



## REPORT FOR ACTION

## Road Alterations - Intersection Improvements on Danforth Road from Warden Avenue to St. Clair Avenue East

**Date:** April 4, 2019  
**To:** Scarborough Community Council  
**From:** Director, Project Design & Management, Transportation Services  
**Wards:** Ward 20, Scarborough Southwest

### SUMMARY

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In support of the City's Vision Zero Road Safety Plan, Transportation Services is requesting approval to alter the roadway at the intersections of Danforth Road and Warden Avenue, Danforth Road and Birchmount Road, Danforth Road and Kennedy Road, and Danforth Road and St. Clair Avenue East. The road alterations are proposed in order to improve safety and accessibility for pedestrians.

The proposed alterations include the removal of right-turn channels at the four above-noted intersections and the removal of two bus lay-bys at Danforth Road and Warden Avenue to allow for the installation of accessible pedestrian signals (APS) at these intersections.

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

The work would be completed in 2019 in conjunction with road resurfacing on Danforth Road from Danforth Avenue to St Clair Avenue East.

### RECOMMENDATIONS

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The Director, Project Design & Management, Transportation Services recommends that:

1. City Council approve the alteration of the intersections of Danforth Road and Warden Avenue, Danforth Road and Birchmount Road, Danforth Road and Kennedy Road, and Danforth Road and St. Clair Avenue East, including the removal of the right-turn channels at the four above-noted intersections and the removal of two bus lay-bys at Danforth Road and Warden Avenue, generally as shown in Attachments 1 to 4 to this report.

2. City Council prohibit westbound to northbound right-turns, bicycles excepted, at the intersection of Danforth Road and Kennedy Road, generally as shown in Attachment 3 to this report.

## **FINANCIAL IMPACT**

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The cost associated with the removal of the right-turn channels, removal of the bus lay-bys, and new accessible pedestrian signals (APS) is estimated at \$2,000,000 in total for the locations outlined in this report.

Funding for this work is available in Transportation Services' 2019-2028 Capital Budget and Plan (Road Safety Plan - Local Geometric Transportation Safety Improvements).

## **DECISION HISTORY**

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This report addresses a new initiative.

## **COMMENTS**

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In support of the City's Vision Zero Road Safety Plan to improve conditions for pedestrians and reduce their exposure to vehicles, Transportation Services investigated the feasibility of removing the right-turn channels at the intersections of Danforth Road and Warden Avenue, Danforth Road and Birchmount Road, Danforth Road and Kennedy Road, and Danforth Road and St. Clair Avenue East.

Removal of the right-turn channels would eliminate the free-flow movement of vehicles travelling through the channels. This would improve safety for pedestrians, especially for pedestrians with low or no vision, as they will no longer have to navigate across uncontrolled pedestrian crossings. The removal of these free-flow right-turn channels will also allow for the implementation of accessible pedestrian signals (APS) at these intersections.

TTC staff have been consulted in the preparation of this report.

## **Existing Conditions**

For the purposes of this report, the direction of travel on Danforth Road will be referred to as being in the eastbound and westbound directions at the intersections of Danforth Road and Warden Avenue, Danforth Road and Birchmount Road, and Danforth Road and Kennedy Road.

At Danforth Road and St. Clair Avenue East, the direction of travel on Danforth Road will be referred to as being in the northbound and southbound directions.

The following are key characteristics of the roadways noted in this report:

Danforth Road, from Danforth Avenue to St. Clair Avenue East, is a four-lane minor arterial roadway with a posted speed limit of 60 kilometres per hour (km/h), with dedicated left-turn lanes in both directions at the intersections of Danforth Road and Warden Avenue, Danforth Road and Birchmount Road, and Danforth Road and Kennedy Road. There are no dedicated left-turn lanes on Danforth Road at St. Clair Avenue East.

Warden Avenue, at Danforth Road, is a four-lane minor arterial roadway with a posted speed limit of 50 km/h. There are no dedicated left-turn lanes on Warden Avenue at Danforth Road.

Birchmount Road, at Danforth Road, is a four-lane minor arterial roadway with a posted speed limit of 50 km/h. There are no dedicated left-turn lanes on Birchmount Road at Danforth Road.

Kennedy Road, north of Danforth Road, is a four-lane minor arterial roadway with a posted speed limit of 50 km/h. There is no dedicated left-turn lane in the southbound direction on Kennedy Road at Danforth Road. Kennedy Road, south of Danforth Road, is a two-lane collector roadway with a posted speed limit of 50 km/h, with a dedicated northbound left-turn lane on Kennedy Road at Danforth Road.

St Clair Avenue East, west of Danforth Road, is a four-lane major arterial roadway with a posted speed limit of 60 km/h. St. Clair Avenue East, east of Danforth Road, is a four-lane minor arterial roadway with a posted speed limit of 60 km/h. There are dedicated left-turn lanes in both the eastbound and westbound directions at the intersection with Danforth Road.

TTC bus service is provided on Danforth Road, Warden Avenue, Birchmount Road, Kennedy Road and St. Clair Avenue East.

## **Analysis**

### *Danforth Road and Warden Avenue*

The intersection of Danforth Road and Warden Avenue has existing right-turn channels at the northeast and southwest corners. On Danforth Road, there are bus lay-bys to accommodate nearside bus stops in the eastbound and westbound directions; these lay-bys also operate as dedicated right-turn lanes. On Warden Avenue, there are both nearside and farside bus stops in the northbound direction; in the southbound direction, the bus stop is on the far side of the intersection.

The proposed work at Danforth Road and Warden Avenue would include the removal of the right-turn channels and bus stop lay-bys at the northeast and southwest corners,

which would allow for the installation of accessible pedestrian signals (APS) at the intersection.

