



**STAFF REPORT
ACTION REQUIRED**

Proposed Amendment to the City of Toronto Municipal Code, Chapter 591, Noise, Regarding the TTC’s Transit City and Toronto York Spadina Subway Extension (TYSSE) Construction Initiatives

Date:	August 3, 2010
To:	Executive Committee
From:	Jim Hart, Executive Director, Municipal Licensing and Standards
Wards:	All
Reference Number:	

SUMMARY

The purpose of this report is to recommend amendments to the City of Toronto Municipal Code, Chapter 591, Noise, regarding a noise exemption for construction undertaken by the Toronto Transit Commission relative to the Transit City and Toronto York Spadina Subway Extension (TYSSE) initiatives.

RECOMMENDATIONS

The Executive Director, Municipal Licensing and Standards, recommends that:

1. the City of Toronto Municipal Code, Chapter 591, Noise, be amended as per the amendments set out in Appendix A to this report; and
2. the appropriate City officials be authorized and directed to take the necessary actions to give effect thereto.

FINANCIAL IMPACT

The recommendations in this report will have no financial impact beyond what has already been approved in the current year's budget.

DECISION HISTORY

This report was initiated by a request from the Toronto Transit Commission (TTC) to Municipal Licensing and Standards (MLS) and Toronto Legal Services to review, and if necessary, amend City of Toronto Municipal Code, Chapter 591, Noise, relative to an exemption for TTC Transit City and Toronto-York Spadina Subway Extension (TYSSE) construction projects.

ISSUE BACKGROUND

A review of the exemptions contained in the Municipal Code, Chapter 591, Noise ("the By-Law"), was conducted by Legal Services and MLS, and it led to the requirement for an exemption for the following TTC construction projects, Transit City and Toronto-York Spadina Subway Extension (TYSSE), in order to facilitate the timely completion of these construction projects, while reducing the overall disruption to TTC operations and regular vehicular traffic flow.

COMMENTS

The construction of the Toronto-York Spadina Subway project and ongoing Transit City projects are being advanced as quickly as possible to both minimize impact on the local communities and reduce construction costs.

The TTC is seeking amendments to the By-Law to permit the following ongoing construction activities for the TYSSE and Transit City projects:

- 1) Ability to undertake all civil construction activities from 7am to 11pm, 7 days per week.
- 2) Tunnelling Using Tunnel Boring Machines (TBMs), and related activities, – 24 hours per day, 7 days per week, for safety and efficiency purposes
- 3) Track welding and installation, 24 hours per day, 7 days per week.

A description of related construction activities and the rationale for the requested By-Law amendments are summarized in the body of this report. Both TYSSE and Transit City

Projects have a number of common construction activities, as well as unique construction approaches that require extended construction times, which are explained in this report.

Mitigation Measures

TTC staff commit to undertaking the following to minimize the potential impacts of construction-related noise impacts on the local community:

- Developing and implementing protocols and guidelines on sensitive construction activities
- Using the recommended By-Law exemption on a judicious basis and only where warranted and cost effective
- Construction contracts will include detailed specifications with respect to minimizing construction noise (in accordance with Municipal and Provincial standards)
- Continuing community outreach as described below
- Ensuring compliance with Environmental Assessment commitments.

Community Outreach During Construction

An extensive community outreach program is being implemented for TYSSE/Transit City consisting of:

- Notices to the community of upcoming construction activities and construction updates through various sources including via websites;
- Establishing staffed, community liaison offices in the field
- 24 hour telephone hotlines
- Program website
- Computerized tracking of issues that may arise during construction
- Appropriate construction signage.

This program will provide meaningful opportunities for public consultation and feedback on noise and other construction issues. TYSSE has already undertaken voluntary notification of extended construction hours (granted through noise by-law exemption) to potentially affected residents for one component of the project near Downsview Station. The TTC received no complaints related to noise from the public during the period of extended construction hours.

Tunnel Construction

Both the TYSSE project and Transit City (Eglinton Crosstown LRT and Sheppard LRT) will use bored tunnel construction using tunnel boring machines (TBMs) for a significant

portion of the project. For TYSSE, of the overall alignment (8.6 km), 6.2 km will be constructed by bored tunnel using TBMs. For Eglinton Crosstown LRT, there is planned to be approximately 12 km of tunnels. The Sheppard LRT has a short section of tunnel under Highway 404 to connect to Don Mills Subway Station.

Tunnelling is an important aspect of both the TYSSE and Transit City projects, and must be undertaken in a manner that enables the projects to be delivered according to budget and schedule.

