Kincardine Municipal Bridge Master Plan – Campbell Bridge (2121)

Municipality of Kincardine

Submitted to:
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Kincardine ON N2Z 2X6

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Project No. 2402806

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Tables

Appendices

1. Campbell Bridge (Bridge 2121)

The Municipality of Kincardine (Municipality) retained GEI Consultants Limited (GEI) to complete a Bridge Master Plan to evaluate all 83 of their bridge structures. The Master Plan developed a strategy to consider which of these structures are reasonable for continued use and maintenance given their current conditions and which should be considered for decommissioning.

This report focuses on the evaluation and strategy for Campbell Bridge, also identified as Bridge 2121, shown **Figure 1-1**.

Figure 1-1. Campbell Bridge

Campbell Bridge North Elevation

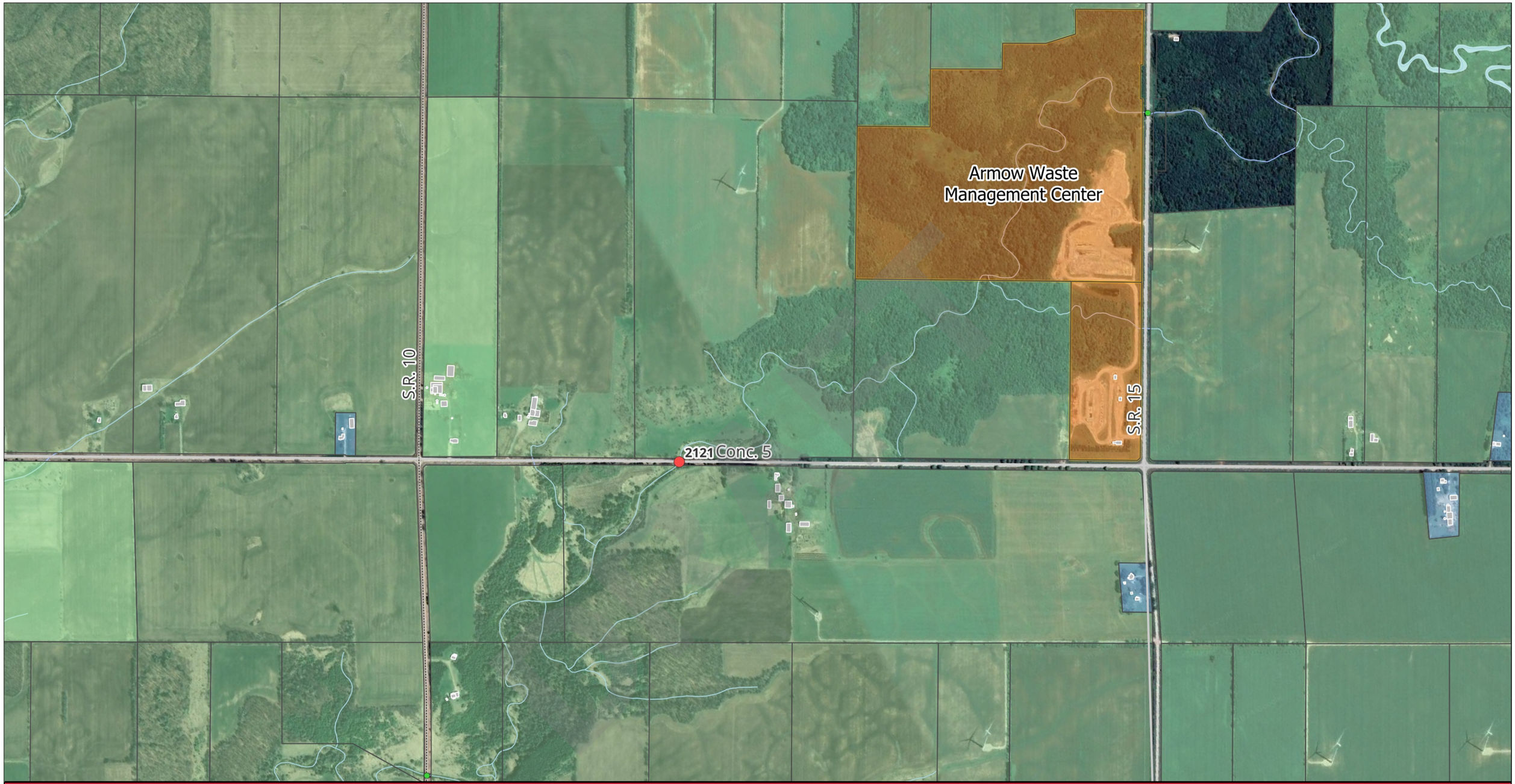
Campbell Bridge Facing West

1.1. Bridge Overview

Built in 1950, Campbell Bridge is located on Concession 5 Road between Sideroad 15 and Sideroad 10 over Penetangore River, as shown in **Figure 1-2**. This single lane, frame bridge spans approximately 15 m with a posted load limit of 15 tonnes noting that it is along a paved, two-lane road with a posted speed limit of 30 km/h.

This section of Concession Road 5, between Sideroad 15 and Sideroad 10, has access to 3 residential properties, 7 farms, and 1/2 wind turbines. The Armow Waste Management Center is located at the southwest corner of Concession Road 5 and Sideroad 15, at 427 Sideroad 15, with the entrance to the facility is located on Sideroad 15, just north of Concession Road 5. The annual average daily traffic (AADT) of 200-499 vehicles indicates that traffic along this section of road is likely not limited to local traffic and serves as a route to and from the waste management site. This section of road is also plowed for routine winter maintenance.

Additionally, this bridge has not been identified as having any heritage significance.



Bridges

- Campbell Bridge (2121)
- Other Bridges
- Watercourses

Roads by Surface Type

- Unpaved
- Paved

Parcels by Land Use

- Vacant Land
- Agricultural
- Residential
- Landfill
- Building Footprints

Reference(s)

1. Projection EPSG:26917
2. Base Data: MNRF LIO, 2023; Municipality of Kincardine, 2020; Google Satellite, 2024

0 200 400 600 800 m

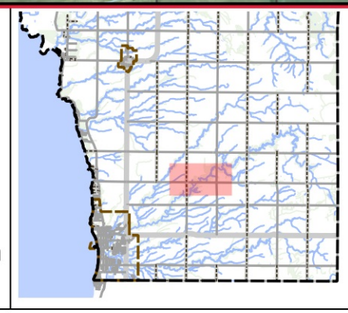


Figure 1-2. Campbell Bridge Location Overview

Project Name:
Kincardine Bridge Master Plan

Client Name:
Regional Municipality of Kincardine
Ontario, Canada

GEI Consultants

Last Updated: October 2024
Document ID: 2402806-G-001

1.2. OSIM Overview

BM Ross Engineering completed inspections on the conditions of all bridges in Kincardine in 2023, completing Ontario Structure Inspection Manual (OSIM) reports for each structure. The report detailed short term repair or replacement needs for the next 10 years.

The details of the OSIM for Campbell Bridge gave a Bridge Condition Index (BCI) of 19 and recommended replacement within 1-5 years. BCI ranks a bridge's condition from a value of 1 to 100, with an index of one hundred meaning a bridge is in perfect condition. The BCI of Campbell Bridge at 19 is therefore exceptionally low identified as poor condition. This is due to significant deterioration of the soffit, wingwall, deck edge, drain, and railing. The OSIM report for the Campbell Bridge is provided in **Appendix A** which includes detailed inspection records and photos of critical features.

BM Ross Engineering estimated a replacement cost at $3,927,000, as outlined in **Table 1-1**, including replacing the bridge with a wider structure and associated road improvements.

Table 1-1. Campbell Bridge Replacement Costs

Works Required		Cost
Replace Bridge with Wider Structure		$1,700,000
Road Improvements (Allowance)		$1,310,000
15 Tonne Load Posting (complete)		$0
Subtotal		**$3,010,000**
Associated Required Works	Mobilize/Demobilize	$85,000
	Traffic Control/Detours	$25,000
	Environmental Study	$60,000
	Engineering Design and Contract Administration	$390,000
	Contingencies	$357,000
	Subtotal	**$917,000**
Total Cost		**$3,927,000**

2. Evaluation Methodology

An evaluation of all bridges with short term (<10 years) repair or replacement needs, as per the OSIMS, was completed to determine potential capital works for the following servicing options:

- Do nothing: No works to be completed on the bridge
- Repair or replacement: Perform maintenance (i.e. repair or replacement of bridge) as recommended through the OSIM
- Close: Decommission bridge as replacement costs outweigh benefits to existing and future users

This evaluation considered a two-step process:

1. Screening of Bridges: All bridges with repair or replacement needs, as per the OSIMs, were evaluated with a set of criteria and ranked based on their closure potential. A threshold score determined which bridges would be carried forward for further detailed analysis.
2. Detailed Evaluation: A comprehensive review, detailing potential impacts, of all bridges which met screening criteria threshold score.

