



**STAFF REPORT  
ACTION REQUIRED**

**Traffic Control Signals – 3030 Birchmount Road**

<b>Date:</b>	April 15, 2016
<b>To:</b>	Scarborough Community Council
<b>From:</b>	Director, Transportation Services, Scarborough District
<b>Wards:</b>	Ward 39 – Scarborough-Agincourt
<b>Reference Number:</b>	P:\2015 \Cluster B\TRA\Scarborough\sc1624.docx D15-6965788 - 3030 Birchmount Road - Traffic Control Signals

**SUMMARY**

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A pedestrian refuge island is currently located at 3030 Birchmount Road in front of the entrance to the Scarborough Hospital Birchmount Campus, approximately 190 metres north of the intersection with L'Amoreaux Drive/Silver Springs Boulevard. This report recommends the replacement of this pedestrian refuge island with full traffic control signals at the driveway access to the hospital, located approximately 65 metres further north.

These recommended traffic control signals will provide a safe and convenient crossing of Birchmount Road for pedestrians, including TTC passengers using the northbound Birchmount Route 17 service, and would be made fully accessible through the installation of APS ("accessible pedestrian signals"), whereas the current pedestrian refuge island is not. The volume of these pedestrian crossings is expected to increase with the proposed construction of a sidewalk on the east side of this section of Birchmount Road programmed in 2017. The traffic control signals would also provide safer and more convenient service for motorists and emergency vehicles accessing/egressing the hospital parking lot and passenger pick-up/drop-off facilities.

**RECOMMENDATIONS**

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**Transportation Services recommends that:**

1. City Council authorize the installation of traffic control signals on Birchmount Road at a point approximately 255 metres north of the intersection of Birchmount Road and L'Amoreaux Drive/Silver Springs Boulevard.

2. City Council authorize the removal of the pedestrian refuge island on Birchmount Road, approximately 190 metres north of the intersection of Birchmount Road and L'Amoreaux Drive/Silver Springs Boulevard, in conjunction with the installation of traffic control signals at the location approximately 65 metres further north.
3. City Council not authorize the installation of traffic control signals at the intersection of Birchmount Road and Brookmill Boulevard.

### **Financial Impact**

The cost of removing the pedestrian refuge island and installing traffic control signals at the driveway access to 3030 Birchmount Road would be approximately \$200,000. Funding will be requested through the 2017 Transportation Services Capital Budget submission.

The Deputy City Manager and Chief Financial Officer has reviewed this report and agrees with the financial impact statement.

### **ISSUE BACKGROUND**

A pedestrian refuge island is currently located at 3030 Birchmount Road in front of the easterly entrance to the Scarborough Hospital Birchmount Campus, approximately 190 metres north of the intersection with L'Amoreaux Drive/Silver Springs Boulevard. It predominantly serves passengers using the TTC's Birchmount 17 bus route which has a northbound stop located immediately to the east of this crossing. As a result of a public request about the safety of pedestrians crossing Birchmount Road using this pedestrian refuge island, Transportation Services staff have reviewed the feasibility of installing traffic control signals at this mid-block location and at alternate intersections in this area.

### **COMMENTS**

The following characteristics describe the area in the vicinity of 3030 Birchmount Road:

- Birchmount Road is a four-lane minor arterial road with a posted speed limit of 60 km/h and an 85<sup>th</sup> percentile operating speed (speed at or below which 85% of drivers travel) of 67 km/h for southbound traffic and 60 km/h for northbound traffic.
- This section of Birchmount Road has a daily traffic volume of approximately 17,500 vehicles per day (vpd).
- A pedestrian refuge island is located approximately 190 metres north of the traffic signals located at the L'Amoreaux Drive/Silver Springs intersection and approximately 540 metres south of the traffic signals located at the Staley Terrace intersection.
- The island is located in front of the entrance to the Scarborough Hospital Birchmount Campus and is directly opposite a northbound TTC transit stop.
- A sidewalk is located on west side of Birchmount Road, while the east side connects to the West Highland Creek Trail system, in addition to the above-noted TTC stop.

- The land uses in this area consist of single-family residential on the west side of Birchmount Road north of the hospital and recreational and park uses on the east side.
- A total of 68 pedestrians were observed crossing at or near the subject pedestrian refuge island during an eight-hour study period on Tuesday, October 13, 2015.

