The Corporation of the

Municipality of Arran-Elderslie

Staff Report

Council Meeting Date: October 15, 2024

Subject: SRW.24.17 Structure E12 - Pearce Bridge

Report from: Scott McLeod, Public Works Manager

Appendices: Appendix A - BM Ross & Associates – Recommendation Letter

Appendix B – Map Location

Recommendation

Be It Resolved that Council hereby,

1. Receives Report SRW.24.17 Structure E12 – Pearce Bridge; and
2. Directs that Structure E12 remain closed until the completion of the Class Environmental Assessment Bridge Master Plan and a decision has been made regarding the overall state of the municipalities bridge infrastructure; and
3. That consideration be given during the 2025 budget process regarding a financing strategy for funding the Bridge Reserve.

Report Summary

The intent of this report is to receive Council's direction regarding Structure E12, the Pearce bridge, located on Sideroad 5, Elderslie.

Background

Structure E12, the Pearce bridge, is located on Sideroad 5, Elderslie, between Bruce Road 11 and Concession 6, Elderslie. It is estimated that the structure was constructed in 1930 and has underwent repairs in 1971, 2002 and 2008. A recommendation in 2002 from BM Ross noted that any expenditures related to the structure should be put towards replacing the structure.

BM Ross completed the bi-annual inspection of the structure on May 31, 2024 and at the time, recommended closing the bridge until it is repaired or replaced.

Analysis

The attached engineer's recommendation letter from BM Ross provides in-depth details regarding the condition of the structure which is summarized below for Council's consideration. BM Ross recommends that due to cost effectiveness over the long-term, that the structure be replaced as opposed to rehabilitated.

The existing structure is a steel truss bridge installed on tall concrete abutments to accommodate for high waters and the elevated roadway approaches. The engineer's report identified that the abutments have shifted and there is a large crack in the south abutment. There is also a large amount of efflorescence staining, a crystalline deposit of salt that can form when water is present in or on concrete. Many of the cross beams are corroding and the floor stringers have deteriorated and are no longer providing support for the bridge deck. Although the deck is in fair condition, it will need to be removed and replaced during repairs due to the water passing through the structure. The bridge trusses on either side are also buckling which reduces the overall capacity of the trusses and makes repairs more difficult to complete.

Repairs to the structure would require replacement of all cross and floor beams, concrete repairs, straightening of the trusses as much as possible, deck board replacements and some other miscellaneous deficiencies addressed. The approximate cost of the repairs would be $400,000, however, given the shifting of the abutments in the past, the engineers are unsure of the timeline that the life of the structure would be extended if it is rehabilitated.

As noted earlier, BM Ross does not believe that rehabilitation of the structure would be cost effective over the long term and has recommended in the past that all expenditures related to the structure be put towards replacement of the structure. They have calculated the approximate cost for full replacement with a two-lane concrete structure and reconstructed approaches to better align with the roadway to be $3,070,000.

The structure is currently closed indefinitely, and it was communicated to local residents at the time of the closure that the structure would remain closed until the completion of the Class Environmental Assessment Bridge Master Plan. Similar concerns have been raised regarding the extra distance that the Mennonite community would need to travel to reach their schools and other destinations in the community. Due to the current configuration of the plow routes, maintenance from each end would not be a large inconvenience.

Staff recommend that the completion of the Bridge Master Plan take place before a decision is made on this structure and that Council provide direction during the 2025 budget process on a financing strategy for building the Bridge Reserve.

Link to Strategic/Master Plan

6.1 Protecting Infrastructure, Recreation and Natural Assets

6.4 Leading Financial Management

Financial Impacts/Source of Funding/Link to Procurement Policy

As noted above, staff request that Council provide direction during the 2025 budget deliberations on a financing strategy for building the Bridge Reserve.

Staff will continue to research opportunities for funding from the Federal and Provincial Governments to assist with offsetting the costs for infrastructure repairs.

Approved by: Emily Dance, Chief Administrative Officer