

Traffic Control Signals and Road Alteration - Willowdale Avenue

Date: October 18, 2017

To: North York Community Council

From: Acting Director, Transportation Services Division, North York District

Wards: Ward 23 - Willowdale

SUMMARY

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

Transportation Services is requesting approval to install traffic control signals at the intersection of Willowdale Avenue and Spring Garden Avenue. The installation is recommended, based on the pedestrian and motorist crossing activity in the vicinity, the significant planned development in the area and the long spacing to adjacent pedestrian crossing protection. Traffic control signals will enhance safety for pedestrians and motorists but may increase delays for north-south motorists and impact traffic patterns on side-streets.

Additionally, approval is requested to implement roadway alterations at the intersection of Willowdale Avenue and Elmwood Avenue. The roadway alterations will narrow the road width at the existing pedestrian crossover (PXO), reducing the crossing distance for pedestrians and potentially reducing vehicle speeds through the intersection.

Transportation Services does not support the removal of the PXO at the intersection of Willowdale Avenue and Elmwood Avenue, coincident with the installation of traffic control signals at Spring Garden Avenue. The combined vehicle and pedestrian volumes crossing Willowdale Avenue at Elmwood Avenue do not satisfy the technical justifications for traffic control signals and studies indicate the existing PXO is operating satisfactorily.

RECOMMENDATIONS

The Acting Director, Transportation Services, North York District recommends that:

1. City Council approve the installation of traffic control signals at the intersection of Willowdale Avenue and Spring Garden Avenue.

2. City Council approve the alteration of the intersection of Willowdale Avenue and Elmwood Avenue, including the installation of modular islands, generally as shown on Drawing No. NYRD17-0040 dated October 2017, attached to the report entitled "Traffic Control Signals and Road Alteration - Willowdale Avenue", from the Acting Director, Transportation Services, North York District.

3. City Council deny the removal of the pedestrian crossover coincident with the installation of traffic control signals at the intersection of Willowdale Avenue and Elmwood Avenue.

FINANCIAL IMPACT

The estimated cost for installing traffic control signals at Willowdale Avenue and Spring Garden Avenue is approximately \$180,000.00. Installation is subject to the availability of funding and competing priorities.

The estimated cost for the installation of modular islands and pavement markings included in the road alteration at the intersection of Willowdale Avenue and Elmwood Avenue is \$15,000.

If, however, North York Community Council decides to not proceed with the above-noted road alterations and remove the PXO on Willowdale Avenue at Elmwood Avenue and replace it with traffic control signals, the total estimated cost would be approximately \$180,000.00.

DECISION HISTORY

This report addresses a new initiative.

COMMENTS

Transportation Services was requested by Councillor John Fillion, on behalf of local residents, to review the need for enhanced pedestrian crossing protection on Willowdale Avenue, between Sheppard Avenue East and Empress Avenue. This request is to address the long spacing between protected pedestrian crossings on Willowdale Avenue, which creates a barrier in this community, impeding the east-west pedestrian flow. The Councillor also asked Transportation Services to consider the function and character of Willowdale Avenue.

Existing Conditions

Willowdale Avenue is a two-way, north/south minor arterial street. It operates with an 11 metre wide pavement width, a regulatory speed limit of 50 km/h and a daily two-way traffic volume of approximately 15,000 vehicles. The TTC 98 Willowdale-Senlac bus operates on Willowdale Avenue.

On Willowdale Avenue, there are traffic control signals located at Sheppard Avenue East and at Empress Avenue. These two intersections are located approximately 900 metres apart. Between these two intersections, the only pedestrian crossing protection is the pedestrian crossover (PXO) on the south leg of the intersection of Willowdale Avenue and Elmwood Avenue, approximately 300 metres south of Empress Avenue.

Traffic Control Signals

Transportation Services staff reviewed a number of intersections on Willowdale Avenue, between Sheppard Avenue East and Empress Avenue, for the installation of traffic control signals. The intersections on Willowdale Avenue at Maplehurst Avenue, Greenfield Avenue, Hillcrest Avenue and Princess Avenue are deemed too close to adjacent protected pedestrian crossings and were not considered further. Alfred Avenue was also excluded since it does provide a through connection to either Kenneth Avenue or Bayview Avenue.

The remaining intersections on Willowdale Avenue at Elmwood Avenue, Hollywood Avenue and Spring Garden Avenue were reviewed in more detail for traffic control signals. Detailed traffic studies were undertaken during the busiest eight-hour period of a typical weekday in October 2016 (Elmwood Avenue), November 2015 (Hollywood Avenue) and September 2017(Spring Garden Avenue). These studies were used to review the numerical warrants for the installation of traffic control signals at the three intersections. The results are summarized as follows:

Table 1: Warrant Criteria and Compliance

Location	Warrant Compliance			TCS Warrant?
	Minimum Vehicular Volume	Delay to Cross Traffic	Collision Hazard	
Elmwood Avenue	21 percent	43 percent	20 percent	No
Hollywood Avenue	29 percent	35 percent	13 percent	No
Spring Garden Avenue	65 percent	81 percent	13 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 April 30, 2017, were reviewed for collisions that were potentially preventable by the installation of traffic control signals. The review disclosed there were three reported collisions at Elmwood Avenue, two reported collisions at Hollywood Avenue and two reported collisions at Spring Garden Avenue of this type. None of these collisions involved pedestrians.

The above findings indicate the numerical warrants for the installation of traffic control signals are not satisfied at any of the subject intersections at this time.

