

**Meeting Date:** April 22, 2025  
**Department:** Engineering and Public Works  
**Report No.:** EPW-2025-25  
**Prepared by:** Walter Easter, Manager of Public Works  
**Submitted by:** Mark Ortiz, Director of Engineering and Public Works  
**Approved by:** Rob Browning, Chief Administrative Officer  
**SUBJECT:** **Queen Street Phase 2 Microtunneling Change Order**

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**RECOMMENDATION: THAT:** Council receives report EPW-2025-25 titled “Queen Street Phase 2 CN Railway Change Order Approval” for information, and further;

**THAT:** Council approves \$1,101,278.17 plus HST to proceed with the microtunneling boring method under the CN Railway.

**BACKGROUND:**

The Queen Street Phase 2 Road Reconstruction project, initiated in August 2024, includes upgrades to watermains, sanitary and storm sewers, sidewalks, curbs, gutters, and road widening. The project extends from the Sydenham River through Arthur Street, across Metcalfe Street East, and along Queen Street to English Street. A key component involves installing underground utilities beneath the CN Rail (CNR) track.

Originally, the project design proposed two trenchless crossings under the CNR track using the pipe-ramming method for a 250mm watermain and a 375mm sanitary sewer, based on Englobe’s 2022 geotechnical recommendations. However, design updates in 2024 revealed that the storm sewer outlet along English Street lacked capacity for future development east of Queen Street. The only viable solution was to install a storm sewer under the CNR track, discharging into the Sydenham River.

Due to the size of the storm sewer and site-specific soil conditions, CN’s geotechnical review team, WSP, and Englobe determined that pipe-ramming posed structural risks to the railway. Microtunneling was recommended as a safer alternative to mitigate settlement risks.

## Project Status Update

### Completed Work (as of December 2024):

- Installation of the headwall at Sydenham River
- Construction of the storm sewer through 157 Front Street E easement
- Reconstruction of Arthur Street
- Early completion of Metcalfe Street E (originally scheduled for 2025) with Middlesex County approval

### Remaining Work:

- Arthur Street and Metcalfe Street E deficiency work – currently on-going
- Reconstruction of Queen Street (Metcalfe Street E to English Street) – currently on-going
- CN Railway Crossing

### **COMMENTS:**

Railway settlement poses risks to public safety, property, and the environment. After discussions with the project consultant, geotechnical engineers, and contractors, microtunneling was agreed upon as the best method, offering:

- Increased precision and safety for sewer and watermain installation
- Minimized surface disruption
- Better control over soil movement

During project meetings in December 2024, CN advised that all utility crossings include casing pipes, which would lead to larger microtunnel shafts and equipment, ultimately increasing cost. Municipal Staff have sent a letter to the Chief Engineer of CN Railway on March 12th, 2025 to reconsider the casing requirement. Staff were told by CN that a response to the request letter would take approximately six weeks.

Although cost is significant when compared to the pipe-ramming method, microtunneling is a well-established trenchless construction practice that complies with CNR's requirements and greatly reduces the risk of settlement and associated liabilities. Settlement monitoring will be implemented during construction.

Birnam's subcontractor, Ward & Burke Microtunneling Ltd., have completed numerous, complex microtunneling projects across Ontario and are fully capable to lead the microtunneling work and complete the CN Rail crossing on behalf of Birnam.

Municipal Staff and B.M. Ross have worked on an alternative storm sewer size plan to ensure the project can stay on schedule. If CN allows proceeding without casing, a 1350mm pipe will be used. If casing pipes are required, a 1350mm casing pipe will house a 1050mm storm sewer pipe. A five-year storm model confirmed that a 1050mm pipe meets municipal standards, though a 1350mm pipe would provide additional capacity. This is further explained in the attached recommendation letter from B.M. Ross.

Following Council direction, BM Ross and Staff will submit the necessary CN Railway approvals, specifying microtunneling as the chosen boring method. Staff will finalize the approval with CN Railway and progress the microtunneling with the Contractor. The microtunneling work is anticipated to be completed by October 2025 but depends on CN's approval timing.

**CONSULTATION:**

- Manager of Public Works

**FINANCIAL IMPLICATIONS:**

Staff recommend approving a total of \$1,101,278.17 for microtunneling works to cross the CN Railway corridor, of which \$1,000,000 has been previously approved in the 2025 Budget.

The additional \$101,278.17 required will be funded from reserves.

An additional \$366,881.94 has been previously allocated in the 2025 budget to cover increased construction tender costs at time of tendering.

**ALTERNATIVE(S) TO THE RECOMMENDATION:**

1. Council to provide alternate direction.

**STRATEGIC PLAN ALIGNMENT:**

This matter is in accord with the following strategic priorities:

**Local Infrastructure:** The continued focus on timely infrastructure upgrades supports the Corporate Mission for local infrastructure by effective, financially responsible and well-maintained infrastructure networks.

**ATTACHMENTS:**

B.M. Ross Recommendation Letter