

**HALL BRIDGE**

Site Number 010048

**CONCESSION 10 ROAD, TOWNSEND**

1.85 km W of County Road 70

**Ontario Structure Inspection Manual - Inspection Form**

**Site Number:**

Inventory Data:			
Structure Name <input type="text" value="Hall Bridge"/>			
Main Hwy/Road # <input type="text" value="CON 10 TOWNSEND"/>	<input checked="" type="checkbox"/> On <input type="checkbox"/> Under	Crossing Type: <input type="checkbox"/> Rail <input type="checkbox"/> Ped. <input type="checkbox"/> Road <input type="checkbox"/> Other <input type="checkbox"/> Navig. Water <input checked="" type="checkbox"/> Non-Navig. Water	
Hwy/Road Name <input type="text" value="CONCESSION 10, TOWNSEND"/>			
Structure Location <input type="text" value="1.85 km W of County Road 70"/>			
Latitude <input n"="" type="text" value="42d 55' 41.5"/>	Longitude <input type="text" value="80d 10' 40" w"=""/>		
Owner(s) <input type="text" value="Norfolk County"/>	Heritage Designation: <input checked="" type="checkbox"/> Not Cons. <input type="checkbox"/> Cons./not App.	<input type="checkbox"/> List/not Design. <input type="checkbox"/> Design./not List	<input type="checkbox"/> Desig. & List
MTO Region <input type="text" value="30"/> <input type="text" value="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"/> <input type="text" value="London / Stratford"/>	Posted Speed <input type="text" value="80"/>	No. of Lanes <input type="text" value="1"/>	
Old County <input type="text" value="20"/> <input type="text" value="Norfolk"/>	AADT <input type="text" value="234"/>	% Trucks <input type="text"/>	
Geographic Twp. <input type="text" value="125"/> <input type="text" value="Townsend"/>	Inspection Route Sequence <input type="text"/>		
Structure Type <input type="text" value="6"/> <input type="text" value="I-Beam or Girders"/>	Interchange Number <input type="text"/>		
Total Deck Length <input type="text" value="15.3"/> (m)	Interchange Structure Number <input type="text"/>		
Overall Str. Width <input type="text" value="10.1"/> (m)	Min. Vertical Clearance <input type="text" value="2"/> (m)		
Total Deck Area <input type="text" value="154.5"/> (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="9"/> (m)	Detour Length Around Bridge <input type="text" value="10"/> (km)		
Skew Angle <input type="text"/> (Degrees)	Direction of Structure <input type="text" value="East / West"/>		
No. of Spans <input type="text" value="1"/>	Fill on Structure <input type="text" value="0"/> (m)		
Span Length <input type="text" value="13.5"/> (m)			

Historical Data:			
Year Built <input type="text" value="2011"/>	Year of Last Major Rehab. <input type="text"/>		
Last OSIM Inspection <input type="text" value="May 22, 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)			
Constructed by Premier Concrete			

**Ontario Structure Inspection Manual - Inspection Form**

**Site Number:**

Field Inspection Information:	
Date of Inspection:	June 30, 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:	John McMorrow
Access Equipment Used:	Hammer, Binoculars, Measuring Tape, Camera, etc.
Weather:	Sunny
Temperature:	25 °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:			
Replaced the summer of 2010. (Vallee/Premier)			

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:	June 1, 2018

**Suspected Performance Deficiencies**

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

**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 Scaling (Loose concrete or ACR steel) |
| 06 Bridge bearing maintenance        | 12 Bridge surface repair        | 18 Other                                 |



**Ontario Structure Inspection Manual - Inspection Form**

**Site Number:** 010048

**Element Data**

Element Group:	900 Abutments					Length:	9.86
Element Name:	901 Abutment Walls					Width:	
Location:						Height:	2
Material:	4 Cast-in-place Concrete					Count:	2
Element Type:						Total Quantity:	39.5 sq.m
Environment:	Moderate					Limited Inspection:	
Protection System:	Unknown					Perform. Deficiencies	
Condition Data:	Units sq.m	Exc. 0	Good 39.5	Fair 0	Poor 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	

Element Group:	900 Abutments					Length:	7.7
Element Name:	903 Wingwalls					Width:	
Location:	All 4 Quadrants					Height:	3
Material:	4 Cast-in-place Concrete					Count:	4
Element Type:						Total Quantity:	92.4 sq.m
Environment:	Moderate					Limited Inspection:	
Protection System:	Unknown					Perform. Deficiencies	
Condition Data:	Units sq.m	Exc. 0	Good 92.3	Fair 0.1	Poor 0		
Comments: Narrow vertical crack in Southeast Wingwall.							
Recommended Work: Rehab <input type="checkbox"/> Replace <input type="checkbox"/>						Maintenance Needs: Concrete Sealing	
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 checked="" type="checkbox"/> 1 year <input type="checkbox"/> 2 year	

