

Township of Macdonald, Meredith & Aberdeen Additional

Biennial Bridge and Culvert Inspections 2024



October 2024

KEC Project 2436

Introduction

In the spring of 2024, the Township of McDonald Merideth and Aberdeen Additional (the “Township”), retained Kresin Engineering Corporation (“KEC”) to complete biennial bridge and culvert inspections on 8 structures.

Biennial inspections are required by Ontario Regulation 104/97 “Standards for Bridges” made under the province’s Public Transportation and Highway Improvement Act. The inspections are required for all bridges and culverts which span 3m or more. The work is to be completed in general accordance with the Ontario Structure Inspection Manual (OSIM).

Scope of Work

The biennial inspections are carried out in keeping with the OSIM’s requirements for detailed visual inspections. Specifically, KEC completed a systematic visual inspection of all accessible, un-obscured areas of each subject structure. Photographs of the structures were taken to document the appearance, condition and deficiencies, if any.

The Township provided copies of previous biennial inspection reports which contained details of physical dimensions and materials. KEC utilized this information in the completion of the assignment.

Appraisal sheets for each structure were completed and copies are attached.

Summary of Findings

A number of the structures were found to be generally in fair or better condition and are able to continue in service without major short-term investment. Continued routine maintenance is recommended for all culverts and bridges, including: vegetation management, guide rail maintenance, sign maintenance, and general road upkeep. For bridges, routine maintenance should also include deck sweeping, drain clearing and removal of any stream debris caught up in the piers/substructure. Beaver dams should be removed where present in order to mitigate potential washouts due to dams bursting.

A number of structures were missing hazard and snow plow wing marker signage. Installation of proper signage is a recommendation made for all structures reviewed.

The following table summarizes findings which are specifically noted for the Township’s attention.

Table 1: Notable Findings and Recommendations	
Structure	Remarks
Roberts Creek Culvert McCarrel Lake Road, 0.1km North of Watson Road East Steel Arch Culvert	Overall, the culvert is in good condition requiring only routine maintenance of roadside vegetation.
Bar River Bridge Bar River Road, 0.2km East of Fords Road/Lapish Road Three span Laminated Lumber Bridge	The structure is aged and nearing the end of its serviceable life. Plan for major rehabilitation or replacement in the next 6-10 years.
Echo Lake Road Bridge Echo Lake Road, 40m North of Birch Lake Road Quad span Timber/Concrete Stringer Bridge	This structure is aged and nearing the end of its serviceable life. We understand that planning for replacement is underway.
Jarrel Bridge Watson Road, 0.1km East of McCarrel Lake Road Timber Beam Bridge	Overall, the structure appears in fair to poor condition; elements are showing their age and rehabilitation will be required in the next 1-5 years. Signage improvements and minor maintenance is recommended in the near term.
Muddy Creek Bridge Iron River Road, 2.7km from Birch Lake Road Steel Modular Bridge	This structure appears in fair condition. Some elements are in need of rehabilitation, such as abutment walls. Recommend that the installation of the pre-fabricated bridge be reviewed for municipal standards compliance, i.e. guide rails, foundation conditions, etc.
Ritter Bridge Cemetery Road, 0.6km South of Watson Road East Steel Modular Bridge	Structure appears to be in fair condition, however corrosion of structural steel is noted. Recommended to budget for repainting of the structural steel in the next 5 years.
Tuira Bridge Watson Road, 650m East of Cemetery Road Steel Arch Culvert	Structure is in excellent condition.
Weller Bridge Watson Road East, 850m East of Cemetery Road Steel Arch Culvert	Structure is in excellent condition.

Statement of Qualifications and Limitations

This inspection and report has been completed by KEC at the request of, and for sole use of the Owner, The Township of MacDonald, Meredith and Aberdeen Additional. No third party shall rely on this report. This report shall be read in its entirety; portions shall not be taken out of context.

This report is based on observations made at the time of the inspection. Portions of this report may be based on information provided to KEC, which has not been independently verified. It is explicitly noted that some conditions may exist which were not observed or apparent to KEC at the time of the inspection; should the Owner become aware of such conditions, KEC shall be advised immediately in order to revise the report accordingly.

KEC accepts no liability or responsibility for actions taken as a result of this report.

Any user of this report specifically denies any right to claims against KEC or KEC's sub-consultants, officers, agents or employees in excess of the fee paid for the services rendered.

Closure

We trust that the above and attached fulfills your requirements at this time. If you have any questions about the conclusions and/or recommendations presented, please do not hesitate to contact Kresin Engineering Corporation.

Respectfully submitted,
Kresin Engineering Corporation


Michael Kresin, P.Eng.
Consulting Engineer



Appendix A
Structure Appraisal Sheets



Township of MMAA
Roberts Creek Culvert
2024 Municipal Structure Inspection Program

Inventory Data	
Structure Name	Roberts Creek Culvert
Main HWY/Road #	n/a
Road Name	McCarrel Lake Road
Structure Location	0.1 km North of Watson Road East
Latitude	46.45675
Longitude	-83.962964
Owner(s)	Township of MMAA
Heritage Designation	Not designated
MTO Region	50 Northeastern
Road Class	<input type="checkbox"/> Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input checked="" type="checkbox"/> Local
MTO District	62 Sault Ste Marie
Posted Speed	
No. of Lanes	2
Old County	38 Algoma
AADT	
% Trucks	
Geographic Township	1392 Aberdeen Additional
Special Routes	<input type="checkbox"/> Transit <input type="checkbox"/> Truck <input type="checkbox"/> School <input type="checkbox"/> Bicycle
Structure Type	10 Arch Culvert
Detour Length Around Bridge	6.4 (m)
Total Deck Length	5.8 (m)
Fill on Structure	1.9 (m)
Overall Structure Width	11 (m)
Skew Angle	(Degrees)
Total Deck Area	40.6 (sq. m)
Direction of Structure	E to W
Roadway width	7 (m)
No. of Spans	1
Span Lengths	5.8 (m)
MTO Site Number	n/a
Crossing Type	<input type="checkbox"/> On <input checked="" type="checkbox"/> Under
	<input checked="" type="checkbox"/> Navig. Water <input type="checkbox"/> Non-Navig. <input type="checkbox"/> Water
	<input type="checkbox"/> Rail <input checked="" type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other

Historical Data	
Year Built	2008
Year of Last Major Rehab.	unknown
Last OSIM Inspection	2022
Last Evaluation	unknown
Last Enhanced OSIM Inspection	unknown
Current Load Limit	(tonnes)
Enhanced Access Equipment (ladder, boat, lift, etc.)	n/a
Load Limit By-Law #	n/a
Last Underwater Inspection	unknown
By-Law Expiry Date	n/a
Last Condition Survey	unknown
Min. Vertical Clearance	unlimited (m)
Rehab. History: (Date/description)	

Field Inspection Information	
Date of Inspection	June 12, 2024
Inspector	Michael Kresin, P.Eng
Type of Inspection	Visual
Others in Party	none
Access Equipment Used	none
Weather	Sunny,
Temperature	25C
Type of Inspection	<input checked="" type="checkbox"/> OSIM <input type="checkbox"/> Enhanced OSIM

Additional Investigations Required				
	Priority			Estimated Cost
	None	Normal	Urgent	
Material Condition Survey				
Detailed deck condition survey	X			
Non-destructive delam. survey of asphalt-covered deck	X			
Concrete substructure condition survey	X			
Detailed coating condition survey	X			
Detailed timber investigation	X			
Post-Tensioned strand investigation	X			
Underwater Investigation	X			
Fatigue Investigation	X			
Seismic Investigation	X			
Structure Evaluation	X			
Monitoring (deformations, settlements, movements, crack widths)	X			
Load Posting - Estimated Load				Total Cost
Investigation notes				

Overall Structure Notes	
Overall comments	Wood guide rail posts showing signs of age related deterioration. Minor impact damage to guide rails; no anticipated performance deficiency. Structure appears in good to fair condition overall.
Date of next inspection	2026

- | | | |
|--|--|--|
| Suspected Performance Deficiencies
00 None
01 Load carrying capacity
02 Excessive deformations (deflections & rotations)
03 Continuing settlement
04 Continuing movements
05 Seized bearings
Maintenance Needs
01 Lift and Swing Bridge Maintenance
02 Bridge Cleaning
03 Bridge Handrail Maintenance
04 Painting Steel Bridge Structures
05 Bridge Deck Joint Repair
06 Bridge Bearing Maintenance | 06 Bearing not uniformly loaded/unstable
07 Jammed expansion joint
08 Pedestrian/vehicular hazard
09 Rough riding surface
10 Surface ponding
11 Deck drainage
07 Repair to Structural Steel
08 Repair to Bridge Concrete
09 Repair to Bridge Timber
10 Bailey bridges - Maintenance
11 Animal/Pest Control
12 Bridge Surface Repair | 12 Slippery surfaces
13 Flooding/channel blockage
14 Undermining of foundation
15 Unstable embankments
16 Other
13 Erosion Control at Bridges
14 Concrete Sealing
15 Rout and Seal
16 Bridge Deck Drainage
17 Scaling (Loose Concrete or ACR Steel)
18 Other |
|--|--|--|

Element Data		No.:	1			
Element Group	1100 Retaining Walls	Length	15			
Element Name	1101 Walls	Width				
Location	at all four quadrants	Height	2.1			
Material	10 Other	Count	4			
Element Type	3 Gabions	Total Quantity	126			
Environment	Benign	Limited Inspection				
Protection System	47 Other - Coated wire					
Condition	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
Data	sq. m.		126			
Comments						
Gabions appear in good condition.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	2			
Element Group	1200 Culverts	Length	16.2			
Element Name	1201 Inlet Components	Width	0.45			
Location	East end	Height	4			
Material	4 Cast-in-place concrete	Count	1			
Element Type	Concrete headwall	Total Quantity	64.8			
Environment	Benign	Limited Inspection				
Protection System						
Condition	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
Data	sq. m.		63	1	1	
Comments						
Headwall appears in good condition with some surface defects and minor cracking.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	3			
Element Group	1200 Culverts	Length	16.2			
Element Name	1202 Outlet Components	Width	0.45			
Location	West end	Height	4			
Material	4 Cast-in-place concrete	Count	1			
Element Type	Concrete headwall	Total Quantity	64.8			
Environment	Benign	Limited Inspection				
Protection System						
Condition	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
Data	sq. m.		65	0.5	0.5	
Comments						
Headwall appears in good condition with some surface defects and minor cracking.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	4			
Element Group	1200 Culverts	Length	11			
Element Name	1203 Barrels	Width	5.8			
Location		Height	2.9			
Material	5 Corrugated Steel	Count	1			
Element Type	1 Arch	Total Quantity	127.6			
Environment	Moderate	Limited Inspection				
Protection System						
Condition	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
Data	sq. m.		127.6			
Comments						
Culvert appears in good condition.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	5
Element Group	1300 Foundations	Length	13.8
Element Name	1301 Foundation (below ground level)	Width	0.45
Location		Height	0.4
Material	4 Cast-in-place concrete	Count	2
Element Type	4 Spread	Total Quantity	23.5
Environment	Benign	Limited Inspection	
Protection System	None		
Condition	Units	Exc.	Good
Data	sq. m.		22.5
			Fair
			Poor
			Perform. Deficiencies
Comments			
<i>Footings are in good condition. Minor cracks.</i>			
Recommended Work	Maintenance Needs		
<input type="checkbox"/> Urgent <input type="checkbox"/> Rehab <input type="checkbox"/> 1-5 years <input type="checkbox"/> Replace <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None	<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	6
Element Group	1400 Embankments & Streams	Length	
Element Name	1401 Streams and Waterways	Width	
Location		Height	
Material		Count	1
Element Type		Total Quantity	1
Environment	Benign	Limited Inspection	
Protection System			
Condition	Units	Exc.	Good
Data	%		100
			Fair
			Poor
			Perform. Deficiencies
Comments			
<i>Stream appears in good condition.</i>			
Recommended Work	Maintenance Needs		
<input type="checkbox"/> Urgent <input type="checkbox"/> Rehab <input type="checkbox"/> 1-5 years <input type="checkbox"/> Replace <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None	<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	7			
Element Group	1400 Embankments & Streams	Length				
Element Name	1402 Embankments	Width				
Location		Height				
Material		Count	1			
Element Type		Total Quantity	1			
Environment	Benign	Limited Inspection				
Protection System						
Condition Data	Units %	Exc.	Good 100	Fair	Poor	Perform. Deficiencies
Comments	Embankments appear in good condition.					
Recommended Work	<input type="checkbox"/> Urgent <input type="checkbox"/> Rehab <input type="checkbox"/> 1-5 years <input type="checkbox"/> Replace <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None	Maintenance Needs	<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years			

Element Data		No.:	8			
Element Group	1600 Approaches	Length				
Element Name	1601 Wearing Surface	Width	6			
Location	road over culvert	Height				
Material	2 Asphalt	Count	0			
Element Type		Total Quantity	0			
Environment	Moderate	Limited Inspection				
Protection System						
Condition Data	Units %	Exc.	Good 100	Fair	Poor	Perform. Deficiencies
Comments	Road surface appears in good condition. Some accumulation of sand at shoulders and overgrowth of vegetation.					
Recommended Work	<input type="checkbox"/> Urgent <input type="checkbox"/> Rehab <input type="checkbox"/> 1-5 years <input type="checkbox"/> Replace <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None	Maintenance Needs	<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input checked="" type="checkbox"/> 2 years			
		Vegetation management and remove accumulated sand.				

