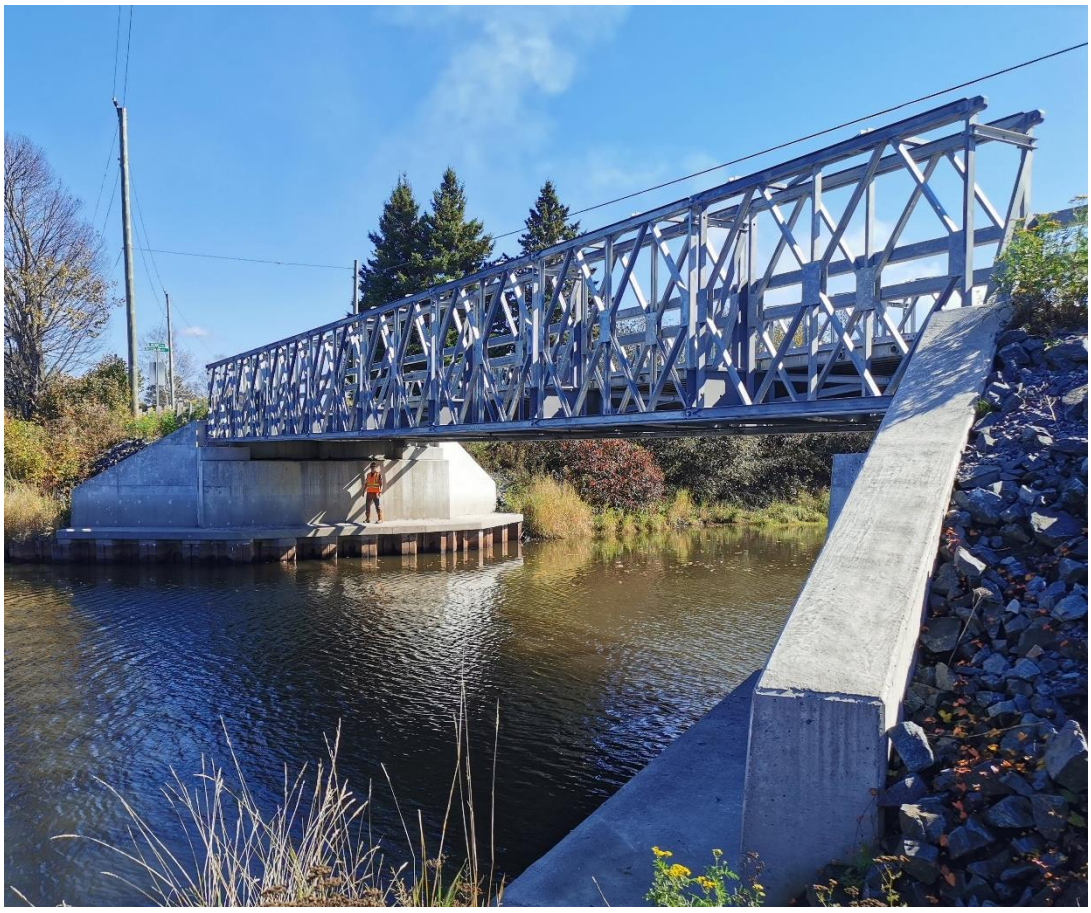
TULLOCH
ENGINEERING

Municipality of Huron Shores

2021 Municipal Bridge Inspections



January 2022
TULLOCH Project: 21-1720

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January 13, 2022
21-1720

Municipality of Huron Shores
7 Bridge Street, P.O. Box 460
Iron Bridge, ON, P0R 1H0

Attn: Debbie Tonelli – AMCT, Clerk/Administrator

Re: 2021 OSIM Reports for Municipality of Huron Shores

Dear Mrs. Tonelli:

TULLOCH Engineering Inc. (TULLOCH) has completed our Ontario Structural Inspection Reports of the requested municipal structures. The OSIM forms have been updated to reflect the most current revised forms.

The following prioritization spreadsheet outlines the estimated replacement costs of each structure assuming the same size structure would be reconstructed (same length and width). The spreadsheet also outlines the estimated repair/rehabilitation costs for each structure and the associated timeframe (now, 1-5years and 6-10 years). This should be helpful for updating your Asset Management Plan.

