

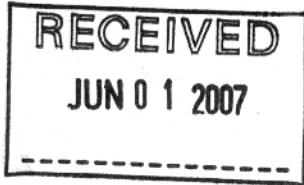


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May 29, 2007

Councillor Michael Walker
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Councillor Karen Stintz
City of Toronto, Ward 16 – Eglinton-Lawrence
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Dear Councillors Walker and Stintz:

Re: Yonge Street and Orchard View Boulevard/Roehampton Avenue – Request to install traffic control signals

In response to a July 11, 2006 telephone request from [REDACTED] as well as a February 27, 2007 e-mail request from [REDACTED] that was forwarded to our attention on February 28, 2007 by Pierre D'Aoust of Councillor Walker's office, we have reviewed the feasibility of installing traffic control signals at the above-noted intersection. The following discussion summarizes the details of our investigation.

Existing Conditions

Yonge Street is a north-south, four-lane major arterial roadway with a daily, two-way traffic flow of approximately 32,000 vehicles and a speed limit of 50 km/h. Roehampton Avenue is a two-way local roadway with a speed limit of 40 km/h and forms the east leg of the intersection. Orchard View Boulevard is a two-way local roadway with a speed limit of 50 km/h and forms the west leg of the intersection. Roehampton Avenue and Orchard View Boulevard form a "near-right" offset intersection with Yonge Street with an offset of approximately 23 metres (centre-line to centre-line). Both roadways are controlled by a "Stop" sign at their intersection with Yonge Street. Adjacent traffic control signals to this intersection are located approximately 145 metres to the north at Yonge Street and Broadway Avenue/Montgomery Avenue and approximately 125 metres to the south at Yonge Street and Eglinton Avenue.

The intersection of Yonge Street and Orchard View Boulevard/Roehampton Avenue is on the boundary between Ward 22 (St. Paul's) and Ward 16 (Eglinton-Lawrence) and is also on the service boundary between the North York District and the Toronto and East York District.

History

In April 2004, Toronto and East York District staff investigated the feasibility of installing traffic control signals at Yonge Street and Orchard View Boulevard/Roehampton Avenue. Our review determined that the technical warrants were not met for the installation of traffic control signals, assuming either Orchard View Boulevard or Roehampton Avenue formed a "T-type" intersection with Yonge Street. However, if both side streets were assumed to intersect Yonge Street as a four-leg intersection, the technical warrants were met. Notwithstanding, based on the review, the installation of traffic control signals on Yonge Street and Orchard View Boulevard/Roehampton Avenue was not supported, due to the following concerns:

- The safety concerns associated with signalized off-set intersections;
- Increased congestion to traffic on Yonge Street, based on high north-south traffic volumes and the sub-standard spacings to adjacent signals (less than 200 metres). The increased congestion could result in frustrated motorists using local roadways, which are already sensitive about non-local traffic volumes; and
- Likely increases in traffic volumes on Roehampton Avenue and Orchard View Boulevard.

More recently, in November 2006, a request was evaluated by North York District staff to install traffic control signals at this intersection. Based on the review, this request was not supported, for the previously-noted concerns associated with this installation.

Traffic Control Signal Warrants

Notwithstanding the previous investigation results, we recently undertook eight-hour vehicular and pedestrian traffic counts at the intersection of Yonge Street and Orchard View Boulevard/Roehampton Avenue. Because Roehampton Avenue and Orchard View Boulevard are offset at Yonge Street, the technical warrants for the installation of traffic control signals were evaluated based on a four-leg intersection, as well as two separate "T-type" intersections. Based on the traffic volumes and the collision records, the technical warrants for the installation of traffic control signals are satisfied to the following extent:

Warrant	Percent Satisfied		
	Four-Leg Intersection	"T-Type" Intersection	
		Roehampton Avenue	Orchard View Boulevard
Warrant 1: Minimum Vehicular Volume	93 percent	34 percent	24 percent
Warrant 2: Delay to Cross Traffic	100 percent	98 percent	97 percent
Warrant 3: Collision Hazard	80 percent	53 percent	27 percent

To meet the technical requirements for the installation of traffic control signals, one of the "Minimum Vehicular Volume" or "Delay to Cross Traffic" warrants must be 100 percent satisfied, or any two of the three warrants must be at least 80 percent satisfied. Based on the above results, the installation of traffic control signals is warranted based on a four-leg intersection configuration only.