Tunnelling is a 24/7 operation typically involving two 10 hour shifts and 4 hours for maintenance per day, and must be continuous to maximize the efficiency of the TBMs and to minimize any potential risk of settlement/damage to buildings and utilities that may be located above the tunnel. Tunnel projects have been exempt from the By-Law in the past, as was the case for the Sheppard Subway Project.

Tunnelling under the street or tunnel alignment will not be noticeable by the public from a noise/vibration perspective. The main noise impact would be at the tunnel launch/mobilization site, as a result of the transportation of concrete tunnel liners and removal of soil, on a 24/7 basis as lands are not always available for extensive stockpiling of material on the mobilisation site for trucking during daytime hours.

Mitigation measures will be implemented to minimize the impact of the above-described operation, and are discussed in further detail later in in this report.

For the TYSSE project, tunnel launch/mobilisation sites are planned to be located well away from residential communities. The two main tunnel launch/mobilisation sites will be located in a primarily industrial area, on the south side of Sheppard Avenue West, between Chesswood Road and Bakersfield Road, and the second at Steeles Avenue/North West Gate on north edge of the York University campus. The City, TTC and York University have agreed to terms regarding design, construction and operation of the subway project on the campus. TTC and York University are currently developing protocols to minimize the impact of noise and vibration during construction.

The Sheppard East LRT TBM launch shaft will be located on either the east and west sides of Highway 404. In either case, high background noise levels from Highways 404/401 are expected to mask the impact of the launch shaft site on the surrounding community.

For the Eglinton Crosstown LRT project, the TBM launch shafts will be located in the vicinity of Black Creek Drive and Brentcliffe Avenue and noise mitigation strategies will be employed at both locations.

There are several other components of the tunnelling construction that may have localized noise impacts over more limited durations, but may still require extended work hours to ensure that the tunnelling operation remains on schedule. These include:

TBM Extraction Shafts

A minimal community impact is expected at TBM extraction shaft locations. This is a relatively small shaft that is constructed at the end of each tunnel drive where the TBM is dismantled and lifted to the surface by large cranes. This construction activity is limited to the time needed to construct the extraction shaft and remove the TBMs. As the precise timing of the TBM arriving at an extraction shaft cannot be precisely determined prior to start of construction, TTC needs the flexibility to allow the extraction to be completed when required.

Emergency Exit Buildings (EEBs)

Construction of Emergency Exit Buildings (EEB's) is a component of the tunnelling works. EEBs require the construction of a small shaft where an emergency exit staircase from the tunnel and small surface building is ultimately constructed. EEB shafts are constructed prior to the start of tunnelling, will have a minor impact, and can be constructed relatively quickly. All of the EEBs for the TYSSE project will be located in industrial/commercial areas, and the noise effects from construction are expected to be relatively minor outside of regular construction hours. The location of Sheppard LRT and Eglinton LRT EEB's is still being designed and it is expected that EEB's will be required in residential areas.

Drop Shafts.

Drop shafts are used to lower material into the tunnels for track bed installation, track work and systems installation. Installation of these subway components will involve 24/7 work in support of the tunnelling operation. The drop shafts planned for TYSSE are located in primarily industrial/commercial areas, where the noise effects of these activities are expected to be minimal. The location of Transit City drop shafts has not yet been determined.

TYSSE Specific Requirements

The TYSSE project has several unique components that are related to tunnel construction, and include the following:

Compensation Grouting

The compensation grouting works at the Schulich Building at York University are required to mitigate the effect of settlements on the building as a result of the passage of both TBMs and the station open-cut excavation. This, by necessity and for safety reasons, will involve continuous 24/7 operation in support of the TBM tunnelling operation and station excavation. As noted above, TTC and York University are currently developing protocols to mitigate the impact of noise and vibration during construction.

Track Installation

Track installation for the TYSSE project will involve a 24/7 operation to maintain project schedule and to efficiently utilize rail installation crews. As all trackwork installation on TYSSE will take place underground, the impact of the installations is limited to drop shaft locations. The drop shafts planned for TYSSE are located in primarily industrial/commercial areas, where the noise effects of these activities during extended work hours are expected to be minimal.

Transit City Specific Requirements

The construction of Transit City projects, the majority of which will be constructed on the surface in the median of arterial roads involves a number of individual steps including utility relocations, road widening, excavation of the LRT right of way, construction of track/stops, systems installation, streetscaping and testing and commissioning, typically in a sequential process. This generally means that the next step in the construction process cannot be initiated until the previous step is substantially completed.

