



TOWN OF HUNTSVILLE BRIDGE INSPECTIONS

Inspection Report

Project # 17-4022-07

November 2018

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1. INTRODUCTION

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

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

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

This report contains completed OSIM inspection forms, relevant photographs, suggested repairs, and estimated costs for repairs at each site. The bridges inspected as part of this assignment are shown on the key map provided in Figure 1.0 below.



Figure 1: Bridge Locations



1.1 Inspection Procedures

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

2. INSPECTION SUMMARY

The results of the detailed visual inspections are recorded using standard Ontario Structure Inspection Manual (OSIM) forms. The forms provide a report of existing data and conditions at the time of the inspection for each bridge. Results of the previous inspections completed in 2015 were used as a template for this round of inspections. Updated OSIM forms are located in Appendix B. The reports identify additional inspections required and recommended work to repair deficiencies along with estimated costs and schedule for such repairs. The following summarizes the results of our inspections.

2.1 Bullen Creek (B2)

The Bullen Creek Bridge is located approximately 0.35 km south of Highway 11 on Rowanwood Road. The structure is a single 8 meter span concrete T-beam bridge. The bridge was constructed in 1920 and is generally in good to fair condition as it was recently rehabilitated. The BCI and BSI values are 78 and 67 respectively.

Recommended Maintenance

1 year

• Rout and seal approach wearing surfaces

Recommended Repairs

Urgent

• Replace load capacity sign

1-5 years

- Repair mortar on wingwalls
- Replace utilities
- Repave approaches
- Concrete patch repair and galvanized deck drainage at girders
- Repair deck concrete
- Repave deck wearing surface
- Soffit concrete patching



2.2 Stephenson Ward (B4)

The Stephenson Ward Bridge is located approximately 1.6 km east of North Lancelot Road on South Lancelot Road. The structure is a single 6.2 m span concrete T-beam bridge. The bridge was constructed in 1970 and is generally in fair to poor condition with BCI and BSI values of 35 and 28 respectively. Replace structure in 1-5 years.

Recommended Maintenance

1 year

- Replace damaged and defaced warning signs (3). Replace east narrow bridge/one lane sign.
- Clean sand from bridge and inspect wearing surface.

2 years

Install erosion control

Recommended Repairs

Urgent

- Install guiderail at approaches
- Replace post and railing system to current code
- Install deck drains that extend beyond girder
- Replace curb

1-5 years

- Replace abutments
- Concrete repair and install scour protection at wingwalls
- Repave east approach
- Concrete repair at girders
- Concrete patch, waterproof and pave deck to
- Concrete patch repair at soffit (thin slab)

2.3 Old North Road Bridge (B5)

The Chaffey Ward Bridge is located approximately 2 km north of Highway 11 on Old North Road. The Structure is a single 22.4 m span concrete slab on precast girders bridge. The bridge was constructed in 1970 and is generally in good condition with BCI and BSI values of 65 and 53 respectively.

Recommended Maintenance

1 year

- Replace broken end caps on hand rails
- Replace joint seals at both expansion joints
- Clean sediment from deck top



2 years

- Concrete sealing repair on south west wall of abutment wall
- Concrete sealing repair northeast and southeast wingwalls
- Concrete seal parapet walls
- Install erosion protection and mitigation measures at south embankments

Recommended Repair

Urgent

• Replace damaged guiderails and install end treatments. Upgrade structure connection at next major rehab

1-5 years

- Concrete sealing repair northwest and southwest wingwalls
- Replace armouring at curb
- Patch repair and install rubberized joint seal between end dam and asphalt

2.4 East River Bridge (B6)

The East River Bridge is located approximately 5.96 km East of District Road 3 on Williamsport Road. The structure is a single 30 m span concrete slab on steel girders bridge. The bridge was constructed in 1990 and is generally in good condition with BCI and BSI values of 78 and 75 respectively.

Recommended Maintenance

Urgent

- Install hazard signs at buried ends of rail if end treatments are not installed immediately.
- Clean sediment from deck top

1 year

- Replace/ fix rotten and twisted guide rail posts and blocks
- Patch abraded and spalled inside face of curb
- Replace ends caps on hand rails
- Install erosion protection at southeast quadrant
- Clean debris from joint seals

2 years

• Route and seal approach wearing surface



Recommended Repairs

Urgent

- Install end treatments at approach barriers
- Fill washout at southwest approach

1-5 years

• Replace joint seals

2.5 Fish Lake Road Bridge (B7)

The Fish Lake Road Bridge is located approximately 0.08 km East of Highway 592 on Fish Lake Road. The structure is a single 6.3 m span concrete T-beam bridge. The bridge was constructed in 1930 and is generally in fair condition due to the age of the structure. The BCI and BSI values are 69 and 59 respectively.

Recommended Maintenance

1 year

• Remove blockage from watercourse

Recommended Repairs

Urgent

- Replace max load sign
- Install drains that extend beyond soffit and girders

1-5 years

- Regrade and repave approaches
- Repair areas of deficient concrete at parapet walls
- Repair concrete on barriers
- Repair concrete on girders
- Repair concrete cracks on deck top
- Concrete patch repair soffit- thin slab (Interior)
- Repair concrete of soffit thin slab (exterior/fascia)
- Patch asphalt at northeast quadrant where washout has occurred

2.6 CN Rail Overhead (B9)

The CN Rail Overhead Bridge is located approximately 0.3 km North of District Road 3 on Lakewood Park Road. The structure is a triple span of 23.3 m, 16.7 m and 20.6 m concrete slab on precast girders bridge. The bridge was constructed in 1980 and is in generally good condition with BCI and BSI values of 70 and 66 respectively.



Recommended Maintenance

Urgent

- Install object warning marker signs at south buried guide rail ends.
- Add asphalt patch to corner of northeast sidewalk for pedestrian safety.
- Repair honeycombing and cracks at parapet wall connection to guide rail. Patch remaining defective areas on parapets.
- Reseal all end dams to asphalt interfaces.

1 year

- Clean out catch basins during curb and gutter cleaning.
- Rout and seal deck and approaches.
- Patch pothole at north end of deck.

2 years

• Galvanize handrails.

Recommended Repairs

Urgent

- Repair slackened cables on approach. Replace broken posts.
- Straighten bridge ices signs to upright.

1-5 years

- Concrete patch ballast walls.
- Replace approach cable barrier system with steel beam guide rail.
- Concrete repair approach curb/gutter.
- Repave approaches with deck.
- Repair concrete at north diaphragm.
- Repair concrete at southwest girder ends.
- Waterproof and repave deck.
- Patch repair concrete at pier caps.

6-10 years

• Patch concrete at damaged sections of curb and sidewalk.

2.7 Little East River Bridge (B10)

The Little East River Bridge is located approximately 0.2 km East of Waseosa Lake Road on Ceramic Mine Road. The structure is a single 4.6 m span timber deck on steel girders bridge. The bridge was constructed in 1950 and is in generally fair condition with BCI and BSI values of 67 and 57 respectively.



Recommended Maintenance

Urgent

- Replace/ repair damaged sign (1).
- Fill west washouts.

1 year

- Blend to road on west side to provide sufficient drainage. Regrade east approach.
- Replace all four edge boards.
- Clear concrete debris from under bridge, currently shallow water due to debris is causing increased velocity and therefore increased erosion.

Recommended Repairs

Urgent

• Install guiderail at approaches

1-5 years

• Replace 2, 0.15x0.15x5.6 m curbs

2.8 Domtar Road Bridge (B11)

The Domtar Road Bridge is located approximately 0.45 km North of Old Muskoka Road on Domtar Road. The structure is a single 3.1 m span concrete rigid frame bridge. The bridge was constructed in 1950 and is in generally fair condition with BCI and BSI values of 47 and 40 respectively.

Recommended Maintenance

1 year

• Rout and seal deck wearing surface

2 years

• Install erosion protection at abutments

Recommended Repairs

Urgent

• Install steel beam guiderail with end treatment at approaches

1-5 years

- Repave approaches
- Concrete repairs at barrier posts
- Concrete repairs at railing system
- Reface the soffit
- Waterproof and pave deck.



2.9 Centre Street Bridge (B13)

The Centre Street Bridge is approximately located 0.32 km South of District Road 2 on Centre Street. The structure is a triple 24.9 m, 33.5 m, and 24.9 m span concrete slab on steel girder bridge. The bridge was constructed in 1979 and is in generally good to fair condition with BCI and BSI values of 65 and 60 respectively.

Recommended Maintenance

Urgent

- Install hazard signs at buried guide rail ends. Straighten south bound bridge ices sign
- Rout and seal approaches

1 year

- Investigate the extent of deterioration of watermain below deck
- Replace rotten guide rail posts
- Repair cracks in curb/gutter at NW catch basin
- Repair grout and stone on Southeast and Northwest parapet
- Clear out catch basins of debris on deck
- Rout and seal cracks and fill pot holes on deck wearing surface

2 years

• Be aware of holes created in handrail from impact damage

Recommended Repairs

Urgent

- Install guiderail on the south side, upgrade all four (4) end treatments
- Replace joint seals and armouring

1-5 years

• Concrete patch repair curbs on deck

6-10 years

• Repair ballast wall

2.10 Candytown Lane Bridge (B14)

The Candytown Lane Bridge is approximately located 0.5 km East of District Road 10 on Candytown Lane. The structure is a single 6.1 m span concrete T-beam bridge. The bridge was constructed in 1930 and is in generally fair condition with 25% in poor condition. The BCI and BSI values are 44 and 3.

Recommended Maintenance



Urgent

• Install hazard warning signs at barrier ends.

1 year

- Install scour protection at north side wingwalls.
- Remove excessive vegetation from posts.
- Bridge cleaning and remove excess vegetation from railing system.
- Remove excess fill and vegetation from wearing surface to reduce constant load.

2 years

• Clear vegetation and regrade approaches

Recommended Repairs

Urgent

• Install approach guiderail if used by motorists or snowmobiles

1-5 years

- Repair poor concrete on abutments, install erosion protection at NE side
- Repair concrete on wingwalls
- Repair concrete at girders
- Install deck drains that extend past the soffit
- Patch repair the concrete soffit

2.11 Gall Trail (B17)

The Gall Trail Bridge is approximately located 1.79 km East of Orr Road on Gall Trail. The structure is a single 4.5 m span timber deck on steel girder bridge. The bridge was constructed in 1970 and is in fair condition with BCI and BSI values of 57 and 47 respectively.

Recommended Maintenance

Urgent

• Restore signs to their correct orientation. Clear vegetation from One Lane and Speed Warning signs.

Recommended Repairs

Urgent

- Replace all hazards.
- Replace 0.05x0.2 m running boards on wearing surface.
- Repair/ replace abutments
- Replace deficient bearings in required locations during crib rehabilitation
- Install steel beam guiderail system and end treatments at approaches
- Repave approaches



- Replace corroded girders
- Replace deck timbers that appear deteriorated on the soffit face
- Replace timber curb on deck

3. IMPROVEMENT COSTS

The tables below summarize the estimated cost of the repair and rehabilitation required for the deficiencies identified through the inspection process. Cost tables have been split into maintenance items and repair item costs. Detailed cost estimates for the repairs and maintenance are outlined on the page after the element data tables of the OSIM forms in Appendix B.

Repairs	Bullen Creek B2	Stephenson Ward B4	Old North Road B5	Big East River B6	Fish Lake Road B7	CN Rail B9	Little East River B10	Domtar B11	Centre Street B13	Candytown Lane B14	Gall Trail B17	Total Cost (Sum)
Urgent	0.50	27.00	15.50	13.00	7.5	12.00	24.00		42.0		250.00	391.5
1-5 years	175.0	175.0	50.00	7.00	57.0	115.0	7.00		50.00	400.0		1,036
6-10 years		450.0				5.00		300.0	10.00			76.5
Total										2,192.5		

Cost in 1000's of dollars Cost in 1000's of dollars

Maintenance	Bullen Creek B2	Stephenson Ward B4	Old North Road B5	Big East River B6	Fish Lake Road B7	CN Rail B9	Little East River B10	Domtar B11	Centre Street B13	Candytown Lane B14	Gall Trail B17	Total Cost (Sum)
Urgent				3.00	2.00	22.00	2.50		4.0	2.0	3.00	38.50
1 year		2.00	25.55	11.0	1.00	1.12	11.00		12.5	12.00		76.17
2 years		5.00	55.00	2.00		1.5		2.00	0.00	5.00		70.50
											Total	185.17



4. CONCLUSIONS AND RECOMMENDATIONS

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

Critical items to address on an urgent basis are as follows:

- Signage is to be replaced or installed:
 - Bullen creek load capacity sign
 - Fish Lake Road Bridge Max load sign
 - CN Rail bridge Straighten bridge ices signs
 - Little East River Bridge Damaged sign (1)
 - Centre Street Bridge Straighten bridge ices signs
 - Gall Trail Bridge Hazards
 - Install hazard signs at buried ends of all approach guide rail if no end treatments are installed immediately
- Install/ replace guide rail and end treatments at:
 - South Lancelot Bridge
 - Old North Road Bridge
 - CN Rail Overhead Bridge
 - Little East River Bridge
 - Domtar Road Bridge
 - Centre Street Bridge at south end of bridge
 - Candytown Lane Bridge if used by motorist/ snowmobiles
 - Gall Trail Bridge
- Replace/ rehabilitate expansion joints:
 - Old North Road Bridge Replace within 1 year
 - Big East River Bridge Replace seal in 1-5 years
 - CN Rail Bridge Reseal concrete end dams at asphalt interfaces
 - Centre Street Bridge Replace joint seals
- Repair/ replace Barrier or railing system on structure:
 - South Lancelot Bridge Replace railing system to current code
 - Big East River Bridge Upgrade parapets at next major rehab
 - CN Rail Bridge Repair concrete on barriers
 - 0



- Deck Repairs:
 - South Lancelot Road Bridge Install Drains that extend beyond girders and replace curb
 - Fish Lake Road Bridge Install Drains that extend beyond soffit and girders
 - Centre Street Bridge Rout and seal wearing surface
 - Candytown Lane Bridge Remove excess fill and vegetation
 - Gall Trail Bridge Replace 0.05x0.2 m running boards
- Erosion Control:
 - Big East River Bridge Fill washout at SW approach
 - Little East River Bridge Fill W washout

Gall Trail Bridge (B17) should be replaced within a year and he Candytown Lane Bridge (B14) should be replaced in the next 1-5 years. Meanwhile monitor the deformation, settlement, and movements within and around the structure. As well monitor the cracks within the structure. Additionally, South Lancelot Road Bridge (B4), and Domtar Bridge (B11) should be scheduled for replacement in the next 6-10 years.

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

Respectfully Submitted,

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Frank Palmay, P. Eng. TULLOCH ENGINEERING INC.



APPENDIX A

Glossary of Definitions

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

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

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

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

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

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

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

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

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

- Scaling Scaling is the local flaking, or loss of the surface portion of concrete or mortar as
 a result of the freeze-thaw deterioration of concrete. Scaling is common in non airentrained concrete, but can also occur in air-entrained concrete in the fully saturated
 condition. Scaling is prone to occur in poorly finished or overworked concrete where too
 many fines and not enough entrained air is found near the surface.
- Disintegration Disintegration is the physical deterioration or breaking down of the concrete into small fragments or particles. The deterioration usually starts in the form of caling and, if allowed to progress beyond the level of very severe scaling is considered as disintegration. Disintegration may be caused by de-icing chemicals, sulphates, chlorides or by frost action.
- Erosion Erosion is the deterioration of concrete brought about by water-borne sand and gravel particles scrubbing against concrete surfaces. Similar, damage may be caused by flowing ice. Erosion is sometimes combined with the chemical action of air and waterborne pollutants which accelerate the breakdown of the concrete. Erosion is generally an indication that the concrete is not durable enough for the environment in which it has been placed.
- Corrosion of Reinforcement Corrosion is the deterioration of reinforcement by electrolysis. The alkali content in concrete protects the reinforcement from corrosion. However, when chloride ions above a certain concentration are dissolved in water and

penetrate through the concrete to the reinforcement this protection breaks down and corrosion starts. In the initial stages, corrosion may appear as a rust-stain on the concrete surface. In the advanced stages, the surface concrete above the reinforcement cracks, delaminates and spalls off exposing heavily rusted reinforcement.

- Delamination Delamination is defined as a discontinuity of the surface concrete which is substantially separated but not completely detached from concrete below or above it. Visibly, it may appear as a solid surface but can be identified as a hollow sound by tapping or chain dragging. Delamination begins with the corrosion of reinforcement and subsequent cracking of the concrete. Delamination or debonding may also occur in concrete that has been patched or overlaid due to the continued deterioration of the older concrete. This may happen even in the absence of any rusting of reinforcing steel.
- Spalling A spall is a fragment, which has been detached from a larger concrete mass. Spalling is a continuation of the delamination process whereby the actions of external loads, pressure exerted by the corrosion of reinforcement or by the formation of ice in the delaminated area results in the breaking off of the delaminated concrete.
- Cracking A crack is a linear fracture in concrete which extends partly or completely through the member. Cracks in concrete occur as a result of tensile stresses introduced in the concrete. Tensile stresses are initially carried by the concrete and reinforcement until the level of the tensile stresses exceeds the tensile capacity of the concrete. After this point the concrete cracks and the tensile force is transferred completely to the steel reinforcement. The crack widths and distribution is controlled by the reinforcement in reinforced and prestressed concrete, whereas in plain concrete there is no such control.
- Alkali-Aggregate Reaction In Ontario, there exists several sources of aggregates that react adversely with the alkalis in cement to produce a highly expansive gel. Currently, these sources of reactive aggregates are generally avoided, but they do exist in many existing structures and still may occur in newer structures. The two general types of reactions in Ontario are alkali-carbonate and alkali-silica reaction. The expansion of the gel and aggregates occurs due to hydroxyl ions in the concrete pore solution, which under moist conditions, leads to cracking and deterioration of the concrete.
- Surface Defects Surface defects are not necessarily serious in themselves; however, they are indicative of a potential weakness in the concrete, and their presence should be noted but not classified as to severity, except for honeycombing and pop-outs.
 - STRATIFICATION is the separation of the concrete components into horizontal layers in over-wetted or over-vibrated concrete. Water, laitance, mortar and coarse aggregates occupy successively lower positions. A layered structure in concrete will also result from the placing of successive batches that differ in appearance.
 - SEGREGATION is the differential concentration of the components of mixed concrete resulting in nonuniform proportions in the mass. Segregation is caused by concrete falling from a height, with the coarse aggregates settling to the bottom and the fines on top. Another form of segregation occurs where reinforcing bars prevent the uniform flow of concrete between them.
 - COLD JOINTS are produced if there is a delay between the placement of successive pours of concrete, and if an incomplete bond develops at the joint due to the partial setting of the concrete in the first pour.

- DEPOSITS are often left behind where water percolates through the concrete and dissolves or leaches chemicals from it and deposits them on the surface.
- HONEYCOMBING is produced due to the improper or incomplete vibration of the concrete which results in voids being left in the concrete where the mortar failed to completely fill the spaces between the coarse aggregate particles.
- POP-OUTS are shallow, typically conical depressions, resulting from the breaking away of small portions of the concrete surface, due to the expansion of some aggregates or due to frost action. The shattered aggregate particle may be found at the bottom of the depression, with a part of the aggregate still adhering to the pop-out cone.
- ABRASION is the deterioration of concrete brought about by vehicles or snow-plough blades scraping against concrete surfaces, such as, decks, curbs, barrier walls or piers.
- WEAR is usually the result of dynamic and/or frictional forces generated by vehicular traffic, coupled with the abrasive influx of sand, dirt and debris. It can also result from the friction of ice or water-borne particles against partly or completely submerged members. The surface of the concrete appears polished.
- SLIPPERY CONCRETE SURFACES may result from the polishing of the concrete deck surface by the action of repetitive vehicular traffic.

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

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

Distress - A defect produced by loading.

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

Environment - An element's exposure to salt spray:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

APPENDIX B

OSIM Forms

042-035

Inventory Data:						
Structure Name	Bridge 02 - Bullen Creek					
Main Hwy/Road #		🗹 Under	Crossing Type: ☑ Navi. W □ Road, □ Ped., □ Other, □ railway, □ Unknown, □ Ove	'ater, ☑ Non-N] Over water, er railway, □ l	lavi. Water, □ □ Over Road Jnder Road] Rail, ı, □ Under
Hwy/Road Name	Rowanwood Road					
Structure Location	0.35km South of Highway 11					
Latitude	45.252780		Longitude	-79.294783		
Northing			Easting			
Owner(s)	Town of Huntsville		Heritage designation: 🛛 Desig., 🗆 Desig./not List, 🗆	Not Cons., 🗆 Desig. & List	Cons./not Ap	p., 🗆 List/not
			Road Class: Freeway,	Arterial, 🗆 C	ollector, 🗆 Co	llector
MTO Region	Northeastern		Residential, Collector Col Local Commercial, Rur more lanes	mmercial, 🗹 L ral Expresswa	.ocal, □ Loca ys, □ Alleywa	Residential, iys, 🗆 4 or
MTO District	Huntsville		Posted Speed	60	No. of Lanes	1
Old County	Simcoe-Muskoka		AADT	75.0	% Trucks	
Geographic Twp.	Brunel		Inspection Route Sequence			
Structure Type	Concrete T-Beam		Interchange Number			
Total Deck Length	8.6 (m)		Interchange Structure Number			
Overall Str. Width	5.3 (m)		Min. Vertical Clearance			(m)
Total Deck Area	45.58 (sq.m))	Special Routes:	□ Transit, □ □ Bicycle, □	Truck, □ Sch Emergency,	ool, 🗆 Commuter
Roadway Width	4.5 (m)		Detour Length Around Bridge	5.5		(km)
Skew Angle	20 (Degre	ees)	Direction of Structure	North-South	า	I
No. of Spans	1		Fill on Structure			(m)
Span Lengths	8					(m)
Historical Data:						
Year Built		1920 Yea	ar of Last Major Rehab.			
Last OSIM Inspec	tion	2015 Las	t Evaluation			
Last Enhanced O	SIM Inspection	Cur	rent Load Limit	/	/ 14.0 /	(tonnes)
Enhanced Access	Equipment	Loa	d Limit By-Law #		/ /	
Last Underwater	Inspection	By-	Law Expiry Date			

Last Condition Survey

Rehab History: (Date/description)

Ontario Structure Inspection Manual — Inspection Form			Bridge ID:	042-035
Scheduled Improvements:				
Regional Priority Number	Pro	grammed Work Year		
Nature of Program Work:				

Appraisal Indices:	Comments
Fatigue	
Seismic	
Scour	
Flood	
Geometrics	
Barrier	
Curb	
Load Capacity	

Ontario Structure Inspection Manual — Inspection Form	Bridge ID:	042-035			
Field Inspection Information:					
Date of Inspection:	June 28, 2018 Inspection Type		OSIM		
Inspector:	Ben Belfry				
Others in Party:	Sean Wetmore				
Access Equipment Used:	Tape, hammer, waders, flas	hlight			
Weather:	Sunny				
Temperature:	25.0 °C				

Upcoming Inspections and Investigations:							
Due date	Comments						

Additional Investigations Derwined.		Priority	
Additional investigations kequired:	None	Normal	Urgent
Material Condition Survey	✓		
Detailed Deck Condition Survey:			
Non-destructive Delamination Survey of Asphalt-Covered Deck:			
Concrete Substructure Condition Survey:			
Detailed Coating Condition Survey:			
Detailed Timber Investigation			
Post-Tensioned Strand Investigation			
Underwater Investigation:			
Fatigue Investigation:			
Seismic Investigation:	✓		
Structure Evaluation:	✓		
Monitoring	✓		
Monitoring of Deformations, Settlements and Movements:			
Monitoring Crack Widths:			
Investigation Notes:			
None			

Ontario Structure Inspection Manual — Inspection Form

042-035

Bridge ID:

Overall Structure Notes:	
Recommended Work on Structure:	
Timing of Recommended Work:	\Box Urgent, \Box Now < 1 year, \Box 1 - 5 years, \Box 6 - 10 years, \Box > 10 years
Overall Comments:	Rehabilitation require in up to 5 years
Date of Next Inspection:	2020

Overall Bridge Condition:

78.1

Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

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 of Bridge Concrete
- 09 Repair of 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
- 17 None

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

Element Group:	Abutment	Abutments			Length:	2.0 (m)	
Element Name:	Wingwalls					Width:	
Location:	4 Corners	4 Corners			Height:	1.7 (m)	
Element Description:						Count:	4
Material:	Masonry					Total Quantity:	13.6 (sq.m)
Element Type:	Stone and	Mortar				Not Inspected:	
Environment:	🗆 Benign,	🗆 Benign, 🗹 Moderate, 🗆 Severe				Limited Inspection:	
Protection System:	stem:			Perform. Deficiencies			
Condition Data	Units	Exc.	Good	Fair	Poor*		
Condition Data.	sq.m	0.00	10.0	3.6	0.00	BCI TEV: 4760.0	BCI CEV: 3129.0
Comments:	Mortar los growth	s on wing	walls. Crack	king betw	een stone a	nd mortar interface. Mos	s and vegetation
Recommended work:						Maintenance Needs:	
Comments							
Repair mortar on wingwalls.					□ 1 year, □ 2 years, □ Urgent		
Туре	Timing						
🛙 Rehab, 🗆 Repair, 🗆 Replace	☑ 1 - 5 years, □ Urgent	□ Now <	1 year, 🗆 6	- 10 yea	rs,		

Ontario Structure Insp	ection Man	ual — Insp		Bridge ID:		042-035			
Element Group:	Accessorie	es				Length:			
Element Name:	Signs					Width:			
Location:						Height:	Height:		
Element Description:	Load Limit	t Posting	on South Ap	proach.		Count:	Count: 7		
Material:	Steel					Total Quantity:		7.0	
Element Type:						Not Inspected:			
Environment:	🗆 Benign,	🗆 Moder	ate, 🗹 Seve	ere		Limited Inspecti	on:		
Protection System:						Perform. Deficie	ncies		
Condition Data	Units	Exc.	Good	Fair	Poor*	08. Pedestrian/veh	nicular hazard		
Condition Data:	each	0.00	6.0	0.00	1.0	BCI TEV: 700.0 BCI CEV: 450.0			450.0
Comments:	Object wa approach	rning haz is in gooc	ard markers I condition.	s at all fo 14 Tonne	ur quadrants e load limit po	are in good conditi osting is in poor con	on. Narrow cr dition with su	ossing sign o rface cracki	on north ng.
Recommended worl	k:					Maintenance Needs:			
Comments									
Replace load capacity sign	1					□ 1 year, □ 2 years, □ Urgent			
Туре	Timi	ng							
	□ Rehab, □ Repair, □ 1 - 5 years, □ Now < 1 year, □ 6 - 10 years, □ Replace □ Urgent								
□ Rehab, □ Repair, ☑ Replace	□ 1 - ☑ Urg	5 years, gent	□ Now < 1	year, 🗆 6	- 10 years,				
□ Rehab, □ Repair, ☑ Replace	□ 1 - ☑ Urg	5 years, I gent	□ Now < 1	year, 🗆 6	- 10 years,				
□ Rehab, □ Repair, ☑ Replace Element Group:	□ 1 - ☑ Urg	5 years, gent	□ Now < 1	year, □ 6	- 10 years,		Length:		
□ Rehab, □ Repair, ☑ Replace Element Group: Element Name:	□ 1 - ☑ Urg	5 years, gent	□ Now < 1 Accessories Utilities	year, □ 6	- 10 years,		Length: Width:		
□ Rehab, □ Repair, ☑ Replace Element Group: Element Name: Location:	□ 1 - ☑ Urg	5 years, gent	□ Now < 1 Accessories Utilities East and W	year, □ 6	- 10 years,		Length: Width: Height:		

•									
Material:		PVC casing	9		Total Quantity:	2.0			
Element Type:					Not Inspected:				
Environment:		🗆 Benign,	☑ Moder	ate, 🗆 Seve	Limited Inspection:				
Protection System:			Perform. Deficiencies						
Condition Data		Units	Exc.	Good	Fair	Poor*			
Condition Data:		each	0.00	0.00	2.0	0.00	BCI TEV:	BCI CEV:	
Comments:		Slight abra	asion on c	asing					
Recommended work:							Maintenance Needs:		
Comments									
Replace							🗆 1 year, 🗆 2 years,		
Turno	Timina						🗆 Urgent		
Туре	mining								
🗆 Rehab, 🗆 Repair, 🗹 Replace	☑ 1 - 5 ye □ Urgent	ears, 🗆 Nov	w < 1 yea	r, 🗆 6 - 10 g	years,				

Ontario Structure Inspection Manu		Bridge ID:	042-035					
Element Group:	Approache	es				Length:	102.1 (m)	
Element Name:	Barriers					Width:		
Location:						Height:		
Element Description:	New					Count:	4	
Material:	Steel					Total Quantity:	102.1 (m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	□ Moder	ate, 🛛 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
condition Data.	m	61.3	40.8	0.00	0.00	BCI TEV: 20420.0	BCI CEV: 18380.0	
Comments:	Decently							
	Recently I	nstalled. I	Excellent co	ndition.				
Recommended work:	Recently I	nstalled. I	Excellent co	ndition.		Maintenance Needs	:	
Recommended work: Comments	Recently		Excellent co	ndition.		Maintenance Needs	::	
Recommended work: Comments Type	ïming	nstaned. I	Excellent co	ndition.		Maintenance Needs	::	

Element Group:	Approache	es			Length:	6.0 (m)	
Element Name:	Wearing s	urface			Width:	4.5 (m)	
Location:	North and	South			Height:		
Element Description:					Count:	2	
Material:	Asphalt				Total Quantity:	54.0 (sq.m)	
Element Type:					Not Inspected:		
Environment:	🗆 Benign,	Moder	ate, 🗹 Seve	re		Limited Inspection:	
Protection System:						Perform. Deficiencies	5
Condition Data	Units	Exc.	Good	Fair	Poor*		
	sq.m	0.00	46.0	4.0	4.0	BCI TEV: 324.0	BCI CEV: 216.6
Comments:	Wheel trad abutments	ck rutting s.	, centreline	cracks, tr	ransverse cr	acks at both joints, settle	ment behind
Recommended work:						Maintenance Needs:	None
Comments							
Repave approaches.						□ 1 year, □ 2 years, □ Urgent	
Туре	Timing						
🗆 Rehab, 🗆 Repair, 🗹 Replace	☑ 1 - 5 years, [□ Urgent	∃ Now <	1 year, 🗆 6	- 10 year	ΓS,		

Ontario Structure Inspection Man		Bridge ID:	042-035					
Element Group:	Barriers					Length:	0.1 (m)	
Element Name:	Posts					Width:	0.1 (m)	
Location:	East and \	West				Height:	0.6 (m)	
Element Description:						Count:	10	
Material:	Corrugate	d Steel				Total Quantity:	10.0 (each)	
Element Type:	SBGR pos	ts				Not Inspected:		
Environment:	🗆 Benign,	□ Moder	ate, 🗹 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data.	each	6.0	4.0	0.00	0.00	BCI TEV: 2000.0	BCI CEV: 1800.0	
Comments:	New steel	railing sy	stem posts	l beam g	irder style. E	xcellent condition free o	of rust.	
Recommended work:						Maintenance Needs	:	
Comments						🗆 1 year, 🗆 2 years,		
Туре	Timing					🗆 Urgent		
🗆 Rehab, 🗆 Repair, 🗆 Replace	□ 1 - 5 years, □ □ Urgent	Now < 1	year, 🗆 6 -	10 years	,			

Element Group:	Barriers					Length:	8.6 (m)	
Element Name:	Railing Sy	stems				Width:	0.12 (m)	
Location:	East and V	Vest				Height:	0.6 (m)	
Element Description:	Steel Raili	ng Syster	n			Count:	2	
Material:	Corrugate	d Steel				Total Quantity:	17.2 (m)	
Element Type:	Steel Raili	ng				Not Inspected:		
Environment:	🗆 Benign,	□ Moder	ate, 🛛 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data.	m	10.3	6.9	0.00	0.00	BCI TEV: 3440.0	BCI CEV: 3095.0	
Comments:	New steel	railing sy	stem in exc	ellent cor	ndition. No r	ust.		
Recommended work:						Maintenance Needs:		
Comments						□ 1 year, □ 2 years, □ Urgent		
Type Timing								

Ontario Structure Inspection	Manual — Ir	Bridge ID: 042-035						
Element Group:	Beams/Ma	in Longitı	udinal Elem	ents		Length:	7.8 (m)	
Element Name:	Girders					Width:	0.3 (m)	
Location:						Height:	0.6 (m)	
Element Description:						Count:	4	
Material:	Cast-In-Pla	ice Concr	ete			Total Quantity:	45.6 (sq.m)	
Element Type:	T-Beam					Not Inspected:		
Environment:	🗆 Benign,	☑ Moder	ate, 🗆 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	0.00	43.0	1.0	0.75	BCI TEV: 9120.0	BCI CEV: 6530.0	
Comments:	Spalling, d throughou	elaminati t. Active	ion, and exp wet spots o	oosed reb n girders	ar on one gi at drainage.	rder near south abutment a	nd light scaling	
Recommended work:	•					Maintenance Needs:		
Comments Concrete patch repair. Galv drainage.	anized					□ 1 year, □ 2 years, □ Urgent		
Туре	Timing							
☑ Rehab, □ Repair, □ Replace	☑ 1 - 5 ye □ Urgent	ars, 🗆 No	ow < 1 year,	, 🗆 6 - 10	years,			

Element Group:	Decks					Length:	8.6 (m)
Element Name:	Deck Top					Width:	5.3 (m)
Location:						Height:	
Element Description:						Count:	1
Material:	Cast-in-pla	ace concr	ete			Total Quantity:	45.6 (sq.m)
Element Type:						Not Inspected:	
Environment:	🗆 Benign,	🗆 Moder	ate, 🛛 Seve	ere		Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor*		
condition bata.	sq.m	0.00	33.6	7.7	4.3	BCI TEV: 5472.0	BCI CEV: 3393.6
Comments:	Limited in delaminat	spection of ion at se	due to the p side near dr	resence or rain hole.	of the aspha Rest of cond	It wearing surface. Exposed to dition based on soffit and wear	salting. Slight ng surface.
Recommended work:						Maintenance Needs:	
Comments							
Repair concrete.						□ 1 year, □ 2 years, □ Urgent	
Туре	Timin	g					
☑ Rehab, □ Repair, □ Replace	☑ 1 - 5 □ Urge	i years, □ ent	Now < 1 ye	ear, 🗆 6 -	10 years,		

Ontario Structure Inspection Mar	Bridge ID:	042-035					
Element Group:	Decks				Length:	7.8 (m)	
Element Name:	Soffit - Thi	n Slab				Width:	3.9 (m)
Location:					Height:		
Element Description:	Deteriorat	ed Areas	on Soffit.		Count:	0	
Material:	Cast-In-Pla	ace Concr	ete			Total Quantity:	30.4 (sq.m)
Element Type:						Not Inspected:	
Environment:	🗆 Benign,	Moder	ate, 🗹 Seve	re		Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data	Units	Exc.	Good	Fair	Poor*		
Condition Data.	sq.m	0.00	22.4	5.0	3.0	BCI TEV: 3648.0	BCI CEV: 2256.0
Comments:	Soffit top i rebar on e	in new an ast side.	d excellent	conditior	. Old soffit h	as delamination and scali	ng. 0.3m exposed
Recommended work:						Maintenance Needs:	
Comments							
Concrete patching.						□ 1 year, □ 2 years, □ Urgent	
Туре	Fiming						
☑ Rehab, □ Repair,	☑ 1 - 5 years □ Urgent	s, □ Now ·	< 1 year, 🗆	6 - 10 ye	ars,		

Element Group:	Decks					Length:	8.6 (m)
Element Name:	Wearing S	Surface				Width:	4.1 (m)
Location:						Height:	
Element Description:	Asphalt Pa	avement	over Structı	ure.		Count:	1
Material:	Cast In Pla	ace Concr	ete			Total Quantity:	35.3 (sq.m)
Element Type:						Not Inspected:	
Environment:	🗆 Benign,	🗆 Moder	ate, 🗹 Seve	ere		Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data	Units	Exc.	Good	Fair	Poor*		
Condition Data.	sq.m	0.00	26.6	5.2	3.5	BCI TEV: 882.5	BCI CEV: 550.75
Comments:	Uneven as at north e	sphalt is a nd with e	allowing wat xposed agg	ter to por regate.	nd. Edging ab	sent creating gutter of 0.4m	and some segregation
Recommended work:						Maintenance Needs:	
Comments							
Repave deck.						□ 1 year, □ 2 years, □ Urgent	
Туре	Timing						
□ Rehab, □ Repair, ☑ Replace	☑ 1 - 5 ye □ Urgent	ars, 🗆 No	ow < 1 year	, 🗆 6 - 10	years,		

Ontario Structure Ins	pection Mar	nual — Ins	pection For		Bridge ID:	042-035		
Element Group:	Embankm	ents & St	reams			Length:		
Element Name:	Embankm	ents				Width:		
Location:	West					Height:		
Element Description:						Count:	4	
Material:						Total Quantity:	4.0 (each)	
Element Type:						Not Inspected:		
Environment:	🗵 Benign,	Moder	ate, 🗆 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	each	0.00	4.0	0.00	0.00	BCI TEV: 4000.0	BCI CEV: 3000.0	
Comments:	Embankm Quadrant.	ents appe	ar to be we	ell-vegetat	ted and stab	le. Underground water line visibl	e. Erosion at Northwest	
Recommended wo	rk:					Maintenance Needs:		
Comments						□ 1 year, □ 2 years, □ Urgent		
Type Timing								

Element Group:	Embankm	ents & Sti	reams		Length:			
Element Name:	Embankm	ents				Width:		
Location:	East					Height:		
Element Description:						Count:	1	
Material:						Total Quantity:	1.0 (each)	
Element Type:						Not Inspected:		
Environment:	🗵 Benign,	Moder	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data.	each	0.00	1.0	0.00	0.00	BCI TEV: 1000.0	BCI CEV: 750.0	
Comments:	Flow is un	obstructe	d.					
Recommended work:						Maintenance Needs:		
Comments Type Timing						□ 1 year, □ 2 years, □ Urgent		
Comments Type Timing						□ I year, □ 2 years, □ Urgent		

Ontario Structure Inspection Manual — Inspection Form					Bridge ID: 042-035			
Element Group:	Foundation	Foundations				Length:		
Element Name:	Foundatio	Foundation (below ground level)				Width:		
Location:						Height:		
Element Description:						Count: 1		
Material:						Total Quantity:	1.0	
Element Type:						Not Inspected:		
Environment:	🛛 Benign, 🗆 Moderate, 🗆 Severe					Limited Inspection:		
Protection System:					Perform. Deficiencies			
Condition Data:	Units	Exc.	Good	Fair	Poor*			
		0.00	0.00	1.0	0.00	BCI TEV:	BCI CEV:	
Comments: Foundations appear to be stable. Slightly undermined at footing interface from erosion.								
Recommended work:					Maintenance Needs:			
Comments					□ 1 year, □ 2 years, □ Urgent			
Type Timing								

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Ontario Structure Inspection Manual — Inspection Form			Bridge ID: 042-035					
Repair and Rehabilitation Required		Priority				Fatimated		
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	Cost	
Deck	Repair concrete and repave			✓			\$140,000.00	
Girders	Repair concrete Galvanize drainage			•			\$5,000.00	
Approaches - wearing surface	Repave approaches			 Image: A start of the start of			\$10,000.00	
Utilities	Replace			✓				
Signs	Replace load capacity sign					1	\$500.00	
Wingwalls	Repair mortar loss			✓			\$20,000.00	
						Total	\$175,500.00	

Assosciated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		



Description: Looking South



Description: Looking North



Description: Looking East



Description: Elevation looking west



Description: North east wing wall Abutments / Wingwalls (4 Corners)



Description: South east wing wall Abutments / Wingwalls (4 Corners)


Description: Vegetation out of south west wing wall Abutments / Wingwalls (4 Corners)



Description: North end guiderails Approaches / Barriers



Description: South end guderail

Approaches / Barriers



Description: One lane sign at north end of bridge Accessories / Signs

Ontario Structure Inspection Manual — Inspection Form



Description: Surface cracking maximum load sign at south end of bridge Accessories / Signs



Barriers / Posts (East and West)



Barriers / Railing Systems (East and West)



Description: Exposed rebar on south side of east girder Beams/Main Longitudinal Elements / Girders

042-035



Description: Delaminated area.

