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TRAFFIC CONTROL SIGNALS
HIGHWAY 27 AT KIRBY ROAD
CITY OF VAUGHAN

The Transportation and Works Committee recommends the adoption of the recommendations contained in the following report, August 23, 2006, from the Commissioner of Transportation and Works:

1. RECOMMENDATIONS

It is recommended that:

1. Traffic control signals not be installed at the intersection of Highway 27 (Y.R. 27) at Kirby Road, in the City of Vaughan, at this time.
2. The Regional Clerk forward this report to the Clerk of the City of Vaughan.

2. PURPOSE

The purpose of this report is to address the City of Vaughan's request for the installation of traffic control signals at the intersection of Highway 27 at Kirby Road. A plan showing the location of the intersection is shown in *Attachment 1*.

3. BACKGROUND

At its regularly scheduled meeting on May 23, 2006, the City of Vaughan's Committee of the Whole, recommended the following:

"That the Region of York be requested to review the need for traffic signals at the intersection of Highway 27 and Kirby Road to address the safety concerns expressed to the City and that installation be scheduled through the appropriate process."

4. ANALYSIS AND OPTIONS

The Region's policy for the installation of traffic control signals is based on a series of guidelines established by the Ministry of Transportation and those approved by Regional Council at its meeting on October 17, 2002. The following warrants are to be used to determine whether or not traffic control signals are justified at a location:

- Traffic Control Signal Warrants as outlined in Book 12 of the Ontario Traffic Manual
- Safety Warrant
- "T" Type Intersections Warrant

- Peak Hour Delay For Entering onto the Major Street from the Side Street
- Installation of Unwarranted Traffic Signals Paid by Local Municipalities

Table 1 summarizes the Traffic Signal Warrant from the traffic data collected at the intersection of Highway 27 at Kirby Road on Wednesday, March 29, 2006.

Table 1
Traffic Signal Warrant Analysis

Warrant Component	Highway 27 at Kirby Road
1. Minimum Vehicular Delay	58 %
2. Delay to Cross Traffic	72 %
3. Collision Hazard (last 3 years)	0 %
Additional Criteria	
“T” Intersection	Offset intersection
Minor Street Peak Hour Delay:	
Unsignalized	89 sec/veh
Signalized	53 sec/veh
Safety Performance	Not improved with signals
Paid by Local Municipality	Not warranted (<70%)

The Ministry of Transportation guidelines indicate that an intersection meets the warrant conditions for traffic control signals when two of the warrant components are at or above 80% compliant, or one component is 100% compliant.

In addition, Regional Council at it’s meeting of October 2, 2002, adopted a policy on the installation of traffic control signals that takes safety performance and peak hour delay into consideration when conducting a traffic signal warrant. The safety warrant of this policy indicates that there would be no reduction in collisions if the intersection was to be signalized, however, the minor street peak hour delay warrant suggests that signalizing the intersection will slightly decrease the delay to the minor street.

Installing traffic control signals at a location that does not meet the traffic signal warrant can result in a reduction in overall intersection safety. Specifically, the installation of traffic control signals increases the occurrence of certain types of collisions. Rear-end collisions on the major streets, for example, can increase by as much as 60% after the installation of traffic control signals. Additionally, the average delay to side street traffic is often substantially increased during periods of the day outside of peak hours – a likely outcome in this instance.

This increased delay can result in driver frustration and non-compliance with the traffic signal indications. To avoid these safety concerns, the Region’s policy is to install traffic

control signals only if the warrant criteria are met. In accordance with York Region's current policy, this intersection does not satisfy the traffic signal warrants, therefore, traffic control signals are not recommended at this time.

Currently, the west leg of Kirby Road is offset to the north of the east leg of Kirby Road. There are no turning lanes at the intersection either on Highway 27 or on Kirby Road. Prior to installing traffic control signals at the intersection of Highway 27 and Kirby Road the intersection must be realigned to eliminate the jog at the intersection and turning lanes must be installed on Highway 27 and Kirby Road. In order to complete this work public consultation is required, plans and specifications prepared, and property must be purchased. It is estimated that this process will take one to two years to complete and cost in the order of \$3,000,000.

4.1 Local Municipalities

There are occasions where local municipalities offer to pay for the installation of traffic signals at locations under the jurisdiction of The Regional Municipality of York that are unwarranted. The current policy states that only warranted traffic control signals be installed. However, the policy also allows local municipalities to pay for the installation of unwarranted traffic signals, subject to a number of conditions being met:

- Warrant 1 and Warrant 2 be satisfied by at least 70% (standard warrant values are 80%).
- All installation costs be incurred by the local municipality. The actual cost at the time of construction will be billed to the municipality. Installation costs are estimated at \$120,000 per location for a permanent installation, and \$60,000 for a temporary installation.
- All ongoing maintenance costs to be incurred by the local municipality, until such time as the traffic signals become warranted. Ongoing maintenance costs are estimated at \$4,000 per location/annually. The actual maintenance costs will be charged.
- If and when the traffic signal becomes warranted, the Region will reimburse the local municipalities 100% of the original installation cost of permanent signals. Temporary installation will be done in areas where road improvements are planned within five years. For temporary installation, the Region will reimburse the local municipality, the value of the material that is recoverable.

Currently, this intersection does not meet this warrant, however, it is approaching the values where the City of Vaughan may want to indicate if it is willing to pay for the signals when the warrants are 70% met.

5. FINANCIAL IMPLICATIONS

The estimated cost to install signals at this intersection is \$120,000, with an annual operating cost of \$4,000. However, prior to installing traffic control signals the intersection must be reconstructed to eliminate the jog on Kirby Road and provide the required turning lanes. The estimated cost of this reconstruction is \$3,000,000.

6. LOCAL MUNICIPAL IMPACT

The City of Vaughan's Committee of the Whole have requested traffic control signals at the intersection of Highway 27 and Kirby Road in response to concerns expressed by the public. This intersection does not warrant traffic control signals at this time. Regional staff will continue to monitor this intersection for changes in traffic patterns and pedestrian movement.

7. CONCLUSION

This report is in response to the City of Vaughan's Committee of the Whole meeting of May 23, 2006, requesting the installation of traffic control signals at the intersection of Highway 27 at Kirby Road, in the City of Vaughan. This intersection does not satisfy the minimum traffic signal warrant conditions, therefore, staff recommends that traffic control signals not be installed at this time.

The Senior Management Group has reviewed this report.

(The attachment referred to in this clause was included in the agenda for the September 6, 2006 Committee meeting.)