

Traffic Control Signals - Dufferin Street at Glengrove Avenue

Date: October 25, 2017

To: North York Community Council

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

Wards: Ward 15 - Eglinton - Lawrence

SUMMARY

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

Transportation Services is requesting approval to install traffic control signals at the intersection of Dufferin Street and Glengrove Avenue. The installation is recommended based on the pedestrian crossing activity in the vicinity 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.

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 Dufferin Street and Glengrove Avenue.

FINANCIAL IMPACT

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

DECISION HISTORY

North York Community Council, at its meeting on September 6, 2017, adopted Item NY24.49 which directed Transportation Services staff to undertake analysis and make recommendations regarding pedestrian crossing protection at the intersection of Dufferin Street and Glengrove Avenue, and to report back on the findings. The Council decision can be found at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2017.NY24.49>

COMMENTS

Transportation Services was requested by Councillor Josh Colle, on behalf of local residents and the Marketo BIA (formerly Dufferin-Wingold BIA), to review the need for pedestrian crossing protection on Dufferin Street at Glengrove Avenue. This request is to address the long distance between protected pedestrian crossings on Dufferin Street, and enhance safety for pedestrians accessing the numerous generators in the area, including a park and a community centre.

Existing Conditions

At the current time, Dufferin Street in this area forms an imposing barrier to and influence on the community straddling each side of the road. The character of the street is dominated by through traffic on the road, and the local community is seeking to enhance connectivity between businesses, residences and recreational facilities for pedestrians and transit users. Pedestrian generators in the immediate area include a large grocery store, numerous store fronts, schools, seniors' homes, and a park that includes a community centre, an ice rink, an outdoor pool and a playground.

Dufferin Street is a two-way, north-south major arterial street. It provides two lanes in each direction, as well as exclusive left-turn lanes at signalized intersections. It has a pavement width of 15 metres, a regulatory speed limit of 50 km/h and a daily two-way traffic volume of approximately 35,000 vehicles. TTC service on Dufferin Street is provided by the 29 Dufferin and 329 Dufferin (Blue Night) buses.

In the study area on Dufferin Street, there are traffic control signals located at Playfair Avenue/Wenderly Drive and at Glencairn Avenue. These two intersections are located approximately 400 metres apart. Between these two intersections, there is no other pedestrian crossing protection provided on Dufferin Street, which includes a number of community, business and residential pedestrian generators. The intersecting streets within this section of Dufferin Street are listed as follows (north to south):

- Glen Long Avenue and Glenbrook Avenue: These local streets intersect the west and east sides of Dufferin Street, respectively, approximately 70 metres south of Playfair Avenue/Wenderly Drive. The side streets intersect in a near-right offset intersection and are separated by 15 metres. Both streets are stop controlled at Dufferin Street.
- Glengrove Avenue: This local street intersects the west side of Dufferin Street in a 'T' type intersection, approximately 65 metres south of Glenbrook Avenue. It is stop controlled at Dufferin Street and terminates approximately 90 metres west of Dufferin Street, where pedestrian access continues to Glen Long Park. There are near-side transit stops on Dufferin Street at Glengrove Avenue. The southbound transit stop is located in an exclusive right-turn lane and the northbound transit stop is located in a lay-by on the east side of Dufferin Street.
- Glen Park Avenue: This local street intersects Dufferin Street approximately 80 metres south of Glengrove Avenue and approximately 85 metres north of Glencairn Avenue. The side streets intersect in a near-right offset intersection and are separated by 15 metres. Both side streets are stop controlled at Dufferin Street.

Pedestrian Crossover Warrant Study

Transportation Services reviewed the three intersections on Dufferin Street, between Playfair Avenue/Wenderly Drive and Glencairn Avenue, for the installation of a pedestrian crossover. Pedestrian crossovers are no longer installed on arterial roads in the City of Toronto. 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”. Detailed pedestrian studies were undertaken during the busiest eight-hour period of a typical weekday at all three intersections in September 2017. The results are summarized as follows:

Table 1: Pedestrian Crossover Warrants and Compliance

| Location | Total Pedestrian Volume | Pedestrians delayed > 10 seconds | Warrant Compliance | | PXO Warrant? |
|---------------------------------------|-------------------------|----------------------------------|--------------------|-------------------|--------------|
| | | | Pedestrian Volume | Pedestrian Delays | |
| Glen Long Avenue/ Glenbrook Avenue | 25 | 25 | Not Met | Not Met | No |
| Glengrove Avenue | 28 | 14 | Not Met | Not Met | No |
| Glen Park Avenue | 25 | 25 | 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, 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 any of the three intersections. Furthermore, a review of the design standards, or “environmental standards” for pedestrian crossovers, which prescribe a roadway environment and exposure factors suitable for this type of control, revealed that a PXO would not be a suitable form of pedestrian crossing protection at any of these locations.

Traffic Control Signals

Transportation Services staff also reviewed the three intersections on Dufferin Street, between Playfair Avenue/Wenderly Drive and Glencairn Avenue, for the installation of traffic control signals. The studies were undertaken during the busiest period of a typical weekday in February 2017 (Glengrove Avenue) and in September 2017 (Glen Long Avenue/Glenbrook Avenue and Glencairn Avenue).

