



COMMITTEE OF THE WHOLE

June 16, 2015

SRPRS 15.091

Planning and Regulatory Services Department
Development Engineering Division

**SUBJECT: Red Maple Road and High Tech Road Operations Study
(SRPRS.15.091)**

PURPOSE:

To provide information on key findings and recommendations from the Red Maple Road and High Tech Road Operations Study.

RECOMMENDATION(S):

- a) That staff report SRPRS.15.091 and the attached executive summary be received for information purposes;
- b) Staff be directed to begin discussions with affected property owners and stakeholders regarding the implementation of the recommendations for Red Maple Road, from High Tech Road to Highway 7, as set out in the Red Maple Road and High Tech Road Operations Study;
- c) Staff be directed to report back to Council on the outcome of those discussions and next steps for implementation; and
- d) Staff request LEA Consulting to provide further detail with respect to a signalized intersection at High Tech Road and the Silver City theater driveway, and to further investigate other alternative options for this location.

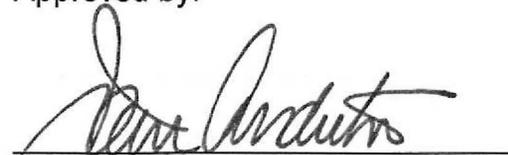
Contact: Dan Terziewski, Director, Development Engineering ext. 3510

Submitted by:



Ana Bassios
Commissioner of Planning and Regulatory Services

Approved by:



M. Joan Anderton
Chief Administrative Officer

BACKGROUND:

Over the past few years, staff has received numerous complaints with respect to traffic operations and safety from motorists, cyclists and pedestrians travelling along Red Maple Road, between Highway 7 and High Tech Road, and along High Tech Road, between Yonge Street and Red Maple Road. The complaints have been primarily focused on the operation and safety challenges faced by motorists as they turn left into and out of the commercial driveways, as well as the safety challenges faced by cyclists and pedestrians as they cross these driveways and these roads. Specific complaints have also been received from GO Rail patrons about long queues and delays experienced when entering or exiting the GO Station parking lot.

In response to the complaints, staff undertook a review of the historical traffic data for the two sections of road and agreed that the current traffic control arrangements need to be addressed. As a result, Lea Consulting Ltd was retained by the Town of Richmond Hill in the fall of 2013 to undertake a traffic operations and safety review of Red Maple Road, from Highway 7 to High Tech Road, and of High Tech Road, from Yonge Street to Red Maple Road. The main objective of the study was to review all of the existing intersection, driveway, and roadway operations along these two sections and provide recommendations on how to enhance the traffic safety and operations for drivers, pedestrians and cyclists in the short term, without precluding the long term vision for the Regional Centre and the envisioned road network.

In addition to reviewing a number of policy documents that pertain to the study area and future Regional Centre, the consultant also collected vehicular, pedestrian and cycling data at all signalized and unsignalized intersections in the study area. The consultant also conducted a review of historical collision data for both segments of road.

SUMMARY OF ANALYSIS:

Within the study area, only three intersections are controlled by traffic signals: Red Maple Road and Highway 7; High Tech Road and Red Maple Road; and High Tech Road and Yonge Street. Of the three traffic signals noted, only one is under the jurisdiction of the Town of Richmond Hill (High Tech Road and Red Maple Road). The other two fall under the jurisdiction of the Regional Municipality of York.

All of the unsignalized driveways along both road segments fall under the jurisdiction of the Town of Richmond Hill.

Overall, the three signalized intersections operate at an acceptable level of service. However, there are specific traffic movements at the two Region controlled intersections that operate above their theoretical capacity during both the a.m. and p.m. peak hours. The findings of this study are being shared and discussed with York Region staff to see if the signal timings can be adjusted for the specific movements to reduce the frequency and length of queuing.

Red Maple Road Traffic Operation

LEA Consulting's review of historical collision data for Red Maple Road, between Highway 7 and High Tech Road, reveal a high incidence of right angle collisions occurring along this segment of road and in particular at the unsignalized driveways. This is partially related to roadway geometry and interlocking of inbound left turn movements, but also because the outbound left turn movements at the driveways experience long delays, forcing motorists to make aggressive and unsafe turns.

