

**Municipal Structure Inspection Form**

**Structure Number: B 100021**

**Inventory Data:**

Structure Name	East Cross Creek Bridge, Lot 9, Conc VI		
Main Hwy/Road #	<input type="text"/>	On <input checked="" type="checkbox"/> Under <input type="checkbox"/>	Crossing Type <input type="text"/> Non-navig water
Road Name	River Road		Municipal Road ID <input type="text"/> RIVER RD OPS
Structure Location	1.91 km S of Lot 10/11		
Latitude	<input type="text"/> 49 063.40 N	Longitude	<input type="text"/> 17 680.482 E
Owner(s)	<input type="text"/> City Of Kawartha Lakes		
Heritage Designation	<input type="text"/> Not "Cons"		
Road Class:	<input type="text"/> Arterial		
MTO Region	<input type="text"/> Eastern		
MTO District	<input type="text"/> Bancroft		
Old County	<input type="text"/> Victoria		
Geographic Twp	<input type="text"/> Ops		
Structure Type	<input type="text"/> T-Beam		
Total Deck Length	<input type="text"/> 14	(m)	Posted Speed <input type="text"/> 80
Overall Str Width	<input type="text"/> 6.7	(m)	No of Lanes <input type="text"/> 2
Total Deck Area	<input type="text"/> 93.8	(sq. m)	AADT <input type="text"/> 395
Roadway Width	<input type="text"/> 5.5	(m)	% Trucks <input type="text"/>
Span Lengths	<input type="text"/> 12 m		
			Special Routes: Transit <input type="checkbox"/> Truck <input type="checkbox"/> School <input type="checkbox"/> Bicycle <input checked="" type="checkbox"/>
			Detour Length Around Bridge <input type="text"/> (km)
			Fill on Structure <input type="text"/> (m)
			Skew Angle <input type="text"/> 0 (Degrees)
			Direction of Structure <input type="text"/> East/West
			No of Spans <input type="text"/> 1

**Historical Data**

Year Built:	<input type="text"/> 1922	Last Biennial Inspection:	<input type="text"/> 01/11/09
Current Load Limit:	<input type="text"/> (tonnes)	Last BridgeMaster Inspection:	<input type="text"/>
Load Limit By-Law #:	<input type="text"/>	Last Evaluation:	<input type="text"/>
By-Law Expiry Date:	<input type="text"/>	Last Underwater Inspection:	<input type="text"/>
Min Vertical Clearance:	<input type="text"/> (m)	Last Condition Survey:	<input type="text"/>
Rehab History: (Date/description)			

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**Field Inspection Information:**

Date of Inspection: 13/09/2011 Temperature: 20° C  
 Inspected By: D.M. Wills Associates Ltd.  
 Inspector: Ghassan Zanzoul, P.Eng  
 Others in Party: Wes Kingdon  
 Equipment Used: Camera, Hand Tools  
 Weather: Cloudy

**Additional Investigations Required:**

	Priority	Estimated Cost
Detailed Deck Condition Survey:	<input type="text"/>	<input type="text" value="\$0.00"/>
DART Survey	<input type="text"/>	<input type="text" value="\$0.00"/>
Detailed Coating Condition Survey:	<input type="text"/>	<input type="text" value="\$0.00"/>
Underwater Investigation:	<input type="text"/>	<input type="text" value="\$0.00"/>
Fatigue Investigation:	<input type="text"/>	<input type="text" value="\$0.00"/>
Seismic Investigation:	<input type="text"/>	<input type="text" value="\$0.00"/>
Structure Evaluation:	<input type="text"/>	<input type="text" value="\$0.00"/>
Load Posting: Estimated Load	<input type="text"/>	<input type="text" value="\$0.00"/>
	<b>Total Cost</b>	<input type="text" value="\$0.00"/>
Special Notes:		
Next Date Inspection:	<input type="text" value="13/09/2013"/>	

