

Inventory Data:

Structure Name	<input type="text" value="NORTH RIVER BRIDGE"/>						
Main Hwy/Road #	<input type="text" value="CR 46"/>	On <input checked="" type="checkbox"/> Under <input type="checkbox"/>	Crossing Type:	Navig. Water Rail <input type="checkbox"/>	Non-Navig. Road <input checked="" type="checkbox"/>	Ped. Other <input type="checkbox"/>	<input type="checkbox"/>
Hwy/Road Name	<input type="text" value="COUNTY ROAD 46"/>						
Structure Location	<input type="text" value="1.3 km EAST OF CR 47"/>						
Latitude	<input type="text" value="44.526782"/>	Longitude	<input type="text" value="-77.898366"/>				
Owners	<input type="text" value="COUNTY OF PETERBOROUGH"/>	Heritage Designation	Not Consid. Desig./not list <input checked="" type="checkbox"/>	Cons/not App. Desig & List <input type="checkbox"/>	List/n.d. <input type="checkbox"/>		
MTO Region	<input type="text" value="Eastern"/>	Road Class:	Freeway <input type="checkbox"/>	Collector <input type="checkbox"/>	Arterial <input type="checkbox"/>	Local <input type="checkbox"/>	
MTO District	<input type="text"/>	Posted Speed	<input type="text" value="80"/>	No. of Lanes	<input type="text" value="2"/>		
Old County	<input type="text" value="BELMONT"/>	AADT	<input type="text" value="1700"/>	% Trucks	<input type="text" value="15"/>		
Geographic Twp.	<input type="text" value="HAVELOCK-BELMONT-METHUEN"/>	Inspection Route Sequence	<input type="text"/>				
Structure Type	<input type="text" value="RIGID FRAME"/>	Interchange Number	<input type="text"/>				
Total Deck Length	<input type="text" value="10.36"/> m	Interchange Structure Number	<input type="text"/>				
Overall Str. Width	<input type="text" value="8.32"/> m	Min. Vertical Clearance	<input type="text"/> m				
Total Deck Area	<input type="text" value="86.20"/> sq. m	Special Routes:	Transit School <input checked="" type="checkbox"/>	Truck Bicycle <input type="checkbox"/>			
Roadway Width	<input type="text" value="7.32"/> m	Detour Length Around Bridge	<input type="text" value="44"/> km				
Skew Angle	<input type="text" value="0"/> Degrees	Direction of Structure	<input type="text" value="E/W"/>				
No. of Spans	<input type="text" value="1"/>	Fill on Structure	<input type="text"/> m				
Span Lengths	<input type="text" value="9.14"/> m						

Historical Data:

Year Built	<input type="text" value="1966"/>	Year of Last Major Rehab.	<input type="text"/>
Last OSIM Inspection	<input type="text" value="2012"/>	Last Evaluation	<input type="text"/>
Last Enhanced OSIM Inspection	<input type="text"/>	Current Load Limit	<input type="text"/> 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" value="2014"/>		

Rehab History: (Date / Description)

Work History:

Year	Contract	WP Number	Category	Funding	Comments

Investigation History:

Type	BM Used	Date	BCI	Special Notes	BCI Justification
MCEA, Preliminary and Detailed Design	No	2015	N/A	Replacement is recommended	N/A
Detailed Deck Condition Survey	No	2014	N/A	N/A	N/A
Municipal Bridge Inspection (MBADES)	No	2012	N/A	N/a	N/A
RDI	N/A	1984	N/A	N/A	N/A

Appraisal Indices:

Comments:

Fatigue:		
Seismic:		
Scour:		
Flood:		
Geometrics:		
Barrier:		
Curb:		
Load Capacity:		
Key Aspects:		

