

Update on Traffic Control Signals - Richmond Street West and Simcoe Street

Date: May 1, 2017
To: Toronto and East York Community Council
From: Acting Director, Transportation Services, Toronto and East York District and Acting Director, Transportation Infrastructure Management
Wards: Ward 20, Trinity-Spadina

SUMMARY

Transportation Services has undertaken an operational review of the intersection of Richmond Street West and Simcoe Street. The results of the review indicated that the installation of traffic control signals are technically warranted. However, due to the close proximity of adjacent traffic control signals, Transportation Services did not initially recommend the installation.

This report provides additional information on the above considered traffic control signals with respect to pedestrian and cyclist safety and mobility and includes a revised recommendation based on additional information and further consideration on feasibility.

As the Toronto Transit Commission (TTC) operates a transit service on Richmond Street West, City Council approval of this report is required.

RECOMMENDATIONS

The Acting Director, Transportation Services, Toronto and East York District, and the Acting Director, Transportation Infrastructure Management recommend that:

1. City Council approve the installation of traffic control signals at the intersection of Richmond Street West and Simcoe Street.

FINANCIAL IMPACT

The estimated cost of installing traffic control signals at the intersection of Richmond Street West and Simcoe Street is \$200,000.00.

DECISION HISTORY

At its meeting of June 10, 11, 12 and 13, 2014, City Council adopted a staff report PW31.7, "Richmond – Adelaide Cycle Track Planning and Design Study – Pilot Project", authorizing the installation of a separated bicycle lanes (cycle tracks) pilot project as part of the Municipal Class Environmental Assessment Study being undertaken. The limits of the pilot project included the following: westbound cycle track on Richmond Street, from York Street to Bathurst Street; eastbound cycle track on Adelaide Street, from Bathurst Street to Simcoe Street; and northbound and southbound cycle tracks on Simcoe Street, from Queen Street to Front Street.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2014.PW31.7>

At its meeting of July 7, 8 and 9, 2015, City Council adopted a staff report PW6.12, "Pilot Project - Extending the Richmond Street and Adelaide Street Cycle Tracks to Parliament Street" and approved extending the westbound cycle track on Richmond Street, from York Street to Parliament Street and extending the eastbound cycle track on Adelaide Street from Simcoe Street to Parliament Street.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2015.PW6.12>

At its meeting of April 26, 27 and 28, 2017, City Council referred Item TE23.92 back to the Toronto and East York Community Council for further consideration at its May 2, 2017 meeting in order to permit the General Manager, Transportation Services to submit a revised report on the feasibility and installation timelines for a traffic light installation at Richmond Street West and Simcoe Street.

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2017.TE23.92>

COMMENTS

Transportation Services is undertaking the Richmond-Adelaide Bikeway Municipal Class Environmental Assessment (EA) Study to evaluate the feasibility of cycle tracks in the Richmond-Adelaide corridor, between Bathurst Street and Parliament Street. The study is also evaluating the feasibility of cycle tracks on Simcoe Street.

A cycle track was installed on Richmond Street from Bathurst Street to York Street in summer 2014 and it was extended to Parliament Street in summer 2015. A cycle track was installed on Simcoe Street between Queen Street and Front Street in summer 2014 and was extended to Lake Shore Boulevard in fall 2016.

Richmond Street is a major arterial roadway that operates one-way in the westbound direction on a pavement width of about 14 metres. It has a posted speed limit of 40 km/h and a daily motor vehicle traffic volume of about 15,550 vehicles and a daily volume of approximately 2000 cyclists.

Simcoe Street is a collector roadway that operates one-way for motor vehicles in the southbound direction with a contra-flow cycle track in the northbound direction. It has a regulatory speed limit of 50 km/h and a daily motor vehicle traffic volume of about 2,700 vehicles and daily volume of approximately 1,800 cyclists.

Simcoe Street is stop controlled at Richmond Street West. Adjacent traffic control signals are located about 155 metres to the west at Duncan Street and about 42 metres to the east at University Avenue. The land use in this area is predominantly commercial and residential. TTC service on Richmond Street West is provided by the '145 Downtown / Humber Bay Express' bus.

Cyclist and pedestrian safety and mobility at the intersection of Richmond Street West and Simcoe Street has been identified as an issue as part of the Richmond-Adelaide Bikeway EA Study due to the fact that cyclists have to wait for gaps in motor vehicle traffic in order to cross Richmond Street at an unprotected crossing.

Transportation Services was requested by Councillor Cressy to report on the feasibility of installing traffic control signals at the intersection of Richmond Street West and Simcoe Street to address safety concerns for crossing pedestrians and cyclists.

