

Traffic Control Signals and Turn Prohibitions - Dufferin Street

Date: June 4, 2021

To: Toronto and East York Community Council

From: Acting Director, Traffic Management, Transportation Services

Wards: Ward 9, Davenport

SUMMARY

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

At its meeting on December 16, 17 and 18, 2020, City Council directed Transportation Services to conduct a review of various safety and operational concerns for cyclists and pedestrians on Dufferin Street (Ward 9 - Davenport). A report to address the majority of these concerns was adopted at the May 19, 2021 meeting of Toronto and East York Community Council. However, that report did not include the requested evaluation of traffic control signals on Dufferin Street, as further reviews were required by Transportation Services.

Based on the further review, Transportation Services is recommending the installation of traffic control signals at the intersection of Dufferin Street and Lindsey Avenue. There will be some negative impacts, including increased congestion and queuing on Dufferin Street, the loss of on-street parking and additional poles in the right-of-way. However, Transportation Services is recommending this installation as it will provide a protected connection to the cycling facilities on both sides of Dufferin Street, helping create a robust network of bikeways in the area. Traffic control signals will encourage people of different ages and abilities to cycle in the area and will also benefit pedestrians crossing in this section of Dufferin Street.

Transportation Services has confirmed that the installation of a Red Light Camera (RLC) is not feasible at the intersection of Dufferin Street and College Street.

RECOMMENDATIONS

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

1. City Council authorize the installation of traffic control signals at the intersection of Dufferin Street and Lindsey Avenue.
2. City Council prohibit northbound and southbound right turns on red at all times at the intersection of Dufferin Street and Lindsey Avenue.

FINANCIAL IMPACT

The estimated cost for installing traffic control signals and the associated turn prohibitions at the intersection of Dufferin Street and Lindsey Avenue is approximately \$200,000.00. Funding would be subject to availability and competing priorities within the Transportation Services 2022 Capital Budget.

DECISION HISTORY

On May 19, 2021, Toronto and East York Community Council adopted Item TE25.21 (Improved Safety for Cyclists and Pedestrians - Dufferin Street), which provided the partial results of Transportation Services' review directed through Item MM27.4 to enhance cyclist and pedestrian safety and operations on Dufferin Street (Ward 9 - Davenport). As noted, this report did not address the traffic control signal component of the directives. The Toronto and East York Community Council decision can be found at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2021.TE25.21>

On December 16, 17 and 18, 2020, City Council adopted Item MM27.4 (Improved Safety for Cyclists and Pedestrians - Dufferin Street) and directed Transportation Services to study measures to enhance cyclist and pedestrian safety and operations on Dufferin Street (Ward 9 - Davenport) and report back on the findings by the second quarter of 2021. The City Council decision can be found at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2020.MM27.4>

On December 2, 2020, Toronto and East York Community Council adopted Item TE21.57 (Traffic Light - Dufferin Street, at Goodwood Avenue and Cloverlawn Avenue) and directed Transportation Services to investigate traffic control signals at this intersection and report back. The Toronto and East York Community Council decision can be found at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2020.TE21.57>

On September 30, 2020, City Council adopted Item TE18.66 (Proposed Installation of Traffic Control Signals - Dufferin Street and Geary Avenue) and approved the installation of traffic control signals at the intersection of Dufferin Street and Geary Avenue. The City Council decision can be found at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2020.TE18.66>

COMMENTS

In response to the direction from City Council's adoption of Item MM27.4, Transportation Services investigated measures to enhance cyclist and pedestrian safety and operations on Dufferin Street (Ward 9 - Davenport).

Transportation Services' first report was adopted at the May 19, 2021 meeting of Toronto and East York Community Council, addressing the majority of the issues raised in the motion. However, that report was not complete, as it did not include the requested evaluation of additional traffic control signals on Dufferin Street. Further review was required by Transportation Services prior to reporting back.

The outstanding direction adopted by City Council in MM27.4 and Transportation Services' assessment and proposed improvements is described in detail as follows:

COUNCIL DIRECTION: *Transportation Services will include coordination and implementation on an expedited basis, including consideration of warrant standards that have been updated under the City's Vision Zero program, the following actions being proposed, that have been reviewed, or that are already approved and are underway:*

- *Traffic control signals at Lindsey Avenue/Sylvan Avenue and Dufferin Street*
- *Traffic control signals at Geary Avenue (expedited installation)*
- *Traffic control signals at Goodwood Avenue and Cloverlawn Avenue*

The details of the traffic control signal assessments are described below:

Dufferin Street and Sylvan Avenue, Lindsey Avenue

Existing Conditions

Dufferin Street, in the vicinity of Sylvan Avenue and Lindsey Avenue, is characterized by the following conditions:

- It is a four-lane, north-south major arterial roadway
- It operates two-way traffic on a pavement width of approximately 12.5 metres
- The daily two-way traffic volume is approximately 20,000 vehicles
- The posted speed limit is 40 km/h
- Heavy trucks are permitted at all times
- There is TTC service provided by the 29 Dufferin and 929 Dufferin Express bus routes

- Sidewalks are present on both sides of the street, adjacent to the curb lanes
- A Community Safety Zone has been designated between Bloor Street West and College Street

Sylvan Avenue is characterized by the following conditions:

- It intersects the east side of Dufferin Street in a stop controlled, 'T' type intersection
- It is located approximately 60 metres south of the traffic control signals at the Dufferin Mall (south access) and 240 metres north of the traffic control signals at College Street
- It is a two-lane, east-west collector roadway
- It operates two-way traffic on a pavement width of approximately 7.3 metres
- The posted speed limit is 30 km/h and traffic calming (speed humps) has been installed
- Heavy trucks are prohibited at all times
- There is no TTC service provided
- Sidewalks are present on both sides of the street, adjacent to the curb lanes

Lindsey Avenue is characterized by the following conditions:

- It intersects both sides of Dufferin Street in a stop controlled, offset intersection
- It is approximately 180 metres south of the traffic control signals at the Dufferin Mall (south access) and 105 metres north of the traffic control signals at College Street
- The east and west legs are offset by approximately 15 metres at Dufferin Street
- It has a pavement width of approximately 7.3 metres
- East of Dufferin Street, it operates with two-way traffic and there are bicycle sharrows which extend east to Havelock Avenue
- West of Dufferin Street, it operates one-way westbound for motorists with westbound bicycle sharrows, as well as an eastbound contra-flow bicycle lane which extends west to Brock Avenue
- The posted speed limit is 30 km/h and traffic calming (speed humps) has been installed
- Heavy trucks are prohibited at all times
- There is no TTC service provided
- Sidewalks are present on both sides of the street, adjacent to the curb lanes

The land use in the area is generally residential. Dufferin Grove Park is located on the east side of the street, immediately north of Sylvan Avenue. The Dufferin Mall is located on the west side of the street.

Historical traffic counts and studies disclosed the numerical warrants for traffic control signals were not met in this section of Dufferin Street. Specifically, traffic studies were undertaken at Dufferin Street and Sylvan Avenue in 2008 and at Dufferin Street and Lindsey Avenue in 2015. The traffic volumes have remained fairly stable in this area, and it is not likely that there have been significant changes to volumes or patterns. Unfortunately, traffic counts and studies in the City of Toronto have generally been on hold since Spring 2020, as the COVID-19 pandemic has resulted in traffic conditions that are not considered to be representative for evaluation. Therefore, it has not been possible to confirm this with updated traffic counts.

Notwithstanding, since the previous assessments were undertaken, Transportation Services has adopted new guidelines through Vision Zero, to further protect vulnerable road users and ensure their mobility. Therefore, it is possible to revisit the potential for traffic control signals at these intersections, looking through the lens of the updated practices and policies that are now in use. As previously noted, traffic control signal reviews may consider other factors beyond the numeric criteria, including the adjacent traffic controls, area land use, multi-modal connections, and other contextual considerations.

Based on Transportation Services' review, Dufferin Street and Sylvan Avenue would be an unsuitable location for traffic control signals. As it is a 'T' intersection, it does not provide network connectivity to the west side of Dufferin Street. Furthermore, the spacing to the traffic control signals at the Dufferin Mall (south access) is very short and could cause operational issues.

An updated review of Toronto Police Service records at Dufferin Street and Sylvan Avenue did not disclose any pedestrian collisions for the three-year period ending December 31, 2020. Tragically, there was a fatal collision involving a cyclist at this intersection in December 2020. Unfortunately, this would not have been a collision that could have been potentially prevented by the installation of traffic control signals.

The intersection of Dufferin Street and Lindsey Avenue would be a more suitable location than Sylvan Avenue for traffic control signals. As noted, Transportation Services staff previously reviewed this intersection for the installation of traffic control signals. The studies were undertaken during the busiest eight-hour period of a typical weekday on November 4, 2015.

The results are summarized in Table 1 below.

Table 1: Traffic Control Signal Warrants and Compliance (November 4, 2015 counts with updated collision statistics)

Criteria	Dufferin Street and Lindsey Avenue
Minimum Vehicular Volume	24 percent
Delay to Cross Traffic	54 percent
Collision Hazard	0 percent

To meet the justification criteria for the installation of traffic control signals, one of the justifications must be 100 percent satisfied or any two of the three justifications must be at least 80 percent satisfied. Based on the results in Table 1, the installation of traffic control signals was not numerically warranted at the intersection of Dufferin Street and Lindsey Avenue.

The “Collision Hazard” warrant is based on the number of collisions potentially preventable by the installation of traffic control signals. The analysis used updated collision statistics provided by the Toronto Police Service for the three-year period ending December 31, 2020. The assessment did not disclose any collisions at the intersection of Dufferin Street and Lindsey Avenue that were potentially preventable by the installation of traffic control signals. Additionally, no collisions at this intersection involved a pedestrian or cyclist.