It can be noted that long term capital works (>10 years) were evaluated through a similar process; however, as Campbell Bridge has short term repair needs, this report only discusses the short term evaluation methodology.

2.1. Screening of Bridges Methodology

The screening process evaluated all bridges within Kincardine, with short term repair or replacement needs as per the OSIMs, through the prioritization for further evaluation based on feasibility for future closure. The screening process considered the following criteria in the evaluation:

- **AADT**: Traffic impacts indicate that less traffic along a bridge will have reduced overall network connectivity impacts should the bridge be closed.
- **Repair or Replacement Cost**: High costs associated with repair or replacement, as indicated by the OSIMs, are prioritized for closure to reduce capital burden on the Municipality.
- **Annual Detour Time**: Total time spent detouring per year to avoid a bridge closure. This criteria considers maximum length of the detour, total traffic along the road, and speed limits of the detour. A low total detour time is an indication of a reduced overall inconvenience due to a bridge closure.

The screening process considered a scoring criteria, from 1 to 5, based on the AADT, repair or replacement cost, and annual detour time, shown in **Table 2-1**. The sum of these scores was normalized to give each bridge a maximum score of 100. Following the screening, a threshold score of 80 points carried forward bridges for a more comprehensive evaluation.

Table 2-1. Screening Scoring

Criteria	Score				
	5	4	3	2	1
AADT	0 - 49 vehicles/day	50 - 199 vehicles/day	200 - 499 vehicles/day	500 - 999 vehicles/day	1000 + vehicles / day
Repair or Replacement Cost	≥$750 000	$300 000 - $749 999	$70 000 - $299 999	$10 000 - $69 999	<$10,000
Annual Detour Time	<200 hours	200 - 499 hours	500 - 999 hours	1000 - 1999 hours	≥2000 hours

2.2. Detailed Evaluation Methodology

The detailed evaluation considered a comprehensive review of each bridge, which met the threshold scoring during the screening evaluation, for its capacity to be closed. Due to the general grid of the road network, the detailed evaluation considered direct impacts between two road segments and the overall network connectivity needs:

- **Land Use**: Review of land use types including residential, agricultural needs (i.e. farm access), wind turbine access, and other industrial/commercial/institutional (ICI) properties.
- **Impact to Key Vehicles**: Overall need and effectiveness of emergency vehicles, snow plows, and waste management vehicles.
- **Overall Network Connectivity**: Traffic impacts of a vehicle rerouting and network access.
- **Other Possible Constraints**: Any miscellaneous items identified in the OSIMs which may have an impact on closure possibility.

Following the detailed evaluation, mitigation measures were proposed to determine if identified constraints could be alleviated.

3. Evaluation of Campbell Bridge

The Campbell Bridge has been prioritized for capital works in the short term (1-5 years) as the structure is in poor conditions and has high costs associated with its replacement.

3.1. Campbell Bridge Screening

Campbell Bridge was evaluated for the screening criteria, with key details summarized in **Table 3-1**, to a total score of 67/100. This is not a high score due to the higher volume of traffic seen on this bridge noting that the bridge is on a route to the Armow Waste Management Center, contributing to the higher AADT.

It should be noted that the Campbell Bridge did not meet the threshold criteria for screening primarily due to its higher traffic counts; however, as its replacement cost is one of the costliest in the short term (<10 years), additional detailed evaluation was performed to confirm preferred action.

