

TOWNLINER BRIDGE

Site Number 010057

BRANT - NORFOLK TOWNLINER ROAD

0.32 km W of County Road 5

Ontario Structure Inspection Manual - Inspection Form

Site Number:

Inventory Data:			
Structure Name	<input type="text" value="Townline Bridge"/>		
Main Hwy/Road #	<input type="text" value="JENKINS 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="BRANT - NORFOLK TOWNLINE ROAD"/>		
Structure Location	<input type="text" value="0.32km W of County Road 5"/>		
Latitude	<input n"="" type="text" value="43d 00' 33"/>	Longitude	<input type="text" value="80d 17' 06" w"=""/>
Owner(s)	<input type="text" value="Norfolk County / County of Brant"/>	Heritage Designation:	<input checked="" type="checkbox"/> Not Cons. <input type="checkbox"/> Cons./not App. <input type="checkbox"/> List/not Design. <input type="checkbox"/> Design. & List <input type="checkbox"/> Design./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="80"/> No. of Lanes <input type="text" value="2"/>
Old County	<input type="text" value="20"/> Norfolk	AADT	<input type="text" value="100"/> % Trucks <input type="text"/>
Geographic Twp.	<input type="text" value="125"/> Townsend	Inspection Route Sequence	<input type="text"/>
Structure Type	<input type="text" value="22"/> Undefined	Interchange Number	<input type="text"/>
Total Deck Length	<input type="text" value="24.6"/> (m)	Interchange Structure Number	<input type="text"/>
Overall Str. Width	<input type="text" value="8.6"/> (m)	Min. Vertical Clearance	<input type="text" value="1.7"/> (m)
Total Deck Area	<input type="text" value="211.6"/> (m ²)	Special Route	<input checked="" type="checkbox"/> Truck <input type="checkbox"/> Emergency <input type="checkbox"/> School <input type="checkbox"/> Bicycle
Roadway Width	<input type="text" value="7.3"/> (m)	Detour Length Around Bridge	<input type="text" value="5.1"/> (km)
Skew Angle	<input type="text" value="0"/> (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="14.6"/> (m)		

Historical Data:			
Year Built	<input type="text" value="2016"/>	Year of Last Major Rehab.	<input type="text"/>
Last OSIM Inspection	<input type="text" value="May 26, 2014"/>	Last Evaluation	<input type="text"/>
Last Enhanced OSIM Inspection	<input type="text"/>	Current Load Limit	<input type="text" value="30"/> / / (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)		
Complete replacement underway by The County of Brant in summer of 2016 with precast girder bridge with semi-integral deck ends.			

Ontario Structure Inspection Manual - Inspection Form

Site Number:

Field Inspection Information:		
Date of Inspection:	June 29, 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:	17 °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:			
New structure under construction.			

Overall Structure Notes:	
Recommended Work on Structure:	<input checked="" type="checkbox"/> None <input type="checkbox"/> Minor Rehab. <input type="checkbox"/> Replace <input 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:	Replacement underway in summer of 2016. Elements and dimensions reflect new structure geometry.
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 |

Rehabilitation Required:		Element	Priority				Estimated Construction Cost
Rehab	Replace		Urgent	Within 1 yr	1-5 yrs	6-10 yrs	
		Wearing Surface					
		Soffit Thin Slab					
		Curbs					
		Barrier/Parapet Walls					
		Railing System					
		Girders					
		Abutment Walls					
		Wingwalls					
		Bearings					
		Foundation (below ground level)					
		Streams and Waterways					
		Embankments					
		Slope Protection					
		Wearing Surface					
Total Cost							\$0

Associated Work:	Comments	Estimated Construction Cost
Additional Investigations		
Traffic Management		
Utilities		
Road Allowance		
Environmental Assessment		
Engineering		
Other		
Contingencies		
Total Cost		\$0

Justification:	
Notes:	
	Construction Cost: \$0
	Associated Work Cost: \$0
	TOTAL Estimated Cost: \$0

