



# The Corporation of the Municipality of Arran-Elderslie

## Staff Report

Council Meeting Date: October 15, 2024

Subject: SRW.24.16 Structure E1 – Priebe Bridge

Report from: Scott McLeod, Public Works Manager

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

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### **Recommendation**

Be It Resolved that Council hereby,

1. Receives Report SRW.24.16. Structure E1 – Priebe Bridge; and
2. Authorizes the execution of a contract with AJN Builders Inc. for the rehabilitation work on structure E1 in the approximate amount of \$307,000; and
3. Grants an exemption to the Procurement Process under Bylaw 59-09, Section 4.7, C;
4. And further that the funds of \$175,000 be reallocated from 21-TRAN-0002 / 02-2574 Sideroad 15 Rebuild to fund this project with the additional funds being drawn from the Bridge Reserve 01-0000-7264.

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### **Report Summary**

The intent of this report is to receive Council's direction for work required on structure E1, the Priebe bridge located on Sideroad 25, Elderslie, between Concession 2, Elderslie and Bruce County Road 19.

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### **Background**

BM Ross provides engineering consulting services for our bridge infrastructure. The firm completes bi-annual bridge inspections as required by O. Reg. 104/97 Standards for Bridges, made under the Public Transportation and Highway Improvement Act, R.S.O, 1990.

BM Ross completed an inspection of structure E1 on May 31, 2024 and returned for a follow-up inspection on September 29, 2024. During the inspections, considerable deterioration of the structure was observed which requires a reduction to the load limit. If no repairs are completed this year, the bridge will need to be closed for the winter.

The existing structure is a steel truss bridge with a concrete bridge deck bridge that was originally constructed in 1938. In 2002, the structure received some additional stringers along the outside of the bridge deck. This bridge has been identified as one of the structures requiring attention in the Bridge Master Plan. The recommendation at the time was to repair the bridge and eventually replace the bridge, however, the condition has deteriorated increasingly since the beginning of the master plan.

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## **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 is recommending an emergency closure and load limit reduction for the structure until remediation work can take place.

The concrete deck is in poor condition with concrete failure above both the north and south abutments, as well as deck stringers in the north and south bays are failing. The original load limit for this structure was 10 tonnes, however, the engineer's recommendation is to reduce the load limit to 5 tonne until the bridge deck can be replaced. As a short-term solution, to avoid closing the bridge completely, supplemental stringers could be added to the structure, however, the 5-tonne load limit would need to remain in place due to the fact that a heavier vehicle risks breaking through the bridge deck due to the deterioration. It is important to note that a 5-tonne load limit is not sufficient to support the municipality's grader or snow plows and the reduced limit would significantly affect winter control measures.

The engineer's estimate for this type of repair is approximately \$27,000 for construction and \$6,000 for engineering related costs, a total of \$33,000.

For a longer-term solution, the bridge could be rehabilitated to address the deficiencies. The engineer recommends that all the floor stringers and the concrete deck be replaced. Due to the high level of concern, the engineers have spoken with a contractor that is experienced in this type of remediation work, and they have indicated that they would be prepared to begin the work in approximately three weeks which would allow the work to be completed by mid-December. BM ROSS can prepare the design for this rehabilitation before he begins repairs and provide information to order the components needed.

When rehabilitating a steel truss bridge, it is recommended that all the truss members be examined in detail and BM Ross also recommends completing an analysis of the bridge trusses and other steel members to confirm the load posting listing is appropriate, however, it would not be possible to complete this analysis until after the rehabilitation work would be started and possibly not until it is finished. The analysis may

determine that some of the truss components are inadequate to support the desired load posting and it may be determined that some of the truss members have to be replaced or reinforced to provide a 10-tonne load posting. It is expected that the upgrades would not be very significant, however, it is a risk of not having the analysis completed in advance.

This option would see the bridge closed for a short time and it would also allow for our municipal equipment to operate with minimal disruption.

The engineer's estimate for this type of rehabilitation is approximately \$270,000 for construction and \$37,000 for engineering and contract administration costs, a total of \$307,000.

A final option is to fully replace the structure. The recommended replacement would be a two-lane concrete structure with reconstructed approaches to better align the bridge with the roadway. Reconstruction of the new structure would not take place until next year and the structure would require repairs to make it through the winter, or the structure would need to remain closed.

The engineers estimate for complete replacement is approximately \$1,950,000.

This structure is identified in the Class Environmental Assessment Bridge Master Plan. During the bridge master plan public consultation, several concerns were raised regarding the potential closure of the Priebe bridge due to the volume of Mennonite traffic that is seen by this route. There is a schoolhouse on Concession 14 E, in Brant Township. The attached map provides the location of the bridge and route to the schoolhouse. The absence of a sideroad between Sideroad 25 and Sideroad 15 would make the walk to school virtually impossible for many of the children that attend that school and impact the daily travel of many in the horse and buggy community. This section of road is also a bypass for farm equipment and horse and buggy traffic to avoid going through Chesley. Also noted earlier was the interruption to winter control measures, as a closure of this bridge would mean that the plow route would need to come in from both ends and, again, with the absence of a sideroad in between, would make the effective configuration of the route difficult.

Staff have reviewed the recommendations made by BM Ross and believe it to be in the best interest of the municipality to proceed with the rehabilitation work on the structure. Due to the timeline and emergent nature of the works, Staff request relief from the Procurement Bylaw #59-09 under Section 4.7, C:

*“where for reasons of time, or due to the nature of the goods and services to be supplied, the interests of the Municipality would be best served by a direct purchase”*

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## **Link to Strategic/Master Plan**

### 6.1 Protecting Infrastructure, Recreation and Natural Assets

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## **Financial Impacts/Source of Funding/Link to Procurement Policy**

As noted above, the cost to complete the rehabilitation work is estimated to be approximately \$307,000.

Staff have identified unused funds in the capital budget for work that will not be completed this year. \$175,000 was allocated to complete the Sideroad 15 rebuild between Concession 10 and Concession 13W, however, due to time constraints, this work will not take place this year.

Staff recommend reallocating these funds to complete the rehabilitation works required for E1, with the remaining funds be sourced from the Bridge Reserve, which has a current balance of \$369,777.

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Approved by: Emily Dance, Chief Administrative Officer