Operationally, several of the southbound movements at Highway 7 and Red Maple Road experience heavy queuing during the peaks, which result in operational impacts at the GO Station driveway.

As a result, LEA consulting has recommended that a new traffic signal be installed along Red Maple Road at approximately the midway-point between Highway 7 and High Tech Road, and that all outbound left turn and through movements at the unsignalized driveways along Red Maple Road be restricted.

This new traffic signal will consolidate all the outbound left turn and through movements from the commercial properties as well as the GO Rail parking lot. This will reduce interlocking turning movements, vehicular collision points, and pedestrian conflict points at the unsignalized driveway and provide a controlled intersection crossing for pedestrians, thus improving overall traffic safety along this section of Red Maple Road.

The recommended traffic signal on Red Maple Road will require discussion with and collaboration between the three property owners along this section of Red Maple Road (Yonge-Bayview Holdings Inc, Metrolinx, and Infrastructure Ontario) and the various stakeholders (including the local businesses and York Region). In addition, cross easements will be required between several of the properties to enable access to the joint traffic signal.

High Tech Road Traffic Operation

The consultant has also recommended that a new traffic signal be installed on High Tech Road at the Silver City Movie Theatre driveway. However, given the near 6 percent grade on High Tech Road, less than ideal sight lines for westbound traffic coming over the bridge, and the close proximity to the Regional traffic signal on Yonge Street, staff will be requesting the consultant to undertake a further detailed assessment of this recommendation and explore alternative options to this traffic signal.

An executive summary of the Red Maple Road and High Tech Road Operations Study has been appended to staff report SRPRS.15.091 as Exhibit 1 for information purposes.

FINANCIAL/STAFFING/OTHER IMPLICATIONS:

There are no financial or staffing implications at this particular time. There are sufficient funds allocated in the budget for the consultant to undertake additional analysis on the High Tech Road option and to provide support to staff during discussion on the Red Maple Road traffic signal option with the affected property owners and stakeholders.

Follow up reports will be prepared regarding any financial and legal implications resulting from discussions with the affected property owners.

RELATIONSHIP TO THE STRATEGIC PLAN:

The recommendation of this report is consistent with the Town's Strategic Plan to "enhance community safety". It also demonstrates responsible municipal management of Town's road network. Also, the recommendations are consistent with the Strategic Plan's Objectives of building "Stronger connections in Richmond Hill" and "Providing better choices for Town residents," that help improve their lives and meet their changing needs. The recommendations meet Goal One of the Town's Strategic Plan of providing "Stronger connections in Richmond Hill by improving the function of buildings, streets and neighbourhoods."

CONCLUSION:

Staff support the recommendations presented by LEA Consulting to address the current traffic operational and safety concerns along Red Maple Road, including the installation of a traffic signal and the proposed restriction of turning movements at the unsignalized driveways.

Staff recommends engaging the various property owners and stakeholders along Red Maple Road to discuss the implementation of these recommendations.

