LYNN VALLEY ROAD BRIDGE

Site Number 000002

LYNN VALLEY ROAD, SIMCOE

0.09km E of Port Ryerse Road

Ontario Structure Inspection Manual - Inspection Form **Site Number:** 000002

Inventory Data:

Structure Name	Lynn Valley Road Bridge						
Main Hwy/Road #	LYNN VALLEY RD	[X] On [ ] Under	Crossing Type:	[ ] Rail [ ] Ped.	[ ] Road [ ] Other	[ ] Navig. Water [X] Non-Navig. Water	
Hwy/Road Name	LYNN VALLEY ROAD, SIMCOE						
Structure Location	0.09km E of Port Ryerse Road						
Latitude	42d 48' 49" N		Longitude	80d 16' 40" W			
Owner(s)	Norfolk County		Heritage Designation:	[X] Not Cons. [ ] Cons./not App.	[ ] List/not Design. [ ] Desig./not List	[ ] Desig. & List	
MTO Region	30 Southwestern		Road Class:	[ ] Freeway	[ ] Arterial	[ ] Collector	[X] Local
MTO District	31 London / Stratford		Posted Speed	50	No. of Lanes	2	
Old County	20 Norfolk		AADT	280	% Trucks		
Geographic Twp.	215 Woodhouse		Inspection Route Sequence				
Structure Type	15 Rigid Frame, Vertical Legs		Interchange Number				
Total Deck Length	15.6 (m)		Interchange Structure Number				
Overall Str. Width	8.3 (m)		Min. Vertical Clearance		(m)		
Total Deck Area	129.5 (m^2)		Special Route	[ ] Truck	[ ] Emergency	[X] School	[ ] Bicycle
Roadway Width	7.3 (m)		Detour Length Around Bridge	6.5 (km)			
Skew Angle	(Degrees)		Direction of Structure	East / West			
No. of Spans	1		Fill on Structure	0 (m)			
Span Length	14.1 (m)						

Historical Data:

Year Built	1953	Year of Last Major Rehab.	2007
Last OSIM Inspection	June 24, 2014	Last Evaluation	
Last Enhanced OSIM Inspection		Current Load Limit	/ / (tonnes)
Enhanced Access Equipment (ladder, boat, lift, etc.)		Load Limit By-Law #	
Last Underwater Inspection		By-Law Expiry Date	
Last Condition Survey			

Rehab History: (Date/description)

Major (deck) rehabilitation in 2007.

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Field Inspection Information:			
Date of Inspection:	July 26, 2016	Type of Inspection:	[X] OSIM [ ] Enhanced OSIM
Inspector:	Jason Timmermans, B.Eng., EIT, G. Douglas Vallee Ltd.		
Others in Party:	N/A		
Access Equipment Used:	Hammer, Binoculars, Measuring Tape, Camera, etc.		
Weather:	Sunny		
Temperature:	25 ^{o}C		

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

Overall Structure Notes:			
Recommended Work on Structure:	[X] None	[ ] Minor Rehab.	[ ] Replace
	[ ] Maintenance	[ ] Major Rehab.	
Timing of Recommended Work:	[ ] 1 to 5 years	[ ] 6 to 10 years	
Overall Comments:			
Date of next Inspection:	July 26, 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

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Rehabilitation Required:		Element	Priority				Estimated Construction Cost
Rehab	Replace		Urgent	Within 1 yr	1-5 yrs	6-10 yrs	
		Abutment Walls					
		Drainage					
		Soffit Thin Slab					
		Deck Top					
		Wearing Surface					
		Embankments					
		Foundation (below ground level)					
		Railing System					
						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

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Element Data

Element Group:	900	Abutments				Length:	
Element Name:	901	Abutment Walls				Width:	8.3
Location:		E & W of River				Height:	2.2
Material:	4	Cast-in-place Concrete				Count:	2
Element Type:						Total Quantity:	36.5 sq.m
Environment:		Moderate				Limited Inspection:	
Protection System:		Unknown				Perform. Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	sq.m	0	34	2.5	0

Comments:
Concrete patches on west abutment. Honeycombing throughout. Deterioration at construction joints. Deterioration under abutment drains. Scaling and narrow cracking typical at all wingwalls around joint.

Recommended Work:	Rehab ☐	Replace ☐				Maintenance Needs:	Repair of Bridge Concrete
Timing:	Urgent ☐	< 1yr ☐	1 - 5 yr ☐	6 - 10 yr ☐		☐ Urgent ☐ 1 year	☒ 2 year

Element Group:	100	Decks				Length:	
Element Name:	106	Drainage				Width:	
Location:		Through Deck				Height:	
Material:	11	Plastic				Count:	4
Element Type:						Total Quantity:	4 Each
Environment:		Severe				Limited Inspection:	
Protection System:		Unknown				Perform. Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	Each	0	0	0	4

Comments:
Drain pipes are too small. Asphalt drains require re-connection.