Collisions

Collision statistics provided by the Toronto Police Service for the three-year period ending December 31, 2006 disclosed that a total of 44 collisions had occurred at this intersection. Of these 44 collisions, 12 were potentially preventable by the installation of traffic control signal and seven collisions involved a pedestrian. Further review of the pedestrian collisions did not disclose a pattern as to the time of day/day of week the collisions occurred and all resulted in either minimal or minor injuries to the pedestrian. All seven pedestrian collisions occurred on Yonge Street, with five occurring south of Roehampton Avenue and two occurring between Roehampton Avenue and Orchard View Boulevard.

Proposed Operation

Based on our review, we have reconsidered our previous position that advised against the installation of traffic control signals and can now support the installation at Yonge Street and Orchard View Boulevard/Roehampton Avenue for the following reasons:

- There are high volumes of pedestrians crossing Yonge Street. Over the busiest eight-hour period of a typical weekday, there are approximately 1,380 pedestrians that cross Yonge Street east-west, with the majority of pedestrian crossings (1,050) occurring on the south intersection leg. In addition, there are several schools in the immediate vicinity of this intersection and there is nearby residential development that will contribute to pedestrian volumes in the area. Generally, the installation of closely spaced signals is not

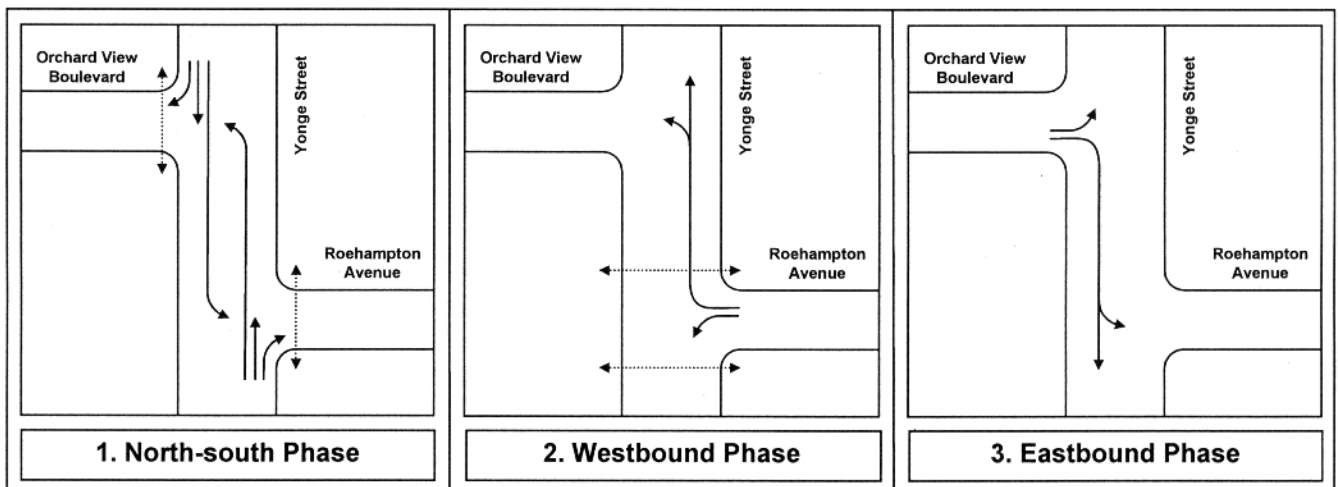
supported due to the safety concerns and impacts to traffic, however, it is clear that pedestrians will continue to cross at this intersection, despite nearby protected crossings at Broadway Avenue/Montgomery Avenue and at Eglinton Avenue; and

- There are high numbers of collisions involving pedestrians crossing Yonge Street. There has been a significant increase in the collisions involving pedestrians at this intersection, although it is not clear what has contributed to this increase. None of the recent collisions involving pedestrians have been serious. However, we believe that a protected pedestrian crossing will be a pro-active step towards increased pedestrian safety at this intersection.

