



STAFF REPORT ACTION REQUIRED

Pedestrian Safety Review – Spadina Avenue

Date:	October 13, 2015
To:	Toronto and East York Community Council
From:	Director, Transportation Services, Toronto and East York District
Wards:	Trinity-Spadina, Ward 20
Reference Number:	Ts2015203te.top.doc

SUMMARY

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

At the June 16, 2015 meeting of the Toronto and East York Community Council, Transportation Services was directed to undertake a pedestrian safety review on Spadina Avenue, between Lake Shore Boulevard West and the Metrolinx rail corridor, and advise on the feasibility of installing a pedestrian crossing on the south side of the Bremner Boulevard/Fort York Boulevard intersection, as well as any other safety measures.

Transportation Services does not support the installation of a pedestrian crossing on the south side of the Spadina Avenue and Bremner Boulevard/Fort York Boulevard intersection, based on the negative impacts on the intersection capacity that will result. The City of Toronto's policy requires that pedestrian crossings not be permitted where they will conflict with dual turn lanes at an intersection.

RECOMMENDATIONS

Transportation Services, Toronto and East York District recommends that:

1. City Council deny the introduction of a pedestrian crossing on the south side of Spadina Avenue at the intersection with Bremner Boulevard/Fort York Boulevard.

Financial Impact

There are no financial implications to the report.

DECISION HISTORY

On June 16, 2015, Toronto and East York Community Council requested Transportation Services staff undertake a traffic study on Spadina Avenue, between Lake Shore Boulevard West and the Metrolinx rail corridor (Item TE7.120). Staff were directed to report to the September 8, 2015 meeting of Toronto and East York Community Council to provide the study findings, including updated pedestrian volumes and the feasibility of installing a new pedestrian crossing on the south side of Bremner Boulevard/Fort York Boulevard, as well as any other safety measures.

On September 8, 2015, Toronto and East York Community Council received Transportation Services report for information (Item TE10.91). Staff provided an update on this matter and requested that additional time be provided to undertake the necessary studies.

COMMENTS

Existing Conditions

The intersection of Spadina Avenue and Bremner Boulevard/Fort York Boulevard is controlled by traffic signals. Spadina Avenue is a north-south major arterial road with a regulatory speed limit of 50 km/h and a daily two-way traffic volume of about 36,000 vehicles. It consists of three lanes in each direction and there are exclusive left-turn lanes provided at the intersection with Bremner Boulevard/Fort York Boulevard. TTC service on Spadina Avenue is provided by the '510 Spadina' streetcar, which operates within the median on an exclusive right-of-way. Transit loading platforms for northbound and southbound streetcars are provided on the north intersection leg.

Bremner Boulevard is a minor arterial road that intersects the east side of Spadina Avenue. It has a posted speed limit of 40 km/h and a daily traffic volume of about 12,500 vehicles. It consists of two lanes in each direction. At the intersection with Spadina Avenue, dual westbound left-turn lanes are provided. There is no TTC service provided on Bremner Boulevard.

Fort York Boulevard is a collector road that intersects the west side of Spadina Avenue, opposite Bremner Boulevard. It has a posted speed limit of 40 km/h and a daily traffic volume of about 8,500 vehicles. It consists of a single lane in each direction for vehicular traffic and curb-side bicycle lanes. At the intersection with Spadina Avenue, a single eastbound left-turn lane is provided. There is no TTC service provided on Fort York Boulevard.

Pedestrian crossings are provided on the north, east and west legs of the intersection of Spadina Avenue and Bremner Boulevard/Fort York Boulevard. There is no pedestrian crossing designated on the south intersection leg.

Collision History

A review of Toronto Police Service records for the five-year period ending June 30, 2015 was undertaken at the intersection of Spadina Avenue and Bremner Boulevard/Fort York Boulevard. Over that time period, there were 202 collisions reported at this intersection. Further review of these 202 collisions disclosed that three involved pedestrians at the intersection. These collisions did not involve any pedestrian crossing on the south intersection leg.

Current Signal Timings

The following signal phasing has been implemented at the intersection of Spadina Avenue and Bremner Boulevard/Fort York Boulevard:

1. North-south left-turn green arrow;
2. North-south through/right, streetcars and east and west leg pedestrian crossings;
3. Westbound left-turn and through/right, north leg pedestrian crossings; and
4. Eastbound left-turn and through/right, no pedestrian crossings.

Due to the high traffic volumes at this intersection, the cycle length generally required to serve all of the above-noted phases ranges between 128 and 150 seconds in length. Due to the length of time required for the signals to serve all of these phases, pedestrian delays may also be higher than is experienced at downtown intersections in the City of Toronto.

Pedestrian Volumes

A review of the historical pedestrian volumes at the intersection of Spadina Avenue and Bremner Boulevard/Fort York Boulevard confirmed that pedestrian volumes have increased significantly within the last ten years. A summary of traffic counts at this intersection, undertaken during the busiest eight-hour period of a typical weekday, has been provided in the table below.