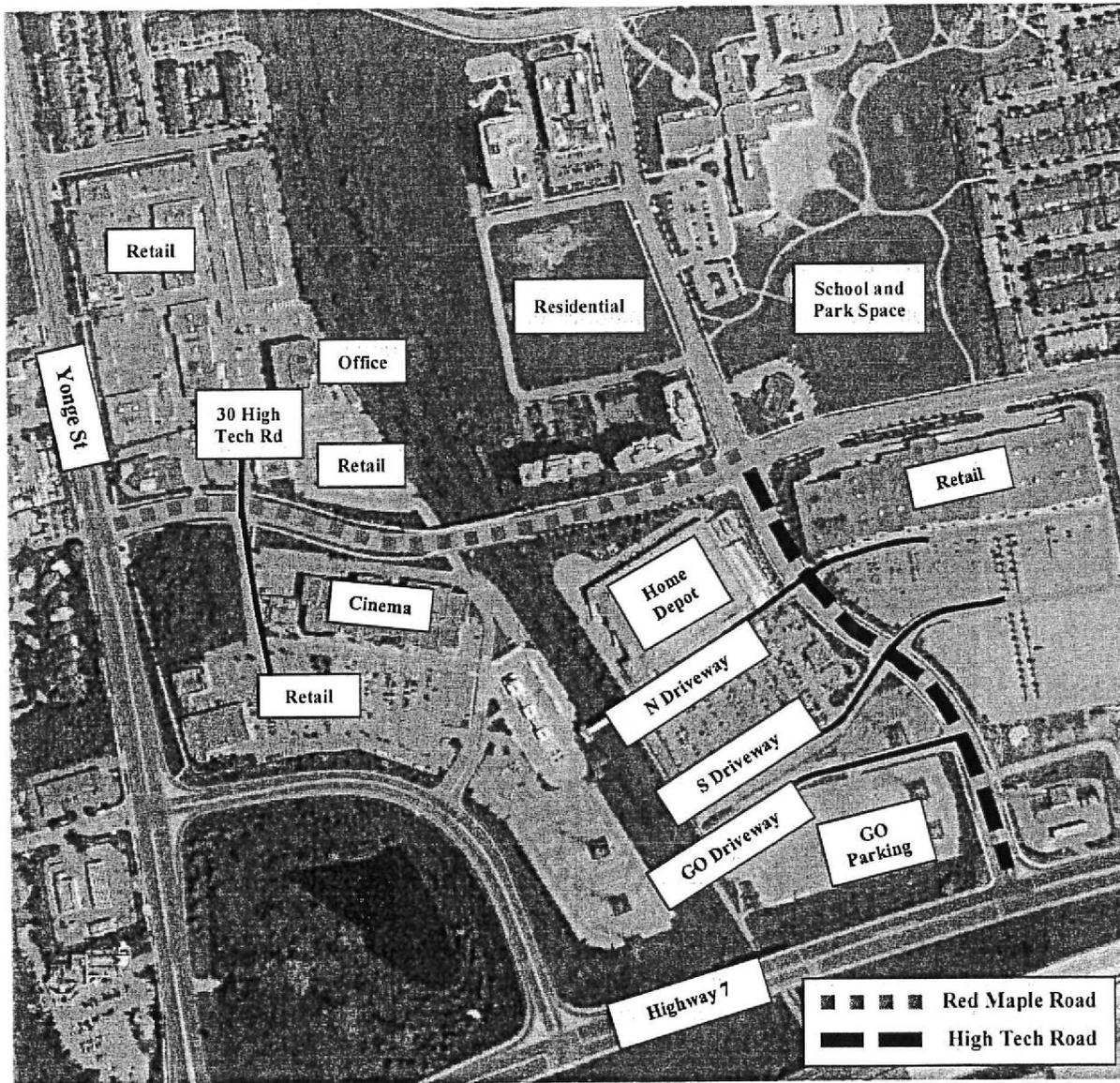
With respect to High Tech Road, staff require additional analysis of the proposed solution and a further investigation other alternatives before they can support any recommendation for this section of road.

Attachments: Appendix 1

Red Maple Road and High Tech Road Operations Study

EXECUTIVE SUMMARY

LEA Consulting Ltd. (LEA) was retained by the Town of Richmond Hill (Town) to conduct an operations review for Red Maple Road and High Tech Road, located in the Town of Richmond Hill. The study boundary along High Tech Road is between Yonge Street in the west and Red Maple Road in the east. The study boundary along Red Maple Road is between Highway 7 in the south and High Tech Road in the north, summarized in **Figure 1**.



Source: Google Earth

Figure 1: Study Area Land Use

The main objective of the Red Maple and High Tech Road (RMHT) Operations Review is to provide recommendations that will enhance traffic operations and pedestrian mobility without impacting the long term vision for the area.

POLICY REVIEW

LEA conducted a policy review for the Town of Richmond Hill that pertained to the study area. Documents that were reviewed in this process included:

- Richmond Hill Official Plan partially approved by order of OMB September 26, 2013;
- Town of Richmond Hill Transportation Master Plan;
- Pedestrian & Cycling Master Plan;
- Richmond Hill Regional Centre Design & Land Use Study Final Recommendations Report;
- The Regional Municipality of York Centre Wide Transportation Study; and
- Richmond Hill-Langstaff Urban Growth Centre.