Field Inspection Information:			
Date of Inspection:	May 24, 2017	Type of Inspection:	<input checked="" type="checkbox"/> OSIM <input type="checkbox"/> Enhanced OSIM
Inspector:	Ramin Rameshni, PhD, P.Eng		
Others in Party:	Bill Harvey, Adam Reczek, Josh Charlton		
Equipment Used:	Digital camera, chipping hammer, chain, measuring tape, caliper, chalk, marker, flashlight, chest waders, and other equipment as required.		
Weather:	Sunny and Clear		
Temperature:	24°C		

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

Overall Structure Notes:			
Recommended Work on Structure:	<input type="checkbox"/> None	<input type="checkbox"/> Minor Rehab.	<input type="checkbox"/> Major Rehab. <input checked="" type="checkbox"/> Replace
Timing of Recommended Work:	<input checked="" type="checkbox"/> 1 to 5 years		<input type="checkbox"/> 6 to 10 years
Overall Comments:	In overall poor condition. The recent EA and design (2015) recommends replacement of the structure.		
Date of Next Inspection:	2018		

Suspected Performance Deficiencies

- | | | |
|---|--|--|
| 01 Load carrying capacity | 06 Bearing not uniformly loaded/unstable | 12 Slippery surfaces |
| 02 Excessive deformations (deflections & rotations) | 07 Jammed expansion joint | 13 Flooding/channel blockage |
| 03 Continuing settlement | 08 Pedestrian/vehicular hazard | 14 Undermining of foundation |
| 04 Continuing movements | 09 Rough riding surface | 15 Unstable embankments |
| 05 Seized bearings | 10 Surface ponding | 16 Other |
| | 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 |
| Rehab History: (Date / Description) | 11 Animal/Pest Control | 17 Sealing (Loose Concrete or ACR Steel) |
| 06 Bridge Bearing Maintenance | 12 Bridge Surface Repair | 18 Other |

Element Data		North River Bridge					
Element Group:	Deck	Length:	9.14				
Element Name:	Soffit	Width:	8.32				
Location:	Exterior and Interior	Height:	0				
Material:	Cast-in-place Concrete	Count (items):	1				
Element Type:		Total Quantity:	76.0 m2				
Environment:	Moderate	Limited Inspection					
Protection System:							Perform. Deficiencies
Condition Data:	Units	Exc.	Good	Fair	Poor		
	m2			36.7	39.3		
Comments:	Severe scaling and spalling in particular along centreline and edges (~38 m ²). Evidence of rust staining and efflorescence. Delamination at north side with exposed corroded rebar (~1.3 m ²). Refer to Photos 20 to 23.						
Recommended Work:	Rehab	Replace	Maintenance Needs:				
	1-5 years	6-10 years	Urgent	x	1 year	2 years	
			17				

Element Group:	Deck	Length:	10.36				
Element Name:	Deck Top	Width:	8.32				
Location:		Height:					
Material:	Cast-in-place Concrete	Count (items):	1				
Element Type:		Total Quantity:	86.2 m2				
Environment:	Moderate	Limited Inspection	x				
Protection System:							Perform. Deficiencies
Condition Data:	Units	Exc.	Good	Fair	Poor		
	m2			56.2	30.0		
Comments:	Limited inspection. Concrete deck could not be inspected during OSIM inspection due to asphalt cover. Estimated quantities are based on the condition of the soffit and the asphalt wearing surface.						
Recommended Work:	Rehab	Replace	Maintenance Needs:				
	1-5 years	6-10 years	Urgent		1 year	2 years	

Element Group:	Deck	Length:	10.36				
Element Name:	Wearing Surface (Decks)	Width:	7.32				
Location:		Height:					
Material:	Asphalt	Count (items):	1				
Element Type:		Total Quantity:	75.8 m2				
Environment:	Severe	Limited Inspection					
Protection System:							Perform. Deficiencies
Condition Data:	Units	Exc.	Good	Fair	Poor		
	m2			58.8	17.0		9
Comments:	Potholes(~2 m2). Wide transverse, map, and alligator cracking throughout (~60 m). Deck drains were obstructed by asphalt and debris. Light to moderate raveling and rutting throughout. Heavy debris along concrete safety curbs. Refer to Photos 3 to 8.						
Recommended Work:	Rehab	Replace	Maintenance Needs:				
	1-5 years	6-10 years	x	Urgent	1 year	2 years	
			2, 12, 15				