Ontario Structure Inspection Manual - Inspection Form

Site Number: 010057

Element Data

Element Group:	100 Decks	Length:	15										
Element Name:	101 Wearing Surface	Width:	7.3										
Location:	Top of Road	Height:											
Material:	2 Asphalt	Count:	1										
Element Type:		Total Quantity:	109.5 sq.m										
Environment:	Severe	Limited Inspection:											
Protection System:		Perform. Deficiencies											
Condition Data:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Units</td> <td style="width: 15%;">Exc.</td> <td style="width: 15%;">Good</td> <td style="width: 15%;">Fair</td> <td style="width: 15%;">Poor</td> </tr> <tr> <td>sq.m</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Units	Exc.	Good	Fair	Poor	sq.m						
Units	Exc.	Good	Fair	Poor									
sq.m													
Comments: HL3 wearing surface on waterproofing.													
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:	100 Decks	Length:	15.8										
Element Name:	103 Soffit Thin Slab	Width:	0.6										
Location:	Exterior	Height:											
Material:	4 Cast in-place Concrete	Count:	2										
Element Type:		Total Quantity:	19 sq.m										
Environment:	Moderate	Limited Inspection:											
Protection System:	None	Perform. Deficiencies											
Condition Data:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Units</td> <td style="width: 15%;">Exc.</td> <td style="width: 15%;">Good</td> <td style="width: 15%;">Fair</td> <td style="width: 15%;">Poor</td> </tr> <tr> <td>sq.m</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Units	Exc.	Good	Fair	Poor	sq.m						
Units	Exc.	Good	Fair	Poor									
sq.m													
Comments:													
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:	300 Sidewalks/curbs	Length:											
Element Name:	302 Curbs	Width:	15.2										
Location:	North and South	Height:	0.2										
Material:	4 Cast in-place Concrete	Count:	2										
Element Type:		Total Quantity:	6.1 sq.m										
Environment:	Severe	Limited Inspection:											
Protection System:		Perform. Deficiencies											
Condition Data:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Units</td> <td style="width: 15%;">Exc.</td> <td style="width: 15%;">Good</td> <td style="width: 15%;">Fair</td> <td style="width: 15%;">Poor</td> </tr> <tr> <td>sq.m</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Units	Exc.	Good	Fair	Poor	sq.m						
Units	Exc.	Good	Fair	Poor									
sq.m													
Comments:													
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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Site Number: 010057

Element Data

Element Group:	400 Barriers	Length:	19.8
Element Name:	401 Barrier/Parapet Walls	Width:	
Location:	North and South	Height:	
Material:	14 Steel	Count:	2
Element Type:		Total Quantity:	39.6 m
Environment:	Severe	Limited Inspection:	
Protection System:	Galvanized	Perform. Deficiencies	
Condition Data:	Units m	Exc.	Good
		Fair	Poor
Comments:			
Recommended Work:		Maintenance Needs:	
Rehab <input type="checkbox"/> Replace <input type="checkbox"/>		<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year	
Timing: Urgent <input type="checkbox"/> < 1yr <input type="checkbox"/> 1 - 5 yr <input type="checkbox"/> 6 - 10 yr <input type="checkbox"/>			

Element Group:	400 Barriers	Length:	55.4
Element Name:	402 Railing System	Width:	
Location:		Height:	
Material:	14 Steel	Count:	4
Element Type:		Total Quantity:	221.6 m
Environment:	Severe	Limited Inspection:	
Protection System:		Perform. Deficiencies	
Condition Data:	Units m	Exc.	Good
		Fair	Poor
Comments:			
Recommended Work:		Maintenance Needs:	
Rehab <input type="checkbox"/> Replace <input type="checkbox"/>		<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year	
Timing: Urgent <input type="checkbox"/> < 1yr <input type="checkbox"/> 1 - 5 yr <input type="checkbox"/> 6 - 10 yr <input type="checkbox"/>			

Element Group:	500 Beam/ML'E'S	Length:	15.8
Element Name:	501 Girders	Width:	1.2
Location:	Underneath	Height:	
Material:	12 Precast Concrete	Count:	6
Element Type:		Total Quantity:	113.8 sq.m
Environment:	Moderate	Limited Inspection:	
Protection System:	None	Perform. Deficiencies	
Condition Data:	Units sq.m	Exc.	Good
		Fair	Poor
Comments: Precast prestressed girders. Soffit and sides exposed.			
Recommended Work:		Maintenance Needs:	
Rehab <input type="checkbox"/> Replace <input type="checkbox"/>		<input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year	
Timing: Urgent <input type="checkbox"/> < 1yr <input type="checkbox"/> 1 - 5 yr <input type="checkbox"/> 6 - 10 yr <input type="checkbox"/>			