Table 3-1. Key Details and Screening of Campbell Bridge

Criteria	Details
Type	Frame Bridge
Install Year	1950 (74 years)
BCI	19
Road Class	Local (Paved)
Speed Limit	30 km/h
AADT	200-499 (Score of 3)
Repair/ Replacement Cost	$3,927,000 (Score of 5)
Annual Detour Time	1265 days for a 5 km detour (Score of 2)
Screening Score	**67/100**
Ranking	**27**

3.2. Campbell Bridge Detailed Evaluation

The detailed evaluation of Campbell Bridge outlined that there are a number of opportunities and constraints as the relate to its closure, summarized in **Table 3-2** and **Figure 3-1**. The opportunities and constraints, as well as mitigation measures, are provided as follows:

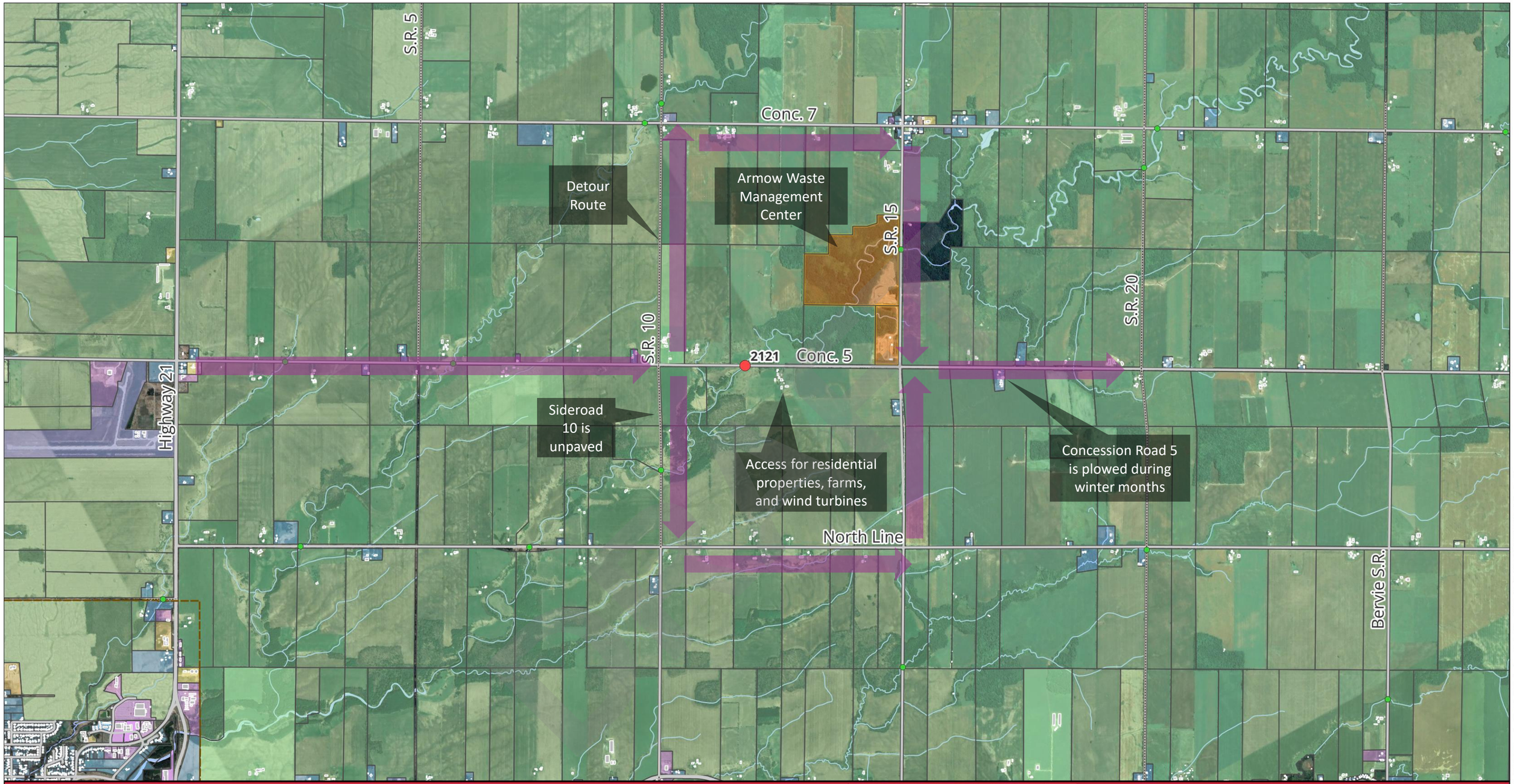
- **Land Use**: The section of road along Concession Road 5, between Sideroad 15 and Sideroad 10, has access to 3 residential properties, 7 farms, and 1/2 wind turbines. As there are a number of residential properties and farm accesses along this section of Concession Road 5, public consultation is recommended as locally, they are to be the most impacted by a closure.
- **Impact to Key Vehicles**:
    - Due to the bridge's distance from Kincardine and Tiverton, there is anticipated to be minimal impact to emergency vehicles as the existing transportation network from the urban areas can be accommodated by other Concessions and Provisional Highways.