Element Group:	Deck	Length:				
Element Name:	Drainage Sysyem	Width:				
Location:	Exterior	Height:				
Material:	Steel	Count (items):	6 - (3" Dia.)			
Element Type:	Steel Deck Drain	Total Quantity:	6 each			
Environment:	Severe	Limited Inspection				
Protection System:						Perform. Deficiencies
Condition Data:	Units	Exc.	Good	Fair	Poor	
	each				6	11
Comments:	Three out of six drains obstructed by debris. Asphalt around deck drain is bevelled (Deck drain is not flush with road surface) and ravelled. Deck drains do not extend below the soffit and runoff water drains directly onto soffit. Very severe corrosion on all visible drains. Refer to Photos 16 and 17.					
Recommended Work:	Rehab	Replace	Maintenance Needs:			
	1-5 years	6-10 years	x	Urgent	1 year	2 years
			16			

Element Group:	Sidewalks/curbs	Length:	17.37			
Element Name:	Curbs	Width:	0.6			
Location:	North/South	Height:	0.25			
Material:	Cast-in-place Concrete	Count (items):	2			
Element Type:	Concrete Safety Curb	Total Quantity:	29.5 m2			
Environment:	Severe	Limited Inspection				
Protection System:						Perform. Deficiencies
Condition Data:	Units	Exc.	Good	Fair	Poor	
	m2			27.4	2.1	
Comments:	Medium scaling and localized spalling. Localized pattern cracking (AAR) on vertical face of both curbs (~8 m). Refer to Photo 15.					
Recommended Work:	Rehab	Replace	Maintenance Needs:			
	1-5 years	6-10 years		Urgent	x	1 year
			8			

Element Group:	Barriers	Length:	3.4			
Element Name:	Parapet Walls	Width:	0.3			
Location:	North/South - Interior	Height:	1.1			
Material:	Cast-in-place Concrete	Count (items):	4			
Element Type:	Parapet Walls - End Posts	Total Quantity:	16.3 m2			
Environment:	Severe	Limited Inspection				
Protection System:						Perform. Deficiencies
Condition Data:	Units	Exc.	Good	Fair	Poor	
	m2				16.3	
Comments:	Large delamination/disintegration of concrete on north barrier with exposed corroded rebar (~1 m²). Medium to severe scaling (~10.2 m²). Pattern cracking (Severe AAR) throughout. Rust staining at numerous locations. Refer to Photos 9 to 14.					
Recommended Work:	Rehab	Replace	Maintenance Needs:			
	1-5 years	6-10 years	x	Urgent	1 year	2 years
			8, 17			

Element Group:	Barriers	Length:	3.4
Element Name:	Parapet Walls	Width:	
Location:	North/South - Exterior	Height:	1.1
Material:	Cast-in-place Concrete	Count (items):	4
Element Type:	Parapet Walls	Total Quantity:	15.0 m2
Environment:	Moderate	Limited Inspection	
Protection System:			
Condition Data:	Units	Exc.	Good
	m2		15.0
Comments:	Narrow pattern cracking (Light to Medium AAR) throughout both the north and south sides. Small amount of localized rust staining at all quadrants. Refer to Photos 12, 26, 28 and 29.		
Recommended Work:	Rehab	Replace	Maintenance Needs:
	1-5 years	6-10 years	Urgent x 1 year 2 years
	8		