Our reports and summary detailed herein outline the maintenance and repair items that should be considered for each specific bridge along with class 'C' cost estimates for the repair costs. As previously mentioned through discussion with the municipality, we strongly recommend that the municipality develop and initiate annual bridge maintenance/cleaning. Many of the bridges continued to have a surplus of sand/gravel present on the bridge decks, bearing seats, expansion joints and steel members. Cleaning of these particular regions will alleviate some of the abrasions, wear and corrosion effects on the structures.

The following list identifies structures that scored lower than 40 on the Bridge Sufficiency Index (BSI) and are located on the main roadways within the municipality roadway network.

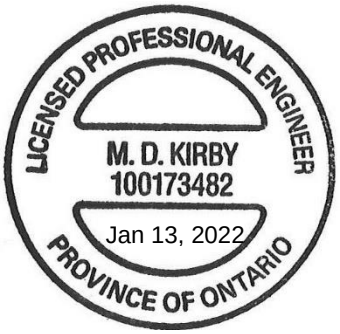
Structure No. and Name	Comments/Recommendations	Estimated Timeframe
Structure #17 – Potomac Bridge	Replace bridge.	1-3 years
Structure #22 – Dayton Road Culvert #2	Plan reserve funds for replacement.	1-5 years

Structure #20 – Dayton Road Culvert #1	Plan reserve funds for replacement.	1-5 years
Structure #19 – Dean Lake Bridge	Major rehab required/Replacement necessary given rehab cost for 100year old bridge which does not meet the current needs of the Municipality.	NOW
Structure #14 – Bolton River Bridge	Decayed stringers require replacement, re-align and upgrade approach guiderails, replace decking.	1-3 years

A full summary of all the structures and their associated Bridge Condition Index (BCI), BSI, maintenance summary, bridge type, and costing summaries is attached. In general, any structure with a BCI rating of 40 or less should be looked at to be replaced or budgeted for replacement in the near future. Other indicators for rehabilitation are the structures below the 60 range.

We trust you find the enclosed inspections, reports and recommendations acceptable. Should you have questions or require anything further on these structures, do not hesitate to contact the undersigned at your convenience.

Sincerely,
TULLOCH Engineering Inc.



Matt Kirby

Digitally signed by Matt Kirby
DN: cn=Matt Kirby, o=TULLOCH Engineering, ou, email=matt.kirby@tulloch.ca, c=CA
Date: 2022.01.13 21:51:58 -05'00'

Matt Kirby, P. Eng.
Project Manager
matt.kirby@tulloch.ca
MK/kl
Encls.. (1) – Prioritization Spreadsheet with Repair Costing
(1) – 2021 OSIM Inspection Reports for 22 Municipal Structures

Cc: File

BRIDGE REPLACEMENT COSTING & PRIORITIZATION

2021 Municipality of Huron Shores - Replacement Costs/Repair Prioritization

The replacement costing below has grouped the structures into the following categories and assumes that the structure is being replaced with an equivalent size structure (wider structures will increase the overall replacement costs):
1. Culvert structures (replacement costing based on $6,500 / m2 of deck area)
2. Smaller bridges (less than 18m span) - have replacement costing based on $7,500 / m2 of deck area.
3. Larger bridges (greater than 18m span) - have replacement costing based on $10,000 / m2 of deck area

