

INTERSECTION AND ACCESS IMPROVEMENTS

ST. ANDREW'S COLLEGE 15800 YONGE STREET TOWN OF AURORA

1. Background Information

St. Andrew's College is one of Canada's oldest and largest all-boys boarding and day schools. The school accommodates boarding and day students from Grade 6 to university entrance.

St. Andrew's College staff and parents have voiced their concerns about pedestrian safety and traffic operations at the school entrance for over 20 years. Pedestrians do not feel secure crossing a five-lane roadway with high traffic volumes and high traffic speeds.

In May 1995, an Aurora resident reported in a letter to the Mayor of Aurora that she witnessed how three school boys were nearly involved in a potentially serious collision as they crossed Yonge Street from the GO bus stop. In response, Aurora's Town Council passed a resolution requesting the Ministry of Transportation and The Regional Municipality of York to consider crosswalks, traffic signals, warning lights and a reduction in the speed limit to improve pedestrian safety at this location.

Since the Region assumed jurisdiction of Yonge Street in 1996, it has responded to these safety concerns by lowering the speed limit to 60-km per hour and demarcating Yonge Street, on either side of the school entrance, as a school zone with appropriate oversized pedestrian warning signs.

Requests for a traffic signal have been declined by Regional staff because, according to the Region's traffic signal policy, the amount of traffic entering and leaving the school entrance is too low to warrant traffic signals. Additionally, it is feared that the unwarranted traffic signals will cause a significant increase in rear-end collisions on Yonge Street.

Requests for an intersection pedestrian signal (IPS) have been declined because the number of pedestrians crossing Yonge Street is too low. The warrant, approved by Council on February 21, 2002 requires a minimum of 100 pedestrians to cross during the highest seven hours of a day. Recently, on October 21, 2004, 11 pedestrians were counted crossing Yonge Street at or close to the school entrance over an eight-hour period.

Regional staff does not support an uncontrolled marked crosswalk because it is well known that such crosswalks create a false sense of security for pedestrians, causing them to be less careful and vigilant when crossing a road. Research has shown that marked crosswalks are considerably less safe than unmarked crosswalks.

School staff and parents believe that speed reduction and school zone measures are not sufficient and that a traffic signal is the most appropriate measure to address their concerns. To this end, the Headmaster of St. Andrew's College recently initiated a petition to request the Region to install traffic signals.

2. Analysis and Options

2.1 Signal Warrant Analysis

On Thursday, October 21, 2004, Regional staff conducted an eight-hour traffic turning movement count at the entrance to St. Andrew's College and Yonge Street. The turning movement data was used to conduct a signal warrant analysis according to the Region's policy approved by Council on October 17, 2002.

The following table shows the results of the signal warrant analysis.

Table 1
Signal Warrant Analysis – St. Andrew's College

Warrant Component	Warrant Compliance
Minimum vehicular delay	33%
Delay to cross traffic	42%
Collisions (last 3 years)	1

Traffic signals are warranted when two of the warrant components are at or above 80%, or if five or more collisions, which can be prevented by traffic signals, have occurred over a three-year period. None of these warrant criteria are satisfied at the St. Andrew's College entrance on Yonge Street.

Installing traffic signals at this location that do not meet the traffic signal warrant, could result in a reduction in overall intersection safety. Specifically, the installation of a traffic signal could increase rear-end collisions on Yonge Street by up to 60%. Additionally, the delay to traffic from St. Andrew's College will substantially increase during periods of the day outside of peak hours. This increased delay will result in increased driver frustration and the potential of non-compliance with the traffic signal indications (i.e. red light running), resulting in potentially severe right angle collisions.

2.2 Intersection Pedestrian Signal (IPS) Warrant Analysis

The following table summarizes the IPS minimum criteria based upon the traffic data collected at the St. Andrew's College driveway and Yonge Street on Thursday, October 21, 2004. The warrant analysis was conducted according to Regional policy approved by Council on February 21, 2002.

Table 2
Intersection Pedestrian Signal Warrant Analysis

Warrant Criteria	Warrant Satisfied?
Should not be installed closer than <i>215 metres</i> to another traffic control signal or stop sign on a two-way street.	Yes
Should not be installed on roadways with a posted speed in excess of <i>60 km/hr</i> .	Yes
Adequate sight distance must be available for both pedestrians and vehicles for the operating speed of the roadway.	Yes
Minimum of <i>100 pedestrians</i> must be present crossing the main street during the seven highest hours of the day.	No
Maximum of <i>5,000 vehicles per day</i> on the intersecting side street approaches.	Yes

For an intersection pedestrian signal to be warranted, all the warrant criteria in Table 2 must be satisfied i.e. have “Yes” answers. During the morning peak period between 7:30 am and 8:30 am, eight pedestrians crossed Yonge Street south of the school entrance. Over the eight hours between 7:00 am and 6:00 pm that traffic counts were conducted, a total of 11 pedestrians crossed Yonge Street south of the school entrance.

2.3 Speed Limit

The existing speed limit on Yonge Street past the entrance to St. Andrew's College is 60-km per hour.

A speed study conducted on Tuesday, November 10, 2004 found that the average speed on Yonge Street is 65-km per hour and that 85% of vehicles are travelling at or below 77-km per hour. About 56% of drivers exceeded the 60-km per hour speed limit.

According to the Region's speed limit policy, adopted by Council on September 23, 2004, there is no justification for lowering the speed limit. However, to further enhance the security of pedestrians and motorists, it is recommended, in a separate report to Committee, that the speed limit be reduced to 50-km per hour. However, without consistent enforcement, it is unlikely that drivers will significantly lower their travel speeds, considering how they already consider the 60-km per hour speed limit to be inappropriate.

2.4 Traffic Operations

Yonge Street, in the vicinity of the entrance to St. Andrew's College, has a two-way left turn lane. This lane provides adequate and safe queuing space for northbound left turn vehicles.

There are no sight distance restrictions that make it unsafe for eastbound vehicles exiting the entrance to perform left or right turning manoeuvres.

At this location, pedestrians have to cross over five lanes of traffic. During peak traffic times, it is highly unlikely that a student will be able to cross Yonge Street without seeking refuge in the centre two-way left turn lane, where they will be in conflict with northbound and southbound left turn traffic. Pedestrians should not be allowed to cross Yonge Street at this location. To this end, it is recommended that the GO bus stop be eliminated and that students rather cross Yonge Street at St John's Sideroad where there are already traffic signals that will allow pedestrians the opportunity to safely cross Yonge Street.

2.5 Recommendations

It is recommend that:

- Traffic signals not be installed.
- The 60-km per hour speed limit be lowered to 50-km per hour.
- The GO bus stops at the school entrance be eliminated.