



**STAFF REPORT
ACTION REQUIRED**

Traffic Control Signals – Queen Street West and Abell Street

Date:	April 7, 2016
To:	Toronto and East York Community Council
From:	Director, Transportation Services, Toronto and East York District
Wards:	Davenport, Ward 18
Reference Number:	Ts2016098te.top.doc

SUMMARY

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

Transportation Services is requesting approval to install traffic control signals at the intersection of Queen Street West and Abell Street. This installation will provide crossing protection for pedestrians in this section of Queen Street West and will result in the loss of about nine pay and display parking spaces. Due the lack of a sidewalk and the proximity of a driveway, pedestrian crossings will be prohibited on the east intersection leg.

RECOMMENDATIONS

Transportation Services, Toronto and East York District recommends that:

1. City Council authorize the installation of traffic control signals at the intersection of Queen Street West and Abell Street.
2. City Council prohibit pedestrian crossings on Queen Street West, between the east curb line of Abell Street and a point 30.5 metres further east.

Financial Impact

The estimated cost of installing traffic control signals at the intersection of Queen Street West and Abell Street is \$150,000.00. This installation would be subject to the availability of funding and competing priorities.

ISSUE BACKGROUND

Transportation Services, Toronto and East York District, was requested by Councillor Ana Bailão to review the feasibility of installing a traffic control device on Queen Street West, between Gladstone Avenue/Sudbury Street and Dovercourt Road, to address safety concerns for pedestrians and motorists crossing within this section of Queen Street West.

COMMENTS

Existing Conditions

Queen Street West is a four lane, east-west major arterial road with a daily two-way traffic volume of about 22,000 vehicles and a regulatory speed limit of 50 km/h. TTC service on Queen Street West is provided by the '501 Queen' streetcar, which operates on a shared right-of-way with general traffic. There are east-west transit stops on Queen Street West, located between Beaconsfield Avenue and Abell Street. The existing land use in this section of Queen Street West is generally mixed-use. Mid-block pedestrian generators include the noted TTC stops, restaurants, municipal parking and convenience stores.

Queen Street West, between Northcote Avenue and Lisgar Street, is about 360 metres in length and intersects with the following local streets (west to east):

- Northcote Avenue;
- Beaconsfield Avenue;
- Abell Street; and
- Lisgar Street.

Traffic control signals on this section of Queen Street West are located about 85 metres to the west of Northcote Avenue, at Gladstone Avenue/Sudbury Street, and about 95 metres to the east of Lisgar Street, at Dovercourt Road.

Currently, pay and display parking is in effect on the north and south sides of Queen Street West, outside the afternoon and morning peak periods, respectively. Additionally, a taxicab stand is located on the north side of the road, immediately west of Beaconsfield Avenue.

Northcote Avenue intersects the north side of Queen Street West in a Stop controlled, 'T'-type intersection. It is a local road with a pavement width of about 7.3 metres. Northcote Avenue operates one-way in the southbound direction with a daily one-way traffic volume of about 600 vehicles and a regulatory speed limit of 50 km/h.

Beaconsfield Avenue intersects the north side of Queen Street West in a 'T'-type intersection. It operates one-way in the northbound direction with a daily one-way traffic volume of about 700 vehicles. It has a pavement width of about 7.3 metres and a regulatory speed limit of 50 km/h. Heavy trucks are prohibited on Beaconsfield Avenue. Eastbound left turns are prohibited from Queen Street West to Beaconsfield Avenue, between the hours of 7:00 a.m. and 10:00 a.m., Monday to Friday.

Abell Street intersects the south side of Queen Street West in a Stop controlled, 'T'-type intersection. It was recently by-lawed to operate one-way in southbound direction (Item TE14.61). It has a regulatory speed limit of 30 km/h and a pavement width of about 10 metres. A sidewalk is only provided on the west side of Abell Street. Westbound left-turns are prohibited from Queen Street West to Abell Street, between the hours of 3:30 p.m. and 6:30 p.m., Monday to Friday.

Lisgar Street is a local road that operates one-way southbound, north of Queen Street West. It was recently by-lawed to operate one-way in the northbound direction, south of Queen Street West (Item TE14.61). It is Stop controlled at the intersection with Queen Street West. It has a pavement width of about 9.8 metres, a regulatory speed limit of 50 km/h and a daily traffic volume of about 500 vehicles.

Comprehensive traffic studies were undertaken on Queen Street West, between Northcote Avenue and Lisgar Street, in May 2015. Based on those studies, the following results were obtained for the installation of traffic control signals.

Traffic Control Signals

Based on the eight hour vehicular and pedestrian traffic counts on Queen Street West, between Northcote Avenue and Lisgar Street, and the collision history, the technical justifications for the installation of traffic control signals are satisfied to the following extent:

Justification	Northcote Avenue	Beaconsfield Avenue	Abell Street	Lisgar Street
1. Minimum Vehicular Volume	13%	1%	4%	37%
2. Delay to Cross Traffic	58%	53%	41%	100%
3. Collision Hazard	40%	40%	53%	40%

To meet the technical requirements for the installation of traffic control signals, one of the "Minimum Vehicle 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 control signals are justified at the intersection of Queen Street West and Lisgar Street.

It should be noted that the traffic counts at the intersection of Queen Street West and Lisgar Street reflected a two-way operation on the south intersection leg. As noted, this street has subsequently been converted to operate one-way in the northbound direction. Additionally, the counts were undertaken when Abell Street was a two-way, dead-end street, south of Queen Street West. This road has subsequently been opened for through traffic to Sudbury Street and has now been converted to operate one-way in the southbound direction.