Site Photograph

Photo No.: 1



Description

Typical road surface and guide rail condition

Site Photograph

Photo No.: 2



Description

Typical headwall and embankment condition

Site Photograph

Photo No.: 3



Description

View through culvert.

Site Photograph

Photo No.: 4



Description

Upstream headwall.

Site Photograph

Photo No.: 5



Description

Typical condition of guide rail posts.

Site Photograph

Photo No.: 6



Description

Typical roadside conditions over culvert.



Township of MMAA
Bar River Bridge
2024 Municipal Structure Inspection Program

Inventory Data	
Structure Name	Bar River Bridge
Main HWY/Road #	n/a
Road Name	Bar River Road
Structure Location	0.2km East of Fords Road/Lapish Road
Latitude	46.441647
Longitude	-84.023047
Owner(s)	Township of MMAA
Heritage Designation	Not designated
MTO Region	50 Northeastern
Road Class	<input type="checkbox"/> Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input type="checkbox"/> Local
MTO District	62 Sault Ste Marie
Posted Speed	60
No. of Lanes	2
Old County	38 Algoma
AADT	
% Trucks	
Geographic Township	1392 Aberdeen Additional
Special Routes	<input type="checkbox"/> Transit <input type="checkbox"/> Truck <input type="checkbox"/> School <input type="checkbox"/> Bicycle
Structure Type	4 Box beams or girders
Detour Length Around Bridge	5.7 (km)
Total Deck Length	19.5 (m)
Fill on Structure	0 (m)
Overall Structure Width	9.1 (m)
Skew Angle	0 (Degrees)
Total Deck Area	144.3 (sq. m)
Direction of Structure	East to West
Roadway width	7.4 (m)
No. of Spans	3
Span Lengths	8, (m)

Historical Data	
Year Built	1970
Year of Last Major Rehab.	unknown
Last OSIM Inspection	2022
Last Evaluation	unknown
Last Enhanced OSIM Inspection	unknown
Current Load Limit	(tonnes)
Enhanced Access Equipment (ladder, boat, lift, etc.)	n/a
Load Limit By-Law #	n/a
Last Underwater Inspection	unknown
By-Law Expiry Date	n/a
Last Condition Survey	unknown
Min. Vertical Clearance	unlimited (m)

Rehab. History: (Date/description)

Field Inspection Information	
Date of Inspection	June 13, 2024
Inspector	Michael Kresin, P.Eng
Type of Inspection	Visual
Others in Party	none
Access Equipment Used	none
Weather	Sunny
Temperature	25C
Type of Inspection	<input checked="" type="checkbox"/> OSIM <input type="checkbox"/> Enhanced OSIM

Additional Investigations Required				
	Priority			Estimated Cost
	None	Normal	Urgent	
Material Condition Survey				
Detailed deck condition survey	X			
Non-destructive delam. survey of asphalt-covered deck	X			
Concrete substructure condition survey	X			
Detailed coating condition survey	X			
Detailed timber investigation	X			
Post-Tensioned strand investigation	X			
Underwater Investigation	X			
Fatigue Investigation	X			
Seismic Investigation	X			
Structure Evaluation	X			
Monitoring (deformations, settlements, movements, crack widths)	X			
Load Posting - Estimated Load				Total Cost
Investigation notes				

Overall Structure Notes	
Overall comments	Overall, structure appears in fair to poor condition, which is expected due to the age and (lack of) rehab history.
Date of next inspection	2026

Suspected Performance Deficiencies		
00 None	06 Bearing not uniformly loaded/unstable	12 Slippery surfaces
01 Load carrying capacity	07 Jammed expansion joint	13 Flooding/channel blockage
02 Excessive deformations (deflections & rotations)	08 Pedestrian/vehicular hazard	14 Undermining of foundation
03 Continuing settlement	09 Rough riding surface	15 Unstable embankments
04 Continuing movements	10 Surface ponding	16 Other
05 Seized bearings	11 Deck drainage	
Maintenance Needs		
01 Lift and Swing Bridge Maintenance	07 Repair to Structural Steel	13 Erosion Control at Bridges
02 Bridge Cleaning	08 Repair to Bridge Concrete	14 Concrete Sealing
03 Bridge Handrail Maintenance	09 Repair to Bridge Timber	15 Rout and Seal
04 Painting Steel Bridge Structures	10 Bailey bridges - Maintenance	16 Bridge Deck Drainage
05 Bridge Deck Joint Repair	11 Animal/Pest Control	17 Scaling (Loose Concrete or ACR Steel)
06 Bridge Bearing Maintenance	12 Bridge Surface Repair	18 Other

Element Data		No.:	1			
Element Group	100 Decks	Length	19.5			
Element Name	101 Wearing surface	Width	7.4			
Location	top of bridge deck	Height				
Material	4 Cast-in-place concrete	Count	1			
Element Type		Total Quantity	144.3			
Environment	Severe	Limited Inspection				
Protection System	41 None					
Condition	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
Data	sq. m.			124	20	none
Comments						
Concrete delaminations, cracking and spalling.						
Recommended Work		<input checked="" type="checkbox"/> Rehab	<input type="checkbox"/> Replace	Maintenance Needs		
<input type="checkbox"/> Urgent	<input checked="" type="checkbox"/> 1-5 years	<input type="checkbox"/> 6-10 years	<input type="checkbox"/> None	<input type="checkbox"/> Urgent	<input type="checkbox"/> 1 year	<input checked="" type="checkbox"/> 2 years
Plan for rehabilitation.				Repair concrete deck.		

Element Data		No.:	2			
Element Group	100 Decks	Length	19.5			
Element Name	104 Soffit - Thick Slab	Width	9.1			
Location	underside of bridge deck	Height	0.25			
Material	18 Wood	Count	1			
Element Type	Laminated timber deck	Total Quantity	177.45			
Environment	Benign	Limited Inspection				
Protection System	5 Creosote					
Condition	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
Data	sq. m.			150	27	none
Comments						
Laminated timbers showing signs of deterioration due to age and water intrusion. Exposed fascia of laminated timber are rotten.						
Recommended Work		<input checked="" type="checkbox"/> Rehab	<input type="checkbox"/> Replace	Maintenance Needs		
<input type="checkbox"/> Urgent	<input checked="" type="checkbox"/> 1-5 years	<input type="checkbox"/> 6-10 years	<input type="checkbox"/> None	<input type="checkbox"/> Urgent	<input type="checkbox"/> 1 year	<input type="checkbox"/> 2 years
Plan for rehabilitation.						

Element Data		No.:	3			
Element Group	100 Decks	Length	1.2			
Element Name	106 Drainage	Width				
Location	North and south curbs at midspan	Height	0.15			
Material	4 Cast-in-place concrete	Count	4			
Element Type	1 Collector System	Total Quantity	4			
Environment	Severe	Limited Inspection				
Protection System	41 None					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	each		4			none
Comments						
Drains appear to be functional.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	4			
Element Group	300 Sidewalks/curbs	Length	19.5			
Element Name	302 Curbs	Width	0.85			
Location	North and south edges of bridge	Height	0.35			
Material	4 Cast-in-place concrete	Count	2			
Element Type	302 Curbs	Total Quantity	39			
Environment	Severe	Limited Inspection				
Protection System	41 None					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	m			34	5	none
Comments						
Curbs are in fair condition. Cracking, spalling and plow damage throughout.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	5			
Element Group	400 Barriers	Length	19.5			
Element Name	404 Hand Railings	Width	0.08			
Location	North and south sides of bridge	Height	1.1			
Material	14 Steel	Count	2			
Element Type	3 Single Railing	Total Quantity	92.4			
Environment	Moderate	Limited Inspection				
Protection System						
Condition	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
Data	sq. m.			92.4		none
Comments						
Railings appear in fair condition.						
Recommended Work		<input checked="" type="checkbox"/> Rehab	<input type="checkbox"/> Replace	Maintenance Needs		
<input type="checkbox"/> Urgent	<input checked="" type="checkbox"/> 1-5 years	<input type="checkbox"/> 6-10 years	<input type="checkbox"/> None	<input type="checkbox"/> Urgent	<input type="checkbox"/> 1 year	<input type="checkbox"/> 2 years
Plan for rehabilitation.						

Element Data		No.:	6			
Element Group	700 Bracing	Length				
Element Name	701 Bracing	Width				
Location	on pile bents.	Height				
Material	18 Wood	Count	8			
Element Type	4 rectangular solid	Total Quantity	8			
Environment	Benign	Limited Inspection				
Protection System	5 Creosote					
Condition	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
Data	each			8		
Comments						
Bracing is in fair condition.						
Recommended Work		<input type="checkbox"/> Rehab	<input type="checkbox"/> Replace	Maintenance Needs		
<input type="checkbox"/> Urgent	<input type="checkbox"/> 1-5 years	<input type="checkbox"/> 6-10 years	<input type="checkbox"/> None	<input type="checkbox"/> Urgent	<input type="checkbox"/> 1 year	<input type="checkbox"/> 2 years

Element Data		No.:	7			
Element Group	1000 Piers	Length	0.3			
Element Name	1001 shafts/columns/Pile Bents	Width	0.3			
Location	Intermediate piers	Height	3.1			
Material	18 Wood	Count	2			
Element Type	15 Timber piles with capping beam	Total Quantity	2			
Environment	Benign	Limited Inspection				
Protection System	5 Creosote					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	each			2		
Comments						
Pile bents appear in fair condition.						
Recommended Work		<input checked="" type="checkbox"/> Rehab	<input type="checkbox"/> Replace	Maintenance Needs		
<input type="checkbox"/> Urgent	<input checked="" type="checkbox"/> 1-5 years	<input type="checkbox"/> 6-10 years	<input type="checkbox"/> None	<input type="checkbox"/> Urgent	<input type="checkbox"/> 1 year	<input type="checkbox"/> 2 years
Plan for rehabilitation.						

Element Data		No.:	8			
Element Group	900 Abutments	Length	0.064			
Element Name	901 Abutment Walls	Width	7.4			
Location	East and west ends of bridge	Height	0.2			
Material	18 Wood	Count	10			
Element Type		Total Quantity	14.8			
Environment	Benign	Limited Inspection				
Protection System						
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	sq. m.				14.8	
Comments						
Abutment walls are in poor condition and are failed due to rot in localized areas.						
Recommended Work		<input checked="" type="checkbox"/> Rehab	<input type="checkbox"/> Replace	Maintenance Needs		
<input type="checkbox"/> Urgent	<input checked="" type="checkbox"/> 1-5 years	<input type="checkbox"/> 6-10 years	<input type="checkbox"/> None	<input type="checkbox"/> Urgent	<input type="checkbox"/> 1 year	<input type="checkbox"/> 2 years
Plan for rehabilitation.						