Element Group:	Barriers	Length:	9.98
Element Name:	Railing	Width:	0.3
Location:	North/South - Exterior	Height:	0.4
Material:	Concrete	Count (items):	2
Element Type:		Total Quantity:	8.0 m2
Environment:	Moderate	Limited Inspection	
Protection System:			
Condition Data:	Units	Exc.	Good
	m2		6.5
Comments:	Narrow pattern cracking (Light to medium AAR) throughout on both north and south sides. Small amount of localized rust staining on both sides. Severe spall in localized areas on both sides (~1.5m ²). Medium to severe scaling throughout both sides. Refer to Photos 18 and 19.		
Recommended Work:	Rehab	Replace	Maintenance Needs:
	1-5 years	6-10 years	x Urgent 1 year 2 years
	8		

Element Group:	Barriers	Length:	9.98
Element Name:	Railing	Width:	0.3
Location:	North/South - Interior	Height:	0.4
Material:	Concrete	Count (items):	2
Element Type:		Total Quantity:	20.0 m2
Environment:	Severe	Limited Inspection	
Protection System:			
Condition Data:	Units	Exc.	Good
	m2		20.0
Comments:	Medium to wide pattern cracking (Severe AAR) throughout both sides. Severe spalling, scaling and delaminations throughout the interior of both railings (~12m ²). Localized sections of exposed corroded rebar. Refer to Photos 11, 13 and 14.		
Recommended Work:	Rehab	Replace	Maintenance Needs:
	1-5 years	6-10 years	x Urgent 1 year 2 years
	8		

Element Group:	Barriers	Length:	0.40
Element Name:	Posts	Width:	0.30
Location:	North/South - Interior	Height:	0.84
Material:	Concrete	Count (items):	4
Element Type:		Total Quantity:	3.4 m2
Environment:	Severe	Limited Inspection	
Protection System:			Perform. Deficiencies
Condition Data:	Units m2	Exc.	Good Fair Poor 3.4
Comments:	Medium to wide pattern cracks, closely spaced, with visible expansion and deterioration of concrete (Severe AAR) throughout all interior posts. Medium scaling throughout all posts. Refer to Photo 11.		
Recommended Work:	Rehab	Replace	Maintenance Needs:
	1-5 years	6-10 years	x Urgent 1 year 2 years
			8

Element Group:	Barriers	Length:	0.40
Element Name:	Posts	Width:	
Location:	North/South - Exterior	Height:	1.1
Material:	Concrete	Count (items):	4
Element Type:		Total Quantity:	1.8 m2
Environment:	Moderate	Limited Inspection	
Protection System:			Perform. Deficiencies
Condition Data:	Units m2	Exc.	Good Fair Poor 1.8
Comments:	Hairline to narrow pattern cracks, closely spaced, with visible expansion of the concrete mass (Medium AAR) through out all posts. Medium scaling throughout all posts. Refer to Photo 1 ,2 , 18 and 19.		
Recommended Work:	Rehab	Replace	Maintenance Needs:
	1-5 years	6-10 years	x Urgent 1 year 2 years
			8

Element Group:	Approaches	Length:	3.51
Element Name:	Wearing Surface (Approaches)	Width:	7.32
Location:	West	Height:	
Material:	Asphalt	Count (items):	1
Element Type:		Total Quantity:	25.7 m2
Environment:	Severe	Limited Inspection	
Protection System:			Perform. Deficiencies
Condition Data:	Units m2	Exc.	Good Fair Poor 16.7 9.0 9
Comments:	Wide transvers crack in front of structure (~8m). Medium to wide alligator cracking in westbound lane (~28m). Minor rutting both eastbound and westbound lanes. Refer to Photo 5.		
Recommended Work:	Rehab	Replace	Maintenance Needs:
	1-5 years	6-10 years	x Urgent 1 year 2 years
			15