Decks / Deck Top



Description: Looking south Decks / Wearing Surface

042-035

Ontario Structure Inspection Manual — Inspection Form



Description: Spalling and scaling exposing rebar on west girder and west old soffit Decks / Soffit - Thin Slab



Decks / Soffit - Thin Slab

042-035



Description: East Decks / Soffit - Thin Slab



Description: West Embankments & Streams / Embankments (West)

Ontario Structure Inspection Manual — Inspection Form



Description: East

Embankments & Streams / Embankments (East)



Description: Abrasion on casing Accessories / Utilities (East and West)



Description: West utility line Accessories / Utilities (East and West)



Description: Utility cable on east side Accessories / Utilities (East and West)

042-165

Inventory Data:							
Structure Name	Bridge 04 Stephenson W	/ard					
Main Hwy/Road #		🛛 On 🗆 Under	Crossing Type: ☑ Navi. Water, ☑ Non-Navi. Water, □ Rail, □ Road, □ Ped., □ Other, □ Over water, □ Over Road, □ Under railway, □ Unknown, □ Over railway, □ Under Road				
Hwy/Road Name	South Lancelot Road						
Structure Location	1.6km East of North Lan	celot Road					
Latitude	45.249052		Longitude	-79.335626			
Northing			Easting				
Owner(s)	Town of Huntsville		☐ Heritage designation: ☑ Desig., □ Desig./not List, □	Not Cons., 🗆 Cons./] Desig. & List	not App., 🗆 List/not		
MTO Region	Northeastern		Road Class: Freeway, Residential, Collector Co Local Commercial, Run more lanes] Arterial, □ Collecto mmercial, ☑ Local, [ral Expressways, □ /	r, □ Collector □ Local Residential, Alleyways, □ 4 or		
MTO District	Huntsville		Posted Speed	60 N	anes		
Old County	Simcoe-Muskoka		AADT	177.0 % T I	rucks		
Geographic Twp.	Stephenson		Inspection Route Sequence				
Structure Type	Concrete T-Beam		Interchange Number				
Total Deck Length	7.0	(m)	Interchange Structure Number				
Overall Str. Width	5.2	(m)	Min. Vertical Clearance		(m)		
Total Deck Area	36.4	(sq.m)	Special Routes:	□ Transit, □ Truck, □ Bicycle, □ Emerg	, 🗆 School, gency, 🗆 Commuter		
Roadway Width	4.0	(m)	Detour Length Around Bridge	5	(km)		
Skew Angle	0	(Degrees)	Direction of Structure	East-West			
No. of Spans	1]	Fill on Structure		(m)		
Span Lengths	6.2				(m)		
Historical Data:							
Year Built		N/A	Year of Last Major Rebab	201	0		
Last OSIM Inspec	tion	2015	Last Evaluation				
Last Enhanced O	SIM Inspection	2015	Current Load Limit		/ (tonnes)		
Enhanced Access	Equipment		Load Limit Bv-Law #		/		
Last Underwater	Last Underwater Inspection						
Last Condition Su	irvey		· · · · ·				
Rehab History: ([Date/description)						
Balustrade railing r	eplaced (Unknown date).						

Ontario Structure Inspection Manual — Inspection Form	Bridge ID:	042-165
Scheduled Improvements:		
Regional Priority Number	Programmed Work Year	
Nature of Program Work:		

Appraisal Indices:	Comments	
Fatigue		
Seismic		
Scour		
Flood		
Geometrics		
Barrier		
Curb		
Load Capacity		

Ontario Structure Inspection Manual — Inspection Form	Bridge ID:	042-165			
Field Inspection Information:					
Date of Inspection:	Inspection Type OSIM				
Inspector:	Ben Belfry				
Others in Party:	Frank Palmay, Sean Wetmor	re			
Access Equipment Used:	Tape, hammer, flashlight.				
Weather:	Cloudy				
Temperature:					

Upcoming Inspections and Investigations:						
Due date Priority Comments						

Additional Investigations Required:		Priority	
Additional investigations Required:	None	Normal	Urgent
Material Condition Survey	 ✓ 		
Detailed Deck Condition Survey:	 ✓ 		
Non-destructive Delamination Survey of Asphalt-Covered Deck:	 ✓ 		
Concrete Substructure Condition Survey:	 ✓ 		
Detailed Coating Condition Survey:	 ✓ 		
Detailed Timber Investigation	 ✓ 		
Post-Tensioned Strand Investigation	 ✓ 		
Underwater Investigation:	 ✓ 		
Fatigue Investigation:	 ✓ 		
Seismic Investigation:	 ✓ 		
Structure Evaluation:	 ✓ 		
Monitoring	 ✓ 		
Monitoring of Deformations, Settlements and Movements:		✓	
Monitoring Crack Widths:		✓	

Investigation Notes:

Ontario Structure Inspection Manual — Inspection Form

Bridge ID:

042-165

Overall Structure Notes:					
Recommended Work on Structure:	Replace Structure				
Timing of Recommended Work:	\Box Urgent, \Box Now < 1 year, \Box 1 - 5 years, \Box 6 - 10 years, \Box > 10 years				
Overall Comments:	Structure is overall in poor condition				
Date of Next Inspection:	2020				

Overall Bridge Condition:

35.45

Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

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 ponding11 Deck drainage
- 5
- **07** Repair to Structural Steel
- **08** Repair of Bridge Concrete
- **09** Repair of Bridge Timber
- 10 Bailey bridges Maintenance11 Animal/Pest Control
- 12 Bridge Surface Repair

- 12 Slippery surfaces
- 13 Flooding/channel blockage
- **14** Undermining of foundation
- **15** Unstable embankments
- 16 Other
- 17 None

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

042-165

Element Data

Element Group:	Abutment	s				Length:		
Element Name:	Abutment	walls				Width:	5.2 (m)	
Location:	East and V	Nest				Height:	0.5 (m)	
Element Description:						Count:	2	
Material:	Cast In Pla	ace Concr	ete			Total Quantity:	5.2 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗵 Benign,	□ Moder	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	0.00	0.00	2.8	2.4	BCI TEV: 4680.0	BCI CEV: 1008.0	
Comments:	Limited in wingwall j	spection o oint. Cond	due to high crete scaling	water lev g to high	vel. Severe c water mark	oncrete erosion at water level exposing aggregate throughou	on southwest abutment at t.	
Recommended work:	-					Maintenance Needs:		
Comments								
Replace structure					□ 1 year, □ 2 years,			
Туре	Timin	g						
□ Rehab, □ Repair, ☑ Replace	☑ 1 - 5 □ Urge	o years, □ ent	Now < 1 y	ear, 🗆 6 -	10 years,			

Ontario Structure Ins	pection Mar	nual — Ins	pection For		Bridge ID:	042-165		
Element Group:	Abutment	s				Length:	2.3 (m)	
Element Name:	Wingwalls					Width:		
Location:						Height:	0.63 (m)	
Element Description:						Count:	4	
Material:	Cast In Pla	ice Concr	ete			Total Quantity:	5.7 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	☑ Moder	ate, 🗆 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	0.00	0.00	0.7	5.0	BCI TEV: 1995.0	BCI CEV: 98.0	
Comments:	Pattern cra aggregate delaminat	acking wil . South w ion above	th light efflo ingwalls ha high water	rescence ve severe mark.	e, hairline cra e deterioratio	ncking and severe spalls at waterlin on and spalling at high water mark.	e with exposed South side	
Recommended wo	rk:					Maintenance Needs:		
Comments								
Concrete repair and install scour protection.					□ 1 year, □ 2 years, □ Urgent			
Туре	Timing							
☑ Rehab, □ Repair, □ Replace	☑ 1 - years	- 5 years, s, 🗆 Urge	□ Now < 1 nt	year, 🗆 6	5 - 10			

Ontario Structu	ire Inspectio	on Manual	— Inspecti	on Form		Bridge ID:	042-165	
Element Group:	Accessorie	es				Length:		
Element Name:	Signs					Width:		
Location:						Height:		
Element Description:	Four haza lane signs	rd marker	s, two narro	ow crossi	ng / one	Count:	5	
Material:	Steel					Total Quantity:	6.0	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	☑ Modera	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor*			
Data:	each	0.00	1.0	1.0	4.0	BCI TEV: 600.0	BCI CEV: 115.0	
Comments:	Four objec sign have bent over.	ct warning graffiti. O	hazard ma ne narrow	orkers pre warning s	sent. Northw ign on east s	rest sign bent and damaged. Southea ide has graffiti on surface. West narro	st and northwest hazard ow bridge / one lane sign is	
Recommende	d work:					Maintenance Needs: 18 - Other		
Comments						 ☑ 1 year, □ 2 years, □ Urgent 		
Type Timing	l					Replace damaged and defaced warning signs (3). Replace ea narrow bridge / one lane sign.		

Element Group:		Approache	es				Length:		
Element Name:		Barriers					Width:		
Location:					Height:	0.6			
Element Description:						Count:	0		
Material:					Total Quantity:	0.0			
Element Type:							Not Inspected:		
Environment:		🗆 Benign,	Modera	ate, 🗹 Seve	re		Limited Inspection:		
Protection System:	Perform. Deficiencies								
		Units	Exc.	Good	Fair	Poor*	08. Pedestrian/vehicular hazard		
Condition Data.		m	0.00	0.00	0.00	0.00	BCI TEV:	BCI CEV:	
Comments:		None present. Should be added.							
Recommended work:						Maintenance Needs:			
Comments									
Install guide rail on approaches.					□ 1 year, □ 2 years, □ Urgent				
Туре	Timing								
🗆 Rehab, 🗆 Repair, 🗆 Replace	□ 1 - 5 y ☑ Urgen	ears, □ Nov t	w < 1 yea	r, □ 6 - 10 ỵ	/ears,				

Ontario Structure Inspection N	Manual — Ins	spection F	orm			Bridge ID:	042-165
Element Group:	Approache	es				Length:	6.0 (m)
Element Name:	Wearing s	urface				Width:	4.0 (m)
Location:	West appr	oach.				Height:	
Element Description:						Count:	1
Material:	Gravel					Total Quantity:	24.0 (sq.m)
Element Type:						Not Inspected:	
Environment:	🗆 Benign,	Modera	ate, 🗹 Seve	re		Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data	Units	Exc.	Good	Fair	Poor*		
Condition Data:	m	0.00	24.0	0.00	0.00	BCI TEV: 144.0	BCI CEV: 108.0
Comments:	Light whee	el ruts on	surface. Ro	ad has re	cently been	regraded.	
Recommended work:						Maintenance Needs:	
Comments Type Timing						□ 1 year, □ 2 years, □ Urgent	

Element Group:	Approache	es				Length:	6.0 (m)	
Element Name:	Wearing s	urface				Width: 4.0 (m)		
Location:	East appro	oach.				Height:	(m)	
Element Description:						Count:	1	
Material:	Asphalt					Total Quantity:	24.0 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	□ Moder	ate, 🛛 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*	09. Rough riding surface		
Condition Data:	sq.m	0.00	0.00	0.00	24.0	BCI TEV: 144.0	BCI CEV:	
Comments:	Wheel rut	s and rave	elling, limite	ed inspect	tion due to g	ravel / sand build up at approach.		
Recommended work:						Maintenance Needs:		
Comments								
Repave						☑ 1 year, □ 2 years, □ Urgent		
Туре	Timing					Clean sand from bridge and insp	ect wearing	
□ Rehab, □ Repair, ☑ Replace	☑ 1 - 5 y □ Urgen [:]	ears, □ N t	ow < 1 yea	r, 🗆 6 - 1	0 years,	surface. High float road.		

Ontario Structure Inspection Manu	Bridge ID: 042-165								
Element Group:	Barriers					Length:	0.2 (m)		
Element Name:	Posts					Width: 0.2 (m)			
Location:	North and	South				Height:	0.75 (m)		
Element Description:						Count:	22		
Material:	Cast In Pla	ice Concre	ete			Total Quantity:	22.0 (each)		
Element Type:	Concrete E	Balustrade	9			Not Inspected:			
Environment:	🗆 Benign,	Modera	ate, 🗹 Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition Data	Units	Exc.	Good	Fair	Poor*	08. Pedestrian/vehicular	hazard		
Condition Data:	each	0.00	10.0	2.92	2.92	BCI TEV: 4400.0	BCI CEV: 1733.6		
Comments:	Damage fr exposed a	om collisi ggregate.	on at north	east side	. Moderate s	caling and spalling, disint	egration and		
Recommended work:						Maintenance Needs:			
Comments									
Replace with rail system to curren code	nt					□ 1 year, □ 2 years, □ Urgent			
Туре Т	iming								
□ Rehab, □ Repair, □ ☑ Replace	1 - 5 years Urgent	, □ Now <	< 1 year, 🗆	6 - 10 ye	ars,				
	5								

Element Group:	Barriers					Length:	ength: 7.0 (m)						
Element Name:	Railing Sy	stems				Width:	0.3 (m)						
Location:	North and	South				Height:	0.1 (m)						
Element Description:	South Rai	ling Rece	ntly Rehabi	litated.		Count:	2						
Material:	Cast-In-Pl	ace Conci	rete			Total Quantity:	14.0 (m)						
Element Type:	Concrete	Concrete Balustrade Not Inspected:											
Environment:	🗆 Benign	🗆 Moder	rate, 🛛 Seve	ere		Limited Inspection:							
Protection System:						Perform. Deficiencies							
Condition Data	Units	Exc.	Good	Fair	Poor*	08. Pedestrian/vehicular hazard							
Condition Data:	m	0.00	0.00	14.0	0.00	BCI TEV: 2800.0 BCI CEV: 1120							
Comments:	Minor wea	ar, small s	palling on I	pottom eq	lge of both.								
Recommended work:						Maintenance Needs:							
Comments													
Replace with railing system to cu code	rrent					□ 1 year, □ 2 years, ☑ Urgent							
Туре Т	iming												
🗆 Rehab, 🗆 Repair, 🗹 Replace 🔓] 1 - 5 years,] Urgent	⊐ Now <	1 year, □ 6	- 10 yeai	ſS,								

Ontario Structure Inspe	ction Manua	al — Inspe	Bridge ID: 042-165					
Element Group:	Beams/Ma	in Longitu	udinal Eleme	ents		Length:	6.2 (m)	
Element Name:	Girders					Width:	0.25	
Location:	Middle					Height:	0.46 (m)	
Element Description:						Count:	4	
Material:	Cast In Pla	ace Concre	ete			Total Quantity:	29.0 (sq.m)	
Element Type:	Т-Туре					Not Inspected:		
Environment:	🗵 Benign,	Modera	ate, 🗆 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data.	sq.m	0.00	0.00	26.7	2.3	BCI TEV: 5800.0	BCI CEV: 2136.0	
Comments:	Girders ha efflorescer	ive cold-jo nce, and l	ints, and na ight scaling	arrow she due to h	ear cracking igh water lev	on at least five (5) of the hauncl vel. Cracks are near horizontal a	hes with light nd wide (>1mm).	
Recommended work:	1					Maintenance Needs:		
Comments								
Concrete repair.						□ 1 year, □ 2 years, □ Urgent		
Туре	Timin	g				-		
☑ Rehab, □ Repair, □ Replace	☑ 1 - 5 □ Urge	5 years, ⊏ ent	Now < 1 y	ear, 🗆 6 -	· 10 years,			

Element Group:	Decks					Length: 7.0 (m)			
Element Name:	Deck Top					Width: 4.0 (m)			
Location:						Height:			
Element Description:						Count: 1			
Material:	Cast In Pla	ace Concr	ete			Total Quantity:	28.0 (sq.m)		
Element Type:						Not Inspected:			
Environment:	🗆 Benign,	□ Moder	ate, 🛛 Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data:	sq.m	0.00	0.00	12.0	16.0	BCI TEV: 3360.0	BCI CEV: 576.0		
Comments:	Exposed C partial asp the center	Concrete I phalt cove r line of th	Deck Top. G rage at Eas ie bridge.	ravel trac t side. Se	ked on to ex vere longitu	xposed deck top on east side. Limit dinal crack, two moderate longitud	ted inspection due to linal cracks reaching to		
Recommended wo	ork:					Maintenance Needs:			
Comments									
Concrete patch, wa pave	terproof &					□ 1 year, □ 2 years, □ Urgent			
Туре	Tim	ing							
🗵 Rehab, 🗆 Repair									

Element Group:	Decks					Length:		
Element Name:	Drainage S	System				Width:		
Location:						Height:		
Element Description:						Count:	6	
Material:						Total Quantity:	6.0	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	Moder	ate, 🗹 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*	11. Deck drainage		
Condition Data.	each	0.00	0.00	0.00	6.0	BCI TEV:	BCI CEV:	
Comments:	Drains hol water seep	e outlets bage unde	are flush wi er curb crac	th soffit c ks. Drain	ausing the s s are clear o	offit to be wet. Delamination arou f debris.	ınd drain opening,	
Recommended work:						Maintenance Needs:		
Comments Install drains that extend be	yond girder	s.				□ 1 year, □ 2 years, ☑ Urgent		
Туре	Timing							
□ Rehab, □ Repair, ☑ Replace	□ 1 - 5 ye ☑ Urgent	ars, 🗆 No	ow < 1 year,	, 🗆 6 - 10	years,			

Element Group:	Decks					Length:	6.2 (m)
Element Name:	Soffit - Thi	n Slab			Width:	4.0 (m)	
Location:	Interior					Height:	
Element Description:						Count:	1
Material:	Cast In Pla	ice Concre	ete			Total Quantity:	24.8 (sq.m)
Element Type:						Not Inspected:	
Environment:	🗵 Benign,	Moder	ate, 🗆 Seve	re		Limited Inspection:	
Protection System:					Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*		
	sq.m	0.00	0.00	24.0	0.8	BCI TEV: 2976.0	BCI CEV: 1152.0
Comments:	Concrete i rebar.	s wet cau	sed by decl	k drains w	which are flue	sh with soffit. Moderate s	palls with exposed
Recommended work:						Maintenance Needs:	
Comments							
Concrete patch repair.						□ 1 year, □ 2 years, □ Urgent	
Туре Т	「iming						
🛛 Rehab, 🗆 Repair, 🗆 Replace 🛛	☑ 1 - 5 years, □ Urgent	\Box Now <	1 year, 🗆 6	- 10 yea	rs,		

Ontario Structure	Inspection N	Manual —	Inspection F	orm		Bridge ID: 042-16				
Element Group:	Embankm	ents & St	reams			Length:				
Element Name:	Embankm	ents				Width:				
Location:						Height:				
Element Description:						Count:	4			
Material:						Total Quantity:	4.0			
Element Type:						Not Inspected:				
Environment:	🗵 Benign,	Moder	ate, 🗆 Seve	re		Limited Inspection:				
Protection System:						Perform. Deficiencies				
Condition Data:	Units	Exc.	Good	Fair	Poor*					
Condition Data:	each	0.00	3.0	1.0	0.00	BCI TEV: 4000.0 BCI CEV: 2650.0				
Comments:	Well vege granular s	tated and urface wit	stable, exc th slight ero	eption wi sion.	th the South	west quadrant where there is a rui	noff pathway across			
Recommended w	vork:					Maintenance Needs:				
Comments						□ 1 year, ☑ 2 years, □ Urgent				
Type Timing						Install erosion control				

Element Group:	Embankments & Streams					Length:				
Element Name:	Streams a	nd Water	ways			Width:				
Location:						Height:				
Element Description:						Count:	1			
Material:						Total Quantity:	1.0			
Element Type:						Not Inspected:				
Environment:	🗆 Benign,	Moder	ate, 🗆 Seve	ere		Limited Inspection:				
Protection System:						Perform. Deficiencies				
Condition	Units	Exc.	Good	Fair	Poor*					
Data:	all	0.00	1.0	0.00	0.00	BCI TEV: 1000.0 BCI CEV: 750.0				
Comments:	Water leve debris at r	el is high n north side	with 0.3m o under wate	f clearan er line at l	ce between : low level.	stream and girders. Clear-and free fl	owing. Some obstructive			
Recommended	work:					Maintenance Needs:				
Comments						□ 1 year, □ 2 years, □ Urgent				
Type Timing										

Ontario Structure Inspection M	1anual — Ins	Bridge ID: 042-165							
Element Group:	Sidewalks	/curbs				Length:	7.0 (m)		
Element Name:	Curbs					Width:	0.5 (m)		
Location:	North and	South				Height:	0.15 (m)		
Element Description:						Count:	2		
Material:	Cast-In-Pla	ace Concr	ete			Total Quantity:	9.8 (sq.m)		
Element Type:						Not Inspected:			
Environment:	🗆 Benign,	Moder	ate, 🛛 Seve	ere		Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition Data	Units	Exc.	Good	Fair	Poor*	08. Pedestrian/vehicular hazard			
Condition Data.	sq.m	0.00	0.00	0.00	9.8	BCI TEV: 392.0	BCI CEV:		
Comments:	Cracking o Light spall	on curb fa ing and h	scia and top eavy scaling	o of curb. g on curb	Heavy spall interiors.	ing on north curb top. Cracking o	n south curb top.		
Recommended work:						Maintenance Needs:			
Comments Replace curb						□ 1 year, □ 2 years, □ Urgent			
Туре	Timing								
□ Rehab, □ Repair, ☑ Replace	□ 1 - 5 yea ☑ Urgent	ars, □ Nov	w < 1 year,	□ 6 - 10	years,				

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Ontario Structure Inspection Ma	anual — Inspection Form			042-165			
Repair and Rehabilitation Re	equired			Priority			Fatimated
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	Cost
Structure	Replace Structure		1				\$450,000.00
Embankments	Install erosion control			✓			\$5,000.00
Abutment walls	Replace			✓			\$100,000.00
Curb	Replace curb					1	\$5,000.00
Girders	Concrete patch			✓			\$10,000.00
Deck	Concrete patch, waterproof and pave			1			\$35,000.00
Deck drains	Install drains that extend beyond the girders					1	\$5,000.00
Barriers	Replace to current code and install at approach					1	\$15,000.00
Approaches Wearing surface (East)	Repave			1			\$10,000.00
Signs	Replace damaged and defaced hazard signs. Replace east narrow/ one lane sign				~		\$2,000.00
Wingwalls	Concrete repair and install scour protection			1			\$15,000.00
						Total	\$652,000.00

Assosciated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		
	Total	



Description: Looking south



Description: Looking south



Description: Looking west



Description: E wearing surface Approaches / Wearing surface (East approach.)



Description: West

Abutments / Abutment walls (East and West)



Description: East Abutments / Abutment walls (East and West)

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Ontario Structure Inspection Manual — Inspection Form



Description: SE

Abutments / Wingwalls



Description: NE Abutments / Wingwalls

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Description: SW

Abutments / Wingwalls



Description: NW Abutments / Wingwalls

Ontario Structure Inspection Manual — Inspection Form



Description: W approach Approaches / Wearing surface (West approach.)



Description: Looking W Approaches / Barriers



Description: Looking E Approaches / Barriers



Description: N side Accessories / Signs



Description: N Typical Barriers / Posts (North and South)



Description: S Top View Barriers / Railing Systems (North and South)



Description: S spalling on bottom edge Barriers / Railing Systems (North and South)



Description: S curb Sidewalks/curbs / Curbs (North and South)



Description: S exterior Sidewalks/curbs / Curbs (North and South)



Description: N exterior curb Sidewalks/curbs / Curbs (North and South)



Description: N curb

Sidewalks/curbs / Curbs (North and South)



Description: Typical Deck Drainage Decks / Drainage System

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Ontario Structure Inspection Manual — Inspection Form



Description: Looking E Decks / Deck Top



Description: Looking W Decks / Deck Top



Description: NE

Decks / Soffit - Thin Slab (Interior)



Description: NE Decks / Soffit - Thin Slab (Interior)


Description: N embankments Embankments & Streams / Embankments



Description: WE embankment Embankments & Streams / Embankments



Description: SE embankment

Embankments & Streams / Embankments



Description: N side Embankments & Streams / Streams and Waterways Ontario Structure Inspection Manual — Inspection Form



Description: NE 3rd in

Beams/Main Longitudinal Elements / Girders (Middle)



Description: NE 2nd in Beams/Main Longitudinal Elements / Girders (Middle)



Description: NW 1st

Beams/Main Longitudinal Elements / Girders (Middle)

042-020

Inventory Data:								
Structure Name	Bridge 05 Chaffey Ward	1						
Main Hwy/Road #		🛛 On 🗆 Under	Crossing Type: ☑ Navi. Water, □ Non-Navi. Water, □ Rail, □ Road, □ Ped., □ Other, □ Over water, □ Over Road, □ Under railway, □ Unknown, □ Over railway, □ Under Road					
Hwy/Road Name	Old North Road							
Structure Location	2km North of Highway 2	11				l		
Latitude	45° 22' 28" N		Longitude	79° 14' 4" W	I			
Northing			Easting					
Owner(s)	Town of Huntsville		☐ Heritage designation: ☑ Desig., □ Desig./not List, □	Not Cons., 🗆 (Desig. & List	Cons./not Ap	p., 🗆 List/not		
MTO Region	Northeastern		 Road Class: □ Freeway, □ Arterial, ☑ Collector, □ Collector □ Residential, □ Collector Commercial, □ Local, □ Local Residential □ Local Commercial, □ Rural Expressways, □ Alleyways, □ 4 or more lanes 					
MTO District	Hunstville		Posted Speed	60	No. of Lanes	1		
Old County	Simcoe-Muskoka		AADT	750.0	% Trucks			
Geographic Twp.	Chaffey		Inspection Route Sequence					
Structure Type	Concrete Slab on Preca	st Girders	Interchange Number					
Total Deck Length	24.6] (m)	Interchange Structure Number					
Overall Str. Width	5.5] (m)	Min. Vertical Clearance		(m)			
Total Deck Area	135.3	(sq.m)	Special Routes:	□ Transit, □ ⁻ □ Bicycle, □	ool, 🗆 Commuter			
Roadway Width	4.3] (m)	Detour Length Around Bridge	5	(km)			
Skew Angle	0	(Degrees)	Direction of Structure	West to East	t			
No. of Spans	1]	Fill on Structure			(m)		
Span Lengths	22.4					(m)		
Historical Data:								
Year Built		1970	Year of Last Major Rehab.					
Last OSIM Inspec	ction	2015	Last Evaluation					
			Current Load Limit			(tonnes)		
Last Underwater			By-Law Expire Date					
Last Condition Su	urvev		by-Law LAPITY Date					
Rehab History: (I	Date/description)							

Ontario Structure Inspection Manual — Inspection Form	Bridge ID:	042-020
Scheduled Improvements:		
Regional Priority Number	Programmed Work Year	
Nature of Program Work:		

Appraisal Indices:	Comments	
Fatigue		
Seismic		
Scour		
Flood		
Geometrics		
Barrier		
Curb		
Load Capacity		

Ontario Structure Inspection Manual — Inspection Form	Bridge ID:	042-020		
Field Inspection Information:				
Date of Inspection:	July 3, 2018	Inspection Type	OSIM	
Inspector:	Sean Wetmore			
Others in Party:	Ben Belfry			
Access Equipment Used:				
Weather:	Sunny			
Temperature:	32.0 ℃			

Upcoming Inspections and Investigations:						
Due date	Comments					

	dditional Investigations Required.	Priority				
	duitional investigations Required:	None	Normal	Urgent		
Ν	laterial Condition Survey	✓				
	Detailed Deck Condition Survey:	✓				
	Non-destructive Delamination Survey of Asphalt-Covered Deck:	✓				
	Concrete Substructure Condition Survey:	✓				
	Detailed Coating Condition Survey:	✓				
	Detailed Timber Investigation	✓				
	Post-Tensioned Strand Investigation	✓				
U	Inderwater Investigation:	✓				
F	atigue Investigation:	✓				
s	eismic Investigation:	✓				
s	tructure Evaluation:	✓				
м	Ionitoring	✓				
	Monitoring of Deformations, Settlements and Movements:	✓				
	Monitoring Crack Widths:	✓				
h	nvestigation Notes:					

None

Ontario Structure Inspection Manual — Inspection Form

042-020

Bridge ID:

Overall Structure Notes:					
Recommended Work on Structure:					
Timing of Recommended Work:	\Box Urgent, \Box Now < 1 year, \Box 1 - 5 years, \Box 6 - 10 years, \Box > 10 years				
Overall Comments:	Overall structure is in good condtion				
Date of Next Inspection:	2020				

Overall Bridge Condition:

64.85

Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

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 of Bridge Concrete
- 09 Repair of 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
- 17 None

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

042-020

Element Data

Element Group:	Abutment	S				Length:		
Element Name:	Abutment	Walls				Width:	6.1 (m)	
Location:	East and V	Vest				Height:	4.7 (m)	
Element Description:	North east	t and sout	h west			Count:	2	
Material:	Cast In Pla	ace Concr	ete			Total Quantity:	57.3 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗵 Benign,	Moder	ate, 🗆 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor*			
Data:	sq.m	0.00	28.6	28.7	0.1	BCI TEV: 51570.0	BCI CEV: 29637.0	
Comments:	Older than repaired o	n the supe on north e	erstructure. ast wall. Sm	Medium nall spalls	to heavy spa s(100mm), b	lling scaling on south west wall. Na ottom of footing is not exposed and	rrow cracking has been I has no undermining.	
Recommende	d work:					Maintenance Needs:		
Comments						□ 1 year, □ 2 years, □ Urgent		
Type Timing	I							

Element Group:	Abutment	S				Length:		
Element Name:	Ballast Wa	alls				Width:	6.2 (m)	
Location:	East and W	Vest				Height:	1.5 (m)	
Element Description:	Ballast walls					Count:	2	
Material:	Cast In Place Concrete					Total Quantity:	18.6 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	☑ Modera	ate, 🗆 Seve	re		Limited Inspection:	V	
Protection System:						Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor*			
Data:	sq.m	0.00	0.00	18.6	0.00	BCI TEV: 6510.0	BCI CEV: 2604.0	
Comments:	Limited in joints, and	spection o l effloresc	lue to heigh ence by joir	nt above v nt on nort	water. Mediu h side	im scaling throughout. Evidence of	water leakage through deck	
Recommended work:						Maintenance Needs:		
Comments						□ 1 year, □ 2 years, □ Urgent		
Type Timing								

Ontario Structure Inspect	ion Manua	l — Inspect		Bridge ID: 042-020					
Element Group:	Abutmer	nts				Length:			
Element Name:	Bearings	i				Width:			
Location:						Height:			
Element Description:	Girder B	earings on	Top of Abut	ment Wa	II.	Count:		6	
Material:	Other					Total Q	uantity:	6.0	
Element Type:	Elastome	eric				Not Ins	pected:		
Environment:	🗵 Benigi	n, 🗆 Moder	ate, 🗆 Seve	ere		Limited	Inspection:		
Protection System:						Perform. Deficiencies			
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data:	each	0.00	6.0	0.00	0.00	BCI TEV	: 6000.0	BCI CEV: 4500.0	
Comments:	Rubber.	Limited ins	pection due	e to heigh	t above wate	ter. Inspected sw beard no more in good condition.			
Recommended work:						Maintenance Needs:			
Comments							□ 1 year, □ 2 years, □ Urgent		
Type Timing									
Element Group: Abutments						Length:	3.0 (m)		

Abutiliene	5			Lengtin	5.0 (11)		
Wingwalls					Width:		
Northwest	and Sou	thwest			Height:	5.0 (m)	
Crack in C	old Joint /	At Southwe	st Wingw	all.	Count:	2	
Cast In Pla	ace Concr	ete			Total Quantity:	30.0 (sq.m)	
					Not Inspected:		
🗆 Benign,	☑ Moder	ate, 🗆 Seve	ere		Limited Inspection:		
					Perform. Deficiencies		
Units	Exc.	Good	Fair	Poor*			
sq.m	0.00	23.8	6.0	0.2	BCI TEV: 10500.0	BCI CEV: 7087.5	
Localized	spalling a	nd light to	medium	scaling.			
					Maintenance Needs:		
ming				🗆 Urgent			
1 - 5 years, Urgent	□ Now <	: 1 year, 🗆 (6 - 10 yea	ars,			
	Wingwalls Northwest Crack in C Cast In Pla Benign, Units sq.m Localized ming 1 - 5 years, Urgent	Wingwalls Wingwalls Northwest and Sour Crack in Cold Joint A Cast In Place Concr □ Benign, ☑ Moder Units Exc. sq.m 0.00 Localized spalling a ming 1 - 5 years, □ Now < Urgent	Wingwalls Northwest and Southwest Crack in Cold Joint At Southwe Cast In Place Concrete □ Benign, ☑ Moderate, □ Seve Units Exc. Good sq.m 0.00 Localized spalling and light to ming 1 - 5 years, □ Now < 1 year, □ Urgent	Wingwalls Northwest and Southwest Crack in Cold Joint At Southwest Wingw Cast In Place Concrete □ Benign, ☑ Moderate, □ Severe Units Exc. Good Fair sq.m 0.00 23.8 Localized spalling and light to medium state ming 1 - 5 years, □ Now < 1 year, □ 6 - 10 year	Wingwalls Northwest and Southwest Crack in Cold Joint At Southwest Wingwall. Cast In Place Concrete □ Benign, ☑ Moderate, □ Severe Units Exc. Good Fair Poor* sq.m 0.00 23.8 Localized spalling and light to medium scaling. ming 1 - 5 years, □ Now < 1 year, □ 6 - 10 years, Urgent	Wingwalls Width: Northwest and Southwest Height: Crack in Cold Joint At Southwest Wingwall. Count: Cast In Place Concrete Total Quantity: Moderate, □ Severe Limited Inspection: Perform. Deficiencies Perform. Deficiencies Units Exc. Good Fair Poor* sq.m 0.00 23.8 6.0 0.2 BCI TEV: 10500.0 Localized spalling and light to medium scaling. Maintenance Needs: 1 year, □ 2 years, □ Urgent Urgent S years, □ Now < 1 year, □ 6 - 10 years, □ 1 year, □ 2 years, □ Urgent S years, □ Now < 1 year, □ 6 - 10 years, □ 	

