INFRASTRUCTURE SERVICES
Staff Report

REPORT NO:	IS-2024-15
TO:	Council
SUBMITTED BY:	Jeff Molenhuis, P.Eng., Director of Infrastructure Services
PREPARED BY:	Chad Woodhouse, C.E.T., Manager of Public Works
REVIEWED BY:	Sharon Chambers, Chief Administrative Officer
DATE:	2024-05-27
SUBJECT:	Oxford Waterloo Road Bridge 37/B-OXF

RECOMMENDATION:

THAT Council endorse Option 1 Full Closure and/or Decommissioning of Oxford Waterloo Road Bridge 37/B-OXF;

AND THAT Staff be directed to investigate further impacts, communicate with local residents and provide a follow-up to Council during the 2025 Budget Process related to anticipated costs needed for the endorsed option.

SUMMARY:

The report outlines the closure and assessment of Oxford Waterloo Road Bridge 37/B, emphasizing the need for a long-term plan for this structure. In 2022, Council endorsed closing this structure concurrently with the Bridge Street bridge closure, with a follow-up report required after the completion of the recently finished Bridge Street bridge reconstruction. This report reviews three options for the future plan of the bridge based on the current state of the bridge and its long-term sustainability.

BACKGROUND:

The metal truss bridge on Oxford Waterloo Road, located approximately 30m west of River Road crossing the Nith River, has been closed concurrently with the Bridge Street bridge closure to prevent road users from detouring around the Bridge Street closure. In 2022 there were planned repairs budgeted, but these works were deferred for future consideration once Bridge Street bridge was re-opened and a long-term plan for Bridge 37/B was Council endorsed. With the current state of the structure, there is minimal opportunity to provide cost-effective routine or preventative maintenance to extend the useful life of the bridge. A substantial annual repair schedule or replacement is needed to cost-effectively address the serviceability and long-term sustainability of the structure.

During the course of the closure over the last few years, staff have received feedback from a limited number of local residents; this feedback includes various issues arising from the bridge closure, including disruptions to daily commutes, increased travel time for farmers, and heightened traffic congestion on other local roads. Safety concerns regarding potential disturbances, such as loitering and disruptive driving activities, have also been raised.

It is noted that this structure is prone to significant flood and ice damage due to the low-profile nature of the structure over the waterway. In addition, the road extending to the bridge structure is within the floodplain and is subject to severe damage during flood events, requiring significant repairs. Recent flood events have caused between $40,000-100,000 of emergency repair cost needs to re-open the road and bridge structure.

REPORT:

Summary of Options

1. **Proceeding with Full Closure and/or Decommissioning:** Option 1 presents the most viable solution, considering the long-term maintenance and significant capital upgrades needed to ensure a safe crossing. Decommissioning the bridge would mitigate ongoing safety concerns and eliminate the financial burden associated with maintaining and repairing an aging structure beyond its intended lifespan.

   Summary of costs: The estimated costs for decommissioning the bridge include expenses related to closure, structural assessments, demolition, debris removal, and site restoration. Specific figures vary depending on the bridge's size and location, with typical decommissioning costs anticipated to be in the $200,000-500,000 range. However, simply closing the bridge without removal is also an option, requiring little to no cost. Despite the upfront cost of full decommissioning, it offers a long-term solution that avoids the need for continuous repairs and ensures public safety.

2. **Remain Open to Light Vehicle and Pedestrians Only:** Option 2 proposes maintaining the bridge for pedestrian and light vehicle access. While this option would prolong the bridge's serviceability, it does not fully address the ongoing maintenance costs and the regular need for repairs.

Summary of costs: The estimated project cost ranges from $40,000 to $65,000, covering detailed design, construction, contract administration, staff time, and project contingency. These costs ensure the implementation of safety enhancements, including repairs to interior stringers, concrete abutment repairs, installation of permanent barriers, signage, and ongoing maintenance measures. Ongoing maintenance tasks such as hand-sweeping the bridge deck, erosion repairs, and vegetation trimming are necessary, with an estimated annual operating budget need of $10,000 for repairs, and annual capital need of $10,000-30,000 for capital repairs or replacement requirements. It is noted that this would not address flood damage to the structure.