Intersection leg	April 13, 2004	August 6, 2008	October 3, 2013	July 8, 2015
North	68	2,226	2,796	4,516
South	0	38	64	58
East	62	687	1,609	1,544
West	30	1,442	1,623	1,938
Total	160	4,393	6,092	8,056

As noted, east-west pedestrian volumes have almost doubled from 2008. Additionally, about 60 pedestrians were recorded during this time period crossing the south intersection leg, which is currently not permitted.

Field Observations

In addition to the recent traffic counts, field observations were also undertaken at this intersection on September 22, 2015 during the morning and afternoon peak periods. Generally, the intersection operates at capacity during these times, particularly in the afternoon peak period. High traffic volumes and long queues of motorists were observed in addition to the very high volumes of pedestrians crossing the north crosswalk of the intersection.

Specific observations of the westbound left-turn movement disclosed that in the afternoon peak hour, 580 left-turns were made from the dual left-turn lane. This volume was comprised of 255 left-turns from the 'inner' lane (44 percent) and 325 left-turns from the 'outer' lane (56 percent). More westbound left-turns utilized the 'outer' lane, as most were destined to the on-ramp to the westbound F.G. Gardiner Expressway/Lake Shore Boulevard West. This ramp is the last access to the westbound F.G. Gardiner Expressway before Jameson Avenue, a distance of about 3.5 kilometres. Additionally, the ramp from Jameson Avenue is closed between the hours of 2:00 p.m. to 7:00 p.m., Monday to Friday. Accordingly, Spadina Avenue is the only alternative for traffic exiting the western part of the downtown area to access the F.G. Gardiner Expressway in the afternoon peak period.

The observations also confirmed that westbound queues of traffic on Bremner Boulevard extended beyond Navy Wharf Court and even Rees Street, at times. Southbound queues on Navy Wharf Court were observed extending to Blue Jays Way. During the afternoon peak period, long queues of southbound and eastbound traffic were also observed. No unsafe pedestrian crossings were observed on the south intersection leg.

Proposed south leg pedestrian crossing

As indicated, a dual left-turn lane is provided on the westbound approach at the intersection of Spadina Avenue and Bremner Boulevard/Fort York Boulevard. These dual lanes are required to accommodate the high volume of left-turning traffic that uses this intersection. This operation reduces the length of left-turn storage required, which is critical in downtown locations where signalized intersections are closely-spaced.

Provincial guidelines, provided in the Ontario Traffic Manual, state that where dual turn lanes are provided at a signalized intersection, consideration should be given to providing a fully-protected pedestrian crossing. This approach is for safety reasons, as a motorist turning from the one of the lanes may not be able to view crossing pedestrians, due to their sight lines being obstructed by motorists in the adjacent turn lane. The practice used by the City of Toronto is to prohibit these movements, as the provision of a fully protected crossing generally has a significant impact on the intersection's capacity.

In order to assess the impacts that the introduction of a south leg pedestrian crossing would have on the operations of the intersection of Spadina Avenue and Bremner Boulevard/Fort York Boulevard, capacity analysis was undertaken. Four different scenarios were evaluated for the morning and afternoon peak periods:

1. The existing intersection conditions and signal timings;
2. A south leg pedestrian crossing, coincident with removal of one of the westbound left-turn lanes; and
3. A south leg pedestrian crossing, to operate during the eastbound left-turn and through/right signal phase.
4. A south leg pedestrian crossing, operating on a pedestrian-only phase with the other three pedestrian crossings. All other traffic movements would continue to operate without pedestrian movements permitted.

The results of the capacity analysis have been summarized in the table below.

Option	Time Period	Average delay to westbound left-turning motorists	Average westbound left-turn queue length	
			50 th	95 th
1	A.M. Peak	50.2 seconds/vehicle	30 metres	43 metres
	P.M. Peak	51.5 seconds/vehicle	57 metres	75 metres
2	A.M. Peak	58.9 seconds/vehicle	50 metres	76 metres
	P.M. Peak	94.8 seconds/vehicle	110 metres	168 metres
3	A.M. Peak	55.1 seconds/vehicle	34 metres	47 metres
	P.M. Peak	68.8 seconds/vehicle	72 metres	88 metres
4	A.M. Peak	71.5 seconds/vehicle	40metres	58 metres
	P.M. Peak	100.6 seconds/vehicle	76 metres	112 metres

As noted in the table above, the introduction of a pedestrian crossing on the south side of Spadina Avenue and Bremner Boulevard/Fort York Boulevard will significantly increase queues and delays for westbound motorists. All of the proposed scenarios to provide a south leg crossing will worsen the existing operations. For comparison purposes, the available storage for westbound motorists on Bremner Boulevard, between Spadina Avenue and Navy Wharf Court, is about 80 metres.

Summary

In view of the current safety record and the significant negative impacts that the proposed pedestrian crossing will have on the south leg of the intersection of Spadina Avenue and Bremner Boulevard/Fort York Boulevard, Transportation Services do not support this proposal.

Councillor Joe Cressy has been advised of the recommendations of this staff report.

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SIGNATURE

Kyp Perikleous
Director, Transportation Services
Toronto and East York District

LIST OF ATTACHMENTS

1. Drawing No. 421G-1951, dated October 2015

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