



STAFF REPORT ACTION REQUIRED

William R. Allen Road Temporary Closure – Metrolinx Eglinton Crosstown LRT Tunnel Boring Machine Lift

Date:	February 2, 2015
To:	Public Works and Infrastructure Committee
From:	General Manager, Transportation Services
Wards:	Ward 15 (Eglinton-Lawrence) Ward 21 (St. Paul's)
Reference Number:	P:\2015\ClusterB\TRA\TIM\pw15004tim.docx

SUMMARY

The purpose of this report is to seek City Council's authority to close the section of William R. Allen Road between Eglinton Avenue West and Lawrence Avenue West for one weekend in order to safely facilitate the lift and transfer of two tunnel boring machines being utilized by Metrolinx for its construction of the Eglinton Crosstown LRT project. A closing of one of the southbound lanes is also recommended prior to the weekend closure in order to facilitate construction staging.

Additional closures are required on Eglinton Avenue West from Flanders Road (immediately to the east of William R. Allen Road) to Park Hill Road (immediately to the west of William R. Allen Road). This includes the off-ramp from southbound William R. Allen Road and the on-ramp to northbound William R. Allen Road. These closures can be approved by the General Manager of Transportation Services.

Further to the proposed closure of William R. Allen Road between Eglinton Avenue West and Lawrence Avenue West, the section between Lawrence Avenue West and Sheppard Avenue West would also be closed at the same time for maintenance purposes. This additional closure for City maintenance, which also falls under the delegated authority of the General Manager, is being combined with the closure proposed by Metrolinx to avoid the need for a second weekend closure of William R. Allen Road.

The proposed closing is scheduled on a weekend (April 17 to 20, 2015, with an alternate date of May 8 to May 11, 2015) in order to minimize the traffic disruption to area residents, businesses and commuters.

RECOMMENDATIONS

The General Manager, Transportation Services recommends that:

1. City Council approve the temporary closure of William R. Allen Road, in both directions, from Eglinton Avenue West to Lawrence Avenue West from 9:00 p.m. on Friday, April 17, 2015 to 5:00 a.m. on Monday, April 20, 2015 to facilitate the lift and transfer of the tunnel boring machines by Metrolinx's contractor.
2. In the event that the lift and transfer of the tunnel boring machines cannot occur on the dates and times referenced in Recommendation No. 1 because of poor weather conditions or other unforeseen circumstances, City Council approve the temporary closure of William R. Allen Road, in both directions, from Eglinton Avenue West to Lawrence Avenue West from 9:00 p.m. on Friday, May 8, 2015 to 5:00 a.m. on Monday, May 11, 2015 as an alternate date.
3. City Council approve the temporary closure of the southbound curb lane of William R. Allen Road from Lawrence Avenue West to Eglinton Avenue West from 9:00 p.m. on Thursday, April 16, 2015 to 9:00 p.m. on Friday, April 17, 2015 to facilitate the construction staging required for the lift and transfer of the tunnel boring machines.
4. In the event that the lift and transfer of the tunnel boring machines is rescheduled to the weekend of May 8 to May 11, 2015 in accordance with Recommendation 2, City Council approve the temporary closure of the southbound curb lane of William R. Allen Road from Lawrence Avenue West to Eglinton Avenue West from 9:00 p.m. on Thursday, May 7, 2015 to 9:00 p.m. on Friday, May 8, 2015 to facilitate the construction staging required for the lift and transfer of the tunnel boring machines.

Financial Impact

Metrolinx will be responsible for all costs associated with the proposed closure of William R. Allen Road. There are no direct financial implications to the City.

The Deputy City Manager and Chief Financial Officer has reviewed this report and agrees with the financial impact information.

ISSUE BACKGROUND

The tunnelling works by Metrolinx for its construction of the Eglinton Crosstown LRT project began in June 2013. The scope of the “West Tunnels” portion of these works includes the boring of twin tunnels extending for 6.2 kilometres beneath Eglinton Avenue West between a point east of Black Creek Drive and Yonge Street, as well as the construction of twenty-two station box headwalls at future station locations. Crosstown Transit Constructors (CTC) is the West Tunnels contractor working on behalf of Metrolinx. CTC has requested a closure of a section of William R. Allen Road in order

to safely facilitate the lift and transfer of the two tunnel boring machines conducting these works.

According to *Subsection 937-4 of City of Toronto Municipal Code Chapter 937, Temporary Closing of Highways*, the closure of William R. Allen Road for privately initiated construction work requires Council approval.

COMMENTS

Tunnel Boring Machine Lift Methodology

The two tunnel boring machines (TBM) in operation as part of the “West Tunnels” project each consist of a cutter head, forward shield, and eight gantry cars. They are each eighty-one metres long and weigh approximately 500 tonnes, as shown in the photo in Attachment 1. The machines have tunneled from just east of Black Creek Drive to just west of William R. Allen Road, arriving in November 2014.

The Eglinton Crosstown LRT tunnels will cross underneath the Yonge-University–Spadina Subway Line. However, the clearance below the existing subway tunnel will be only two metres and therefore, for safety reasons, the boring machines cannot be used to continue the excavation at this location. As a result, the boring machines must be extracted from the tunnel west of the subway and then inserted again in the tunnel east of the subway. The extraction shaft is currently under construction on the west side of the intersection of William R. Allen Road and Eglinton Avenue West, and the launch shaft is under construction on the east side of the intersection. It is proposed to move each machine from the extraction shaft to the launch shaft in the following steps:

1. Partially disassemble each tunnel boring machine.
2. Install gantry cranes at the extraction shaft and launch shaft.
3. Hoist each piece of machinery using the gantry crane and load onto a self-propelled modular trailer (SPMT). The trailer has 13 rows of wheels with each row containing 16 wheels for a total of 208 wheels. An example of a self-propelled modular trailer is shown in the photo in Attachment 2.
4. Move the trailer across the intersection of William R. Allen Road and Eglinton Avenue West.
5. Unload machinery using gantry crane at launch shaft.
6. Repeat this process until all pieces of machinery have been moved.
7. Reassemble tunnel boring machines in launch shaft.

