

Traffic Control Signals - Steeles Avenue East and Waggoners Wells Lane (City of Markham)

Date: March 9, 2020

To: North York Community Council

From: Acting Director, Transportation Services, Traffic Management

Wards: Ward 17 - Don Valley North

SUMMARY

As the Toronto Transit Commission (TTC) operates bus service on Steeles Avenue East, City Council approval of this report is required.

Transportation Services is requesting City Council authorize the installation of traffic control signals at the intersection of Steeles Avenue East and Waggoners Wells Lane. The installation of traffic control signals is justified based on pedestrian crossing activity in the vicinity of the intersection; approximately 1,000 metre distance between crossing protection; TTC bus stops at the intersection; five lane cross section; traffic volume on Steeles Avenue East; and installing signals will likely draw pedestrians to cross at the intersection since it will be safer than midblock.

Traffic controls signals will enhance safety for pedestrians crossing at the intersection. This installation will increase delays for motorists on Steeles Avenue East, as east/west traffic will no longer operate with free flow. The existing Pedestrian Refuge Island (PRI) located approximately 100 metres to the west of Waggoners Wells Lane will be removed following the installation of the traffic control signals.

RECOMMENDATIONS

The Acting Director, Transportation Services, Traffic Management recommends that:

1. City Council approve the installation of traffic control signals at the intersection of Steeles Avenue East and Waggoners Wells Lane.
2. City Council authorize removal of the pedestrian refuge island on Steeles Avenue East at a point approximately 100 metres west of the intersection of Steeles Avenue East and Waggoners Wells Lane, in conjunction with the installation of traffic control signals at Steeles Avenue East and Waggoners Wells Lane, as set out in Recommendation 1 above.

FINANCIAL IMPACT

The estimated cost for installing traffic control signals and removing the PRI at the intersection of Steeles Avenue East and Waggoners Wells Lane is approximately \$200,000. This installation will be considered in 2021, subject to availability of funding and competing priorities.

DECISION HISTORY

This report addresses a new initiative.

COMMENTS

Transportation Services was requested by Councillor Shelley Carroll, on behalf of local residents, to investigate the feasibility of installing traffic control signals at the intersection of Steeles Avenue East and Waggoners Wells Lane.

Existing Conditions

Steeles Avenue West is a major arterial street with two lanes in each direction and a centre left-turn lane. It has a regulatory speed limit of 50 km/h and a daily two-way traffic volume of approximately 37,000 vehicles. There are sidewalks on both sides of the street. Waggoners Wells Lane is a City of Markham street that is stop controlled at its T-type intersection on the north side of Steeles Avenue East. The closest traffic control signals on Steeles Avenue East are approximately 550 metres to the west at Leslie Street and 430 metres to the east at Don Mills Road. There is a pedestrian refuge island on Steeles Avenue East, approximately 100 metres west of Waggoners Wells Lane.

The TTC operates regular bus service on Steeles Avenue East and there are near side eastbound and westbound stops at the intersection with Waggoners Wells Lane. These stops were recently relocated to the intersection from a layby the west near the pedestrian refuge island. This was done to address safety concerns with pedestrians crossing at the stop to the refuge island in front of stopped buses. Also, the laybys are too short for articulated TTC buses.

Pedestrian Crossover (PXO)

Transportation Services reviewed Steeles Avenue East in the vicinity of Waggoners Wells Lane for the installation of a pedestrian crossover. Given the traffic volume on Steeles Avenue East and five lane cross section of the road, a pedestrian crossover would not be appropriate. However, traffic control signals may be considered at a location where a pedestrian crossover is technically justified, yet their installation would be unsuitable or unsafe due to the roadway characteristics. A study of pedestrian crossing activity in the vicinity of the intersection was undertaken during the busiest eight-hour period on October 8, 2019 and the results were applied to the PXO warrant criteria. The results are summarized in the table below:

Table 1: Pedestrian Crossover Warrants and Compliance (October 8, 2019)

Total Pedestrian Volume	Pedestrians Delayed >10 seconds	Warrant Compliance		PXO Warrant?
		Pedestrian Volume	Pedestrian Delay	
84	60	Not met	Not met	No

For a pedestrian crossover to be numerically warranted, both the “Pedestrian Volume” and “Pedestrian Delays” warrants must be satisfied. Specifically, for a street with this volume, the warrants require a minimum of 200 pedestrians over eight hours, of which at least 130 must be delayed more than ten seconds. As outlined in the above table, neither warrant has been satisfied at this mid-block location.

Traffic Control Signals

Transportation Services staff also reviewed the warrants for the installation of traffic control signals at the intersection. The results of a traffic study undertaken during the busiest period of a typical weekday on May 9, 2019 were applied to the warrant criteria. The results are summarized as follows:

Table 2: Traffic Control Signal Warrants and Compliance (May 9, 2019)

Warrant Compliance			TCS Warrant?
Minimum Vehicular Volume	Delay to Cross Traffic	Collision Hazard	
51 percent	50 percent	0 percent	No

To meet the numerical warrants for the installation of traffic control signals, either one of the “Minimum Vehicular Volume” or “Delay to Cross Traffic” warrants must be 100 per cent satisfied or both must be at least 80 per cent satisfied.

The “Collision Hazard” warrant is based on the number of collisions potentially preventable by the installation of traffic control signals and must be 100 percent satisfied. Collision statistics provided by the Toronto Police Service for the three-year period ending December 31, 2019 did not disclose any collisions at the intersection that involved a pedestrian or were potentially preventable by the installation of traffic control signals.

To satisfy the technical warrants for traffic control signals, one of either the Minimum Vehicular Volume or Delay to Cross Traffic warrants must be 100 percent satisfied, or both must be satisfied to the extent of 80 percent. Based on the above results, the installation of traffic control signals is not technically warranted at the intersection of Steeles Avenue East and Waggoners Wells Lane.

Notwithstanding the above, Transportation Services further considered the installation of traffic signals at the intersection for the following reasons:

- Pedestrian crossing activity at the intersection;
- Approximately 1,000 metre distance between protected pedestrian crossings (traffic control signals) on Steeles Avenue East;
- Eastbound and westbound near-side transit stop at the intersection;
- Five lane cross-section and traffic volume on Steeles Avenue East; and
- Installation of traffic control signals would likely draw pedestrians to the intersection since it would be a safer location to cross than mid-block.

Based on the above, Transportation Services supports the installation of traffic control signals at the intersection of Steeles Avenue East and Waggoners Wells Lane. This location is ideally located between the existing traffic control signals and is the location where pedestrians are crossing to TTC bus stops. In addition, to discourage pedestrians from crossing mid-block and encourage use of the traffic control signals, the existing PRI will be removed after the signals are installed.

Since Steeles Avenue East is a boundary with the City of Markham, we requested comments from City of Markham, Traffic Operations staff. They have expressed their support for the recommended traffic control signals.

The TTC was also consulted and supports the recommended traffic control signals.

The Ward Councillor has been advised of the recommendation of this report.

CONTACT

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SIGNATURE

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ATTACHMENTS

Attachment 1: Map - Steeles Avenue East and Waggoners Wells Lane - Traffic Control Signal

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