Element Group:	Approaches	Length:	3.51
Element Name:	Wearing Surface (Approaches)	Width:	7.32
Location:	East	Height:	
Material:	Asphalt	Count (items):	1
Element Type:		Total Quantity:	25.7 m2
Environment:	Severe	Limited Inspection	
Protection System:			
Condition Data:	Units	Exc.	Good
	m2		12.2
			13.5
			3, 9
Comments:	Wide transvers cracks in front of structure (~24m). Medium to wide alligator and longitudinal cracking in westbound lane (~30m). Minor rutting and severe depression in front of structure. Refer to Photos 4 and 6.		
Recommended Work:	Rehab	Replace	Maintenance Needs:
	1-5 years	6-10 years	x Urgent 1 year 2 years
			15

Element Group:	Approaches	Length:	73.78
Element Name:	Barrier	Width:	
Material:	Steel	Count (items):	
Element Type:	SBGR	Total Quantity:	73.8 m
Environment:	Severe	Limited Inspection	
Protection System:			
Condition Data:	Units	Exc.	Good
	m		51.8
			20.0
			2.0
Comments:	Length is the total length of all four quadrants. The lengths are as follows: SW = 21.23 m, NW = 21.23 m, NE = 8.09 m and SE = 23.22. Localized minor collision damage at multiple locations. Large longitudinal split in SE steel beam (~2 m). Refer to Photos 42 and 43.		
Recommended Work:	Rehab	Replace	Maintenance Needs:
	1-5 years	6-10 years	Urgent 1 year x 2 years
			18

Element Group:	Approaches	Length:	
Element Name:	Approach slabs	Width:	
Location:	East/West	Height:	
Material:		Count (items):	
Element Type:		Total Quantity:	m2
Environment:	Severe	Limited Inspection	
Protection System:			
Condition Data:	Units	Exc.	Good
	m2		
Comments:	No concrete approach slab on east or west (as confirmed by coring in the latest Deck Condition Survey).		
Recommended Work:	Rehab	Replace	Maintenance Needs:
	1-5 years	6-10 years	Urgent 1 year 2 years

Element Group:	Abutments	Length:				
Element Name:	Abutment Walls	Width:	8.32			
Location:	East	Height:	3.36			
Material:	Cast-in-place Concrete	Count (items):	1			
Element Type:		Total Quantity:	28.0		m2	
Environment:	Benign	Limited Inspection				
Protection System:						Perform. Deficiencies
Condition Data:	Units	Exc.	Good	Fair	Poor	
	m2		14	14.0	0.0	
Comments:	Light to medium scaling throughout. Isolated narrow to medium cracking (~8.0 m). Rust/water staining localized on exteriors of wall. Refer to Photo 24.					
Recommended Work:	Rehab	Replace	Maintenance Needs:			
	1-5 years	6-10 years	Urgent	1 year	x	2 years
			8			

Element Group:	Abutments	Length:				
Element Name:	Abutment Walls	Width:	8.32			
Location:	West	Height:	3.36			
Material:	Cast-in-place Concrete	Count (items):	1			
Element Type:		Total Quantity:	28.0		m2	
Environment:	Benign	Limited Inspection				
Protection System:						Perform. Deficiencies
Condition Data:	Units	Exc.	Good	Fair	Poor	
	m2		13	12.5	2.5	
Comments:	Light to medium scaling throughout. Isolated spalling (~1.0 m ²) at middle of wall. Localized medium spalling (1.5 m ²). Localized narrow cracking. Rust/water staining localized at exterior edges of the wall. Medium AAR localized on exterior edges of wall Refer to Photo 25.					
Recommended Work:	Rehab	Replace	Maintenance Needs:			
	1-5 years	6-10 years	Urgent	1 year	x	2 years
			8			

Element Group:	Abutments	Length:	4.1			
Element Name:	Wingwalls	Width:				
Location:	Northeast	Height:	2.44			
Material:	Cast-in-place Concrete	Count (items):	1			
Element Type:		Total Quantity:	10.0		m2	
Environment:	Moderate	Limited Inspection				
Protection System:						Perform. Deficiencies
Condition Data:	Units	Exc.	Good	Fair	Poor	
	m2			8.0	0.6	
Comments:	The height was taken at an average of 2.44 m. Narrow to medium pattern cracks around edges with AAR staining (~2 m). Heavy staining localized in center of wall. Refer to Photo 28					
Recommended Work:	Rehab	Replace	Maintenance Needs:			
	1-5 years	6-10 years	Urgent	x	1 year	2 years
			8, 14			