Element Group:	1600 Approaches					Length:	
Element Name:	1603 Approaches Drainage (app)					Width:	
Location:	All Directions					Height:	
Material:						Count:	1
Element Type:						Total Quantity:	1 Each
Environment:						Limited Inspection:	
Protection System:	Unknown					Perform. Deficiencies	
Condition Data:	Units Each	Exc. 0	Good 1	Fair 0	Poor 0		
Comments:							
Recommended Work: Rehab <input type="checkbox"/> Replace <input type="checkbox"/>						Maintenance Needs: Bridge Cleaning	
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 checked="" type="checkbox"/> 1 year <input type="checkbox"/> 2 year	

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**Element Data**

Element Group:		1600 Approaches				Length:	40
Element Name:		1601 Wearing Surface (Approaches)				Width:	7
Location:		Top of Approaches				Height:	
Material:		2 Asphalt				Count:	2
Element Type:						Total Quantity:	560 sq.m
Environment:		Severe				Limited Inspection:	
Protection System:		Unknown				Perform. Deficiencies	
Condition	Units	Exc.	Good	Fair	Poor		
Data:	sq.m	0	558.5	1.5			
Comments:							
One longitudinal crack on west approach. Two longitudinal cracks on East approach.							
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 checked="" type="checkbox"/> 2 year			

Element Group:		400 Barriers				Length:	28.9
Element Name:		401 Barrier/Parapet Walls				Width:	
Location:						Height:	1.1
Material:		4 Cast-in-place Concrete				Count:	2
Element Type:						Total Quantity:	63.6 Each
Environment:		Severe				Limited Inspection:	
Protection System:		None				Perform. Deficiencies	
Condition	Units	Exc.	Good	Fair	Poor		
Data:	Each	0	63.6	0	0		
Comments:							
Minor impact damage on barrier walls, suspected damage from snowplows.							
Recommended Work:				Maintenance Needs:			
Rehab <input type="checkbox"/> Replace <input type="checkbox"/>							
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:		500 Beams/ML'E's				Length:	13.5
Element Name:		501 Girders				Width:	0.25
Location:		Underside				Height:	0.7
Material:		14 Steel				Count:	4
Element Type:		I- Type				Total Quantity:	54 sq.m
Environment:		Severe				Limited Inspection:	
Protection System:		Unknown				Perform. Deficiencies	
Condition	Units	Exc.	Good	Fair	Poor		
Data:	sq.m	0	54	0	0		
Comments:							
Galvanized steel girders. W690 x 125							
Recommended Work:				Maintenance Needs:			
Rehab <input type="checkbox"/> Replace <input type="checkbox"/>							
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:		100 Decks				Length:	13.5
Element Name:		103 Soffit Thin Slab				Width:	10
Location:		Underside				Height:	
Material:		4 Cast-in-place Concrete				Count:	1
Element Type:						Total Quantity:	135 sq.m
Environment:		Moderate				Limited Inspection:	
Protection System:		Unknown				Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor		
	sq.m	0	135	0	0		
Comments: Limited inspection due to water level. Cracks with efflorescence at all corners on fascia at abutment wall.							
Recommended Work:				Rehab <input type="checkbox"/> Replace <input type="checkbox"/>		Maintenance Needs: Concrete Sealing	
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 checked="" type="checkbox"/> 2 year	

Element Group:		100 Decks				Length:	15.3
Element Name:		101 Wearing Surface				Width:	9
Location:		Top of Concrete Deck				Height:	
Material:		10 Other				Count:	1
Element Type:						Total Quantity:	137.7 sq.m
Environment:		Severe				Limited Inspection:	
Protection System:		Unknown				Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor		
	sq.m	0	137.7	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	

Element Group:		1400 Embankments & Streams				Length:	
Element Name:		1401 Streams and Waterways				Width:	
Location:						Height:	
Material:						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:							
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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**Site Number:**

**Element Data**

Element Group:	1300 Foundations					Length:	10.9
Element Name:	1301 Foundation (below ground level)					Width:	2.1
Location:	Below Stream					Height:	
Material:	4 Cast-in-place Concrete					Count:	2
Element Type:						Total Quantity:	2 Each
Environment:						Limited Inspection:	<b>X</b>
Protection System:	Unknown					Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor		
	Each	0	2	0	0		
Comments: Strip footings.							
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	





Figure 1 East Approach



Figure 2 West Approach



Figure 3 North Profile



Figure 4 South Profile



Figure 5 Upstream



Figure 6 Downstream



Figure 7 East Abutment



Figure 8 West Abutment



Figure 9 Soffit



Figure 10 Slight Impact Damage on Barriers



Figure 11 Longitudinal Crack in Wearing Surface



Figure 12      Structure Stamp