

Eastern Avenue at TTC Russell Yard – Road Reconfiguration Study

Date:	February 1, 2012
To:	Public Works and Infrastructure Committee
From:	Acting General Manager, Transportation Services
Wards:	Ward 32 (Beaches – East York)
Reference Number:	P:\2012\Cluster B\TRA\TIM\pw12001tim

SUMMARY

This report recommends approval of an Environmental Assessment Study for the reconfiguration of Eastern Avenue, between Connaught Avenue and Minto Street, adjacent to the Toronto Transit Commission's (TTC's) Russell Carhouse.

The Russell Carhouse is one of TTC's facilities used for the storage and maintenance of their streetcar fleet. New longer light rail vehicles (LRVs), which are being procured by the TTC, will be housed at this facility. The TTC will be replacing, in the near future, its streetcar tracks on Connaught Avenue and on Eastern Avenue, west of Connaught Avenue, adjacent to the Russell Carhouse in order to better accommodate these new LRVs. Twenty-one switching tracks entering the yard, which currently occupy the westbound curb lane of Eastern Avenue, must be raised slightly so that the tracks are closer to the elevation of the south end of the yard.

The reconstruction of the TTC tracks provides an opportunity to improve the safety and operations of Eastern Avenue in this area by separating the streetcar tracks from general traffic and providing a sidewalk on the north side of Eastern Avenue between Connaught Avenue and Minto Street. The recommended plan is to maintain the south curb line of Eastern Avenue and reducing the number of through lanes from two to one in each direction. This will allow the construction of a sidewalk and guiderail on the north side of Eastern Avenue between the streetcar tracks and the traffic lanes. The segregation of streetcar operations, traffic lanes and the pedestrian environment improves the safety and operations for all users. Traffic analysis shows that the current and projected traffic volumes on Eastern Avenue can be accommodated with this reduction in the number of lanes.

The recommended plan is a pre-approved undertaking under the Municipal Class Environmental Assessment, and has been reviewed with the residents of the area. The TTC intends to complete the detail design and begin construction in 2012. The entire project, including the changes to the configuration of Eastern Avenue which is estimated to cost approximately \$280,000, will be funded by the TTC. If this proposal is not approved, then the TTC will be required to raise the whole width of Eastern Avenue in order to accommodate the required increase in the streetcar track elevation. This would actually be slightly more costly than the recommended reconfiguration.

The TTC has been consulted in the preparation of this report and agrees with the recommendations and financial impact.

RECOMMENDATIONS

The Acting General Manager, Transportation Services recommends that City Council:

1. Authorize the Acting General Manager of Transportation Services to issue a Notice of Study Completion for the reconfiguration of Eastern Avenue, between Connaught Avenue and Minto Street.

Implementation Points

The TTC intends to implement the recommended plan for Eastern Avenue in 2012 as part of its impending construction work for the upgrade of the Russell Carhouse to accommodate its new LRVs and the associated improvements to streetcar track approaches.

Financial Impact

Funding for the recommended reconfiguration, estimated to be \$280,000, is included in the TTC's 2012 Approved Capital Budget as part of the Russell Carhouse upgrade project. In fact, the proposed reconfiguration would result in a slight cost saving to the TTC when compared to the cost of reconstructing the whole width of Eastern Avenue which would be required if this proposed reconfiguration is not approved.

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

ISSUE BACKGROUND

The TTC's assessment of the technical requirements for adapting their Russell Carhouse facility to accommodate the new LRVs, scheduled for delivery beginning in 2012, has provided an opportunity to review and resolve two problems with the current configuration and operations of Eastern Avenue along the frontage of their site.

Primary Problem: Ideally, streetcar switches that allow turning manoeuvres should be as flat as possible for the entire length of the turning manoeuvre. At present, a streetcar that is turning into the yard from Eastern Avenue is turning slightly uphill. The new light rail vehicles that are being acquired by the TTC to replace the existing streetcar fleet are twice as long as the current streetcar and, if they were to use the current track geometry, there would be too great a difference in height between the front and back of a new LRV while it is on the curve. This, combined with a large number (21) of track switches in a relatively short distance, results in a greater potential for a new LRV to derail when turning into the yard. As a result, it is necessary to level the trackwork by raising the elevation of the track within the curb lane on Eastern Avenue so that it is closer to the elevation of the tracks at the south end of the yard.

Secondary Problem: The existing streetcar tracks on Eastern Avenue, which have multiple switches to allow streetcar access onto a variety of tracks in the Carhouse, share the curb lane with other vehicular traffic. Not only is this an unusual mix of streetcar turning activity and general traffic movements, but this also precludes the provision of a sidewalk on the north side of the road along this block. This creates an inconvenience for pedestrians who choose to cross to the sidewalk located on the south side of the road, and a safety concern for those who stay on the north side of the road and walk across the south end of the TTC yard.