Element Group:	Abutments	Length:	4.1
Element Name:	Wingwalls	Width:	
Location:	Southeast	Height:	2.44
Material:	Cast-in-place Concrete	Count (items):	1
Element Type:		Total Quantity:	10.0 m2
Environment:	Moderate	Limited Inspection	
Protection System:			Perform. Deficiencies
Condition Data:	Units m2	Exc.	Good Fair Poor 10.0
Comments:	The height was taken at an average of 2.44 m. Narrow to medium pattern cracks (Medium AAR).		
Recommended Work:	Rehab	Replace	Maintenance Needs:
	1-5 years	6-10 years	Urgent 1 year 2 years

Element Group:	Abutments	Length:	4.1
Element Name:	Wingwalls	Width:	
Location:	Southwest	Height:	2.44
Material:	Cast-in-place Concrete	Count (items):	0
Element Type:		Total Quantity:	10.0 m2
Environment:	Moderate	Limited Inspection	
Protection System:			Perform. Deficiencies
Condition Data:	Units m2	Exc.	Good Fair Poor 10.0
Comments:	The height was taken at an average of 2.44 m. Hairline pattern cracking around edges (Medium AAR). Localized light scaling. Refer to Photo 26.		
Recommended Work:	Rehab	Replace	Maintenance Needs:
	1-5 years	6-10 years	Urgent x 1 year 2 years
			8, 14

Element Group:	Abutments	Length:	4.1
Element Name:	Wingwalls	Width:	
Location:	Southwest	Height:	2.44
Material:	Cast-in-place Concrete	Count (items):	1
Element Type:		Total Quantity:	10.0 m2
Environment:	Moderate	Limited Inspection	
Protection System:			Perform. Deficiencies
Condition Data:	Units m2	Exc.	Good Fair Poor 10.0
Comments:	The height was taken at an average of 2.44 m. Hairline pattern cracking around the outer edges. Localized light scaling. Refer to Photo 27.		
Recommended Work:	Rehab	Replace	Maintenance Needs:
	1-5 years	6-10 years	Urgent x 1 year 2 years
			8, 14

Element Group:	Foundations		Length:	8.23		
Element Name:	Foundation		Width:	1.6		
Location:	East/West		Height:	0.61		
Element Type:	Open footing		Total Quantity:	0.0		
Environment:	Moderate		Limited Inspection	x		
Protection System:						Perform. Deficiencies
Condition Data:	Units	Exc.	Good	Fair	Poor	
				x		
Comments:	This element is rated for performance only and not material condition. Exposed visible surface was rated under abutment walls. Evidence of sloped non-reinforced concrete extension, to the west footing only, with large wide crack and spall - Refer to Photos 44 and 45.					
Recommended Work:		Rehab		Replace	Maintenance Needs:	
		1-5 years		6-10 years	Urgent	1 year 2 years

Element Group:	Embankments & Streams		Length:			
Element Name:	Embankments		Width:			
Location:	All Four Quadrants		Height:			
Material:			Count (items):	4		
Element Type:			Total Quantity:	4 each		
Environment:	Benign		Limited Inspection			
Protection System:						Perform. Deficiencies
Condition Data:	Units	Exc.	Good	Fair	Poor	
	each		2	2		
Comments:	Northeast and northwest embankments show evidence of minor erosion. Refer to Photos 31 and 32.					
Recommended Work:		Rehab		Replace	Maintenance Needs:	
		1-5 years		6-10 years	Urgent	1 year x 2 years
13						