Notwithstanding, in view of the long spacing between pedestrian crossing protection on Willowdale Avenue, Transportation Services further considered the installation of traffic signals at the intersection with Spring Garden Avenue. Spring Garden Avenue is an 8.5 metre wide local road. It has a regulatory speed limit of 50 km/h and it is stop controlled at Willowdale Avenue. There is a northbound TTC bus stop on the south leg of the intersection.

Spring Garden Avenue was given further consideration for the installation of traffic control signals for the following reasons:

- Spring Garden Avenue has the greatest volume of traffic on the local streets crossing Willowdale Avenue, between Sheppard Avenue East and Empress Avenue. The justifications for traffic control signals at this intersection are the highest in the corridor and the closest to being technically warranted;
- It is located approximately mid-way between the existing traffic control signals at Sheppard Avenue East and the existing pedestrian crossover (PXO) at Elmwood Avenue;
- It is the first street north of Sheppard Avenue East that connects with Bayview Avenue in the east and Kenneth Avenue in the west; and
- The installation of traffic control signals at the intersection of Willowdale Avenue and Spring Garden Avenue would likely draw traffic to the intersection since it would be a safer location for pedestrians and motorists to cross Willowdale Avenue.

In view of the latter point, the traffic crossing Willowdale Avenue at Alfred Avenue and Greenfield Avenue, which are one block north and south of Spring Garden Avenue, respectively, were added to the existing crossing traffic at Spring Garden Avenue. The addition of this traffic results in traffic control signal justifications being satisfied at the intersection of Willowdale Avenue and Spring Garden Avenue.

Furthermore, the following is a summary of development applications received for addresses in the immediate area that will likely result in additional traffic crossing Willowdale Avenue at Spring Garden Avenue:

- 2901 Bayview Avenue (Bayview Village) - 1,132 residential units;
- 2932 Bayview Avenue - 48 residential units;
- 500 Sheppard Avenue East - 220 residential units; and
- 2 Teagarden Court - 115 residential units.

Considering the above, Transportation Services is recommending the installation of traffic control signals at the intersection of Willowdale Avenue and Spring Garden Avenue to enhance safety for pedestrians and motorists under existing and future conditions.

The installation of traffic control signals may result in increased delays for traffic on Willowdale Avenue since north-south traffic will no longer operate free flow. Additionally, traffic volumes on Spring Garden Avenue may increase, as motorists find it easier to enter/cross Willowdale Avenue.

Willowdale Avenue and Elmwood Avenue - PXO Safety Review

As noted, a traffic study was undertaken in October 2016 during the peak eight hours of a typical weekday at Willowdale Avenue and Elmwood Avenue. The studies recorded the number of pedestrians crossing at the PXO and how many used the push-button to activate the flashing amber signals. Also, the number of motorists that failed to yield to pedestrians waiting to cross was recorded.

The study revealed that over eight hours, a total of 129 pedestrians crossed Willowdale Avenue at Elmwood Avenue. These 129 pedestrians consisted of 113 adults, 8 senior citizens, 6 assisted children and 2 unassisted children. Of these, 94 pedestrians used the push-button. When the push-button was used, 22 motorists out of 444 failed to yield to allow the pedestrians to cross. We advise that the flashing amber signals only require motorists to yield to a pedestrian already crossing. This activity has been referred to the Toronto Police Service to undertake enforcement.

As noted, the review of the Toronto Police Service collision records for the three-year period ending April 30, 2017 disclosed that no collisions were reported involving a pedestrian at the PXO.

A review of the physical and operating characteristics of the subject section of Willowdale Avenue, including road width, location of driveways and TTC bus stops, visibility, distance to adjacent traffic controls and vehicle speeds and volume, revealed that the environment is suitable for a PXO.

As part of the safety review, the sight lines for motorists approaching the PXO were also evaluated. It was determined that motorists approaching the PXO have a clear view of pedestrians in the crosswalk. Also, the signs and pavement markings associated with the PXO were reviewed and determined to be in an acceptable condition and the push-buttons and flashing signals were functioning properly.

To enhance safety at the PXO, roadway alterations are recommended, including modular islands and pavement markings. These enhancements will narrow the width of the road as shown on attached Drawing No. NYRD17-0040. The roadway alterations will reduce the crossing distance for pedestrians and may result in reduced vehicle speeds through the intersection.

However, should North York Community Council overturn the recommendation to deny the installation of traffic control signals at the intersection of Willowdale Avenue and Elmwood Avenue, the road alterations would no longer be necessary. The modular islands would not allow for north/south left-turn lanes that would be marked as part of the installation of traffic control signals.

The TTC has been provided with the study results and recommendations and has not yet provided comments.

Willowdale Avenue is included in the Ten Year Cycling Network Plan and scheduled for resurfacing in 2019. As such, Transportation Services intends to install bicycle lanes on Willowdale Avenue when the road is resurfaced. The installation of traffic control signals at the intersection of Willowdale Avenue and Elmwood Avenue is currently not included as part of the installation of bicycle lanes.

The Ward Councillor is aware of the recommendations of this staff report.

CONTACT

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SIGNATURE

Peter K. Hillier
Acting Director

ATTACHMENTS

Attachment 1: Map - Traffic Control Signals and Road Alteration - Willowdale Avenue
Attachment 2: Map - Intersection of Elmwood Avenue and Willowdale Avenue Proposed
Roadway Alterations