A review of policy documents indicates future plans for intensification in the area. The intensification will generate additional traffic, which will necessitate modifications to the road network, and links to be added in various phases as the network approaches operational capacity.

EXISTING CONDITIONS REVIEW

In this transportation operations review, a number of distinct user groups with unique transportation needs were identified as a result of the land-uses surrounding the study area. The user groups include:

Group a): Commuters traveling to and from the Langstaff GO station and VIVA Station;

Group b): Through traffic along Red Maple Road and High Tech Road, including all the traffic generated by the residential developments and school north of High Tech Road;

Group c): Retail consumers traveling to and from the commercial developments;

Group d): Office employees; and

Group e): Cinema customers.

During the weekday AM peak hour, analysis of the existing traffic operations indicates that the eastbound left-thru-right turn movement at the north driveway (Home Depot) / Red Maple Road intersection is experiencing some capacity constraints. At the Highway 7 / Red Maple Road intersection, southbound right-turn queues were noted to approach the GO Station driveway. The operations analysis also indicates that at the Yonge Street / High Tech Road intersection, westbound left-turn queues are extending towards the cinema driveway,

During the weekday PM peak hour, at the High Tech Road / cinema driveway intersection, the southbound left-thru-right turn movement is experiencing capacity constraints. At the Red Maple Road / Highway 7 intersection, the southbound right-turn lane queue is approaching the GO Station Driveway.

During the weekend midday peak hour, various movements at the driveways along Red Maple Road and High Tech Road are operating with capacity constraints. This includes the westbound movements at the Red Maple Road / south driveway intersection, the eastbound movements at the Red Maple Road / north driveway intersection, as well as the southbound / northbound left-turn movements at the High Tech Road / cinema driveway intersection.

Pedestrian crossing counts collected during the weekday AM / PM peak hours, as well as during the weekend midday peak hours indicate that the highest pedestrian crossings occur at the intersection of Red Maple Road and High Tech Road. It also indicates that the second highest number of pedestrian crossings occur midblock at the intersection of Red Maple Road and the north driveway.

RECOMMENDED IMPROVEMENTS

The existing conditions review identified that Red Maple Road and High Tech Road each have unique characteristics that present challenges to improve operations. The following sections propose recommended improvements for these roads.

Red Maple Road

Through the existing conditions review, opportunities were identified that will help facilitate and improve current constraints without precluding the long term vision of the area. This includes:

- i. Facilitating mid-block crossing for pedestrians;
- ii. Provide internal access between commercial lands west of Red Maple Road and Langstaff GO parking lot to allow better utilization of existing capacity; and
- iii. Provide additional capacity to driveway accesses along Red Maple Road with a signalized control.

A recommended option was developed to address the various concerns and constraints currently experienced. The various driveway access configurations along Red Maple Road for this option are summarized in **Table 1**.

Location	Recommendations
North Driveway / Red Maple Rd (Home Depot)	- Restrict outbound left-turn movements
South Driveway / Red Maple Rd (Home Depot)	- Reconfigure to provide a signalized control with formalized pedestrian crossing - Shared access between Home Depot/Tim Hortons / Langstaff GO Train Station
Lands between the South Driveway and the GO Driveway	- Reconfigure to provide two internal connections
GO Driveway / Red Maple Rd	- Restrict left-turn outbound movement - Provide storage lane for inbound left-turn movement

Table 1: Recommended Option – Red Maple Road

Figure 2 illustrates the existing and the proposed configurations for the recommended option.