As previously noted, the intersections of Glen Long Avenue/Glenbrook Avenue and Glencairn Avenue are offset at Dufferin Street, and could potentially be considered as

two separate 'T' type intersections. However, for the purposes of Transportation Services review, these side-streets were considered to form a single, four leg intersection to ensure that east-west through traffic undertaking the 'jog' movement at Dufferin Street are properly recorded.

The traffic 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 2: Traffic Control Signal Warrants and Compliance

| Location | Warrant Compliance | | | TCS Warrant? |
|---------------------------------------|--------------------------|------------------------|------------------|--------------|
| | Minimum Vehicular Volume | Delay to Cross Traffic | Collision Hazard | |
| Glen Long Avenue/ Glenbrook Avenue | 36 percent | 37 percent | 27 percent | No |
| Glengrove Avenue | 4 percent | 18 percent | 0 percent | No |
| Glen Park Avenue | 54 percent | 52 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 June 30, 2017, were reviewed for collisions that were potentially preventable by the installation of traffic control signals. The review disclosed there were four reported collisions of this type at the intersection of Dufferin Street and Glen Long Avenue/Glenbrook Avenue, and none at the other two intersections.

The four collisions at Glen Long Avenue/Glenbrook Avenue that were considered to be potentially preventable by the installation of traffic control signals are described in more detail as follows:

- Two collisions occurred between a westbound left-turning motorist from Glenbrook Avenue and an northbound motorist on Dufferin Street;
- One collision occurred between a westbound left-turning motorist from Glenbrook Avenue and a southbound motorist on Dufferin Street; and
- One collision occurred between an eastbound left-turning motorist from Glen Long Avenue and a southbound motorist on Dufferin Street.

Further review did not disclose a pattern as to the time of day the four collisions occurred.

Additionally, the review also disclosed that there was one collision in this section of Dufferin Street involving a pedestrian. In this collision, a southbound motorist on Dufferin Street made a left turn to eastbound Glen Park Avenue and struck a northbound pedestrian who was crossing on the east intersection leg. The pedestrian

sustained minor injuries and the motorist was charged. This collision would not have been prevented by the installation of traffic control signals.

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

Notwithstanding, in view of the long spacing between pedestrian crossing protection on Dufferin Street, and the numerous pedestrian generators in the area, Transportation Services further considered the installation of traffic signals at the intersection with Glengrove Avenue for the following reasons:

- There are near-side transit stops in both directions on Dufferin Street at Glengrove Avenue that attract pedestrians to cross this section of Dufferin Street;
- There are generators in the immediate area, including schools and seniors' homes, that will also attract vulnerable pedestrian types to cross Dufferin Street;
- Glengrove Avenue provides direct access to Glen Long Park. This park includes a community centre, an ice rink, an outdoor pool and a playground. This community centre offers a wide range of programs and summer camps;
- Glengrove Avenue is located approximately mid-way between the existing traffic control signals at Playfair Avenue/Wenderly Drive and at Glencairn Avenue;
- The installation of traffic control signals at the intersection of Dufferin Street and Glengrove Avenue would likely draw pedestrians to the intersection since it would be a safer location to cross Dufferin Street to access destinations on both sides of the street; and
- Glengrove Avenue does not provide through access for motorists and the proposed installation of a traffic control signal will not exacerbate the adjacent community's concerns with traffic infiltration.

In addition to the benefits of installing traffic control signals at Dufferin Street and Glengrove Avenue, there are also a number of disadvantages associated with the installation of traffic control signals on Dufferin Street at either Glen Long Avenue/Glenbrook Avenue or Glen Park Avenue. These are as follows:

- Both of these intersections are offset at Dufferin Street, which can be problematic when traffic control signals are installed. If only one of the side-streets were to be included in the potential traffic control signal as a 'T' type intersection, the mitigating strategies would include the introduction of turn restrictions or designating one of the side-streets to operate with one-way traffic. If both the side-streets were included as a fully signalized, offset intersection, the mitigating strategies would include the introduction of a three-phase signal operation, which would separate the side-street movements but increase delays to the main street traffic;
- There are a number of private driveways on Dufferin Street in close proximity to both these intersections. It would be necessary to adjust or remove the east-west pedestrian crossings over Dufferin Street as a result of these driveways and consideration would also need to be given to the inclusion of these driveways into the potential traffic control signals;
- The distance between both these intersections and the existing traffic control signals on Dufferin Street is far less than the recommended minimum spacing between adjacent traffic control devices; and

- Traffic control signals at either intersection would not focus and consolidate the pedestrian crossings of Dufferin Street in this area as effectively as the more central traffic control signal at Glengrove Avenue would.

Considering the above, Transportation Services is recommending the installation of traffic control signals at the intersection of Dufferin Street and Glengrove Avenue to enhance safety for pedestrians, which includes many vulnerable types. The installation of traffic control signals may result in increased delays for traffic on Dufferin Street since north-south traffic will no longer operate free flow.

The TTC has been provided with the study results and recommendations and has not yet provided comments. However, in the past the TTC has advocated for pedestrian crossing protection on arterial roads at their bus stops to provide enhanced safety for their patrons.

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

CONTACT

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SIGNATURE

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ATTACHMENTS

Attachment 1: Map - Traffic Control Signals - Dufferin Street