Road Closures/ Schedule

Metrolinx has advised that this work can be accomplished within one weekend. However, in order to accomplish this work safely and on schedule, Eglinton Avenue West must be fully closed from Flanders Road (immediately to the east of William R. Allen Road) to Park Hill Road (immediately to the west of William R. Allen Road). This includes the off-ramp from southbound William R. Allen Road and the on-ramp to northbound William R. Allen Road, effectively closing William R. Allen Road between Eglinton Avenue West and Lawrence Avenue West. The closed section of William R. Allen Road

would then be used by CTC to move the high volume of construction vehicles related to the tunnel boring machine lift.

The following is a detailed schedule of proposed road closures:

1. **Thursday, 9:00 p.m.** – Restrict southbound William R. Allen Road to one lane, closing the southbound curb lane.
2. **Friday, 9:00 p.m.** – Close Eglinton Avenue West, in both directions, from Flanders Road to Park Hill Road and William R. Allen Road, in both directions, from Eglinton Avenue West to Lawrence Avenue West. During this time, access to and egress from the north-south local streets intersecting with Eglinton Avenue West will be maintained.
3. **Monday, 6:00 a.m.** – Reopen Eglinton Avenue West from Flanders Road to Park Hill Road and William R. Allen Road from Eglinton Avenue West to Lawrence Avenue West. Reopen earlier if operations have been completed.

Coordination with Other Works

City staff are working to coordinate the tunnel boring machine lift with an extended closure of William R. Allen Road that is proposed to facilitate City-initiated maintenance work. William R. Allen Road was last closed for maintenance in 2008. The proposed closure would extend from Lawrence Avenue West to Sheppard Avenue West and would include minor resurfacing, sweeping, guide rail replacement and catch basin inspection by Transportation Services, tree trimming by Urban Forestry as well as street lighting replacement by Toronto Hydro. The proposed maintenance work would not conflict with the boring machine lift. The General Manager, Transportation Services has the delegated authority to close William R. Allen Road for City-initiated work such as the above-noted maintenance activities.

All parties would be prepared to complete their required work entirely during the weekend closure of April 17-20. The weekend of May 8-11 would be used as a contingency weekend in the event that poor weather conditions or other unforeseen circumstances prevent the boring machine lift from proceeding on the weekend of April 17-20. The types of weather conditions that would require a deferral of the lift and transfer include extended periods of gale force winds or lightning. May 8-11 was selected as the contingency weekend because the Don Valley Parkway and Gardiner Expressway are closed for maintenance purposes on the weekends of April 24-27 and May 1-4, respectively, and it is necessary to avoid concurrent expressway closings.

In order to accommodate traffic that would be displaced during the proposed closure of William R. Allen Road, staff will ensure that no permits are issued for road occupations such as capital work, utility work, special events or filming on arterial roads in the area during this time, unless for emergency purposes.

Impacts/ Mitigation Measures

The proposed closures of William R. Allen Road and Eglinton Avenue West will have significant impacts on area traffic and transit operations. Detailed operational plans are currently being developed with input from Metrolinx, CTC, Transportation Services, Toronto Transit Commission and the Toronto Police Service. This plan will ensure that access to and egress from all local roads is maintained.

It is anticipated that the magnitude of the works will attract both the public and media to view the boring machine lift. Paid duty officers and crowd control barriers will be put in place at key locations to ensure safety for motorists, pedestrians and spectators throughout the operation. A media zone will be set up at Everden Road just south of Eglinton Avenue West which will serve as a prime vantage point from which to view the operation.

Advanced signage (using both static as well as changeable message signs) will be installed two weeks prior to the closure to advise motorists, pedestrians and transit patrons of the upcoming restrictions. The Ministry of Transportation, Ontario will also be requested to display messages on Highway 401 changeable message signs advising motorists of these restrictions both in advance of and during the proposed closure.

Metrolinx will distribute notices to the local residents and businesses to make them aware of the impacts during the weekend closure. This will include the need to install multiple light towers in order to illuminate the work zone during the overnight periods.

In terms of TTC operations, bus service into Eglinton West Station, including Wheel Trans service will need to be restricted, however, subway service will not be affected. TTC staff have been consulted in these discussions.

At all times the eastbound curb lane of Eglinton Avenue West will be maintained for emergency vehicle access between Marlee Avenue and Bathurst Street, and to/from the intersecting north-south local streets.

Metrolinx will be responsible for all costs related to the tunnel boring machine lift including public notification, signage, barricades, security and policing services as deemed necessary by the General Manager of Transportation Services.

CONTACT

John Mende, P.Eng.
Director, Transportation Infrastructure Management
Transportation Services Division
Tel: (416) 392-5348
E-mail: jmende@toronto.ca

Martin D. Maguire, P. Eng.
Manager, Transit Projects
Transportation Services Division
Tel: (416) 338-1954
E-mail: mmaguir@toronto.ca

SIGNATURE

Stephen Buckley
General Manager, Transportation Services

ATTACHMENT

Attachment 1: Example of a Tunnel Boring Machine (TBM)
Attachment 2: Example of a Self-Propelled Modular Trailer (SPMT)

Attachment 1: Example of a Tunnel Boring Machine (TBM)



(CNW Group / Metrolinx)

Attachment 2: Example of a Self-Propelled Modular Trailer (SPMT)



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