

Summary Action Report

Structure 2064 (MTO Site No.)

Bridge 2064

Inspection Date 06/06/2013 mm/dd/yyyy

Condition Index Value (BCI) 68.6

Next Biennial Inspection 06/06/2015 mm/dd/yyyy

Current Rep. Value \$325,455

Additional Investigations

Investigation	Priority	Cost	Investigation	Priority	Cost
No additional investigations required.					

Performance Deficiencies

Element Group	Element	Performance Deficiency
Barriers	Railing Systems	Pedestrian/vehicular hazard
Accessories	Signs	Pedestrian/vehicular hazard

Maintenance Needs

Element Group	Element	Maintenance Required	Priority	Comment
Accessories	Signs	Other	1 yr	Replace hazard marker.
Decks	Wearing Surface	Rout and Seal	2 yr	Seal cracks
Decks	Wearing Surface	Bridge Surface Repair	2 yr	Surface patches
Approaches	Wearing Surface	Rout and Seal	2 yr	Seal Cracks

Repair/Rehabilitation

Element Group	Element	Repair/Rehabilitation		Priority	Cost
Abutments	Wingwalls	Minor Rehab	Patch repair and crack repair	1-5 yrs	\$8,000
Decks	Soffit - Thick Slab	Minor Rehab	Patch repair	1-5 yrs	\$6,000
Abutments	Abutment Walls	Minor Rehab	Seal cracks	1-5 yrs	\$4,000
Barriers	Railing Systems	Minor Rehab	Reconstruct missing spindles and repair cracks	Within 1	\$9,000
Total Repair/Rehabilitation Cost					\$27,000

Town of Erin	100%	\$51,000.00	-	Total Associated Work Cost	\$24,000
	0%	\$0.00		Total Cost	\$51,000

Overall Comments

Repair railing system, abutment, deck soffit, wingwalls. Guiderail is connected to first interior barrier post, substandard connection.

Municipal Structure Inspection Form

Structure Number:

2064

Inventory Data

Structure Name	Bridge 2064		Hwy No.		Key Photo
Cross. Type Over	<input checked="" type="checkbox"/> Road <input type="checkbox"/> Rail <input type="checkbox"/> Ped <input type="checkbox"/> Nav. Water <input type="checkbox"/> Non-Nav. Wat <input type="checkbox"/> Other				
Cross. Type Under	<input type="checkbox"/> Road <input type="checkbox"/> Rail <input type="checkbox"/> Ped <input type="checkbox"/> Nav. Water <input checked="" type="checkbox"/> Non-Nav. Wat <input type="checkbox"/> Other				
Road Name	Station Road				
Structure Location	0.2 km West of Wellington Rd. 24				
Latitude	43.78718	Longitude	-80.14203	Cur. Rep. Value	\$325,455
Owner(s)/ % Share	Town of Erin		100 %	**	
			0 %	Heritage Status	Not Considered for Designation
MTO Region	Southwestern		Road Side Env.	Unspecified	
MTO District	London/Stratford		Road Class	Local	
Old County	Wellington		Lane Type		
Geographic Twp.	Erin		Posted Speed	50	No. of Lanes
Structure Type	Solid Slab		AADT	700	Pct. Trucks
Structure Material			Inspection Route Sequence		
Articulation			Interchange Number		
Total Deck Length	5.2 m	Road Width	6 m	Interchange Structure Number	
Overall Width	7.4 m	Vert. Clear.	0 m	Detour Length	0 km
Total Deck Area	38.00 m ²	No. of Spans	1	Skew Angle	0 °
Special Routes	<input type="checkbox"/> Transit <input type="checkbox"/> Schoo <input type="checkbox"/> Truck <input type="checkbox"/> Bicycle		Fill on Structure	0 m	Struct. Dir.
			Insp. Duration		East-West



Spans

** Current Replacement Value is based on in kind replacement of the existing structure and calculated using benchmark costs. Capital planning should consider site specific cost factors and requirements for widening or lengthening of the structure.

Span Name	Span Length	Span Name	Span Length
Span 1	4.4 m		

Historical Data

Year Built	1917	Year of Last Major Rehab	0
Last OSIM Inspection		Contract No. When Built	
Last Enhanced OSIM		Last Evaluation	
Last Enhanced Access		Current Load Limit	0 t 0 t 0 t
Last Underwater Insp.		Load Limit By-Law No.	
Last Condition Survey		By-Law Expiry Date	

Rehab History

Municipal Structure Inspection Form**Structure Number:****2064****Field Inspection Information:**

Inspection Date	06/06/2013 mm/dd/yyyy	<input type="checkbox"/> Multi Day Inspection	<input checked="" type="checkbox"/> OSIM	<input type="checkbox"/> Enhanced OSIM	BCI	68.6
Inspector	Mario Marin		Eng. Responsible Christine Beard Laaber, P.Eng.			
Others in Party	Kyle McTavish					
Access Equip.	<input type="checkbox"/> Lift <input type="checkbox"/> Ladder <input type="checkbox"/> Boat <input type="checkbox"/> Bridge Master Other <input type="text"/>					
Other Equip.	Camera, Hammer, Other Hand Tools					
Weather	Partly Cloudy		Temperature	12 °C		

Additional Investigations Required:

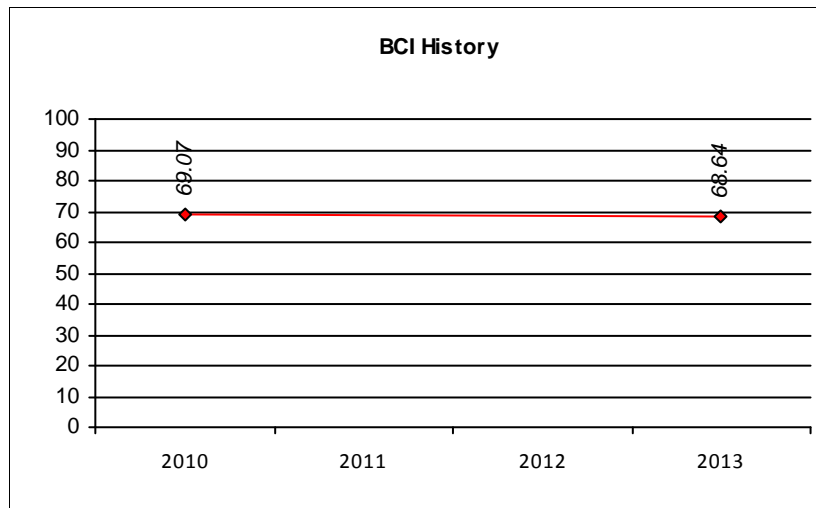
Investigation	Priority			Estimated Cost
	None	Normal	Urgent	
Detailed Deck Condition Survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$0
Delamination Survey of Asphalt-Covered Deck	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$0
Concrete Substructure Condition Survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$0
Detailed Coating Condition Survey	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$0
Detailed Timber Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$0
Post-Tensioned Strand Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$0
Underwater Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$0
Fatigue Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$0
Seismic Investigation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$0
Structure Evaluation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$0
Monitoring of Deformations, Movements and Settlements	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$0
Monitoring of Crack Widths	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	\$0
Investigation Notes				Total Cost \$0

Overall Structure Notes:

Recommended Work on Structure	<input type="checkbox"/> None	<input checked="" type="checkbox"/> Rehab	<input type="checkbox"/> Replace	<input type="checkbox"/> Remove
Timing of Recommended Work	<input type="checkbox"/> None	<input type="checkbox"/> Now	<input checked="" type="checkbox"/> 1 to 5 years	<input type="checkbox"/> 6 to 10 years
Overall Comments	Repair railing system, abutment, deck soffit, wingwalls. Guiderail is connected to first interior barrier post, substandard connection.			
BCI Change Justification				
Next Inspection	06/06/2015 mm/dd/yyyy	Estimated Load Limit	0 t 0 t 0 t	

Municipal Structure Inspection Form**Structure Number:****2064****BCI History**

Insp. Date	BCI	Inspector
01-Nov-10	69.07	Scott Davis, P.Eng.
06-Jun-13	68.64	Mario Marin



All BCI values are based on the MTO BCI methodology published in April 2008. As a result, BCI values for 2007 and earlier are approximate only, with potential discrepancies resulting from changes (over time) in the way quantities for certain elements are calculated.

Standard Codes**Suspected Performance Deficiencies**

- 00 None
- 01 Load carrying capacity
- 02 Excessive deformations (deflections/rotations)
- 03 Continuing settlement
- 04 Continuing movements
- 05 Seized bearings

- 06 Bearing not uniformly loaded/unstable
- 07 Jammed expansion joint
- 08 Pedestrian/vehicular hazard
- 09 Rough riding surface
- 10 Surface ponding
- 11 Deck 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

Municipal Structure Inspection Form

Structure Number:

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Element Data

Decks - Wearing Surface

Element Group	Decks				Length	5.20	Width	6.00
Element Name	Wearing Surface				Height	0.00	Count	1.00
Location					Total Quantity		31.20	
Material	Asphalt				<input type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System					<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	sq. m	0.00	25.20	2.00	4.00	<input checked="" type="checkbox"/> Severe		

Comments

Narrow to wide transverse cracks and ocalized potholes.

Performance Deficiencies

None

Maintenance Needs

Bridge Surface Repair

Priority

2 yr

Comments

Surface patches

Rout and Seal

2 yr

Seal cracks

Rehab/Repair Recommendations

Priority

Cost

Comments

Decks - Deck Top

Element Group	Decks				Length	5.20	Width	7.40
Element Name	Deck Top				Height	0.00	Count	1.00
Location					Total Quantity		38.48	
Material	Cast-in-place concrete				<input type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System					<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input checked="" type="checkbox"/> Moderate		
	sq. m	0.00	35.48	3.00	0.00	<input type="checkbox"/> Severe		

Comments

Estimated from soffit.

Performance Deficiencies

None

Maintenance Needs

Priority

Comments

Rehab/Repair Recommendations

Priority

Cost

Comments

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Decks - Soffit - Thick Slab

Element Group	Decks					Length	7.40	Width	4.40
Element Name	Soffit - Thick Slab					Height	0.00	Count	1.00
Location						Total Quantity		32.56	
Material	Cast-in-place concrete					<input type="checkbox"/> Limited Inspection			
Element Type						Environment			
Protection System						<input checked="" type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate			
	sq. m	0.00	27.56	2.50	2.50	<input type="checkbox"/> Severe			

Comments

Spalling and delaminations, narrow stained cracks, exposed corroded rebar, spalls on south fascia and efflorescence.

Performance Deficiencies

None

Maintenance Needs

Priority Comments

Rehab/Repair Recommendations

Priority

Cost

Comments

Minor Rehab

1-5 yrs

\$6,000

Patch repair

Barriers - Railing Systems

Element Group	Barriers					Length	19.60	Width	0.00
Element Name	Railing Systems					Height	1.00	Count	2.00
Location	Each Side					Total Quantity		39.20	
Material	Cast-in-place concrete					<input type="checkbox"/> Limited Inspection			
Element Type	Concrete Post and Continuous Railing					Environment			
Protection System						<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate			
	m	0.00	31.20	4.00	4.00	<input checked="" type="checkbox"/> Severe			

Comments

5 missing spindles on the northside, narrow to wide cracks, abrasions, isolated delaminations. Missing 3 of 4 end cap pieces (decorative feature), section of barrier in SW quadrant has been fitted with steel beam guiderail.

Performance Deficiencies

Pedestrian/vehicular hazard

Maintenance Needs

Priority Comments

Rehab/Repair Recommendations

Priority

Cost

Comments

Minor Rehab

Within 1yr

\$9,000

Reconstruct missing spindles and repair cracks

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Barriers - Railing Systems

Element Group	Barriers				Length	0.00	Width	0.00
Element Name	Railing Systems				Height	0.00	Count	4.00
Location	South Side				Total Quantity		4.00	
Material	Steel				<input type="checkbox"/> Limited Inspection			
Element Type	Steel Flex Beam over other railing				Environment			
Protection System	Hot dip galvanizing				<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
	m	0.00	4.00	0.00	0.00	<input checked="" type="checkbox"/> Severe		

Comments

Performance Deficiencies

None

Maintenance Needs

Priority Comments

Rehab/Repair Recommendations

Priority

Cost

Comments

Barriers - Posts

Element Group	Barriers				Length	0.00	Width	0.00
Element Name	Posts				Height	0.00	Count	1.00
Location	South Side				Total Quantity		1.00	
Material	Steel				<input type="checkbox"/> Limited Inspection			
Element Type					Environment			
Protection System					<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate		
		0.00	1.00	0.00	0.00	<input checked="" type="checkbox"/> Severe		

Comments

Performance Deficiencies

None

Maintenance Needs

Priority Comments

Rehab/Repair Recommendations

Priority

Cost

Comments

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Abutments - Abutment Walls

Element Group	Abutments					Length	7.40	Width	
Element Name	Abutment Walls					Height	3.00	Count	2.00
Location	East and West					Total Quantity		44.40	
Material	Cast-in-place concrete					<input type="checkbox"/> Limited Inspection			
Element Type						Environment			
Protection System						<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input checked="" type="checkbox"/> Moderate			
	sq. m	0.00	38.40	4.00	2.00	<input type="checkbox"/> Severe			

Comments

Narrow to wide cracks, light to medium scaling. Delaminations, spalls.

Performance Deficiencies

None

Maintenance Needs

Priority Comments

Rehab/Repair Recommendations

Priority

Cost

Comments

Minor Rehab

1-5 yrs

\$4,000

Seal cracks

Abutments - Wingwalls

Element Group	Abutments					Length	7.00	Width	0.00
Element Name	Wingwalls					Height	3.50	Count	4.00
Location	All Four Quadrants					Total Quantity		98.00	
Material	Cast-in-place concrete					<input type="checkbox"/> Limited Inspection			
Element Type						Environment			
Protection System						<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input checked="" type="checkbox"/> Moderate			
	sq. m	0.00	90.00	4.00	4.00	<input type="checkbox"/> Severe			

Comments

Narrow to wide cracks, light to severe scaling, spalls, delaminations.

Performance Deficiencies

None

Maintenance Needs

Priority Comments

Rehab/Repair Recommendations

Priority

Cost

Comments

Minor Rehab

1-5 yrs

\$8,000

Patch repair and crack repair

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Foundations - Foundations (below ground level)

Element Group	Foundations					Length	0.00	Width	0.00
Element Name	Foundations (below ground level)					Height	0.00	Count	0.00
Location						Total Quantity		0.00	
Material						<input checked="" type="checkbox"/> Limited Inspection			
Element Type						Environment			
Protection System						<input checked="" type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate			
Comments						<input type="checkbox"/> Severe			

Performance Deficiencies					Maintenance Needs					Priority	Comments
None											

Rehab/Repair Recommendations					Priority	Cost	Comments

Embankments & Streams - Streams & Waterways

Element Group	Embankments & Streams					Length	0.00	Width	0.00
Element Name	Streams & Waterways					Height	0.00	Count	0.00
Location	Through Bridge					Total Quantity		100.00	
Material	Cast-in-place concrete					<input type="checkbox"/> Limited Inspection			
Element Type						Environment			
Protection System						<input checked="" type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate			
Comments	All	0.00	100.00	0.00	0.00	<input type="checkbox"/> Severe			

Comments				
Dam located approximately 15m upstream.				

