



STAFF REPORT ACTION REQUIRED

Traffic Control Signals Recommended – Rouge River Drive/West Intersection and Sheppard Avenue East

Date:	May 20, 2010
To:	Scarborough Community Council
From:	Director, Transportation Services, Scarborough District
Wards:	Ward 42 – Scarborough-Rouge River
Reference Number:	P:\2010\Cluster B\TRA\Scarborough\sc1065 D10-3772173 D08-2849614 Rouge River Dr Sheppard Ave tcs

SUMMARY

This staff report is about a matter for which the Community Council does not have delegated authority from City Council to make a final decision.

The purpose of this report is to secure authority for the installation of Traffic Control Signals at Rouge River Drive/west intersection and Sheppard Avenue East.

Traffic studies reveal that pedestrian crossing protection is warranted in the form of traffic control signals.

RECOMMENDATIONS

Transportation Services, Scarborough District, recommends that Scarborough Community Council recommend that City Council:

1. Approve the installation of traffic control signals at the intersection of Rouge River Drive/west intersection and Sheppard Avenue East.
2. Pass or amend the appropriate by-law(s) accordingly.

Financial Impact

There is no financial impact associated with this report; however, the financial cost of installing these new traffic control signals would be approximately \$150,000.00 should the installation be approved. The funding for these signals is not available in Transportation Services Division's Capital Works Budget under Project No. CTP710-01.

ISSUE BACKGROUND

Further to a request from the local Councillor, Transportation Services staff reviewed the feasibility of installing traffic control signals and/or pedestrian crossing protection at Rouge River Drive/west intersection and Sheppard Avenue East.

The traffic volumes on Sheppard Avenue East by Rouge River Drive/west intersection are approximately 21,200 vehicles per day. This traffic volume can result in less than adequate gaps in traffic to successfully cross the road or make a left turn safely, particularly during the morning and afternoon rush hours. At the subject location, motorists and pedestrians were observed waiting for a gap in one direction of traffic, using the centre shared left turn lane on Sheppard Avenue East as refuge, then continuing their crossing or left turn when the other direction of traffic on Sheppard Avenue East cleared.

COMMENTS

The following characteristics describe the intersection of Rouge River Drive/west intersection and Sheppard Avenue East:

- The subject intersection is located in Rouge Neighbourhood and is bounded by Rouge River Drive/east intersection/Dean Park Road at Sheppard Avenue East and at Conlins Road Sheppard Avenue East to the west.
- This "T" intersection is presently controlled by a southbound stop sign on Rouge River Drive/west intersection.
- Sheppard Avenue East is a five-lane major arterial roadway.
- Rouge River Drive/west intersection and Sheppard Avenue East is pending a road classification however; the east leg of Rouge River Drive is classed as a collector.
- The north and south sides of Sheppard Avenue East at Rouge River Drive/west intersection consist of new single family residential homes and some industrial and commercial buildings.
- Toronto Transit Commission bus stops for both the eastbound and westbound directions along Sheppard Avenue East are located in direct proximity to the intersection.
- Traffic control signals are located approximately 286 metres west at Conlins Road, and approximately 507 metres east at Sheppard Avenue East at Rouge River Drive/east intersection.
- Sidewalks are located on both sides of Sheppard Avenue East at Rouge River Drive/west intersection.

Pedestrian Crossing Protection studies involve incremental consideration of the warrants for the following traffic control devices:

- Pedestrian Refuge Island (PRI)
- Pedestrian Crossover (PXO)
- Traffic Control Signals (TCS)

Pedestrian Refuge Island Warrant Study

The first level of pedestrian crossing protection considered is the installation of a Pedestrian Refuge Island.

Pedestrian Crossing Study

Study Date: Wednesday, December 15, 2008

Pedestrian Crossing Volume

Pedestrian Characteristics	Eight-Hour Pedestrian Crossing Volume: Rouge River Drive/west intersection and Sheppard Avenue East		
	East Side	West Side	Total – Both Sides
Assisted Children*	3	0	3
Unassisted Children	14	0	14
Youths /Adults	72	16	88
Senior Citizens	2	0	2
Handicapped	0	0	0
Total Pedestrian Volume	91	16	107

* Assisted Children are children crossing the road accompanied by a youth, an adult or a senior citizen.

- Of the 107 pedestrians, 95 (89%) were generated by the TTC bus stops located in the vicinity of Rouge River Drive/west intersection and Sheppard Avenue East.

Pedestrian Refuge Island (PRI) Warrant Criteria

Pedestrian Refuge Island Warrant:	Requirement	Met/Not Met
Pedestrian Volume	> 100 pedestrians in 8 hours	107 - Met
Road Width	> 16.4 metres	21.6 m - Met
Number of Travel Lanes	5 lanes or less	5 lanes - Met

As outlined in the above table, all of three requirements are met on Rouge River Drive/west intersection and Sheppard Avenue East. However, a Pedestrian Refuge Island was not pursued at the time of the initial assessment in that, it was expected that the Toronto Transit Commission (TTC) would support traffic control signals at this intersection as part of the Sheppard Avenue East Light Rapid Transit line.

Pedestrian Crossover Warrant Study

The next level of crossing protection to consider is a Pedestrian Crossover (PXO).