Ontario Structure Inspe	ction Manua	al — Inspe		Bridge ID:	042-020			
Element Group:	Abutment	S				Length:	3.2 (m)	
Element Name:	Wingwalls					Width:		
Location:	Northeast	and Soutl	heast			Height:	6.2 (m)	
Element Description:	Northeast	Wingwall	with Crack	s and Effl	orescence.	Count:	2	
Material:	Cast In Pla	ice Concre	ete			Total Quantity:	39.7 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	☑ Modera	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data.	sq.m	0.00	35.7	4.0	1.0	BCI TEV: 13895.0	BCI CEV: 9931.25	
Comments:	Light scali Light efflo	ng. mediu rescence	ım to wide	cracks on	north west	wing walls with vegetation gro	wth. localized spalling.	
Recommended work:						Maintenance Needs:		
Comments			□ 1 year, □ 2 years, □ Urgent					
Type Timing								

Element Group:	Accessorie	es				Length:	
Element Name:	Signs					Width:	
Location:	Both sides	s extendir	ng 30m bac	k for one	lane sign.	Height:	
Element Description:	Bridge ice	s (2), one	lane (2), a	nd hazaro	d (4).	Count:	8
Material:						Total Quantity:	8.0 (each)
Element Type:						Not Inspected:	
Environment:	🗆 Benign,	🗆 Moder	ate, 🗆 Seve	ere		Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Date:	Units	Exc.	Good	Fair	Poor*		
Condition Data:	each	0.00	8.0	0.00	0.00	BCI TEV: 800.0	BCI CEV: 600.0
Comments:	Four Haza	ird warnin	g signs, On	e bridge	lces sign, an	d Two Narrow Lane signs	
Recommended work:						Maintenance Needs:	
Comments Type Timing						□ 1 year, □ 2 years, □ Urgent	

Ontario Structure Inspection	on Manual –	Bridge ID:	042-020					
Element Group:	Approache	es				Length:	20.0 (m)	
Element Name:	Barriers					Width:		
Location:	All Quadra	nts				Height:		
Element Description:	SBGR					Count:	0	
Material:	Steel					Total Quantity:	75.0 (m)	
Element Type:	Steel Flex	Beam on	Wood Post			Not Inspected:		
Environment:	🗆 Benign,	Moder	ate, 🗹 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	m	0.00	65.0	6.5	3.5	BCI TEV: 15000.0	BCI CEV: 10270.0	
Comments:	Minor vehi compromi coating an	cle impac sing bean d light co	ct damage a ns strength. rrosion	it northea Buried e	ast rail. Impa nd treatmen	ct damage South East rail wil its, rotated blocks, substanda	h gash 1m long rd connection, worn	
Recommended work:						Maintenance Needs:		
Comments Replace damaged guide r connection at next major	ails and insi rehab.	tall end tr	eatments. I	□ 1 year, □ 2 years, □ Urgent				
Туре	Timing							
☑ Rehab, □ Repair, □ Replace	□ 1 - 5 y ☑ Urgen	vears, □ N t	low < 1 yea	ar, 🗆 6 - 1	L0 years,			

Element Group:	Approach	es				Length:	6.0 (m)	
Element Name:	Wearing s	surface				Width:	4.3 (m)	
Location:	East and V	West				Height:		
Element Description:	Asphalt ar	oproach n	neeting ball	ast wall		Count:	2	
Material:	Asphalt					Total Quantity:	51.6 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	🗆 Moder	ate, 🗹 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor*			
Data:	sq.m	0.00	50.0	0.8	0.8	BCI TEV: 309.6	BCI CEV: 226.92	
Comments:	Light poth at South s	ioles thro ide begin	ughout. Lig ning to stal	ht patche <e at="" k<="" no="" th=""><th>s with depre oridge street</th><th>ssions, edge cracking, scaling on NE interface. edging repair at south we</th><th>side. Cold patched potholes st side of road.</th></e>	s with depre oridge street	ssions, edge cracking, scaling on NE interface. edging repair at south we	side. Cold patched potholes st side of road.	
Recommende	d work:					Maintenance Needs:		
Comments						□ 1 year, □ 2 years, □ Urgent		
Type Timing	I							

Ontario Structure Inspection N	Manual — In	Bridge ID: 042-020							
Element Group:	Barriers					Length:	24.5 (m)		
Element Name:	Barrier/Pa	rapet Wal	ls			Width:			
Location:	Exterior					Height:	0.6 (m)		
Element Description:	Cip concre	ete				Count:	2		
Material:	Cast-In-Pla	ace Concr	ete			Total Quantity:	29.4 (sq.m)		
Element Type:	Parapet W	all with T	wo Rails			Not Inspected:			
Environment:	🗆 Benign,	☑ Modera	ate, 🗆 Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencies	Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data:	sq.m	0.00	29.4	0.00	0.00	BCI TEV: 2940.0	BCI CEV: 2205.0		
Comments:	Barriers in	good cor	ndition, mild	lweather	ing.				
Recommended work:						Maintenance Needs:			
Comments Type Timing			□ 1 year, □ 2 years, □ Urgent						
-									

Element Group:	Barriers					Length:	24.5 (m)
Element Name:	Barrier/Pa	rapet Wal	ls			Width:	0.2 (m)
Location:	Interior					Height:	0.6 (m)
Element Description:						Count:	2
Material:	Cast-In-Pla	ace Concre	ete			Total Quantity:	39.2 (sq.m)
Element Type:	Parapet W	all with T	wo Rails			Not Inspected:	
Environment:	🗆 Benign,	Modera	ate, 🛛 Seve	ere		Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data	Units	Exc.	Good	Fair	Poor*		
Condition Data.	sq.m	0.00	39.0	0.1	0.1	BCI TEV: 3920.0	BCI CEV: 2929.0
Comments:	Minor dam	nage and s	scraping. H	airline cra	icking.		
Recommended work:						Maintenance Needs:	
Comments Type Timing						□ 1 year, □ 2 years, □ Urgent	

Ontario Structure In	spection Ma	nual — Ins	spection Fo	Bridge ID: 042-020				
Element Group:	Barriers					Length:	24.0 (m)	
Element Name:	Hand Raili	ings				Width:		
Location:	North and	South				Height:		
Element Description:	Dual steel	the with	end cap an	d metal bi	rackets	Count:	2	
Material:	Steel					Total Quantity:	48.0 (m)	
Element Type:	Double Ra	ailing				Not Inspected:		
Environment:	🗆 Benign,	Modera	ate, 🛛 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	m	0.00	42.0	4.0	2.0	BCI TEV: 4800.0	BCI CEV: 3310.0	
Comments:	Railings in northwest	n good cor : quadrant	ndition. Galv	vanized co	bating is det	eriorating, mild corrosion, and en	d cap damage at	
Recommended wo	ork:					Maintenance Needs: 3 - Bridg	ge Handrail Maintenance	
Comments Type Timing				 ☑ 1 year, □ 2 years, □ Urgent Replace broken end caps on hand 				
						rails.		

Element Group:	Beams/Ma	in Longitu	udinal Elem	ents		Length:	20.6 (m)
Element Name:	Girders					Width:	0.56 (m)
Location:	Middle					Height:	1.14 (m)
Element Description:	Bottom Fla	ange of M	iddle Girder	r.		Count:	3
Material:	Precast Co	oncrete				Total Quantity:	56.8 (sq.m)
Element Type:						Not Inspected:	
Environment:	🗆 Benign,	Modera	ate, 🛛 Seve	ere		Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data	Units	Exc.	Good	Fair	Poor*		
Condition Data:	sq.m	0.00	56.8	0.00	0.00	BCI TEV: 11360.0	BCI CEV: 8520.0
Comments:	Good Con	dition.					
Recommended work:						Maintenance Needs:	
Comments Type Timing						□ 1 year, □ 2 years, □ Urgent	

Ontario Structure Inspection	Manual — Ir	Bridge ID: 042-020					
Element Group:	Beams/Ma	in Longitu	udinal Elem	ents		Length:	20.0 (m)
Element Name:	Girders					Width:	0.56 (m)
Location:	East and v	vest lengt	h ends			Height:	1.14 (m)
Element Description:	Concrete (Girder End	ds.			Count:	0
Material:	Precast Co	oncrete				Total Quantity:	113.6 (sq.m)
Element Type:	I-Beam or	Girders				Not Inspected:	
Environment:	🗆 Benign,	🗵 Modera	ate, 🗆 Seve	re		Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Date:	Units	Exc.	Good	Fair	Poor*		
Condition Data:	sq.m	0.00	113.6	0.00	0.00	BCI TEV: 22720.0	BCI CEV: 17040.0
Comments:	Good conc	lition. Gra	ıffiti on east	girder o	n outside.		
Recommended work:						Maintenance Needs:	
Comments Type Timing			□ 1 year, □ 2 years, □ Urgent				
						<u> </u>	

Element Group:	Decks					Length:	24.5 (m)
Element Name:	Deck Top					Width:	5.5 (m)
Location:						Height:	
Element Description:	Concrete o	deck top				Count:	1
Material:	Cast In Pla	ace Concr	ete			Total Quantity:	134.8 (sq.m)
Element Type:						Not Inspected:	
Environment:	🗆 Benign,	🗆 Moder	ate, 🛛 Seve	re		Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data	Units	Exc.	Good	Fair	Poor*		
Condition Data:	sq.m	0.00	134.8	0.00	0.00	BCI TEV: 16176.0	BCI CEV: 12132.0
Comments:	Exposed c	oncrete d	leck top. Mii	nor wear	at the cente	rline.	
Recommended work:						Maintenance Needs:	
Comments						☑ 1 year, □ 2 years, □ Urgent	
Type Timing						Clean bridge deck of sedi	ment.

Ontario Structure Inspection N	4anual — Ins	Bridge ID:	042-020				
Element Group:	Decks					Length:	
Element Name:	Drainage S	System				Width:	
Location:	Top of dec	k				Height:	
Element Description:	Steel pipe	with reba	ir grate			Count:	4
Material:	Steel					Total Quantity:	6.0
Element Type:	Metal Drai	n Pipes				Not Inspected:	
Environment:	🗆 Benign,	Modera	ate, 🗹 Seve	re		Limited Inspection:	
Protection System:	Hot-Dippe	d Galvani	zed			Perform. Deficiencies	
Condition Data	Units	Exc.	Exc. Good Fair Poor*				
Condition Data.	each	0.00	0.00	4.0	0.00	BCI TEV:	BCI CEV:
Comments:	Require ex	tensions	to direct av	ay from g	girders but a	are clear and free flowing.	
Recommended work:						Maintenance Needs:	
Comments		□ 1 year, □ 2 years, □ Urgent					
Type Timing							

Element Group:	Decks					Length:	20.5 (m)	
Element Name:	Soffit - Thi	in Slab				Width:	1.0 (m)	
Location:	Exterior/Fa	ascia				Height:	0.6 (m)	
Element Description:						Count:	2	
Material:	Cast In Pla	ace Concr	ete			Total Quantity:	32.8 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	☑ Moder	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	0.00	32.0	0.8	0.00	BCI TEV: 3936.0	BCI CEV: 2918.4	
Comments:	Light scali exterior so	ng, hairlir offit	ne cracking,	few bug	holes, and s	mall amounts of efflorescence at	mid-span on south side of	
Recommended wo	ork:					Maintenance Needs:		
Comments						□ 1 year, □ 2 years, □ Urgent		
Type Timing								

Ontario Structure Inspection I	Manual — In		Bridge ID: 042-020					
Element Group:	Decks					Length:	2.0 (m)	
Element Name:	Soffit - Thi	n Slab				Width:	4.9 (m)	
Location:	East and V	Vest Ends				Height:		
Element Description:	No Visible	Deficienc	ies on Conc	rete End	s of Soffit.	Count:	2	
Material:	Cast In Pla	ice Concre	ete			Total Quantity:	19.6 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	☑ Moder	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	0.00	19.6	0.00	0.00	BCI TEV: 2352.0	BCI CEV: 1764.0	
Comments:	Good Cond	dition. Ha	irline cracki	ng with li	ght staining	on the soffit.		
Recommended work:						Maintenance Needs:		
Comments						□ 1 year, □ 2 years, □ Urgent		

Element Group:	Decks					Length:	20.5 (m)	
Element Name:	Soffit - Thi	n Slab				Width:	4.5 (m)	
Location:	Interior					Height:	1.0	
Element Description:	Interior Co	ncrete So	ffit.			Count:	0	
Material:	Cast In Pla	ce Concre	ete			Total Quantity:	92.3 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗵 Benign,	Modera	ate, 🗆 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	92.3	0.00	0.00	BCI TEV: 11076.0	BCI CEV: 8307.0	
Comments:	Good conc	lition.						
Recommended work:						Maintenance Needs:		
Comments Type Timing						□ 1 year, □ 2 years, □ Urgent		

Ontario Structu	ire Inspectio	on Manual	— Inspectio	on Form		Bridge ID: 042-020			
Element Group:	Embankm	ents & Sti	reams			Length:			
Element Name:	Embankm	ents				Width:			
Location:						Height:			
Element Description:	Embankments					Count:	4		
Material:						Total Quantity:	4.0 (each)		
Element Type:						Not Inspected:			
Environment:	🗆 Benign,	Modera	ate, 🗹 Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition	Units	Exc.	Good	Fair	Poor*	15 - Unstable embankments			
Data:	each	0.00	0.00	2.0	2.0	BCI TEV: 4000.0	BCI CEV: 800.0		
Comments:	Well-estab Gabion Ba	olished ve askets are	getation No stable.	orth quadi	rants. South	quadrants Sandy Shoreline and mino	r erosion. Shoreline stable.		
Recommende	d work:					Maintenance Needs: 13 - Erosion	Control at Bridges		
Comments					□ 1 year, ☑ 2 years, □ Urgent				
Type Timing						Install erosion protection and mitigation measures at south embankments.			

Element Group:	Embankm	ents & St	reams			Length:		
Element Name:	Streams a	nd Water	ways			Width:		
Location:						Height:		
Element Description:	Shallow sa	andy botto	om channel			Count:	1	
Material:						Total Quantity:	1.0 (all)	
Element Type:						Not Inspected:		
Environment:	🗵 Benign,	🗆 Moder	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	all	0.00	1.0	0.00	0.00	BCI TEV: 1000.0	BCI CEV: 750.0	
Comments:	Sand aggr west abut	raded on r ment no s	hortheast qu sign of erosi	uadrant, i ion.	few logs and	concrete debris in the waterway. S	tream is flowing directly at	
Recommended v	work:					Maintenance Needs:		
Comments					□ 1 year, □ 2 years, □ Urgent			
Type Timing								

Ontario Structure Inspectio	n Manual —	Bridge ID: 042-020						
Element Group:	Joints					Length:	5.5 (m)	
Element Name:	Armouring	/retainin	g devices			Width:		
Location:	East and V	Vest Joint	S			Height:		
Element Description:	Steel armo	our plates	s at expansi	on joint.		Count:	2	
Material:	Steel					Total Quantity:	11.0 (m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	Moder	ate, 🗹 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data.	m	0.00	6.6	3.2	1.2	BCI TEV: 11000.0	BCI CEV: 6230.0	
Comments:	Armour pl Plates are	ating in b rusted a	oth joints ir nd bent fror	n the nort m snow pl	h curb are e: Iow.	xposed due to abrasion of th	e curb at these locations.	
Recommended work:						Maintenance Needs:		
Comments						□ 1 year, □ 2 years, □ Urgent		
Туре	Timing							
□ Rehab, □ Repair, □ Replace	epair, □ 1 - 5 years, □ Now < 1 year, □ 6 - 10 years, □ Urgent							
						·		
Element Group:	loints					Length:	4 3 (m)	

Element Group:	Joints					Length:	4.3 (m)	
Element Name:	Concrete I	End Dams	5			Width:	0.2 (m)	
Location:	East and V	West Joint	S			Height:		
Element Description:	West Side	Concrete	End Dam.			Count:	2	
Material:	Cast-In-Pla	ace Concr	ete			Total Quantity:	1.7 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	□ Moder	ate, 🛛 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Date:	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	0.00	0.00	1.3	0.4	BCI TEV: 3570.0	BCI CEV: 1092.0	
Comments:	Concrete l run off to	loss betwo flow betw	een the asp een joint ar	halt appr nd down a	oaches at th abutment wa	e end dams. Rubber expan all.	sion joint defect allowing	
Recommended work:						Maintenance Needs:		
Comments Patch repair and install rubberized joint. Seal between end dam and asphalt.						□ 1 year, □ 2 years, □ Urgent		
Туре	Timing							
☑ Rehab, □ Repair, □ Replace	☑ 1 - 5 y □ Urgent	ears, 🗆 N t	ow < 1 yea	r, 🗆 6 - 1	0 years,			

Ontario Structure	Inspection N	1anual —	Inspection F	orm		Bridge ID: 042-020			
Element Group:	Joints					Length:	5.5		
Element Name:	Seals/sealants					Width:			
Location:	East and West Joints					Height:			
Element Description:	Expansion Joint Above West Abutment Clogged with Debris.					Count:	2		
Material:	Other					Total Quantity:	2.0 (each)		
Element Type:						Not Inspected:			
Environment:	🗆 Benign, 🗆 Moderate, 🗹 Severe					Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data:	each	0.00	0.00	1.0	1.0	BCI TEV: 2000.0	BCI CEV: 400.0		
Comments:	Debris bui delaminat	lt up thro ion in sou	ughout joint thwest corr	ts. Servic her of soff	e joint seal le fit. North exp	eaking based on discolouration of al ansion joint extruded slight damag	butment wall and e from snow plough.		
Recommended w	/ork:					Maintenance Needs:			
Comments									
Replace joint seal both joints.					□ 1 year, □ 2 years, □ Urgent				
Туре	Tin	ning							
□ Rehab, □ Repai ☑ Replace	ir, ⊠ 1 yea	L - 5 years ars, 🗆 Urg	s, □ Now < ent	1 year, □] 6 - 10				

Element Group:	Sidewalks	/curbs				Length:	24.5 (m)	
Element Name:	Curbs					Width:	0.5 (m)	
Location:	North and	South				Height:	0.2 (m)	
Element Description:	Curb	Curb Count: 2		2				
Material:	Cast-In-Pla	ace Concr	ete			Total Quantity:	34.3 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	Modera	ate, 🛛 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	0.00	22.3	12.0	0.00	BCI TEV: 1372.0	BCI CEV: 861.0	
Comments:	Abrasions,	/spalling a	it curbs whe	ere joints	meet, light	collision damage. Abrasion dama	age from snow plough.	
Recommended work	c:					Maintenance Needs: 2 - Bridge Cleaning		
Comments Type Timing						□ 1 year, □ 2 years, □ Urgent		

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Ontario Structure Inspection Mai	nual — Inspection Form	Bridge ID: 042-020						
Repair and Rehabilitation Re			Ectimated					
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	Cost	
Approach guiderail	Replace damaged guide rail and install end treatments Upgrade structure connection at next rehab					•	\$10,000.00	
Joints	Replace armouring and seals.			✓			\$50,000.00	
Embankments	Install erosion control at embankments				•		\$5,000.00	
Hand rail	Replace 2 end caps				1		\$500.00	
						Total	\$65,500.00	

Assosciated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		



Description: Looking north west



Description: Looking south east



Description: Looking south west



Description: South west abutment Abutments / Abutment Walls (East and West)



Description: North east abutment Abutments / Abutment Walls (East and West)



Abutments / Ballast Walls (East and West)

042-020



Abutments / Bearings



Description: North east Abutments / Wingwalls (Northeast and Southeast)

042-020



Description: South east wing wall Abutments / Wingwalls (Northeast and Southeast)



Description: Southwest wingwall Abutments / Wingwalls (Northwest and Southwest)



Accessories / Signs (Both sides extending 30m back for one lane sign.)



Description: Damaged beam (gash) Approaches / Barriers (All Quadrants)

042-020



Description: S

Approaches / Wearing surface (East and West)



Barriers / Barrier/Parapet Walls (Interior)



Barriers / Hand Railings (North and South)



Decks / Drainage System (Top of deck)

042-020



Decks / Deck Top



Decks / Soffit - Thin Slab (Exterior/Fascia)

042-020



Description: Sandy sw shoreline Embankments & Streams / Embankments



Embankments & Streams / Streams and Waterways

Ontario Structure Inspection Manual — Inspection Form



Joints / Armouring/retaining devices (East and West Joints)

п

042-024

Inventory Data:								
Structure Name	Bridge 06 East River Bri	dge						
Main Hwy/Road #		🛛 On 🗆 Under	Crossing Type: ☑ Navi. W □ Road, □ Ped., □ Other, □ railway, □ Unknown, □ Ove	Crossing Type: ☑ Navi. Water, □ Non-Navi. Water, □ Rail □ Road, □ Ped., □ Other, □ Over water, □ Over Road, □ U railway, □ Unknown, □ Over railway, □ Under Road				
Hwy/Road Name	Williamsport Road							
Structure Location	5.96km East of District I	Road 3						
Latitude	45° 23' 33" N		Longitude	79° 9' 36" W	Ι			
Northing			Easting					
Owner(s)	Town of Huntsville		☐ Heritage designation: ☑ Desig., □ Desig./not List, □	Not Cons., 🗆 (Desig. & List	Cons./not Ap	p., 🗆 List/not		
MTO Region	Northeastern		Road Class: Freeway, Residential, Collector Co Local Commercial, Run more lanes	Arterial, ☑ Co mmercial, □ Lo ral Expressway	ollector, □ Co ocal, □ Loca vs, □ Alleywa	וlector Residential, ays, □ 4 or		
MTO District	Huntsville		Posted Speed	60	No. of Lanes	2		
Old County	Simcoe-Muskoka		AADT	375.0	% Trucks			
Geographic Twp.	Chaffey		Inspection Route Sequence					
Structure Type	Concrete Slab on Steel Girders		Interchange Number					
Total Deck Length	31.5	(m)	Interchange Structure Number					
Overall Str. Width	10.0	(m)	Min. Vertical Clearance			(m)		
Total Deck Area	315.0	(sq.m)	Special Routes:	□ Transit, □ ⁻ □ Bicycle, □	Truck, □ Sch Emergency,	ool, 🗆 Commuter		
Roadway Width	8.1	(m)	Detour Length Around Bridge	N/A		(km)		
Skew Angle	0	(Degrees)	Direction of Structure	North-South				
No. of Spans	1]	Fill on Structure			(m)		
Span Lengths	30					(m)		
Historical Data								
		1000	Very of Last Major Debah					
Last OSIM Inspec	tion	2015	Last Evaluation					
Last Enhanced O	SIM Inspection	2015	Current Load Limit			(tonnes)		
Enhanced Access	Equipment		Load Limit By-Law #			()		
Last Underwater	Inspection		By-Law Expiry Date					
Last Condition Su	ırvey							
Rehab History: (I	Date/description)							

Ontario Structure Inspection Manual — Inspection Form	Bridge ID:	042-024
Scheduled Improvements:		
Regional Priority Number	Programmed Work Year	
Nature of Program Work:		

Appraisal Indices:		Comments
Fatigue		
Seismic		
Scour		
Flood		
Geometrics		
Barrier		
Curb		
Load Capacity		

Ontario Structure Inspection Manual — Inspection Form		Bridge ID:	042-024
Field Inspection Information:			
Date of Inspection:	July 11, 2018	Inspection Type	OSIM
Inspector:	Sean Wetmore		
Others in Party:	Ben Belfry		
Access Equipment Used:	Tape, hammer, flashlight		
Weather:	Sunny		
Temperature:	25.0 ℃		

Upcoming Inspections and Investigations:			
Due date	Priority	Comments	

Additional Investigations Descripted	Priority			
 	Additional Investigations Required:		Normal	Urgent
I	Naterial Condition Survey	✓		
	Detailed Deck Condition Survey:	✓		
	Non-destructive Delamination Survey of Asphalt-Covered Deck:	✓		
	Concrete Substructure Condition Survey:	✓		
	Detailed Coating Condition Survey:	✓		
	Detailed Timber Investigation	✓		
	Post-Tensioned Strand Investigation	✓		
ι	Inderwater Investigation:	✓		
Fatigue Investigation:		✓		
Seismic Investigation:		✓		
Structure Evaluation:		✓		
ſ	Ionitoring	✓		
	Monitoring of Deformations, Settlements and Movements:	✓		
	Monitoring Crack Widths:	✓		
Investigation Notes:				

None

Ontario Structure Inspection Manual — Inspection Form

042-024

Bridge ID:

Overall Structure Notes:)verall Structure Notes:			
Recommended Work on Structure:				
Timing of Recommended Work:	\Box Urgent, \Box Now < 1 year, \Box 1 - 5 years, \Box 6 - 10 years, \Box > 10 years			
Overall Comments:	Structure in good condition			
Date of Next Inspection:	2020			

Overall Bridge Condition:

78.0

Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

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 of Bridge Concrete
- 09 Repair of 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
- 17 None

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

Element Group:	Abutment	S				Length:			
Element Name:	Abutment	walls				Width: 9.0 (m)			
Location:	North and	South				Height:	4.5 (m)		
Element Description:						Count: 2			
Material:	Other					Total Quantity:	81.0 (sq.m)		
Element Type:						Not Inspected:			
Environment:	🗵 Benign,	Modera	ate, 🗆 Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition	Units	Exc.	Good	Fair	Poor*				
Data:	sq.m	0.00	70.0	10.0	1.0	BCI TEV: 72900.0 BCI CEV: 50850.0			
Comments:	Moderate Hairline cr	Rust stair acks and	ning from gi bug holes. I	rders on V Plaque or	West side, A 1 East side.	st side has light moisture stains ur	der the exterior girders.		
Recommended	work:					Maintenance Needs:			
Comments						□ 1 year, □ 2 years, □ Urgent			
Type Timing									

Element Group:	Abutment	S				Length:			
Element Name:	Ballast wa	lls				Width:	9.0 (m)		
Location:	North and	South				Height:	1.3 (m)		
Element Description:						Count:	2		
Material:	Cast-In-Pla	ice				Total Quantity:	23.4 (sq.m)		
Element Type:						Not Inspected:			
Environment:	🗆 Benign,	🗹 Modera	ate, 🗆 Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencies	Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data:	sq.m	0.00	23.4	0.00	0.00	BCI TEV: 8190.0	BCI CEV: 6142.5		
Comments:	In good co	ndition. W	/et due to l	eakage fr	om joint abo	ove.			
Recommended work:						Maintenance Needs:			
Comments Type Timing						□ 1 year, □ 2 years, □ Urgent			

Ontario Structure Inspection	Manual — In	Bridge ID:	Bridge ID: 042-024				
Element Group:	Abutment	5				Length:	
Element Name:	Bearings					Width:	
Location:	North and	South				Height:	
Element Description:						Count:	8
Material:	Other					Total Quantity:	8.0 (each)
Element Type:	Laminated	l Elastom	eric			Not Inspected:	
Environment:	🗆 Benign,	🛛 Moder	ate, 🗆 Seve	ere		Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data	Units	Exc.	Good	Fair	Poor*		
Condition Data:	each	0.00	8.0	0.00	0.00	BCI TEV: 8000.0	BCI CEV: 6000.0
Comments:	Good cond	lition. Ins	pection limi	ted due t	o height.	-	
Recommended work:						Maintenance Needs:	
Comments		□ 1 year, □ 2 years, □ Urgent					
Type Timing							
						I an atla	7.0 (111)

Element Group:	Abutment	s				Length:	7.9 (m)		
Element Name:	Wingwalls					Width:	(m)		
Location:	4 Corners	of Struct	ure			Height:	3.8 (m)		
Element Description:						Count:	4		
Material:	Cast-In-Pla	ace Conci	rete			Total Quantity:	120.08 (sq.m)		
Element Type:						Not Inspected:			
Environment:	🗆 Benign,	☑ Moder	rate, 🗆 Sever	re		Limited Inspection:			
Protection System:						Perform. Deficiencies	Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data.	sq.m	0.00	120.08	0.00	0.00	BCI TEV: 42028.0	BCI CEV: 31521.0		
Comments:	Hairline m	ap crack	ing througho	ut, overa	ll in good co	ondition.			
Recommended work:						Maintenance Needs:			
Comments Type Timing		□ 1 year, □ 2 years, □ Urgent							
- ,									

Ontario Structur	e Inspection	n Manual ·	– Inspectio	n Form		Bridge ID: 042-02				
Element Group:	Accessorie	25				Length:				
Element Name:	Signs					Width:				
Location:						Height:				
Element Description:	N/A					Count:	2			
Material:	Steel					Total Quantity:	2.0			
Element Type:						Not Inspected:				
Environment:	🗆 Benign,	Moder	ate, 🗹 Seve	re		Limited Inspection:				
Protection System:						Perform. Deficiencies				
Condition	Units	Exc.	Good	Fair	Poor*					
Data:	each	0.00	1.0	1.0	0.00	BCI TEV: 200.0 BCI CEV: 115.0				
Comments:	Bridges ice condition.	es presen	t at both en	ds. South	east sign sli	ghtly bent and leaning in fair condition	on. Northwest in good			
Recommended	l work:					Maintenance Needs: 18 - Other				
Comments						□ 1 year, □ 2 years, ☑ Urgent				
Type Timing						Install hazard signs at buried ends are not installed immediately.	of rail if end treatments			

Element Group:	Approache	es				Length: 36.5 (m)		
Element Name:	Barriers					Width:		
Location:						Height:		
Element Description:						Count:	4	
Material:	Steel					Total Quantity:	146.0 (m)	
Element Type:	Steel Flex	Beam on	Wood Post			Not Inspected:		
Environment:	🗆 Benign,	Moder	ate, 🛛 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*	8 - Pedestrian / vehicular haza	ard	
Condition Data.	m	0.00	294.9	0.00	32.8	BCI TEV: 29200.0	BCI CEV: 44235.0	
Comments:	Most are i due to rot	n good co ated / rott	ndition, bur ed blocks a	ied end t nd timbe	reatments a rs and light	re vehicle launching hazard. Gu rusting	uide rail is in fair condition	
Recommended work	:					Maintenance Needs: 17. Other		
Comments Install end treatments						☑ 1 year, □ 2 years, □ Urgent		
Туре	Timin	g				Replace/ fix rotten and twisted guiderail posts and		
☑ Rehab, □ Repair, □ Replace	□ 1 ☑ Urg	5 years, 🗆 ent] Now < 1 y	vear, □ 6	- 10 years,	blocks.		

Ontario Structu	re Inspectio	n Manual	— Inspectio	n Form		Bridge ID:	042-024		
Element Group:	Approach	es				Length:	8.5 (m)		
Element Name:	Curb and	Gutters				Width:	1.0 (m)		
Location:	Northwest	Southeas	st			Height:	0.25 (m)		
Element Description:						Count:	4		
Material:	Cast In Pla	ace Concre	ete			Total Quantity:	42.5 (sq.m)		
Element Type:						Not Inspected:			
Environment:	🗆 Benign,	□ Modera	ate, 🗹 Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition	Units	Exc.	Good	Fair	Poor*				
Data:	sq.m	0.00	33.92	8.5	0.08	BCI TEV: 1062.5	BCI CEV: 721.0		
Comments:	Abrasions approach. bridge and	/light spal NOTE: Th d the gutte	ling along iı iis same wa er should be	nside face ter is cau e treated	e from impao ising modera to prevent t	t damage. Significant washout from ate erosion of sand into water further his runoff.	gutter on southwest down on west side of		
Recommended	d work:					Maintenance Needs: 08. Repair o	f Bridge Concrete		
Comments									
Fill washout at	southwest	approach				☑ 1 year, □ 2 years, □ Urgent			
Туре	т	iming				Patch abraded and spalled inside f	ace of		
☑ Rehab, □ Re □ Replace	pair, □ y] 1 - 5 yea ears, ☑ U	rrs, □ Now · rgent	< 1 year,	□ 6 - 10	curb.			

Element Group:	Approache	es				Length:	6.0 (m)
Element Name:	Wearing s	urface				Width:	8.0 (m)
Location:	North and	South				Height:	
Element Description:						Count:	2
Material:	Asphalt					Total Quantity:	96.0 (sq.m)
Element Type:						Not Inspected:	
Environment:	🗆 Benign,	Modera	ate, 🛛 Seve	ere		Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data	Units	Exc.	Good	Fair	Poor*		
Condition Data:	sq.m	0.00	96.0	0.00	0.00	BCI TEV: 576.0	BCI CEV: 432.0
Comments:	Light cent	reline cra	cking on no	rthwest e	end. Otherwi	se in good condition.	
Recommended work:						Maintenance Needs: 15 -	Rout and Seal
Comments						□ 1 year, ☑ 2 years, □ Urgent	
Type Timing						Rout and Seal.	

Ontario Structure li	nspection M	anual — I	nspection Fo		Bridge ID:	042-024		
Element Group:	Barriers					Length:	1.0 (m)	
Element Name:	Barrier/Pa	rapet Wal	ls			Width:	0.3 (m)	
Location:	East and V	Vest				Height:	1.0 (m)	
Element Description:						Count:	4	
Material:	Cast-In-Pla	ace Concr	ete			Total Quantity:	11.6 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	Moder	ate, 🗹 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	0.00	10.6	0.4	0.6	BCI TEV: 1160.0	BCI CEV: 811.0	
Comments:	Prior inspe narrow ma stalls at to	ection liste ap crackir op, narrow	ed substand ig. Southeas / pattern cra	lard conn st has mil acks.	ection to app nor spall. No	proach guiderail. Northeast section rthwest has some narrow cracks, so	has minor weathering and outhwest has some small	
Recommended w	ork:					Maintenance Needs:		
Comments								
Upgrade at next m	ajor rehabi	litation.			□ 1 year, □ 2 years, □ Urgent			
Туре	Tin	ning						
□ Rehab, □ Repain □ Replace	r, 🗆 1 yea	- 5 years rs, 🗆 Urg	a, □ Now < 1 ent	l year, □	6 - 10			

Element Group:	Barriers					Length:	49.0 (m)		
Element Name:	Railing Sys	stems				Width:			
Location:	North and	south				Height:	1.0		
Element Description:						Count:	2		
Material:	Aluminum	railing / s	teel posts			Total Quantity:	98.0 (m)		
Element Type:						Not Inspected:			
Environment:	🗆 Benign,	Moder	ate, 🗹 Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencies	Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data:	m	0.00	98.0	0.00	0.00	BCI TEV: 19600.0	BCI CEV: 14700.0		
Comments:	Cap missir	ng on nor	heast rail, s	southeast	bottom rail	l, top rail northwest			
Recommended work:						Maintenance Needs: 18	- Other		
Comments						☑ 1 year, □ 2 years, □ Urgent			
Type Timing						Replace end caps.			

Ontario Structure Inspection Mar	nual — Inspe	Bridge ID:	042-024				
Element Group:	Beams/Ma	in Longitu	udinal Elem	ents		Length:	
Element Name:	Diaphragn	ns				Width:	
Location:	Middle					Height:	
Element Description:						Count:	9
Material:	Weatherin	g Sheet				Total Quantity:	9.0 (each)
Element Type:						Not Inspected:	
Environment:	🗆 Benign,	🗵 Modera	ate, 🗆 Seve	re		Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data	Units	Exc.	Good	Fair			
	each	0.00	9.0	0.00	0.00	BCI TEV:	BCI CEV:
Comments:	Cross Fran	nes in goo	od condition	1			
Recommended work:						Maintenance Needs:	
Comments Type Timing	□ 1 year, □ 2 years, □ Urgent						
··· •							

Element Group:	Beams/Ma	in Longiti	udinal Elem	ents		Length:	
Element Name:	Diaphragr	ns				Width:	
Location:	End					Height:	
Element Description:						Count:	6
Material:	Weatherin	ig Steel				Total Quantity:	6.0
Element Type:					Not Inspected:		
Environment:	🗆 Benign,	☑ Moder	ate, 🗆 Seve	re	Limited Inspection:		
Protection System:						Perform. Deficiencies	
Condition Data	Units	Exc.	Good	Fair	Poor*		
Condition Data.	each	0.00	6.0	0.00	0.00	BCI TEV:	BCI CEV:
Comments:	Corrosion	staining f	rom weathe	ering stee	l girders abo	ove.	
Recommended work:						Maintenance Needs:	
Comments Type Timing						□ 1 year, □ 2 years, □ Urgent	

Ontario Structure Inspe	ction Manua	al — Inspe		Bridge ID:	042-024			
Element Group:	Beams/Ma	ain Longitu	udinal Elem	ents		Length:	31.5 (m)	
Element Name:	Girders					Width:	0.5 (m)	
Location:	Middle					Height:	1.3 (m)	
Element Description:						Count:	2	
Material:	Weatherin	ig Steel				Total Quantity:	253.8 (sq.m)	
Element Type:	I-Beam or	Girders				Not Inspected:		
Environment:	🗆 Benign,	Moder	ate, 🛛 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data.	sq.m	0.00	253.8	0.00	0.00	BCI TEV: 50760.0	BCI CEV: 38070.0	
Comments:	Weatherin	ig steel gi	rders are in	good cor	ndition. Corre	osion stains on southeast abuti	ment from girders.	
Recommended work:				Maintenance Needs:				
Comments						□ 1 year, □ 2 years, □ Urgent		
Type Timing								

Element Group:	Beams/Ma	iin Longitu	udinal Elem	ents		Length:	31.5 (m)	
Element Name:	Girders					Width:	0.5 (m)	
Location:	Ends					Height:	1.3 (m)	
Element Description:						Count:	2	
Material:	Weatherin	ig Steel				Total Quantity:	258.3 (sq.m)	
Element Type:	I-Beam or	Girders				Not Inspected:		
Environment:	🗆 Benign,	☑ Modera	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	0.00	258.3	0.00	0.00	BCI TEV: 51660.0	BCI CEV: 38745.0	
Comments:	Weatherin	ig steel gi	rders in goo	od conditi	on. Corrosio	n stain present or southeast al	outment wall from girders.	
Recommended work	k:					Maintenance Needs:		
Comments Type Timing						□ 1 year, □ 2 years, □ Urgent		

Ontario Structure li	nspection M	lanual — I	nspection F	orm		Bridge ID: 042			
Element Group:	Decks					Length:	31.5 (m)		
Element Name:	Deck Top					Width:	8.0 (m)		
Location:						Height:			
Element Description:						Count:	1		
Material:	Cast-In-Pla	ace Concr	ete			Total Quantity:	252.0 (sq.m)		
Element Type:						Not Inspected:			
Environment:	🗆 Benign,	Modera	ate, 🗹 Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition Data	Units	Exc.	Good	Fair	Poor*	11. Deck drainage			
Condition Data:	sq.m	0.00	252.0	0.00	0.00	BCI TEV: 30240.0 BCI CEV: 22680.0			
Comments:	Exposed c aggregate	oncrete d d on deck	eck top. ligl top.	nt wear/s	caling due to	o traffic, snowplough and snowme	obile skis. Sediment		
Recommended w	ork:					Maintenance Needs: 02. Brid	ge Cleaning		
Comments Type Timing					□ 1 year, □ 2 years, ☑ Urgent Clear sediment from deck top.				