The TTC's plan (and need) to resolve the first problem in 2012 creates a unique and one-time opportunity to resolve the second problem.

COMMENTS

Study Process

The Eastern Avenue Road Reconfiguration Study has been carried out under the Municipal Class Environmental Assessment (EA) process. By segregating different modes of travel within the existing right-of-way and removing the yard operations from the roadway, the recommended plan is a localized transit improvement which is classified as a pre-approved Schedule A+ project. Nevertheless, the development and analysis of alternatives and associated documentation have all been done in accordance with a Schedule "B" EA process in order to ensure an appropriate level of public consultation.

Public Consultation

Although the project is exempt from public consultation requirements of the Municipal Class EA, TTC and City staff, in association with the local Councillor, informed area residents of the proposed plan and solicited their input. A public Open House was held within the study area, at the EMS Training Centre at 895 Eastern Avenue at Knox Avenue, on December 8, 2011. Notices were hand-delivered to all homes in the area. In addition, the local City Councillor notified all residents on her e-mail contact list and included notification of the meeting in her regular report to her constituents.

The Open House, attend by City and TTC staff and the local Councillor, included mounted displays, a presentation, and an open question-and-answer period. It attracted approximately 15 people, drawn mainly from the immediate surrounding area. The alternatives, analysis, conclusions, and recommended plan were well-received and no major concerns were voiced other than a desire for more space for cyclists. This comment was addressed by indicating the space and budget constraints that precluded the provision of bike lanes and by noting that the new traffic lanes would be as wide as possible to accommodate cyclists.

Alternatives Considered

The development of alternatives reflected several planning and design objectives and constraints:

- The property along the south side of Eastern Avenue at the Russell Carhouse is owned and occupied by Canada Post. In order to proceed with the track work without requiring a lengthy and costly property acquisition process, the inability of the City to expropriate the lands owned by a senior level of government, and the additional cost that would be required to relocate utilities and curbs, it was decided to develop all alternatives on the basis of retaining the existing south curb line on Eastern Avenue.
- The number and radius of the track switches cannot be reduced.
- The track switches can be shifted a maximum of two metres northerly, but at a significant capital cost premium of approximately \$1.7M (since all overhead wires would also need to be relocated).
- A single-stage solution that could be implemented in conjunction with the TTC's track reconstruction in 2012 is preferred over an "interim" or two-stage approach.
- A continuous sidewalk on the north side of Eastern Avenue is highly desirable.
- Provision for bicycle lanes on Eastern Avenue is desirable but not essential; parallel routes offer bike facilities and this segment of Eastern Avenue is not part of the City's bike plan.
- Current and projected traffic volumes on Eastern Avenue can be accommodated by one traffic lane per direction.
- Parking is currently allowed on Eastern Avenue on both sides of the street at all times except the weekday peak period peak direction (i.e. westbound in the morning peak; eastbound in the evening peak), with the exception of the north side of Eastern Avenue in the vicinity of the Russell Carhouse area. The utilization of the existing on-street parking spaces is low.

With these objectives and constraints, six alternatives were developed:

- 1) Base Case: Maintain existing layout, with elevation of the streetcar tracks and entire roadway raised to match the yard elevation in order to accommodate the LRVs
- 2) Option 1: Single lane in each direction with bike lanes
- 3) Option 1B: Single lane in each direction with sidewalks but no bike lanes
- 4) Option 2: Two eastbound lanes and one westbound lanes with no sidewalks or bike lanes
- 5) Option 3: One lane in each direction with a shift in the tracks to accommodate sidewalks and bike lanes
- 6) Option 4: Two eastbound lanes, one westbound lane and a shift in the tracks to accommodate sidewalks

Each option was drawn in plan and cross section, and analyzed in terms of:

- Traffic operations
- Pedestrians
- Cycling
- Transit operations
- Impact on utilities
- Property impact
- Parking impact
- Capital cost and implementation timing

The conclusion of the evaluation was that Option 1B best balanced the objectives and constraints while providing a good outcome for all users.