The installation of traffic control signals at Yonge Street and Orchard View Boulevard/Roehampton Avenue continues to present operational problems due to the near-right offset alignment and the close spacing to adjacent traffic control devices as noted in previous investigations.

In order to address the concerns associated with the near-right offset alignment, we are proposing to operate the signals in three phases, similar to the operation at Yonge Street and Soudan Avenue/Berwick Avenue, to separate the potential conflicts between eastbound and westbound turning motorists. To minimize the impacts to north-south traffic resulting from this operation, east-west pedestrian crossings will only be permitted on the westbound phase (Roehampton Avenue), minimizing the amount of green time required to be provided for the eastbound phase (Orchard View Boulevard). The installation of the pedestrian crosswalks at Roehampton Avenue, rather than Orchard View Boulevard, was determined by the higher pedestrian volumes and higher number of collisions involving pedestrians at the former location. Additionally, we will also prohibit eastbound and westbound right-turns-on-red to prevent potential vehicle conflicts in the intersection.

The proposed signal phasing at this intersection has been illustrated below, with solid lines indicating permitted vehicle movements and dotted lines indicating permitted pedestrian movements.



In order to address the concerns associated with the close spacing to the adjacent traffic control signals, we will operate Yonge Street and Orchard View Boulevard/Roehampton Avenue with fixed signal timing and we will install a hard-wire interconnect between these signals and the signals at Yonge Street and Eglinton Avenue. This will ensure that north-south signal indications are the same at both intersections at the same time, reducing the potential for motorists on Yonge Street to view conflicting signal indications. This modification will require some minor timing changes at Yonge Street and Eglinton Avenue.

Additionally, we will also arrange to designate left-turn lanes for north-south motorists on Yonge Street, with storage for two vehicles. The proposed signal operation as outlined above should address the potential geometry and spacing concerns associated with the installation of traffic control signals at this intersection. However, as you may be aware, we still get regular complaints about the operation of Yonge Street and Soudan Avenue/Berwick Avenue.

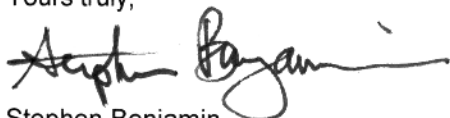
The advantage of the installation of traffic control signals at Yonge Street and Orchard View Boulevard/ Roehampton Avenue is that it will provide protection for pedestrians, cyclists and motorists wishing to cross/access Yonge Street. The disadvantages of this installation have been outlined in the History Section. Additionally, it should be noted that the proposed installation will result in the loss of approximately eight total parking spaces on the east and west sides of Yonge Street. Finally, there is a space reserved for a vendor on the east side of Yonge Street, approximately 13 metres north of Roehampton Avenue, that will need to be relocated.

Summary

The installation of traffic control signals at the intersection of Yonge Street and Orchard View Boulevard/ Roehampton Avenue will require that we prepare a report to Works Committee. This report will also address the east-west right-turn-on-red prohibitions and the prohibition of pedestrian crossings on the north intersection leg. Before a final recommendation is made, we would suggest that community consultation be undertaken regarding the above-noted information due to the potentially negative impacts resulting from the installation of traffic control signals. Also, it is noted that all funding approval by Council for traffic control installation in 2007 has been allocated. Therefore, should you wish us to report on this matter to gain Council approval to install traffic control signals, this location would be considered for the 2008 traffic control signal installation program, subject to the availability of funding and competing priorities.

If you have any questions regarding this investigation, please contact Dan Clement, Transportation Technologist, at (416) 338-5454.

Yours truly,



Stephen Benjamin
Manager, Traffic Operations
Toronto and East York District, West Area

DC/dc
06-1488
W0037

cc:

[Redacted contact information]