**Suspected Performance Deficiencies**

- |                                                   |                                          |                              |
|---------------------------------------------------|------------------------------------------|------------------------------|
| 00 None                                           | 06 Bearing not uniformly loaded/unstable | 12 Slippery surfaces         |
| 01 Load carrying capacity                         | 07 Jammed expansion joint                | 13 Flooding/channel blockage |
| 02 Excessive deformations (deflections rotations) | 08 Pedestrian/vehicular hazard           | 14 Undermining of foundation |
| 03 Continuing settlement                          | 09 Rough riding surface                  | 15 Unstable embankments      |
| 04 Continuing movements                           | 10 Surface ponding                       | 16 Other                     |
| 05 Seized bearings                                | 11 Deck drainage                         |                              |

**Maintenance Needs**

- |                                      |                                 |                               |
|--------------------------------------|---------------------------------|-------------------------------|
| 01 Lift and Swing Bridge Maintenance | 07 Repair to Structural Steel   | 13 Erosion Control at Bridges |
| 02 Bridge Cleaning                   | 08 Repair of Bridge Concrete    | 14 Concrete Sealing           |
| 03 Bridge Handrail Maintenance       | 09 Repair of Bridge Timber      | 15 Rout and Seal              |
| 04 Painting Steel Bridge Structures  | 10 Bailey Bridges - Maintenance | 16 Bridge deck Drainage       |
| 05 Bridge Deck Joint Repair          | 11 Animal/Pest Control          | 17 Other                      |
| 06 Bridge Bearing Maintenance        | 12 Bridge Surface Repair        |                               |

# Municipal Structure Inspection Form

Structure Number: B 100021

Element Data						
Element Group:	Barriers				Length:	0.3
Element Name:	Posts				Width:	0.2
Location:	Each side				Height:	1.1
Material:	Cast-in-place concrete				Count:	18
Element Type:	Cast-in-place concrete on supports				Total Quantity:	18
Environment:	Severe				Limited Inspection	<input type="checkbox"/>
Protection System:	None				Maint. Needs	
Condition Data:	Units	Exc	Good	Fair	Poor	
	Sq. m		17		1	
Comments	Spall noted on one post					Perform. Deficiencies
Recommended Work	Replace structure					Estimated Construction Cost:
						Priority
						None
						6-10 yrs
						1-5 yrs
						Within 1 yr
						Urgent

Element Group:	Approaches				Length:	7
Element Name:	Wearing surface				Width:	5.5
Location:	Each End				Height:	
Material:	Asphalt				Count:	2
Element Type:	Bituminous				Total Quantity:	77
Environment:	Severe				Limited Inspection	<input type="checkbox"/>
Protection System:	None				Maint. Needs	
Condition Data:	Units	Exc	Good	Fair	Poor	
	Sq. m		67	5	5	
Comments	Potholes noted on wearing surface.					Perform. Deficiencies
Recommended Work	Replace structure					Estimated Construction Cost:
						Priority
						None
						6-10 yrs
						1-5 yrs
						Within 1 yr
						Urgent

Element Group:	Sidewalks/curbs				Length:	21.5
Element Name:	Curbs				Width:	0.3
Location:	Each Side				Height:	0.3
Material:	Cast-in-place concrete				Count:	2
Element Type:	Cast-in-place concrete on supports				Total Quantity:	25.8
Environment:	Severe				Limited Inspection	<input type="checkbox"/>
Protection System:	None				Maint. Needs	
Condition Data:	Units	Exc	Good	Fair	Poor	
	Sq. m		25.3		0.5	
Comments	Localized spall noted.					Perform. Deficiencies
Recommended Work	Replace structure					Estimated Construction Cost:
						\$0.00
						Priority
						None
						6-10 yrs
						1-5 yrs
						Within 1 yr
						Urgent

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**Structure Number: B 100021**

