



**Meeting Date:** March 1, 2023

**Submitted by:** Rob Cascaden, P.Eng – Director – Public Works and Engineering

**Prepared by:** Andrew Giesen, C.E.T, PMP Transportation Manager

**Report No:** PWE-11-2023

**Subject:** Budget Amendment Fernhill Culvert Replacement

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**Recommendation:**

THAT Report PWE-11-2023, re: Budget Amendment for Fernhill Culvert Replacement be received;

AND THAT the 2023 Budget be amended to add a new capital cost of \$350,000.00 with the funds to be taken from the OCIF Reserve Fund

**Purpose:**

To seek Council approval for a 2023 budget amendment for the replacement of a structural culvert on Fernhill Drive.

**Background:**

On February 10, 2023 staff were alerted to a large pot hole on Fernhill Drive, upon investigation staff noted there was a significant sink hole that had formed beside a large structural culvert. And that the culvert was significantly deteriorated with large section loss of the culvert bottom on the downstream side.

**Analysis:**

Staff contacted a structural engineering firm to conduct a review on site with staff to review several measures that could be considered, a review letter is attached in Appendix A.

Option #1:

Temporary one lane operation along south side of culvert. This option was reviewed but was not recommended due to perforations on the upstream side of the culvert and the suspected undermining of the culvert bedding material.

### Option#2:

Temporary riprap and filter cloth patch of sink hole. This option was reviewed as a temporary measure to fill the sink hole, but was not recommended as the culvert bottom for 50% of the outlet side was no longer attached, and the inlet side contained numerous perforations the culvert was no longer structurally sound to support loading or temporary measures.

### Option #3:

Full Road closures with replacement. Due to the significant deterioration of the culvert and the undermining and loss of granular material the safest option is for a temporary road closure and full culvert replacement.

Fernhill Drive is a boundary Road between North Middlesex and Middlesex Centre. Middlesex Centre staff have been in dialogue with North Middlesex regarding the culvert failure. Through North Middlesex's 2023 budget they have also approved 50% of the design costs and are aware of the failure and need for replacement. At this time, they are reviewing options for capital replacement funding. It is still suggested that Middlesex Centre move forward with this project to minimize the impact to landowners without confirmation from North Middlesex on their ability to fund 50% of the capital replacement cost this year. In discussion with Middlesex Centre's Treasurer, it was confirmed that staff can bill North Middlesex for their 50% of the capital work in 2024 providing North Middlesex some financial flexibility in covering this unexpected failure and capital replacement.

### Recommendation:

Through the 2023 budget process staff had identified within the multi year road capital, the engineering for Culvert C-558 located on Fernhill Road between Wood Road and Poplar Hill Road be undertaken in 2023, with capital replacement/construction planned and identified for 2024.

To minimize the road closure on Fernhill Drive and ensure a quick and timely replacement of the culvert, staff are recommending a 2023 budget amendment of \$350,000.00 to be used to fund the replacement of the failed culvert.

### **Financial Implications:**

Staff are recommending the 2023 budget be amended by drawing on the OCIF Reserve Fund in the amount \$350,000.00 to fund the capital cost associated with replacing the failed structural culvert on Fernhill Drive.

### **Strategic Plan:**

This matter aligns with following strategic priorities:

- Sustainable Infrastructure and Services

To ensure a safe and reliable transportation network staff are looking to minimize this unplanned road closure by advancing construction of a replacement culvert.

**Attachments:**

Appendix A- Culvert Review Letter