3. **Limited Tonnage Vehicle Traffic Only:** Option 3, limiting tonnage vehicle traffic only, presents further challenges and does not provide a comprehensive solution to the bridge's limitations. This option may not sufficiently address safety concerns and could lead to increased maintenance costs over time due to continued vehicular use. Additionally, it would elevate the risk of emergency closures, resulting in additional costs and disruptions for the Township.

   Summary of costs: Reopening the bridge for road traffic involves similar repairs to the interior stringers and abutment concrete, along with additional overhead portal bracing repairs and joint seal installations, with estimated costs of $50,000. However, this option offers only a short-term solution due to the bridge's aging service life, with emergency closures likely to recur due to impacts with overhead bracing. A full replacement within 1 to 5 years is inevitable, with estimated construction costs exceeding $5,000,000. Regular maintenance tasks are necessary for both scenarios, but vehicular traffic poses increased risks, requiring more frequent repairs. An annual maintenance and repair budget totaling $15,000 is anticipated for vehicular use, highlighting the significant financial burden associated with maintaining a bridge beyond its intended lifespan.

Summary of Recommendation

Staff recommend prioritizing full closure and/or decommissioning (Option 1) for Oxford Waterloo Bridge 37/B as the most viable solution. This option addresses safety concerns and eliminates the on-going and ineffective financial burden of maintaining this aging structure. Option 2, keeping the bridge open to light vehicles and pedestrians, is a middle-ground solution with estimated costs of $40,000 to $65,000 for immediate repairs and safety enhancements, $10,000 annually for ongoing maintenance, and a range of capital repair needs assumed annually. It extends the bridge's serviceability while managing access and safety. Option 3, allowing limited tonnage vehicle traffic, is the least favorable due to increased safety risks and financial burdens. Initial repairs are estimated at $50,000, with a full replacement likely within 1 to 5 years costing over $5,000,000, and annual maintenance at $15,000. This option offers only a short-term and costly solution.

Communication and Engagement

As noted, the Township has received feedback from local residents over the course of the last few years during closure. This feedback received has come from a limited number of residents. With the endorsement of a direction from this report, staff will engage in further communication on the project. These efforts will prioritize local property owners within the project area to limit impacts of the proposed solution.

ALIGNMENT WITH THE TOWNSHIP OF WILMOT STRATEGIC PLAN:

This initiative supports the goals and strategies of enhancing Responsible Governance through Active Communications, Fiscal Responsibility, and Infrastructure Investments.

FINANCIAL CONSIDERATIONS:

Full closure and decommissioning (Option 1) are the most cost-effective long-term solutions, eliminating ongoing maintenance costs despite significant initial expenses. Option 2, for light vehicles and pedestrians, costs $40,000 to $65,000 initially, $10,000 annual maintenance and anticipated annual capital repair needs. Option 3, for limited tonnage vehicles, incurs $50,000 in initial repairs, with a likely $5,000,000 full replacement in 1-5 years and $15,000 annual maintenance, making it the least favorable due to high costs and safety risks. All capital costs for each option will be split 50/50 with the Township of Blandford-Blenheim, as they are the bordering municipality. Operational costs are not shared as there is a reciprocal maintenance understanding/practice with Blandford-Blenheim in terms of maintenance obligations for different segments along this shared road.

ATTACHMENTS:

Attachment 1: Bridge 37/B-OXF (Wilmot) / Bridge 3 (Blandford-Blenheim) Oxford-Waterloo Road Bridge over the Nith River Repairs/Improvements for Potential Re-Opening

Attachment 2: Map of Oxford Waterloo Bridge 37/B-OXF Location