Notwithstanding the numeric warrants not being met, in view of the safety and connectivity concerns in this section of Dufferin Street, Transportation Services further considered the installation of traffic signals on Dufferin Street and Lindsey Avenue for the following reasons:

- This intersection will provide a protected connection to the cycling facilities on both sides of Dufferin Street. Between Bloor Street West and College Street, there are no controlled or direct crossing points for people cycling east-west across Dufferin Street.
- This will connect existing and near-term bikeways, and create a robust network of bikeways. Crossing an arterial road such as Dufferin Street without a protected crossing may be potentially risky for those who may be less comfortable on a bike or traveling with children.
- The 2015 traffic counts disclosed 397 cyclists using this intersection over the busiest eight-hour period of a typical weekday. It is anticipated that with a controlled connection to cross, the cycling and pedestrian volumes at the intersection could grow. The traffic control signals could encourage people of different ages and abilities to cycle in the area.
- It will benefit pedestrians on both sides of Dufferin Street.
- It has a more centralized location between the adjacent traffic controls on this section of Dufferin Street.

In view of the forgoing, Transportation Services supports the installation of traffic control signals at Dufferin Street and Lindsey Avenue. A map of the intersection and proposed traffic control signals is included in Attachment 1. It is recommended that both legs of Lindsey Avenue be included in the proposed traffic control signals. This will ensure intersection users can cross without the need to make two-stage turns or any direct lefts. The spacing to the traffic control signals to College Street is still less than optimal, but can be mitigated through signal spacing strategies.

A further potential concern with traffic control signals at Dufferin Street and Lindsey Avenue is the offset between the east and west intersection legs. An offset intersection, as opposed to a typical four-leg intersection, occurs when the side street legs are not aligned. There are a number of operational concerns at an offset intersection that is controlled with typical two-phase traffic control signals:

- Side street motorists entering the intersection during the same signal phase experience confusion over who has the right-of-way within the intersection

- Motorists entering the intersection from the side street on a green signal indication may see the main street red signal indication and abruptly stop in the middle of the intersection, increasing the risk of rear-end collisions with following vehicles
- Side street motorists who perform a left turn on a green signal phase have travelled a significant distance and are traveling perpendicular to the next pedestrian crosswalk in which pedestrians have a "Walk" phase

In order to mitigate the potential concerns resulting from the full signalization of Dufferin Street and Lindsey Avenue, it will be necessary to implement a three-phase signal operation and prohibit northbound and southbound right turns on a red signal indication.

The proposed installation of traffic control signals at the intersection of Dufferin Street and Lindsey Avenue would result in the following negative impacts:

- Delays to traffic on Dufferin Street: There will be increase in delays to motorists and transit on Dufferin Street as a result of the traffic control signal installation
- Increased queuing: As noted, the short spacing to the traffic control signals at Dufferin Street and College Street is a potential concern with regards to queue storage. Preliminary analysis indicates queues can be accommodated within the existing intersection spacing. However, this may need to be reviewed if problems are reported after the traffic control signals are activated
- Loss of parking spaces: Approximately eight permit parking spaces on Lindsey Avenue will be removed as a result of the traffic control signal installation. Additionally, approximately 15 parking spaces on Dufferin Street that operate outside the weekday morning and afternoon peak periods will also be removed
- Signal hardware impacts to adjacent properties. The installation of traffic control signals will require poles and a controller cabinet. These will constrain the sidewalk and may result in modifications to adjacent fences, landscaping and retaining walls in the public right-of-way, adjacent to the sidewalks. The detailed signal design has not been undertaken as yet

The consideration of future surface transit enhancements (i.e. reserved lanes) on Dufferin Street may exacerbate the queueing and delay concerns noted above.

Dufferin Street and Geary Avenue

Traffic control signals were previously approved at the intersection of Dufferin Street and Geary Avenue in 2020. The traffic control signals at this intersection are currently planned for construction and activation in 2021.

Dufferin Street and Cloverlawn Avenue, Goodwood Avenue

Traffic studies had been initiated at Dufferin Street and Cloverlawn Avenue/Goodwood Avenue to re-evaluate these locations for traffic control signals. It is the preference of Transportation Services to continue with these assessments once traffic counts and studies resume and report back at a later date.

Dufferin Street and College Street

The previous staff report advised that Transportation Services was investigating the feasibility of installing a Red Light Camera (RLC) at the intersection of College Street and Dufferin Street. The location was deemed to be problematic and further review was undertaken to assess this location with three different types of RLC cameras. Unfortunately, this installation was not feasible on any intersection approach without negatively impacting pedestrian safety and walking clearances.

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 and Turn Prohibitions - Dufferin Street and Lindsey Avenue

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