Element Data		No.:				
Element Group	1400 Embankments & Streams		Length			
Element Name	1401 Streams and Waterways		Width			
Location	beneath structure		Height			
Material			Count	1		
Element Type			Total Quantity	1		
Environment	Benign		Limited Inspection			
Protection System	41 None					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	all		1			
Comments						
Stream appears in good condition.						
Recommended Work		<input type="checkbox"/> Rehab	<input type="checkbox"/> Replace	Maintenance Needs		
<input type="checkbox"/> Urgent	<input type="checkbox"/> 1-5 years	<input type="checkbox"/> 6-10 years	<input type="checkbox"/> None	<input type="checkbox"/> Urgent	<input type="checkbox"/> 1 year	<input type="checkbox"/> 2 years

Element Data		No.:				
Element Group	1400 Embankments & Streams		Length			
Element Name	1402 Embankments		Width			
Location	beneath structure		Height			
Material			Count	2		
Element Type			Total Quantity	2		
Environment	Benign		Limited Inspection			
Protection System	41 none					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	each		2			none
Comments						
Embankments appear in good condition.						
Recommended Work		<input type="checkbox"/> Rehab	<input type="checkbox"/> Replace	Maintenance Needs		
<input type="checkbox"/> Urgent	<input type="checkbox"/> 1-5 years	<input type="checkbox"/> 6-10 years	<input type="checkbox"/> None	<input type="checkbox"/> Urgent	<input type="checkbox"/> 1 year	<input type="checkbox"/> 2 years

Element Data		No.:	11			
Element Group	1500 Signs	Length				
Element Name	1501 Signs	Width				
Location		Height				
Material		Count	4			
Element Type		Total Quantity	4			
Environment	Moderate	Limited Inspection				
Protection System						
Condition	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
Data	each		4			none
Comments						
Hazard markers are in-place. No snowplow signage present.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	12			
Element Group	1600 Approaches	Length	6			
Element Name	1601 Wearing surface	Width	7.4			
Location		Height				
Material	Surface treatment	Count	2			
Element Type		Total Quantity	88.8			
Environment	Severe	Limited Inspection				
Protection System						
Condition	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
Data	sq. m.			60	18	
Comments						
Approach pavement is in fair condition; however cracking and spalling are present at structure.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 year <input type="checkbox"/> 2 years		
				Rout and seal pavement cracks to prevent water intrusion at ab		

Site Photograph

Photo No.: 1



Description

West approach

Site Photograph

Photo No.: 2



Description

Typical deck, railing and drainage system condition

Site Photograph

Photo No.: 3



Description

Typical soffit and pier condition

Site Photograph

Photo No.: 4



Description

Typical abutment and bearing condition

Site Photograph

Photo No.: 5



Description

Timber piles from previous bridge are jacking and impacting soffit.

Site Photograph

Photo No.: 6



Description

View looking downstream from under bridge.



Township of MMAA
Echo River Bridge
2024 Municipal Structure Inspection Program

Inventory Data	
Structure Name	Echo Lake Road
Main HWY/Road #	n/a
Road Name	Echo Lake Road
Structure Location	40m North of Birch Lake Road crossing the Bar Creek, Town of Echo Bay
Latitude	46.521017
Longitude	-84.019386
Owner(s)	Township of MMAA
Heritage Designation	Not designated
MTO Region	50 Northeastern
Road Class	<input type="checkbox"/> Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input checked="" type="checkbox"/> Local
MTO District	62 Sault Ste Marie
Posted Speed	60 km/h
No. of Lanes	2
Old County	38 Algoma
AADT	
% Trucks	
Geographic Township	1392 Aberdeen Additional
Special Routes	<input type="checkbox"/> Transit <input type="checkbox"/> Truck <input type="checkbox"/> School <input type="checkbox"/> Bicycle
Structure Type	4 Box beam or Girder
Detour Length Around Bridge	
(km)	
Total Deck Length	18.3 (m)
Fill on Structure	
(m)	
Overall Structure Width	7.2 (m)
Skew Angle	60 (Degrees)
Total Deck Area	131.76 (sq. m)
Direction of Structure	East-West
Roadway width	6.1 (m)
No. of Spans	4
Span Lengths	4.3,4.9,4.9,4.2 (m)

Historical Data	
Year Built	1960
Year of Last Major Rehab.	unknown
Last OSIM Inspection	2022
Last Evaluation	unknown
Last Enhanced OSIM Inspection	unknown
Current Load Limit	10 (tonnes)
Enhanced Access Equipment (ladder, boat, lift, etc.)	n/a
Load Limit By-Law #	n/a
Last Underwater Inspection	unknown
By-Law Expiry Date	n/a
Last Condition Survey	unknown
Min. Vertical Clearance	unlimited (m)
Rehab. History: (Date/description)	

Field Inspection Information			
Date of Inspection	<input type="text" value="May 14, 2024"/>	Type of Inspection	<input checked="" type="checkbox"/> OSIM <input type="checkbox"/> Enhanced OSIM
Inspector	<input type="text" value="Michael Kresin, P.Eng"/>		
Type of Inspection	<input type="text" value="Visual"/>		
Others in Party	<input type="text" value="Abbi Benka, Student"/>		
Access Equipment Used	<input type="text" value="none"/>		
Weather	<input type="text" value="Sunny"/>		
Temperature	<input type="text" value="20° C"/>		

Additional Investigations Required				
	Priority			Estimated Cost
	None	Normal	Urgent	
Material Condition Survey				
Detailed deck condition survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Non-destructive delam. survey of asphalt-covered deck	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Concrete substructure condition survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Detailed coating condition survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Detailed timber investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Post-Tensioned strand investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Underwater Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Fatigue Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Seismic Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Structure Evaluation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Monitoring (deformations, settlements, movements, crack widths)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Load Posting - Estimated Load	<input type="text" value="10 tonnes"/>		Total Cost	<input type="text"/>
Investigation notes	<input type="text"/>			

Overall Structure Notes	
Overall comments	<input type="text" value="Overall the structure appears in fair to poor condition. Major rehabilitation or replacement is anticipated to be required in the next 1-5 years."/>
Date of next inspection	<input type="text" value="2026"/>

Suspected Performance Deficiencies		
00 None	06 Bearing not uniformly loaded/unstable	12 Slippery surfaces
01 Load carrying capacity	07 Jammed expansion joint	13 Flooding/channel blockage
02 Excessive deformations (deflections & rotations)	08 Pedestrian/vehicular hazard	14 Undermining of foundation
03 Continuing settlement	09 Rough riding surface	15 Unstable embankments
04 Continuing movements	10 Surface ponding	16 Other
05 Seized bearings	11 Deck drainage	
Maintenance Needs		
01 Lift and Swing Bridge Maintenance	07 Repair to Structural Steel	13 Erosion Control at Bridges
02 Bridge Cleaning	08 Repair to Bridge Concrete	14 Concrete Sealing
03 Bridge Handrail Maintenance	09 Repair to Bridge Timber	15 Rout and Seal
04 Painting Steel Bridge Structures	10 Bailey bridges - Maintenance	16 Bridge Deck Drainage
05 Bridge Deck Joint Repair	11 Animal/Pest Control	17 Scaling (Loose Concrete or ACR Steel)
06 Bridge Bearing Maintenance	12 Bridge Surface Repair	18 Other

Element Data		No.:	1			
Element Group	100 Decks		Length	18.3		
Element Name	102 Deck Top		Width	7.2		
Location	Deck surface		Height	0.2		
Material	4 Cast-in-place concrete		Count	1		
Element Type	2 Cast-in-place concrete on laminated wood		Total Quantity	131.76		
Environment	Severe		Limited Inspection			
Protection System	41 None					
Condition	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
Data	sq. m.			45	86.76	
Comments						
Recommended Work			Maintenance Needs			
<input type="checkbox"/> Urgent <input checked="" type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None			<input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 year <input type="checkbox"/> 2 years			
Plan for rehabilitation.			Repair areas of spalled concrete.			

Element Data		No.:	2			
Element Group	100 Decks		Length	18.3		
Element Name	103 Soffit		Width	7.2		
Location	underside of bridge deck		Height	0.2		
Material	18 Wood		Count	1		
Element Type			Total Quantity	131.76		
Environment	Benign		Limited Inspection			
Protection System	5 Creosote					
Condition	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
Data	sq. m.			66	65	
Comments						
Moderate deterioration of laminated timber deck. Signs of water damage, rot and separation in localized areas. Abandoned timber piles from a previous structure are jacking and impacting the soffit.						
Recommended Work			Maintenance Needs			
<input type="checkbox"/> Urgent <input checked="" type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None			<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years			
Plan for rehabilitaion.			Remove abandoned piles.			

Element Data		No.:	3			
Element Group	100 Decks	Length				
Element Name	106 Drainage	Width				
Location	Edges of bridge deck	Height				
Material	4 Cast-in-place concrete	Count	4			
Element Type	1 Collector system	Total Quantity	4			
Environment	Severe	Limited Inspection	no			
Protection System	41 None					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	each		4			
Comments						
Drains appear functional.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	4			
Element Group	300 Sidewalks/Curbs	Length	18.3			
Element Name	302 Curbs	Width	0.55			
Location	along sides of bridge deck.	Height	0.35			
Material	4 Cast-in-place concrete	Count	2			
Element Type		Total Quantity	16.47			
Environment	Severe	Limited Inspection	no			
Protection System	41 None					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	sq. m.			11.5	5	none
Comments						
Curbs are functional. Localized areas of plow impact damage, cracking and spalling.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	5			
Element Group	400 Barriers	Length	18.3			
Element Name	402 Railing Systems	Width				
Location	both sides of deck	Height				
Material	14 Steel	Count	2			
Element Type	10 Steel Flex Beam on steel post	Total Quantity	36.6			
Environment	Severe	Limited Inspection	no			
Protection System	12 Hot dip galvanizing					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	m		36.6			
Comments						
Guide rails appear in good condition. Note: no approach guide rails.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	6			
Element Group	700 Bracing	Length				
Element Name	701 Bracing	Width				
Location	At piers between piles	Height				
Material	18 Wood	Count	16			
Element Type	4 Rectangular-solid	Total Quantity	16			
Environment	Benign	Limited Inspection	yes			
Protection System	5 Creosote					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	each			8	8	
Comments						
Some bracing members are broken, affecting structural capacity.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	7			
Element Group	900 Abutments	Length				
Element Name	901 Abutment walls	Width	7.2			
Location	Both ends of bridge	Height	0.50			
Material	18 Wood	Count	2			
Element Type		Total Quantity	7.2			
Environment	Benign	Limited Inspection				
Protection System	5 Creosote					
Condition	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
Data	sq. m.			7.2		
Comments						
Abutment walls appear in fair condition. Indications of deterioration due to age are evident.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	8			
Element Group	1000 Piers	Length	0.3			
Element Name	1001 Shafts/Columns/Pile Bents	Width	0.3			
Location		Height				
Material	18 Wood	Count	15			
Element Type	15 Timber piles with capping beam	Total Quantity	15			
Environment	Benign	Limited Inspection				
Protection System	5 Creosote					
Condition	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
Data	each			10	5	
Comments						
Some piles appear to have shifted, reducing the cap beam bearing area.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		
Plan for rehabilitation.						

Element Data		No.:	9			
Element Group	1000 Piers	Length	0.3			
Element Name	1002 Caps	Width	9.1			
Location		Height	0.30			
Material	18 Wood	Count	5			
Element Type		Total Quantity	5			
Environment	Benign	Limited Inspection	yes			
Protection System	5 Creosote					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	each			5		
Comments						
Pile caps appear in fair condition, exhibiting signs of deterioration due to age.						
Recommended Work		<input checked="" type="checkbox"/> Rehab	<input type="checkbox"/> Replace	Maintenance Needs		
<input type="checkbox"/> Urgent	<input checked="" type="checkbox"/> 1-5 years	<input type="checkbox"/> 6-10 years	<input type="checkbox"/> None	<input type="checkbox"/> Urgent	<input type="checkbox"/> 1 year	<input type="checkbox"/> 2 years
Plan for rehabilitation.						

Element Data		No.:	10			
Element Group	1400 Embankments and Streams	Length				
Element Name	1401 Streams and Waterways	Width				
Location	beneath bridge	Height				
Material		Count	1			
Element Type		Total Quantity	1			
Environment	Benign	Limited Inspection	no			
Protection System	41 None					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	all			1		
Comments						
Stream is in fair condition with debris accumulating amongst the piles. Abandoned piles from previous structure are impeding flow and accumulating debris.						
Recommended Work		<input type="checkbox"/> Rehab	<input type="checkbox"/> Replace	Maintenance Needs		
<input type="checkbox"/> Urgent	<input type="checkbox"/> 1-5 years	<input type="checkbox"/> 6-10 years	<input type="checkbox"/> None	<input type="checkbox"/> Urgent	<input checked="" type="checkbox"/> 1 year	<input type="checkbox"/> 2 years
				remove debris and abandoned piles.		