  - Winter maintenance is currently provided to Concession Road 5 as it is a paved road and there are a number of residential properties. As the Campbell Bridge is a single lane bridge, it may be difficult for the snow plow to turn around and additional measure may be required to allow for an appropriate turning radius.
  - Concession Road 5 provides a direct route, for waste management vehicles and residents, from the Kincardine to the Armow Waste Management Center. If the Campbell Bridge is closed, this traffic will likely be detoured to a Sideroad 15 and Concession Road 7 or North Line. This closure impacts local and system wide network connectivity and places additional traffic onto the adjacent road network.

- **Overall Network Connectivity**: Concession Road 5 has a moderate flow of traffic with an AADT of 200-499, likely due to the proximity to the Armow Waste Management Center and general east-west transportation conveyance along Concession roads. As this is a moderately used bridge, a closure would result in a significant rerouting impact with an estimated 1256 days in annual detour time.
  - Potential detours may occur along Sideroad 10 which is unpaved with gravel. Road improvements (i.e. paving, more frequent resurfacing) would likely be necessary, especially to accommodate large vehicles during winter months, to prevent damage to the road and ensure vehicular safety. Further, an increase in AADT would likely warrant paving the road as its function is no longer as a low-volume road.
  - Confirmation of load limits on potential detours would need to ensure a minimum of 15 tonnes could be accommodated.

Table 3-2. Opportunities and Constraints for Closure of Campbell Bridge

Opportunities	Constraints
● Minimal impact to Emergency Vehicle routing ● Moderate number of local access to existing residential properties, farms, and wind turbines which will require use of detour routes ● Capital cost savings if closed rather than replaced	● Moderately impacted network connectivity and limited effectiveness of routes to the Waste Management Center ● Traffic (AADT of 200-499) along Concession Road 5 will impact increasing traffic to detour routes ● Potential road improvement needs for Sideroad 10 as a detour route to accommodate increase in traffic ● Snow plow turning radius may need to be accommodated to maintain winter maintenance to residential properties



Bridges

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Roads by Surface Type

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- Paved

Parcels by Land Use

- Vacant Land
- Agricultural
- Residential
- Commercial
- Institutional
- Industrial
- Misc
- Landfill
- Building Footprints

Reference(s)
1. Projection EPSG:26917
2. Base Data: MNRF LIO, 2023; Municipality of Kincardine, 2020; Google Satellite, 2024

0 700 1,400 2,100 2,800 m

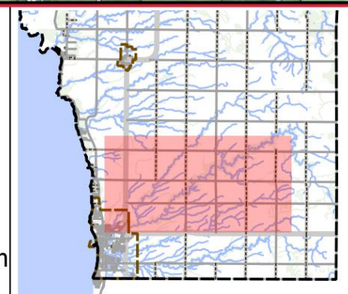

Figure 3-1. Campbell Bridge Opportunities and Constraints

Project Name:
Kincardine Bridge Master Plan

Client Name:
Regional Municipality of Kincardine
Ontario, Canada

GEI Consultants

Last Updated: October 2024
Document ID: 2402806-G-001

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4. Recommendations

Campbell Bridge has deteriorated significantly since its construction in 1950 and will cost the Municipality almost $4 million to completely rehabilitate within the next 5 years. Following both the detailed analysis and workshops held with the Municipality it is recommended that the structure be maintained to continue regular traffic along Concession Road 5 and maintain routing to the Armow Waste Management Center for both residents and waste management vehicles.

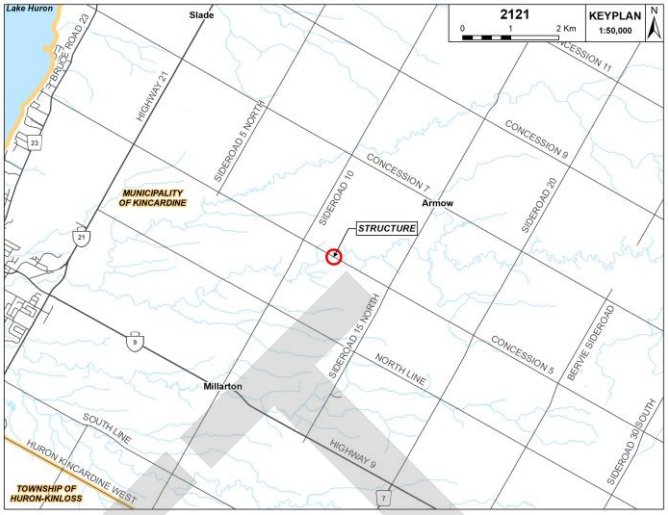
Appendix A OSIM Report for Bridge 2121

Ontario Structure Inspection Manual - Inspection Report:

Site Number: 2121

Summary Report:

2-North Elevation



Datum: NAD83 17N **Northing:** 4892284 **Easting:** 456769

Structure Name:	Campbell Bridge	**BMROSS File #:**	BR1048	**MTO #:**	
Main Hwy / Road #:		**Bridge Condition Index (BCI:)**	19	**CRV:**	$2,033,000
Road Name:	Concession 5			**Inspection Date:**	2023-09-20
Structure Location:	0.7 km East of Sideroad 10, over North Penetangore River			**Next Inspection:**	2025-06-01
Condition Summary:	Replacement recommended	**Recommended Timing:**	1-5 Years	**Current Load Limit:**	20
Overall Comments:	Rigid frame bridge in poor condition. Replacement and road improvements recommended.				

Repair / Rehabilitation:

Element:	Work Required	Period	Cost
	Replace bridge with wider structure	1 to 5 yrs.	$1,700,000
	Road improvements (Allowance)	1 to 5 yrs.	$1,310,000
	15T Load Posting ($1,000)	Within 1 yr.	$0
			$0
			$0
			$0
			$0
Various	Associated Work		$917,000
		Total	$3,927,000

Additional Investigations:

Maintenance Needs:

Ontario Structure Inspection Manual - Inspection Report:

Site Number: 2121

Inventory Data:

Structure Name:	Campbell Bridge		
Main Hwy / Road #:		On ☑ Under ☐	Crossing Type: Unknown/Non-Navigable Waterway
Road Name:	Concession 5	Northing:	4892284
Structure Location:	0.7 km East of Sideroad 10, over North Penetangore Ri	Easting:	456769
Owner(s):	Municipality of Kincardine	Heritage Designation:	Not Designated
MTO Region:	Southwestern	Road Class:	Local
MTO District:	Owen Sound	Posted Speed:	30 No. of Lanes: 2
Current County:	Bruce	AADT:	200-499 % Trucks:
Geographic Twp.:	KINCARDINE	Special Routes:	
Structure Group:	Frame	Surface Type:	Asphalt
Structure Type:	Rigid Frame, Vertical Legs	Detour Length Around Bridge:	6 (km)
Total Deck Length:	17.0 (m)	Fill on Structure:	0.1 (m)
Overall Str. Width:	6.3 (m)	Skew Angle:	45 (Degrees)
Total Struct. Area:	107.1 (sq.m)	Direction of Structure:	East/West
Roadway Width:	5.3 (m)	Min. Vert. Clearance:	(m)
Number of Spans:	1	Bridge Condition Index:	19
Span Length(s):	15.24 (m) (m) (m) (m) (m)		
MTO Number:		**BMROSS File Number:**	BR1048

Historical Data:

Year Built:		Last Biennial Inspection:	2021
Current Load Limit:	20 (tonnes)	Last Evaluation:	
Load Limit By-Law #:		Last Enhanced Inspection:	
By-Law Expiry Date:		Enhanced Access Equipment:	

Ontario Structure Inspection Manual - Inspection Report:

Site Number: 2121

Field Inspection Information:

Date of Inspection: 2023-09-20 **Inspection Type:** OSIM Inspection **Next Detailed Inspection:** 2025

Inspector: Dan Austin

Inspecting Firm: BM Ross & Associates Limited

Others in Party: Andrew McGarvey

Equipment Used: Hammer, Camera, Measuring Tape, Chain

Weather: Sunny

Temperature: 16 ^{O}C

Additional Investigations

Investigation Description	Note	Priority	Estimated Cost
Detailed Deck Condition or Corrosion Potential Survey		N/R	$0
Non-destructive Delamination Survey of Asphalt-Covered Deck		N/R	$0
Concrete Substructure Condition Survey		N/R	$0
Detailed Coating Condition Survey		N/R	$0
Detailed Timber Investigation		N/R	$0
Post-Tensioned Strand Investigation		N/R	$0
Underwater Investigation		N/R	$0
Fatigue Investigation		N/R	$0
Seismic Investigation		N/R	$0
Structure Evaluation		N/R	$0
Monitoring Deformations, Settlements, or Movements of Crack Widths		N/R	$0
		Total Cost:	$0

Overall Structure Notes:

Bridge Condition Summary: Replacement recommended **Recommended Timing:** 1-5 Years

Overall Comments: Rigid frame bridge in poor condition. Replacement and road improvements recommended.