Element Group:	Embankments & Streams		Length:			
Element Name:	Streams and Waterways		Width:			
Location:	Upstream / Downstream		Height:			
Material:			Count (items):	2		
Element Type:			Total Quantity:	2 each		
Environment:	Benign		Limited Inspection			
Protection System:						Perform. Deficiencies
Condition Data:	Units	Exc.	Good	Fair	Poor	
	each		2			
Comments:	No concerns. Refer to Photos 34 and 35.					
Recommended Work:		Rehab		Replace	Maintenance Needs:	
		1-5 years		6-10 years	Urgent	1 year 2 years

REPRESENTATIVE PHOTOGRAPHS

Owner: County of Peterborough
Hwy/Road Name: County Road #46

Structure Name: North River Bridge
Location: 1.3km East of County Road 47



Photo 1: North Elevation



Photo 2: South Elevation

REPRESENTATIVE PHOTOGRAPHS

Owner: County of Peterborough
Hwy/Road Name: County Road #46

Structure Name: North River Bridge
Location: 1.3km East of County Road 47



Photo 3: Asphalt Wearing Surface – Typical



Photo 4: East Approach - Typical

REPRESENTATIVE PHOTOGRAPHS

Owner: County of Peterborough
Hwy/Road Name: County Road #46

Structure Name: North River Bridge
Location: 1.3km East of County Road 47



Photo 5: West Approach – Typical



Photo 6: East Approach – Severe Depression

REPRESENTATIVE PHOTOGRAPHS

Owner: County of Peterborough
Hwy/Road Name: County Road #46

Structure Name: North River Bridge
Location: 1.3km East of County Road 47



Photo 7: Asphalt Wearing Surface – Wide Longitudinal Crack



Photo 8: Asphalt Wearing Surface – Wide Alligator Cracking

REPRESENTATIVE PHOTOGRAPHS

Owner: County of Peterborough
Hwy/Road Name: County Road #46

Structure Name: North River Bridge
Location: 1.3km East of County Road 47



Photo 9: Northwest Parapet Wall – Typical



Photo 10: Concrete Railing – Typical

REPRESENTATIVE PHOTOGRAPHS

Owner: County of Peterborough
Hwy/Road Name: County Road #46

Structure Name: North River Bridge
Location: 1.3km East of County Road 47



Photo 11: South Concrete Railing Intermediate Post – Typical



Photo 12: Steel Beam Guide Rail Connection to Concrete Barrier – Typical

REPRESENTATIVE PHOTOGRAPHS

Owner: County of Peterborough
Hwy/Road Name: County Road #46

Structure Name: North River Bridge
Location: 1.3km East of County Road 47



Photo 13: North Concrete Barrier – Severe Delamination/Disintegration with Exposed Corroded Rebar



Photo 14: North Concrete Railing – Severe Scaling

REPRESENTATIVE PHOTOGRAPHS

Owner: County of Peterborough
Hwy/Road Name: County Road #46

Structure Name: North River Bridge
Location: 1.3km East of County Road 47



Photo 15: South Concrete Curb – Typical



Photo 16: Deck Drain – Typical

REPRESENTATIVE PHOTOGRAPHS

Owner: County of Peterborough
Hwy/Road Name: County Road #46

Structure Name: North River Bridge
Location: 1.3km East of County Road 47



Photo 17: Deck Drain – Obstructed With Asphalt, Mud, and Debris (Typical)



Photo 18: North Fascia – Typical

REPRESENTATIVE PHOTOGRAPHS

Owner: County of Peterborough
Hwy/Road Name: County Road #46

Structure Name: North River Bridge
Location: 1.3km East of County Road 47



Photo 19: South Fascia – Typical



Photo 20: South Exterior Soffit – Typical

REPRESENTATIVE PHOTOGRAPHS

Owner: County of Peterborough
Hwy/Road Name: County Road #46

Structure Name: North River Bridge
Location: 1.3km East of County Road 47



Photo 21: North Exterior Soffit – Delamination, Spalling and Exposed Corroded Rebar