PXO Warrant Criteria

A Pedestrian Crossover Warrant Study was also conducted on two separate occasions. The results of these studies are shown in the following table:

Pedestrian Crossover Warrant	Compliance Level	
	Rouge River Drive/west intersection and Sheppard Avenue East	
	Thursday, May 4, 2006	Monday, December 15, 2008
Pedestrian Volume	29%	54%
Pedestrian Delays	28%	63%

- For a pedestrian crossover to be numerically justified, both the “Pedestrian Volume” and “Pedestrian Delays” warrants must be 100% satisfied.

Sight lines for approaching vehicles are adequate but side street delays for motorists/pedestrians occurred due to vehicle volumes on Sheppard Avenue East are increasing with time. As outlined in the above table, the pedestrian volumes and delays do not satisfy the technical requirements to install a pedestrian crossover at the subject intersections at this time on its own. However, a PXO would be warranted under engineering judgement as the next level of pedestrian crossing protection superior to a PRI that would also help to reduce pedestrian delays.

Environmental Standards for PXO Suitability

Transportation services staff conducted a detailed review of this location and compared the standards at this PXO with the recommended design standards, or “environmental standards, for PXO’s as developed by the Province of Ontario in consultation with Ontario municipalities. These criteria describe a roadway environment suitable for this type of control, and exposure factors which would make a PXO unsuitable or potentially unsafe.

The following table outlines our review of these PXO criteria and whether they are satisfied at this location:

Standards or Criteria to be Met for Physical Suitability of a PXO	Met/ Not Met	Comment
Vehicle operating speed less than 60 Km/h	Not Met	85 th percentile is 71Km/h (EB), 85 th percentile is 72 Km/h (WB); Average 85 th percentile is 72 Km/h. (Posted speed limit is 60 km/h).
Not more than four lanes wide on a two-way street or more than three lanes wide on a one-way street.	Not Met	5 lanes, 21.6 metres road width.
Traffic volume less than 35,000 vehicles per day (total both directions)	Met	21,170 vehicles per day.
No driveways or entrances nearby	Met	McAsphalt/8800 Sheppard Ave E three main driveways on Rouge River Drive/west intersection
No significant volume of turning movements which interfere with PXO.	Met	McAsphalt/8800 Sheppard Ave E 110 metres to the west on Sheppard Ave E Parking Lot to Fire Station #212, 125m & Main driveway 199m to the west
No visibility problems exist for either pedestrians or motorists.	Met	Visibility is adequate
No loading zones (including TTC) in the immediate vicinity.	Not Met	TTC bus stops are located on both sides of Rouge River Drive/west intersection Sheppard Avenue East in direct proximity
Not less than 215 metres to another PXO or traffic control device.	Met	507 metres north to TCS at Rouge River Drive/east intersection/Dean Park Road, 286 metres west to TCS at Sheppard Avenue East and Conlins Road

As described above, this potential PXO location would fail to meet three of the above “Environmental Standards” and would not be feasible at this location. Of particular importance is the operating speed in excess of 60 km/h.

Traffic Control Signal Warrant Study

The next level of pedestrian crossing protection to consider would be Traffic Control Signals (TCS).

A Traffic Control Signal Warrant Study was conducted at the intersection of Rouge River Drive/west intersection and Sheppard Avenue East. Using traffic volumes recorded over the peak eight hours of a typical weekday on two separate occasions, the following results were obtained:

Traffic Control Signal Warrant	Compliance Level	
	Thursday, May 4, 2006	Monday, December 15, 2008
Minimum Vehicular Volume	29%	50%
Delay To Cross Traffic	22%	25%
Collision Hazard	0%	0%

For traffic control signals to be numerically justified, one of the “Minimum Vehicular Volume” or “Delay to Cross Traffic” warrants must be 100% satisfied or any two of the three warrants must be at least 80% satisfied.

The installation of traffic control signals are technically not justified using the Traffic Signal Warrant calculations. For traffic control signals to be numerically justified, one of the “Minimum Vehicular Volume” or “Delay to Cross Traffic” warrants must be 100% satisfied or any two of the three warrants must be at least 80% satisfied. However, they are justified under engineering judgement as they would provide the only feasible measure of pedestrian crossing protection that is warranted at this location.

Collision History

A review of the Toronto Police Service collision records for the seven-year period from January 1, 2001 to December 31, 2007 has revealed that there has been no recorded collision potentially preventable by the installation of traffic control signals. Likewise, during this time period, there has been no recorded collision involving pedestrians crossing Sheppard Avenue East. Since these studies were conducted, one pedestrian collision has been reported. This collision occurred on November 27, 2010 and involved a pedestrian being struck by a westbound motorist. Although injured, the pedestrian was charged in this instance.

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

In summary, although traffic control signals are not justified under the warrant process, engineering judgement indicates that an appropriate level of pedestrian crossing protection, by way of traffic control signals should be installed at the subject intersection.

The Toronto Transit Commission has been consulted and has indicated that this location is being considered for a potential future Light Rapid Transit stop which would require traffic control signals.

CONTACT

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

SIGNATURE

Peter J. Noehammer, P.Eng.
Director, Transportation Services, Scarborough District

JAB:ca/lab

ATTACHMENTS

1. Location Plan (Proposed Traffic Control Signals - Rouge River Drive/west intersection and Sheppard Avenue East)