



## **Staff Report for Committee of the Whole Meeting**

**Date of Meeting:** October 2, 2019

**Report Number:** SRPRS.19.147

**Department:** Planning and Regulatory Services  
**Division:** Development Engineering & Transportation

**Subject:** **SRPRS.19.147 – Tower Hill Road and Alpaca Drive Intersection Improvements**

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### **Purpose:**

To seek approval to implement all-way stop controls and signage improvements at the intersection of Tower Hill Road and Alpaca Drive.

### **Recommendation(s):**

- a) That a full set of all-way stop control signs be implemented at the intersection of Tower Hill Road and Alpaca Drive;
- b) That Chapter 1128, Stop Sign – Erection – Authority, Schedule 'A', Stop Sign location, of the Municipal Code be amended by adding the following:  
  
Highway 1: Tower Hill Road  
  
Highway 2: Alpaca Drive  
  
Traffic Travelling: All directions
- c) That "Stop Ahead" warning signs be installed at the east and west approaches of Tower Hill Road; and
- d) That painted pedestrian crosswalks be installed at all approaches of the Tower Hill Road and Alpaca Drive intersection.

### **Contact Person:**

Habibur Rahman, Traffic Analyst, 905-771-5447

Richard Hui, Manager of Transportation, 905-771-5478

### **Report Approval:**

**Submitted by:** Kelvin Kwan, Commissioner of Planning and Regulatory Services

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**Approved by:** Neil Garbe, City Manager

All reports are electronically reviewed and/or approved by the Division Director, Treasurer (as required), City Solicitor (as required), Commissioner and City Manager. Details of the reports approval are attached.

### **Background:**

Development Engineering and Transportation staff have received several requests from residents to address concerns with traffic operations and sightlines for motorists along Alpaca Drive at the north approach of the Tower Hill Road and Alpaca Drive intersection. Staff have continually monitored the local area concerns. They have completed a review of the traffic issues at the subject intersection recently and can provide the following background and recommendations.

### **Road Characteristics**

Tower Hill Road is a collector road with a 23 metre right-of way and 9.75 metre pavement width that extends from Bathurst Street to Yonge Street. There are continuous sidewalks along both sides of the road and the posted maximum speed limit is 50 km/h. With respect to existing traffic controls along Tower Hill Road between Bathurst Street and Yonge Street: three (3) intersections are roundabout controlled, one (1) intersection is all-way stop controlled and rest of the intersections are side-road stop controlled, along with signalized intersections at Bathurst Street and Yonge Street.

Alpaca Drive is a north-south road that is classified as both a collector and local road that extends from Jefferson Sideroad to Selwyn Road. As a collector road, it has a 23 metre right-of-way with 9.75 metre pavement width to the north of Tower Hill Road, and as a local road, it has a 20 metre right-of-way with 8.5 metre pavement width to the south of Tower Hill Road. There are sidewalks along both sides of Alpaca Drive. The default speed limit is 50 km/h.

Attachment 1 shows the area road network along with the key intersection control devices. The intersection of Tower Hill Road and Alpaca Drive is currently controlled by two-way stop signs on the Alpaca Drive approaches.

### **Sightline Distance Review**

A review of sightline distances at each of the approaches for drivers and pedestrians at this intersection was conducted. The sightline distance at the southbound approach was considered most critical since visibility for vehicles approaching from the westbound direction is obstructed by a house and fencing at the northeast corner of the intersection. The segment of Tower Hill Road between Selwyn Road and Rollinghill Road has geometric road design constraints due to a horizontal curve east of Alpaca Drive.

Transportation staff found that the existing sightline distance is less than desirable. Staff also reported that it would be difficult to improve the sightline distances at the

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intersection due to the physical constraints. This sightline constraint along with traffic volume monitoring over recent years has made staff re-assess the all-way stop control warrants for the Tower Hill Road and Alpaca Drive intersection.