Replacement Value:

Structure Type: Bridge

Replacement Cost: $ 2,033,000

Structure Area: 107 (sq.m)

Complexity Factor: 2

Price per sq. m.: $ 9,500.00

Note: Replacement cost calculation is based on the above price per square metre, the total deck or structure area for the existing structure and the chosen complexity factor. This cost may not be a suitable value when budgeting to replace a structure.

Suspected Performance Deficiencies

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

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
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
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

Repair / Rehabilitation:

Element:	Work Required	Period	Cost
	Replace bridge with wider structure	1 to 5 yrs.	$1,700,000
	Road improvements (Allowance)	1 to 5 yrs.	$1,310,000
	15T Load Posting ($1,000)	Within 1 yr.	$0
			$0
			$0
			$0
			$0

Repair/Rehabilitation Sub-Total: **$3,010,000**

Associated Work Required:

Mobilize / Demobilize		$85,000
Approaches		$0
Traffic Control / Detours	Road closed, detour	$25,000
Utilities		$0
Right of Way		$0
Environmental Study	Environmental assessment and studies	$60,000
Engineering	Design and contract administration	$390,000
Other		$0
Contingencies		$357,000

Associated Work Sub-Total: **$917,000**

Total Cost: **$3,927,000**

Justification:

Ontario Structure Inspection Manual - Inspection Report:

Site Number: 2121

Element Data:						
Element Group:	Abutments				**Length:**	
Element Name:	Abutment Walls				**Width:**	8.8
Location:					**Height:**	2.5
Material:	Cast-in-place Concrete				**Count:**	2
Element Type:	Legs of Rigid Frame				**Total Quantity:**	44 m2
Environment:	Benign				**Limited / Not Inspected:**	☐
Protection System:	None				**BCI - Element Condition Values:**	
Condition Data:	**Excellent**	**Good**	**Fair**	**Poor**	**TEV**	**CEV**
			85% (37.4)	15% (6.6)	$39,600	$13,464
Comments:	Some efflorescence staining at drain locations and spalls at southeast corner of structure. Top of west footing is exposed between 0.3m and 0.6m.					
Performance Deficiencies:						
Recommended Work:	Replace structure.				**Recommended Timing:**	1-5 years
Maintenance needs:						
Maintenance work:					**Maintenance Priority:**	

Element Data:						
Element Group:	Abutments				**Length:**	5.5
Element Name:	Wingwalls				**Width:**	
Location:					**Height:**	3.4
Material:	Cast-in-place Concrete				**Count:**	4
Element Type:	Reinforced Concrete				**Total Quantity:**	37.4 m2
Environment:	Benign				**Limited / Not Inspected:**	☐
Protection System:	None				**BCI - Element Condition Values:**	
Condition Data:	**Excellent**	**Good**	**Fair**	**Poor**	**TEV**	**CEV**
			40% (14.96)	60% (22.44)	$13,090	$2,094
Comments:	Significant spalls at southeast wingwall, full area. Spalling at northwest wingwall as well. Efflorescence staining and delaminations at all corners.					
Performance Deficiencies:						
Recommended Work:	Replace structure.				**Recommended Timing:**	1-5 years
Maintenance needs:						
Maintenance work:					**Maintenance Priority:**	

Element Data:						
Element Group:	Barriers				**Length:**	28.35
Element Name:	Railing Systems				**Width:**	0.31
Location:	North/South side				**Height:**	1.05
Material:	Cast-in-place Concrete				**Count:**	2
Element Type:	Concrete Post and Continuous Railing				**Total Quantity:**	56.7 m
Environment:	Severe				**Limited / Not Inspected:**	☐
Protection System:	None				**BCI - Element Condition Values:**	
Condition Data:	**Excellent**	**Good**	**Fair**	**Poor**	**TEV**	**CEV**
				100% (56.7)	$11,340	$0
Comments:	Top of 7 posts are broken and the rebar is exposed and concrete badly cracked at two locations. 1 post and 2 rail sections replaced at southeast corner, vertical crack in new bottom rail and spalling in new post. Not to current standards.					
Performance Deficiencies:						
Recommended Work:	Replace structure.				**Recommended Timing:**	1-5 years
Maintenance needs:						
Maintenance work:					**Maintenance Priority:**	