## **Pedestrian Crossing Protection Warrant Studies**

Pedestrian crossing protection warrant/justification studies involve both a Pedestrian Crossover warrant/justification study and a Traffic Control Signal warrant/justification study in order to properly assess the feasibility of alternative traffic control devices.

### *Pedestrian Crossover Warrant/Justification Study*

Transportation Services staff conducted a Pedestrian Crossover Warrant study at 3030 Birchmount Road on Tuesday, October 13, 2015, using traffic volumes recorded over the peak eight hours of a typical weekday. The following are the results of the study, and of a similar study previously undertaken at this location on June 8, 2011:

<b>Pedestrian Crossover Warrant</b>	<b>Compliance Level June 8, 2011</b>	<b>Compliance Level October 13, 2015</b>
Pedestrian Volume	30% (62)	31% (68)
Pedestrian Delays	10%	18%

As outlined in the above table, the installation of a pedestrian crossover is not justified because both categories must be met 100%.

### *Traffic Control Signal Warrant/Justification Study*

Given that a pedestrian crossover is not justified at this mid-block location, similarly the installation of mid-block traffic control signals is also not warranted. Therefore, Transportation Services staff conducted a Traffic Control Signal Warrant study at the intersection of the hospital's driveway, located approximately 65 metres further north, on Tuesday, October 13, 2015, using traffic volumes recorded over the peak eight hours of a typical weekday. The study provides an assessment of the need for Traffic Control Signals based on volumes and delays to cross vehicular traffic and pedestrians, and are expressed in terms of percentages so as to be comparable over time. For traffic control signals to be numerically justified, one of the "Minimum Vehicular Volume" or "Delay to Cross Traffic" or "Collision Hazard" warrants must be 100 % satisfied, or both "Minimum Vehicular Volume" and "Delay to Cross Traffic" must be at least 80% satisfied.

The following are the results of both the previous and recent studies:

<b>Traffic Control Signal Warrant</b>	<b>Compliance Level June 8, 2011</b>	<b>Compliance Level October 13, 2015</b>
Minimum Vehicular Volume	33%	29%
Delay To Cross Traffic	49%	36%
Collision Hazard	0%	20%

For traffic control signals to be numerically justified, the following results need to be achieved:

1. One of the “Minimum Vehicular Volume” or “Delay to Cross Traffic” or "Collision Hazard" warrants must be 100% satisfied; or
2. The “Minimum Vehicular Volume” and “Delay to Cross Traffic” warrants must both be at least 80% satisfied.

Neither of the above-noted technical requirements to install traffic control signals at this intersection is met.

### **Collision History**

A review was undertaken of the Toronto Police Service collision records for the five-year period ending December 31, 2014 on Birchmount Road in the vicinity of the existing pedestrian refuge island. The review indicated that there were no collisions involving pedestrians using the pedestrian refuge island nor were there any motor vehicle accidents that would have been potentially preventable by the installation of signals at this location.

The results of the studies and analyses noted above indicate that the technical warrants for the installation of traffic control signals at this mid-block location and further north at the intersection with the driveway access are not satisfied. Furthermore, the collision history does not suggest a safety issue at either location which would require the installation.

Notwithstanding the above-noted results of the technical assessment, it is recommended that traffic control signals be installed at the hospital's driveway access for the following reasons:

- The prevailing vehicle operating speeds on Birchmount Road makes it difficult for pedestrians to continue to use the existing pedestrian refuge island, especially seniors and persons using mobility devices.
- The installation of traffic control signals on Birchmount Road to serve hospital patrons provides an opportunity to implement a fully accessible crossing with the installation of APS ("accessible pedestrian signals").

- The proposed construction of a sidewalk on the east side of Birchmount Road, currently programmed in 2017, from its current terminus just north of Silver Springs Boulevard northerly to McNicoll Avenue (a distance of approximately 900 metres) would likely result in an increase in the volume of pedestrians crossing Birchmount Road.
- The provision of a signalized intersection at the driveway serving the hospital would result in safer and more convenient access for motorists and emergency vehicles using the hospital's parking lot and passenger pick-up/drop-off facilities.
- The signalization of the driveway access provides an opportunity for TTC to consolidate their transit stops along this section of Birchmount Road.

### **Pedestrian Crossing Protection Warrant Studies – Birchmount Road and Brookmill Boulevard**

At the request of Councillor Jim Karygiannis, Transportation Services staff have also reviewed the feasibility of providing pedestrian crossing protection at the Birchmount Road and Brookmill Boulevard intersection. This location has been studied on two separate occasions in the last five years, most recently on May 7, 2015. The studies covered an area approximately 50 metres on either side of the intersection of Birchmount Road and Brookmill Boulevard.

