

**HILLCREST BRIDGE**

Site Number 984101

**COUNTY ROAD 41 HILLCREST, CHARLOTTEVILLE**

0.1 km N of County Road 1

**Ontario Structure Inspection Manual - Inspection Form**

**Site Number:**

Inventory Data:			
Structure Name	<input type="text" value="Hillcrest Bridge"/>		
Main Hwy/Road #	<input type="text" value="HILLCREST RD"/>	<input checked="" type="checkbox"/> On <input type="checkbox"/> Under	Crossing Type: <input type="checkbox"/> Rail <input type="checkbox"/> Road <input type="checkbox"/> Navig. Water <input type="checkbox"/> Ped. <input type="checkbox"/> Other <input checked="" type="checkbox"/> Non-Navig. Water
Hwy/Road Name	<input type="text" value="COUNTY ROAD 41 HILLCREST, CHARLOTTEVILLE"/>		
Structure Location	<input type="text" value="0.1 km N of County Road 1"/>		
Latitude	<input n"="" type="text" value="42d 49' 50.6"/>	Longitude	<input type="text" value="80d 20' 12.5" w"=""/>
Owner(s)	<input type="text" value="Norfolk County"/>	Heritage Designation:	<input type="checkbox"/> Not Cons. <input type="checkbox"/> List/not Design. <input type="checkbox"/> Desig. & List <input type="checkbox"/> Cons./not App. <input type="checkbox"/> Desig./not List
MTO Region	<input type="text" value="30"/> Southwestern	Road Class:	<input type="checkbox"/> Freeway <input type="checkbox"/> Arterial <input type="checkbox"/> Collector <input checked="" type="checkbox"/> Local
MTO District	<input type="text" value="31"/> London / Stratford	Posted Speed	<input type="text" value="60"/> No. of Lanes <input type="text" value="2"/>
Old County	<input type="text" value="20"/> Norfolk	AADT	<input type="text" value="5552"/> % Trucks <input type="text"/>
Geographic Twp.	<input type="text" value="1119"/> Charlotteville	Inspection Route Sequence	<input type="text"/>
Structure Type	<input type="text" value="12"/> Rectangular Culvert	Interchange Number	<input type="text"/>
Total Deck Length	<input type="text" value="7"/> (m)	Interchange Structure Number	<input type="text"/>
Overall Str. Width	<input type="text" value="18"/> (m)	Min. Vertical Clearance	<input type="text" value="1"/> (m)
Total Deck Area	<input type="text" value="126"/> (m <sup>2</sup> )	Special Route	<input type="checkbox"/> Truck <input type="checkbox"/> Emergency <input checked="" type="checkbox"/> School <input type="checkbox"/> Bicycle
Roadway Width	<input type="text" value="8"/> (m)	Detour Length Around Bridge	<input type="text" value="6"/> (km)
Skew Angle	<input type="text"/> (Degrees)	Direction of Structure	<input type="text" value="North / South"/>
No. of Spans	<input type="text" value="1"/>	Fill on Structure	<input type="text" value="0.5"/> (m)
Span Length	<input type="text" value="6"/> (m)		

Historical Data:			
Year Built	<input type="text" value="2003"/>	Year of Last Major Rehab.	<input type="text"/>
Last OSIM Inspection	<input type="text" value="July 9, 2014"/>	Last Evaluation	<input type="text"/>
Last Enhanced OSIM Inspection	<input type="text"/>	Current Load Limit	<input type="text" value="/ /"/> (tonnes)
Enhanced Access Equipment (ladder, boat, lift, etc.)	<input type="text"/>	Load Limit By-Law #	<input type="text"/>
Last Underwater Inspection	<input type="text"/>	By-Law Expiry Date	<input type="text"/>
Last Condition Survey	<input type="text"/>		
Rehab History:	(Date/description)		

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**Site Number:**

Field Inspection Information:		
Date of Inspection:	July 12, 2016	Type of Inspection: <input checked="" type="checkbox"/> OSIM <input type="checkbox"/> Enhanced OSIM
Inspector:	Ben Buchwald M.Eng., EIT, G. Douglas Vallee Ltd.	
Others in Party:	N/A	
Access Equipment Used:	Hammer, Binoculars, Measuring Tape, Camera, etc.	
Weather:	Sunny	
Temperature:	33 °C	

Additional Investigation Required:	Priority		
	None	Normal	Urgent
Material Condition Survey			
<input checked="" type="checkbox"/> Detailed Deck Condition Survey:	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Non-destructive Delamination Survey of Asphalt-Covered Deck:	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Concrete Substructure Condition Survey:	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Detailed Coating Condition Survey:	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Detailed Timber Investigation	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Post-Tensioned Strand Investigation	<input checked="" type="checkbox"/>		
Underwater Investigation:	<input checked="" type="checkbox"/>		
Fatigue Investigation:	<input checked="" type="checkbox"/>		
Seismic Investigation:	<input checked="" type="checkbox"/>		
Structure Evaluation:	<input checked="" type="checkbox"/>		
Monitoring			
<input checked="" type="checkbox"/> Monitoring of Deformations, Settlements and Movements:	<input checked="" type="checkbox"/>		
<input checked="" type="checkbox"/> Monitoring Crack Widths:	<input checked="" type="checkbox"/>		
Investigation Notes:			

Overall Structure Notes:			
Recommended Work on Structure:	<input type="checkbox"/> None	<input type="checkbox"/> Minor Rehab.	<input type="checkbox"/> Replace
	<input checked="" type="checkbox"/> Maintenance	<input type="checkbox"/> Major Rehab.	
Timing of Recommended Work:	<input type="checkbox"/> 1 to 5 years	<input type="checkbox"/> 6 to 10 years	
Overall Comments:			
Date of next Inspection:	July 12, 2018		