Collision Review:

The Collision Hazard justification is based on the number of collisions potentially preventable by the installation of traffic control signals. Collision statistics provided by Toronto Police Service for the three-year period ending December 1, 2015 disclosed that 36 collisions have occurred on Queen Street West, between Northcote Avenue and Lisgar Street. These 36 collisions are summarized by location as follows:

- Queen Street West and Northcote Avenue – six collisions;
- Queen Street West and Beaconsfield Avenue – ten collisions;
- Queen Street West and Abell Street – seven collisions; and
- Queen Street West and Lisgar Street – thirteen collisions.

Of these 36 collisions, two involved a pedestrian, two involved a cyclist and five collisions were considered to be potentially preventable by the installation of traffic control signals.

Pedestrian Crossover (PXO)

A pedestrian crossover (PXO) would not be appropriate on Queen Street West as PXO's are no longer installed on major arterial roadways. However, traffic control signals may be considered at locations where pedestrian crossovers are technically justified, but their installation would be unsuitable or unsafe due to provincially established "environmental standards".

Pedestrian delay and classification studies were also undertaken in May 2015 during the busiest eight-hour period of a typical weekday at six different locations at Queen Street West. The counts recorded the number of pedestrians crossing Queen Street West, as well as the number of these that experienced delays more than ten seconds in crossing. The results, including the pedestrian volume and pedestrian delay justifications, have been summarized in the table on the following page:

Pedestrian Volumes and Justification	Northcote Avenue	Between Northcote Avenue and Beaconsfield Avenue	Beaconsfield Avenue	Abell Street	Between Abell Street and Lisgar Street	Lisgar Street
Total pedestrian volume	330	246	321	313	122	288
Pedestrians delayed more than ten seconds	204	27	242	204	13	207
Pedestrian Volume Justification	Met	Met	Met	Met	Not Met	Met
Pedestrian Delay Justification	Met	Not Met	Met	Met	Not Met	Met

To meet the technical requirements for the installation of PXO, both technical justifications of pedestrian volume and pedestrian delay must be satisfied. Based on the pedestrian volumes and delays, the installation of a PXO is technically justified at all four intersections on Queen Street West. However, as the PXO installation would be unsuitable on a major arterial road, then traffic control signals should be considered.

Potential Locations of Traffic Control Signals:

Traffic control signals are technically justified at the intersection of Queen Street West and Lisgar Street. As indicated, the adjacent traffic control signals to this intersection are about 95 metres to the east at Dovercourt Road. The substandard spacing would make the installation of traffic control signals potentially unsuitable at the intersection of Queen Street West and Lisgar Street. Additionally, the one-way conversion of the south leg of Lisgar Street will likely have significantly reduced the side-street traffic demand at this intersection.

Based on the pedestrian counts, high activity was observed within the entire study area along Queen Street West, between Northcote Avenue and Lisgar Street. As noted, the installation of PXO's are technically justified at four intersections within this section of Queen Street West. Therefore, Transportation Services supports the installation of traffic control signals in this section of Queen Street West.

The optimal location of traffic control signals would be located at about the mid-point between the existing traffic control signals on the section of Queen Street West.

Accordingly, traffic control signals on Queen Street West at Abell Street will provide a consolidated crossing location for all pedestrians, enhance safety and attract north-south pedestrians that cross Queen Street West, between the signalized intersections at Gladstone Avenue/Sudbury Street and Dovercourt Road.

A sidewalk is not provided on the east side of Abell Street, south of Queen Street West. Further, a driveway is located on the south side of Queen Street West, a short distance east of Abell Street. Therefore, the south-east corner of this intersection will not provide sufficient space to accommodate pedestrians waiting to cross the road from the south side of Queen Street West. Accordingly, it is also recommended that pedestrian crossings be prohibited on east side of the intersection, in conjunction with the installation of the traffic control signals. The pedestrian crossing prohibition will encompass the section of Queen Street West, between Abell Street and a point 30.5 metres further east.

There are east-west mid-block TTC stops and shelters located on Queen Street West, between Abell Street and Beaconsfield Avenue. The installation of traffic control signals at the intersection of Queen Street West and Abell Street will require the relocation of existing TTC stops and shelters on Queen Street West to the near sides of Abell Street.

Comments were requested from the TTC to determine if the installation of traffic control signals at Queen Street West and Abell Street would affect the operations of the '501 Queen' streetcar. The TTC have advised they do not support this installation, based on the substandard spacing to adjacent traffic controls signals on Queen Street West. They have indicated that this installation will result in higher delays for traffic and transit, which will negatively affect the efficiency of TTC service on Queen Street West.

Summary

Notwithstanding the TTC's comments, Transportation Services recommend traffic control signals at the intersection of Queen Street West and Abell Street. This installation is technically justified and will provide a safer crossing environment for pedestrians. However, the installation of traffic control signals at this intersection would result in the following potential negative impacts:

- Loss of about five and four pay and display parking spaces on the north side and south sides of Queen Street West, respectively;

- Potential increase in delays to pedestrians, who will be required to wait for a "Walk" signal, rather than crossing with gaps in traffic;
- Increased delays to transit service, which would be partially mitigated by the introduction of transit priority;
- Removal of two trees on the north side of Queen Street West; and
- Possible relocation of a garbage bin and planters.

Councillor Ana Bailão has been advised of the recommendation of this staff report.

CONTACT

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SIGNATURE

Kyp Perikleous
Director, Transportation Services
Toronto and East York District

LIST OF ATTACHMENTS

1. Drawing No. 421G-2105, dated April 2016

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