### **All-Way Stop Warrant Assessment**

Transportation staff have analyzed the operation at the subject intersection with the turning movement counts collected on October 2, 2018, along with annual traffic volume data collected between 2015 and 2018. This analysis was based on the all-way stop control warrant criteria set out in the Ontario Traffic Manual (OTM), Book 5.

Based on the analysis, staff found that the minimum total intersection vehicle volume threshold of 350 vehicles/hour was met while the minimum 35% side road volume split to warrant an all-way stop control was not fully met. However, the annual traffic data provided more information on the Alpaca Drive traffic growth in recent years and it indicated that volumes on the north leg of the intersection has grown by 24% between the years 2015 and 2018. This has resulted in an average daily traffic volume of 1320 vehicles on the north leg while Tower Hill Road is reasonably stable between 4,000 to 5,000 vehicles per day. The north leg's volume, particularly the southbound left turns, have increased in recent years. These left turns represents a larger portion of the side road demands, and are the most critical in terms of susceptibility to the sightline concerns.

Staff also reviewed the collision records for the past 10-year period and found that there were nine reported collisions, while for the past 3-year there was a total of two reported collisions. Although the collision trend does not on its own merits justify the installation of an all-way stop control (based on a threshold of four collisions), on average, the predominant type of collisions (right-angle collision) at this intersection could be corrected by the installation of an all-way stop control.

Considering the traffic growth on Alpaca Drive over recent years along with the sightline concerns at the intersection with Tower Hill Road, it is staff's opinion that there is adequate basis to recommend the implementation of all-way stop control signs at the intersection of Tower Hill Road and Alpaca Drive. There is sufficient distance between this intersection and the adjacent intersections controlled by roundabouts to meet the guidelines for all-way stop controlled intersection spacing.

In addition to the recommendation of the all-way stop signs, staff recommend the installation of "Stop Ahead" warning signs at the east and west approaches of Tower Hill Road so that drivers can take appropriate action leading to the intersection. To further enhance the visibility of the pedestrian crossings at the intersection, staff also recommend that painted pedestrian crosswalks be implemented at this location.

### **Financial/Staffing/Other Implications:**

The estimated cost for implementation of the associated all-way stop signage along with the pavement marking improvements at Tower Hill Road and Alpaca Drive would be

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approximately \$3,000. This would include new stop signs with pedestrian crossing pavement markings along with new “Stop Ahead” signs.

The funding for the works is recommended to come from the approved Roads Operations 2019 operating budget of the Community Services Department.

### **Relationship to the Strategic Plan:**

The recommendations of staff report SRPRS.19.147 are consistent with the Strategic Plan’s Objective of “responding to the changing needs of the community through adaptive services and programs” and “improve the function of buildings, streets and neighbourhoods”.

### **Conclusion:**

Through continual monitoring of the Tower Hill Road and Alpaca Drive intersection, Transportation staff found that the growth of traffic on Alpaca Drive and the sightline distance for the southbound approach to the intersection are critical factors that have triggered the need for improved traffic control at this location. Staff have assessed the warrants for all-way stop control signs and have recommended that All-way stop signs be installed at the Tower Hill Road and Alpaca Drive intersection.

In order to further enhance the traffic operations and sightline limitations, staff recommend additional warning signs and pavement markings for pedestrian crossings at this intersection.

### **Attachments:**

The following attached documents may include scanned images of appendixes, maps and photographs. If you require an alternative format please call the contact person listed in this document.

- Attachment 1: Area Road Network and Key Intersection Control Devices.

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### Report Approval Details

Document Title:	SRPRS.19.147 - Tower Hill Road and Alpaca Drive Intersection Improvements.docx
Attachments:	- Attachment 1.pdf
Final Approval Date:	Sep 23, 2019

This report and all of its attachments were approved and signed as outlined below:

**Dan Terziewski - Sep 20, 2019 - 11:40 AM**

**Kelvin Kwan - Sep 20, 2019 - 1:29 PM**

**David Dexter - Sep 20, 2019 - 2:19 PM**

**Neil Garbe - Sep 23, 2019 - 9:26 AM**