On Warden Avenue, the southbound curb lane, approaching the intersection of Danforth Road, is approximately twice as wide as a typical lane, which allows through vehicles and right-turning vehicles to proceed simultaneously. The proposed work would include curb realignment to narrow the curb lane to require through and right-turning vehicles to proceed single-file. This improvement would reduce the crossing distance across the north leg of the intersection and reduce conflicts between road users.

Based on traffic modelling conducted, the removal of the right-turn channels and bus stop lay-bys at the northeast and southwest corners are not anticipated to result in significant delays for the right-turn movements from Danforth Road onto Warden Avenue.

In addition, the realigned curb to narrow the southbound curb lane is not anticipated to result in significant delays for the right-turn movements southbound from Warden Avenue onto westbound Danforth Road. Traffic signal timing plans will be updated to optimize traffic signal operations.

TTC is in agreement with the removal of the bus stop lay-bys as service operations will be improved by not requiring buses to re-enter the active lanes of traffic on Danforth Road.

#### *Danforth Road and Birchmount Road*

The intersection of Danforth Road and Birchmount Road has existing right-turn channels at the northeast and southwest corners. There are no bus lay-bys or dedicated right-turn lanes at this intersection. On Danforth Road, there is an existing westbound farside bus stop 50 metres west of Birchmount Road; in the eastbound direction there is an existing nearside bus stop 75 metres west of Birchmount Road. On Birchmount Road, there are existing northbound and southbound nearside bus stops at the northwest and southeast corners of the intersection.

The proposed work at Danforth Road and Birchmount Road would include the removal of the right-turn channels at the northeast and southwest corners, which would allow for the installation of accessible pedestrian signals (APS) at the intersection.

Based on traffic modelling conducted, it is anticipated that there would be an increase in the delay for the eastbound Danforth Road to northbound Birchmount Road left-turn movements during the AM peak hour, however the overall safety benefits outweigh the traffic impacts to this one movement. The removal of the right-turn channels at the northeast and southwest corners are not anticipated to result in significant delays for the right-turn movements from Danforth Road onto Birchmount Road.

Traffic signal timing plans will be updated to optimize traffic signal operations and the Danforth Road and Birchmount Road intersection would be monitored following the completion of construction.

### *Danforth Road and Kennedy Road*

The intersection of Danforth Road and Kennedy Road has one existing right-turn channel at the southwest corner. There are no bus lay-bys or dedicated right-turn lanes at this intersection. On Danforth Road, there is an existing eastbound nearside bus stop at the southwest corner of the intersection; in the westbound direction there is an existing farside bus stop 120 metres west of Kennedy Road. On Kennedy Road, there is an existing southbound nearside bus stop at the northwest corner of Kennedy Road and Danforth Road; in the northbound direction there is an existing farside bus stop 90 metres north of Danforth Road.

The proposed work at Danforth Road and Kennedy Road would include the removal of the right-turn channel at the southwest corner, reducing the curb radius at the northeast corner and reducing the large sweeping radius at the northwest corner to deter drivers from making right-turns at high speeds. A new north-south pedestrian crossing is also proposed on the east side of Danforth Road and Kennedy Road. Additionally, accessible pedestrian signals (APS) would be installed at this intersection.

The northeast corner would require the prohibition of westbound to northbound right-turns (bicycles excepted) from Danforth Road onto Kennedy Road due to the curb radius reduction that is being introduced, resulting in an acute angle at the corner. The curb radius reduction is required to allow for a new north-south pedestrian crossing on the east side of Danforth Road.

Based on traffic counts and traffic modelling conducted, the proposed right-turn prohibition at the northeast corner is not anticipated to result in significant impacts for vehicles on Danforth Road, as there are very low right-turn volumes (less than 10 vehicles per hour in the peak periods) from westbound Danforth Road to northbound Kennedy Road. Right-turning vehicles can utilize St Clair Avenue East, 230 m to the northeast for this turn.

In addition, the removal of the right-turn channel at the southwest corner is not anticipated to result in a significant delay for the right-turn movement from eastbound Danforth Road onto southbound Kennedy Road. Traffic signal timing plans will be updated to optimize traffic signal operations

### *Danforth Road and St. Clair Avenue East*

The intersection of Danforth Road and St. Clair Avenue East has existing right-turn channels at the southwest and northeast corners. There are no bus lay-bys or right-turn lanes at this intersection. On Danforth Road, there is an existing southbound nearside bus stop at the northwest corner of the intersection; in the northbound direction there is an existing farside bus stop 50 metres north of St. Clair Avenue East. On St. Clair Avenue East there are existing westbound and eastbound nearside bus stops at the southwest and northeast corners.

The proposed work at Danforth Road and St. Clair Avenue East would include the removal of the right-turn channels at the northeast and southwest corners, which would allow for the installation of accessible pedestrian signals (APS) at the intersection.

Based on traffic modelling conducted, the removal of the right-turn channels at the northeast and southwest corners are not anticipated to result in significant delays for the right-turn movements from St. Clair Avenue East onto Danforth Road. Traffic signal timing plans will be updated to optimize traffic signal operations.

The work would be completed in 2019 in conjunction with road resurfacing on Danforth Road from Danforth Avenue to St Clair Avenue East.

## **CONTACT**

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## **SIGNATURE**

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Jacquelyn Hayward  
Director, Project Design & Management,  
Transportation Services

## **ATTACHMENTS**

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1. Intersection Improvements - Danforth Road and Warden Avenue
2. Intersection Improvements - Danforth Road and Birchmount Road
3. Intersection Improvements - Danforth Road and Kennedy Road
4. Intersection Improvements - Danforth Road and St Clair Avenue East