Element Group:	Decks					Length:	0.3 (m)
Element Name:	Drainage	System				Width:	0.22 (m)
Location:	North and	south				Height:	1.5 (m)
Element Description:						Count:	2
Material:	Steel				Total Quantity:	2.0 (each)	
Element Type:	Metal Drai	in Pipes			Not Inspected:		
Environment:	🗆 Benign,	Moder	ate, 🗹 Seve	re	Limited Inspection:		
Protection System:						Perform. Deficiencies	
Condition Data	Units	Exc.	Good	Fair	11. Deck drainage		
Condition Data:	each	0.00	2.0	0.00	0.00	BCI TEV:	BCI CEV:
Comments:	In Good C	ondition					
Recommended work:						Maintenance Needs:	
Comments Type Timing					□ 1 year, □ 2 years, □ Urgent		

Ontario Structure	Inspection I	Manual —	Inspection	Form		Bridge ID: 042			
Element Group:	Decks					Length:	27.5 (m)		
Element Name:	Soffit - Thi	n Slab				Width:	2.3 (m)		
Location:	Interior					Height:			
Element Description:						Count:	3		
Material:	Cast In Pla	ace Concre	ete			Total Quantity:	167.8 (sq.m)		
Element Type:						Not Inspected:			
Environment:	🗆 Benign,	☑ Moder	ate, 🗆 Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data:	sq.m	0.00	167.8	0.00	0.00	BCI TEV: 20136.0 BCI CEV: 15102.0			
Comments:	Light trans longitudin	sverse cra al crack o	cking with n both sides	moderate s.	e efflorescen	ce throughout. Some visible map	pattern cracking. Narrow		
Recommended v	vork:					Maintenance Needs:			
Comments						□ 1 year, □ 2 years, □ Urgent			
Type Timing									

Element Group:	Decks					Length:	2.0 (m)
Element Name:	Soffit - Thi	n Slab				Width:	9.0 (m)
Location:	Ends					Height:	
Element Description:						Count:	2
Material:	Cast In Pla	ice Concre	ete			Total Quantity:	36.0 (sq.m)
Element Type:						Not Inspected:	
Environment:	🗆 Benign,	☑ Modera	ate, 🗆 Seve	ere		Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data	Units	Exc.	Good	Fair	Poor*		
Condition Data.	sq.m	0.00	34.0	1.0	1.0	BCI TEV: 4320.0	BCI CEV: 3108.0
Comments:	Light rust	staining a	nd water le	akage fro	om joints ab	ove	
Recommended work:						Maintenance Needs:	
Comments Type Timing					□ 1 year, □ 2 years, □ Urgent		
i ype i lilling							

ecks offit - Thin xterior/Fas	n Slab				Length:	27.5 (m)
offit - Thin xterior/Fa	n Slab					
xterior/Fa	scia				Width:	1.0 (m)
	5010				Height:	0.3 (m)
					Count:	2
ast In Plac	ce Concre	ete			Total Quantity:	71.5 (sq.m)
					Not Inspected:	
Benign, 🛛	☑ Modera	ite, 🗆 Seve	re	Limited Inspection:		
					Perform. Deficiencies	
Units	Exc.	Good	Fair	Poor*		
sq.m	0.00	57.5	14.0	0.00	BCI TEV: 8580.0	BCI CEV: 5847.0
ght transv	verse cra	cking with r	noderate	efflorescen	ce throughout.	
					Maintenance Needs:	
	□ 1 year, □ 2 years, □ Urgent					
	st In Place Benign, I Jnits sq.m ht trans	st In Place Concre Benign, ☑ Modera Jnits Exc. sq.m 0.00 ht transverse cra	st In Place Concrete Benign, ☑ Moderate, □ Seve Jnits Exc. Good sq.m 0.00 57.5 ht transverse cracking with r	st In Place Concrete Benign, ☑ Moderate, □ Severe Jnits Exc. Good Fair sq.m 0.00 57.5 14.0 ht transverse cracking with moderate	st In Place Concrete Benign, ☑ Moderate, □ Severe J nits Exc. Good Fair Poor* sq.m 0.00 57.5 14.0 0.00 Iht transverse cracking with moderate efflorescen	st In Place Concrete Total Quantity: st In Place Concrete Not Inspected: Benign, ☑ Moderate, □ Severe Limited Inspection: Perform. Deficiencies Jnits Exc. Good Fair Poor* sq.m 0.00 57.5 14.0 0.00 BCI TEV: 8580.0 Int transverse cracking with moderate efflorescence throughout. Maintenance Needs: □ 1 year, □ 2 years, □ Urgent

Element Group:	Embankm	ents & St	reams			Length:	
Element Name:	Embankm	ents				Width:	
Location:	Four quad	rants				Height:	
Element Description:						Count:	4
Material:						Total Quantity:	4.0
Element Type:						Not Inspected:	
Environment:	🗆 Benign,	🗆 Moder	ate, 🛛 Seve	re		Limited Inspection:	
Protection System:					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*		
Condition Data.	each	0.00	3.0	0.00	1.0	BCI TEV: 4000.0	BCI CEV: 2250.0
Comments:	Southeast well estab	quadrant lished.	severe ero	sion at sp	oillway of roa	ad. Embankments in overall	good condition and
Recommended work:						Maintenance Needs: 13 Bridges	- Erosion Control at
Comments						☑ 1 year, □ 2 years, □ Urgent	
Туре	Timing					Install proving protection	at coutboast
□ Rehab, □ Repair, □ Replace	□ 1 - 5 yea □ Urgent	ars, □ Nov	w < 1 year,	□ 6 - 10	years,	embankment.	ar southeast

Ontario Structure Inspection	on Manual –	– Inspecti	Bridge ID:	042-024				
Element Group:	Embankm	ents & St	reams			Length:		
Element Name:	Streams a	nd Water	ways			Width:		
Location:						Height:		
Element Description:						Count:	1	
Material:						Total Quantity:	1.0	
Element Type:						Not Inspected:		
Environment:	🗵 Benign,	□ Moder	ate, 🗆 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	all	0.00	1.0	0.00	0.00	BCI TEV: 1000.0	BCI CEV: 750.0	
Comments:	Flows nort	heast to s	southwest.	Waterway	y is clear of c	lebris directly underneath strue	cture.	
Recommended work:						Maintenance Needs:		
Comments				□ 1 year, □ 2 years, □ Urgent				
Type Timing								

Element Group:	Joints					Length:	10.0 (m)
Element Name:	Armouring	/retaining	g devices			Width:	
Location:						Height:	
Element Description:						Count:	6
Material:	Steel					Total Quantity:	60.0 (m)
Element Type:						Not Inspected:	
Environment:	🗆 Benign,	Moder	ate, 🛛 Seve	re		Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data	Units	Exc.	Good	Fair	Poor*		
Condition Data.	m	0.00	55.0	5.0	0.00	BCI TEV: 60000.0	BCI CEV: 43250.0
Comments:	Mild corros	sion and l	ight scrapir	ng no dam	nage on wes	t side.	
Recommended work:						Maintenance Needs:	
Comments Type Timing		□ 1 year, □ 2 years, □ Urgent					

Ontario Structure Inspectio	on Manual —	Bridge	ID:	042-024					
Element Group:	Joints					Length:	8.1 (m)	
Element Name:	Concrete	end dams				Width:	0.2 (m)	
Location:						Height:			
Element Description:						Count:	2		
Material:	Cast In Pla	ace Concre	ete			Total Quantity:	3.2 (sq.m)	
Element Type:						Not Inspected:			
Environment:	🗆 Benign,	□ Moder	ate, 🛛 Seve	ere		Limited Inspection	on: 🗆		
Protection System:						Perform. Deficie	ncies		
Condition Dates	Units	Exc.	Good	Fair	Poor*				
Condition Data:	sq.m	0.00	2.2	1.0	0.00	BCI TEV: 6720.0	BCI	CEV: 4305.0	
Comments:	Light surfa	ace wear t	hroughout.	Isolated	medium sur	face wear on the S o	quadrant		
Recommended work:						Maintenance Needs:			
Comments						□ 1 year, □ 2 years, □ Urgent			
Type Timing									
	<u></u>							-	
Element Group:	Joints					Length:			
Element Name:	Seals/s	ealants				Width:			
Location:						Height:			
Element Description:						Count:		2	

Element Description:						Count:	2
Material:						Total Quantity:	2.0 (each)
Element Type:						Not Inspected:	
Environment:	🗆 Benign,	Limited Inspection:					
Protection System:					Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*		
Condition Data:	each	0.00	0.00	0.00	2.0	BCI TEV: 2000.0	BCI CEV:
Comments:	Limited du gravel bui	ie to debi ld up on l	ris build up. NW end.	Gap at le	ast 0.15 dee	ep and appears to be leaking. W	inter sand and
Recommended work:						Maintenance Needs: 2 - Brid	lge Cleaning
Comments							
Replace joint seals.		☑ 1 year, □ 2 years, □ Urgent					
Туре	Timing	Clean debris from joint					
☑ Rehab, □ Repair, □ Replace	☑ 1 - 5 yea □ Urgent	seal.					

Ontario Structure Inspection Manual — Inspection Form						Bridge ID:	042-024
Element Group:	Sidewalks	/curbs				Length:	31.5 (m)
Element Name:	Curbs				Width:	1.0 (m)	
Location:	North and south sides.				Height:	0.2 (m)	
Element Description:	Extends along wingwalls				Count:	2	
Material:	Cast In Place Concrete				Total Quantity:	75.6 (sq.m)	
Element Type:					Not Inspected:		
Environment:	🗆 Benign, 🗆 Moderate, 🗹 Severe				Limited Inspection:		
Protection System:					Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*		
Condition Data:	sq.m	0.00	68.3	6.6	0.7	BCI TEV: 3024.0	BCI CEV: 2154.6
Comments: Wear and damage from winter maintenance focuse mechanical abrasion.			ance focused	l at joints and throughout. Minor s	spall and scaling from		
Recommended work:				Maintenance Needs:			
Comments			□ 1 year, □ 2 years, □ Urgent				
Type Timing							

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Ontario Structure Inspection Manual — Inspection Form				Bric	dge ID:		042-024
Repair and Rehabilitation Required			Priority				
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	Cost
Signs	Install hazard at ends of guide rail if end treatments are not installed immediately.					•	\$2,000.00
Approaches - Curb/ gutter	Patch abraded and spalled inside face of curb. Fill washout at SW approach				•		\$5,000.00
Joints	Replace joint seals. Clean sediment from seal			•			\$5,000.00
Embankments	Install erosion control at SE embankment				•		\$5,000.00
Barrier - Railing system	Replace missing end caps				✓		\$1,000.00
Approaches - wearing surface	Route and seal			✓			\$2,000.00
						Total	\$20,000.00

Assosciated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		
	Total	

ae ID:

042-024

Ontario Structure Inspection Manual — Inspection Form







Description: East abutment wall

Abutments / Abutment walls (North and South)



Description: West abutment wall Abutments / Abutment walls (North and South)

Ontario Structure Inspection Manual — Inspection Form



Description: West abutment Abutments / Abutment walls (North and South)



Description: Spall at north joint Approaches / Curb and Gutters (Northwest Southeast)



Description: Ne post

Barriers / Barrier/Parapet Walls (East and West)



Description: Northwest Barriers / Barrier/Parapet Walls (East and West)

042-024

Ontario Structure Inspection Manual — Inspection Form



Description: Southwest

Barriers / Barrier/Parapet Walls (East and West)



Description: Southeast Barriers / Barrier/Parapet Walls (East and West)



Description: North railing se side missing cap Barriers / Railing Systems (North and south)



Description: Scraping damage and sand build up north side Sidewalks/curbs / Curbs (North and south sides.)



Description: Scraping damage south side Sidewalks/curbs / Curbs (North and south sides.)



Description: Southwest quadrant Decks / Soffit - Thin Slab (Interior)



Description: Southeast Decks / Soffit - Thin Slab (Interior)



Description: Center Decks / Soffit - Thin Slab (Interior)



Description: East Decks / Soffit - Thin Slab (Interior)



Decks / Soffit - Thin Slab (Interior)

042-024



Decks / Soffit - Thin Slab (Exterior/Fascia)



Description: SW embankment Embankments & Streams / Embankments (Four quadrants)



Description: NW embankment

Embankments & Streams / Embankments (Four quadrants)



Description: Eroded embankment at spillway southeast quadrant Embankments & Streams / Embankments (Four quadrants)

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Ontario Structure Inspection Manual — Inspection Form



Description: NW

Embankments & Streams / Streams and Waterways



Description: SW Embankments & Streams / Streams and Waterways



Description: East

Beams/Main Longitudinal Elements / Diaphragms (End)



Description: Typ Beams/Main Longitudinal Elements / Diaphragms (Middle)

042-024



Description: East armouring Joints / Armouring/retaining devices



Description: West armouring Joints / Armouring/retaining devices



Description: SE end dam Joints / Concrete end dams



Description: West Joints / Seals/sealants

Monday, October 22, 2018

042-024

042-176

Inventory Data:				
Structure Name	Bridge 07 Chaffey Ward	l (Fish Lake Road Br	idge)	
Main Hwy/Road #		🛛 🛛 On 🗆 Under	Crossing Type: ☑ Navi. W □ Road, □ Ped., □ Other, □ railway, □ Unknown, □ Ove	/ater, ☑ Non-Navi. Water, □ Rail, □ Over water, □ Over Road, □ Under er railway, □ Under Road
Hwy/Road Name	Fish Lake Road			
Structure Location	0.08km East of Highway	y 592		
Latitude	45° 27' 9" N		Longitude	79° 14' 42" W
Northing			Easting	
Owner(s)	Town of Huntsville		☐ Heritage designation: ☑ Desig., □ Desig./not List, □	Not Cons., 🗆 Cons./not App., 🗆 List/not] Desig. & List
			Road Class: Freeway,] Arterial, 🛛 Collector, 🗆 Collector
MTO Region	Northeastern		$ \exists Residential, \Box Collector Co \\ \Box Local Commercial, \Box Rui$	mmercial, 🗆 Local, 🗀 Local Residential, ral Expressways, 🗆 Alleyways, 🗆 4 or
			more lanes	
MTO District	Huntsville		Posted Speed	60 No. of 1 Lanes
Old County	Simcoe-Muskoka		AADT	150.0 % Trucks
Geographic Twp.	Chaffey		Inspection Route Sequence	
Structure Type	Concrete T-Beam		Interchange Number	
Total Deck Length	7.0] (m)	Interchange Structure Number	
Overall Str. Width	4.9] (m)	Min. Vertical Clearance	(m)
Total Deck Area	34.3] (sq.m)	Special Routes:	\Box Transit, \Box Truck, \Box School, \Box Bicycle, \Box Emergency, \Box Commuter
Roadway Width	4.2] (m)	Detour Length Around Bridge	N/A (km)
Skew Angle	0	(Degrees)	Direction of Structure	East to West
No. of Spans	1]	Fill on Structure	(m)
Span Lengths	6.3			(m)
Historical Data:				
Year Built		1930 Ye	ear of Last Major Rehab.	
Last OSIM Inspec	tion	2015 La	st Evaluation	
Last Enhanced O	SIM Inspection	Cu	ırrent Load Limit	14.0 / / (tonnes)
Enhanced Access Equipment Lo			ad Limit By-Law #	1 1

Last Underwater Inspection	By-Law Expiry Date	
Last Condition Survey		
Rehab History: (Date/description)		
North Barrier Wall Replaced - Date Unknown		

Ontario Structure Inspection Manual — Inspection Form	ı		Bridge ID:	042-176
Scheduled Improvements:				
Regional Priority Number		Programmed Work Yea	r	
Nature of Program Work:				

Appraisal Indices:		Comments
Fatigue		
Seismic		
Scour		
Flood		
Geometrics		
Barrier		
Curb		
Load Capacity		

Ontario Structure Inspection Manual — Inspection Form		Bridge ID:	042-176		
Field Inspection Information:					
Date of Inspection: July 3, 2018		Inspection Type	OSIM		
Inspector:	Ben Belfry				
Others in Party:	Sean Wetmore				
Access Equipment Used:	Tape, hammer, waders				
Weather:	Sunny				
Temperature:	32.0 ℃				

Upcoming Inspections and Investigations:						
Due date	Priority	Comments				

Additional Investigations Required:		Priority			
	Additional Investigations Required:		Normal	Urgent	
r	Naterial Condition Survey	✓			
	Detailed Deck Condition Survey:	✓			
	Non-destructive Delamination Survey of Asphalt-Covered Deck:	✓			
	Concrete Substructure Condition Survey:	✓			
	Detailed Coating Condition Survey:	✓			
	Detailed Timber Investigation	✓			
	Post-Tensioned Strand Investigation	✓			
Underwater Investigation:		✓			
Fatigue Investigation:		✓			
Seismic Investigation:		✓			
Structure Evaluation:		✓			
r	Monitoring				
	Monitoring of Deformations, Settlements and Movements:	✓			
	Monitoring Crack Widths:				
1	nvestigation Notes:				

None

Ontario Structure Inspection Manual — Inspection Form

Bridge ID:

042-176

Overall Structure Notes:					
Recommended Work on Structure:					
Timing of Recommended Work:	\Box Urgent, \Box Now < 1 year, \Box 1 - 5 years, \Box 6 - 10 years, \Box > 10 years				
Overall Comments:	New SBGR all four corners. Three attenuators and one turn off with fishtail on the south west side. New south barrier. Overall structure is in good condition.				
Date of Next Inspection:	2020				

Overall Bridge Condition:

69.47

Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

- **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 of Bridge Concrete
- **09** Repair of 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
- 17 None
- 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

Element Group:	Abutment	5				Length:		
Element Name:	Abutment	walls				Width:	4.9 (m)	
Location:	East and W	Vest				Height:	1.4 (m)	
Element Description:	Abutment	walls botl	h sides.			Count:	2	
Material:	Cast-In-Pla	ace Concre	ete			Total Quantity:	13.7 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗵 Benign,	Modera	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor*			
Data:	sq.m	0.00	7.7	4.5	1.5	BCI TEV: 12330.0	BCI CEV: 6817.5	
Comments:	Previous report noted severe undermining and scouring below all of east abutment and part of west. Una due to water level and addition of rip rap. Moderate scaling 0.2m above water level along both sides at h watermark. Small portion of exposed rebar behind first beam at north east corner.							
Recommende	d work:				Maintenance Needs:			
Comments					□ 1 year, □ 2 years, □ Urgent			
Type Timing	l							

Ontario Structure Ir	spection M	anual — Ir	nspection Fo	Bridge ID:	042-176			
Element Group:	Accessorie	es				Length:		
Element Name:	Signs					Width:		
Location:						Height:		
Element Description:						Count:	9	
Material:						Total Quantity:	9.0 (each)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	Moder	ate, 🛛 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
Condition Data:	each	4.0	0.00	4.0	1.0	BCI TEV: 900.0	BCI CEV: 560.0	
Comments:	There is a with single signs at th	14 tonne e lane tab ne roadsid	load limit s , one on ea e of each g	ign on we ch approa uide rail.	est approach ach; and two	wth surface cracking throughout. 2 (2) no exit sign upon west approac	2 narrow bridge signs ch. 4 hazard warning	
Recommended we	ork:					Maintenance Needs:		
Comments								
Replace max load sign				□ 1 year, □ 2 years, □ Urgent				
Туре	Tim	ning						
□ Rehab, □ Repair ☑ Replace	, 🗆 1 уеа	- 5 years rs, ☑ Urge	, □ Now < 1 ent					

Element Group:	Approache	es			Length:	110.0 (m)		
Element Name:	Barriers				Width:			
Location:						Height:		
Element Description:					Count:	0		
Material:	Steel					Total Quantity:	110.0 (m)	
Element Type:					Not Inspected:			
Environment:	🗆 Benign,	Moderat	e, 🛛 Sever	e		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	m	110.0	0.00	0.00	0.00	BCI TEV: 22000.0	BCI CEV: 22000.0	
Comments:	Newly inst	alled guide	e rail excell	ent condi	tion			
Recommended work:		Maintenance Needs:						
Comments Type Timing		□ 1 year, □ 2 years, □ Urgent						

Ontario Structure Inspec	tion Manual	— Inspec	Bridge ID: 042-176					
Element Group:	Approache	ŝS				Length:	6.0 (m)	
Element Name:	Wearing s	urface				Width:	4.2 (m)	
Location:	East and v	vest				Height:		
Element Description:				Count:	2			
Material:	Asphalt					Total Quantity:	50.4 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	Moder	ate, 🗹 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	0.00	0.00	25.0	25.4	BCI TEV: 302.4	BCI CEV: 60.0	
Comments:	Severe set along whe	tlement k el tracks	pehind abut upon approa	long centreline of road, moderate essions causing a lip up onto brid	e pattern cracking ge.			
Recommended work:						Maintenance Needs:		
Comments								
Regrade and repave approaches.			□ 1 year, □ 2 years, □ Urgent					
Туре	Timing	I						
□ Rehab, □ Repair, ☑ Replace	☑ 1 - 5 □ Urge	years, □ nt	Now < 1 ye	ear, 🗆 6 -	10 years,			

Element Group:	Barriers					Length:	7.0 (m)	
Element Name:	Barrier/Pa	rapet Wal	ls			Width:		
Location:	Exterior					Height:	0.9 (m)	
Element Description:						Count:	1	
Material:	Cast-In-Pla	ace Concr	ete			Total Quantity:	12.6 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗹 Benign,	Moder	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	6.3	6.3	0.00	0.00	BCI TEV: 1260.0	BCI CEV: 1102.5	
Comments:	Light scali excellent	ng and ef condition.	florescence	througho	out cold joint	at interface with curb on North b	arrier. South barrier in	
Recommended wo	ork:			Maintenance Needs:				
Comments				□ 1 year, □ 2 years, □ Urgent				
iype ilming								
Ontario Structure Inspection	Manual —	Inspectior		Bridge ID: 042-176				
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Element Group:	Barriers					Length:	7.0 (m)	
Element Name:	Barrier/Pa	rapet Wal	ls			Width:	0.15 (m)	
Location:	Interior					Height:	0.9 (m)	
Element Description:						Count:	2	
Material:	Cast-In-Pla	ace Concr	ete			Total Quantity:	14.8 (sq.m)	
Element Type:	Parpet Wa	ll without	Railing			Not Inspected:		
Environment:	🗆 Benign,	Moder	ate, 🗹 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Units Exc. Good Fair Poor*				Poor*				
Condition Data.	sq.m	7.4	7.0	0.4	0.00	BCI TEV: 1480.0	BCI CEV: 1281.0	
Comments:	Minor bug barrier rec	holes. Mo cently rep	derate impa laced, in ex	act dama cellent co	ge at north e ondition.	east quadrant. Barrier has be	en rehabilitated. South	
Recommended work:						Maintenance Needs:		
Comments Repair areas of deficient concrete.		□ 1 year, □ 2 years, □ Urgent						
Туре	Timing							
☑ Rehab, □ Repair, □ Replace	☑ 1 - 5 ye □ Urgent	ears, 🗆 No	ow < 1 year	r, □ 6 - 10) years,			

Element Group:	Beams/Ma	in Longit	udinal Elem	ents		Length:	6.3 (m)	
Element Name:	Girders					Width:	0.3 (m)	
Location:						Height:	0.46 (m)	
Element Description:	Cip box gi	rders				Count:	4	
Material:	Cast-In-Pla	ice Concr	ete			Total Quantity:	30.7 (sq.m)	
Element Type:	Box girder					Not Inspected:		
Environment:	🗆 Benign,	🛛 Moder	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units Exc. Good Fair Poor*							
Condition Data:	sq.m 0.00 0.00 29.5 1.2				1.2	BCI TEV: 6140.0	BCI CEV: 2360.0	
Comments:	Moderate cracking a	honeycor s well as	nbing on in light efflore	terior girc escence a	lers at cold j t mid span a	oints, light to moderate scaling, minor spalling and ilso present.		
Recommended work:						Maintenance Needs:		
Comments								
Concrete Repairs						□ 1 year, □ 2 years,		
Туре	Timing							
☑ Rehab, □ Repair, □ Replace	☑ 1 - 5 y □ Urgen	rears, □ N t	low < 1 yea	ar, 🗆 6 - 1	l0 years,			

Ontario Structure Inspection I	Manual — Ins		Bridge ID: 042-176					
Element Group:	Decks					Length:	7.0 (m)	
Element Name:	Deck Top					Width:	4.9 (m)	
Location:						Height:		
Element Description:	Desk top,	concrete				Count:	1	
Material:	Cast-In-Pla	ace Concr	ete			Total Quantity:	34.3 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	Moder	ate, 🛛 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Units Exc. Good Fair				Poor*				
Condition Data.	sq.m	0.00	0.00	34.0	0.3	BCI TEV: 4116.0	BCI CEV: 1632.0	
Comments:	Exposed c through pi	oncrete d redomina	leck top. On tely on the	e severe west side	and one me	edium transverse crack. Small web products		
Recommended work:						Maintenance Needs:		
Comments						🗆 1 vear. 🗆 2 vears.		
						🗆 Urgent		
Туре	Timing							
☑ Rehab, □ Repair, □ Replace	☑ 1 - 5 yea □ Urgent	ars, 🗆 Nov	w < 1 year,	□ 6 - 10 <u>·</u>	years,			

Element Group:	Decks					Length:	
Element Name:	Drainage	System				Width:	
Location:						Height:	
Element Description:	Holes in d	eck uncov	vered			Count:	4
Material:	Cast In Pla	ace Concr	ete			Total Quantity:	4.0 (each)
Element Type:	Holes in D	eck				Not Inspected:	
Environment:	🗆 Benign,	Moder	ate, 🛛 Seve	Limited Inspection:			
Protection System:				Perform. Deficiencies			
Condition Data	Units	Exc.	Good	Fair	Poor*		
	each	0.00	0.00	0.00	4.0	BCI TEV:	BCI CEV:
Comments:	All are cle	ar and ful	ly functionir	ıg.			
Recommended work:						Maintenance Needs:	
Comments							
Install drains and extend beyond s	offit and girders.					🗆 1 year, 🗆 2 years,	
Type Ti	mina					🗆 Urgent	
	iiiig						
🗆 Rehab, 🗆 Repair, 🛛 Replace 🗍	1 - 5 years, □ No Urgent	w < 1 yea	ar, 🗆 6 - 10 y	years,			

Ontario Structure Ins	pection Ma	nual — In	spection Fo		Bridge ID:	042-176			
Element Group:	Decks					Length:	6.3 (m)		
Element Name:	Soffit - Th	in Slab				Width:	0.35 (m)		
Location:	Exterior/F	ascia				Height:	0.6 (m)		
Element Description:	South ext hariline cr	erior soffi acking.	it with light	efflorescer	nce and	Count:	2		
Material:	Cast In Pla	ace Conci	rete			Total Quantity:	11.97 (sq.m)		
Element Type:						Not Inspected:			
Environment:	🗆 Benign,	🛛 Modei	rate, 🗆 Sev	ere		Limited Inspection:			
Protection System:						Perform. Deficiencies	Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data:	sq.m	0.00	0.00	11.95	0.02	BCI TEV: 1436.4	BCI CEV: 573.6		
Comments:	Light spal Fracture o	ling and e on exterio	efflorescend or north eas	te on curb	fascia, hairli to tightening	ne cracking, light honeycombing on cold joint with fascia. J of new rail.			
Recommended wo	rk:					Maintenance Needs:			
Comments									
Repair concrete.					□ 1 year, □ 2 years, □ Urgent				
Туре	Timi	ing							
☑ Rehab, □ Repair, □ Replace	☑ 1 year	- 5 years, s, 🗆 Urge	□ Now < 2 ent	1 year, 🗆 6	- 10				

Element Group:	Decks					Length:	6.3 (m)		
Element Name:	Soffit - Thi	in Slab				Width:	3.0 (m)		
Location:	Interior					Height:			
Element Description:						Count:	1		
Material:	Cast-In-Pla	ace Concr	ete			Total Quantity:	18.9 (sq.m)		
Element Type:						Not Inspected:			
Environment:	🗹 Benign,	🗆 Moder	ate, 🗆 Seve	ere		Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data.	sq.m	0.00	0.00	13.9	5.0	BCI TEV: 2268.0	BCI CEV: 667.2		
Comments:	Moderate about to s	honeycor pall, and	nbing near light crackir	center of ng localize	soffit, with n ed throughou	noderate spalling with exposed rebar, delamination ut, and 1 Sq.m of moisture staining			
Recommended work:						Maintenance Needs:			
Comments									
Concrete patch repairs	Concrete patch repairs						□ 1 year, □ 2 years, □ Urgent		
Туре	Timing	g							
☑ Rehab, □ Repair, □ Replace	☑ 1 - 5 □ Urge	years, □ ent	Now < 1 ye	ear, 🗆 6 -	10 years,				

Ontario Structure Inspection N	lanual — Ins	spection F	orm			Bridge ID: 042-176		
Element Group:	Embankm	ents & St	reams			Length:		
Element Name:	Embankm	ents				Width:		
Location:						Height:		
Element Description:						Count:	4	
Material:	Gravel					Total Quantity:	4.0	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	Moder	ate, 🛛 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	15. Unstable embankment	ts		
Condition Data:	each	0.00	1.0	3.0	0.00	BCI TEV: 4000.0	BCI CEV: 1950.0	
Comments:	Wash out Other qua	at north e drants are	east interfac e in fair con	e of brido dition.	ge concrete	to asphalt approach and gra	avel embankment.	
Recommended work:	•					Maintenance Needs:		
Comments								
Patch asphalt		□ 1 year, □ 2 years, □ Urgent						
Туре	Timing							
☑ Rehab, □ Repair, □ Replace	☑ 1 - 5 yea □ Urgent	ars, 🗆 Nov	w < 1 year,	□ 6 - 10	years,			

Element Group:	Embankm	ents & St	reams			Length:			
Element Name:	Streams a	nd Water	ways			Width:			
Location:						Height:			
Element Description:						Count:	1		
Material:						Total Quantity:	1.0		
Element Type:						Not Inspected:			
Environment:	🗵 Benign,	Moder	ate, 🗆 Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data:	all	0.00	1.0	0.00	0.00	BCI TEV: 1000.0	BCI CEV: 750.0		
Comments:	Large unk structure.	nown bloo	ckage in wa	tercourse	e under bridg	e. Does not appear to be obstruc	ting flow through the		
Recommended wor	k:					Maintenance Needs: 18 - Other			
Comments					☑ 1 year, □ 2 years,□ Urgent				
Type Timing						Remove blockage from watercourse.			