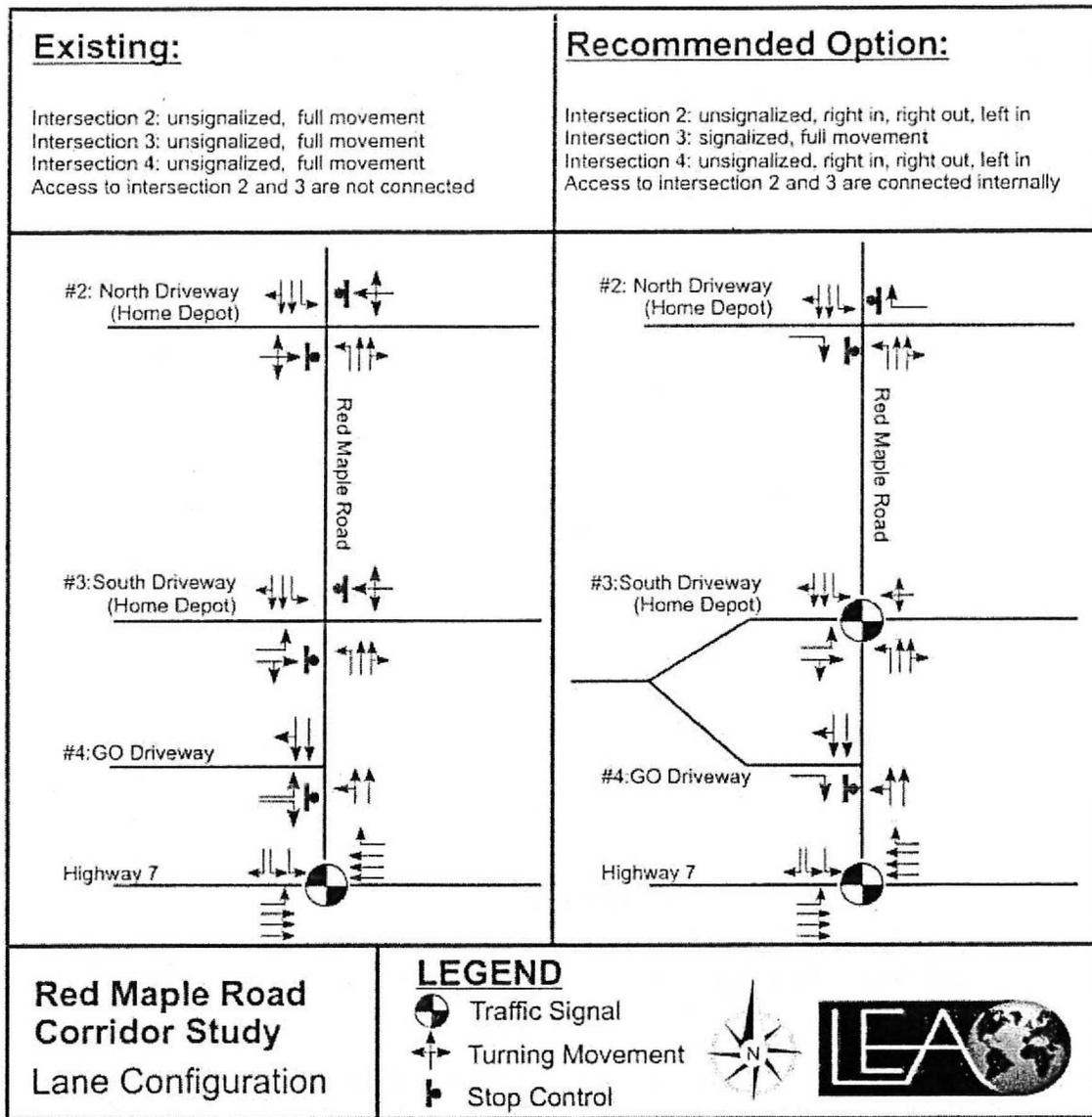


Figure 2: Lane Configurations – Existing Configuration and Recommended Option

The north driveway / Red Maple Road intersection should be reconfigured to restrict outbound left-turn movements (eastbound left-turn). Restricting these movements is expected to reduce the number of collisions experienced in the area. The restricted left-turn movements can divert towards the signalized south driveway.

The south driveway is recommended to be signalized and become a shared access. This will alleviate capacity constraints currently experienced at the various driveways on Red Maple Road.

At the GO driveway, the outbound left turn movement should be restricted to reduce collisions. The inbound northbound left-turn storage lane is recommended to better accommodate peak period traffic. Two shared accesses between the Home Depot and GO parking lots are recommended to facilitate better utilization of existing capacity.

