

INTERSECTION AND ACCESS IMPROVEMENTS

HOLY TRINITY SCHOOL 11300 BAYVIEW AVENUE TOWN OF RICHMOND HILL

1. Background Information

The Holy Trinity School is a coeducational and independent university preparation day school affiliated with the Anglican Church of Canada. There are currently 700 day students enrolled from grades SK-12.

Due to the extremely high levels of congestion that occur at the school's entrance on Bayview Avenue between 7:45 am and 8:20 am (when parents drop their children off at school) a number of requests were made for a traffic signal at the school entrance.

These 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 outside the time period of 7:45 am to 8:20 am 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 Bayview Avenue.

To control traffic between 7:45 am and 8:15 am, the school has retained the services of a paid duty police officer at a cost of about \$30,000 per year. It is unlikely that a traffic signal will respond to changing traffic patterns, and manage traffic as well as a paid duty police officer.

The Region recommended that the school continue to use the services of a paid duty police officer and that they also implement a number of *travel demand management* measures to decrease the high rate of traffic flow towards the school between 7:45 am and 8:20 am. These measures could include the greater use of school buses, ride sharing and staggered classroom starting times. Currently, only two school buses drop students off in the morning.

Recently, the headmaster, Mr. George Rutherford, also informed the Region that long queues on the southbound approach cause drivers to drive on the gravel shoulder to enter the southbound right turn lane. In response, the Region will pave the gravel shoulder to increase the length of the southbound right turn lane on Bayview Avenue.

2. Analysis and Options

2.1 Signal Warrant Analysis

On Thursday, April 3, 2003, Regional staff conducted an eight-hour traffic turning movement count at the entrance to Holy Trinity School from Bayview Avenue.

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.

Table 1 below shows the results of the signal warrant analysis.

Table 1
Signal Warrant Analysis – Holy Trinity School

Warrant Component	Warrant Compliance
Minimum vehicular delay	50%
Delay to cross traffic	39%
Collisions (last 3 years)	0

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, occurred over a three-year period. None of these warrant criteria are satisfied at the Holy Trinity School driveway on Bayview Avenue.

During the eight-hour turning movement count on Thursday, April 3, 2003, no pedestrians crossed at the driveway or in the vicinity of the school.

2.2 Traffic Operations

Regional staff has observed and reviewed traffic operations and analyzed traffic data on a number of occasions in the past. The key observations and findings are as follows:

- Throughout the day, there are sufficient gaps in traffic on Bayview Avenue for northbound left turn vehicles and eastbound left turn vehicles to perform safe manoeuvres, except for a short period of time between 7:45 am and 8:20 am. During this time, traffic is controlled safely and effectively by a paid duty police officer.
- The northbound left turn queue sometimes extends beyond the Subrisco Avenue intersection into the northbound through-lane, where it interferes with northbound through traffic and traffic exiting from Subrisco Avenue.
- Southbound queues prevent drivers from entering the southbound right turn lane, causing drivers to drive on the gravel shoulder to access the right turn lane.
- On-site traffic sometimes backs up into the school entrance preventing traffic on Bayview Avenue to perform left or right turning manoeuvres. An internal loop road, which could increase on-site storage capacity, has been closed with flexi-post traffic barrier poles.

Micro traffic simulation and capacity analysis have shown that should traffic signals be installed, traffic congestion will continue to be a concern between 7:45 am and 8:20 am. There will still be long northbound left turn queues, on-site traffic will still back up into the intersection, and long southbound queues will still prevent right turn vehicles from entering the southbound right turn lane. A traffic signal is unlikely to manage the traffic more safely and effectively than a paid duty police officer.

For the remainder of the day, traffic signals will cause unnecessary and unwarranted stops and delays to vehicles on Bayview Avenue. Installing traffic signals at this location, that does not meet the traffic signal warrant, could result in a reduction in overall intersection safety. Specifically, the installation of traffic signals could increase the occurrence of rear-end collisions on Bayview Avenue by as much as 60%. Additionally, the average delay to traffic leaving the school will increase substantially during periods of the day outside of peak hours. This increased delay will result in driver frustration and possible non-compliance with the traffic signal indications, resulting in potentially severe right angle collisions.

The most practical solution to address the school's concerns is to reduce the extremely high rate of flow into the school between 7:45 am and 8:20 am. The left turn rate of flow into the school during this period is between 600 and 700 vehicles per hour. To put it in perspective, at the intersection of Highway 7 and Weston Road, in the City of Vaughan, the highest volume intersection in York Region, the southbound left turn flow rate is about 650 vehicles per hour. There are no practical engineering or traffic control measures that York Region can implement to reduce the flow rate, however, the school could investigate the following options:

- Facilitate the greater use of school buses.
- Encourage ride-sharing between parents.
- Stagger classroom starting times.

2.3 Recommendations

It is recommended that the status quo remain, i.e. that the school continues to use the services of a paid duty police officer to control traffic. To reduce the incidence of vehicles backing up into the school entrance, we recommend that the internal loop road be opened to traffic to improve on-site vehicle storage capacity. To reduce the risk of collisions involving southbound right turn vehicles, the Region will pave the gravel shoulder to increase the length of the southbound right turn lane.