Priority Rank	Bridge No. & Description	Bridge Type/Description	Year Built	BCI - Bridge Condition Index	BSI - Bridge Sufficiency Index	Deck Area (m2)	Replacement Cost Est (/m2)	2021 Replacement Construction Cost	2021 Total Replacement Cost (Including Engineering and Contingncy)	Comments / Repair & Maintenance Recommendations	Further Investigation(s) Required	Load Posting (Tonnes)	Year Built	Urgent (Within 1 Year)	1-5 Years	6-10 Years	Maintenance
1	Municipal Structure #21 - Dayton Road Culvert #2 (Swan's Culvert)	4m Diameter Galvanized CSP Culvert	1960	33	32	27	$ 6,500	$ 175,500	$ 236,925	Monitor barrel wall for profile and shape. Budget to Replace in the Next 5 Years	Monitor Culvert Shape/Corrosion	-	1960	-	$ 236,925	-	$ 500
2	Municipal Structure #20 - Dayton Road Culvert #1 (350m North of Maple Ridge Road)	3.5m Diameter Galvanized CSP Culvert	1960	35	34	27	$ 6,500	$ 175,500	$ 236,925	Monitor barrel wall for profile and shape. Budget to Replace in the Next 5 Years	Monitor Culvert Shape/Corrosion	-	1960	-	$ 236,925	-	-
3	Municipal Structure #17 - Potomac Bridge	Timber Stringers with Timber Deck	1960	35	23	140	$ 7,500	$ 1,050,000	$ 1,417,500	Replace Bridge (partial repair/rehabilitation costs shown within individaul report)		19/35/48	1960	$ 1,417,500	-	-	-
4	Municipal Structure #19 - Dean Lake Bridge	Steel Through Truss with Fibreglass Wrapped Timber Deck	1908	46	37	545	$ 10,000	$ 5,450,000	$ 7,357,500	Localized Steel repairs to Top Chord, Replace Deck Joints/Seals, Regrade South Wearing Surface and Install New Approach Guiderail, Clean Bearings, Botom Chord and Connections, Partial Depth Concrete Repairs to Piers, Reinforcing at Section Loss to Webs on Girders, Repairs to Deck Wearing Surface, Sand Blast and re-coat Steel (6-10 years)		10	1908	$ 8,500	$ 125,000	$ 3,075,000	-
5	Municipal Structure #14 - Bolton River Road Bridge	Timber Stringers with Timber Deck	1960	47	39	113	$ 7,500	$ 847,500	$ 1,144,125	Install Intermediate Railing Posts, Re-align Guiderails and Upgrade Connection at Bridge Ends, Fill Voids and Stabilize Embankments at Abutments, Remove Wooden Debris from Bridge Piers, Replace Decayed Stringers		10	1960	$ 20,000	$ 65,000	-	-
6	Municipal Structure #10 - Dayton Road Bridge	Timber Soffit with Concrete Deck	1960	50	48	113	$ 7,500	$ 847,500	$ 1,144,125	Replace Broken Pile Bracing, Replace/Install New Abutment Lagging, Fill Voids and Stabilize Embankments at Base of Abutments, Install Intermediate Railing Posts, Install Approach Guiderails	Monitor Shims & Banding	10 (until repairs completed)	1960	$ 5,000	$ 105,000	-	$ 1,000
7	Municipal Structure #3 - MacDonald Bridge	Steel Girders with Concrete Deck	1964	58	52	125	$ 10,000	$ 1,250,000	$ 1,687,500	Replace Joint Seals & Replace Decayed and/or Missing Guiderail Posts. Sand Blasting and Re-painting of Steel Girders Required in Future (6 -10 Years)		-	1964	$ 36,800	$ 10,000	$ 350,000	-
8	Municipal Structure #15 - Boville (Schellekins) Bridge	Timber Soffit with Concrete Deck	1961	59	57	142	$ 7,500	$ 1,065,000	$ 1,437,750	Install Approach Guiderails, Fill Voids - Install/repair Lower Abutment Lagging and Stabilize Abutment Embankments, Concrete Repairs to Wide Cracks and Spalls in Deck		18/32/44	1961	$ 15,000	$ 55,000	-	-
9	Municipal Structure #8 - Dumond Road Bridge	Timber Soffit with Concrete Deck	1960	59	55	113	$ 7,500	$ 847,500	$ 1,144,125	Banding of Split Piles, Jacking and Blocking of Moved Piles, Install/Repair Lower Abutment Lagging, Restore/Stabilize Erosion at NE Corner of Bridge, Install Approach Guiderail		10 (until repairs completed)	1960	$ 30,000	$ 70,000	-	$ 500