<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>Element Group:</td><td>Abutments</td></tr> <tr><td>Element Name:</td><td>Abutment walls</td></tr> <tr><td>Location:</td><td>Each End</td></tr> <tr><td>Material:</td><td>Cast-in-place concrete</td></tr> <tr><td>Element Type:</td><td>Cast-in-place concrete on supports</td></tr> <tr><td>Environment:</td><td>Benign</td></tr> <tr><td>Protection System:</td><td>None</td></tr> </table> <p>Condition Data:    Units            Exc            Good            Fair            Poor</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%; text-align: center;">Sq. m</td> <td style="width:15%;"></td> <td style="width:15%; text-align: center;">10.73</td> <td style="width:15%; text-align: center;">2</td> <td style="width:15%; text-align: center;">2</td> </tr> </table> <p>Comments</p> <p>Severe erosion of the abutments</p> <p>Recommended Work</p> <p>Replace structure</p>	Element Group:	Abutments	Element Name:	Abutment walls	Location:	Each End	Material:	Cast-in-place concrete	Element Type:	Cast-in-place concrete on supports	Environment:	Benign	Protection System:	None	Sq. m		10.73	2	2	<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>Length:</td><td></td></tr> <tr><td>Width:</td><td style="text-align: right;">6.7</td></tr> <tr><td>Height:</td><td style="text-align: right;">1.1</td></tr> <tr><td>Count:</td><td style="text-align: right;">2</td></tr> <tr><td>Total Quantity:</td><td style="text-align: right;">14.73</td></tr> </table> <p>Limited Inspection <input type="checkbox"/></p> <p>Maint. Needs</p> <p>Perform. Deficiencies</p> <p>Estimated Construction Cost: \$480,000.00</p> <p>Priority</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>None</td></tr> <tr><td>6-10 yrs</td></tr> <tr><td>1-5 yrs</td></tr> <tr><td>Within 1 yr</td></tr> <tr><td>Urgent</td></tr> </table>	Length:		Width:	6.7	Height:	1.1	Count:	2	Total Quantity:	14.73	None	6-10 yrs	1-5 yrs	Within 1 yr	Urgent
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6-10 yrs																																																	
1-5 yrs																																																	
Within 1 yr																																																	
Urgent																																																	

**Municipal Structure Inspection Form**

**Structure Number: B 100021**

<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>Element Group:</td><td>Decks</td></tr> <tr><td>Element Name:</td><td>Deck top</td></tr> <tr><td>Location:</td><td></td></tr> <tr><td>Material:</td><td>Cast-in-place concrete</td></tr> <tr><td>Element Type:</td><td>Cast-in-place concrete on supports</td></tr> <tr><td>Environment:</td><td>Moderate</td></tr> <tr><td>Protection System:</td><td>None</td></tr> </table> <p>Condition Data:    Units            Exc            Good            Fair            Poor</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">Sq. m</td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%; text-align: center;">73.79</td> <td style="width:15%;"></td> <td style="width:15%; text-align: center;">20</td> </tr> </table> <p>Comments</p> <p>Judged from wearing surface condition.</p> <p>Recommended Work</p> <p>Replace structure</p>	Element Group:	Decks	Element Name:	Deck top	Location:		Material:	Cast-in-place concrete	Element Type:	Cast-in-place concrete on supports	Environment:	Moderate	Protection System:	None	Sq. m			73.79		20	<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>Length:</td><td style="text-align: right;">14</td></tr> <tr><td>Width:</td><td style="text-align: right;">6.7</td></tr> <tr><td>Height:</td><td></td></tr> <tr><td>Count:</td><td style="text-align: right;">1</td></tr> <tr><td>Total Quantity:</td><td style="text-align: right;">93.79</td></tr> </table> <p>Limited Inspection <input type="checkbox"/></p> <p>Maint. Needs</p> <p>Perform. Deficiencies</p> <p>Estimated Construction Cost:</p> <p style="text-align: right;">Priority</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>None</td></tr> <tr><td>6-10 yrs</td></tr> <tr><td>1-5 yrs</td></tr> <tr><td>Within 1 yr</td></tr> <tr><td>Urgent</td></tr> </table>	Length:	14	Width:	6.7	Height:		Count:	1	Total Quantity:	93.79	None	6-10 yrs	1-5 yrs	Within 1 yr	Urgent
Element Group:	Decks																																			
Element Name:	Deck top																																			
Location:																																				
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<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>Element Group:</td><td>Decks</td></tr> <tr><td>Element Name:</td><td>Drainage</td></tr> <tr><td>Location:</td><td></td></tr> <tr><td>Material:</td><td>Steel</td></tr> <tr><td>Element Type:</td><td>Pipe round</td></tr> <tr><td>Environment:</td><td>Severe</td></tr> <tr><td>Protection System:</td><td>None</td></tr> </table> <p>Condition Data:    Units            Exc            Good            Fair            Poor</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">Each</td> <td style="width:15%;"></td> <td style="width:15%; text-align: center;">6</td> <td style="width:15%;"></td> <td style="width:15%;"></td> <td style="width:15%;"></td> </tr> </table> <p>Comments</p> <p>Recommended Work</p>	Element Group:	Decks	Element Name:	Drainage	Location:		Material:	Steel	Element Type:	Pipe round	Environment:	Severe	Protection System:	None	Each		6				<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>Length:</td><td></td></tr> <tr><td>Width:</td><td style="text-align: right;">0.075</td></tr> <tr><td>Height:</td><td></td></tr> <tr><td>Count:</td><td style="text-align: right;">6</td></tr> <tr><td>Total Quantity:</td><td style="text-align: right;">6</td></tr> </table> <p>Limited Inspection <input type="checkbox"/></p> <p>Maint. Needs</p> <p>Perform. Deficiencies</p> <p>Estimated Construction Cost:</p> <p style="text-align: right;">Priority</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>None</td></tr> <tr><td>6-10 yrs</td></tr> <tr><td>1-5 yrs</td></tr> <tr><td>Within 1 yr</td></tr> <tr><td>Urgent</td></tr> </table>	Length:		Width:	0.075	Height:		Count:	6	Total Quantity:	6	None	6-10 yrs	1-5 yrs	Within 1 yr	Urgent
Element Group:	Decks																																			
Element Name:	Drainage																																			
Location:																																				
Material:	Steel																																			
Element Type:	Pipe round																																			
Environment:	Severe																																			
Protection System:	None																																			
Each		6																																		
Length:																																				
Width:	0.075																																			
Height:																																				
Count:	6																																			
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<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>Element Group:</td><td>Barriers</td></tr> <tr><td>Element Name:</td><td>Railing Systems</td></tr> <tr><td>Location:</td><td>Each Side</td></tr> <tr><td>Material:</td><td>Cast-in-place concrete</td></tr> <tr><td>Element Type:</td><td>Concrete Post and bars</td></tr> <tr><td>Environment:</td><td>Severe</td></tr> <tr><td>Protection System:</td><td>None</td></tr> </table> <p>Condition Data:    Units            Exc            Good            Fair            Poor</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">Sq. m</td> <td style="width:15%;"></td> <td style="width:15%; text-align: center;">23</td> <td style="width:15%; text-align: center;">10</td> <td style="width:15%;"></td> <td style="width:15%; text-align: center;">10</td> </tr> </table> <p>Comments</p> <p>Spalls and section loss noted on railings.</p> <p>Recommended Work</p> <p>Replace structure</p>	Element Group:	Barriers	Element Name:	Railing Systems	Location:	Each Side	Material:	Cast-in-place concrete	Element Type:	Concrete Post and bars	Environment:	Severe	Protection System:	None	Sq. m		23	10		10	<table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>Length:</td><td style="text-align: right;">21.5</td></tr> <tr><td>Width:</td><td></td></tr> <tr><td>Height:</td><td style="text-align: right;">1.1</td></tr> <tr><td>Count:</td><td style="text-align: right;">2</td></tr> <tr><td>Total Quantity:</td><td style="text-align: right;">43</td></tr> </table> <p>Limited Inspection <input type="checkbox"/></p> <p>Maint. Needs</p> <p>Perform. Deficiencies</p> <p>Estimated Construction Cost:</p> <p style="text-align: right;">Priority</p> <table border="1" style="width:100%; border-collapse: collapse;"> <tr><td>None</td></tr> <tr><td>6-10 yrs</td></tr> <tr><td>1-5 yrs</td></tr> <tr><td>Within 1 yr</td></tr> <tr><td>Urgent</td></tr> </table>	Length:	21.5	Width:		Height:	1.1	Count:	2	Total Quantity:	43	None	6-10 yrs	1-5 yrs	Within 1 yr	Urgent
Element Group:	Barriers																																			
Element Name:	Railing Systems																																			
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<b>Associated Work</b>		
	<b>Comments</b>	<b>Estimated Cost</b>
Total Estimated Construction Cost	Recommended Bridge Work	\$480,000.00
Approaches		\$0.00
Detours		\$0.00
Traffic Control		\$0.00
Utilities		\$0.00
Right of Way		\$0.00
Environmental Study		\$0.00
Other	Engineering (15%)	\$72,000.00
Contingencies	15%	\$72,000.00
<b>Total Estimated Const. Cost</b>		<b>\$624,000.00</b>

