each / % / all		4			None

Comments: Light-moderate rotting and splitting in all posts

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None	**Maintenance Needs:** ☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years	
Comments:		

Element Photos

Comments:

Municipal Structure Inspection Form
Temagami Lake Access Road Bridge

MTO Site Number:

Element Data

Element Group:	Approach		Length:	6	(m)
Element Name:	Wearing Surface		Width:	7.8	(m)
Location:	East and West Approaches		Height:	0.05	(m)
Material:	Surface Treatment		Count:	2	each
Element Type:	-		Total Quantity:	93.6	(m²)
Environment:	Benign / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	-			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	m² / m / each / % / all		30	59.6	4	None

Comments: Gravel is covering majority of approaching wearing surface. Moderate scraps from snowplow. Low area at southwest corner (in poor condition).

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab	☐ Major Rehab	**Maintenance Needs:**
	☐ Replace	☑ None	☐ Urgent ☑ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years	☐ 6 - 10 Years	**Remove gravel from wearing surface.**
Comments:			

Element Photos

Comments:

Municipal Structure Inspection Form

Temagami Lake Access Road Bridge **MTO Site Number:**

Element Data

Element Group:	Approaches		Length:	n/a	(m)
Element Name:	Signage		Width:	n/a	(m)
Location:	East and West Approaches		Height:	n/a	(m)
Material:	-		Count:	2	each side
Element Type:	-		Total Quantity:	4	each
Environment:	Benign / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	-			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	m² / m / each / % of all	4			

Performance Deficiencies: None

Comments: 4 hazard signs replaced in 2022.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab	☐ Major Rehab	**Maintenance Needs:**
	☐ Replace	☑ None	☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years	☐ 6 - 10 Years	
Comments:			

Element Photos

Comments:

Municipal Structure Inspection Form
Temagami Lake Access Road Bridge

MTO Site Number:

Element Data

Element Group:	Embankments and Streams		Length:	n/a	(m)
Element Name:	Streams and Waterways		Width:	n/a	(m)
Location:	-		Height:	n/a	(m)
Material:	-		Count:	1	each
Element Type:	-		Total Quantity:	1	all
Environment:	Benign / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	-			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	m² / m / each / % / all			1		None

Comments: Remnants of beaver dam noted immediately upstream (south) of bridge.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab ☐ Major Rehab ☐ Replace ☑ None	**Maintenance Needs:** ☐ Urgent ☑ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☐ 1 - 5 Years ☐ 6 - 10 Years	Clear beaver dam upstream (south).
Comments:		

Element Photos

Comments:

Municipal Structure Inspection Form
Temagami Lake Access Road Bridge

MTO Site Number:

Element Data

Element Group:	Embankments and Streams		Length:	n/a	(m)
Element Name:	Slope Protection		Width:	n/a	(m)
Location:	Abutment Front and Side Slopes		Height:	n/a	(m)
Material:	Stone		Count:	2	each
Element Type:	Rip Rap		Total Quantity:	2	each
Environment:	Benign / Moderate / Severe		Limited Insp'n:	☐	
Protection System:	-			Performance Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor	Performance Deficiencies
	m² / m / each / % / all	1		1		None

Comments: West gabions replaced in 2022. East gabions pulling from east abutment wall and undermining. Erosion at northeast quardant.

Performance Deficiencies:

Recommended Work:	☐ Minor Rehab	☑ Major Rehab	**Maintenance Needs:**
	☐ Replace	☐ None	☐ Urgent ☐ 1 Year ☐ 2 Year
Timeframe:	☐ Urgent ☑ 1 - 5 Years	☐ 6 - 10 Years	
Comments: Reinstall gabion baskets after undermining rehabilitation on east side.			

Element Photos

Comments: