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INTERSECTION IMPROVEMENT REQUEST 14TH AVENUE AT HOAKE ROAD / REDKEY DRIVE TOWN OF MARKHAM

The Transportation and Works Committee recommends the adoption of the recommendations contained in the following report, November 18, 2005, from the Commissioner of Transportation and Works:

1. RECOMMENDATIONS

It is recommended that:

1. Traffic control signals not be implemented at the intersection of 14th Avenue (Y.R. 71) and Redkey Drive/Hoake Road at this time.
2. The Regional Clerk forward this report to the Clerk of the Town of Markham.

2. PURPOSE

The purpose of this report is to provide information to Committee and Council on the feasibility of implementing traffic control signals at the intersection of 14th Avenue and Redkey Drive/Hoake Road in the Town of Markham. The location of this intersection is shown in *Attachment 1*. This report includes a traffic control signal and Intersection Pedestrian Signal (IPS) warrant analysis, taking into account current Regional Council policies.

3. BACKGROUND

In the past the Region has received a number of requests for traffic control signals at the intersection of 14th Avenue and Redkey Drive/Hoake Road. On each occasion the request was declined due to side road traffic volumes being too low to warrant traffic control signals.

Most recently, in June 2005, staff received a petition containing 188 signatures requesting traffic control signals, and at the Transportation and Works Committee meeting on October 12, 2005 a local resident, Amir Jesse Ali (a Grade 5 student), made a deputation, also requesting traffic signals at the intersection of 14th Avenue and Redkey Drive/Hoake Road. Residents are concerned about the high traffic volumes and speeds on 14th Avenue and the difficulty that motorists and pedestrians have in crossing 14th Avenue.

The community north of 14th Avenue around Redkey Drive and Boxhill Road does not have a signalized access to 14th Avenue. Children in this community that walk to and from the St Francis Xavier Catholic elementary school (on Highglen Avenue) and the Randall Public elementary school (on Randall Avenue) i.e. children that do not use the school buses, cross 14th Avenue in the vicinity of this intersection. The closest signalized intersections are at Brimley Road, 840 metres to the west and at McCowan Road, 410 m to the east. These intersections are not conveniently situated and are unlikely to be used by pedestrians walking to and from the schools.

The community to the south of 14th Avenue has signalized access to 14th Avenue at Brimley Road and has signalized access to McCowan Road at Highglen Avenue.

Concerns have also be expressed about high vehicle speeds on Redkey Drive and the dangers that this poses to children getting on and off the school bus that stops along Redkey Drive. Since Redkey Drive is a municipal road this is an issue for the Town of Markham to address.

3.1 Current Regional Policies

3.1.1 Traffic Control Signal Warrant

The Region's Traffic Control Signal Warrant Policy was approved by Regional Council on October 17, 2002. The warrant is based on the traffic control signal warrants as outlined in Book 12 of the Ontario Traffic Manual. For a traffic control signal to be warranted, any one of the three warrant criteria below must be satisfied by 100%, or at least two warrant criteria by 80%. The first warrant criterion accounts for the total amount of traffic using an intersection, the second warrant criterion accounts for the delay to side road traffic, and the third warrant criterion accounts for the safety performance of an intersection.

3.1.2 Payment for Signals

When an intersection of a public road allowance with a Regional road meets the warrants, the intersection is programmed into the Intersection Improvement Program and paid for through tax levies and development charges.

The Region's Traffic Control Signal Warrant Policy also stipulates that a local municipality can pay for the installation of unwarranted traffic control signals provided that Warrant 1, and Warrant 2, are satisfied by at least 70%, and that all installation and ongoing maintenance costs be incurred by the local municipality until traffic control signals become warranted.

3.1.3 Intersection Pedestrian Signal

The Region's Intersection Pedestrian Signal (IPS) Warrant Policy was approved by Regional Council in January 2002.

In terms of the policy an IPS can only be considered if all the following criteria are satisfied:

- Should not be installed closer than 215 metres to another traffic control signal or stop sign on a two way street.
- Should not be installed on roadways with a posted speed in excess of 60 km per hour.
- Adequate sight distance must be available for both pedestrians and vehicles for the operating speed of the roadway.
- Minimum of 100 pedestrians must be present crossing the main street during the seven highest hours of the day.
- Maximum of 5,000 vehicles per day on the intersecting side street approaches.

4. ANALYSIS AND OPTIONS

Recognizing the need for a safe crossing location for students and other pedestrians, and in consideration of previous requests for traffic control and intersection pedestrian signals, staff carried out various studies, counts and analysis to determine the need and warrant for traffic control signals at the intersection of 14th Avenue (Y.R. 71) and Redkey Drive/Hoake Road.

4.1 Warrant Analysis

On Tuesday, October 18, 2005, Regional staff conducted an eight-hour traffic turning movement count at the intersection of 14th Avenue and Redkey Drive/Hoake Road between the hours of 6:00 am and 6:00 pm. The turning movement data was used to conduct a traffic control signal warrant analysis according to the Region's policy approved by Council on October 17, 2002.

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

Table 1
Traffic Control Signal Warrant Analysis: 14th Avenue and Redkey Drive/Hoake Road

Warrant Component	Warrant Compliance
Minimum vehicular delay	56%
Delay to cross traffic	57%
Preventable collisions (last 3 years)	0

Traffic control 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 control signals, occurred over a three-year period. None of these warrant criteria are satisfied at the intersection of 14th Avenue and Redkey Drive/Hoake Road.

Since August 2005 three separate pedestrian counts were conducted –on August 2, September 6 and October 18, 2005. On these days, over an 8-hour period, the number of pedestrians that crossed 14th Avenue at this location were 6, 7 and 13 respectively. The predominant pedestrian movement is in the east-west direction, across Hoake Road and Redkey Avenue. These pedestrians are in all likelihood walking to and from the Father Michael McGivney Catholic Secondary School on the east side of McCowan Road, north of 14th Avenue, and if needed can cross 14th Avenue safely at the signalized intersection with McCowan Road.

For an Intersection Pedestrian Signal (IPS) to be warranted a minimum of 100 pedestrians need to cross 14th Avenue over an 7-hour period. Therefore an IPS is not warranted at the intersection of 14th Avenue and Redkey Drive/Hoake Road.

4.2 Safety Performance

A collision assessment was completed to identify any collision pattern or trend. Between 2000 and 2004 one rear-end collision was reported to York Regional Police.

Installing traffic control signals at locations that do not yet 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. This increased delay can result in driver frustration and non-compliance with the traffic control signal indications.

5. FINANCIAL IMPLICATIONS

There are no financial implications associated with this report.

6. LOCAL MUNICIPAL IMPACT

There is no local municipal impact associated with this report.

7. CONCLUSION

This report is in response to a petition and a deputation made to the Transportation and Works Committee on October 12, 2005 requesting traffic control signals at the intersection of 14th Avenue and Redkey Drive/Hoake Road in the Town of Markham. Warrant analysis have shown that neither traffic control signals nor an Intersection Pedestrian Signal is warranted at this intersection at this time.

Staff therefore recommend that neither traffic control signals nor intersection pedestrian signals be installed at this time and that staff continue to monitor traffic and pedestrian volumes at this intersection.

The Senior Management Group has reviewed this report.

(The attachment referred to in this clause was included in the Agenda for the November 30, 2005 Committee meeting.)