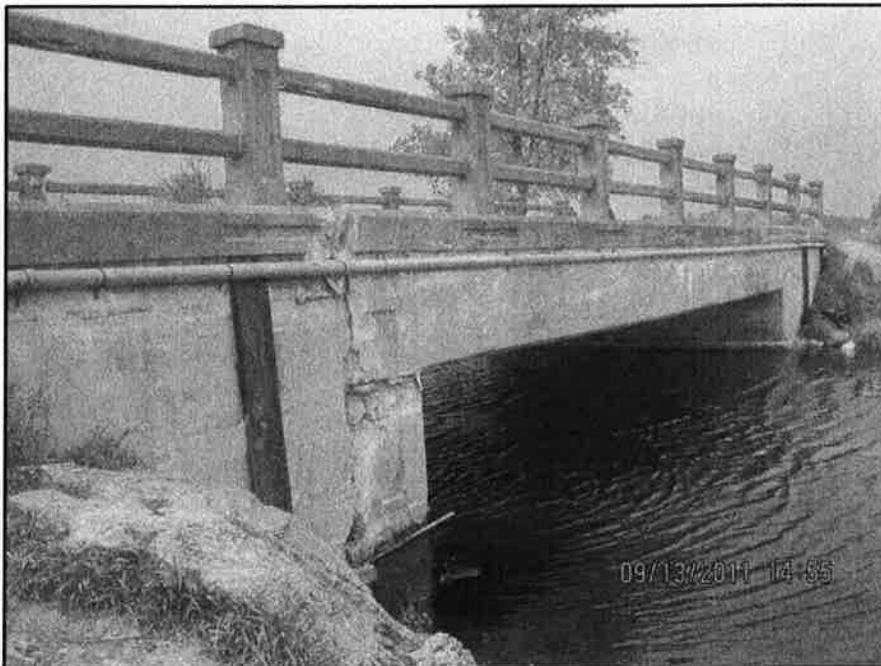
SITE PHOTOGRAPHS

SITE: B100021

Photo 1: Roadway looking south



Photo 2: West elevation



**SITE PHOTOGRAPHS**

**SITE: B100021**

Photo 3: Wide cracks and spalls on northeast wingwall



Photo 4: Severe erosion of north abutment footing



**SITE PHOTOGRAPHS**

**SITE: B100021**

Photo 5: Spalls and section loss on west railing



Photo 6: Spall and delamination on exterior west beam



SITE PHOTOGRAPHS

SITE: B100021

Photo 7: Typical wearing surface



Photo 8: Localized spalls on curb and railing posts