10	Municipal Structure #18 - Veterans Bridge	Steel Half Through Truss with Timber Deck	1999	63	57	268	$ 10,000	$ 2,680,000	$ 3,618,000	Recreational Use Bridge (no vehicular traffic), Shim and Level Settlement of East Approach Span at East Abutment, Replace Decayed Timber Cribbing (both abutments), Erect Load limit Posting Sign at West Approach (Sign was underneath bridge), Replace Curbs and Handrails, Concrete Repairs to Piers		5	1999	$ 165,000		-	$ 1,000
11	Municipal Structure #1 - Ansonia Bridge	Steel Girders with Concrete Deck	1974	66	60	256	$ 10,000	$ 2,560,000	$ 3,456,000	Localized Concrete Repairs/ Sealing of Cracks, Replace Deck Joint Seals and Upgrade of Guiderail Connections at Bridge		-	1974	$ 35,000	$ 35,000	-	$ 500
12	Municipal Structure #5 - Little Rapids Bridge	Steel Girders with Concrete Deck	1963	68	65	189	$ 7,500	$ 1,417,500	$ 1,913,625	Replace Joint Seals, Repair/Replace Split Railing Posts, Replace Bearing Pads, Remove Delaminations and Patch Concrete Deck		-	1963	-	$ 102,500	-	-
13	Municipal Structure #4 - Feagan Bridge	Steel Girders with Concrete Deck	1995	73	61	136	$ 7,500	$ 1,020,000	$ 1,377,000	Rout and Seal Deck Joints (Integral Abutment System), Patch Spalls/Cracks in Deck		-	1995	-	$ 7,500	-	$ 200
14	Municipal Structure #13 - Horan Road Bridge	Steel Girders with Steel Deck	2013	82	74	72	$ 7,500	$ 540,000	$ 729,000	Replaced Broken Guiderail Posts, Re-fasten Hazard Signs to Posts, Tighten Cable Anchor Assemblies at Ends of Guiderails, Place Asphalt or Surface Treatment on Approaches		-	2013	-	$ 5,000	-	$ 2,000
15	Municipal Structure #16 - Cameron Culvert	4.65m Diameter Ellipse Culvert	2009	88	87	33	$ 6,500	$ 214,500	$ 289,575	Replace Broken Guiderail Posts, Tighten Guidewire Cables and Repair Localized Scour/Erosion at Northwest Embankment adjacent to Barrel Inlet, Install Guiderail Delineator Signs		-	2009	-	$ 500	-	$ 500
16	Municipal Structure #6 - Midway Bridge	Acrow Truss Panel Bridge with Rehabilitated Concrete Abutments	2016	96	95	134	$ 10,000	$ 1,340,000	$ 1,809,000	3.3m Diameter Culvert		-	2016	-	-	-	-
17	Municipal Structure #11 - Kirby Bridge	Twin Cell - 3.3m Diameter Polymer Coated Culverts with Concrete Cutoff Walls	2014	98	90	72	$ 6,500	$ 468,000	$ 631,800	Repair damaged end treatment at Southwest quadrant		-	2014	$ 7,500	-	-	-
18	Municipal Structure #9 - Ansonia Road Culvert	3.3m Diameter Polymer Coated Culvert with Sheet Pile Cutoff Walls	2015	99	99	26	$ 6,500	$ 169,000	$ 228,150	Remove wood debris from within inlet/culvert barrel		-	2015	-	-	-	-
19	Municipal Structure #12 - Tulloch Culvert	Twin Cell - 3.3m Diameter Polymer Coated Culverts with Concrete Cutoff Walls	2014	100	100	79	$ 6,500	$ 513,500	$ 693,225	-		-	2014	-	-	-	-
20	Municipal Structure #22 - Dayton Road Culvert #3 (950m West of Pioneer/Horan Road)	Twin Cell - 3.0m & 2.1m Diameter Galvanized CSP Culverts	2020	100	99	49	$ 6,500	$ 318,500	$ 429,975	Install Guiderail Delineator Signs at West Approach		-	2020	-	-	-	$ 500

Recreational Bridges

-	Municipal Structure #2 - Nestorville Bridge	Concrete Girders with Concrete Deck	1920	24	24	39	$ 7,500	$ 292,500	$ 394,875	Closed to Vehicular Traffic - Bridge Structure is Considered Adequate for Continued use for Pedestrian/ATV's. (Money for removal should be planned)		No Posting	1920		2	2	-
-	Municipal Structure #7 - McCreights Dam Bridge	Steel Truss with Concrete Deck	1930	38	27	44	$ 10,000	$ 440,000	$ 594,000	Bridge is planned on being used only for recreational traffic (ATV's, pedestrians and snowmobiles). Replace Post and Railing System, Seal Cracks in Deck		3	1930		5	4	-