Recommended Plan

The recommended plan is illustrated in Figure 3. The plan includes one 4.06 m wide lane in each direction from a point west of Minto Street to the east of Connaught Avenue. Although not wide enough for dedicated bike lanes, the lanes are wider than at present which will result in an improvement to the safety of cyclists. Some delays to traffic are anticipated at the points where traffic in two lanes merges into one. However, this has no impact on the overall capacity or ultimate traffic ‘throughput’ of this section of Eastern Avenue because the capacity of a road system is governed by signalised intersections. This plan does not change the design of the closest signalised intersections located to the west at Knox Avenue and to the east at Coxwell Avenue. It separates this streetcar activity from other traffic and introduces a sidewalk along the north side of Eastern Avenue to accommodate pedestrians. A handrail separates the sidewalk from the streetcar operations. Approximately 65 off-peak on-street parking spaces are removed from the south side of this segment of Eastern Avenue.

Property

The works are contained within the existing Eastern Avenue right-of-way. It is proposed that a lease agreement be prepared between the City and the TTC to reflect TTC's exclusive and protected occupation of the northern part of the right-of-way by streetcar tracks and its maintenance obligations.

Cost

The estimated cost of the Eastern Avenue reconfiguration is approximately \$280,000. These funds are included in the TTC's 2012 Approved Capital Budget as part of their Russell Carhouse project costs.

Implementation

The TTC's program to improve the Russell Carhouse will go through detail design in early 2012 for tendering and construction later in the year in order for the facility to be ready to accommodate the new LRVs now being delivered. The Eastern Avenue reconfiguration will be funded by the TTC and are to be designed and built as part of the Carhouse contract.

The TTC schedule is fixed and cannot be delayed by any work on Eastern Avenue. Therefore, if the road reconfiguration is not approved in a timely manner, TTC will proceed on the basis of the "do nothing" alternative, which will involve, at a minimum, raising the elevation of the Eastern Avenue pavement and streetcar tracks in the vicinity of the Carhouse while retaining the current lane configuration.

CONTACT

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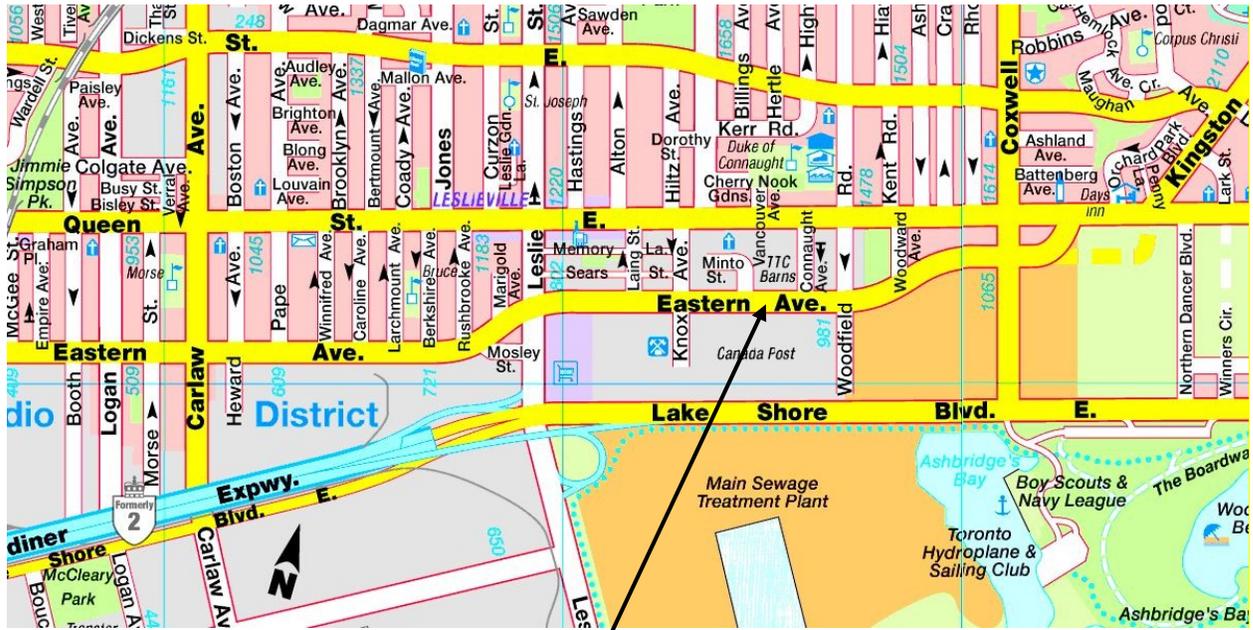
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Andrew Koropeski, P. Eng.
Acting General Manager, Transportation Services