Element Data		No.:	11			
Element Group	1400 Embankments and Streams	Length				
Element Name	1402 Embankments	Width				
Location	beneath bridge	Height				
Material	10 Other - Rock	Count	2			
Element Type		Total Quantity	2			
Environment	Benign	Limited Inspection	no			
Protection System	41 None					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	each			2		
Comments						
Embankments are in fair condition.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	12			
Element Group	1500 Signs	Length				
Element Name	1501 Signs	Width				
Location	Both ends of bridge	Height				
Material	14 Steel	Count	7			
Element Type		Total Quantity	7			
Environment	Moderate	Limited Inspection	no			
Protection System	41 None					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	each			5	2	
Comments						
4 hazard signs, 2 (10) tonne load limit signs, 1 yield sign. Load limit signs are faded. No snowplow markers installed.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs		
				<input checked="" type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		
				Replace load limit signs.		

Element Data		No.:	13
Element Group	1600 Approaches	Length	6
Element Name	1601 Wearing Surface	Width	6.1
Location	West approach	Height	
Material	2 Asphalt	Count	1
Element Type		Total Quantity	36.6
Environment	Severe	Limited Inspection	
Protection System	41 None		
Condition	Units	Exc.	Good
Data	sq. m.		18.3
			Fair
			Poor
			Perform. Deficiencies
Comments			
<i>Asphalt approach is potholed and cracked.</i>			
Recommended Work	<input type="checkbox"/> Rehab <input type="checkbox"/> Urgent	<input type="checkbox"/> Replace <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None	Maintenance Needs <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1 year <input type="checkbox"/> 2 years
		<i>Repair potholes.</i>	

Element Data		No.:	14
Element Group	1600 Approaches	Length	6.00
Element Name	1601 Wearing Surface	Width	6.10
Location	East approach	Height	
Material	6 Gravel	Count	1
Element Type		Total Quantity	36.6
Environment	Severe	Limited Inspection	
Protection System			
Condition	Units	Exc.	Good
Data	sq. m.		36.6
			Fair
			Poor
			Perform. Deficiencies
Comments			
<i>Gravel approach is in good condition.</i>			
Recommended Work	<input type="checkbox"/> Rehab <input type="checkbox"/> Urgent	<input type="checkbox"/> Replace <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None	Maintenance Needs <input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years
		<i>Carry out routine maintenance to avoid potholes and drainage issues.</i>	

Site Photograph

Photo No.: 1



Description

West approach.

Site Photograph

Photo No.: 2



Description

South (downstream) elevation.

Site Photograph

Photo No.: 3



Description

North (upstream) elevation.

Site Photograph

Photo No.: 4



Description

Typical abutment and erosion protection.

Site Photograph

Photo No.: 5



Description

Separation of laminated timber deck from concrete overlay.

Site Photograph

Photo No.: 6



Description

Typical condition of pile bents. Note broken bracing member.



Township of MMAA
Jarrel Bridge
2024 Municipal Structure Inspection Program

Inventory Data	
Structure Name	Jarrel Bridge
Main HWY/Road #	n/a
Road Name	Watson Road
Structure Location	0.1km East of McCarrel Lake Road
Latitude	46.456271
Longitude	-83.961690
Owner(s)	Township of MMAA
Heritage Designation	Not designated
MTO Region	50 Northeastern
Road Class	<input type="checkbox"/> Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input checked="" type="checkbox"/> Local
MTO District	62 Sault Ste Marie
Posted Speed	
No. of Lanes	1
Old County	38 Algoma
AADT	
% Trucks	
Geographic Township	1392 Aberdeen Additional
Special Routes	<input type="checkbox"/> Transit <input type="checkbox"/> Truck <input type="checkbox"/> School <input type="checkbox"/> Bicycle
Structure Type	
Detour Length Around Bridge	
(km)	
Total Deck Length	4.9 (m)
Fill on Structure	
(m)	
Overall Structure Width	4.9 (m)
Skew Angle	
(Degrees)	
Total Deck Area	24 (sq. m)
Direction of Structure	East to West
Roadway width	4.9 (m)
No. of Spans	1
Span Lengths	5 (m)

Historical Data	
Year Built	2000
Year of Last Major Rehab.	unknown
Last OSIM Inspection	2022
Last Evaluation	unknown
Last Enhanced OSIM Inspection	unknown
Current Load Limit	
(tonnes)	
Enhanced Access Equipment (ladder, boat, lift, etc.)	n/a
Load Limit By-Law #	n/a
Last Underwater Inspection	unknown
By-Law Expiry Date	n/a
Last Condition Survey	unknown
Min. Vertical Clearance	unlimited
(m)	
Rehab. History: (Date/description)	

Field Inspection Information	
Date of Inspection	June 13, 2024
Inspector	Michael Kresin, P.Eng
Type of Inspection	Visual
Others in Party	none
Access Equipment Used	none
Weather	Sunny
Temperature	25C
Type of Inspection	<input checked="" type="checkbox"/> OSIM <input type="checkbox"/> Enhanced OSIM

Additional Investigations Required				
	Priority			Estimated Cost
	None	Normal	Urgent	
Material Condition Survey				
Detailed deck condition survey	X			
Non-destructive delam. survey of asphalt-covered deck	X			
Concrete substructure condition survey	X			
Detailed coating condition survey	X			
Detailed timber investigation	X			
Post-Tensioned strand investigation	X			
Underwater Investigation	X			
Fatigue Investigation	X			
Seismic Investigation	X			
Structure Evaluation	X			
Monitoring (deformations, settlements, movements, crack widths)	X			
Load Posting - Estimated Load				Total Cost
Investigation notes				

Overall Structure Notes	
Overall comments	Overall the structure appears in good condition.
Date of next inspection	2026

Suspected Performance Deficiencies		
00 None	06 Bearing not uniformly loaded/unstable	12 Slippery surfaces
01 Load carrying capacity	07 Jammed expansion joint	13 Flooding/channel blockage
02 Excessive deformations (deflections & rotations)	08 Pedestrian/vehicular hazard	14 Undermining of foundation
03 Continuing settlement	09 Rough riding surface	15 Unstable embankments
04 Continuing movements	10 Surface ponding	16 Other
05 Seized bearings	11 Deck drainage	
Maintenance Needs		
01 Lift and Swing Bridge Maintenance	07 Repair to Structural Steel	13 Erosion Control at Bridges
02 Bridge Cleaning	08 Repair to Bridge Concrete	14 Concrete Sealing
03 Bridge Handrail Maintenance	09 Repair to Bridge Timber	15 Rout and Seal
04 Painting Steel Bridge Structures	10 Bailey bridges - Maintenance	16 Bridge Deck Drainage
05 Bridge Deck Joint Repair	11 Animal/Pest Control	17 Scaling (Loose Concrete or ACR Steel)
06 Bridge Bearing Maintenance	12 Bridge Surface Repair	18 Other

Element Data		No.: 1	
Element Group	<input type="text" value="100 Decks"/>	Length	<input type="text" value="4.9"/>
Element Name	<input type="text" value="101 Wearing surface"/>	Width	<input type="text" value="4.9"/>
Location	<input type="text" value="top of deck"/>	Height	<input type="text"/>
Material	<input type="text" value="2 Asphalt"/>	Count	<input type="text" value="1"/>
Element Type	<input type="text"/>	Total Quantity	<input type="text" value="24"/>
Environment	<input type="text" value="Severe"/>	Limited Inspection	<input type="text"/>
Protection System	<input type="text" value="41 None"/>		
Condition Data	Units <input type="text" value="sq. m."/>	Exc. <input type="text"/>	Good <input type="text"/>
		Fair <input type="text"/>	Poor <input type="text" value="4.9"/>
Comments	<input type="text" value="Surface treatment is cracked and worn."/>		
Recommended Work	<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs <input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years
<input type="text"/>		<input type="text"/>	

Element Data		No.: 2	
Element Group	<input type="text" value="100 Decks"/>	Length	<input type="text" value="4.9"/>
Element Name	<input type="text" value="103 Soffit - Thin Slab"/>	Width	<input type="text" value="4.9"/>
Location	<input type="text"/>	Height	<input type="text" value="0.15"/>
Material	<input type="text" value="18 Wood"/>	Count	<input type="text" value="1"/>
Element Type	<input type="text"/>	Total Quantity	<input type="text" value="24"/>
Environment	<input type="text" value="Benign"/>	Limited Inspection	<input type="text"/>
Protection System	<input type="text" value="47 Other"/>		
Condition Data	Units <input type="text" value="sq. m."/>	Exc. <input type="text"/>	Good <input type="text"/>
		Fair <input type="text" value="12"/>	Poor <input type="text" value="12"/>
Comments	<input type="text" value="Laminated timber deck is in fair to poor condition. Some deck boards showing splits and decay."/>		
Recommended Work	<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs <input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years
<input type="text" value="Plan for deck rehabilitation in the next 1-5 years."/>		<input type="text"/>	

Element Data		No.:	3			
Element Group	400 Barriers	Length	4.9			
Element Name	402 Railing Systems	Width				
Location	North and south of structure	Height	0.9			
Material	18 Wood	Count	2			
Element Type	29 Wood rail <83mm thick on wood post	Total Quantity	9.8			
Environment	Moderate	Limited Inspection				
Protection System	47 Other					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	m			9.8		
Comments						
Handrail appears in fair condition, showing signs of deterioration.						
Recommended Work		<input checked="" type="checkbox"/> Rehab	<input type="checkbox"/> Replace	Maintenance Needs		
<input type="checkbox"/> Urgent	<input checked="" type="checkbox"/> 1-5 years	<input type="checkbox"/> 6-10 years	<input type="checkbox"/> None	<input type="checkbox"/> Urgent	<input type="checkbox"/> 1 year	<input type="checkbox"/> 2 years
Plan for rehabilitation of railing system in the next 1-5 years.						

Element Data		No.:	4			
Element Group	900 Abutments	Length				
Element Name	901 Abutment Walls	Width	5.7			
Location	East and west ends of structure	Height	0.8			
Material	4 Cast-in-place concrete	Count	2			
Element Type	3 Gravity wall	Total Quantity	9.1			
Environment	Benign	Limited Inspection				
Protection System	41 None					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	sq. m.				9.1	
Comments						
Abutment walls are in poor condition due to cracking and undermining.						
Recommended Work		<input checked="" type="checkbox"/> Rehab	<input type="checkbox"/> Replace	Maintenance Needs		
<input type="checkbox"/> Urgent	<input checked="" type="checkbox"/> 1-5 years	<input type="checkbox"/> 6-10 years	<input type="checkbox"/> None	<input type="checkbox"/> Urgent	<input checked="" type="checkbox"/> 1 year	<input type="checkbox"/> 2 years
Plan for rehabilitation of abutment walls.				Reinforce undermined areas.		

Element Data		No.:	5			
Element Group	900 Abutments		Length			
Element Name	902 Ballast Walls		Width	4.9		
Location	East and west abutment		Height	0.46		
Material	18 Wood		Count	2		
Element Type			Total Quantity	2.3		
Environment	Moderate	Limited Inspection	obscured			
Protection System	47 other			Perform. Deficiencies		
Condition Data	Units sq. m.	Exc.	Good	Fair 1.2	Poor 2.1	Perform. Deficiencies
Comments Ballast walls are mostly obscured. Condition estimate is based on age and condition of similar structure elements.						
Recommended Work <input type="checkbox"/> Urgent <input checked="" type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs <input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years				
Plan for rehabilitation.						