As a result of the linear nature of construction, the total duration of Transit City construction activities can be shortened if construction can take place over a longer period of time each day and throughout a 7 day week. The impact of longer daily construction periods is not only the additional hours available but the increased productivity of the construction activity that results from multiple steps in the construction process being accomplished over a single day rather than over several days. In effect, longer construction durations on a daily basis allow contractors to start and finish a construction activity that otherwise could not be started in the remaining hours available in a single day given the existing 7am to 7pm noise by law restriction.

Track installation for Transit City will involve a 24/7 operation. The welding and installation of rail is a linear logistics exercise with specialized crews and equipment. TTC may employ private contractors to install rail (rather than and/or in addition to using TTC forces). Since such crews may have to be brought to Toronto from other parts of

North America for a schedule installation window, it is critical that track installation be as productive as possible. As track installation is on the critical path for Transit City, a longer window for rail installation on a daily basis will have direct schedule benefits to the project and the local community. It should be noted that if private contractors are utilized for rail installation and a scheduled window for the track installation crews/equipment is missed (or work is not completed within the available window for the crew) then, given other scheduled commitments for the rail installation crew elsewhere in North America, it may be some time before the required project rail installation crew can return to Toronto to finish the installation. As a result, it is critical that the noise by-law exemption for rail installation be in place to ensure maximum productivity during the window the installation crew is scheduled to be in Toronto.

Benefits of Extended Construction Hours

Allowing extended construction hours for the activities described above are expected to have the following benefits to the implementation of the TYSSE and Transit City projects:

- It will reduce the duration of construction activities, allow for completion of tunnelling works as quickly as possible, thereby mitigating the impact on local businesses and communities
- It will allow Transit City to “get in, get out and stay out” of road rights of way as quickly as possible
- The productivity of construction activities for Transit City will be enhanced with the resulting impact on the efficiency of construction
- Providing contractors with more flexibility in the hours of construction will lead to innovation in the construction process
- It is expected to result in more competitive prices from construction contractors.

Given the above, several organizations support the approval of extended construction hours of the Sheppard East LRT line including the Sheppard East Village BIA, with the support of their local councillors (Wards 41 and 42).

TTC, through both the TYSSE and Transit City project offices, will continue to work cooperatively with local BIA's and business groups to minimize any potential construction impacts.

Of note, the City of Vaughan Council has approved a blanket noise by-law exemption for TYSSE for the duration of construction of the project.

The City Solicitor and the Toronto Transit Commission were consulted in the preparation of this report.

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SIGNATURE

Jim Hart, Executive Director
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ATTACHMENTS

- 1) Appendix "A" – Proposed Amendments to the City of Toronto Municipal Code, Chapter 591, Noise

APPENDIX A

Proposed Amendments to the City of Toronto Municipal Code, Chapter 591, Noise

DRAFT BY-LAW No. _____

To amend City of Toronto Municipal Code Chapter 591, Noise, respecting major transit projects.

The Council of the City of Toronto HEREBY ENACTS as follows:

1. Section 591-2.1 of Chapter 591, Noise, of The City of Toronto Municipal Code is amended by adding the following:

C. Major transit projects.

- (1) As used in Subsection C, the following terms shall have the meanings indicated:

CIVIL CONSTRUCTION ACTIVITIES:

- (a) Includes all construction activities as described in the definition of "construction" in § 591-1B.
- (b) Includes utility relocations by third parties.
- (c) Does not include the welding or installation of rail, tunneling by tunnel boring machines ("TBM") and other related rail and tunnel activities.

MAJOR TRANSIT PROJECT:

- (a) Toronto-York Spadina Subway Extension.
- (b) Toronto Transit City – Light Rail Plan that includes:
 - [1] Eglinton Crosstown LRT.
 - [2] Finch West LRT.
 - [3] Scarborough RT.
 - [4] Sheppard East LRT.

- (2) With the exception of Subsection C(3), no other provision of this chapter, shall apply to the emission of sound or vibrations resulting from construction work required to be performed for the purposes of a major transit project in order to expedite the completion of the major transit project and minimize lane closures or lane reductions, or both, of City streets, and disruption of the Toronto Transit Commission's subway or street car service or any ancillary facilities associated with the transit system.
- (3) All civil construction activities shall occur between 7:00 a.m. to 11:00 p.m., except in the case of an emergency as described in § 591-9.