Ontario Structure Ir	spection Ma	anual — In	spection Fc	orm		Bridge ID:	042-176	
Element Group:	Sidewalks	/curbs				Length:	7.0 (m)	
Element Name:	Curbs					Width: 0.1 (m)		
Location:	North and	South				Height:	0.15 (m)	
Element Description:						Count:	2	
Material:	Cast In Pla	ace Concre	ete			Total Quantity:	3.5 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	Modera	ate, 🗹 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*	08. Pedestrian/vehicular hazard		
Condition Data:	sq.m	0.00	2.6	1.5	0.5	BCI TEV: 140.0	BCI CEV: 102.0	
Comments:	Abrasion a north east	and narrov curb.	v transvers	e cracks t	hroughout.	Steel beam guide rail installation c	ause severe crack on	
Recommended we	ork:					Maintenance Needs: 14. Concr	ete Sealing	
Comments				□ 1 year, □ 2 years, ☑ Urgent				
Type Timing						Seal NE crack		

 \ast A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Ontario Structure Inspection M	anual — Inspection Form		042-176				
Repair and Rehabilitation R	equired			Ectimated			
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	6 - 10 1 - 5 Now < 1 years years year		Urgent	Cost
Curb	Seal NE crack					✓	\$2,000.00
Embankments	Patch asphalt at NE quadrant			>			\$1,000.00
Deck Drainage	Install drains extending beyond soffit and girders					~	\$5,000.00
Deck	Concrete crack repair			>			\$30,000.00
Girders	Concrete repair			~			\$10,000.00
Post (South)	Repair concrete			✓			\$1,000.00
Parapet (North (Interior))	Repair areas of deficient concrete			1			\$5,000.00
Approach Wearing surface	Regrade and repave approaches			✓			\$10,000.00
Signs	Replace max load sign					~	\$500.00
						Total	\$64,500.00

Assosciated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		





Description: Looking East





Abutments / Abutment walls (East and West)



Description: NE Abutments / Abutment walls (East and West)



Abutments / Abutment walls (East and West)



Description: West approach max load sign Accessories / Signs



Description: Severe longitudinal crack down centre line of W approach Approaches / Wearing surface (East and west)



Description: Settling at approach to deck interface, behind abutment Approaches / Wearing surface (East and west)

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Ontario Structure Inspection Manual — Inspection Form



Description: N

Barriers / Barrier/Parapet Walls (Exterior)



Barriers / Barrier/Parapet Walls (Interior)

Ontario Structure Inspection Manual — Inspection Form



Beams/Main Longitudinal Elements / Girders



Beams/Main Longitudinal Elements / Girders



Description: Severe crack NE Sidewalks/curbs / Curbs (North and South)



Decks / Drainage System

042-176



Decks / Deck Top



Description: N Decks / Soffit - Thin Slab (Exterior/Fascia)

042-170

Inventory Data:									
Structure Name	Bridge 09 CN Rail Overh	nead							
Main Hwy/Road #		🗹 On 🗆 Under	Crossing Type: □ Navi. W □ Road, □ Ped., □ Other, □ railway, □ Unknown, □ Ove	/ater, □ Non-Navi. Water, ☑ Rail, □ Over water, □ Over Road, □ Under er railway, □ Under Road					
Hwy/Road Name	Lakewood Park Road								
Structure Location	0.3km North of District	Road 3							
Latitude	45° 18' 55" N		Longitude	79° 14' 46" W					
Northing			Easting						
Owner(s)	Town of Huntsville		Beritage designation: ☑ Desig., □ Desig./not List, □	Not Cons., 🗆 Cons./not App., 🗆 List/not] Desig. & List					
MTO Region	Northeastern		Road Class: Freeway, Residential, Collector Co Local Commercial, Ru more lanes] Arterial, 🗆 Collector, 🗆 Collector mmercial, 🗆 Local, 🗆 Local Residential, ral Expressways, 🗆 Alleyways, 🗆 4 or					
MTO District	Huntsville		Posted Speed	No. of 2					
Old County	Simcoe-Muskoka		AADT	486.0 % Trucks					
Geographic Twp.	Brunel		Inspection Route Sequence						
Structure Type	Concrete Slab on Precast Grider		Interchange Number						
Total Deck Length	60.5	(m)	Interchange Structure Number						
Overall Str. Width	11.0	(m)	Min. Vertical Clearance	(m)					
Total Deck Area	665.5	(sq.m)	Special Routes:	□ Transit, □ Truck, □ School, □ Bicycle, □ Emergency, □ Commuter					
Roadway Width	8.5	(m)	Detour Length Around Bridge	N/A (km)					
Skew Angle	0	(Degrees)	Direction of Structure	South to North					
No. of Spans	3]	Fill on Structure	(m)					
Span Lengths	23.3, 16.7, 20.6			(m)					
Historical Data:									
Year Built		1980	Year of Last Major Rehab.						
Last OSIM Inspec	tion	2015	Last Evaluation						
Last Enhanced O	SIM Inspection		Current Load Limit	/ / (tonnes)					
Enhanced Access	Equipment		Load Limit By-Law #						
Last Underwater	Inspection		By-Law Expiry Date						
Rehab History: ([Rehab History: (Date/description)								

Ontario Structure Inspection Manual — Inspection Form	n		Bridge ID:	042-170
Scheduled Improvements:				
Regional Priority Number		Programmed Work Yea	r	
Nature of Program Work:				

Appraisal Indices:	Comments	
Fatigue		
Seismic		
Scour		
Flood		
Geometrics		
Barrier		
Curb		
Load Capacity		

Ontario Structure Inspection Manual — Inspection Form	Bridge ID:	042-170		
Field Inspection Information:				
Date of Inspection:	July 11, 2018	Inspection Type	OSIM	
Inspector:	Ben Belfry			
Others in Party:	Sean Wetmore			
Access Equipment Used:	Rod tape hammer			
Weather:	Sunny			
Temperature:	24.0 °C			

Upcoming Inspections and Investigations:						
Due date	Comments					

Additional Investigations Desvined.		Priority				
Additional investigations kequired:	None	Normal	Urgent			
Material Condition Survey	1					
Detailed Deck Condition Survey:	1					
Non-destructive Delamination Survey of Asphalt-Covered Deck:	 ✓ 					
Concrete Substructure Condition Survey:	1					
Detailed Coating Condition Survey:	1					
Detailed Timber Investigation	1					
Post-Tensioned Strand Investigation	 ✓ 					
Underwater Investigation:	1					
Fatigue Investigation:	1					
Seismic Investigation:	1					
Structure Evaluation:	1					
Monitoring	1					
Monitoring of Deformations, Settlements and Movements:	1					
Monitoring Crack Widths:	 ✓ 					
Investigation Notes:		<u>_</u>				

None

Ontario Structure Inspection Manual — Inspection Form

Bridge ID:

042-170

Overall Structure Notes:						
Recommended Work on Structure:						
Timing of Recommended Work:	\Box Urgent, \Box Now < 1 year, \Box 1 - 5 years, \Box 6 - 10 years, \Box > 10 years					
Overall Comments:	Structure is in good condition					
Date of Next Inspection:	2020					

Overall Bridge Condition:

69.54

Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

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 ponding11 Deck drainage
- **07** Repair to Structural Steel
- **08** Repair of Bridge Concrete
- **09** Repair of Bridge Timber
- 10 Bailey bridges Maintenance11 Animal/Pest Control
- 12 Bridge Surface Repair

- 12 Slippery surfaces
- **13** Flooding/channel blockage
- **14** Undermining of foundation
- 15 Unstable embankments
- 16 Other
- 17 None

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

Element Group:	Abutment	S				Length:		
Element Name:	Abutment	Walls				Width:	17.8 (m)	
Location:	South Abu	tment				Height:	2.7 (m)	
Element Description:	N/A					Count:	1	
Material:	Cast-In-Pla	ace Concr	ete		_	Total Quantity:	48.1 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	☑ Modera	ate, 🗆 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	0.00	47.1	1.0	0.00	BCI TEV: 43290.0	BCI CEV: 32152.5	
Comments:	In good co holes and	ndition so moderate	ome hairline graffiti.	e to narro	w cracking,	wet due to water leakage noted f	rom joints above, minor bug	
Recommended work:					Maintenance Needs:			
Comments						□ 1 year, □ 2 years, □ Urgent		
Type Timing								

Element Group:	Abutments	5				Length:	
Element Name:	Abutment	Walls				Width:	14.7 (m)
Location:	North Abu	tment				Height:	3.0 (m)
Element Description:	N/A					Count:	1
Material:	Cast-In-Pla	ice Concr	ete			Total Quantity:	44.1 (sq.m)
Element Type:						Not Inspected:	
Environment:	🗆 Benign,	☑ Modera	ate, 🗆 Seve	re		Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data	Units	Exc.	Good	Fair	Poor*		
Condition Data.	sq.m	0.00	44.1	0.00	0.00	BCI TEV: 39690.0	BCI CEV: 29767.5
Comments:	Graffiti and	d hairline	to narrow o	racks not	ed. Overall	in good condition.	
Recommended work:						Maintenance Needs:	
Comments						□ 1 year, □ 2 years, □ Urgent	
Type Thining							

Ontario Structure Inspection	Manual — I	nspection	Form			Bridge ID:	042-170	
Element Group:	Abutment	S				Length:		
Element Name:	Ballast Wa	alls				Width:	16.25 (m)	
Location:	North and	South				Height:	1.4 (m)	
Element Description:						Count:	2	
Material:	Cast-In-Pla	ace				Total Quantity:	45.5 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	☑ Moder	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
Condition Data.	sq.m	0.00	40.0	5.2	0.3	BCI TEV: 15925.0	BCI CEV: 11228.0	
Comments:	South wall off deck. S	l one sma Some sma	ll spall with Il spots of e	exposed effloresce	rebar. Minoi nce.	r pattern cracking at ends fr	om past water leakage	
Recommended work:						Maintenance Needs:		
Comments	Timing					□ 1 year, □ 2 years, □ Urgent		
□ Rehab, □ Repair, □ Replace	□ 1 - 5 ye □ Urgent	ears, 🗆 No	ow < 1 year	⁻ , □ 6 - 10) years,			

Element Group:	Abutment	s				Length:		
Element Name:	Bearings					Width:		
Location:	North and	South				Height:		
Element Description:	South abu	itment be	aring pad w	vith light o	cracking.	Count:	10	
Material:	Elastomer	ic Pad				Total Quantity:	10.0	
Element Type:	Elastomer	ic Pad				Not Inspected:		
Environment:	🗆 Benign,	🛛 Moder	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
Condition Data:	each	0.00	0.00	10.0	0.00	BCI TEV: 10000.0	BCI CEV: 4000.0	
Comments:	Bearings i deteriorat	n overall ion (pictu	fair conditic red).	on, with m	ninor crackin	g and deterioration. Southwest l	bearing showing most	
Recommended work	(;					Maintenance Needs:		
Comments						□ 1 year, □ 2 years, □ Urgent		
., ye ming								

Ontario Structure Inspection Manual — Inspection Form						Bridge ID:	042-170	
Element Group:	Abutment	S				Length:	5.5 (m)	
Element Name:	Wingwalls					Width:		
Location:	4 Corners	of Structu	ıre			Height:	1.5 (m)	
Element Description:	N/A					Count:	4	
Material:	Cast-In-Pla	ace Concr	ete			Total Quantity:	33.0 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	☑ Moder	ate, 🗆 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data.	sq.m	0.00	33.0	0.00	0.00	BCI TEV: 11550.0	BCI CEV: 285863.0	
Comments:	Minor hair	line patte	rn cracking	, with mo	isture and li	ght efflorescence from splas	h above.	
Recommended work:						Maintenance Needs:		
Comments Type Timing						□ 1 year, □ 2 years, □ Urgent		
<u>L</u>						1		

Element Group:	Accessorie	es				Length:		
Element Name:	Signs					Width:		
Location:						Height:		
Element Description:	Bridge ice	s north a	nd south ap	proaches		Count:	2	
Material:	Steel					Total Quantity:	2.0	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	🛛 Moder	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
Condition Data.	each	0.00	2.0	0.00	0.00	BCI TEV: 200.0	BCI CEV: 150.0	
Comments:	Two Bridg	e Ices sig	ns are pres	ent. Both	are leaning/	dislocated. North bridges ices	sign is bent at the post.	
Recommended work:						Maintenance Needs: 17. Other		
Comments Straighten bridges ices s	igns to upri	ght	□ 1 year, □ 2 years, ☑ Urgent					
Туре	Timing	I				Install Object Warning Mark	er signs at south buried	
☑ Rehab, □ Repair, □ Replace	□ 1 - 5 ☑ Urge	years, □ nt	Now < 1 ye	ear, 🗆 6 -	10 years,	guide rail ends.		

Ontario Structure Inspectio	on Manual —	- Inspectio		Bridge ID:	042-170				
Element Group:	Approache	es				Length:	162.0 (m)		
Element Name:	Barriers					Width:			
Location:	West					Height:			
Element Description:	SBGR sout	th end,				Count:	1		
Material:	Steel/Timb	ber				Total Quantity:	162.0 (m)		
Element Type:	3-Cable G	uide Rail o	on Wood Po	sts		Not Inspected:			
Environment:	🗆 Benign,	Moder	ate, 🗹 Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition Data:	Units	Exc.	Good	Fair	Poor*	8 - Pedestrian / vehicular hazard			
Condition Data:	m	0.00	113.4	0.00	48.6	BCI TEV: 32400.0	BCI CEV: 17010.0		
Comments:	Southeast at base, w	SBGR po ith some	sts show rot posts showi	t with 309	% rotated blo e deterioration	ocks. Post and cable system s	slackened. Posts broken		
Recommended work:						Maintenance Needs:			
Comments									
Replace cable system with	ו SBGR.		□ 1 year, □ 2 years, □ Urgent						
Туре	Timing								
□ Rehab, □ Repair, ☑ Replace	☑ 1 - 5 y □ Urgen	vears, □ N t	low < 1 yea	ır, 🗆 6 - 1	.0 years,				

Element Group:	Approache	es				Length: 139.8 (m)			
Element Name:	Barriers					Width:			
Location:	East					Height:			
Element Description:						Count: 1			
Material:	Steel					Total Quantity:	139.8 (m)		
Element Type:	Steel Flex	Beam on	Wood Post			Not Inspected:			
Environment:	🗆 Benign,	Moder	ate, 🗹 Seve	ere		Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition	Units	Exc.	Good	Fair	Poor*				
Data:	m	0.00	124.2	0.00	15.6	BCI TEV: 27960.0 BCI CEV: 18630.0			
Comments:	Northeast extends e posts in ge	is made o ntire leng ood condi	of 12 wood th of road. tion with 5	post and In followir rotated b	blocks in goo ng 24 posts v locks and sig	od condition. Corrosion of lower bea with steel posts SBGR is in good cor gns of minor rot on tops of main pos	am at wood blocks. SBGR ndition. Southwest SBGR on 16 sts.		
Recommende	d work:					Maintenance Needs:			
Comments						□ 1 year, □ 2 years, □ Urgent			
Type Timing	I								

Ontario Structure Inspection Ma	Bridge ID:	042-170						
Element Group:	Approache	es				Length:	5.0 (m)	
Element Name:	Curb and (Gutters				Width:		
Location:						Height:	0.2 (m)	
Element Description:						Count:	4	
Material:	Cast In Pla	ice Concr	ete			Total Quantity:	4.0 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	Moder	ate, 🛛 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	0.00	3.0	0.75	0.25	BCI TEV: 100.0	BCI CEV: 63.75	
Comments:	Six narrow connection	r cracks. S n to barrie	Scraping da er wall.	mage and	d abrasion th	roughout. Southwest curb	corner broken at	
Recommended work:						Maintenance Needs:		
Comments								
Concrete repair.						□ 1 year, □ 2 years, □ Urgent		
Туре	Timing							
☑ Rehab, □ Repair, □ Replace	☑ 1 - 5 years □ Urgent	s, □ Now	< 1 year, 🗆	6 - 10 ye	ears,			

Element Group:	Approach	es				Length:		
Element Name:	Drainage	System				Width:		
Location:	NW, SE, S	W				Height:		
Element Description:	Double cb	os at sw a	nd nw of str	ructure ou	utlet to csps	Count:	6	
Material:	Steel					Total Quantity:	6.0 (each)	
Element Type:	Catch Bas	ins				Not Inspected:		
Environment:	🗆 Benign,	🗆 Moder	ate, 🗹 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	each	0.00	6.0	0.00	0.00	BCI TEV: 30.0	BCI CEV: 22.5	
Comments:	Double Ca	atch Basir	is are in goo	od conditi	ion. Gutters o	on both sides on north approach ir	n good condition.	
Recommended work:						Maintenance Needs: 2 - Bridge	e Cleaning	
Comments						 ☑ 1 year, □ 2 years, □ Urgent 		
Type Timing						Clean out catch basins during c cleaning.	urb and gutter	

Ontario Structure	Inspection	Manual —	Inspection	Form		Bridge ID:	042-170	
Element Group:	Approache	2S				Length:	11.0 (m)	
Element Name:	Sidewalk/0	Curbs				Width:	1.5 (m)	
Location:	NW & SW	Approach	es			Height:	0.2 (m)	
Element Description:						Count:	2	
Material:	Asphalt					Total Quantity:	33.0 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	Modera	ate, 🗹 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	0.00	31.0	2.0	0.00	BCI TEV: 1980.0	BCI CEV: 1443.0	
Comments:	Some curb bridge.) abrasion	and light a	isphalt cr	acking. Drair	nage erosion at northeast quadrant	interface with concrete	
Recommended	work:					Maintenance Needs:		
Comments Type Timing						 □ 1 year, □ 2 years, ☑ Urgent Add asphalt patch to corner of northeast sidewalk for 		
						pedestrian safety.		

Element Group:	Approache	es				Length:	6.0 (m)	
Element Name:	Wearing s	urface				Width:	8.5 (m)	
Location:	North and	West				Height:		
Element Description:						Count:	2	
Material:	Asphalt					Total Quantity:	102.0 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	Moder	ate, 🗹 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data.	sq.m	0.00	67.5	11.1	23.4	BCI TEV: 612.0	BCI CEV: 330.39	
Comments:	Transvers longitudin	e cracks a al crack a	it north end t south app	, one sev roach wit	ere crack. In h two light t	terrupted medium longitudinal o medium interrupted transver	cracks. Severe se cracks.	
Recommended work:						Maintenance Needs: 15 - R	out and Seal	
Comments								
Repave approaches wi	th deck					☑ 1 year, □ 2 years, □ Urgent		
Туре	Timin	g						
						Bout and Seal		

Ontario Structure Ins	pection Man	ual — Ins	pection For		Bridge ID: 042-17			
Element Group:	Barriers					Length:	75.0 (m)	
Element Name:	Barrier/Pa	rapet Wal	ls			Width:	0.15 (m)	
Location:	Exterior					Height:	0.8 (m)	
Element Description:						Count:	2	
Material:	Cast-In-Pla	ace Concr	ete			Total Quantity:	120.0 (sq.m)	
Element Type:	Parapet W	all with S	ingle Railing	g.		Not Inspected:		
Environment:	🗆 Benign,	☑ Modera	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	0.00	119.9	0.00	0.1	BCI TEV: 12000.0	BCI CEV: 8992.5	
Comments:	Minor patt connection	ern crack: n.	ing through	iout, minc	or bug holes.	Large crack and delamination a	t northwest guiderail	
Recommended wor	′k:					Maintenance Needs:		
Comments				□ 1 year, □ 2 years, □ Urgent				
Type Timing								

Element Group:	Barriers					Length:	75.0 (m)	
Element Name:	Barrier/Pa	rapet Wal	lls			Width:	0.15 (m)	
Location:	Interior					Height:	0.8 (m)	
Element Description:						Count:	2	
Material:	Cast-In-Pla	ace Concr	ete			Total Quantity:	120.0 (sq.m)	
Element Type:	Parapet W	/all with S	ingle Railing	g		Not Inspected:		
Environment:	🗆 Benign,	🗆 Moder	ate, 🛛 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
condition Data.	sq.m	0.00	119.0	0.78	0.22	BCI TEV: 12000.0	BCI CEV: 8956.2	
Comments:	Minor patt material o	tern crack	ing through st of parape	iout, mind t wall in N	or bugholes. Northwest qu	1 small area of honeycombing a adrant in connection to guidera	and 1 section of cracked ail.	
Recommended work:						Maintenance Needs:		
Comments Type	Timin	g		□ 1 year, □ 2 years, □ Urgent				
□ Rehab, □ Repair, □ Replace	□ 1 - 5 □ Urge	5 years, ⊏ ent	Now < 1 y	ear, 🗆 6 -	10 years,			

Ontario Structu	re Inspectio	n Manual	— Inspectio	n Form	_	Bridge ID	042-170	
Element Group:	Barriers					Length:	73.9 (m)	
Element Name:	Hand Raili	ngs				Width:		
Location:	East and V	Nest				Height:		
Element Description:						Count:	2	
Material:	Steel					Total Quantity:	147.8 (m)	
Element Type:	Single Rai	ling				Not Inspected:		
Environment:	🗆 Benign,	□ Modera	ate, 🛛 Seve	re		Limited Inspection:		
Protection System:	Hot-dippe	d Galvaniz	zing			Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor*			
Data:	m	0.00	132.5	15.3	0.00	BCI TEV: 14780.0	BCI CEV: 10549.5	
Comments:	Newly rep m of hand	laced con rail begin	nections to ning to rust	parapet . Rest in	wall. Lightly good conditi	weathered but in good condition. S on.	light loss of galvanizing. 15.3	
Recommende	d work:					Maintenance Needs:		
Comments					□ 1 year, □ 2 years, □ Urgent			
Type Timing								

Element Group:	Beams/Ma	in Longiti	udinal Elem	ents		Length:	0.5	
Element Name:	Diaphragn	ns				Width:		
Location:	At north a	nd south	abutments.			Height:	1.0	
Element Description:						Count:	8	
Material:	Cast-in-pla	ace concr	ete			Total Quantity:	8.0 (each)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	☑ Moder	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair				
	each	0.00	0.00	8.0	0.00	BCI TEV:	BCI CEV:	
Comments:	North diag showing n	ram shov ninor scal	ving scaling ing.	and exte	ensive delam	ination at bottom. Southwest	diaphragm	
Recommended work:						Maintenance Needs:		
Comments Type Ti	□ 1 year, □ 2 years, □ Urgent							
□ Rehab, □ Repair, □ □ Replace □	1 - 5 years, Urgent	□ Now <	1 year, □ 6	5 - 10 yea	ars,			

Ontario Structure Inspection Ma	Bridge ID:	042-170					
Element Group:	Beams/Ma	in Longitı	udinal Elem	ents	Length:		
Element Name:	Diaphragm	าร				Width:	
Location:	Middle					Height:	
Element Description:						Count:	20
Material:	Cast-In-Pla	ice Concr	ete			Total Quantity:	20.0 (each)
Element Type:						Not Inspected:	
Environment:	🗵 Benign,	Modera	ate, 🗆 Seve	re		Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data	Units	Exc.	Good	Fair	Poor*		
Condition Data:	each	0.00	20.0	0.00	0.00	BCI TEV:	BCI CEV:
Comments:	In good co	ndition, s	ome concre	ete surfac	es adjacent	to the soffit are wet.	
Recommended work:						Maintenance Needs:	
Comments Type Timing			□ 1 year, □ 2 years, □ Urgent				

Element Group:	Beams/Ma	in Longit	udinal Eleme	ents		Length:	54.5 (m)		
Element Name:	Girders					Width:	0.56 (m)		
Location:	Middle					Height:	1.14 (m)		
Element Description:						Count:	5		
Material:	Precast Co	oncrete				Total Quantity:	1079.1 (sq.m)		
Element Type:						Not Inspected:			
Environment:	🗹 Benign,	□ Moder	ate, 🗆 Sever	re		Limited Inspection:			
Protection System:						Perform. Deficiencies	Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data.	sq.m	0.00	1079.1	0.00	0.00	BCI TEV: 215820.0	BCI CEV: 161865.0		
Comments:	In good co	ndition.							
Recommended work:						Maintenance Needs:			
Comments						□ 1 year, □ 2 years, □ Urgent			
Type Timing									

Ontario Structure Inspection M	lanual — Ins	Bridge ID: 042-170						
Element Group:	Beams/Ma	in Longitı	udinal Elem	ents	Length:	3.0 (m)		
Element Name:	Girders					Width:	0.56 (m)	
Location:	Ends					Height:	1.14 (m)	
Element Description:					Count:	0		
Material:	Precast Co	oncrete				Total Quantity:	118.8 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	🛛 Moder	ate, 🗆 Seve	re	Limited Inspection:			
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	0.00	117.8	0.00	1.0	BCI TEV: 23760.0	BCI CEV: 17670.0	
Comments:	End of sou leakage at	thwest gi southeas	rder has mo st outer girc	oderate s ler.	pall and exp	osed rebar. Narrow cracks	and signs of water	
Recommended work:	•					Maintenance Needs:		
Comments								
Concrete repair at southwest	girder ends	□ 1 year, □ 2 years, □ Urgent						
Туре	Timing							
☑ Rehab, □ Repair, □ Replace	☑ 1 - 5 yea □ Urgent	rs, 🗆 Nov	v < 1 year,	🗆 6 - 10 y	/ears,			

Element Group:	Decks					Length:	60.5 (m)
Element Name:	Deck Top					Width:	8.5 (m)
Location:						Height:	
Element Description:	N/A					Count:	0
Material:	Cast-In-Pla	ace Conci	rete			Total Quantity:	514.3 (sq.m)
Element Type:						Not Inspected:	
Environment:	🗆 Benign,	☑ Moder	rate, 🗆 Sev	ere		Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data	Units	Exc.	Good	Fair	Poor*		
Condition Data:	sq.m	0.00	0.00	514.3	0.00	BCI TEV: 61716.0	BCI CEV: 24686.4
Comments:	Limited in	spection	because of	asphalt we	earing surfa	ce overtop of top deck.	
Recommended work:						Maintenance Needs:	
Comments					□ 1 year, □ 2 years, □ Urgent		
Type Timing							

Ontario Structure Insp	ection Manu	ual — Insp	ection Form	Bridge ID: 042-170					
Element Group:	Decks					Length:	2.0 (m)		
Element Name:	Soffit - Thi	n Slab				Width:	9.57 (m)		
Location:	Ends					Height:			
Element Description:						Count:	2		
Material:	Cast In Pla	ice Concre	ete			Total Quantity:	38.2 (sq.m)		
Element Type:						Not Inspected:			
Environment:	🗆 Benign,	☑ Modera	ate, 🗆 Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencies	Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data.	sq.m	0.00	38.2	0.00	0.1	BCI TEV: 4584.0	BCI CEV: 3438.0		
Comments:	Minor scal	ing and si	gns of past	leakage	at southeast	side. Large pop out and encrus	tations on southwest side.		
Recommended work	c:					Maintenance Needs:			
Comments				□ 1 year, □ 2 years, □ Urgent					
Type Timing									

Element Group:	Decks					Length:	56.5 (m)		
Element Name:	Soffit - Thi	n Slab				Width:	9.0 (m)		
Location:	Interior					Height:			
Element Description:	Interior so	ffit under	south span			Count:	1		
Material:	Cast In Pla	ice Concre	ete			Total Quantity:	508.5 (sq.m)		
Element Type:						Not Inspected:			
Environment:	🛛 Benign,	Modera	ate, 🗆 Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencies	Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data:	sq.m	0.00	508.5	0.00	0.00	BCI TEV: 61020.0	BCI CEV: 45765.0		
Comments:	Good Cond	dition. Lin	nited due to	inaccess	ibility.				
Recommended work:						Maintenance Needs:			
Comments Type Timing					□ 1 year, □ 2 years, □ Urgent				

Ontario Structure Inspec	tion Manual — I		Bridge ID: 042-170						
Element Group:	Decks						Length:	56.5 (m)	
Element Name:	Soffit - Th	in Slab					Width:	1.0 (m)	
Location:	Exterior/F	ascia					Height:	0.3 (m)	
Element Description:	West exte	rior soffit	by South jo	pint.			Count:	2	
Material:	Cast In Pla	ace Concr	ete				Total Quantity:	146.9 (sq.m)	
Element Type:							Not Inspected:		
Environment:	🗆 Benign,	🛛 Moder	ate, 🗆 Seve	ere			Limited Inspection:		
Protection System:							Perform. Deficiencies		
Constituion Datas	Units	Exc.	Good	Fair	Poor	*			
Condition Data:	sq.m	0.00	140.0	6.9	0.00)	BCI TEV: 17628.0	BCI CEV: 12931.2	
Comments:	Minor pat	tern crack	king.				•	•	
Recommended work:							Maintenance Needs:		
Comments							□ 1 year, □ 2 years, □ Urgent		
Type Timing									
Element Group:	Decks	ngth:	62.0 (m)						
Element Name:	Wearing Surfa	ce				Wi	dth:	8.5 (m)	
Location:						He	iaht:		

Location:						Height:	
Element Description:						Count:	1
Material:	Asphalt					Total Quantity:	527.0 (sq.m)
Element Type:						Not Inspected:	
Environment:	🗆 Benign,	Modera	ate, 🗹 Seve	re		Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor*		
Condition Data:	sq.m	0.00	525.7	1.3	0.00	BCI TEV: 13175.0	BCI CEV: 9869.88
Comments:	Filled poth crack near	ole at nor north en	th end losir d. Several r	ng materi oute and	al. Light trai seal segme	nsverse cracks forming at nort nts have been worn out.	h end. 4m longitudinal
Recommended work:						Maintenance Needs:	
Comments							
Waterproof and repave	deck.					□ 1 year, □ 2 years, □ Urgent	
Туре	Timing	I					
□ Rehab, □ Repair, ☑ Replace	☑ 1 - 5 □ Urge	years, □ nt	Now < 1 ye	ear, 🗆 6 -	10 years,		

Ontario Structure Inspe	ction Manua	al — Inspe	Bridge ID:	042-170				
Element Group:	Embankm	ents & St	reams			Length:		
Element Name:	Embankm	ents				Width:		
Location:						Height:		
Element Description:	North emb	bankment				Count:	4	
Material:	6" Rip Rap)				Total Quantity:	4.0	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	☑ Moder	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	each	0.00	4.0	0.00	0.00	BCI TEV: 4000.0	BCI CEV: 3000.0	
Comments:	Steep, we	ll vegetat	ed on sides	with Rip	Rap 6" stone	e between abutments and railw	ay. God condition.	
Recommended work:						Maintenance Needs:		
Comments						□ 1 year, □ 2 years, □ Urgent		
Type Timing								

Element Group:	Joints					Length:	13.5 (m)		
Element Name:	Armouring	/retaining	g devices			Width:			
Location:	North and	South Ab	utments			Height:			
Element Description:						Count:	2		
Material:	Steel					Total Quantity:	27.0 (m)		
Element Type:						Not Inspected:			
Environment:	🗆 Benign,	Modera	ate, 🗹 Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencies	Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data.	m	0.00	27.0	0.00	0.00	BCI TEV: 27000.0	BCI CEV: 20250.0		
Comments:	Minor surf	ace rust a	and abrasior	า.					
Recommended work:						Maintenance Needs:			
Comments Type Timing					□ 1 year, □ 2 years, □ Urgent				

Ontario Structure II	nspection M	anual — Ir	nspection F		Bridge ID:	042-170			
Element Group:	Joints					Length:	14.0 (m)		
Element Name:	Concrete	End Dams				Width:	0.25 (m)		
Location:	North and	South				Height:			
Element Description:	N/A					Count:	4		
Material:	Cast In Pla	ace Concre	ete			Total Quantity:	14.0 (sq.m)		
Element Type:						Not Inspected:			
Environment:	🗆 Benign,	🗆 Modera	ate, 🗹 Seve	ere		Limited Inspection:			
Protection System:	Coal Tar E	роху				Perform. Deficiencies			
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data:	sq.m	0.00	0.00	13.8	0.2	BCI TEV: 29400.0 BCI CEV: 11592.0			
Comments:	Minor abra end dam.	asion and	light scalin	g. Spalling	g at south ea	ast quadrant. Requires seal betw	een asphalt and concrete		
Recommended w	ork:					Maintenance Needs: 05. Bridge Deck Joint Repair			
Comments					□ 1 year, □ 2 years, ☑ Urgent				
Type Timing						Reseal all end dam and asphalt interfaces.			

Joints					Length:	
Seals/seal	ants				Width:	
					Height:	
					Count:	2
					Total Quantity:	2.0 (each)
Strip Steel	l				Not Inspected:	
🗆 Benign,	Modera	ate, 🗹 Seve	re		Limited Inspection:	
					Perform. Deficiencies	
Units	Exc.	Good	Fair	Poor*		
each	0.00	2.0	0.00	0.00	BCI TEV: 2000.0	BCI CEV: 1500.0
Seals in go	ood condi	tion.				
					Maintenance Needs:	
			□ 1 year, □ 2 years, □ Urgent			
	Joints Seals/seal Strip Steel Benign, Units Seals in go	Joints Seals/seal= Strip Stee Strip Stee Units Exc. aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa	Joints Seals/sealarts Strip Steel Strip Steel Gunits Gunit	Joints Seals/seal=Its Strip Steel Strip Steel EXERCIAN Good Fair each 0.00 2.0 0.000 Seals in good condition.	Joints Seals/sealants Seals/sealants Strip Steel Strip Steel Benign, Moderete, Severete Seals in geochoor (1990) Seals in geochoor (1990) S	Length:Seals/seal-itsWidth:Seals/seal-itsHeight:Count:Count:Count:Countity:Strip SteelNot Inspected:Strip SteelLimited Inspection:Benign, $ Moder = V SeverLimited Inspection:OuntsExc.GoodFairPoor*Perform. DeficienciesSeals in Urits SeverSeverSeals in Urits SeverSeverSeals in Urits SeverSeverSeals in Urits SeverSeverSeals in Urits Sever<$

Ontario Structure Inspection I	Manual — In	Bridge ID:	042-170				
Element Group:	Piers					Length:	
Element Name:	Bearings					Width:	
Location:						Height:	
Element Description:						Count:	10
Material:						Total Quantity:	10.0
Element Type:						Not Inspected:	
Environment:	🗆 Benign,	☑ Moder	ate, 🗆 Seve	ere		Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data	Units	Exc.	Good	Fair	Poor*		
Condition Data:	each	0.00	0.00	10.0	0.00	BCI TEV: 10000.0	BCI CEV: 4000.0
Comments:	Limited In:	spection.	Condition b	ased on c	condition no	ted for abutments.	
Recommended work:						Maintenance Needs:	
Comments		□ 1 year, □ 2 years, □ Urgent					
Type Timing							

Element Group:	Piers				Length:	1.2 (m)		
Element Name:	Caps				Width:	15.0 (m)		
Location:	North and	South Pie	ers			Height:	1.2 (m)	
Element Description:						Count:	2	
Material:	Cast-In-Pla	ace Concr	ete			Total Quantity:	149.8 (sq.m)	
Element Type:					Not Inspected:			
Environment:	🗆 Benign,	🛛 Moder	ate, 🗆 Seve	re	Limited Inspection:			
Protection System:					Perform. Deficiencies			
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	149.7	0.00	0.1	BCI TEV: 134820.0	BCI CEV: 101047.5	
Comments:	3 small st	alls with e	exposed reb	rant.				
Recommended work:						Maintenance Needs:		
Comments								
Repair patch concrete.						□ 1 year, □ 2 years, □ Urgent		
Туре Т	iming							
🗆 Rehab, 🗆 Repair, 🗆 Replace 🗌] 1 - 5 years, [] Urgent	□ Now < 1	1 year, □ 6	- 10 year				

Ontario Structure Inspection	Manual — Ir	Bridge ID: 042-170							
Element Group:	Piers					Length:			
Element Name:	Shafts/colu	umns/Pile	Bents			Width:	0.91 (m)		
Location:	North and	South Pie	ers			Height:	6.0 (m)		
Element Description:						Count:	6		
Material:	Cast-In-Pla	ice Concr	ete			Total Quantity: 102.0 (sq.m)			
Element Type:						Not Inspected:			
Environment:	🗹 Benign,	Modera	ate, 🗆 Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data:	sq.m	0.00	102.0	0.00	0.00	BCI TEV: 91800.0	BCI CEV: 68850.0		
Comments: Small bug holes throughout. Minor pattern cracking.									
Recommended work:						Maintenance Needs:			
Comments Type Timing					□ 1 year, □ 2 years, □ Urgent				

Element Group:	Sidewalks/curbs					Length:	65.0 (m)	
Element Name:	Sidewalks	and med	ians		Width:	1.5 (m)		
Location:	East Side					Height:	0.2 (m)	
Element Description:	Concrete	curb and	sidewalk ea	st side or	nly.	Count:	1	
Material:	Cast In Pla	ace Concr	ete			Total Quantity:	110.5 (sq.m)	
Element Type:					Not Inspected:			
Environment:	🗆 Benign,	Moder	ate, 🗹 Seve	ere	Limited Inspection:			
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data.	sq.m	0.00	108.0	2.5	0.00	BCI TEV: 16575.0	BCI CEV: 12300.0	
Comments:	Minor wea	ar and imp	bact damag					
Recommended work:						Maintenance Needs:		
Comments								
Patch damaged sections of curb a sidewalk.	□ 1 year, □ 2 years, □ Urgent							
Туре Т	ming							
☑ Rehab, □ Repair, □ □ Replace □	1 - 5 years, □ Now < 1 year, ☑ 6 - 10 years, Urgent							

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Ontario Structure Inspection M	Bridge ID: 042-170							
Repair and Rehabilitation Required			Priority					
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	Cost	
Approach Barriers	Replace with steel beam guide rail			•			\$60,000.00	
Deck	Waterproof and repave			 ✓ 			\$50,000.00	
Sidewalk/ curb	Asphalt patch corner of NE sidewalk for pedestrian safety. Concrete repairs.					1	\$5,000.00	
Sidewalk/ curb	Patch damaged section of curb and sidewalk		√				\$5,000.00	
Girder (ends)	Concrete repairs at SW girder end			 ✓ 			\$5,000.00	
Approaches Barriers	Tighten slackened cable and broken posts					~	\$5,000.00	
Signs	Straighten bridge ices sign Install object warning marker sign at south buried guide rail ends.					•	\$2,000.00	
						Total	\$132,000.00	

Assosciated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		

042-170



Description: Looking north



Description: Looking south


Description: West elevation



Description: East elevation



Description: ID



Description: South wall exposed rebar Abutments / Ballast Walls (North and South)



Description: Narrow pattern cracking ne quadrant Abutments / Ballast Walls (North and South)



Description: South wall typ Abutments / Ballast Walls (North and South)



Description: Typical Bearing Abutments / Bearings (North and South)



Description: Southwest bearing Abutments / Bearings (North and South)



Description: South approach bridge ices leaning sign

Accessories / Signs



Description: North approach bridges ices sign leaning and bent at post location Accessories / Signs



Approaches / Curb and Gutters



Description: SE curb Approaches / Curb and Gutters

042-170



Description: NE quadrant Approaches / Curb and Gutters



Description: NW quadrant Approaches / Curb and Gutters

Ontario Structure Inspection Manual — Inspection Form



Description: Severe outfall typ Approaches / Drainage System (NW, SE, SW)



Description: Typ. Approaches / Drainage System (NW, SE, SW)

042-170



Description: Rotten and leaning posts NW side Approaches / Barriers (West)



Description: Rotated blocks and rot Approaches / Barriers (West)

042-170



Description: Corrosion at wood blocks (typ.) Approaches / Barriers (East)



Description: SE Approaches / Barriers (East)

042-170



Description: Nw

Approaches / Barriers (East)



Description: Light crack southeast side Approaches / Sidewalk/Curbs (NW & SW Approaches)

042-170

Ontario Structure Inspection Manual — Inspection Form



Description: Minor erosion

Approaches / Sidewalk/Curbs (NW & SW Approaches)



Description: North Approaches / Wearing surface (North and West) Ontario Structure Inspection Manual — Inspection Form



Description: North

Approaches / Wearing surface (North and West)



Description: Northwest guiderail connection Barriers / Barrier/Parapet Walls (Exterior)

042-170



Description: Northwest connection to guiderail Barriers / Barrier/Parapet Walls (Interior)



Description: Honeycombing mid way on west parapet Barriers / Barrier/Parapet Walls (Interior)



Description: Looking south. Sidewalks/curbs / Sidewalks and medians (East Side)



Description: W side looking N Decks / Soffit - Thin Slab (Ends)

042-170



Description: Severe side popout Decks / Soffit - Thin Slab (Ends)



Description: Past cracking and leaking. Minor spall SE side Decks / Soffit - Thin Slab (Ends)

042-170



Description: E side looking N Decks / Soffit - Thin Slab (Ends)



Description: Typ. Decks / Soffit - Thin Slab (Interior)

042-170



Description: Southeast

Decks / Soffit - Thin Slab (Exterior/Fascia)



Description: Typ Beams/Main Longitudinal Elements / Diaphragms (Middle)



Description: Patched pothole N end

Decks / Wearing Surface



Description: Wearing surface Decks / Wearing Surface

042-170



Description: Southwest crack and evident spall. Beams/Main Longitudinal Elements / Girders (Ends)



Description: Narrow cracks and efflorescence. Beams/Main Longitudinal Elements / Girders (Ends)



Description: Girders typ.