Element Data		No.:	6			
Element Group	1400 Embankments & Streams		Length			
Element Name	1401 Streams and Waterways		Width			
Location	beneath bridge		Height			
Material			Count	1		
Element Type			Total Quantity	1		
Environment	Benign	Limited Inspection				
Protection System	41 none			Perform. Deficiencies		
Condition Data	Units all	Exc.	Good 1	Fair	Poor	Perform. Deficiencies
Comments Stream appears in good condition. Erosion noted beneath abutment walls.						
Recommended Work <input type="checkbox"/> Urgent <input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs <input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years				

Element Data		No.:				
Element Group	1400 Embankments & Streams		Length			
Element Name	1402 Embankments		Width			
Location	beneath bridge		Height			
Material			Count	2		
Element Type			Total Quantity	2		
Environment	Benign		Limited Inspection			
Protection System	41 none		Perform. Deficiencies			
Condition Data	Units	Exc.	Good	Fair	Poor	
	each		2			
Comments						
Cobblestone embankments in good condition.						
Recommended Work			Maintenance Needs			
<input type="checkbox"/> Urgent <input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None			<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years			

Element Data		No.:				
Element Group	1500 Signs		Length			
Element Name	1501 Signs		Width			
Location			Height			
Material			Count	6		
Element Type			Total Quantity	6		
Environment	Moderate		Limited Inspection			
Protection System			Perform. Deficiencies			
Condition Data	Units	Exc.	Good	Fair	Poor	
	each					
Comments						
Load limit signage missing from west approach. Load limit signage is faded at east approach.						
Recommended Work			Maintenance Needs			
<input type="checkbox"/> Urgent <input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None			<input checked="" type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years			
			Replace/install load limit signage.			

Element Data		No.: 9	
Element Group	1600 Approaches	Length	6
Element Name	1601 Wearing Surface	Width	4.9
Location	at each end of bridge	Height	
Material	Surface treatment	Count	2
Element Type		Total Quantity	58.8
Environment	Severe	Limited Inspection	
Protection System			
Condition	Units	Exc.	Good
Data	sq. m.		38.8
			Fair
			Poor
			Perform. Deficiencies
Comments	Pavement is cracked and deteriorated. Gravel over pavement.		
Recommended Work	<input checked="" type="checkbox"/> Rehab <input type="checkbox"/> Urgent	<input type="checkbox"/> Replace <input type="checkbox"/> 6-10 years <input type="checkbox"/> None	Maintenance Needs <input checked="" type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years
	Plan for re-paving.		Sweep gravel from pavement.

Element Data		No.: 10	
Element Group	500 Beams/MLÉ's	Length	4.9
Element Name	501 Girders	Width	0.2
Location	underside of bridge deck	Height	0.25
Material	18 Wood	Count	6
Element Type	4 Rectangular - Solid	Total Quantity	6
Environment	Benign	Limited Inspection	limited access
Protection System	5 Creosote		
Condition	Units	Exc.	Good
Data	each		6
			Fair
			Poor
			Perform. Deficiencies
Comments	Beams appear in good condition.		
Recommended Work	<input type="checkbox"/> Rehab <input type="checkbox"/> Urgent	<input type="checkbox"/> Replace <input type="checkbox"/> 6-10 years <input type="checkbox"/> None	Maintenance Needs <input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years

Site Photograph

Photo No.: 1



Description

West approach

Site Photograph

Photo No.: 2



Description

Typical deck and railing condition

Site Photograph

Photo No.: 3



Description

North façade.

Site Photograph

Photo No.: 4



Description

South façade

Site Photograph

Photo No.: 5



Description

Typical condition of laminated timber deck.

Site Photograph

Photo No.: 6



Description

Typical condition of abutment. Note undermining of abutment.



Township of MMAA
Muddy Creek Bridge
2024 Municipal Structure Inspection Program

Inventory Data	
Structure Name	Muddy Creek Bridge
Main HWY/Road #	n/a
Road Name	Iron River Road
Structure Location	2.7 km from Birch Lake Road, Town of Echo Bay
Latitude	46.529631
Longitude	-83.983739
Owner(s)	Township of MMAA
Heritage Designation	Not designated
MTO Region	50 Northeastern
Road Class	<input type="checkbox"/> Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input checked="" type="checkbox"/> Local
MTO District	62 Sault Ste Marie
Posted Speed	
No. of Lanes	1
Old County	38 Algoma
AADT	
% Trucks	
Geographic Township	1392 Aberdeen Additional
Special Routes	<input type="checkbox"/> Transit <input type="checkbox"/> Truck <input type="checkbox"/> School <input type="checkbox"/> Bicycle
Structure Type	6 I Beam or Girder
Detour Length Around Bridge	
(m)	
Total Deck Length	12.4 (m)
Fill on Structure	
(m)	
Overall Structure Width	4.7 (m)
Skew Angle	0 (Degrees)
Total Deck Area	49.6 (sq. m)
Direction of Structure	East-West
Roadway width	4 (m)
No. of Spans	1
Span Lengths	12 (m)
MTO Site Number	n/a
Crossing Type	<input checked="" type="checkbox"/> On <input type="checkbox"/> Under
	<input type="checkbox"/> Navig. Water <input checked="" type="checkbox"/> Non-Navig. <input type="checkbox"/> Water
	<input type="checkbox"/> Rail <input checked="" type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other

Historical Data	
Year Built	2006
Year of Last Major Rehab.	unknown
Last OSIM Inspection	2022
Last Evaluation	unknown
Last Enhanced OSIM Inspection	unknown
Current Load Limit	unknown (tonnes)
Enhanced Access Equipment (ladder, boat, lift, etc.)	n/a
Load Limit By-Law #	n/a
Last Underwater Inspection	n/a
By-Law Expiry Date	n/a
Last Condition Survey	unknown
Min. Vertical Clearance	unlimited (m)
Rehab. History: (Date/description)	
Steel modular bridge was installed spanning above an existing wood bridge. Installation was reportedly in about 2006 by a logging contractor and ownership of the structure was subsequently passed over to the municipality.	

Field Inspection Information			
Date of Inspection	<input type="text" value="May 14, 2024"/>	Type of Inspection	<input checked="" type="checkbox"/> OSIM <input type="checkbox"/> Enhanced OSIM
Inspector	<input type="text" value="Micheal Kresin, P.Eng"/>		
Type of Inspection	<input type="text" value="Visual"/>		
Others in Party	<input type="text" value="Abbi Benka, Student"/>		
Access Equipment Used	<input type="text"/>		
Weather	<input type="text" value="Sunny"/>		
Temperature	<input type="text" value="20° C"/>		

Additional Investigations Required				
	Priority			Estimated Cost
	None	Normal	Urgent	
Material Condition Survey				
Detailed deck condition survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Non-destructive delam. survey of asphalt-covered deck	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Concrete substructure condition survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Detailed coating condition survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Detailed timber investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Post-Tensioned strand investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Underwater Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Fatigue Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Seismic Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Structure Evaluation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Monitoring (deformations, settlements, movements, crack widths)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Load Posting - Estimated Load	<input type="text"/>			Total Cost <input type="text"/>
Investigation notes	<input type="text"/>			

Overall Structure Notes	
Overall comments	<input type="text" value="The installation of the modular bridge over top of the previous structure is not typical. It is anticipated that the installation has not been designed in accordance with standard requirements for a municipal bridge."/>
Date of next inspection	<input type="text" value="2026"/>

Suspected Performance Deficiencies		
00 None	06 Bearing not uniformly loaded/unstable	12 Slippery surfaces
01 Load carrying capacity	07 Jammed expansion joint	13 Flooding/channel blockage
02 Excessive deformations (deflections & rotations)	08 Pedestrian/vehicular hazard	14 Undermining of foundation
03 Continuing settlement	09 Rough riding surface	15 Unstable embankments
04 Continuing movements	10 Surface ponding	16 Other
05 Seized bearings	11 Deck drainage	
Maintenance Needs		
01 Lift and Swing Bridge Maintenance	07 Repair to Structural Steel	13 Erosion Control at Bridges
02 Bridge Cleaning	08 Repair to Bridge Concrete	14 Concrete Sealing
03 Bridge Handrail Maintenance	09 Repair to Bridge Timber	15 Rout and Seal
04 Painting Steel Bridge Structures	10 Bailey bridges - Maintenance	16 Bridge Deck Drainage
05 Bridge Deck Joint Repair	11 Animal/Pest Control	17 Scaling (Loose Concrete or ACR Steel)
06 Bridge Bearing Maintenance	12 Bridge Surface Repair	18 Other

Element Data		No.:	1			
Element Group	100 Decks		Length	12.4		
Element Name	101 Wearing surface		Width	4.7		
Location	top of bridge		Height			
Material	14 Steel		Count	1		
Element Type			Total Quantity	58.3		
Environment	Severe	Limited Inspection	no			
Protection System	41 None			Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	sq. m.			58.3		
Comments						
Steel bridge deck appears in fair condition. Gravel accumulation on deck.						
Recommended Work		<input type="checkbox"/> Rehab	<input type="checkbox"/> Replace	Maintenance Needs		
<input type="checkbox"/> Urgent	<input type="checkbox"/> 1-5 years	<input type="checkbox"/> 6-10 years	<input type="checkbox"/> None	<input type="checkbox"/> Urgent	<input checked="" type="checkbox"/> 1 year	<input type="checkbox"/> 2 years
				Sweep bridge deck.		

Element Data		No.:	2			
Element Group	400 Barriers		Length	12.4		
Element Name	402 Railing Systems		Width			
Location	both sides of bridge		Height	0.95		
Material	18 Wood		Count	2		
Element Type	29 Wood rail <83mm thick on wood post.		Total Quantity	24.8		
Environment	Benign	Limited Inspection	no			
Protection System	41 None			Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	m			12.4	12.4	
Comments						
Wood railing is not sufficient for vehicle guide rail; possibly insufficient for pedestrian rail.						
Recommended Work		<input checked="" type="checkbox"/> Rehab	<input type="checkbox"/> Replace	Maintenance Needs		
<input type="checkbox"/> Urgent	<input checked="" type="checkbox"/> 1-5 years	<input type="checkbox"/> 6-10 years	<input type="checkbox"/> None	<input type="checkbox"/> Urgent	<input type="checkbox"/> 1 year	<input type="checkbox"/> 2 years
Plan for rehabilitation.						

Element Data		No.:	3			
Element Group	500 Beams/MLE's	Length	12			
Element Name	501 Girders	Width	0.191			
Location	underside of bridge deck.	Height	0.457			
Material	14 Steel	Count	4			
Element Type	3 I-Type	Total Quantity	4			
Environment	Benign	Limited Inspection	yes			
Protection System	41 None					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	sq. m.			4		
Comments						
Steel girders appear in fair condition with minor surface rust. Inspection limited to accessible/visible portions of the structure.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	4			
Element Group	500 Beams/MLE's	Length	1			
Element Name	501 Girders	Width	0.191			
Location	Ends	Height	0.46			
Material	14 Steel	Count	12			
Element Type	3 I-Type	Total Quantity	12			
Environment	Benign	Limited Inspection	yes			
Protection System	41 None					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	m					
Comments						
Element data pertains to pre-fabricated steel bridge overlay. Original timber beams not reviewed.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	5			
Element Group	900 Abutments		Length	0.2		
Element Name	901 Abutment Walls		Width	4.7		
Location	East and west of bridge		Height	0.20		
Material	18 Wood		Count	8		
Element Type	6 Post and lagging.		Total Quantity	7.5		
Environment	Benign		Limited Inspection	yes		
Protection System	41 None			Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	sq. m.				7.5	
Comments						
Lagging is deteriorated.						
Recommended Work						
<input type="checkbox"/> Urgent <input checked="" type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None						
Maintenance Needs						
<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years						
Rehabilitate abutment walls.						

Element Data		No.:	6			
Element Group	900 Abutments		Length			
Element Name	904 Bearings		Width			
Location	at pile caps		Height			
Material	18 wood		Count			
Element Type			Total Quantity			
Environment	Benign		Limited Inspection			
Protection System	5 Creosote			Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	%		100			
Comments						
Timber beams bearing on pile caps appear in good condition.						
Recommended Work						
<input type="checkbox"/> Urgent <input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None						
Maintenance Needs						
<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years						

Element Data		No.:	7
Element Group	1000 Piers	Length	0.3
Element Name	1001 Shafts/Columns/Pile Bents	Width	0.3
Location		Height	2.30
Material	18 Wood	Count	14
Element Type	15 Timber piles with capping beam	Total Quantity	14
Environment	Benign	Limited Inspection	yes
Protection System	5 Creosote		
Condition Data	Units each	Exc.	Good
			Fair
			Poor
			Perform. Deficiencies
			12
			6
Comments			
Piles are generally in fair condition with some showing signs of splitting and possible minor movement.			
Recommended Work		Maintenance Needs	
<input type="checkbox"/> Urgent	<input type="checkbox"/> Rehab <input type="checkbox"/> 1-5 years	<input type="checkbox"/> Replace <input type="checkbox"/> 6-10 years	<input type="checkbox"/> None

Element Data		No.:	8
Element Group	1000 Piers	Length	0.3
Element Name	1002 Caps	Width	4.7
Location	Top of Piles	Height	0.30
Material	18 Wood	Count	4
Element Type		Total Quantity	22.6
Environment	Benign	Limited Inspection	yes
Protection System	5 Creosote		
Condition Data	Units each	Exc.	Good
			Fair
			Poor
			Perform. Deficiencies
			4
Comments			
Pile caps appear in fair condition.			
Recommended Work		Maintenance Needs	
<input type="checkbox"/> Urgent	<input type="checkbox"/> Rehab <input type="checkbox"/> 1-5 years	<input type="checkbox"/> Replace <input type="checkbox"/> 6-10 years	<input type="checkbox"/> None

Element Data		No.:	9			
Element Group	1400 Embankments and Streams	Length				
Element Name	1401 Streams and Waterways	Width				
Location	beneath bridge	Height				
Material		Count	1			
Element Type		Total Quantity	1			
Environment	Benign	Limited Inspection	no			
Protection System	41 None					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	all					
Comments						
Debris in stream; beaver dam downstream.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs		
				<input checked="" type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		
		Remove debris from stream.				