Photo 22: South Exterior Soffit – Delamination, Spalling and Exposed Corroded Rebar

REPRESENTATIVE PHOTOGRAPHS

Owner: County of Peterborough
Hwy/Road Name: County Road #46

Structure Name: North River Bridge
Location: 1.3km East of County Road 47



Photo 23: Soffit – Spalling, Low Cover and Minor Efflorescence



Photo 24: East Abutment Wall – Typical

REPRESENTATIVE PHOTOGRAPHS

Owner: County of Peterborough
Hwy/Road Name: County Road #46

Structure Name: North River Bridge
Location: 1.3km East of County Road 47



Photo 25: West Abutment Wall and Soffit – Typical



Photo 26: Southeast Wingwall – Typical

REPRESENTATIVE PHOTOGRAPHS

Owner: County of Peterborough
Hwy/Road Name: County Road #46

Structure Name: North River Bridge
Location: 1.3km East of County Road 47



Photo 27: Southwest Wingwall – Typical



Photo 28: Northwest Wingwall – Typical

REPRESENTATIVE PHOTOGRAPHS

Owner: County of Peterborough
Hwy/Road Name: County Road #46

Structure Name: North River Bridge
Location: 1.3km East of County Road 47



Photo 29: Northeast Wingwall – Typical



Photo 30: Southwest Embankment – Typical

REPRESENTATIVE PHOTOGRAPHS

Owner: County of Peterborough
Hwy/Road Name: County Road #46

Structure Name: North River Bridge
Location: 1.3km East of County Road 47



Photo 31: Northwest Embankment – Typical



Photo 32: Northeast Embankment – Typical

REPRESENTATIVE PHOTOGRAPHS

Owner: County of Peterborough
Hwy/Road Name: County Road #46

Structure Name: North River Bridge
Location: 1.3km East of County Road 47



Photo 33: Southeast Embankment – Typical



Photo 34: Stream Looking North (Upstream)

REPRESENTATIVE PHOTOGRAPHS

Owner: County of Peterborough
Hwy/Road Name: County Road #46

Structure Name: North River Bridge
Location: 1.3km East of County Road 47



Photo 35: Stream Looking South (Downstream)



Photo 36: Northwest Masonry Old Bridge Abutment – Evidence of Erosion at Base

REPRESENTATIVE PHOTOGRAPHS

Owner: County of Peterborough
Hwy/Road Name: County Road #46

Structure Name: North River Bridge
Location: 1.3km East of County Road 47



Photo 37: Northeast Masonry Old Bridge Abutment – Typical



Photo 38: Boat Access Road – Southwest Quadrant

REPRESENTATIVE PHOTOGRAPHS

Owner: County of Peterborough
Hwy/Road Name: County Road #46

Structure Name: North River Bridge
Location: 1.3km East of County Road 47



Photo 39: Hazard Sign Each Quadrant – Typical



Photo 40: Residential Entrance – Northeast Quadrant

REPRESENTATIVE PHOTOGRAPHS

Owner: County of Peterborough
Hwy/Road Name: County Road #46

Structure Name: North River Bridge
Location: 1.3km East of County Road 47



Photo 41: Residential Entrance – Southwest Quadrant



Photo 42: SBGR – Typical Local Collision Damage

REPRESENTATIVE PHOTOGRAPHS

Owner: County of Peterborough
Hwy/Road Name: County Road #46

Structure Name: North River Bridge
Location: 1.3km East of County Road 47



Photo 43: SBGR – Southwest SBGR - Longitudinal Split



Photo 44: East Foundation –Typical

REPRESENTATIVE PHOTOGRAPHS

Owner: County of Peterborough
Hwy/Road Name: County Road #46

Structure Name: North River Bridge
Location: 1.3km East of County Road 47



Photo 45: West Foundation - Evidence of Longitudinal Crack and Spall