Performance Deficiencies					Maintenance Needs					Priority	Comments
None											
Rehab/Repair Recommendations					Priority	Cost	Comments				

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Embankments & Streams - Embankments

Element Group	Embankments & Streams					Length	0.00	Width	0.00
Element Name	Embankments					Height	0.00	Count	4.00
Location	All Four Quadrants					Total Quantity		4.00	
Material						<input type="checkbox"/> Limited Inspection			
Element Type						Environment			
Protection System						<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input checked="" type="checkbox"/> Moderate			
	Each	0.00	4.00	0.00	0.00	<input type="checkbox"/> Severe			
Comments									

Performance Deficiencies	Maintenance Needs	Priority	Comments
None			
Rehab/Repair Recommendations	Priority	Cost	Comments

Embankments & Streams - Slope Protection

Element Group	Embankments & Streams					Length	0.00	Width	0.00
Element Name	Slope Protection					Height	0.00	Count	4.00
Location	All Four Quadrants					Total Quantity		4.00	
Material	Vegetation					<input type="checkbox"/> Limited Inspection			
Element Type						Environment			
Protection System						<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input checked="" type="checkbox"/> Moderate			
	Each	0.00	4.00	0.00	0.00	<input type="checkbox"/> Severe			
Comments									

Performance Deficiencies	Maintenance Needs	Priority	Comments
None			
Rehab/Repair Recommendations	Priority	Cost	Comments

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Accessories - Signs

Element Group	Accessories					Length	0.00	Width	0.00
Element Name	Signs					Height	0.00	Count	4.00
Location	All Four Quadrants					Total Quantity		4.00	
Material						<input type="checkbox"/> Limited Inspection			
Element Type	Hazard Markers					Environment			
Protection System						<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate			
	Each	0.00	3.00	0.00	1.00	<input checked="" type="checkbox"/> Severe			

Comments

Marker at SW quadrant missing.

Performance Deficiencies	Maintenance Needs	Priority	Comments
Pedestrian/vehicular hazard	Other	1 yr	Replace hazard marker.
Rehab/Repair Recommendations	Priority	Cost	Comments

Approaches - Wearing Surface

Element Group	Approaches					Length	6.00	Width	6.00
Element Name	Wearing Surface					Height	0.00	Count	2.00
Location	Each End					Total Quantity		72.00	
Material	Asphalt					<input type="checkbox"/> Limited Inspection			
Element Type						Environment			
Protection System						<input type="checkbox"/> Benign			
Condition Data	Units	Excell.	Good	Fair	Poor	<input type="checkbox"/> Moderate			
	sq. m	0.00	68.00	2.00	2.00	<input checked="" type="checkbox"/> Severe			

Comments

Narrow to medium longitudinal transverse cracks

Performance Deficiencies	Maintenance Needs	Priority	Comments
None	Rout and Seal	2 yr	Seal Cracks
Rehab/Repair Recommendations	Priority	Cost	Comments

Municipal Structure Inspection Form**Structure Number:****2064****Repair/Rehabilitation Required**

Element Group	Element	Repair/Rehabilitation	Priority	Cost
Abutments	Abutment Walls	Minor Rehab	1-5 yrs	\$4,000
Barriers	Railing Systems	Minor Rehab	Within 1	\$9,000
Decks	Soffit - Thick Slab	Minor Rehab	1-5 yrs	\$6,000
Abutments	Wingwalls	Minor Rehab	1-5 yrs	\$8,000
Total Repair/Rehabilitation Cost				\$27,000

Associated Work

	Comments		Estimated Cost
Approaches			\$0
Detours			\$0
Traffic Control			\$10,000
Utilities			\$0
Right-of-Way			\$0
Environmental Study			\$0
Other	Engineering		\$9,000
Contingencies		10%	** \$5,000
Engineering			** \$0
Total Associated Work Cost			\$24,000
Total Repair/Rehabilitation Cost			\$27,000
Total Cost			\$51,000
Town of Erin Share @ 100%			\$51,000

** If based on a percentage calculated values rounded-up to the nearest thousand dollars.

Justification



Looking east at structure.



Looking upstream.



Looking downstream.



Narrow to wide cracks on wearing surface.



Missing spindles on barrier.



Wide crack on barrier.



Delaminations, wide cracks on barrier post.



North elevation.



South elevation.



Spalls, wide crack on wingwall.



Spalls, delamination on wingwall and fascia.



Spalls, exposed corroded rebar on fascia.



Typical soffit.



Delamination and efflorescence on soffit.



Delamination, spalling and scaling on abutment.



Wide crack on abutment.



Delamination, spalling and exposed corroded rebar on soffit.