Collision Review and the Vision Zero Road Safety Plan

Collision statistics provided by Toronto Police Service for the three-year period ending December 31, 2016 disclosed that twenty-one collisions had occurred at the intersection of Richmond Street West and Simcoe Street. Of these twenty-one collisions, five were potentially preventable by the installation of traffic control signals, two involved cyclists and one involved a pedestrian.

There are significant volumes of pedestrians and cyclists crossing at this intersection. The current configuration of this intersection results in both safety concerns and delay to pedestrians and cyclists waiting to cross at this unprotected crossing.

The Vision Zero Road Safety Plan approved by Council on July 12, 2016 is an action plan focused on reducing traffic-related fatalities and serious injuries on Toronto's streets. The plan identifies measures to improve safety for pedestrians and cyclists as vulnerable road users including the addition of intersection improvements such as signalized crossings.

Analysis

Technical Warrant

On August 18, 2015 traffic studies were undertaken at the intersection of Richmond Street West and Simcoe Street during the busiest eight-hour period of a typical weekday. Based on the eight-hour vehicular and pedestrian traffic counts conducted at this intersection, and the collision history, the technical justifications for the installation of traffic control signals are satisfied to the following extent:

Justification 1:	Minimum Vehicular Volume	98 percent
Justification 2:	Delay to Cross Traffic	93 percent
Justification 3:	Collision Hazard	33 percent

To meet the technical requirements for the installation of traffic control signals, one of the Minimum Vehicular Volume or Delay to Cross Traffic justifications must be 100 percent satisfied, or any two of the three justifications must be at least 80 percent

satisfied. Based on the above results, the installation of traffic controls signals is justified.

Pedestrian Gap Study

On February 15, 2017, a one-hour gap study was undertaken at the intersection of Richmond Street West and Simcoe Street during the a.m., p.m. and off peak periods. A gap study quantifies the number of gaps (in seconds) that exist between vehicles in the major traffic flow at a specific reference point. The data is then used to determine the number of safe opportunities the gaps provide for pedestrians, vehicles and cyclists to cross during a defined time period.

Based on a 14 metre crossing distance of Richmond Street West at Simcoe Street, and a 1.0 m/s walking speed, at least 21 seconds of pedestrian walking time would be required for a safe crossing.

Sight lines are excellent at this intersection, and pedestrians and cyclists are required to focus on the following traffic movements:

- westbound traffic on Richmond Street West
- southbound motor vehicle traffic on Simcoe Street
- northbound cyclist traffic on Simcoe Street

The gap study showed that during all three time periods, a range between 19-28 gaps in traffic was recorded that were 21 seconds or longer. This equates to pedestrians having to wait 2-3 minutes to cross. As noted above, the Technical Justification for Delay to Cross Traffic was 93 percent met.

Potential Network Impacts

The block length on Richmond Street West between University Avenue and Simcoe Street is 42 metres long. The installation of a new traffic control signal at Richmond Street West and Simcoe Street could result in impacts to the surrounding road network through the generation of a queue that would likely extend to the intersection of Richmond Street West and University Avenue.

On September 15, 2016, traffic studies were undertaken at the intersection of Richmond Street West and University Avenue during the busiest eight-hour period of a typical weekday. Southbound right-turns and northbound left-turns are the critical movements that will generate a significant traffic volume on Richmond Street West, between Simcoe Street and University Avenue when westbound traffic is stopped.

According to the study, the following traffic volumes were recorded within this block:

- 300 vehicles during the am peak hour (8:15 a.m. to 9:15 a.m.)
- 430 vehicles during the pm peak hour (4:00 p.m. to 5:00 p.m.)
- 365 vehicles during the off-peak hour average

Based on the lack of storage space available on Richmond Street West, between University Avenue and Simcoe Street, and the traffic volumes anticipated within this block, Transportation Services notes that the installation of traffic control signals at the intersection of Richmond Street West and Simcoe Street could result in traffic spill-over, congestion, and delays. While this was the main rationale behind the staff

recommendation on this issue considered at the April 2017 TEYCC meeting, it is anticipated that these impacts could be mitigated through signal timing coordination with the adjacent traffic control signals and future consideration of the need for turn restrictions at University Avenue and Richmond Street West.

Transportation Services has concerns regarding the potential traffic impacts at the intersection of Queen Street West and Simcoe Street. Simcoe Street may become a desirable route should traffic control signals be implemented at Richmond Street West. The block length on Queen Street West, between University Avenue and Simcoe Street is also only 42 metres long. Westbound left turns at this intersection may increase, resulting in congestion and delays experienced by westbound motorists and TTC streetcars on Queen Street West. In this regard, further monitoring may need to be conducted at Queen Street West and Simcoe Street, to assess if there would be a need to prohibit westbound left-turns during certain times of the day.

Stakeholder Feedback

As part of the consultation process for the Richmond-Adelaide Bikeway EA Study, many comments received from the public have included a request that traffic control signals or a crosswalk be installed at the intersection of Richmond Street West and Simcoe Street. Synchronizing the signals with University Avenue has also been suggested.