ATTACHMENTS

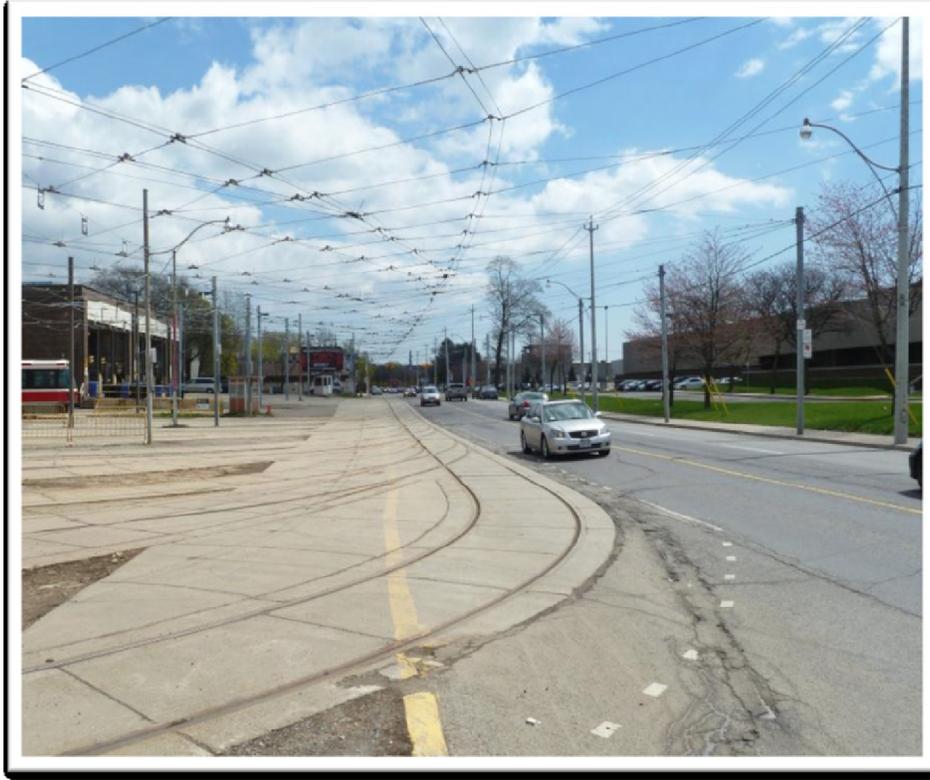
Figure 1: Study Area
Figure 2: Existing Conditions on Eastern Avenue
Figure 3: Recommended Plan

Figure 1: Study Area

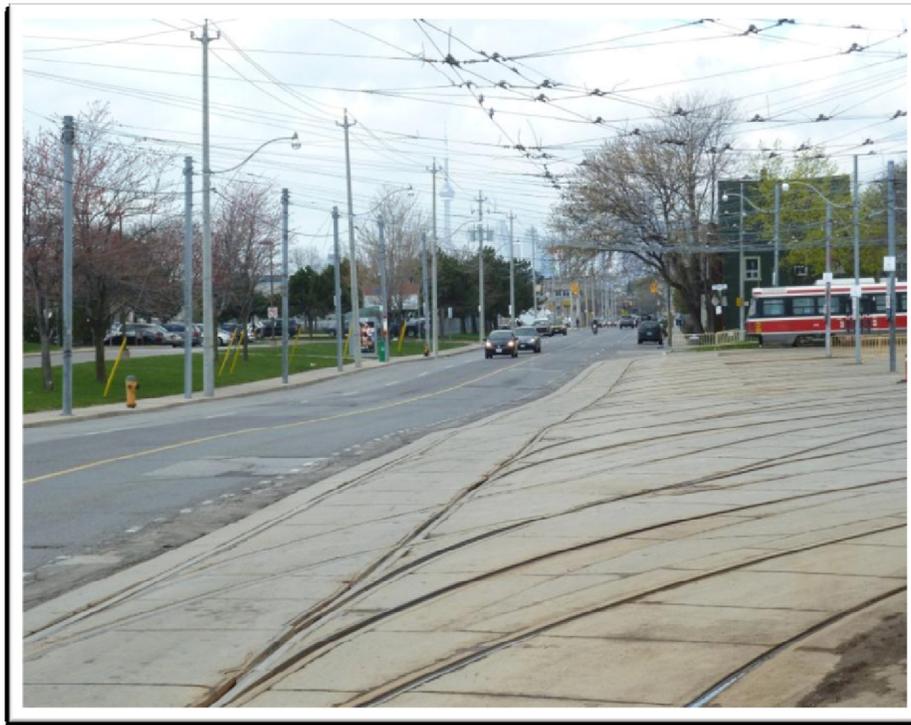


Study Location

Figure 2: Existing Conditions on Eastern Avenue



Looking East



Looking West

Figure 3: Recommended Plan

