

Bridge Inspection Report

Rd 10 Bridge Patterson Drain

Road Name: Road 10
Site ID: 014
Structure Type: Solid Slab
Owner: Town of Kingsville
Built: 1918
Length: 3.9 m
Width: 7.4 m
Spans: 1
Spans Arrange: 1 - 3.8
Feature Under: Water
Crossing: Patterson Drain
Location: 2.45km East of Graham Sideroad

Inspection Date: August-25-17
Inspector: Steve Reid, C.E.T.
Assistant: Brad Lair, Eng Student

Comments:

Bridge is old and suffering from extensive defects and damage. The current width is not adequate for the travelled road. Recommend replacing this bridge with a precast box culvert within 2 years.

Recommended Investigations:

No special investigations have been recommended

Recommended Capital Works:

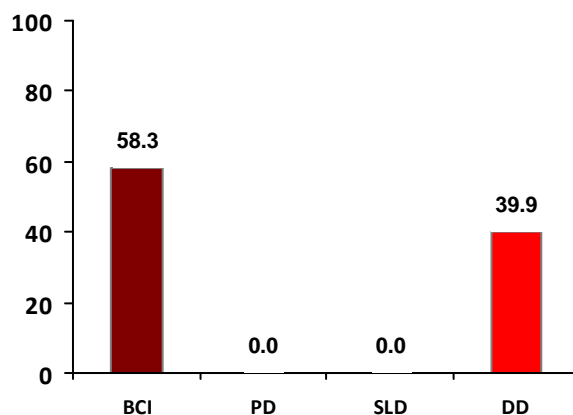
Replace Bridge

Estimated Replacement Value: \$229,000
Estimated replacement value is based on replacement in kind
Estimated Remaining Service Life: 0 Years
Rehabilitation Year and Estimated Cost: 2018 \$302,000



AADT: 104 **Latitude:** 42.14920000
Lanes: 2 **Longitude:** -82.65919700
Skew: 0 ° **Orientation:** E-W
Speed: 80 km/h **Road Width:** 6.2 m
Trucks **Load Posting** No Posting

Bridge Condition



BCI = Bridge Condition Index MTO Calculation

PD = Parabolic Depreciation
% of remaining life expectancy

SLD = Straight Line Depreciation
% of remaining life expectancy

DD = % of Defects and Damage



Component Inspection Information

Protected ECRC Deck (1)	Defects 0.0%
Deck Surface	Damage 10.0% Moderate Disintegration
Length: 3.9 m	Maintenance None
Width: 7.4 m	Capital Rec. None
Height:	<i>Covered with asphalt and approximately 300mm of granular fill. Given the age and soffit condition assume some damage to deck top. Bridge was widened likely in the 1950's width of bridge is still inadequate for the current travelled road.</i>

Soffit (1)	Defects 60.0% Major Scaling
Deck Soffit	Damage 20.0% Moderate Delamination, Moderate Spalling
Length: 3.9 m	Maintenance None
Width: 6.2 m	Capital Rec. None
Height:	<i>Major scaling throughout. Spalled and delaminated areas.</i>

Asphalt Wear Surf (1)	Defects 0.0%
Wear Surface	Damage 0.0%
Length: 3.9 m	Maintenance None
Width: 6.2 m	Capital Rec. None
Height:	<i>No concerns.</i>

Conc Curb (2)	Defects 0.0%
Curbs	Damage 0.0%
Length: 4 m	Maintenance None
Width:	Capital Rec. None
Height: 0.5 m	<i>Curb tops at same level as road surface, effectively no curbs. Remnants of railing noted, but no railing/barrier present.</i>

RC Abutment Wall (2)	Defects 60.0% Major Scaling
Abutment Stem	Damage 1.0% Major Cracking
Length: 7.4 m	Maintenance None
Width:	Capital Rec. None
Height: 1.4 m	<i>Major scaling. Wide crack in west wall at north extension.</i>



Component Inspection Information

RC Wing Walls (4)	Defects 60.0% Major Scaling	Not Inspected
Wing Walls	Damage 0.0%	
Length: 1.5 m	Maintenance None	
Width:	Capital Rec. None	
Height: 2 m	<i>Major scaling throughout.</i>	
Spread Footing (2)	Defects 0.0%	Not Inspected
Abutment Foundation	Damage 0.0%	
Length:	Maintenance None	
Width:	Capital Rec. None	
Height:		
Rip Rap (4)	Defects 0.0%	
Slope Paving	Damage 0.0%	
Length:	Maintenance None	
Width:	Capital Rec. None	
Height:	<i>No concerns.</i>	
Water Channel (1)	Defects 0.0%	
Channel	Damage 0.0%	
	Maintenance None	
	Capital Rec. None	
	<i>No flow at time of inspection.</i>	
Embankment (2)	Defects 0.0%	
Embankment	Damage 0.0%	
	Maintenance None	
	Capital Rec. None	
	<i>Satisfactory condition.</i>	
Delineator (4)	Defects 0.0%	
Signs	Damage 10.0% Moderate Impact	
Length:	Maintenance Straighten Sign, Replace Sign	
Width:	Capital Rec. None	
Height:	<i>Signs leaning and multiple vehicle impacts.</i>	



Recommended Investigations

X denotes not required

Deck Conditon Survey	Enhanced Inspection	Underwater Investigation	Ice Inspection	Boat Inspection	Structure Evaluation	Load Posting	Planning Study
X	X	X	X	X	X	X	X



Capital Needs Cost Estimate Break-Down

Item	Req'd	Units	Quantity	Unit Price \$	Estimated Cost
<i>Misc Concrete Repairs</i>	X	m ²	0.0	\$500	\$0
<i>Deck Concrete Overlay</i>	X	m ²	28.9	\$350	\$0
<i>Deck Replacement</i>	X	m ²	28.9	\$2,000	\$0
<i>Barrier Wall Replacement</i>	X	m	27.9	\$1,500	\$0
<i>Expansion Joint</i>	X	m	14.8	\$3,000	\$0
<i>Waterproof & Pave</i>	X	m ²	28.9	\$200	\$0
<i>Bearing Replacement</i>	X	Count	0.0	\$5,000	\$0
<i>Approach Guide Rail</i>	X	m	80.0	\$200	\$0

Other Work

Replace Bridge \$220,000

Structural Items Subtotal	\$220,000
Mobilization General Sitework 10%	\$22,000
Estimated Traffic Management & Civil Items	\$10,000
Contract Admin & Contingencies 20%	\$50,000
Total Rehabilitation Cost Estimate	\$302,000

Recommended Capital Work Summary

Recommended Capital Year **2018**

Replace Bridge

Inspection Comments

Bridge is old and suffering from extensive defects and damage. The current width is not adequate for the travelled road. Recommend replacing this bridge with a precast box culvert within 2 years.



Image 71



South elevation

Image 66



East approach

Image 67



West approach

Image 68



Downstream channel north

Image 69



Upstream channel south

Image 70



Typ wearing surface over structure



Image 72



SE corner disintegration damage

Image 73



East abutment wall

Image 74



West abutment wall

Image 75



Typ soffit detail

Image 76



Spalls in soffit

Image 77



Wide crack in the west wall



Image 78



Soffit at north extension

Image 79



Spall in soffit near extension

Image 80



North elevation

Image 81



Damaged delineator sign SW