When item TE23.92 was considered by City Council, forty (40) communications were submitted to City Council on the item. These communications included letters from the Entertainment District Business Improvement Area and the Entertainment District Residents Association in support of a traffic control signal at the Richmond Street West and Simcoe Street intersection.

Comments on the proposed installation of traffic control signals at this intersection have been requested from the TTC but have not been received.

Installation Timelines

Transportation Services estimates that the timeline for the installation of these traffic control signals is approximately 12 months.

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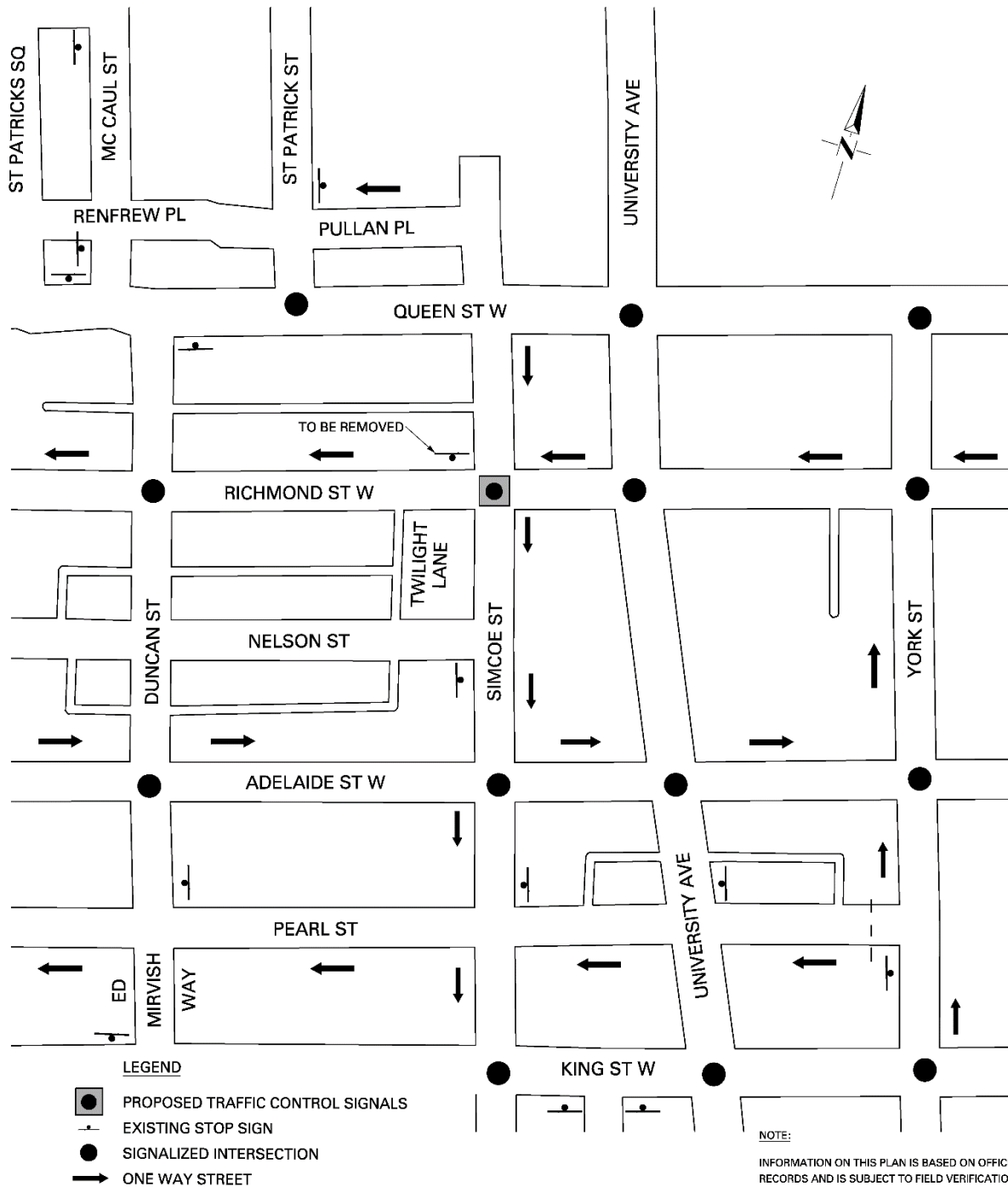
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ATTACHMENTS

1. Drawing No. 421G-2406, dated February 2017



RICHMOND ST W AND SIMCOE ST PROPOSED TRAFFIC CONTROL SIGNALS

O.P.

DWG. NO. 421G-2406

FEBRUARY, 2017

TRANSPORTATION SERVICES

TORONTO & EAST YORK DISTRICT