Element Data		No.:	10			
Element Group	1400 Embankments and Streams	Length				
Element Name	1402 Embankments	Width				
Location	beneath bridge	Height				
Material		Count	2			
Element Type		Total Quantity	2			
Environment	Benign	Limited Inspection	no			
Protection System	41 None					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	each		2			
Comments						
Embankments are in good condition.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	11			
Element Group	1500 Signs	Length				
Element Name	1501 Signs	Width				
Location		Height				
Material	14 Steel	Count	5			
Element Type		Total Quantity	5			
Environment	Moderate	Limited Inspection	no			
Protection System	41 None					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	each					
Comments						
3 hazard markers present, one missing. Hazard markers placed high - check for installation standard. No snowplow signs. No load limit signage.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs		
				<input checked="" type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		
		Replace missing hazard marker, adjust installation height if necessary.				

Element Data		No.:	12			
Element Group	1601 Approaches	Length	6.00			
Element Name	1601 Wearing Surface	Width	5.00			
Location		Height				
Material	6 Gravel	Count	2			
Element Type		Total Quantity	60			
Environment	Severe	Limited Inspection	no			
Protection System	41 None					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	sq. m.		60			
Comments						
Gravel approaches appear in good condition.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs		
				<input checked="" type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		
		Routine grading maintenance.				

Site Photograph

Photo No.: 1



Description

East approach.

Site Photograph

Photo No.: 2



Description

North elevation.

Site Photograph

Photo No.: 3



Description

Looking south, west bridge support. Note abandoned piles from previous structure.

Site Photograph

Photo No.: 4



Description

Typical arrangement of pre-fabricated steel bridge on existing timber structure.

Site Photograph

Photo No.: 5



Description

East abutment.

Site Photograph

Photo No.: 6



Description

Looking north, west bridge approach, damaged post and hazard sign.



Township of MMAA
Ritter Bridge
2024 Municipal Structure Inspection Program

Inventory Data	
Structure Name	Ritter Bridge
Main HWY/Road #	n/a
Road Name	Cemetery Road
Structure Location	0.6km South of Watson Road East
Latitude	46.451639
Longitude	-83.985222
Owner(s)	Township of MMAA
Heritage Designation	Not designated
MTO Region	50 Northeastern
Road Class	<input type="checkbox"/> Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input checked="" type="checkbox"/> Local
MTO District	62 Sault Ste Marie
Posted Speed	
No. of Lanes	2
Old County	38 Algoma
AADT	
% Trucks	
Geographic Township	1392 Aberdeen Additional
Special Routes	<input type="checkbox"/> Transit <input type="checkbox"/> Truck <input type="checkbox"/> School <input type="checkbox"/> Bicycle
Structure Type	6 I-Beam or Girder
Detour Length Around Bridge	9.8 (km)
Total Deck Length	15.5 (m)
Fill on Structure	
Overall Structure Width	6 (m)
Skew Angle	
(Degrees)	
Total Deck Area	93 (sq. m)
Direction of Structure	North to South
Roadway width	6 (m)
No. of Spans	1
Span Lengths	16 (m)

Historical Data	
Year Built	2014
Year of Last Major Rehab.	unknown
Last OSIM Inspection	2022
Last Evaluation	unknown
Last Enhanced OSIM Inspection	unknown
Current Load Limit	
(tonnes)	
Enhanced Access Equipment (ladder, boat, lift, etc.)	n/a
Load Limit By-Law #	n/a
Last Underwater Inspection	unknown
By-Law Expiry Date	n/a
Last Condition Survey	unknown
Min. Vertical Clearance	unlimited
(m)	
Rehab. History: (Date/description)	

Field Inspection Information			
Date of Inspection	<input type="text" value="June 12, 2024"/>	Type of Inspection	<input checked="" type="checkbox"/> OSIM <input type="checkbox"/> Enhanced OSIM
Inspector	<input type="text" value="Micheal Kresin, P.Eng"/>		
Type of Inspection	<input type="text" value="Visual"/>		
Others in Party	<input type="text" value="none"/>		
Access Equipment Used	<input type="text" value="none"/>		
Weather	<input type="text" value="Sunny"/>		
Temperature	<input type="text" value="25 C"/>		

Additional Investigations Required				
	Priority			Estimated Cost
	None	Normal	Urgent	
Material Condition Survey				
Detailed deck condition survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Non-destructive delam. survey of asphalt-covered deck	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Concrete substructure condition survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Detailed coating condition survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Detailed timber investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Post-Tensioned strand investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Underwater Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Fatigue Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Seismic Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Structure Evaluation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Monitoring (deformations, settlements, movements, crack widths)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Load Posting - Estimated Load	<input type="text"/>		Total Cost	<input type="text"/>
Investigation notes				
<input type="text"/>				

Overall Structure Notes	
Overall comments	<input type="text" value="Overall, structure appears in fair condition."/>
Date of next inspection	<input type="text" value="2026"/>

Suspected Performance Deficiencies		
00 None	06 Bearing not uniformly loaded/unstable	12 Slippery surfaces
01 Load carrying capacity	07 Jammed expansion joint	13 Flooding/channel blockage
02 Excessive deformations (deflections & rotations)	08 Pedestrian/vehicular hazard	14 Undermining of foundation
03 Continuing settlement	09 Rough riding surface	15 Unstable embankments
04 Continuing movements	10 Surface ponding	16 Other
05 Seized bearings	11 Deck drainage	
Maintenance Needs		
01 Lift and Swing Bridge Maintenance	07 Repair to Structural Steel	13 Erosion Control at Bridges
02 Bridge Cleaning	08 Repair to Bridge Concrete	14 Concrete Sealing
03 Bridge Handrail Maintenance	09 Repair to Bridge Timber	15 Rout and Seal
04 Painting Steel Bridge Structures	10 Bailey bridges - Maintenance	16 Bridge Deck Drainage
05 Bridge Deck Joint Repair	11 Animal/Pest Control	17 Scaling (Loose Concrete or ACR Steel)
06 Bridge Bearing Maintenance	12 Bridge Surface Repair	18 Other

Element Data		No.:	1			
Element Group	100 Decks	Length	15.5			
Element Name	101 Wearing Surface	Width	6			
Location	top of structure	Height				
Material	14 Steel	Count	1			
Element Type	Checker plate	Total Quantity	93			
Environment	Severe	Limited Inspection				
Protection System	41 None					
Condition	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
Data	sq. m.		93			
Comments						
Steel checker plate deck is in good condition. Light wear/polishing of deck in wheel tracks.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	2			
Element Group	200 Joints	Length	0.25			
Element Name	202 Concrete end dams	Width	6			
Location	Ends of bridge	Height				
Material	4 Cast-in-place concrete	Count	2			
Element Type		Total Quantity	12			
Environment	Severe	Limited Inspection				
Protection System	41 none					
Condition	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
Data	m		12			
Comments						
Concrete end dams have steel protection angle at joint opening. Some debris/sand accumulation in joint space.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		
remove debris and sand from joints.						

Element Data		No.:	3			
Element Group	500 Beams/MLE's	Length	13.5			
Element Name	501 Girders	Width	0.23			
Location	underside of bridge	Height	0.61			
Material	14 Steel	Count	10			
Element Type	3 I-Type	Total Quantity	10			
Environment	Moderate	Limited Inspection				
Protection System	71 Unknown					
Condition Data	Units %	Exc.	Good	Fair 90	Poor 10	Perform. Deficiencies
Comments Paint system has failed at interior and exterior girders resulting in corrosion of structural steel. Corrosion also evident at bearing locations. Budget for coating rehabilitation in 6-10 years.						
Recommended Work <input type="checkbox"/> Urgent <input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> 1-5 years <input checked="" type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs <input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years				

Element Data		No.:	4			
Element Group	900 Abutments	Length				
Element Name	904 Bearings	Width				
Location	at ends of girders	Height				
Material	10 Other	Count	20			
Element Type	10 Rubber	Total Quantity	20			
Environment	Benign	Limited Inspection	visible areas only			
Protection System	41 None					
Condition Data	Units %	Exc.	Good 100	Fair	Poor	Perform. Deficiencies
Comments Rubber bearing pads appear in good condition.						
Recommended Work <input type="checkbox"/> Urgent <input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs <input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years				

Element Data		No.: 5	
Element Group	<input type="text" value="400 Barriers"/>	Length	<input type="text" value="16"/>
Element Name	<input type="text" value="404 Hand Railings"/>	Width	<input type="text"/>
Location	<input type="text" value="both sides of bridge"/>	Height	<input type="text"/>
Material	<input type="text" value="18 Wood"/>	Count	<input type="text" value="2"/>
Element Type	<input type="text" value="36 Wood rail <83mm thick on wood post"/>	Total Quantity	<input type="text" value="32"/>
Environment	<input type="text" value="Moderate"/> <u>Limited Inspection</u>	<input type="text"/>	
Protection System	<input type="text" value="47 Other"/>		
Condition Data	Units <input type="text" value="m"/>	Exc. <input type="text"/>	Good <input type="text"/>
		Fair <input type="text" value="32"/>	Poor <input type="text"/>
Perform. Deficiencies <input type="text"/>			
Comments <input style="height: 40px;" type="text" value="Wood hand railing on guide rail posts over bridge, extending to approaches. Wood components are in fair condition showing signs of deterioration due to age."/>			
Recommended Work		Maintenance Needs	
<input type="checkbox"/> Urgent <input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years	
<input style="height: 30px;" type="text"/>		<input style="height: 30px;" type="text" value="Maintain - replace deteriorated components as required."/>	

Element Data		No.: 6	
Element Group	<input type="text" value="400 Barriers"/>	Length	<input type="text" value="16"/>
Element Name	<input type="text" value="402 Railing Systems"/>	Width	<input type="text"/>
Location	<input type="text" value="both sides of bridge"/>	Height	<input type="text"/>
Material	<input type="text"/>	Count	<input type="text" value="2"/>
Element Type	<input type="text" value="11 Steel flex beam on wood post."/>	Total Quantity	<input type="text" value="32"/>
Environment	<input type="text" value="Moderate"/> <u>Limited Inspection</u>	<input type="text"/>	
Protection System	<input type="text" value="12 Hot dip galvanizing"/>		
Condition Data	Units <input type="text" value="m"/>	Exc. <input type="text"/>	Good <input type="text"/>
		Fair <input type="text" value="32"/>	Poor <input type="text"/>
Perform. Deficiencies <input type="text"/>			
Comments <input style="height: 40px;" type="text" value="Steel flex beam on wood post with channel. Posts showing signs of age-related deterioration."/>			
Recommended Work		Maintenance Needs	
<input type="checkbox"/> Urgent <input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years	
<input style="height: 30px;" type="text"/>		<input style="height: 30px;" type="text" value="Maintain - replace deteriorated components as required."/>	

Element Data		No.:	9			
Element Group	800 Coatings	Length				
Element Name	801 Structural Steel	Width				
Location	on MLE's and bracing	Height				
Material	10 Other	Count	1			
Element Type	Paint	Total Quantity				
Environment	Moderate	Limited Inspection				
Protection System						
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	%			50	50	
Comments						
Paint system failing throughout. Budget for coating rehabilitation in 6-10 years.						
Recommended Work		<input checked="" type="checkbox"/> Rehab	<input type="checkbox"/> Replace	Maintenance Needs		
<input type="checkbox"/> Urgent	<input type="checkbox"/> 1-5 years	<input checked="" type="checkbox"/> 6-10 years	<input type="checkbox"/> None	<input type="checkbox"/> Urgent	<input type="checkbox"/> 1 year	<input type="checkbox"/> 2 years
Re-coat structural components.						