Beams/Main Longitudinal Elements / Girders (Ends)



Joints / Armouring/retaining devices (North and South Abutments)



Joints / Armouring/retaining devices (North and South Abutments)



Description: Detailed image of seal (typical) Joints / Seals/sealants



Description: S pier bearings. Piers / Bearings



Piers / Caps (North and South Piers)



Description: North

Piers / Caps (North and South Piers)



Description: Minor spall w exposed rebar Piers / Caps (North and South Piers)



Description: Pier typ

Piers / Shafts/columns/Pile Bents (North and South Piers)



Description: Southwest corner Beams/Main Longitudinal Elements / Diaphragms (At north and south abutments.)



Description: Scaling and delamination - north side third in Beams/Main Longitudinal Elements / Diaphragms (At north and south abutments.) Inventory Data:

Structure Name	Little East River Bridge								
Main Hwy/Road #		🛛 On 🗆 Under	Crossing Type: ☑ Navi. W □ Road, □ Ped., □ Other, □ railway, □ Unknown, □ Ove	l Rail, , □ Under					
Hwy/Road Name	Etwell Road								
Structure Location	3km North of District Ro	ad 45							
Latitude	45.413026°		Longitude	-79.238167	0				
Northing			Easting						
Owner(s)	Town of Huntsville		Heritage designation: 🛛 Desig., 🗆 Desig./not List, 🗆	Not Cons., 🗆 Desig. & List	Cons./not App	o., 🗆 List/not			
MTO Region	Northeastern		Road Class: Freeway, Residential, Collector Col Local Commercial, Rur	Arterial, ☑ Co mmercial, □ L ral Expresswa	ollector, 🗆 Co .ocal, 🗆 Local ys, 🗆 Alleywa	llector Residential, ys, □ 4 or			
MTO District	Huntsville		more lanes Posted Speed	60	No. of	1			
]		Lanes				
Old County	Simcoe Muskoka			150.0	% Trucks				
Geographic Twp.	Stisted		Sequence						
Structure Type	Steel Girder		Interchange Number						
Total Deck Length	7.5	(m)	Interchange Structure Number	hange Structure er					
Overall Str. Width	5.0	(m)	Min. Vertical Clearance			(m)			
Total Deck Area	37.5	(sq.m)	Special Routes:	□ Transit, □ □ Bicycle, □	Truck, 🗆 Scho Emergency, [ool, □ Commuter			
Roadway Width	3.8	(m)	Detour Length Around Bridge	25		(km)			
Skew Angle	0	(Degrees)	Direction of Structure	East to Wes	t				
No. of Spans	1]	Fill on Structure			(m)			
Span Lengths	5.7					(m)			
Historical Data:									
Year Built		1930	(ear of Last Major Rebab						
Last OSIM Inspec	tion	2016	ast Evaluation						
Last Enhanced O	SIM Inspection								
Enhanced Access	Equipment		.oad Limit By-Law #			· · ·			
Last Underwater	Inspection		By-Law Expiry Date						
Last Condition Su	irvey								
Rehab History: ([Date/description)								

Bridge has been previously widened (Date unknown)

Ontario Structure Inspection Manual — Inspection Form	Bridge ID:	B10
Scheduled Improvements:		
Regional Priority Number	Programmed Work Year	
Nature of Program Work:		

Appraisal Indices:	Comments	
Fatigue		
Seismic		
Scour		
Flood		
Geometrics		
Barrier		
Curb		
Load Capacity		

Ontario Structure Inspection Manual — Inspection Form	Bridge ID:	B10	
Field Inspection Information:			
Date of Inspection:	July 3, 2018	Inspection Type	OSIM
Inspector:			
Others in Party:			
Access Equipment Used:	Hammer tape waders		
Weather:	Sunny		
Temperature:	31.0 °C		

Upcoming Inspections and Investigations:						
Due date	Comments					

	dditional Investigations Required.	Priority				
	duitional investigations Required:	None	Normal	Urgent		
Ν	laterial Condition Survey	✓				
	Detailed Deck Condition Survey:	✓				
	Non-destructive Delamination Survey of Asphalt-Covered Deck:	✓				
	Concrete Substructure Condition Survey:	✓				
	Detailed Coating Condition Survey:	✓				
	Detailed Timber Investigation	✓				
	Post-Tensioned Strand Investigation	✓				
U	Inderwater Investigation:	✓				
F	atigue Investigation:	✓				
s	eismic Investigation:	✓				
s	tructure Evaluation:	✓				
м	Ionitoring	✓				
	Monitoring of Deformations, Settlements and Movements:	✓				
	Monitoring Crack Widths:	✓				
h	nvestigation Notes:					

None

Ontario Structure Inspection Manual — Inspection Form

Bridge ID:

B10

Overall Structure Notes:						
Recommended Work on Structure:						
Timing of Recommended Work:	\Box Urgent, \Box Now < 1 year, \Box 1 - 5 years, \Box 6 - 10 years, \Box > 10 years					
Overall Comments:	Overall in fair condition					
Date of Next Inspection:	2020					

Overall Bridge Condition:

67.25

Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

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 ponding11 Deck drainage
- -
- **07** Repair to Structural Steel
- **08** Repair of Bridge Concrete
- **09** Repair of Bridge Timber
- **10** Bailey bridges Maintenance
- Animal/Pest Control
 Bridge Surface Repair

- 12 Slippery surfaces
- **13** Flooding/channel blockage
- **14** Undermining of foundation
- 15 Unstable embankments
- 16 Other
- 17 None

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

B10

Element Data

Element Group:	Abutments	5				Length:	0.3 (m)	
Element Name:	Abutment	walls				Width:	0.3 (m)	
Location:	East and V	Vest Abut	ments			Height:	1.0 (m)	
Element Description:						Count:	8	
Material:	Wood					Total Quantity:	7.5 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	☑ Modera	ate, 🗆 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor*			
Data:	sq.m	0.00	2.6	1.2	0.00	BCI TEV: 6750.0	BCI CEV: 2187.0	
Comments:	Limited Ins Two interio	spection c or piles at	lue to high east side s	water lev how rot.	els; visible s	ection looks to be in good conditio	n with narrow splits at ends.	
Recommended work:					Maintenance Needs:			
Comments					□ 1 year, □ 2 years, □ Urgent			
Type Timing								

Element Group:	Abutment	5				Length:	0.3 (m)	
Element Name:	Ballast wa	lls				Width:	5.8 (m)	
Location:	East and W	Vest Abut	ments			Height:	0.3 (m)	
Element Description:				Count:	2			
Material:	Wood					Total Quantity:	14.3 (sq.m)	
Element Type:					Not Inspected:			
Environment:	🗆 Benign,	☑ Modera	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	14.0	0.3	0.00	BCI TEV: 5005.0	BCI CEV: 3717.0	
Comments:	In good co	ndition, w	vith minor n	noisture s	eeping thro	ugh deck above		
Recommended work:						Maintenance Needs:		
Comments Type Timing						□ 1 year, □ 2 years, □ Urgent		

Ontario Structure Inspection I	Manual — In	Bridge ID: B10						
Element Group:	Abutments	5				Length:		
Element Name:	Ballast Wa	ills				Width:	6.0 (m)	
Location:	East and V	Vest Abut	ments			Height:	1.5 (m)	
Element Description:						Count:	2	
Material:	Steel					Total Quantity:	18.0	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	☑ Modera	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	0.00	16.0	2.0	0.00	BCI TEV: 6300.0	BCI CEV: 4480.0	
Comments:	In good co	ndition w	ith minor m	oisture se	eepage.			
Recommended work:		Maintenance Needs:						
Comments Type Timing						□ 1 year, □ 2 years, □ Urgent		

Element Group:	Abutment	5				Length:	1.5 (m)	
Element Name:	Wingwalls					Width:		
Location:	Southwest	:				Height:	1.5 (m)	
Element Description:						Count:	1	
Material:	Wood					Total Quantity:	2.3 (sq.m)	
Element Type:	Post and L	agging				Not Inspected:		
Environment:	🗆 Benign,	🗵 Modera	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data.	sq.m	0.00	2.0	0.3	0.00	BCI TEV: 805.0	BCI CEV: 567.0	
Comments:	In good co	ndition, w	ith some w	vear and v	veather rela	ted deterioration.		
Recommended work:		Maintenance Needs:						
Comments Type Timing						□ 1 year, □ 2 years, □ Urgent		

Ontario Structure Inspection N	Manual — In	Bridge ID: B10						
Element Group:	Accessorie	es				Length:		
Element Name:	Signs					Width:		
Location:						Height:		
Element Description:	Hazard wa	arnings (4)			Count:	4	
Material:						Total Quantity:	4.0 (each)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	Moder	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data.	each	0.00	2.0	1.0	1.0	BCI TEV: 400.0	BCI CEV: 190.0	
Comments:	4 hazard v	varning si	igns preseni	t. One be	nt from dam	aged bracket.		
Recommended work:						Maintenance Needs: 18 - Other		
Comments		□ 1 year, □ 2 years, ☑ Urgent						
Type Timing						Replace/repair damaged sign (1).		

Element Group:	Approach	es		Length:	(m)			
Element Name:	Barriers			Width:	(m)			
Location:						Height:	(m)	
Element Description:						Count:	0	
Material:	aterial:						0.0 (m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	🗆 Moder	ate, 🗹 Seve	re		Limited Inspection:		
Protection System:				Perform. Deficiencies				
Condition Data	Units	Exc.	Good	08. Pedestrian/vehicular hazard				
	m	0.00	0.00	0.00	0.00	BCI TEV:	BCI CEV:	
Comments:	No Guider	No Guiderail present.						
Recommended work:						Maintenance Needs:		
Comments								
Install guide rail.				🗆 1 year, 🗆 2 years,				
Type Tim	ing			🗆 Urgent				
□ Rehab, □ Repair, ☑ Replace □ 1 ☑ U	- 5 years, 🗆 No gent	w < 1 yea	ar, 🗆 6 - 10	years,				

Ontario Structu	ire Inspectio	on Manual	— Inspectio	on Form	Bridge ID:B1					
Element Group:	Approache	es				Length:	6.0 (m)			
Element Name:	Wearing s	urface				Width:	2.7 (m)			
Location:	East/West					Height:				
Element Description:						Count:	2			
Material:	Gravel/As	phalt				Total Quantity:	32.4 (sq.m)			
Element Type:						Not Inspected:				
Environment:	🗆 Benign,	Modera	ate, 🗹 Seve	re		Limited Inspection:				
Protection System:						Perform. Deficiencies				
Condition	Units	Exc.	Good	Fair	Poor*					
Data:	sq.m	0.00	0.00	30.0	2.4	BCI TEV: 194.4	BCI CEV: 72.0			
Comments:	Comments: Gravel on east side is compacted at wheel tracks and loose in the centerline. Asphalt on west side has depressions and patch work immediately in front of deck that results in ponding and a lip to bridge. Asphalt also has longitudinal narrow-medium cracks throughout.									
Recommende	d work:					Maintenance Needs: 16. Bridge Deck Drainage				
Comments						 ☑ 1 year, □ 2 years, □ Urgent 				
Type Timing	l					Blend to road on west side to provide sufficient drainage. Regrade east approach.				

Element Group:	Beams/Ma	ain Longitu	udinal Elem	ents		Length:	5.4 (m)
Element Name:	Girders					Width:	0.23 (m)
Location:	Middle	Middle				Height:	0.6 (m)
Element Description:						Count:	5
Material:	Steel					Total Quantity:	51.0 (sq.m)
Element Type:	l-type					Not Inspected:	
Environment:	🗆 Benign,	☑ Modera	ate, 🗆 Seve	ere		Limited Inspection:	
Protection System:					Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*		
	sq.m	0.00	51.0	0.00	0.00	BCI TEV: 10200.0	BCI CEV: 7650.0
Comments:	Good cond	dition with	light corro	sion			
Recommended work:		Maintenance Needs:					
Comments Type Timing		□ 1 year, □ 2 years, □ Urgent					
Protection System: Condition Data: Comments: Recommended work: Comments Type Timing	Units sq.m Good cond	Perform. Deficiencies BCI TEV: 10200.0 Maintenance Needs: 1 year, 2 years, Urgent	BCI CEV: 76				

Ontario Structure In	spection Ma	anual — In	spection Fo	Bridge ID:B10						
Element Group:	Decks					Length:	5.4 (m)			
Element Name:	Deck Top					Width:	4.8 (m)			
Location:						Height:	0.2 (m)			
Element Description:	Wood with	n running	boards			Count:	0			
Material:	Wood					Total Quantity:	25.9 (sq.m)			
Element Type:						Not Inspected:				
Environment:	🗆 Benign,	Moder	ate, 🗹 Seve	re		Limited Inspection:				
Protection System:						Perform. Deficiencies				
Condition Data	Units	Exc.	Good	Fair	Poor*					
Condition Data:	sq.m	0.00	23.31	0.00	2.59	BCI TEV: 3108.0	BCI CEV: 2097.9			
Comments:	Ponding a treatment	Ponding at centre between longitudinal boards. Mild splitting in timbers either side next to curb pressure treatment still visible.								
Recommended wo	ork:				Maintenance Needs:					
Comments				□ 1 year, □ 2 years, □ Urgent						
Type Timing										

Element Group:	Decks					Length: 5.4 (m)		
Element Name:	Soffit - Th	in Slab				Width:	4.1 (m)	
Location:						Height:		
Element Description:						Count:	0	
Material:	Wood					Total Quantity:	22.1 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	🛛 Modera	ate, 🗆 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data.	sq.m	0.00	19.89	2.21	0.00	BCI TEV: 2652.0	BCI CEV: 1896.18	
Comments:	Limited in through fr	spection c om the de	lue to high eck top.	water lev	el. Visible p	ortions were in good condition, 10	0% had moisture seeping	
Recommended w	vork:					Maintenance Needs:		
Comments				□ 1 year, □ 2 years, □ Urgent				
Type Timing								

Ontario Structure Inspect	ion Manual -	— Inspect	Bridge ID: B10					
Element Group:	Decks					Length:	5.5 (m)	
Element Name:	Wearing S	urface				Width:	0.9 (m)	
Location:						Height:		
Element Description:	Longitudir	nal PT 2x8	boards			Count:	2	
Material:	Wood					Total Quantity:	9.9 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	Moder	ate, 🛛 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data.	sq.m	0.00	9.0	0.9	0.00	BCI TEV: 247.5	BCI CEV: 177.75	
Comments:	Running b	oards in g	jood conditi	on board	s at the edg	e of wearing surface have split		
Recommended work:						Maintenance Needs: 12. Bridge Surface Repair		
Comments			 ☑ 1 year, □ 2 years, □ Urgent Peplace all four edge 					
iype inning						boards.		

Element Group:	Embankm	ents & Str	reams			Length:			
Element Name:	Embankm	ents				Width:			
Location:						Height:			
Element Description:						Count:	4		
Material:						Total Quantity:	0.0		
Element Type:						Not Inspected:			
Environment:	🗵 Benign,	Modera	ate, 🗆 Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition Data	Units	Exc.	Good	Fair	Poor*	15. Unstable embankments			
Condition Data:	each	0.00	0.00	2.0	2.0	BCI TEV:	BCI CEV: 800.0		
Comments:	Washouts	at both w	est embanl	kments. (!	50%)	·			
Recommended work:						Maintenance Needs: 13. Erosion Control at Bridges			
Comments			□ 1 year, □ 2 years, ☑ Urgent						
Type Timing			Fill west washouts						
Ontario Structure Inspection Manual — Inspection Form						Bridge ID:	B10		
---	--------------------------------	------------------------	-----------------------------	------------------------	-----------------------	---	-----------------------------	--	
Element Group:	Embankm	ents & Sti	reams			Length:			
Element Name:	Streams a	nd Water	ways			Width:			
Location:	North and South					Height:			
Element Description:					Count:	1			
Material:					Total Quantity:	1.0			
Element Type:					Not Inspected:				
Environment:	🗵 Benign, 🗆 Moderate, 🗆 Severe				Limited Inspection:				
Protection System:					Perform. Deficiencies				
Condition	Units Exc. Good Fair Poor*				Poor*	13. Flooding/channel blockage			
Data:	all	0.00	1.0	0.00	0.00	BCI TEV: 1000.0	BCI CEV: 750.0		
Comments:	Large con- erosion of	crete deb structure	ris under br quicker ove	idge. Incr er time.	eased veloc	ity of flow under structure due to de	crease in depth. Will cause		
Recommende	d work:					Maintenance Needs: 13. Erosion Control at Bridges			
Comments						☑ 1 year, □ 2 years, □ Urgent			
Type Timing						Clear concrete debris from under bridge			

Element Group:	Retaining	Retaining walls				Length: 2.0 (m)		
Element Name:	Walls	Valls				Width:		
Location:						Height:	0.5 (m)	
Element Description:					Count:	0		
Material:						Total Quantity:	3.0 (sq.m)	
Element Type:	Gabions/C	Gabions/Concrete with filter cloth				Not Inspected:		
Environment:	🗆 Benign,	🗆 Benign, 🗆 Moderate, 🗹 Severe				Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data.	sq.m	0.00	3.0	0.00	0.00	BCI TEV: 1050.0	BCI CEV: 787.5	
Comments:	In good co	ndition, n	ninor deforr	mation of	gabions but	no rotation or movement		
Recommended work:					Maintenance Needs:			
Comments Type Timing				□ 1 year, □ 2 years, □ Urgent				

Ontario Structure Inspection Manual — Inspection Form					Bridge ID: B10			
Element Group:	Sidewalks	/curbs				Length:	5.6 (m)	
Element Name:	Curbs					Width:	0.15 (m)	
Location:						Height:	0.15 (m)	
Element Description:	Curb on N	Curb on North side.				Count:	2	
Material:	Wood					Total Quantity:	5.04 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	Moder	ate, 🗹 Seve	re		Limited Inspection:		
Protection System:	Pressure T	reated				Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	0.00	3.0	2.04	0.00	BCI TEV: 201.6	BCI CEV: 122.64	
Comments:	Severe ch moderate	ecking an checking	d warping c minor impa	of the sou loct damag	th curb. Port ge at northw	ion of north curb replaced sin est quadrant.	ce last inspection	
Recommended work:						Maintenance Needs:		
Comments								
Replace 2 6x6x(5.6m) curbs				□ 1 year, □ 2 years, □ Urgent				
Type Timing								
□ Rehab, □ Repair,				0 years,				

Ontario Structure Inspection Ma	Bridge ID:						
Repair and Rehabilitation Re	Priority					E di anti di	
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	Cost
Curb	Replace			✓			\$1,000.00
Stream	Clean debris from under bridge				✓		\$1,000.00
Embankments	Fill west washouts					✓	\$2,000.00
Deck Wearing surface	Replace all 4 edge boards				✓		\$1,000.00
Approach Wearing surface	Blend road on west side to provide proper drainage. Regrade east approach.				•		\$5,000.00
Approach Barrier	Install guide rail at approaches					1	\$20,000.00
Signs	Replace damaged sign					✓	\$1,000.00
						Total	\$31,000.00

Assosciated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		



Description: Looking north



Description: Looking west



Description: Looking east



Description: Looking south





Abutments / Abutment walls (East and West Abutments)



Abutments / Abutment walls (East and West Abutments)



Abutments / Ballast Walls (East and West Abutments)



Abutments / Ballast Walls (East and West Abutments)





Abutments / Ballast walls (East and West Abutments)



Description: SW Abutments / Wingwalls (Southwest)



Description: SW

Abutments / Wingwalls (Southwest)



Accessories / Signs



Approaches / Wearing surface (East/West)



Approaches / Wearing surface (East/West)

B10



Sidewalks/curbs / Curbs



Description: Looking west Decks / Deck Top



Decks / Soffit - Thin Slab



Decks / Wearing Surface



Description: Increased velocity due to shallow depth under bridge (Looking S) Embankments & Streams / Streams and Waterways (North and South)



Description: SW embankment Embankments & Streams / Embankments



Description: NW embankment with exposed geotextile Embankments & Streams / Embankments



Retaining walls / Walls

B11

Inventory Data:						
Structure Name	Bridge 11 Lots 25 & 26,	Conc XII, Stephens	on			
Main Hwy/Road #		🛛 On 🗆 Under	Crossing Type: ☑ Navi. W □ Road, □ Ped., □ Other, □ railway, □ Unknown, □ Ov	/ater, ☑ Non-Navi. Water, □ Rail, □ Over water, □ Over Road, □ Under er railway, □ Under Road		
Hwy/Road Name	Domtar Road					
Structure Location	0.45km North of Old Mu	skoka Road				
Latitude	45.269009		Longitude	-79.303629		
Northing			Easting			
Owner(s)	Town of Huntsville		■ Heritage designation: Desig., □ Desig./not List, □	Not Cons., 🗆 Cons./not App., 🗆 List/not] Desig. & List		
MTO Region	Northeastern		Road Class: □ Freeway, □ Residential, □ Collector Co □ Local Commercial, □ Ru more lanes] Arterial, □ Collector, □ Collector mmercial, ☑ Local, □ Local Residential, ral Expressways, □ Alleyways, □ 4 or		
MTO District	Hunstville		Posted Speed	80 No. of 1		
Old County	Simcoe-Muskoka		AADT	225.0 % Trucks		
Geographic Twp.	Stephenson		Inspection Route Sequence			
Structure Type	Concrete Rigid Frame		Interchange Number			
Total Deck Length	4.0	(m)	Interchange Structure Number			
Overall Str. Width	6.2	(m)	Min. Vertical Clearance	(m)		
Total Deck Area	24.8	(sq.m)	Special Routes:	□ Transit, □ Truck, □ School, □ Bicycle, □ Emergency, □ Commuter		
Roadway Width	5.8) (m)	Detour Length Around Bridge	5 (km)		
Skew Angle	0	(Degrees)	Direction of Structure	East to West		
No. of Spans	1]	Fill on Structure	0.3 (m)		
Span Lengths	3.1			(m)		
Historical Data:						
Year Built		1950	Year of Last Major Rehab.			
Last OSIM Inspec	tion	2016	Last Evaluation			
Last Enhanced O	SIM Inspection		Current Load Limit	/ / (tonnes)		
Enhanced Access	Equipment		Load Limit By-Law #	/ /		
Last Underwater	Inspection		By-Law Expiry Date			
Last Condition Su	ırvey					
Rehab History: (I	Rehab History: (Date/description)					

Ontario Structure Inspection Manual — Inspection Form	1	Bridge ID:	B11
Scheduled Improvements:			
Regional Priority Number	Programmed Work Ye	ear	
Nature of Program Work:			

Appraisal Indices:	Comments	
Fatigue		
Seismic		
Scour		
Flood		
Geometrics		
Barrier		
Curb		
Load Capacity		

Ontario Structure Inspection Manual — Inspection Form	Bridge ID:	B11			
Field Inspection Information:					
Date of Inspection:	June 27, 2018	Inspection Type	OSIM		
Inspector:	Ben Belfry				
Others in Party:	Frank Palmay, Sean Wetmore				
Access Equipment Used:	Tape and hammer				
Weather:	Cloudy				
Temperature:	20.0 °C				

Upcoming Inspections and Investigations:			
Due date	Priority	Comments	

,	Additional Investigations Required	Priority			
ĺ	Autional investigations kequireu.	None	Normal	Urgent	
r	Naterial Condition Survey	✓			
	Detailed Deck Condition Survey:	✓			
	Non-destructive Delamination Survey of Asphalt-Covered Deck:	✓			
	Concrete Substructure Condition Survey:	✓			
	Detailed Coating Condition Survey:	✓			
	Detailed Timber Investigation	~			
	Post-Tensioned Strand Investigation	✓			
ι	Inderwater Investigation:	✓			
Fatigue Investigation:		✓			
Ś	Seismic Investigation:	✓			
Ś	Structure Evaluation:	✓			
r	Monitoring				
	Monitoring of Deformations, Settlements and Movements:	✓			
	Monitoring Crack Widths:	✓			
	•				

Investigation Notes:

Ontario Structure Inspection Manual — Inspection Form

Bridge ID:

B11

Overall Structure Notes:				
Recommended Work on Structure:	Replace in 6-10 years.			
Timing of Recommended Work:	\Box Urgent, \Box Now < 1 year, \Box 1 - 5 years, \Box 6 - 10 years, \Box > 10 years			
Overall Comments:	Overall structure is in poor condition.			
Date of Next Inspection:	2020			

Overall Bridge Condition:

47.34

Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

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 ponding11 Deck drainage
- -
- **07** Repair to Structural Steel
- **08** Repair of Bridge Concrete
- **09** Repair of Bridge Timber
- **10** Bailey bridges Maintenance
- Animal/Pest Control
 Bridge Surface Repair

- 12 Slippery surfaces
- 13 Flooding/channel blockage
- 14 Undermining of foundation
- **15** Unstable embankments
- 16 Other
- 17 None

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

Element Group:	Abutment	S				Length:		
Element Name:	Abutment	Walls				Width:	6.2 (m)	
Location:	East and W	West				Height:	1.2 (m)	
Element Description:						Count:	2	
Material:	Cast-In-Pla	ace Concre	ete			Total Quantity:	14.9 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	☑ Modera	ate, 🗆 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor*			
Data:	sq.m	0.00	12.9	0.1	1.9	BCI TEV: 13410.0	BCI CEV: 8743.5	
Comments:	Minor wea and scouri	ir, severe ing on sou	erosion of s Ith section	outh and	north abutr	nent at footing/abutment interface	with light scaling. throughout	
Recommended	work:					Maintenance Needs: 13 - Erosio	n Control at Bridges	
Comments Type Timing						□ 1 year, ☑ 2 years, □ Urgent Install erosion		
						protection.		

Element Group:	Abutment	S				Length:	1.6 (m)		
Element Name:	Wingwalls					Width:			
Location:	4 Corners	of Structu	ire			Height:	0.8 (m)		
Element Description:						Count:	4		
Material:	Cast-In-Pla	ace Concr	ete			Total Quantity:	5.1 (sq.m)		
Element Type:						Not Inspected:			
Environment:	🗆 Benign, 🛛 Moderate, 🗆 Severe					Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition	Units	Exc.	Good	Fair	Poor*				
Data:	sq.m	0.00	4.8	0.00	0.3	BCI TEV: 1785.0	BCI CEV: 1260.0		
Comments:	All wingwa Erosion at	alls lightly wingwall	scaled. Sco to stream b	ouring of s bed interfa	southwest w ace approx 4	ingwall at abutment interface. NW c 4cm.	orner wingwall overgrown.		
Recommended	ł work:					Maintenance Needs:			
Comments						□ 1 year, □ 2 years, □ Urgent			
Type Timing									

Element Group:	Accessorie	es				Length:			
Element Name:	Signs					Width:			
Location:						Height:			
Element Description:						Count:	6		
Material:						Total Quantity:	6.0		
Element Type:						Not Inspected:			
Environment:	🗆 Benign,	🗵 Modera	ate, 🗆 Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data:	each	0.00	6.0	0.00	0.00	BCI TEV: 600.0	BCI CEV: 450.0		
Comments:	Hazard Wa	arning Sig	ns and Narı	row bridg	e ahead.				
Recommended work:						Maintenance Needs:			
Comments						□ 1 year, □ 2 years, □ Urgent			
Type Timing									

Element Group:	Approache	es				Length:	6.0 (m)		
Element Name:	Wearing s	urface				Width:	5.8 (m)		
Location:						Height:			
Element Description:						Count:	2		
Material:	Asphalt					Total Quantity:	69.6 (sq.m)		
Element Type:						Not Inspected:			
Environment:	🗆 Benign,	□ Moder	ate, 🛛 Seve	ere		Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data:	sq.m	0.00	0.00	0.00	69.6	BCI TEV: 417.6	BCI CEV:		
Comments:	Potholes t between s	hroughou houlders	t, some fille and roadwa	ed. Pondir ay. Edge o	ng and wear cracking. Sev	also present. High shoulders caus vere wheel rutting.	ing ponding		
Recommended work:	-					Maintenance Needs:	Maintenance Needs:		
Comments									
Repave approaches.									
Install barrier.						□ 1 year, □ 2 years, □ Urgent			
Туре	Timing								
☑ Rehab, □ Repair, □ Replace	☑ 1 - 5 ye □ Urgent	ears, 🗆 N :	ow < 1 yea	r, 🗆 6 - 10	0 years,				
□ Rehab, □ Repair, ☑ Replace	☑ 1 - 5 ye □ Urgent	ears, 🗆 N :	ow < 1 yea	r, 🗆 6 - 10	0 years,				

Ontario Structure Ir	spection M	anual — Ir	nspection Fo	Bridge ID:	B11			
Element Group:	Barriers					Length:	0.1 (m)	
Element Name:	Posts					Width:	0.1 (m)	
Location:						Height:	0.5 (m)	
Element Description:						Count:	18	
Material:	Cast-In-Pla	ace Concr	ete			Total Quantity:	18.0 (each)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	Modera	ate, 🗹 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units Exc. Good Fair Poor*							
Condition Data.	each	0.00	14.0	2.0	2.0	BCI TEV: 3600.0	BCI CEV: 2260.0	
Comments:	Minor imp Barrier typ exposed r	act damag be does no ebar on to	ge at SE qua ot meet cur op rail both	adrant wi rent stan sides.	th hairline cı dards. Spalliı	racking throughout and discolourang on NW and NE corners. NE has	tion from weathering. severe spalling with	
Recommended we	ork:					Maintenance Needs:		
Comments								
Replace posts.						□ 1 year, □ 2 years, □ Urgent		
Туре	Tim	ning						
□ Rehab, □ Repair ☑ Replace	, ☑ 1 yea	- 5 years rs, □ Urge	, □ Now < 1 ent	l year, □	6 - 10			

Element Group:	Barriers					Length:	4.0 (m)
Element Name:	Railing S	ystems				Width:	0.2 (m)
Location:	East and	West				Height:	0.1 (m)
Element Description:						Count:	2
Material:	Cast-In-F	lace Concr	rete			Total Quantity:	8.0 (m)
Element Type:					Not Inspected:		
Environment:	🗆 Benig	n, 🗆 Moder	ate, 🗹 Seve	ere		Limited Inspection:	
Protection System:					Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair			
	m	0.00	6.0	1.0	1.0	BCI TEV: 1600.0	BCI CEV: 980.0
Comments:	Impact o	amage at	corners. Sca	aling/wea	r, spall with	exposed rebar and crack	ks throughout.
Recommended work:						Maintenance Needs	1
Comments							
Replace railing system.						\Box 1 year, \Box 2 years,	
Туре	Timing						
🗵 Rehab, 🗆 Repair, 🗆 Replace	☑ 1 - 5 years, [□ Urgent] Now < 1	year, 🗆 6 -	10 years,			

Ontario Structure Inspection Mar	nual — Inspection		Bridge ID:	B11				
Element Group:	Decks					Length:	4.0 (m)	
Element Name:	Deck Top					Width:	0.2 (m)	
Location:						Height:	0.1 (m)	
Element Description:						Count:	2	
Material:	Cast-In-Pl	ace Concr	ete			Total Quantity:	24.8 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign	🗆 Moder	ate, 🗹 Seve	ere	Limited Inspection:			
Protection System:	Asphalt					Perform. Deficiencie	S	
Condition Data	Units	Units Exc. Good Fair Poor*						
Condition Data:	sq.m	0.00	0.00	5.0	19.8	BCI TEV: 2976.0	BCI CEV: 240.0	
Comments:	Condition	based on	wearing su	rface con	dition			
Recommended work:						Maintenance Needs:		
Comments								
Replace deck.			□ 1 year, □ 2 years, □ Urgent					
Туре	Timing							
🗆 Rehab, 🗆 Repair, 🗹 Replace	 ☑ 1 - 5 years, □ □ Urgent 	Now < 1	year, 🗆 6 - 🛛	10 years,				

Element Group:	Decks						Length:	3.1 (m)	
Element Name:	Soffit	- Thick	k slab				Width:	5.2 (m)	
Location:	Interi	or					Height:		
Element Description:						Count:	1		
Material:	Cast-I	n-Place	e Concr	ete			Total Quantity:	16.12 (sq.m)	
Element Type:							Not Inspected:		
Environment:	🗹 Ber	ign, □] Modera	ate, 🗆 Seve	re		Limited Inspection:		
Protection System:					Perform. Deficiencies				
Condition Data:	Uni	ts	Exc.	Good	01. Load carrying capacity				
	sq.	n	0.00	0.00	0.00	16.12	BCI TEV: 5642.0	BCI CEV:	
Comments:	Spalli	ng and	d delami	natations th	nroughou	t. Exposed c	orroded rebar. Overall in	poor condition	
Recommended work:							Maintenance Needs:		
Comments									
Replace soffit.							□ 1 year, □ 2 years,		
Туре	Timing								
🗆 Rehab, 🗆 Repair, 🗹 Replace	☑ 1 - 5 years □ Urgent	□ No	ow < 1 y	ear, 🗆 6 - 1	0 years,				

Ontario Structure Inspection Ma	nual — Ins	pection For	m				Bridge ID:	B11		
Element Group:		Decks					Length:	3.1 (m)		
Element Name:		Soffit - Thi	ck slab				Width:	0.5 (m)		
Location:		Exterior/Fa	ascias				Height:	0.5 (m)		
Element Description:							Count:	2		
Material:		Cast-In-Pla	ace Concr	ete			Total Quantity:	6.2 (sq.m)		
Element Type:						Not Inspected:				
Environment:		🗆 Benign,	☑ Modera	ate, 🗆 Seve	re	Limited Inspection:				
Protection System:							Perform. Deficiencies			
Condition Data		Units	Exc.	Good	Fair	Poor*				
Condition Data.		sq.m	0.00	0.00	0.00	6.2	BCI TEV: 2170.0	BCI CEV:		
Comments:		Medium so	caling.							
Recommended work:							Maintenance Needs:			
Comments										
Replace soffit.	soffit.									
Туре	Timing									
🗆 Rehab, 🗆 Repair, 🗹 Replace	☑ 1 - 5 ye □ Urgent	ears, 🗆 Nov	w < 1 yea	r, 🗆 6 - 10 y	/ears,					

Element Group:	Decks					Length:	4.0 (m)	
Element Name:	Wearing S	urface				Width:	5.8 (m)	
Location:						Height:		
Element Description:						Count:	1	
Material:	Asphalt					Total Quantity:	23.2 (sq.m)	
Element Type:					Not Inspected:			
Environment:	🗆 Benign,	🗆 Moder	ate, 🛛 Seve	re	Limited Inspection:			
Protection System:					Perform. Deficiencies			
Condition Data:	Units	Exc.	Good	Fair				
Condition Data.	sq.m	0.00	0.00	20.0	3.2	BCI TEV: 580.0	BCI CEV: 200.0	
Comments:	Potholes/p	atches, w	vear, pondir	ıg, transv	verse crackin	g		
Recommended work:						Maintenance Needs: 15 - Rout and Sea		
Comments								
Waterproof and pave.						☑ 1 year, □ 2 years, □ Urgent		
Туре Т	Fiming					Rout and		
🗆 Rehab, 🗆 Repair, 🗹 Replace 🛛	☑ 1 - 5 years, □ □ Urgent] Now <]	. year, 🗆 6 ·	- 10 years	S,	Seal		

Ontario Structure Inspect	ion Manual	 Inspect 	Bridge ID:	B11				
Element Group:	Embankm	ents & Sti	reams			Length:		
Element Name:	Embankm	ents				Width:		
Location:						Height:		
Element Description:						Count:	4	
Material:						Total Quantity:	4.0 (each)	
Element Type:						Not Inspected:		
Environment:	🗵 Benign,	Modera	ate, 🗆 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	each	0.00	4.0	0.00	0.00	BCI TEV: 4000.0	BCI CEV: 3000.0	
Comments:	Appear to	be well v	egetated ar	nd stable.	Southwest	embankment steep approx 3m	from deck.	
Recommended work:						Maintenance Needs:		
Comments						□ 1 year, □ 2 years, □ Urgent		
Type Timing								

Element Group:	Embankments & Streams					Length:		
Element Name:	Streams a	Streams and Waterways				Width:		
Location:						Height:		
Element Description:					Count:	1		
Material:						Total Quantity:	1.0 (all)	
Element Type:						Not Inspected:		
Environment:	🗹 Benign, 🗆 Moderate, 🗆 Severe					Limited Inspection:		
Protection System:					Perform. Deficiencies			
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	all	0.00	1.0	0.00	0.00	BCI TEV: 1000.0	BCI CEV: 750.0	
Comments:	Lightly Vegetated not effecting flow of waterway. Aggradation of streambed material, mostly on NW quadrant.							
Recommended work:					Maintenance Needs:			
Comments					□ 1 year, □ 2 years, □ Urgent			
Type Timing								

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Ontario Structure Inspection Man	Bridge ID: B11						
Repair and Rehabilitation Required			Priority				
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	Cost
Structure	Replace structure		✓				\$300,000.00
						Total	\$300,000.00

Assosciated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		



Description: North abutment

Abutments / Abutment Walls (East and West)



Description: South abutment erosion. Abutments / Abutment Walls (East and West)



Description: South abutment wall.

