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TURN RESTRICTION
16TH AVENUE AND LONGWATER CHASE
TOWN OF MARKHAM

The Transportation Services Committee recommends the adoption of the recommendations contained in the following report dated August 18, 2011, from the Commissioner of Transportation Services.

1. RECOMMENDATIONS

It is recommended that:

1. A westbound left turn restriction (buses excepted) be implemented on 16th Avenue (Y.R. 73) at Longwater Chase East between the hours of 7:00 a.m. and 9:00 a.m., Monday to Friday, in the Town of Markham.
2. A westbound left turn restriction (buses excepted) be implemented on 16th Avenue (Y.R. 73) at Longwater Chase West between the hours of 7:00 a.m. and 9:00 a.m., Monday to Friday, in the Town of Markham.
3. The Regional Solicitor prepare the necessary by-laws.
4. The Regional Clerk circulate this report to the Clerk of the Town of Markham and the Chief of York Regional Police, with a request to enforce as their resources permit.

2. PURPOSE

This report is to obtain Regional Council approval to implement westbound left turn restrictions at the intersections of 16th Avenue at Longwater Chase East and West, in the Town of Markham.

3. BACKGROUND

The intersection of Longwater Chase East and West are T-type intersections to the south, located on 16th Avenue east of Kennedy Road. These intersections are stop-controlled on Longwater Chase with exclusive turning lanes on all approaches. During 7:00 a.m. to 9:00 a.m., Monday to Friday, approximately 80 vehicles turn left at Longwater Chase East and approximately 100 vehicles turn left at Longwater Chase West. 16th Avenue is a five-lane semi-urban roadway with a posted speed limit of 70 kilometres per hour and

carries approximately 32,000 vehicles per day. These intersections provide access to a residential community and St Matthew Catholic Elementary School.

Town of Markham staff conducted a study and survey of the community and have requested a morning peak period left-turn prohibition

Local residents have requested left turn restrictions at the intersections of 16th Avenue at Longwater Chase East and West to restrict westbound motorists on 16th Avenue from cutting through their community to by-pass the intersection of 16th Avenue and Kennedy Road.

In response to resident requests, Town of Markham undertook an origin-destination study and survey of the local community for public support in implementing left turn restrictions at the intersections of 16th Avenue at Longwater Chase East and West and have requested a left-turn prohibition.

A location plan and the results of the origin/destination study are shown on *Attachment 1*.

A Regional by-law is required before any turn restriction can be enforced

In accordance with the *Highway Traffic Act*, a Regional by-law is required before any traffic restriction can be signed and enforced on a Regional road. This report describes the impacts of the prohibition.

4. ANALYSIS AND OPTIONS

89% of residents are in favour of westbound left turn restrictions at the intersections of 16th Avenue at Longwater Chase East and West during the morning peak traffic period

In order to implement turn restrictions within the Region, a survey of area residents must be conducted by the local municipality in order to establish support. The purpose of this is to make residents aware that all motorists using these intersections will be affected once the restriction is installed. The turning restrictions will require area residents to alter their typical routes to get to and from their homes during the restricted hours.

Regional staff have typically requested a 66% majority of residents be in favour of any turning restrictions before it is recommended to Regional Council; this is consistent with local municipal guidelines. In this case, the results exceed that requirement and the overall response rate from the community is satisfactory.

Town of Markham staff circulated a survey to 512 area residents to determine the percent of residents in favour of the restrictions. Markham staff received 254 completed surveys

out of 512, for a response rate of 50%. The results of this survey indicate that 89% of residents who returned the survey are in favour of the turn restrictions.

St. Matthew Catholic Elementary School is located in the community and will be impacted by the westbound left turning restrictions

Regional staff have reviewed the existing land use in the area of 16th Avenue and Longwater Chase East and West. This area is mostly residential; however, St. Matthew Catholic Elementary School is located in the community which can only be accessed via Longwater Chase from the north and Carlton Road from the south. Any visitors, delivery vehicles, and service vehicles destined to the school must pass through one of these roads in order to get to the school. During the restricted hours, these vehicles will not be able to turn left at the intersections of 16th Avenue and Longwater Chase East and West to access the school. These vehicles will need to change their delivery route or time to conform to the restrictions. However, school buses and local transit services will be exempt from these restrictions and advertised on the turn restriction signs installed at the intersections.

Town of Markham staff did not identify any school-related traffic that used Longwater Chase to get to St. Matthew Catholic Elementary School. However, the study results show that approximately 30 vehicles made a left turn from 16th Avenue at Longwater Chase East and West and passed by the school during the two-hour study. In addition, Town of Markham staff have received support from the school administration for the left turn restrictions.

The turn restrictions will increase the eastbound delay at the intersection of 16th Avenue and Kennedy Road during the morning peak period

Approximately 180 motorists are currently turning left at 16th Avenue and Longwater Chase East and West in the morning period. These motorists will be forced to use alternate routes to get to their destination, which will add additional demand on the Regional road network, including the intersection of 16th Avenue and Kennedy Road where 260 vehicles already make a westbound left turn in the morning peak.

If all the traffic stays on 16th Avenue, then the turn restrictions are expected to add approximately 180 vehicles to the westbound left turn movement, over a two-hour period, at the intersection of 16th Avenue and Kennedy Road. To assess the impact of this additional left turn traffic on intersection operations staff conducted intersection capacity analysis for three scenarios:

- 1) Existing signal timings
- 2) Existing signal timings with additional westbound left turn traffic
- 3) Optimized signal timing with additional westbound left turn traffic

The average delay to motorists for each scenario is listed in Table 1.

Table 1
Traffic Signal Delay Analysis
16th Avenue and Kennedy Road

Direction of Travel	Existing (seconds/veh.)	Existing + Additional WBLT* Traffic (seconds/veh.)	Optimized + Additional WBLT* Traffic (seconds/veh.)
Westbound Left	31	84	34
Westbound Through	106	106	106
Eastbound Left	102	102	102
Eastbound Through	22	22	35

* WBLT – Westbound Left Turn

To accommodate the additional westbound left turn vehicles the duration of the existing westbound left turn phase will have to be increased. This will require that we reduce the duration of the eastbound green phase by the same amount. This reduction will increase the delay to eastbound through traffic by approximately 13 seconds per vehicle. The eastbound through traffic is relatively light and will maintain a very good level of service compared to the westbound through phase. Northbound, southbound and westbound green phase times will not be impacted if signal timings are optimized to accommodate the additional left turn vehicles.

It should be noted that the only reason the left turn restrictions have been requested is to reduce traffic infiltration through adjacent neighbourhoods. There is no safety justification for these restrictions. Therefore, should drivers not comply with the turn restrictions we do not expect there to be any safety issues. The Town of Markham staff will be required to work with York Regional Police to ensure that drivers comply with the turn restrictions, solely to the benefit of the local community.

Local through traffic control plans add traffic to the arterial road system and increase overall delay and congestion throughout the Region

It is important to note that the hierarchy of the streets in York Region has been designed as a system to provide mobility to residents. The more traffic is taken off collector and local streets, the more delay and congestion there will be on Regional roads.

5. FINANCIAL IMPLICATIONS

The financial implication to the Region is limited to the cost of manufacturing and implementing the turn restriction signs, which is included in the 2011 Transportation Services Budget.

6. LOCAL MUNICIPAL IMPACT

Implementing a westbound left turn restriction (buses excepted) from 16th Avenue onto Longwater Chase East and West between the hours of 7:00 a.m. and 9:00 a.m., Monday to Friday will restrict motorists destined to St. Matthew Catholic Elementary School and other destinations located south of 16th Avenue east of Kennedy Road.