Element Data		No.:	10			
Element Group	900 Abutments	Length				
Element Name	901 Abutment walls	Width	6.8			
Location	North and south of structure	Height	1.5			
Material	4 Cast-in-place concrete	Count	2			
Element Type	1 Conventional closed	Total Quantity	20.4			
Environment	Benign	Limited Inspection	Visual portions only.			
Protection System	41 None					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	sq. m.		15		5.4	
Comments						
Poor areas include construction deficiencies such as wood blocking and formwork embedded in concrete, as well as minor cracking and efflorescence.						
Recommended Work		<input type="checkbox"/> Rehab	<input type="checkbox"/> Replace	Maintenance Needs		
<input type="checkbox"/> Urgent	<input type="checkbox"/> 1-5 years	<input type="checkbox"/> 6-10 years	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Urgent	<input type="checkbox"/> 1 year	<input type="checkbox"/> 2 years

Element Data		No.:	11			
Element Group	900 Abutments		Length			
Element Name	902 Ballast walls		Width	6.8		
Location	North and south of structure		Height	0.7		
Material	4 Cast-in-place concrete		Count	2		
Element Type			Total Quantity	9.5		
Environment	Benign	Limited Inspection	largely obscured by girders.			
Protection System						
Condition	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
Data	sq. m.		9.8			
Comments						
Recommended Work	<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs			
			<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years			

Element Data		No.:	12			
Element Group	900 Abutments		Length	4.4		
Element Name	903 Wingwalls		Width	0.5		
Location	All corners of bridge		Height	1.3		
Material	4 Cast-in-place concrete		Count	4		
Element Type	6 Reinforced concrete		Total Quantity	22.9		
Environment	Moderate	Limited Inspection				
Protection System	41 None					
Condition	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
Data	sq. m.		22.9			
Comments						
Recommended Work	<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs			
			<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years			

Element Data		No.:	13			
Element Group	1400 Embankments & Streams		Length			
Element Name	1401 Streams and Waterways		Width			
Location	beneath bridge		Height			
Material			Count	1		
Element Type			Total Quantity	1		
Environment	Benign		Limited Inspection			
Protection System	41 None			Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	each		1			
Comments						
Natural stream beneath bridge is in good condition.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	14			
Element Group	1400 Embankments & Streams		Length			
Element Name	1403 Slope protection		Width			
Location	at abutments		Height			
Material	10 Other		Count	2		
Element Type	9 Rock protection		Total Quantity	2		
Environment	Benign		Limited Inspection			
Protection System	41 None			Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	%		100			
Comments						
Slope protection appears in good condition.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	15			
Element Group	1500 Signs	Length				
Element Name	1501 Signs	Width				
Location	four quadrants of approaches	Height				
Material		Count				
Element Type		Total Quantity				
Environment	Severe	Limited Inspection				
Protection System	41 None					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	each			2	2	
Comments						
Hazard markers present on all four quadrants; however two are damaged. Some snowplow markers missing and some are improper orientation.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs		
				<input checked="" type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		
		Replace/fix damaged signs.				

Element Data		No.:	16			
Element Group	1600 Approaches	Length	6			
Element Name	1601 Wearing Surface	Width	6			
Location	both ends of bridge	Height				
Material	2 Asphalt	Count	2			
Element Type		Total Quantity	72			
Environment		Limited Inspection				
Protection System						
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	sq. m.		72			
Comments						
Approaches are in good condition.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Site Photograph

Photo No.: 1



Description

North Approach

Site Photograph

Photo No.: 2



Description

Typical arrangement of hand rail and guide rail. Also note slight polishing of steel deck in wheel tracks.

Site Photograph

Photo No.: 3



Description

Typical condition of bridge end joints.

Site Photograph

Photo No.: 4



Description

Typical condition of guide rail posts.

Site Photograph

Photo No.: 5



Description

Underside of bridge. Note corrosion of girders at centre of bridge (at centre joint of modular bridge deck)

Site Photograph

Photo No.: 6



Description

Typical condition of paint coating at exterior girders.

Site Photograph

Photo No.: 7



Description

Typical condition of bridge bearing. Note minor corrosion of girder.

Site Photograph

Photo No.: 8



Description

Construction defficiency - wood blocking embedded in concrete.



Township of MMAA
Tuira Bridge
2024 Municipal Structure Inspection Program

Inventory Data	
Structure Name	Tuira Bridge
Main HWY/Road #	n/a
Road Name	Watson Road
Structure Location	650m East of Cemetary Road
Latitude	46.456239
Longitude	-83.976119
Owner(s)	Township of MMAA
Heritage Designation	Not designated
MTO Region	50 Northeastern
Road Class	<input type="checkbox"/> Freeway <input type="checkbox"/> Arterial <input checked="" type="checkbox"/> Collector <input type="checkbox"/> Local
MTO District	62 Sault Ste Marie
Posted Speed	
No. of Lanes	2
Old County	38 Algoma
AADT	
% Trucks	
Geographic Township	1392 Aberdeen Additional
Special Routes	<input type="checkbox"/> Transit <input type="checkbox"/> Truck <input type="checkbox"/> School <input type="checkbox"/> Bicycle
Structure Type	10 Arch Culvert
Detour Length Around Bridge	5 (km)
Total Deck Length	13.0 (m)
Fill on Structure	
Overall Structure Width	10.9 (m)
Skew Angle	
Direction of Structure	East to West
Total Deck Area	141.4 (sq. m)
No. of Spans	1
Roadway width	9.8 (m)
Span Lengths	8 (m)
MTO Site Number	n/a
Crossing Type	<input type="checkbox"/> On <input type="checkbox"/> Under
	<input type="checkbox"/> Navig.Water <input checked="" type="checkbox"/> Non-Navig. <input type="checkbox"/> Water
	<input type="checkbox"/> Rail <input checked="" type="checkbox"/> Road <input type="checkbox"/> Ped. <input type="checkbox"/> Other

Historical Data	
Year Built	2019
Year of Last Major Rehab.	unknown
Last OSIM Inspection	2022
Last Evaluation	unknown
Last Enhanced OSIM Inspection	unknown
Current Load Limit	
(tonnes)	
Enhanced Access Equipment (ladder, boat, lift, etc.)	n/a
Load Limit By-Law #	n/a
Last Underwater Inspection	unknown
By-Law Expiry Date	n/a
Last Condition Survey	unknown
Min. Vertical Clearance	unlimited
(m)	
Rehab. History: (Date/description)	

Field Inspection Information			
Date of Inspection	<input type="text" value="June 12, 2024"/>	Type of Inspection	<input checked="" type="checkbox"/> OSIM <input type="checkbox"/> Enhanced OSIM
Inspector	<input type="text" value="Micheal Kresin, P.Eng"/>		
Type of Inspection	<input type="text" value="Visual"/>		
Others in Party	<input type="text" value="none"/>		
Access Equipment Used	<input type="text" value="none"/>		
Weather	<input type="text" value="Sunny"/>		
Temperature	<input type="text" value="25 C"/>		

Additional Investigations Required				
	Priority			Estimated Cost
	None	Normal	Urgent	
Material Condition Survey				
Detailed deck condition survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Non-destructive delam. survey of asphalt-covered deck	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Concrete substructure condition survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Detailed coating condition survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Detailed timber investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Post-Tensioned strand investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Underwater Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Fatigue Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Seismic Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Structure Evaluation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Monitoring (deformations, settlements, movements, crack widths)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Load Posting - Estimated Load	<input type="text"/>		Total Cost	<input type="text"/>
Investigation notes				
<input type="text"/>				

Overall Structure Notes	
Overall comments	<input type="text" value="Structure appears in excellent condition overall."/>
Date of next inspection	<input type="text" value="2026"/>

Suspected Performance Deficiencies		
00 None	06 Bearing not uniformly loaded/unstable	12 Slippery surfaces
01 Load carrying capacity	07 Jammed expansion joint	13 Flooding/channel blockage
02 Excessive deformations (deflections & rotations)	08 Pedestrian/vehicular hazard	14 Undermining of foundation
03 Continuing settlement	09 Rough riding surface	15 Unstable embankments
04 Continuing movements	10 Surface ponding	16 Other
05 Seized bearings	11 Deck drainage	
Maintenance Needs		
01 Lift and Swing Bridge Maintenance	07 Repair to Structural Steel	13 Erosion Control at Bridges
02 Bridge Cleaning	08 Repair to Bridge Concrete	14 Concrete Sealing
03 Bridge Handrail Maintenance	09 Repair to Bridge Timber	15 Rout and Seal
04 Painting Steel Bridge Structures	10 Bailey bridges - Maintenance	16 Bridge Deck Drainage
05 Bridge Deck Joint Repair	11 Animal/Pest Control	17 Scaling (Loose Concrete or ACR Steel)
06 Bridge Bearing Maintenance	12 Bridge Surface Repair	18 Other

Element Data		No.:				
Element Group	100 Decks	Length	10.9			
Element Name	101 Wearing Surface	Width	9.8			
Location		Height				
Material	10 Other	Count	1			
Element Type		Total Quantity	106.6			
Environment	Severe	Limited Inspection				
Protection System	41 None					Perform. Deficiencies
Condition Data	Units sq. m.	Exc.	Good	Fair	Poor	
		106.6				
Comments						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:				
Element Group	400 Barriers	Length	8			
Element Name	402 Railing Systems	Width				
Location	North and south of bridge deck	Height	1.1			
Material	14 Steel	Count	2			
Element Type	10 Steel Flex Beam on steel post	Total Quantity	16			
Environment	Moderate	Limited Inspection				
Protection System	12 Hot dip galvanizing					Perform. Deficiencies
Condition Data	Units m	Exc.	Good	Fair	Poor	
		16				
Comments						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	3			
Element Group	800 Coatings	Length	10.9			
Element Name	801 Structural Steel	Width	8			
Location	on structural plate CSP	Height	2			
Material	10 Other	Count	1			
Element Type		Total Quantity	140			
Environment	Moderate	Limited Inspection				
Protection System						
Condition	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
Data	sq. m.	140				
Comments						
SPCSP open bottom arch culvert is hot dip galvanized. Haunch plates are polymer coated. Coatings are in excellent condition.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	4			
Element Group	1200 Culverts	Length	2.5			
Element Name	1201 Inlet Components	Width				
Location	North side of structure	Height	2.5			
Material	4 Cast-in-place concrete	Count	2			
Element Type	Headwall	Total Quantity	12.5			
Environment	Benign	Limited Inspection				
Protection System	41 None				Perform. Deficiencies	
Condition	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
Data	sq. m.	12.5				
Comments						
Headwall is in excellent condition						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	5			
Element Group	1200 Culverts		Length	2.5		
Element Name	1202 Outlet Components		Width			
Location	South side of structure		Height	2.5		
Material	Cast-in-place concrete		Count	2		
Element Type	Headwall		Total Quantity	12.5		
Environment	Benign	Limited Inspection				
Protection System	41 None			Perform. Deficiencies		
Condition Data	Units sq. m.	Exc. 12.5	Good	Fair	Poor	
Comments						
Headwall is in excellent condition.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	6			
Element Group	1200 Culverts		Length	10.9		
Element Name	1203 Barrels		Width	8		
Location			Height	2		
Material	5 Corrugated steel		Count	1		
Element Type	1 Arch		Total Quantity	140		
Environment	Benign	Limited Inspection				
Protection System				Perform. Deficiencies		
Condition Data	Units sq. m.	Exc. 140	Good	Fair	Poor	
Comments						
Culvert barrel is in excellent condition.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:				
Element Group	1300 Foundations		Length	12		
Element Name	1301 Foundation (below ground level)		Width			
Location			Height			
Material	14 Steel		Count	2		
Element Type	3 Piles		Total Quantity	24		
Environment	Benign		Limited Inspection	visible portions only		
Protection System	41 None					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	m	24				
Comments						
Foundation connections appear in excellent condition.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:				
Element Group	1400 Embankments & Streams		Length			
Element Name	1401 Streams and Waterways		Width			
Location	stream through culvert		Height			
Material			Count	1		
Element Type			Total Quantity	1		
Environment	Benign		Limited Inspection			
Protection System						
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	all	1				
Comments						
Stream appears in excellent condition.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	9			
Element Group	1400 Embankments & Streams	Length	12			
Element Name	1403 Slope protection	Width				
Location	inside culvert, adjacent to footings	Height				
Material		Count	2			
Element Type	9 Rock protection	Total Quantity	24			
Environment	Benign	Limited Inspection				
Protection System						
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	m	24				
Comments						
Rock protection inside culvert appears in excellent condition.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	10			
Element Group	1500 Signs	Length				
Element Name	1501 Signs	Width				
Location	East and west approaches of bridge	Height				
Material	14 Steel	Count	4			
Element Type		Total Quantity	4			
Environment	Moderate	Limited Inspection				
Protection System						
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	each	3			1	
Comments						
Hazard marker missing at northwest quadrant.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input checked="" type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		
				Replace missing hazard marker.		