Abutments / Abutment Walls (East and West)



Description: North abutment erosion at footing interface. Abutments / Abutment Walls (East and West)

B11



Description: Looking north Approaches / Wearing surface



Description: Typical hazard sign Accessories / Signs



Description: NW - overgrown vegetation. Abutments / Wingwalls (4 Corners of Structure)



Description: SW quadrant. Abutments / Wingwalls (4 Corners of Structure)





Description: NE quadrant

Abutments / Wingwalls (4 Corners of Structure)



Description: SE quadrant. Abutments / Wingwalls (4 Corners of Structure)



Description: West side

Barriers / Posts



Description: East side Barriers / Posts



Description: Wearing surface above decktop

Decks / Deck Top



Description: Interior soffit with exposed rebar Decks / Soffit - Thick slab (Interior)



Description: East exterior soffit Decks / Soffit - Thick slab (Exterior/Fascias)



Description: Stream flow looking east Embankments & Streams / Streams and Waterways



Description: Stream looking west, flow from west to east Embankments & Streams / Streams and Waterways



Description: NW quadrant Embankments & Streams / Embankments

B11



Description: SE quadrant

Embankments & Streams / Embankments



Description: SW quadrant Embankments & Streams / Embankments



Description: NE quadrant

Embankments & Streams / Embankments
Inventory Data:									
Structure Name	Bridge 13 Centre Street Bridge								
Main Hwy/Road #	☑ On □ Under		Crossing Type: □ Navi. Water, □ Non-Navi. Water, □ Rail, □ Road, □ Ped., □ Other, □ Over water, □ Over Road, □ Unde railway, □ Unknown, □ Over railway, □ Under Road						
Hwy/Road Name	Centre Street								
Structure Location	0.32km South of Distric	t Road 2							
Latitude	45° 19' 48" N		Longitude	79° 13' 19" W					
Northing			Easting						
Owner(s)	Town of Huntsville		Heritage designation: ☑ Desig., □ Desig./not List, □	Not Cons., 🗆 Cons./not App Desig. & List	., 🗆 List/not				
MTO Region	Northeastern		Road Class: □ Freeway, □ Arterial, ☑ Collector, □ Collector ☐ Residential, □ Collector Commercial, □ Local, □ Local Residential, □ Local Commercial, □ Rural Expressways, □ Alleyways, □ 4 or more lanes						
MTO District	Huntsville		Posted Speed	50 No. of Lanes	2				
Old County	Simcoe-Muskoka		AADT	3000.0 % Trucks	2.0				
Geographic Twp.	Brunel		Inspection Route Sequence						
Structure Type	Concrete Slab on Steel	Girder	Interchange Number						
Total Deck Length	83.3] (m)	Interchange Structure Number						
Overall Str. Width	11.2] (m)	Min. Vertical Clearance		(m)				
Total Deck Area	933.0	(sq.m)	Special Routes:	□ Transit, □ Truck, □ Scho □ Bicycle, □ Emergency, □	ool,] Commuter				
Roadway Width	9.1) (m)	Detour Length Around Bridge	4	(km)				
Skew Angle	6	(Degrees)	Direction of Structure	North to South					
No. of Spans	3]	Fill on Structure		(m)				
Span Lengths	24.9, 33.5, 24.9				(m)				
Historical Data:									

HISTOLICAI Data:		
Year Built	1979 Year of Last Major Rehab.	
Last OSIM Inspection	2015 Last Evaluation	
Last Enhanced OSIM Inspection	Current Load Limit	/ / (tonnes)
Enhanced Access Equipment	Load Limit By-Law #	/ /
Last Underwater Inspection	By-Law Expiry Date	
Last Condition Survey		
Rehab History: (Date/description)		

Ontario Structure Inspection Manual — Inspection Form	Bridge II	D: 042-173
Scheduled Improvements:		
Regional Priority Number	Programmed Work Year	
Nature of Program Work:		

Appraisal Indices:	Comments	
Fatigue		
Seismic		
Scour		
Flood		
Geometrics		
Barrier		
Curb		
Load Capacity		

Ontario Structure Inspection Manual — Inspection Form	Bridge ID:	042-173	
Field Inspection Information:			
Date of Inspection:	Inspection Type	OSIM	
Inspector:			
Others in Party:			
Access Equipment Used:	Tape, hammer		
Weather:	Sunny		
Temperature:	28.0 °C		

Upcoming Inspections and Investigations:							
Due date Priority Comments							

,	Additional Investigations Deswined.	Priority			
ľ	Additional investigations Required:	None	Normal	Urgent	
r	Naterial Condition Survey	✓			
	Detailed Deck Condition Survey:	✓			
	Non-destructive Delamination Survey of Asphalt-Covered Deck:	✓			
	Concrete Substructure Condition Survey:	✓			
	Detailed Coating Condition Survey:	✓			
	Detailed Timber Investigation	✓			
	Post-Tensioned Strand Investigation	✓			
ι	Inderwater Investigation:	✓			
F	atigue Investigation:	✓			
\$	Seismic Investigation:	✓			
S	Structure Evaluation:	✓			
r	Ionitoring	✓			
	Monitoring of Deformations, Settlements and Movements:	✓			
	Monitoring Crack Widths:	✓			
I	nvestigation Notes:				

None

Ontario Structure Inspection Manual — Inspection Form

Bridge ID:

042-173

Overall Structure Notes:							
Recommended Work on Structure:							
Timing of Recommended Work:	\Box Urgent, \Box Now < 1 year, \Box 1 - 5 years, \Box 6 - 10 years, \Box > 10 years						
Overall Comments:	Structure in good to fair condtion						
Date of Next Inspection:	2020						

Overall Bridge Condition:

65.31

Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

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 of Bridge Concrete
- 09 Repair of 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
- 17 None

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

042-173

Element	Data
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Element Group:	Abutment	S				Length:		
Element Name:	Abutment	Walls				Width:	11.3 (m)	
Location:	North Abu	Itment				Height:	3.5 (m)	
Element Description:						Count:	2	
Material:	Cast-In-Pla	ace Concr	ete			Total Quantity:	79.1 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗵 Benign,	, 🗆 Moder	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor*			
Data:	sq.m	0.00	73.0	2.0	4.1	BCI TEV: 71190.0	BCI CEV: 49995.0	
Comments:	Comments: North: Narrow vertical cracks, light bug holes and h west side. South: Light graffiti, 10% moisture stain					ive 15-20% moisture staining. Sma d on the southeast quadrant, hairlir	ll area of delamination near ne cracks and light bug holes.	
Recommended work:					Maintenance Needs:			
Comments					□ 1 year, □ 2 years, □ Urgent			
Type Timing	I							

Element Group:	Abutments					Length:			
Element Name:	Ballast Wa	ills				Width:	11.3 (m)		
Location:	North and	South Ab	utment			Height:	1.9 (m)		
Element Description:						Count:	2		
Material:	Cast-In-Pla	ice Concr	ete			Total Quantity:	43.0 (sq.m)		
Element Type:						Not Inspected:			
Environment:	🗆 Benign,	☑ Moder	ate, 🗆 Seve	re		Limited Inspection:			
Protection System:					Perform. Deficiencies				
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data.	sq.m	0.00	0.00	43.0	0.2	BCI TEV: 15050.0	BCI CEV: 6020.0		
Comments:	Small spal 0.3m med	l northeas ium crack	st wall, sign South wal	s of wate I some ha	r leakage th airline cracks	rough joint. Northwest wall h 5.	as exposed rebar and		
Recommended work:						Maintenance Needs:			
Comments									
Repair ballast wall.						□ 1 year, □ 2 years, □ Urgent			
Туре	Timing								
 ☑ Rehab, □ Repair, □ Replace 	□ 1 - 5 ye □ Urgent	ears, 🗆 No	ow < 1 year	Rehab, □ Repair, □ 1 - 5 years, □ Now < 1 year, □ 6 - 10 years, Replace □ Urgent					

Ontario Structure Inspection	n Manual —	Bridge ID:	042-173				
Element Group:	Abutment	S				Length:	
Element Name:	Bearings					Width:	
Location:	North and	South				Height:	
Element Description:						Count:	8
Material:	Elastomer	ic/Steel				Total Quantity:	8.0 (each)
Element Type:	Laminated	k				Not Inspected:	
Environment:	🗆 Benign,	☑ Modera	ate, 🗆 Seve	re		Limited Inspection:	
Protection System:						Perform. Deficiencies	
	Units	Exc.	Good	Fair	Poor*		
Condition Data:	each	0.00	0.00	8.0	0.00	BCI TEV: 8000.0	BCI CEV: 3200.0
Comments:	Limited or noted on l	n north sic ast inspec	le due to ac ction. South	cessibilit bearings	y. Light to m in good con	edium cracking and some bu dition.	lging on the south
Recommended work:						Maintenance Needs:	
Comments							
When seals and joints are r bearings.	eplaced, re	place the				□ 1 year, □ 2 years, □ Urgent	
Туре	Timing						
□ Rehab, □ Repair, ☑ Replace	□ 1 - 5 y □ Urgent	ears, □ N t					
Element Group:	Abutmer	nts				Length:	4.8 (m)
	Martin and I					347.444	

	/ ibuchiene	5				=0.19th	1.0 ()
Element Name:	Wingwalls					Width:	
Location:						Height:	1.9 (m)
Element Description:						Count:	4
Material:	Cast-In-Pla	ace Concr	ete			Total Quantity:	36.5 (sq.m)
Element Type:						Not Inspected:	
Environment:	🗆 Benign,	☑ Moder	ate, 🗆 Seve	re		Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data	Units	Exc.	Good	Fair	Poor*		
Condition Data:	sq.m	0.00	29.7	4.2	2.6	BCI TEV: 12775.0	BCI CEV: 8384.25
Comments:	Moderate	narrow pa	attern crack	s through	nout.		
Recommended work:						Maintenance Needs:	
Comments Type Timing						□ 1 year, □ 2 years, □ Urgent	

Ontario Structu	ire Inspectio	on Manual	— Inspectio	on Form		Bridge ID:	042-173	
Element Group:	Accessorie	es				Length:		
Element Name:	Signs					Width:		
Location:						Height:		
Element Description:						Count:	2	
Material:	Steel					Total Quantity:	2.0	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	Modera	ate, 🗹 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor*			
Data:	each	0.00	0.00	2.0	0.00	BCI TEV: 200.0	BCI CEV: 80.0	
Comments:	No hazard condition.	l Warning North end	Signs prese d(south bo	ent, howe und lane)	ver there is a bridge ices	a Bridge Ices sign present at both ends sign with slight lean.	s of bridge both in fair	
Recommende	d work:					Maintenance Needs: 17. Other		
Comments						□ 1 year, □ 2 years, ☑ Urgent		
Type Timing	l					Install hazard signs. Straighten south bound bridges ices sign.		

Element Group:	Accessorie	es				Length:	83.3		
Element Name:	Utilities					Width:			
Location:	West Side					Height:			
Element Description:						Count:	4		
Material:	Steel/PVC					Total Quantity:	4.0 (each)		
Element Type:	Pipe					Not Inspected:			
Environment:	🗆 Benign,	☑ Moder	ate, 🗆 Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition	Units	Exc.	Good	Fair	Poor*				
Data:	each	0.00	4.0	0.00	0.00	BCI TEV: BCI CEV:			
Comments:	A PVC con southern p	duit and a pier, and N	a steel wate Natermain	ermain rui looks to b	n parallel to pe in a sever	and between the girders on west side. PVC ely corroded state. Street lights on east sid	is sagged over Ie in good condition.		
Recommende	d work:					Maintenance Needs: 17. Other			
Comments						 ☑ 1 year, □ 2 years, □ Urgent 			
Type Timing	I					Investigate the extent of deterioration of watermain.			

Ontario Structu	re Inspecti	on Manual	— Inspectio	on Form		Bridge ID:	042-173	
Element Group:	Approach	es				Length:	11.5 (m)	
Element Name:	Barriers					Width:		
Location:	NE, NW					Height:		
Element Description:	N/A					Count:	2	
Material:	Steel					Total Quantity:	23.0	
Element Type:	Steel Flex	Beam on	Wood Post			Not Inspected:		
Environment:	🗆 Benign,	, 🗆 Modera	ate, 🗹 Seve	re		Limited Inspection:		
Protection System:	Hot dip ga	alvanizing				Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor*	8 - Pedestrian / vehicular hazard		
Data:	m	0.00	14.3	2.2	6.5	BCI TEV: 4600.0	BCI CEV: 2321.0	
Comments:	Guiderail launching Guiderail sides.	on the nor hazard. P is lightly c	th side only osts suppor orroded due	/ with bur ting guid e to the v	ried end trea erails are rot vorn protecti	tments, which are substandard and ted, have sitting water on top, and on coating. Substandard connection	represent a vehicle have rotated offset blocks. to parapet wall on both	
Recommende	d work:					Maintenance Needs:		
Comments								
Install new guid code.	de rail to c	urrent				□ 1 year, □ 2 years, □ Urgent		
Туре	-	Timing						
□ Rehab, □ Re ☑ Replace	epair, [}	□ 1 - 5 yea years, ☑ U	ars, 🗆 Now rgent	< 1 year,	□ 6 - 10			

Ontario Structu	ire Inspectio	on Manual	— Inspectio	on Form		Bridge ID:	042-173	
Element Group:	Approache	es				Length:		
Element Name:	Drainage :	System				Width:		
Location:						Height:		
Element Description:						Count:	4	
Material:	Concrete ,	/ Asphalt o	gutter			Total Quantity:	4.0 (each)	
Element Type:	Collector S	System/Ca	atch Basins			Not Inspected:		
Environment:	🗆 Benign,	Modera	ate, 🗹 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor*			
Data:	each	0.00	4.0	0.00	0.00	BCI TEV: 20.0	BCI CEV: 15.0	
Comments:	Catch bas continue f	ins, in goo rom the re	od condition oadway acr	n. Gutter f oss the g	from road on utter.	North end is in good condition except	for transverse cracks that	
Recommende	d work:					Maintenance Needs: 08. Repair of Bridge Concrete		
Comments						 ☑ 1 year, □ 2 years, □ Urgent 		
Type Timing						Repair cracks in curb/gutter at NW c basin	atch	

Element Group:	Approache	es				Length:	6.0 (m)
Element Name:	Wearing s	urface				Width:	9.1 (m)
Location:						Height:	
Element Description:						Count:	2
Material:	Asphalt					Total Quantity:	109.2 (sq.m)
Element Type:						Not Inspected:	
Environment:	🗆 Benign,	Modera	ate, 🗹 Seve	re		Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data	Units	Exc.	Good	Fair	Poor*		
Condition Data:	sq.m	0.00	109.2	0.00	0.00	BCI TEV: 655.2	BCI CEV: 491.4
Comments:	Medium tr	ansverse	cracking th	roughout	and at inter	face with joint and narrow longitu	udinal centreline cracking.
Recommended wor	k:					Maintenance Needs: 15 - Rou	it and Seal
Comments Type Timing						□ 1 year, □ 2 years, ☑ Urgent	
						Nout and Seal.	

Ontario Structure Inspect	tion Manual	— Inspec	Bridge ID: 042-173					
Element Group:	Barriers					Length:	1.5 (m)	
Element Name:	Barrier/Pa	rapet Wal	ls			Width:	0.35 (m)	
Location:						Height:	1.1 (m)	
Element Description:	N/A					Count:	4	
Material:	Masonry					Total Quantity:	6.6 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	Moder	ate, 🗹 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data.	sq.m	0.00	0.00	0.58	1.07	BCI TEV: 660.0	BCI CEV: 23.2	
Comments:	Decorative South side	e stone er e midway	nd posts. Th up the post	e Southe . Exposed	ast parapet of the set	end post has a large piece of sto arge spalls. Fascia coming free.	ne missing from the	
Recommended work:						Maintenance Needs:		
Comments Repair grout and stone of wall.	on Southeas	st and Nor	theast para	pet	□ 1 year, □ 2 years, □ Urgent			
Туре	Timing	I						
☑ Rehab, □ Repair, □ Replace	☑ 1 - 5 □ Urge	years, □ nt	Now < 1 ye	ar, 🗆 6 -	10 years,			

Element Group:	Barriers					Length:	95.0 (m)		
Element Name:	Railing Sys	stems				Width:			
Location:	East and v	vest sides				Height:	1.0 (m)		
Element Description:	N/A					Count:	2		
Material:	Steel					Total Quantity:	190.0 (m)		
Element Type:	3 Rail Met	al Railing				Not Inspected:			
Environment:	🗆 Benign,	Modera	ate, 🗹 Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencies	Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor*				
Data:	m	0.00	187.0	3.0	0.00	BCI TEV: 38000.0	BCI CEV: 28290.0		
Comments:	In good to diameter l	fair condi nole locate	tion, with fe ed midway	ew small of west h	sections tha andrail.	t have vehicle collision / snow rem	oval damage. A 0.075		
Recommended	work:					Maintenance Needs:			
Comments						□ 1 year, □ 2 years, □ Urgent			
Type Timing									

Ontario Structure Inspection Mar	Bridge ID:	042-173							
Element Group:	Beams/Ma	in Longitu	udinal Elem	ents	Length:				
Element Name:	Diaphragn	ns				Width:			
Location:	Piers				Height:				
Element Description:						Count:	6		
Material:	Weatherin	g Steel			Total Quantity:	6.0 (each)			
Element Type:						Not Inspected:			
Environment:	🗆 Benign,	☑ Modera	ate, 🗆 Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data:	each	0.00	6.0	0.00	0.00	BCI TEV:	BCI CEV:		
Comments:	In good co	ndition.							
Recommended work:						Maintenance Needs:			
Comments						□ 1 year, □ 2 years, □ Urgent			
Type Timing									

Element Group:	Beams/Ma	ain Longitu	udinal Elem	ents		Length:	2.9 (m)	
Element Name:	Diaphragr	ns				Width:	0.15 (m)	
Location:	Abutment	s				Height:	0.75 (m)	
Element Description:						Count:	6	
Material:	Weatherin	ng Steel				Total Quantity:	6.0 (each)	
Element Type:						Not Inspected:		
Environment:	🗵 Benign,	Modera	ate, 🗆 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor*			
Data:	each	0.00	4.0	2.0	0.00	BCI TEV:	BCI CEV:	
Comments:	North end above. So	diaphrag uth end d	ms in good iaphragms i	to fair co in good co	ndition, have ondition with	e heavy corrosion from exposed moisture f n limited corrosion.	rom leaking joints	
Recommended	d work:					Maintenance Needs:		
Comments Type Timing						□ 1 year, □ 2 years, □ Urgent		

Ontario Structure	Inspection	Manual —	Inspection	Form		Bridge ID:	042-173
Element Group:	Beams/Ma	in Longitu	idinal Elem	ents		Length:	
Element Name:	Diaphragn	ns				Width:	
Location:	Intermedia	əte				Height:	
Element Description:						Count:	33
Material:	Weatherin	g Steel				Total Quantity:	33.0 (each)
Element Type:						Not Inspected:	
Environment:	🗆 Benign,	☑ Modera	ite, 🗆 Seve	re		Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data	Units	Exc.	Good	Fair	Poor*		
Condition Data:	each	0.00	33.0	0.00	0.00	BCI TEV:	BCI CEV:
Comments:	Visible por the north e	tion of ste	el cross bri o failure in j	acing app joint seal	bear to be in above.	good condition with the exception of ligh	nt moisture staining in
Recommended	work:					Maintenance Needs:	
Comments						□ 1 year, □ 2 years, □ Urgent	
Type Timing							

Element Group:	Beams/Ma	ain Longitu	udinal Elem	ents		Length:	83.3 (m)	
Element Name:	Girders					Width: 0.4 (m)		
Location:	Middle					Height:	1.5 (m)	
Element Description:						Count:	2	
Material:	Steel					Total Quantity:	699.7 (sq.m)	
Element Type:	I-Beam or	Girders				Not Inspected:		
Environment:	🗵 Benign,	🗆 Moder	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data.	sq.m	0.00	649.3	50.4	0.00	BCI TEV: 139940.0	BCI CEV: 101427.0	
Comments:	In good co rust flakin	ondition, li g present	ghtly corro	ded from	weathering.	The north end shows moisture	staining from leaking joint and	
Recommended w	vork:					Maintenance Needs:		
Comments Type Timing						□ 1 year, □ 2 years, □ Urgent		

Ontario Structure Insp	ection Manu	ual — Insp	ection Form		Bridge ID: 042-173			
Element Group:	Beams/Ma	in Longitu	udinal Elemo	ents		Length:	83.3 (m)	
Element Name:	Girders					Width:	0.4 (m)	
Location:	East and v	vest end				Height:	1.5 (m)	
Element Description:	N/A					Count:	2	
Material:	Steel					Total Quantity:	699.7 (sq.m)	
Element Type:	I-Beam or	Girders				Not Inspected:		
Environment:	🗆 Benign,	🗵 Modera	ate, 🗆 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	0.00	649.3	50.4	0.00	BCI TEV: 139940.0	BCI CEV: 101427.0	
Comments:	Moderate	flaking of	patina on t	he botton	n of the flan	ge due to joint seal failure (esp	pecially in the North end).	
Recommended work	c :					Maintenance Needs:		
Comments						□ 1 year, □ 2 years, □ Urgent		
Type Timing								

Element Group:	Decks					Length:	83.3 (m)	
Element Name:	Deck Top					Width:	11.2 (m)	
Location:						Height:		
Element Description:						Count:	0	
Material:	Cast-In-Pla	ace Concr	ete			Total Quantity:	933.0 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	🗵 Modera	ate, 🗆 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data.	sq.m	0.00	933.0	0.00	0.00	BCI TEV: 111960.0	BCI CEV: 83970.0	
Comments:	Limited in:	spection,	condition ba	ased on s	offit and we	aring surface		
Recommended work:						Maintenance Needs:		
Comments Type Timing						□ 1 year, □ 2 years, □ Urgent		
l								

Ontario Structure Inspection	on Manual —	Inspectio		Bridge ID: 042-173					
Element Group:	Decks						Length:		
Element Name:	Drainage S	ystem					Width:		
Location:							Height:		
Element Description:							Count:	6	
Material:	Steel						Total Quantity:	6.0	
Element Type:	Catch Basi	ns					Not Inspected:		
Environment:	🗆 Benign,	🗆 Modera	te, 🗹 Seve	re			Limited Inspection:		
Protection System:							Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair		Poor*			
Condition Data:	each	0.00	6.0	0.00		0.00	BCI TEV: BCI CEV:		
Comments:	Steel in go	od conditi	on and all	drains in	woi	rking orde	r. Some debris caught in drai	ns.	
Recommended work:							Maintenance Needs: 02. B	ridge Cleaning	
Comments Type Timing							 ☑ 1 year, □ 2 years, □ Urgent Clear out catch basins. 		
						I		-	
Element Group:	Decks						Length:	77.3 (m)	
Element Name:	Soffit - T	hin Slab					Width:	3.2 (m)	
Location:	Interior						Height:		
Element Description:							Count:	3	
Material:	Cast In I	Place Con	crete				Total Quantity:	742.08 (sq.m)	
Element Type:							Not Inspected:		
Environment:	🛛 Benig	n, 🗆 Mode	erate, 🗆 Se	evere			Limited Inspection:		
Protection System:							Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fa	hir	Poor*			
Condition Data:	sq.m	0.00	742.08	в 0.	00	0.00	BCI TEV: 89049.6	BCI CEV: 66787.2	

Maintenance Needs:

Comments		□ 1 year, □ 2 years, □ Urgent
Type Timing		
_		

In good condition, hairline cracking noted

Comments:

Recommended work:

Ontario Structure Inspec	tion Manual	— Inspec	ction Form			Bridge ID: 042-173		
Element Group:	Decks					Length: 77.3 (m)		
Element Name:	Soffit - Thi	in Slab				Width:	1.0 (m)	
Location:	Fascia					Height:	0.35 (m)	
Element Description:						Count:	2	
Material:	Cast In Pla	ace Concr	ete			Total Quantity:	208.71 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	☑ Moder	ate, 🗆 Sever	e		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	0.00	208.71	0.00	0.00	BCI TEV: 25045.2	BCI CEV: 18783.9	
Comments:	In good co	ondition w	ith hairline o	racks an	d minor moi	sture seeping at bridge handr	ail supports.	
Recommended work:						Maintenance Needs:		
Comments						□ 1 year, □ 2 years, □ Urgent		
Type Timing								

Element Group:	Decks					Length:	3.0 (m)	
Element Name:	Soffit - Th	in Slab				Width:	10.2 (m)	
Location:	Ends					Height:		
Element Description:						Count:	2	
Material:	Cast In Pla	ace Concr	ete			Total Quantity:	61.2 (sq.m)	
Element Type:					Not Inspected:			
Environment:	🗆 Benign,	🛛 Moder	ate, 🗆 Seve	ere	Limited Inspection:			
Protection System:					Perform. Deficiencies			
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	0.00	0.00	59.1	2.1	BCI TEV: 7344.0	BCI CEV: 2836.8	
Comments:	Wet due t	o water le	eakage thro	ugh deck	joints. Some	visible spalls along length.		
Recommended work:						Maintenance Needs:		
Comments						🗆 1 year, 🗆 2 years,		
Туре Тін	ning					🗆 Urgent		
□ Rehab, □ Repair, □ Replace □ □	l - 5 years, □ Jrgent	Now < 1	year, 🗆 6 -	10 years	,			

Ontario Structur	e Inspectior	Manual -	– Inspectior	n Form		Bridge ID:	042-173	
Element Group:	Decks					Length:	83.3 (m)	
Element Name:	Wearing S	urface				Width:	9.1 (m)	
Location:						Height:		
Element Description:						Count:	1	
Material:	Asphalt					Total Quantity:	758.0 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	Modera	ate, 🗹 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor*			
Data:	sq.m	0.00	748.4	9.6	0.00	BCI TEV: 18950.0	BCI CEV: 14128.5	
Comments:	Light wear west side.	⁻ and wea ⁻ Minor tra	thering. Sur nsverse cra	nken pot cks north	hole patch ir 1 end.	n southbound lane near south abut	ment. Minor wheel rutting	
Recommended	work:					Maintenance Needs: 15 - Rout	and Seal	
Comments						☑ 1 year, □ 2 years, □ Urgent		
Type Timing						Rout and seal cracks and fill pot holes.		

Element Group:	Embankm	ents & Sti	reams			Length:		
Element Name:	Embankm	ents				Width:		
Location:						Height:		
Element Description:						Count:	4	
Material:						Total Quantity:	4.0 (each)	
Element Type:						Not Inspected:		
Environment:	🗹 Benign,	🗆 Moder	ate, 🗆 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
Condition Data:	each	0.00	4.0	0.00	0.00	BCI TEV: 4000.0	BCI CEV: 3000.0	
Comments:	Appear to	be well v	egetated ar	nd stable,	rip rap has	been piled up at southwest corner of abutment		
Recommended work:						Maintenance Needs:		
Comments Type Timing						□ 1 year, □ 2 years, □ Urgent		

Ontario Structure Inspection N	4anual — In	spection F	orm			Bridge ID: 042-173		
Element Group:	Embankm	ents & Sti	reams			Length:		
Element Name:	Streams a	nd Water	ways			Width:		
Location:						Height:		
Element Description:						Count:	1	
Material:						Total Quantity:	1.0 (all)	
Element Type:						Not Inspected:		
Environment:	🛛 Benign,	Modera	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	all	0.00	1.0	0.00	0.00	BCI TEV: 1000.0	BCI CEV: 750.0	
Comments:	Good cond	dition with	no blockag	ges				
Recommended work:						Maintenance Needs:		
Comments						□ 1 year, □ 2 years, □ Urgent		
Type Timing								

Element Group:	Joints					Length:	11.2 (m)	
Element Name:	Armouring	J/retaining	g devices			Width:		
Location:	Abutment	s and Pie	rs			Height:		
Element Description:						Count:	4	
Material:	Steel					Total Quantity:	44.8 (m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	□ Moder	ate, 🗹 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data.	m	0.00	40.0	2.4	2.4	BCI TEV: 44800.0	BCI CEV: 30960.0	
Comments:	Light corro northwest	osion on a sidewalk	all four. One is missing o	on South entirely.	neast quadra	nt is angled laterally on a s	screw. One on	
Recommended work:						Maintenance Needs:		
Comments Type	Timing				□ 1 year, □ 2 years, □ Urgent			
□ Rehab, □ Repair, □ Replace	□ 1 - 5 yea □ Urgent	nrs, □ Nov	w < 1 year,	□ 6 - 10 <u>-</u>	years,			

Ontario Structure Inspection Man	nual — Inspecti		Bridge ID:	042-173				
Element Group:	Joints					Length:	11.2 (m)	
Element Name:	Seals/seal	ants				Width:		
Location:	North and	South Ab	utments			Height:		
Element Description:	South join	t				Count:	2	
Material:	Rubber					Total Quantity:	2.0 (each)	
Element Type:	Strip Steel					Not Inspected:		
Environment:	🗆 Benign,	Moder	ate, 🛛 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair				
Condition Data:	each	0.00	0.00	0.00	2.0	BCI TEV: 2000.0	BCI CEV:	
Comments:	Seals are obeams bel	clogged w ow deck.	vith debris a	nd leakin	g causing lig	ght - severe corrosion on subs	tructure and	
Recommended work:						Maintenance Needs:		
Comments								
Replace Joint Seals					□ 1 year, □ 2 years, □ Urgent			
Туре	Timing							
🗆 Rehab, 🗆 Repair, 🗹 Replace	□ 1 - 5 years, ☑ Urgent	□ Now <	1 year, 🗆 6	i - 10 yea	rs,			

Element Group:	Piers					Length:	0.9 (m)	
Element Name:	Shafts/col	umns/Pile	e Bents			Width:	5.8 (m)	
Location:	North and	South				Height:	2.3 (m)	
Element Description:						Count:	2	
Material:	Cast-In-Place Concrete					Total Quantity: 131.0 (sq.m)		
Element Type:						Not Inspected:		
Environment:	🛙 Benign, 🗆 Moderate, 🗆 Severe					Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	0.00	130.5	0.5	BCI TEV: 117900.0	BCI CEV: 46980.0	
Comments:	Moderate scaling and visible rust seepage down abutments.							
Recommended work:					Maintenance Needs:			
Comments Type Timing				□ 1 year, □ 2 years, □ Urgent				

Ontario Structu	ire Inspecti	on Manual	— Inspecti	on Form	Bridge ID: 042-173					
Element Group:	Sidewalks	curbs				Length:	83.3 (m)			
Element Name:	Sidewalks	and medi	ians			Width:	1.08 (m)			
Location:	West Side	of Deck				Height:	0.15 (m)			
Element Description:						Count:	2			
Material:	Cast In Pla	ace Concre	ete			Total Quantity:	199.9 (sq.m)			
Element Type:						Not Inspected:				
Environment:	🗆 Benign,	, 🗆 Modera	ate, 🛛 Seve	re		Limited Inspection:				
Protection System:						Perform. Deficiencies				
Condition	Units	Exc.	Good	Fair	Poor*					
Data:	sq.m	0.00	60.0	2.5	0.00	BCI TEV: 29985.0	BCI CEV: 6900.0			
Comments: Light wear and minor scrapes and impact damage. Narrow to medium transverse cracks. Some patches from previous rehabilitation work at north joint. Spalls from prior patch repairs but repairs are holding. Areas of prior patching/sealing have areas of delamination throughout. Large area of spalling near south mid-drain. Some minor to medium cracks. Longitudinal near south end.										
Recommended work:					Maintenance Needs:					
Comments										
Replace sidewalk					□ 1 year, □ 2 years, □ Urgent					
Туре	-	Гiming								
□ Rehab, □ Repair, ☑ 1 - 5 years, □ Now < 1 year, □ 6 - 10 ☑ Replace years, □ Urgent										

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Ontario Structure Inspection Manual — Inspection Form			Bridge ID: 042-173					
Repair and Rehabilitation Required			Priority				Estimated	
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	Cost	
Approach barrier	Replace					✓	\$20,000.00	
Bearings	When seals are replaced replace bearings		1				\$10,000.00	
Signs	Install hazard warning signs at buried guiderail ends. Straighten southbound bridge ices sign					•	\$2,000.00	
Barrier parapet wall	Repair grout and stone on southeast and northeast parapet wall				•		\$15,000.00	
Joints Armouring	Replace armouring when resealing joints			>			\$50,000.00	
Joint Seals	Replace seals					✓	\$5,000.00	
						Total	\$102,000.00	

Assosciated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		

042-173



Description: Looking North



Description: West elevation



Description: North wall 1

Abutments / Abutment Walls (North Abutment)



Description: North wall 2 Abutments / Abutment Walls (North Abutment)

042-173



Abutments / Abutment Walls (North Abutment)



Description: Typical Abutments / Wingwalls



Description: S wall typ

Abutments / Ballast Walls (North and South Abutment)



Description: Spall at NW quadrant Abutments / Ballast Walls (North and South Abutment)

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Description: NW

Abutments / Ballast Walls (North and South Abutment)



Description: S (typ) Abutments / Bearings (North and South)

042-173



Description: NE bearing

Abutments / Bearings (North and South)



Description: NW bearing Abutments / Bearings (North and South)

042-173



Description: SW outer bearing. Abutments / Bearings (North and South)



Description: Typical catch basin Approaches / Drainage System



Description: Damaged NW steelbeam guide rail Approaches / Barriers (NE, NW)



Description: Bent NE steel beam guiderail Approaches / Barriers (NE, NW)

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Ontario Structure Inspection Manual — Inspection Form



Description: Plaque

Barriers / Barrier/Parapet Walls



Description: NE spall Barriers / Barrier/Parapet Walls

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Description: NE

Barriers / Barrier/Parapet Walls



Description: SE quadrant Barriers / Barrier/Parapet Walls



Description: Area of repair at north joint

Sidewalks/curbs / Sidewalks and medians (West Side of Deck)



Description: Sunken patched pot hole Decks / Wearing Surface

Monday, October 22, 2018

Bridge ID:

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Description: Looking North Decks / Wearing Surface



Description: Depressions forming at mid point Decks / Wearing Surface

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Ontario Structure Inspection Manual — Inspection Form



Description: SE quadrant patch material loss Decks / Wearing Surface



Description: Transverse cracks N side Decks / Wearing Surface

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Description: W middle Decks / Drainage System



Description: E middle Decks / Drainage System

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Description: NE quadrant Decks / Drainage System



Description: NW quadrant Decks / Drainage System

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Description: SE quadrant Decks / Drainage System



Description: SW quadrant Decks / Drainage System
042-173



Description: West side Decks / Soffit - Thin Slab (Fascia)



Description: Typical Decks / Soffit - Thin Slab (Interior)

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Description: NW

Decks / Soffit - Thin Slab (Ends)



Description: NE Decks / Soffit - Thin Slab (Ends)



Description: NW joint Decks / Soffit - Thin Slab (Ends)



Description: North middle diaphragm. (typical weathered abutment diaphragm) Beams/Main Longitudinal Elements / Diaphragms (Abutments)



Description: North

Joints / Seals/sealants (North and South Abutments)



Description: North pier (facing South) Piers / Shafts/columns/Pile Bents (North and South)

042-037

Inventory Data:								
Structure Name	Bridge 14 Brunel Ward							
Main Hwy/Road #		On 🗆 Under	Crossing Type: 🛛 Navi. Water, 🗆 Non-Navi. Water, 🗆 🗆 Road, 🗆 Ped., 🗆 Other, 🗆 Over water, 🗆 Over Road, railway, 🗆 Unknown, 🗆 Over railway, 🗆 Under Road					
Hwy/Road Name	Candytown Lane							
Structure Location	0.5km East of District Road	10						
Latitude	45° 14' 3" N		Longitude	79° 14' 40"	W			
Northing			Easting					
Owner(s)	Town of Huntsville		Heritage designation: Desig., Desig./not List, Desig./no	Not Cons., 🗆 (Desig. & List	Cons./not Ap	p., 🗆 List/not		
MTO Region	Northeastern		Road Class: Freeway, Residential, Collector Co Local Commercial, Run more lanes	ollector l Residential, ays, 🗆 4 or				
MTO District	Huntsville		Posted Speed	60	No. of Lanes	1		
Old County	Simcoe-Muskoka		AADT	45.0	% Trucks			
Geographic Twp.	Brunel		Inspection Route Sequence					
Structure Type	Concrete T Beam		Interchange Number					
Total Deck Length	7.3 (m	n)	Interchange Structure Number					
Overall Str. Width	4.9 (m	n)	Min. Vertical Clearance			(m)		
Total Deck Area	35.8 (so	q.m)	Special Routes:	□ Transit, □ ⁻ □ Bicycle, □	Truck, □ Sch Emergency,	ool, 🗆 Commuter		
Roadway Width	4.4 (m	n)	Detour Length Around Bridge	N/A		(km)		
Skew Angle	0 (D)egrees)	Direction of Structure	East to West	t			
No. of Spans	1		Fill on Structure	0.3		(m)		
Span Lengths	6.1					(m)		
Historical Data:								
Year Built		1930 Y	/ear of Last Major Rehab.					
Last OSIM Inspec	tion	2015 L	ast Evaluation					
Last Enhanced O	SIM Inspection		Current Load Limit		/ /	(tonnes)		
Enhanced Access	Equipment	L	.oad Limit By-Law #		/ /			
Last Underwater	Inspection	B	By-Law Expiry Date					
Last Condition Su	ırvey							
Rehab History: (I	Date/description)							

Ontario Structure Inspection Manual — Inspection Form	Bridge ID:	042-037
Scheduled Improvements:		
Regional Priority Number	Programmed Work Year	
Nature of Program Work:		

Appraisal Indices:	Comments	
Fatigue		
Seismic		
Scour		
Flood		
Geometrics		
Barrier		
Curb		
Load Capacity		

Ontario Structure Inspection Manual — Inspection Form	Bridge ID: 042-037				
Field Inspection Information:					
Date of Inspection:	July 11, 2018	Inspection Type	OSIM		
Inspector:					
Others in Party:					
Access Equipment Used:					
Weather:	Partly Cloudy				
Temperature:	15.0 ℃				

Upcoming Inspections and Investigations:						
Due date	Comments					

	dditional Investigations Required	Priority				
-	duitional investigations Required:	None	Normal	Urgent		
Ν	laterial Condition Survey	✓				
	Detailed Deck Condition Survey:	✓				
	Non-destructive Delamination Survey of Asphalt-Covered Deck:	✓				
	Concrete Substructure Condition Survey:	✓				
	Detailed Coating Condition Survey:	✓				
	Detailed Timber Investigation	✓				
	Post-Tensioned Strand Investigation	✓				
ι	Inderwater Investigation:	✓				
F	atigue Investigation:	✓				
S	eismic Investigation:	✓				
S	tructure Evaluation:	✓				
N	Ionitoring	✓				
	Monitoring of Deformations, Settlements and Movements:	✓				
	Monitoring Crack Widths:	✓				
	nvestigation Notes:					

None

Ontario Structure Inspection Manual — Inspection Form

Bridge ID:

042-037

Overall Structure Notes:	
Recommended Work on Structure:	Clear vegetation away from all bridge elements and remove excess fill/ gravel from surfaces.
Timing of Recommended Work:	\Box Urgent, \Box Now < 1 year, \Box 1 - 5 years, \Box 6 - 10 years, \Box > 10 years
Overall Comments:	Structure is in fair to poor condition. Anticipate replacement in 1-5 years.
Date of Next Inspection:	2020

Overall Bridge Condition:

44.4

Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

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 of Bridge Concrete
- 09 Repair of 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
- 17 None

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

Element Group:	Abutment	S				Length:		
Element Name:	Abutment	Walls				Width: 5.5 (m)		
Location:	East and V	Vest				Height:	2.2 (m)	
Element Description:						Count:	2	
Material:	Cast-In-Pla	ace Concr	ete			Total Quantity:	24.2 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗵 Benign,	Moder	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	0.00	12.3	5.2	6.7	BCI TEV: 21780.0	BCI CEV: 10174.5	
Comments:	Severe spa top of eas	all east lo t footings	wer quadra . Light to m	nt startin edium sc	g at bottom aling on both	of quadrant. Light to severe n sides.	scaling. Severe spalling	
Recommended work:						Maintenance Needs:		
Comments								
Repair poor concrete, inst side	all erosion p	protection		□ 1 year, □ 2 years, □ Urgent				
Туре	Timing							
☑ Rehab, □ Repair, □ Replace	☑ 1 - 5 y □ Urgen	⁄ears, □ N t	Jow < 1 yea	ar, 🗆 6 - 1	.0 years,			

Ontario Structure Ins	spection Ma	nual — In	spection For	Bridge ID: 042-037				
Element Group:	Abutment	5				Length:	2.9 (m)	
Element Name:	Wingwalls					Width:		
Location:	4 Corners					Height:	1.5 (m)	
Element Description:						Count:	4	
Material:	Cast-In-Pla	ace Concr	ete			Total Quantity:	17.4 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	☑ Moder	ate, 🗆 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	sq.m	0.00	0.00	9.5	7.9	BCI TEV: 6090.0	BCI CEV: 1330.0	
Comments:	Large crac efflorescer of wingwa	k with sp nce and d lls.	alling at NE elamination	quadrant 1 on 50%	t, loss of win of SE and SV	gwall segment seems imminent. V wingwalls. Scaling and some sc	Severe spalling, cracking, ouring noted along bottom	
Recommended wo	rk:					Maintenance Needs:		
Comments								
Replace.						 ☑ 1 year, □ 2 years, □ Urgent 		
Туре	Timi	ing				Install scour protection at porth	side	
□ Rehab, □ Repair, ☑ Replace	☑ 1 year	- 5 years, s, □ Urge	□ Now < 1 nt	year, 🗆 (6 - 10		Juc.	