Recommended Work:	Rehab ☐	Replace ☐				Maintenance Needs:	
Timing:	Urgent ☐	< 1yr ☐	1 - 5 yr ☐	6 - 10 yr ☐		☐ Urgent ☐ 1 year	☐ 2 year

Element Group:	100	Decks				Length:	14.1
Element Name:	103	Soffit Thin Slab				Width:	8.2
Location:		Above River				Height:	
Material:	4	Cast-in-place Concrete				Count:	1
Element Type:						Total Quantity:	115.6 sq.m
Environment:		Moderate				Limited Inspection:	
Protection System:		Creosote				Perform. Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	sq.m	0	115.6	0	0

Comments:
Tie back no longer connected. Cracks along centerline road on soffit have been patched during 2007 rehab. Narrow cracking starting at south fascia.

Recommended Work:	Rehab ☐	Replace ☐				Maintenance Needs:	Repair of Bridge Concrete
Timing:	Urgent ☐	< 1yr ☐	1 - 5 yr ☐	6 - 10 yr ☐		☐ Urgent ☐ 1 year	☒ 2 year

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Element Data

Element Group:	100	Decks				Length:	14.1
Element Name:	102	Deck Top				Width:	8.2
Location:		N and S faces				Height:	
Material:	4	Cast-in-place Concrete				Count:	1
Element Type:		Cast-in-place Concrete on Supports				Total Quantity:	115.6 sq.m
Environment:		Severe				Limited Inspection:	X
Protection System:		Unknown				Perform. Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	sq.m	0	115.6	0	0

Comments:

Recommended Work: Rehab ☐ Replace ☐ Maintenance Needs:

Timing: Urgent ☐ < 1yr ☐ 1 - 5 yr ☐ 6 - 10 yr ☐ ☐ Urgent ☐ 1 year ☐ 2 year

Element Group:	100	Decks				Length:	15.6
Element Name:	101	Wearing Surface				Width:	8.2
Location:		Top of Deck				Height:	
Material:	2	Asphalt				Count:	1
Element Type:						Total Quantity:	127.9 sq.m
Environment:		Severe				Limited Inspection:	
Protection System:		Unknown				Perform. Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	sq.m	0	127.9	0	0

Comments:
Settlement (slight) at West approach. Low approach from West. Approach not smooth from East. Longitudinal crack ~ 2m long.

Recommended Work: Rehab ☐ Replace ☐ Maintenance Needs: Rout and Seal

Timing: Urgent ☐ < 1yr ☐ 1 - 5 yr ☐ 6 - 10 yr ☐ ☐ Urgent ☐ 1 year ☒ 2 year

Element Group:	1400	Embankments & Streams				Length:	
Element Name:	1402	Embankments				Width:	
Location:						Height:	
Material:						Count:	1
Element Type:						Total Quantity:	1 Each
Environment:						Limited Inspection:	
Protection System:		Unknown				Perform. Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	Each	0	1	0	0

Comments:
Banks are stable.

Recommended Work: Rehab ☐ Replace ☐ Maintenance Needs:

Timing: Urgent ☐ < 1yr ☐ 1 - 5 yr ☐ 6 - 10 yr ☐ ☐ Urgent ☐ 1 year ☐ 2 year

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Element Data

Element Group:	1300	Foundations				Length:	
Element Name:	1301	Foundation (below ground level)				Width:	
Location:						Height:	
Material:						Count:	
Element Type:						Total Quantity:	m
Environment:						Limited Inspection:	X
Protection System:		Unknown				Perform. Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	m				

Comments:
Limited inspection. Not visible.

Recommended Work: Rehab ☐ Replace ☐
Timing: Urgent ☐ < 1yr ☐ 1 - 5 yr ☐ 6 - 10 yr ☐

Maintenance Needs:
☐ Urgent ☐ 1 year ☐ 2 year

Element Group:	400	Barriers				Length:	
Element Name:	402	Railing System				Width:	
Location:		North and South				Height:	
Material:	14	Steel				Count:	1
Element Type:						Total Quantity:	1 Each
Environment:		Severe				Limited Inspection:	
Protection System:		Hot Dip Galvanized				Perform. Deficiencies	

Condition Data:	Units	Exc.	Good	Fair	Poor
	Each	0	1	0	0

Comments:
Multiple barrier rails missing end-caps.

Recommended Work: Rehab ☐ Replace ☐
Timing: Urgent ☐ < 1yr ☐ 1 - 5 yr ☐ 6 - 10 yr ☐

Maintenance Needs: Bridge Railing Maintenance
☐ Urgent ☒ 1 year ☐ 2 year

Figure 1 East Approach

Figure 2 Soffit

Figure 3 North Elevation

Figure 4 South Elevation

Figure 5 Upstream

Figure 6 Downstream

Figure 7 East Abutment

Figure 8 West Abutment

Figure 9 Deterioration Under Drains

Figure 10 Scaling and Cracking at South Fascia

Figure 11 Scaling and Cracking at Southwest Fascia

Figure 12 Scaling and Cracking at North Fascia

Figure 13 Patches at West Abutment

Figure 14 Typical Drains

Figure 15 Sofiit Cracking at South

Figure 16 Scaling and Cracking at Southeast Wingwall

Figure 17 East Joint

Figure 18 West Joint

Figure 19 Typical Endpost Condition

Figure 20 Wearing Surface

Figure 21 Weathered Sign at Northeast

Figure 22 Missing Rail Caps