Transportation Services staff conducted a Pedestrian Crossing Protection Warrant Study at the intersection of Birchmount Road and Brookmill Boulevard. The study provides an assessment of the need for a signalized pedestrian crossover based on crossing pedestrian volumes and delays and are expressed in terms of percent compliance with accepted thresholds. The 100% threshold is approximately 200 pedestrian crossings in an eight-hour period. Using traffic volumes recorded over the peak eight hours of a typical weekday, the following results were obtained:

#### *Pedestrian Crossover Warrant Studies and Historical Counts*

<b>Pedestrian Crossover Warrant</b>	<b>Compliance Level June 8, 2011</b>	<b>Compliance Level May 7, 2015</b>
Pedestrian Volume (8 hours)	22%	18% (42 crossings)
Pedestrian Delays	10%	16%

As outlined in the above table, the installation of a pedestrian crossover is not justified because both categories must be met 100%. As shown, the 42 pedestrians observed crossing Birchmount Road during the most recent study period on Thursday, May 7, 2015.

Of the 42 pedestrians observed crossing Birchmount Road in the vicinity of Brookmill Boulevard, 29 (69%) were generated by the TTC bus stop at this intersection.

It should also be noted that the operating speed was 67 km/h in the southbound direction, so a pedestrian crossover would not meet the environmental criteria for installation which requires an operating speed of 60 km/h or less to be considered safe.

### *Traffic Control Signal Justification Studies*

Transportation Services staff also conducted a Traffic Control Signal Justification Study at the intersection of Birchmount Road at Brookmill Boulevard. The following are the results of both the previous and recent studies:

<b>Traffic Control Signal Warrant</b>	<b>Compliance Level June 8, 2011</b>	<b>Compliance Level May 7, 2015</b>
Minimum Vehicular Volume	23%	21%
Delay to Cross Traffic	32%	30%
Collision Hazard	7%	7%

As outlined in the above table, the traffic volumes do not satisfy the requirements to install traffic control signals at the subject intersection at this time. However, should traffic control signals be justified in the future due to increases in vehicular volumes, delays or collisions, this location could be considered acceptable from a traffic signal spacing and operations perspective.

### **Collision History**

The results of a review of the Toronto Police Service collision records for the five-year period ending December 31, 2014 on Birchmount Road at Brookmill Boulevard are summarized below.

Five-Year Collision Information	Number of Reported Collisions					
	2010	2011	2012	2013	2014	Total
Collisions Potentially Preventable by the Installation of Traffic Control Signals	0	0	0	0	1	1
Collisions Involving Pedestrian Crossing of Birchmount Road	0	0	0	0	0	0

This collision record is not indicative of a safety problem at this location.

It should also be noted that a pedestrian refuge island is not feasible at this location as the existing pavement width cannot adequately accommodate such a device, and the volume of 42 pedestrians in an 8-hour period does not exceed the warrant of 100 pedestrians.

On the basis of the foregoing studies and analyses, it is recommended that Pedestrian Crossing Protection, including traffic control signals, not be installed on Birchmount Road at Brookmill Boulevard at this time. Pedestrian crossings along this section of Birchmount Road would be adequately and safely accommodated at the recommended traffic control signals located to the south.

The Toronto Transit Commission has been consulted on the results of these studies and supports the recommended installation of traffic control signals at the driveway access to the hospital at 3030 Birchmount Road. TTC staff have also advised that with the installation of these traffic control signals, the transit stops at the mid-block pedestrian refuge island and at Brookmill Boulevard would be consolidated into a single transit stop at this signalized intersection. The recommended traffic signals will assist TTC patrons while serving the pedestrians accessing/egressing the hospital in a safe, accessible, and convenient manner. The TTC also concurs with the staff recommendation not to install traffic control signals at Birchmount Road and Brookmill Boulevard.

## **CONTACT**

Marko A. Oinonen, B.A.Sc., DPA, P.Eng.  
Manager, Traffic Operations  
Transportation Services, Scarborough District  
Tel: 416-396-7148  
Fax: 416-396-5641  
E-Mail: moinone@toronto.ca

## **SIGNATURE**

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John Mende, P.Eng.  
Director, Transportation Services, Scarborough District

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## **ATTACHMENTS**

1. Location Plan (Traffic Control Signals – 3030 Birchmount Road)