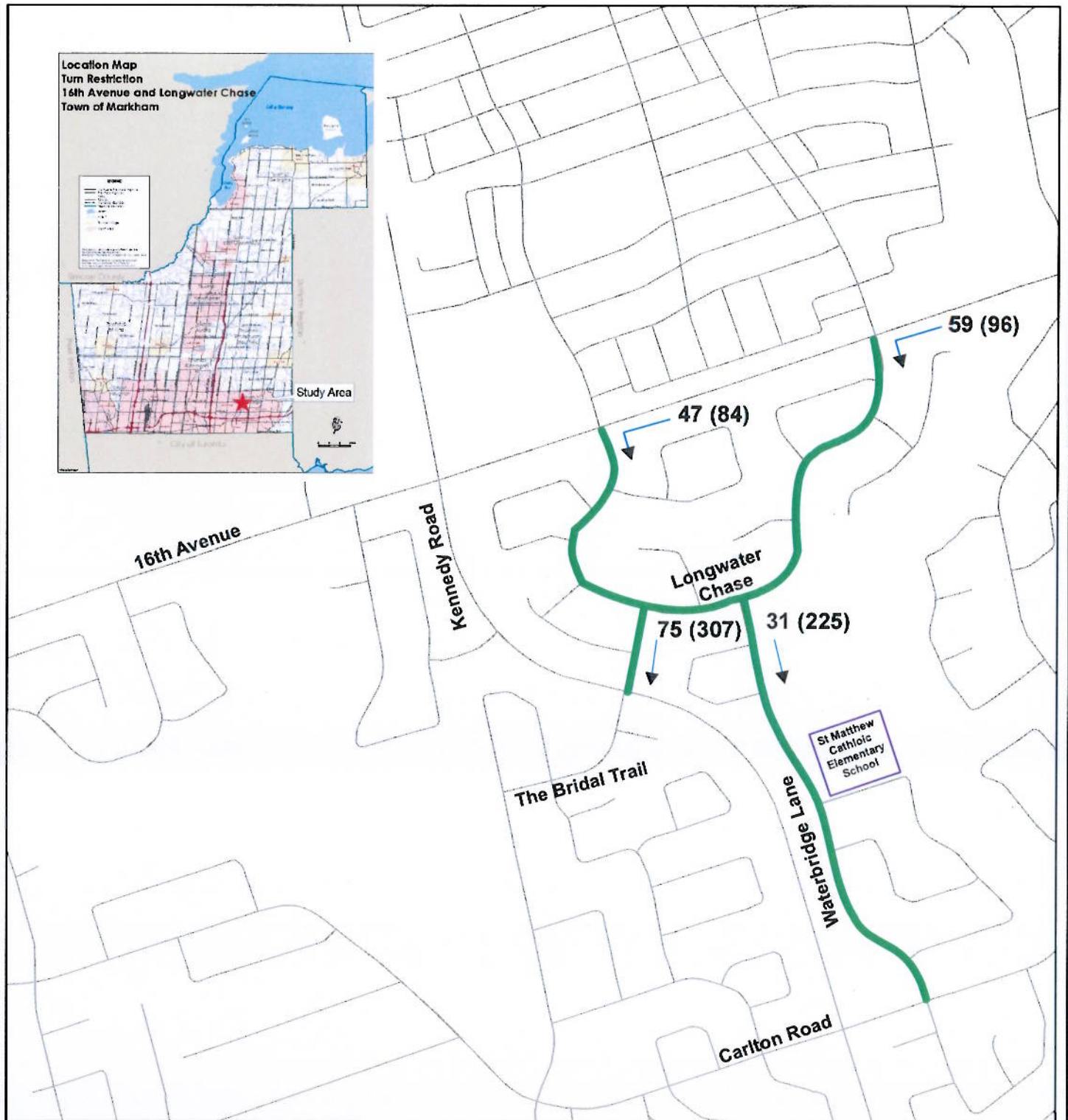
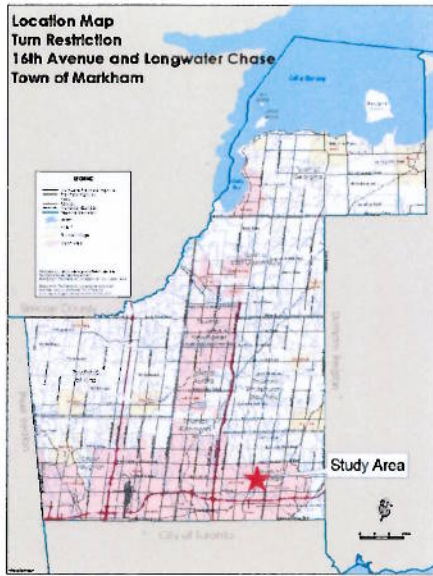
7. CONCLUSION

Regional staff recommends the implementation of westbound left turn restrictions (buses excepted) at the intersections of 16th Avenue and Longwater Chase East and West between the hours of 7:00 a.m. and 9:00 a.m., Monday to Friday.

For more information on this report, please contact Steven Kemp, Director, Traffic Management and Intelligent Transportation Systems at Ext. 5226.

The Senior Management Group has reviewed this report.

(The attachment referred to in this clause is attached to this report.)



LOCATION PLAN

Turn Restriction
16th Avenue and Longwater Chase
Town of Markham



— Origin-Destination Study
XX Total Volume
(XX) Infiltrating Volume

0 70 140 280 420 560 Meters



TRANSPORTATION SERVICES