**Suspected Performance Deficiencies**

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

**Maintenance Needs**

- |   |  |   |
|---|--|---|
| <b>01</b> Lift and swing bridge maintenance | <b>07</b> Repair to structural steel   | <b>13</b> Erosion control at bridges            |
| <b>02</b> Bridge cleaning                   | <b>08</b> Repair of bridge concrete    | <b>14</b> Concrete sealing                      |
| <b>03</b> Bridge handrail maintenance       | <b>09</b> Repair of bridge timber      | <b>15</b> Rout and seal                         |
| <b>04</b> Painting steel bridge structures  | <b>10</b> Bailey bridges - maintenance | <b>16</b> Bridge deck drainage                  |
| <b>05</b> Bridge deck joint repair          | <b>11</b> Animal/pest control          | <b>17</b> Scaling (Loose concrete or ACR steel) |
| <b>06</b> Bridge bearing maintenance        | <b>12</b> Bridge surface repair        | <b>18</b> Other                                 |



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**Element Data**

Element Group:		400 Barriers				Length:		
Element Name:		402 Railing System				Width:		
Location:		East and West				Height:		
Material:						Count:		1
Element Type:		Steel Flex Beam on Steel Post				Total Quantity:		1 Each
Environment:		Severe				Limited Inspection:		
Protection System:		Hot dip galvanizing				Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor			
Data:	Each	0	1	0	0			
Comments: No hazard signs at quadrants.								
Recommended Work:    Rehab <input type="checkbox"/> Replace <input type="checkbox"/>				Maintenance Needs:				
Timing:    Urgent <input type="checkbox"/> < 1yr <input type="checkbox"/> 1 - 5 yr <input type="checkbox"/> 6 - 10 yr <input type="checkbox"/>				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year				

Element Group:		1200 Culverts				Length:		18
Element Name:		1203 Barrels				Width:		6
Location:						Height:		1.2
Material:		4 Cast-in-place Concrete				Count:		1
Element Type:		Box				Total Quantity:		151.2 sq.m
Environment:		Moderate				Limited Inspection:		
Protection System:		Unknown				Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor			
Data:	sq.m	0	151.2	0	0			
Comments: Walls of box culvert shows water leaking at joints.								
Recommended Work:    Rehab <input type="checkbox"/> Replace <input type="checkbox"/>				Maintenance Needs:				
Timing:    Urgent <input type="checkbox"/> < 1yr <input type="checkbox"/> 1 - 5 yr <input type="checkbox"/> 6 - 10 yr <input type="checkbox"/>				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year				

Element Group:		1200 Culverts				Length:		
Element Name:		1201 Inlet Components				Width:		
Location:		West End				Height:		
Material:		4 Cast-in-place Concrete				Count:		1
Element Type:						Total Quantity:		1 Each
Environment:		Moderate				Limited Inspection:		
Protection System:		Unknown				Perform. Deficiencies		
Condition	Units	Exc.	Good	Fair	Poor			
Data:	Each	0	1	0	0			
Comments:								
Recommended Work:    Rehab <input type="checkbox"/> Replace <input type="checkbox"/>				Maintenance Needs:				
Timing:    Urgent <input type="checkbox"/> < 1yr <input type="checkbox"/> 1 - 5 yr <input type="checkbox"/> 6 - 10 yr <input type="checkbox"/>				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year				

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**Element Data**

Element Group:		1200 Culverts				Length:		
Element Name:		1202 Outlet Components				Width:		
Location:		East End				Height:		
Material:		4 Cast-in-place Concrete				Count:		1
Element Type:						Total Quantity:		1 Each
Environment:		Moderate				Limited Inspection:		
Protection System:		Unknown				Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor			
	Each	0	1	0	0			
Comments:								
Minor impact damage at Northeast and Southeast quadrants.								
Recommended Work:				Maintenance Needs:				
Rehab <input type="checkbox"/> Replace <input type="checkbox"/>				Bridge Concrete Repair				
Timing: Urgent <input type="checkbox"/> < 1yr <input type="checkbox"/> 1 - 5 yr <input type="checkbox"/> 6 - 10 yr <input type="checkbox"/>				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> <input checked="" type="checkbox"/> 2 year				

Element Group:		100 Decks				Length:		
Element Name:		101 Wearing Surface				Width:		
Location:		Top of Concrete Deck				Height:		
Material:		2 Asphalt				Count:		1
Element Type:						Total Quantity:		1 Each
Environment:		Severe				Limited Inspection:		
Protection System:		Unknown				Perform. Deficiencies		
Condition Data:	Units	Exc.	Good	Fair	Poor			
	Each	0	1	0	0			
Comments:								
Transverse cracks in wearing surface at approaches and centreline longitudinal crack.								
Recommended Work:				Maintenance Needs:				
Rehab <input type="checkbox"/> Replace <input type="checkbox"/>				Rout and Seal				
Timing: Urgent <input type="checkbox"/> < 1yr <input type="checkbox"/> 1 - 5 yr <input type="checkbox"/> 6 - 10 yr <input type="checkbox"/>				<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> <input checked="" type="checkbox"/> 2 year				



Figure 1 North Approach



Figure 2 South Approach



Figure 3 East Profile (Outlet)



Figure 4 West Profile (Inlet)





Figure 5 Upstream



Figure 6 Downstream



Figure 7 Barrel from East



Figure 8 Barrel from West



Figure 9 Minor Impact Damage in Southeast Quadrant



Figure 10 Utility Box



Figure 11 Transverse Cracks in Wearing Surface Approaches



Figure 12 Minor Impact Damage at Curb



Figure 13 Longitudinal Crack in Wearing Surface Centreline