Element Group:	Accessorie	es				Length:		
Element Name:	Signs					Width:		
Location:						Height:		
Element Description:						Count:	8	
Material:						Total Quantity:	8.0	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	☑ Moder	ate, 🗆 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor*	08. Pedestrian/vehicular hazard		
Data:	each	0.00	4.0	0.00	4.0	BCI TEV: 800.0	BCI CEV: 300.0	
Comments:	No hazard signs are	l Warning present. T	Signs prese rail ends si	ent. Howe gn on we	ever OFSC tra st side for we	ails sign, Municipality use at your owr est bound traffic is also present.	n risk sign, and trail markers	
Recommende	d work:					Maintenance Needs: 18 - Other		
Comments						□ 1 year, □ 2 years, ☑ Urgent		
Type Timing	l					Install hazard warning signs at barrier ends.		

Ontario Structure Inspection Man	Bridge ID:	042-037										
Element Group:	А	pproache	S				Length:					
Element Name:	В	Barriers				Width:						
Location:					Height:							
Element Description:				Count:	0							
Material:							Total Quantity:	0.0				
Element Type:							Not Inspected:					
Environment:		🛛 Benign,	🗆 Modera	ate, 🗆 Seve	re		Limited Inspection:					
Protection System:							Perform. Deficiencies					
Condition Data		Units	Exc.	Good	Fair	Poor*	08. Pedestrian/vehicular hazard					
Condition Data:		m	0.00	0.00	0.00	0.00	BCI TEV:	BCI CEV:				
Comments:	N	lone Pres	ent. Shou	ld be added								
Recommended work:							Maintenance Needs:					
Comments												
Install approach guide rail if use	ed by motori	ists or sno	owmobile	S.			□ 1 year, □ 2 years, □ Urgent					
Туре	Timing											
🗆 Rehab, 🗆 Repair, 🗹 Replace	□ 1 - 5 yea ☑ Urgent	ars, 🗆 Nov	v < 1 yea	□ Rehab, □ Repair, ☑ Replace □ 1 - 5 years, □ Now < 1 year, □ 6 - 10 years, ☑ Urgent								

Element Group:	Approache	es				Length: 6.0 (m)		
Element Name:	Wearing s	urface				Width:	4.4 (m)	
Location:						Height:		
Element Description:						Count:	2	
Material:	Gravel					Total Quantity:	52.8 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	🗆 Moder	ate, 🛛 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
condition Data.	sq.m	0.00	0.00	52.8	0.00	BCI TEV: 316.8	BCI CEV: 126.72	
Comments:	Noted that east appra	t road is r aoch	not maintair	ned by mu	unicipality, it	is an OFSC trail. Severe wheel tra	acking with vegetation on	
Recommended wo	ork:					Maintenance Needs:		
Comments						□ 1 year, ☑ 2 years, □ Urgent		
Type Timing						Clear vegetation and regrade.		

Ontario Structure Inspect	ion Manual -	– Inspect	ion Form			Bridge ID: 042-037		
Element Group:	Barriers					Length:	0.1 (m)	
Element Name:	Posts					Width: 0.1 (m)		
Location:	North and	South				Height: 0.6 (m)		
Element Description:						Count: 30		
Material:	Cast-In-Pla	ice Concre	ete			Total Quantity:	7.2 (sq.m)	
Element Type:	Concrete E	Balustrade	9			Not Inspected:		
Environment:	🗆 Benign,	🗆 Modera	ate, 🗹 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	each	0.00	0.00	7.2	0.00	BCI TEV: 1440.0	BCI CEV: 576.0	
Comments:	Medium so	aling, nai	rrow to mea	lium crac	king, and he	avy vegetation growing over b	arrier.	
Recommended work:						Maintenance Needs: 2 - Bridge Cleaning		
Comments			 ☑ 1 year, □ 2 years, □ Urgent 					
Type Timing						Remove excessive vegetation.		

Element Group:	Barriers					Length: 7.3 (m)		
Element Name:	Railing Sy	stems				Width: 0.3 (m)		
Location:	East and V	West				Height:	0.1 (m)	
Element Description:						Count:	2	
Material:	Cast-In-Pla	ace Concr	ete			Total Quantity:	14.6 (m)	
Element Type:	Concrete	Balustrad	e			Not Inspected:		
Environment:	🗆 Benign,	🗆 Moder	ate, 🗹 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
Condition Data:	m	0.00	0.00	14.6	0.00	BCI TEV: 2920.0	BCI CEV: 1168.0	
Comments:	Barriers h	ave medi	um scaling,	narrow to	o medium cr	acking, and vegetation growing o	over barrier from deck top.	
Recommended wo	ork:					Maintenance Needs: 2 - Bridge Cleaning		
Comments						☑ 1 year, □ 2 years, □ Urgent		
Type Timing						Bridge Cleaning and Remove E	xcessive Vegetation.	

Ontario Structure Insp	pection Manu	ual — Insp	pection Form		Bridge ID: 042-037			
Element Group:	Beams/Ma	in Longitı	udinal Elemo	ents		Length:	6.1 (m)	
Element Name:	Girders					Width: 0.3 (m)		
Location:						Height:	0.46 (m)	
Element Description:						Count:	4	
Material:	Cast-In-Pla	ice Concr	ete			Total Quantity:	35.6 (sq.m)	
Element Type:	Box beam					Not Inspected:		
Environment:	🗆 Benign,	☑ Moder	ate, 🗆 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units Exc. Good Fair Poor*							
Condition Data.	sq.m	0.00	27.7	3.6	4.3	BCI TEV: 7120.0	BCI CEV: 4443.0	
Comments:	Large spal connectior	l exposin n to abutr	g rebar at s nent wall ce	w beam (entre two	pictured). Ge beams west	eneral spalling among all beams. Horizontal cracking at side. Wet areas near deck outlets (now covered by dirt).		
Recommended work	k:					Maintenance Needs:		
Comments								
Concrete repair.						□ 1 year, □ 2 years, □ Urgent		
Туре	Timir	ng						
☑ Rehab, □ Repair, □ Replace	☑ 1 - □ Urg	5 years, I Jent	☐ Now < 1 y	year, 🗆 6	- 10 years,			

Element Group:	Decks					Length: 7.3 (m)		
Element Name:	Deck Top					Width:	4.9 (m)	
Location:						Height:		
Element Description:	Deck Top.					Count:	1	
Material:	Cast-In-Pla	ace Concr	ete			Total Quantity:	35.8 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗵 Benign,	Modera	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*	11. Deck drainage		
Condition Data:	sq.m	0.00	0.00	35.8	0.00	BCI TEV: 4296.0	BCI CEV: 1718.4	
Comments:	Not visible	e due to e	arth cover a	and heavy	vegetation	۰ <u>۰</u> ۱.		
Recommended work:						Maintenance Needs:		
Comments Type Timing		□ 1 year, □ 2 years, □ Urgent						

Ontario Structure Inspection I	Manual — In		Bridge ID: 042-037					
Element Group:	Decks					Length:		
Element Name:	Drainage S	System				Width:		
Location:						Height:		
Element Description:						Count: 6		
Material:	Cast-In-Pla	ace Concr	te			Total Quantity:	6.0 (each)	
Element Type:	Holes in D	eck				Not Inspected:		
Environment:	🗆 Benign,	Moder	ate, 🛛 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Units Exc. Good Fair					Poor*	11. Deck drainage		
Condition Data:	each	0.00	0.00	0.00	6.0	BCI TEV:	BCI CEV:	
Comments:	Drains hol scaling an	es termin d moistur	ate at soffit e staining c	, all deck	drains are p ent walls / gi	lugged with material. Deck drain rders.	s are causing	
Recommended work:						Maintenance Needs:		
Comments								
Install deck drains and exten	d past soffit	□ 1 year, □ 2 years, □ Urgent						
Туре	Timing							
☑ Rehab, □ Repair, □ Replace	☑ 1 - 5 yea □ Urgent	ars, 🗆 No	w < 1 year,	□ 6 - 10	years,			

Element Group:	Decks					Length:	6.1 (m)	
Element Name:	Soffit - Th	ick slab				Width:	3.7 (m)	
Location:	Interior					Height:		
Element Description:						Count:	1	
Material:	Cast In Pla	ace Concr	ete			Total Quantity:	22.57 (sq.m)	
Element Type:						Not Inspected:		
Environment:	🗵 Benign,	Moder	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
condition Data.	sq.m	0.00	10.77	4.5	7.3	BCI TEV: 7899.5	BCI CEV: 3457.13	
Comments:	Numerous spalling an girders an	s spells wi nd expose d soffit.	th exposed ed rebar. Pa	rebar, sc st areas o	aling and we of patching a	t areas around deck drains. Deland repair have begun to flake of	amination around areas of f at interface between	
Recommended wo	ork:					Maintenance Needs:		
Comments								
Concrete patch repair.						□ 1 year, □ 2 years, □ Urgent		
Туре	Tim	ing						
☑ Rehab, □ Repair, □ Replace	☑ 1 year	- 5 years, s, □ Urge	□ Now < 1 nt	year, 🗆	6 - 10			

Ontario Structu	re Inspectio	n Manual	— Inspectio	n Form		Bridge ID:	042-037		
Element Group:	Decks					Length:	7.3 (m)		
Element Name:	Wearing S	urface				Width:	4.9 (m)		
Location:						Height:			
Element Description:						Count:	0		
Material:	Gravel					Total Quantity:	35.8 (sq.m)		
Element Type:						Not Inspected:			
Environment:	🗆 Benign,	☑ Modera	ate, 🗆 Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition	Units	Exc.	Good	Fair	Poor*	11. Deck drainage			
Data:	sq.m	0.00	0.00	35.8	0.00	BCI TEV: 895.0	BCI CEV: 358.0		
Comments:	Noted that vegetatior	t road is n n over stru	ot maintain ucture.	ied by mi	unicipality. 0	.3 m of earth cover with severe whee	el tracking, and heavy		
Recommended	l work:					Maintenance Needs:			
Comments					 ☑ 1 year, □ 2 years, □ Urgent 				
Type Timing						Remove excess fill and clear vegetation from over top of structure.			

Element Group:	Embankm	ients & Sti	reams			Length:		
Element Name:	Embankm	ients				Width:		
Location:	All four qu	uadrants				Height:		
Element Description:						Count:	4	
Material:						Total Quantity:	4.0 (each)	
Element Type:						Not Inspected:		
Environment:	🗵 Benign,	🗆 Moder	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	each	0.00	0.00	4.0	0.00	BCI TEV: 4000.0	BCI CEV: 1600.0	
Comments:	Most quad the install	drants app ation of n	ear to be w ew gravel.	vell veget	ated and sta	ble. Erosion at southwest quadran	t has been mitigated with	
Recommended v	vork:					Maintenance Needs:		
Comments						□ 1 year, □ 2 years, □ Urgent		
Type Timing								

Ontario Structure Inspec	tion Manual	— Inspec	tion Form			Bridge ID: 042-037			
Element Group:	Embankm	ents & Sti	reams			Length:			
Element Name:	Streams a	nd Water	ways			Width:			
Location:						Height:			
Element Description:						Count: 1			
Material:						Total Quantity:	1.0 (each)		
Element Type:						Not Inspected:			
Environment:	🗹 Benign,	Moder	ate, 🗆 Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data.	all	0.00	1.0	0.00	0.00	BCI TEV: 1000.0	BCI CEV: 750.0		
Comments:	Mostly cle	ar with a	large timbe	r at east a	abutment ur	nder waterline, not affecting flow	v at structure.		
Recommended work:						Maintenance Needs:			
Comments			□ 1 year, □ 2 years, □ Urgent						
Type Timing									

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Ontario Structure Inspection Ma		042-037						
Repair and Rehabilitation Re	equired		Priority					
Element	Repair and Rehabilitation Required	> 106 - 101 - 5Now < 1				Cost		
Structure	Replace structure			~			\$400,000.00	
						Total	\$400,000.00	

Assosciated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		
	Total	



Description: Looking east



Description: North Elevation



Description: Looking west



Description: East Abutments / Abutment Walls (East and West)



Description: West

Abutments / Abutment Walls (East and West)



Description: Ne quadrant Abutments / Wingwalls (4 Corners)



Description: Nw wall

Abutments / Wingwalls (4 Corners)



Description: Severe crack and spalling. Abutments / Wingwalls (4 Corners)

042-037



Description: Nw drain Decks / Drainage System



Description: Mid drain South Side (wet) Decks / Drainage System



Description: NE drain Decks / Drainage System



Description: SE end post Barriers / Posts (North and South)

042-037



Description: North Decks / Soffit - Thick slab (Interior)



Description: Centre Decks / Soffit - Thick slab (Interior)

042-037



Description: South Decks / Soffit - Thick slab (Interior)



Description: Southwest embankment Embankments & Streams / Embankments (All four quadrants)



Description: Spalled areas

Beams/Main Longitudinal Elements / Girders



Description: East side Beams/Main Longitudinal Elements / Girders

042-037

Ontario Structure Inspection Manual — Inspection Form



Description: Nw (typ.) Beams/Main Longitudinal Elements / Girders



Description: Late spall w rebar nw Beams/Main Longitudinal Elements / Girders

Inventory Data:											
Structure Name	Bridge 17 Lot 30, Conc >	K, Stephenson Ward	ł								
Main Hwy/Road #		🛛 On 🗆 Under	Crossing Type: ☑ Navi. Water, □ Non-Navi. Water, □ Rail, □ Road, □ Ped., □ Other, □ Over water, □ Over Road, □ Ur railway, □ Unknown, □ Over railway, □ Under Road								
Hwy/Road Name	Gall Trail										
Structure Location	1.79km East of Orr Road	1									
Latitude	45.256634		Longitude	-79.272738							
Northing			Easting								
Owner(s)	Town of Huntsville		Heritage designation: ☑ Desig., □ Desig./not List, □	Not Cons., 🗆 🛛	Cons./not App	o., 🗆 List/not					
MTO Region	Northeastern		Road Class: Freeway, Residential, Collector Co Local Commercial, Run more lanes] Arterial, □ Co mmercial, ☑ L ral Expressway	ollector, □ Co ocal, □ Local ys, □ Alleywa	llector Residential, ys, □ 4 or					
MTO District	Huntsville		Posted Speed	60	No. of Lanes	1					
Old County	Simcoe-Muskoka		AADT	250.0	% Trucks						
Geographic Twp.	Stephenson		Inspection Route Sequence								
Structure Type	Timber Deck on Steel Gi	rders	Interchange Number								
Total Deck Length	11.1	(m)	Interchange Structure Number	ige Structure							
Overall Str. Width	4.9) (m)	Min. Vertical Clearance			(m)					
Total Deck Area	54.4	(sq.m)	Special Routes:	□ Transit, □ □ Bicycle, □	Truck, 🗆 Sch Emergency, I	ool, ∃ Commuter					
Roadway Width	4.6) (m)	Detour Length Around Bridge	N/A		(km)					
Skew Angle	0	(Degrees)	Direction of Structure	East to Wes	t						
No. of Spans	1]	Fill on Structure			(m)					
Span Lengths	4.5					(m)					
Historical Data:											
Year Built		1970	Year of Last Major Rebab		2009						
Last OSIM Inspec	tion	2015	Last Evaluation		2005						
Last Enhanced OSIM Inspection			Current Load Limit			tonnes)					
Enhanced Access Equipment Boat			Load Limit By-Law #								
Last Underwater	Inspection		By-Law Expiry Date								
Last Condition S	ırvey										
Rehab History: (I 2009 Replaced 3 S	Rehab History: (Date/description) 2009 Replaced 3 Steel Girders. Installed 38 x 140 transverse laminated deck with running strips and curbs										

Ontario Structure Inspection Manual — Inspection For	m		Bridge ID:	B17
Scheduled Improvements:				
Regional Priority Number		Programmed Work Yea	r	
Nature of Program Work:				

Appraisal Indices:	Comments	
Fatigue		
Seismic		
Scour		
Flood		
Geometrics		
Barrier		
Curb		
Load Capacity		

Ontario Structure Inspection Manual — Inspection Form	Bridge ID:	B17	
Field Inspection Information:			
Date of Inspection:	June 28, 2018	Inspection Type	OSIM
Inspector:			
Others in Party:			
Access Equipment Used:	Tape, waders		
Weather:	Sunny		
Temperature:	30.0 °C		

Upcoming Inspections and Investigations:							
Due date	Comments						

	Additional Investigations Described.	Priority				
		None	Normal	Urgent		
r	Naterial Condition Survey	✓				
	Detailed Deck Condition Survey:	✓				
	Non-destructive Delamination Survey of Asphalt-Covered Deck:	✓				
	Concrete Substructure Condition Survey:	✓				
	Detailed Coating Condition Survey:	✓				
	Detailed Timber Investigation	✓				
	Post-Tensioned Strand Investigation	✓				
ι	Inderwater Investigation:	✓				
F	atigue Investigation:	✓				
S	Seismic Investigation:	✓				
v ,	Structure Evaluation:	✓				
r	Ionitoring	✓				
	Monitoring of Deformations, Settlements and Movements:	✓				
	Monitoring Crack Widths:	✓				
I	nvestigation Notes:					

None

Ontario Structure Inspection Manual — Inspection Form

Bridge ID:

B17

Overall Structure Notes:							
Recommended Work on Structure:							
Timing of Recommended Work:	\Box Urgent, \Box Now < 1 year, \Box 1 - 5 years, \Box 6 - 10 years, \Box > 10 years						
Overall Comments:	Overall structure is in fair condition, cribbing requires replacement.						
Date of Next Inspection:	2020						

Overall Bridge Condition:

56.59

Recommended inspections and Investigations	Due date	Priority	Comments
Boat Inspection			
Bridge master			
Coating survey			
Detailed condition survey			
Evaluation			
Fatigue			
Monitor Settlements/Movements			
Seismic			
Substructure condition survey			
Underwater			

Suspected Performance Deficiencies

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 of Bridge Concrete
- **09** Repair of 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
- 17 None

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

B17

Element Data

Element Group:	Abutment	S				Length:		
Element Name:	Abutment	Walls				Width:	4.9 (m)	
Location:	East and	West				Height:	1.4 (m)	
Element Description:						Count:	2	
Material:	Wood					Total Quantity:	13.72 (sq.m)	
Element Type:	Wood Cril	0				Not Inspected:		
Environment:	🗆 Benign	, 🗹 Moder	ate, 🗆 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor*	1 - Load carrying capacity		
Data:	sq.m	0.00	5.92	3.9	3.9	BCI TEV: 12348.0	BCI CEV: 5400.0	
Comments:	The timbe broken av length. Th destructio inwards to	er cribs are vay, ballas his has left on of the c oward the	e filled with st has been the longitu rib timbers east abutm	fieldston lost. Ano dinal and has allow ent.	e ballast. A h ther member l transverse f red the north	orizontal member near the waterlin r on the inside face of the cribs has l timbers above it cantilevered over t girder to rotate. The west abutmen	e on the east abutment has broken at approximately mid- he side of the cribs. The t appears to have rotated	
Recommende	d work:					Maintenance Needs:		
Comments								
Repair/replace abutments.					□ 1 year, □ 2 years, □ Urgent			
Туре	-	Timing						
□ Rehab, □ Re ☑ Replace	epair, I	□ 1 - 5 ye years, ☑ L	ars, □ Now Irgent	< 1 year,	□ 6 - 10			

Ontario Structure	Inspection N	4anual —	Inspection F	Bridge ID:B17				
Element Group:	Abutment	S				Length:		
Element Name:	Bearings					Width:		
Location:	East and V	West Abut	ments			Height:		
Element Description:						Count:	12	
Material:	Wood					Total Quantity:	12.0 (each)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign,	☑ Moder	ate, 🗆 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data	Units	Exc.	Good	Fair	Poor*			
Condition Data:	each	0.00	9.0	3.0	0.00	BCI TEV: 12000.0	BCI CEV: 7950.0	
Comments:	Bearings a was obser inner bear	appear to ved in sou ring crush	be wooden me location ing approxi	shims pla s. Southe mately 20	aced under e astern inner 0%.	each girder. Crushing and permane bearing block showing signs of ro	ent indentation of the shims t and crushing. Southwest	
Recommended w	vork:					Maintenance Needs:		
Comments								
Replacing deficient bearings in required locations during crib rehabilitation.						□ 1 year, □ 2 years, □ Urgent		
Туре	Tir	ning						
□ Rehab, □ Repai ☑ Replace	r, ⊠1 yea	1 - 5 years ars, □ Urg	s, □ Now < ent	1 year, □	6 - 10			

Ontario Structu	ire Inspecti	on Manual	— Inspectio	on Form		Bridge ID:	B17	
Element Group:	Accessori	es				Length:		
Element Name:	Signs					Width:		
Location:						Height:		
Element Description:						Count:	8	
Material:	Steel					Total Quantity:	8.0 (each)	
Element Type:						Not Inspected:		
Environment:	🗆 Benign	, 🗹 Moder	ate, 🗆 Seve	re		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor*	08. Pedestrian/vehicular hazard		
Data:	each	0.00	3.0	1.0	4.0	BCI TEV: 800.0	BCI CEV: 265.0	
Comments:	Both narr hazard si maximun	ow crossir gns at bric 1, on west	ng and spee lge corners end has su	d warning bent or d face crac	g signs in go islocated. Bo cking.	od condition, needs vegetation cleare oat wake warning sign in good conditi	ed from in front of both. All on. Load capacity	
Recommende	d work:					Maintenance Needs: 17. Other		
Comments								
Replace all hazard signs.					□ 1 year, □ 2 years, ☑ Urgent			
Туре		Timing				Restore signs to their correct orientation. Clear vegetation		
□ Rehab, □ Repair, □ 1 - 5 years, □ Now < 1 year, □ 6 - 10 ☑ Replace years, ☑ Urgent					from one lane and speed warning signs.			

Element Group:		Approache	es		Length:	(m)		
Element Name:		Barriers			Width:	(m)		
Location:		East and V	West				Height:	
Element Description:							Count:	0
Material:							Total Quantity:	0.0 (m)
Element Type:					Not Inspected:			
Environment:		🗆 Benign,	□ Moder	ate, 🗆 Seve	Limited Inspection:			
Protection System:				Perform. Deficiencies				
		Units	Exc.	Good	Fair	Poor*		
		m	0.00	0.00	0.00	0.00	BCI TEV:	BCI CEV:
Comments:		None Pres	ent. Shou	Id be addeo	l.			
Recommended work:							Maintenance Needs:	
Comments								
Install SBGR system and end tre	eatments.						□ 1 year, □ 2 years, □ Urgent	
Туре	Timing							
🗆 Rehab, 🗆 Repair, 🗹 Replace	☑ 1 - 5 y □ Urgen	ears, 🗆 Nov t	w < 1 yea	ar, 🗆 6 - 10 g	years,			

Element Group:	Approache	25				Length:	6.0 (m)		
Element Name:	Wearing s	urface				Width:	4.6 (m)		
Location:	East and v	vest of bri	idge			Height:			
Element Description:						Count:	2		
Material:	Asphalt					Total Quantity:	55.2 (sq.m)		
Element Type:						Not Inspected:			
Environment:	🗆 Benign,	Moder	ate, 🗹 Seve	re		Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition Data:	Units	Exc.	Good	Fair	Poor*	03. Continuing settlement			
	sq.m	0.00	5.0	34.2	10.0	BCI TEV: 331.2	BCI CEV: 104.58		
Comments:	Wheel rutt approache	ing, settle s. Damag	ement behiı Jed asphalt	nd abutm on north	ents, and va east approa	rious narrow longitudinal cra ch.	acks on both		
Recommended work:		Maintenance Needs:							
Comments Repave approaches.		□ 1 year, □ 2 years, □ Urgent							
Туре	Timing								
□ Rehab, □ Repair, ☑ Replace	☑ 1 - 5 ye □ Urgent	ars, 🗆 No	ow < 1 year,	, 🗆 6 - 10	years,				

Element Group:	Beams/Ma	in Longiti	udinal Elem	ents		Length: 11.1 (m)			
Element Name:	Girders					Width:	0.17 (m)		
Location:	Middle					Height:	0.32 (m)		
Element Description:						Count:	6		
Material:	Steel					Total Quantity:	76.6 (sq.m)		
Element Type:	l -Type					Not Inspected:			
Environment:	🗆 Benign,	☑ Moder	ate, 🗆 Seve	ere		Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition Data:	Units	Exc.	Good	Fair	Poor*	2 - Excessive deformations			
	sq.m	0.00	44.7	0.00	31.9	BCI TEV: 15320.0	BCI CEV: 6705.0		
Comments:	The north severe cor	girder ha rrosion wi	s rotated as th flaking p	s a result atina on t	of the failure he flanges.	e of the underlying cribs. 3 of	the 6 girders have		
Recommended work:		Maintenance Needs:							
Comments									
Replace corroded girders.						□ 1 year, □ 2 years, □ Urgent			
Туре	Timing								
☑ Rehab, □ Repair,□ Replace	☑ 1 - 5 ye □ Urgent	ears, 🗆 No	ow < 1 year	r, □ 6 - 10) years,				

Ontario Structure Inspection	on Manual -	– Inspect	Bridge ID: B17					
Element Group:	Decks					Length:	11.8 (m)	
Element Name:	Deck Top					Width:	4.6 (m)	
Location:						Height:	0.15 (m)	
Element Description:						Count:	1	
Material:	Pressure T	reated W	/ood			Total Quantity:	54.4 (sq.m)	
Element Type:	Laminated	d Wood D	ecking - Tra	insverse		Not Inspected:		
Environment:	🗆 Benign,	Moder	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:						Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor*			
	sq.m	0.00	57.8	3.9	0.5	BCI TEV: 6528.0	BCI CEV: 5389.2	
Comments:	Deck boards in good condition. Pressure treatment visible. Running boards cracked. Edge running boards cracked and coming off deck surface at road interface.							
Recommended work:						Maintenance Needs:		
Comments Type Timing						□ 1 year, □ 2 years, □ Urgent		
□ Rehab, □ Repair, □ Replace	□ 1 - 5 years, □ Now < 1 year, □ 6 - 10 years, □ Urgent							

Element Group:	Decks				Length:	11.1 (m)			
Element Name:	Soffit - Th	in Slab			Width:	4.2 (m)			
Location:					Height:				
Element Description:	Timber De	eck Lamir	nations Ove	r Steel Gi	Count:	1			
Material:	Wood				Total Quantity:	46.6 (sq.m)			
Element Type:	Laminate	d Wood D	ecking - Tra	ansverse	Not Inspected:				
Environment:	🗵 Benign	, 🗆 Mode	rate, 🗆 Seve	ere	Limited Inspection:				
Protection System:					Perform. Deficiencies				
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data.	sq.m	0.00	23.8	22.8	0.00	BCI TEV: 5592.0	BCI CEV: 3236.4		
Comments:	Soffit app	ears to b	e in fair to p	oor cond	eakage of water through the lamination joints.				
Recommended work:	Maintenance Needs:								
Comments									
Replace deteriorated deck timbers.		□ 1 year, □ 2 years, □ Urgent							
Туре 1	iming								
☑ Rehab, □ Repair, □ □ Replace	1 - 5 years Urgent	a, □ Now ·	< 1 year, 🗆	6 - 10 ye					
Ontario Structure Inspection Man	Bridge ID: B17								
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Element Group:	Decks				Length:	11.1 (m)			
Element Name:	Wearing S	urface				Width:	0.95 (m)		
Location:						Height:			
Element Description:	Timber Ru	nning Boa	ards			Count: 2			
Material:	Wood					Total Quantity:	t y: 21.09 (sq.m)		
Element Type:	Laminated	Wood De	ecking			Not Inspected:			
Environment:	🗆 Benign,	Moder	ate, 🛛 Seve	re		Limited Inspection:			
Protection System:	Running B	oards				Perform. Deficiencies			
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data:	sq.m	0.00	16.69	3.9	0.5	BCI TEV: 527.25	BCI CEV: 351.94		
Comments: Running boards cracked. Edge running boards crack interface.						ed and coming off deck s	surface at road		
Recommended work:						Maintenance Needs:			
Comments									
2"x8" Running Boards						□ 1 year, □ 2 years, □ Urgent			
Туре	Timing								
🗆 Rehab, 🗆 Repair, 🗹 Replace	□ 1 - 5 years, ☑ Urgent	⊐ Now <	1 year, 🗆 6	- 10 yea					

Element Group:	Embankments & Streams					Length:		
Element Name:	Embankm	ents				Width:		
Location:						Height:		
Element Description:	Southeast	Embankr	nent with V	egetated	Slopes	Count:	4	
Material:						Total Quantity:	4.0	
Element Type:						Not Inspected:		
Environment:	🛛 Benign,	Modera	ate, 🗆 Seve	ere		Limited Inspection:		
Protection System:					Perform. Deficiencies			
Condition Data	Units Exc. Good Fair Poor*							
Condition Data:	each	0.00	4.0	0.00	0.00	BCI TEV: 4000.0	BCI CEV: 3000.0	
Comments:	Appear to be stable and well vegetated.							
Recommended work:					Maintenance Needs:			
Comments Type Timing					□ 1 year, □ 2 years, □ Urgent			

Ontario Structure Inspection I	Manual — In	Bridge ID: B17						
Element Group:	Embankm	ents & Str	eams		Length:			
Element Name:	Streams a	nd Water	ways			Width:		
Location:						Height:		
Element Description:						Count: 1		
Material:						Total Quantity: 1.0		
Element Type:						Not Inspected:		
Environment:	🗹 Benign, 🗆 Moderate, 🗆 Severe					Limited Inspection:		
Protection System:					Perform. Deficiencies			
Condition Data	Units Exc. Good Fair Poor*				Poor*			
all 0.00 1.0 0.00				0.00	BCI TEV: 1000.0	BCI CEV: 750.0		
Comments: Clear of debris.								
Recommended work:						Maintenance Needs:		
Comments Type Timing					□ 1 year, □ 2 years, □ Urgent			

Element Group:	Sidewalks/curbs					Length:	11.1 (m)		
Element Name:	Curbs					Width:	0.14 (m)		
Location:	North and	South				Height:	0.14 (m)		
Element Description:						Count:	2		
Material:	Wood					Total Quantity:	6.2 (sq.m)		
Element Type:						Not Inspected:			
Environment:	🗆 Benign, 🗆 Moderate, 🗹 Severe					Limited Inspection:			
Protection System:						Perform. Deficiencies			
Condition Data	Units	Exc.	Good	Fair	Poor*				
Condition Data.	sq.m	0.00 0.00 4.1 2.1		BCI TEV: 248.0	BCI CEV: 65.6				
Comments: Splitting and twisting has caused curbs to become r mostly in the western quadrant gutter still functiona					nisaligned on the north side. Splitting on the southside I under curb. Slight Impact damage at south east curb.				
Recommended work:					Maintenance Needs:				
Comments Replace Timber Curb on Deck					□ 1 year, □ 2 years, □ Urgent				
Туре	Timing								
□ Rehab, □ Repair, ☑ Replace	 ☑ 1 - 5 years, □ Now < 1 year, □ 6 - 10 years, □ Urgent 								

* A quantity must be estimated using the appropriate unit (e.g. sq.m.). Percent should not be used.

Ontario Structure Inspection Ma	Bridge ID:							
Repair and Rehabilitation Required			Priority					
Element	Repair and Rehabilitation Required	> 10 years	6 - 10 years	1 - 5 years	Now < 1 year	Urgent	Cost	
Structure	Replace structure				✓		\$250,000.00	
						Total	\$250,000.00	

Assosciated Work	Comments	Estimated Cost
Approaches		
Detours		
Traffic Control		
Utilities		
Eng Design and Supervision		
Environmental Study		
Other		
Contingencies		
	Total	



Description: Looking East



Description: South elevation



Description: NE

Abutments / Bearings (East and West Abutments)



Description: SW inner bearing Abutments / Bearings (East and West Abutments)

Ontario Structure Inspection Manual — Inspection Form



Description: SE

Abutments / Bearings (East and West Abutments)



Description: NW Abutments / Bearings (East and West Abutments)



Description: Dislocated SE hazard

Accessories / Signs



Description: NW dislocated hazard sign Accessories / Signs



Description: Dislocated SW hazard

Accessories / Signs



Description: One lane and speed warning on W side Accessories / Signs



Description: Vegetation covering view of W one lane sign

Accessories / Signs



Description: S side boat wake warning Accessories / Signs



Description: E one lane and speed warning

Accessories / Signs



Description: W side Load capacity with surface cracking Accessories / Signs



Description: Bent NE hazard

Accessories / Signs



Description: E approach Approaches / Wearing surface (East and west of bridge)

B17



Description: W approach

Approaches / Wearing surface (East and west of bridge)



Sidewalks/curbs / Curbs (North and South)



Description: W Decks / Deck Top



Description: E Decks / Deck Top

B17



Description: N side Decks / Soffit - Thin Slab



Description: SE embankment Embankments & Streams / Embankments



Description: NW embankment (typical for NE and SW) Embankments & Streams / Embankments