Element Data		No.:	11			
Element Group	1600 Approaches		Length	6		
Element Name	1601 Wearing Surface		Width	9.6		
Location	east and west approaches		Height			
Material	10 Other		Count	2		
Element Type			Total Quantity	115.2		
Environment	Severe	Limited Inspection				
Protection System						
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	sq. m.	115.2				
Comments						
Approaches appear in excellent condition.						
Recommended Work		<input type="checkbox"/> Rehab	<input type="checkbox"/> Replace	Maintenance Needs		
<input type="checkbox"/> Urgent	<input type="checkbox"/> 1-5 years	<input type="checkbox"/> 6-10 years	<input checked="" type="checkbox"/> None	<input type="checkbox"/> Urgent	<input type="checkbox"/> 1 year	<input type="checkbox"/> 2 years

Element Data		No.:	12			
Element Group			Length			
Element Name			Width			
Location			Height			
Material			Count			
Element Type			Total Quantity			
Environment		Limited Inspection				
Protection System						
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
Comments						
Recommended Work		<input type="checkbox"/> Rehab	<input type="checkbox"/> Replace	Maintenance Needs		
<input type="checkbox"/> Urgent	<input type="checkbox"/> 1-5 years	<input type="checkbox"/> 6-10 years	<input type="checkbox"/> None	<input type="checkbox"/> Urgent	<input type="checkbox"/> 1 year	<input type="checkbox"/> 2 years

Site Photograph

Photo No.: 1



Description

West approach

Site Photograph

Photo No.: 2



Description

Typical guide rail condition

Site Photograph

Photo No.: 3



Description

North (upstream) elevation.

Site Photograph

Photo No.: 4



Description

View through culvert, looking north.

Site Photograph

Photo No.: 5



Description

View of foundation connection.

Site Photograph

Photo No.: 6



Description

East approach.



Township of MMAA
Weller Bridge
2024 Municipal Structure Inspection Program

Inventory Data	
Structure Name	Weller Bridge
Main HWY/Road #	n/a
Road Name	Watson Road East
Structure Location	850m East of Cemetary Road
Latitude	46.456242
Longitude	-83.973111
Owner(s)	Township of MMAA
Heritage Designation	Not designated
MTO Region	50 Northeastern
Road Class	<input type="checkbox"/> Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input checked="" type="checkbox"/> Local
MTO District	62 Sault Ste Marie
Posted Speed	
No. of Lanes	2
Old County	38 Algoma
AADT	
% Trucks	
Geographic Township	1392 Aberdeen Additional
Special Routes	<input type="checkbox"/> Transit <input type="checkbox"/> Truck <input type="checkbox"/> School <input type="checkbox"/> Bicycle
Structure Type	10 Arch Culvert
Detour Length Around Bridge	5 (km)
Total Deck Length	5.8 (m)
Fill on Structure	
Overall Structure Width	10.9 (m)
Skew Angle	
(Degrees)	
Total Deck Area	63.22 (sq. m)
Direction of Structure	East to West
Roadway width	8 (m)
No. of Spans	1
Span Lengths	6 (m)

Historical Data	
Year Built	2019
Year of Last Major Rehab.	unknown
Last OSIM Inspection	2022
Last Evaluation	unknown
Last Enhanced OSIM Inspection	unknown
Current Load Limit	
(tonnes)	
Enhanced Access Equipment (ladder, boat, lift, etc.)	n/a
Load Limit By-Law #	n/a
Last Underwater Inspection	unknown
By-Law Expiry Date	n/a
Last Condition Survey	unknown
Min. Vertical Clearance	unlimited
(m)	
Rehab. History: (Date/description)	

Field Inspection Information			
Date of Inspection	<input type="text" value="June 13, 2024"/>	Type of Inspection	<input checked="" type="checkbox"/> OSIM <input type="checkbox"/> Enhanced OSIM
Inspector	<input type="text" value="Micheal Kresin, P.Eng"/>		
Type of Inspection	<input type="text" value="Visual"/>		
Others in Party	<input type="text" value="none"/>		
Access Equipment Used	<input type="text" value="none"/>		
Weather	<input type="text" value="Sunny"/>		
Temperature	<input type="text" value="25 C"/>		

Additional Investigations Required				
	Priority			Estimated Cost
	None	Normal	Urgent	
Material Condition Survey				
Detailed deck condition survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Non-destructive delam. survey of asphalt-covered deck	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Concrete substructure condition survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Detailed coating condition survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Detailed timber investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Post-Tensioned strand investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Underwater Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Fatigue Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Seismic Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Structure Evaluation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Monitoring (deformations, settlements, movements, crack widths)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
Load Posting - Estimated Load	<input type="text"/>			Total Cost <input type="text"/>
Investigation notes	<input type="text"/>			

Overall Structure Notes	
Overall comments	<input type="text" value="Overall structure appears in excellent condition."/>
Date of next inspection	<input type="text" value="2026"/>

Suspected Performance Deficiencies		
00 None	06 Bearing not uniformly loaded/unstable	12 Slippery surfaces
01 Load carrying capacity	07 Jammed expansion joint	13 Flooding/channel blockage
02 Excessive deformations (deflections & rotations)	08 Pedestrian/vehicular hazard	14 Undermining of foundation
03 Continuing settlement	09 Rough riding surface	15 Unstable embankments
04 Continuing movements	10 Surface ponding	16 Other
05 Seized bearings	11 Deck drainage	
Maintenance Needs		
01 Lift and Swing Bridge Maintenance	07 Repair to Structural Steel	13 Erosion Control at Bridges
02 Bridge Cleaning	08 Repair to Bridge Concrete	14 Concrete Sealing
03 Bridge Handrail Maintenance	09 Repair to Bridge Timber	15 Rout and Seal
04 Painting Steel Bridge Structures	10 Bailey bridges - Maintenance	16 Bridge Deck Drainage
05 Bridge Deck Joint Repair	11 Animal/Pest Control	17 Scaling (Loose Concrete or ACR Steel)
06 Bridge Bearing Maintenance	12 Bridge Surface Repair	18 Other

Element Data		No.:	1			
Element Group	100 Decks	Length	5.8			
Element Name	101 Wearing Surface	Width	10.9			
Location	top of structure	Height				
Material	Surface treatment	Count	1			
Element Type		Total Quantity	63.22			
Environment	Severe	Limited Inspection				
Protection System						
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	%	100				
Comments						
Road surface over culvert is in excellent condition.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace		Maintenance Needs		
<input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	2			
Element Group	400 Barriers	Length	10			
Element Name	402 Railing Systems	Width				
Location	North and south edges of road	Height				
Material	14 Steel	Count	2			
Element Type	17 Steel Flex Beam on steel post	Total Quantity	20			
Environment	Severe	Limited Inspection				
Protection System	12 Hot dip galvanizing					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	m	20				
Comments						
Flex beam guide rail with extruder terminals and pedestrian/bicycle guard at stream crossing.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace		Maintenance Needs		
<input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:				
Element Group	800 Coatings	Length	10.9			
Element Name	801 Structural Steel	Width	5.8			
Location		Height	1.8			
Material		Count	1			
Element Type		Total Quantity	102.46			
Environment	Benign	Limited Inspection				
Protection System						Perform. Deficiencies
Condition Data	Units	Exc.	Good	Fair	Poor	
	sq. m.	102.46				
Comments						
Structural plate CSP is hot dip galvanized. Haunch plates are polymer coated. Coatings appear in excellent condition.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:				
Element Group	1200 Culverts	Length				
Element Name	1201 Inlet Components	Width				
Location	North side of structure	Height				
Material	4 Cast-in-place concrete	Count	1			
Element Type	Headwalls	Total Quantity	1			
Environment	Benign	Limited Inspection				
Protection System	41 None					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	%	100				
Comments						
Inlet headwall appears in excellent condition.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	5			
Element Group	1200 Culverts	Length				
Element Name	1202 Outlet Components	Width				
Location	South side of structure	Height				
Material	4 Cast-in-place concrete	Count	1			
Element Type	Headwalls	Total Quantity	1			
Environment	Benign	Limited Inspection				
Protection System	41 None					
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	%	100				
Comments						
Outlet headwall appears in excellent condition.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	6			
Element Group	1200 Culverts	Length	10.9			
Element Name	1203 Barrels	Width	5.8			
Location		Height	1.8			
Material	5 Corrugated steel	Count	1			
Element Type	1 Arch	Total Quantity	102.46			
Environment	Moderate	Limited Inspection				
Protection System						
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	sq. m.	102.46				
Comments						
Culvert barrel appears in excellent condition.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:				
Element Group	1300 Foundations	Length	11			
Element Name	1301 Foundation (below ground level)	Width				
Location		Height				
Material	14 Steel	Count	2			
Element Type	3 Piles	Total Quantity	22			
Environment	Benign	Limited Inspection				
Protection System	41 None					Perform. Deficiencies
Condition Data	Units	Exc.	Good	Fair	Poor	
	m	22				
Comments						
Foundation connections appear in excellent condition.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:				
Element Group	1400 Embankments & Streams	Length				
Element Name	1401 Streams and Waterways	Width				
Location		Height				
Material		Count	1			
Element Type		Total Quantity	1			
Environment		Limited Inspection				
Protection System						Perform. Deficiencies
Condition Data	Units	Exc.	Good	Fair	Poor	
	all					
Comments						
Stream appears in excellent condition.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	9			
Element Group	1400 Embankments & Streams	Length	11			
Element Name	1403 Slope protection	Width				
Location	inside culvert, adjacent to foundations	Height				
Material		Count	2			
Element Type	9 Rock protection	Total Quantity	22			
Environment	Benign	Limited Inspection				
Protection System						
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	m	22				
Comments						
Rock protection inside culvert appears in excellent condition.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	10			
Element Group	1500 Signs	Length				
Element Name	1501 Signs	Width				
Location	East and west approaches of bridge	Height				
Material	14 Steel	Count	4			
Element Type		Total Quantity	4			
Environment	Moderate	Limited Inspection				
Protection System						
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	each	4				
Comments						
Signs are in excellent condition.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	11			
Element Group	1600 Approaches	Length	6			
Element Name	1601 Wearing Surface	Width	9.6			
Location	east and west approaches	Height				
Material	Surface treatment	Count	2			
Element Type		Total Quantity	115.2			
Environment	Severe	Limited Inspection				
Protection System						
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
	sq. m.	115.2				
Comments						
Approaches appear in excellent condition.						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input checked="" type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Element Data		No.:	12			
Element Group		Length				
Element Name		Width				
Location		Height				
Material		Count				
Element Type		Total Quantity				
Environment		Limited Inspection				
Protection System						
Condition Data	Units	Exc.	Good	Fair	Poor	Perform. Deficiencies
Comments						
Recommended Work		<input type="checkbox"/> Rehab <input type="checkbox"/> Replace <input type="checkbox"/> Urgent <input type="checkbox"/> 1-5 years <input type="checkbox"/> 6-10 years <input type="checkbox"/> None		Maintenance Needs		
				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 years		

Site Photograph

Photo No.: 1



Description

West approach

Site Photograph

Photo No.: 2



Description

Typical guide rail arrangement.

Site Photograph

Photo No.: 3



Description

South elevation.

Site Photograph

Photo No.: 4



Description

View through barrel.

Site Photograph

Photo No.: 5



Description

Typical foundation condition

Site Photograph

Photo No.: 6



Description

East approach.