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Element Data

Element Group:	900 Abutments	Length:	
Element Name:	901 Abutment Walls	Width:	8.2
Location:	East and West	Height:	2.8
Material:	4 Cast in-place Concrete	Count:	2
Element Type:		Total Quantity:	45.9 sq.m
Environment:	Benign	Limited Inspection:	
Protection System:	None	Perform. Deficiencies	
Condition Data:	Units sq.m	Exc.	Good Fair Poor
Comments: Abutments on pile cap on concrete filled tube pile.			
Recommended Work: 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"/>		Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year	

Element Group:	900 Abutments	Length:	
Element Name:	903 Wingwalls	Width:	4.3
Location:	East and West	Height:	3.3
Material:	4 Cast in-place Concrete	Count:	4
Element Type:		Total Quantity:	56.8 sq.m
Environment:	Benign	Limited Inspection:	
Protection System:	None	Perform. Deficiencies	
Condition Data:	Units sq.m	Exc.	Good Fair Poor
Comments:			
Recommended Work: 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"/>		Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year	

Element Group:	900 Abutments	Length:	7.3
Element Name:	904 Bearings	Width:	0.3
Location:	East and West	Height:	
Material:		Count:	2
Element Type:	3 Elastomeric Pad	Total Quantity:	4.4 each
Environment:	Benign	Limited Inspection:	
Protection System:	None	Perform. Deficiencies	
Condition Data:	Units each	Exc.	Good Fair Poor
Comments: Full length elastomeric bearing strip underneath girders.			
Recommended Work: 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"/>		Maintenance Needs: <input type="checkbox"/> Urgent <input type="checkbox"/> 1 year <input type="checkbox"/> 2 year	

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Element Data

Element Group:		1300 Foundations				Length:	2.3
Element Name:		1301 Foundation (below ground level)				Width:	
Location:						Height:	
Material:						Count:	16
Element Type:						Total Quantity:	36.8 m
Environment:						Limited Inspection:	X
Protection System:						Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor		
	m						
Comments: Closed end concrete filled steel pipe piles (HSS 324 x 9.5). 8 per abutment, 2.3m average.							
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 All
Environment:						Limited Inspection:	
Protection System:		None				Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor		
	All						
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:		1402 Embankments				Width:	
Location:						Height:	
Material:						Count:	1
Element Type:						Total Quantity:	1 All
Environment:		Moderate				Limited Inspection:	
Protection System:						Perform. Deficiencies	
Condition Data:	Units	Exc.	Good	Fair	Poor		
	All						
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:	1400 Embankments & Streams	Length:											
Element Name:	1403 Slope Protection	Width:											
Location:		Height:											
Material:		Count:	4										
Element Type:	7 Hand Laid Riprap	Total Quantity:	4 each										
Environment:	Moderate	Limited Inspection:											
Protection System:		Perform. Deficiencies											
Condition Data:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Units</td> <td style="width: 15%;">Exc.</td> <td style="width: 15%;">Good</td> <td style="width: 15%;">Fair</td> <td style="width: 15%;">Poor</td> </tr> <tr> <td>each</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Units	Exc.	Good	Fair	Poor	each						
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each													
Comments:													
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:	1600 Approaches	Length:	6										
Element Name:	1601 Wearing Surface	Width:	7.3										
Location:	Top of Deck	Height:											
Material:	2 Asphalt	Count:	2										
Element Type:		Total Quantity:	87.6 sq. m										
Environment:	Severe	Limited Inspection:											
Protection System:		Perform. Deficiencies											
Condition Data:	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Units</td> <td style="width: 15%;">Exc.</td> <td style="width: 15%;">Good</td> <td style="width: 15%;">Fair</td> <td style="width: 15%;">Poor</td> </tr> <tr> <td>sq. m</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Units	Exc.	Good	Fair	Poor	sq. m						
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Comments:													
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											



Figure 1 Bridge Under Construction, 2016