Element Data:						
Element Group:	Decks				**Length:**	17.0
Element Name:	Deck Top - Thick Slab				**Width:**	6.3
Location:					**Height:**	
Material:	Cast-in-place Concrete				**Count:**	1
Element Type:	Orthotropic Concrete Deck System				**Total Quantity:**	107.1 m2
Environment:	Benign				**Limited / Not Inspected:**	☑
Protection System:	None				**BCI - Element Condition Values:**	
Condition Data:	**Excellent**	**Good**	**Fair**	**Poor**	**TEV**	**CEV**
			35% (37.48)	65% (69.61)	$37,485	$5,248
Comments:	Covered with asphalt, rating assumed based on soffit.					
Performance Deficiencies:						
Recommended Work:	Replace structure.				**Recommended Timing:**	1-5 years
Maintenance needs:						
Maintenance work:					**Maintenance Priority:**	

Element Data:						
Element Group:	Decks				**Length:**	0.07
Element Name:	Drainage				**Width:**	0.07
Location:					**Height:**	0.67
Material:	Steel				**Count:**	4
Element Type:	Metal Drain Pipes				**Total Quantity:**	4 Each
Environment:	Moderate				**Limited / Not Inspected:**	☐
Protection System:					**BCI - Element Condition Values:**	
Condition Data:	**Excellent**	**Good**	**Fair**	**Poor**	**TEV**	**CEV**
				100% (4)	$0	$0
Comments:	Badly corroded, too short causing deck deterioration.					
Performance Deficiencies:						
Recommended Work:	Replace structure.				**Recommended Timing:**	1-5 years
Maintenance needs:						
Maintenance work:					**Maintenance Priority:**	

Element Data:						
Element Group:	Decks				**Length:**	15.24
Element Name:	Soffit - Thick Slab				**Width:**	6.3
Location:					**Height:**	
Material:	Cast-in-place Concrete				**Count:**	1
Element Type:					**Total Quantity:**	96 m2
Environment:	Benign				**Limited / Not Inspected:**	☐
Protection System:	None				**BCI - Element Condition Values:**	
Condition Data:	**Excellent**	**Good**	**Fair**	**Poor**	**TEV**	**CEV**
			40% (38.4)	60% (57.6)	$33,600	$5,376
Comments:	Significant spalls and deterioration at drain locations and centreline.					
Performance Deficiencies:						
Recommended Work:	Replace structure.				**Recommended Timing:**	1-5 years
Maintenance needs:						
Maintenance work:					**Maintenance Priority:**	

Ontario Structure Inspection Manual - Inspection Report:

Site Number: 2121

Element Data:						
Element Group:	Sidewalks/curbs				**Length:**	28.35
Element Name:	Curbs				**Width:**	0.44
Location:	North/South				**Height:**	0.15
Material:	Cast-in-place Concrete				**Count:**	2
Element Type:					**Total Quantity:**	33.45 m2
Environment:	Severe				**Limited / Not Inspected:**	☐
Protection System:					**BCI - Element Condition Values:**	
Condition Data:	**Excellent**	**Good**	**Fair**	**Poor**	**TEV**	**CEV**
			35% (11.71)	65% (21.74)	$1,338	$187
Comments:	Spalling on back face of south curb (13m) and back face of north curb (4m). 11m of spalling on front face of south curb, 6m of spalling on front face of north curb.					
Performance Deficiencies:						
Recommended Work:	Replace structure.				**Recommended Timing:**	1-5 years
Maintenance needs:						
Maintenance work:					**Maintenance Priority:**	

1-Facing West

2-North Elevation

3-Soffit From East Abutment

4-South Elevation

5-Southeast Wingwall and South Deck Edge

6-Northwest Wingwall

7-North Deck Edge

8-Soffit at Northeast Drain

9-Deck Spall at Southeast Drain

Facing East

Northwest Railing End

Southeast Railing End