Figure 3 illustrates the proposed site access and parking lot configuration for the south driveway businesses (i.e. Home Depot and Tim Hortons). This option was developed through discussions with GO transit staff.

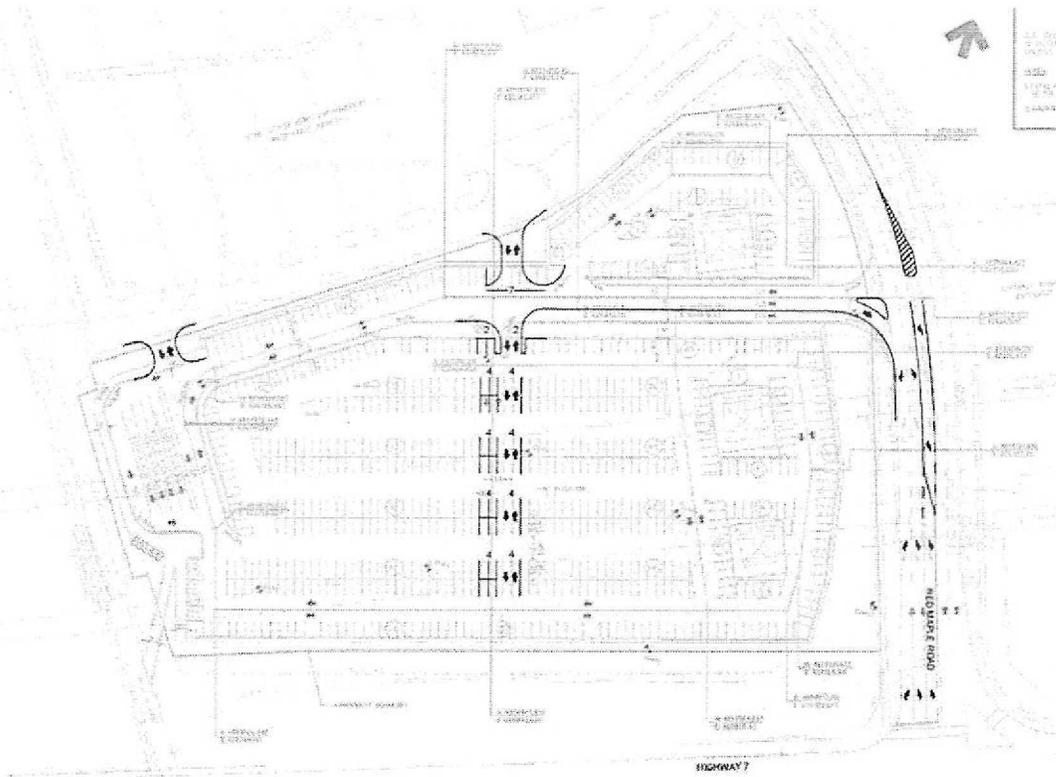


Figure 3: Parking Layout Option

The above option has been designed to improve site circulation and provide two shared accesses between the Home Depot and GO parking lot. It also includes the addition of a new north south aisle that aligns with the easterly proposed shared access.

Utilizing the configurations proposed in the recommended option, LEA conducted intersection capacity analyses for the various intersections within the study area. The capacity analysis indicates that all three intersections will operate with acceptable levels of service during weekday AM / PM and weekend midday peak hours. No critical movements were identified in the recommended option.

High Tech Road

The existing conditions review of the High Tech Road / cinema driveway intersection identified southbound movement (exiting the commercial/office (50 High Tech Road) capacity constraints during the weekday PM and weekend midday peak hours. During the weekend midday peak hour, the northbound movements (exiting the cinema driveway) at this intersection are also experiencing capacity constraints.

During the weekday and weekend surveys, existing traffic counts at this intersection indicated a number of bicyclists are crossing High Tech Road at this driveway. While traffic surveys also observed that

pedestrians are crossing High Tech Road at this driveway rather than at Yonge Street, this was observed to occur more frequently during weekend periods.

The signalization of this driveway is expected to provide additional capacity to the minor movements at this intersection, facilitate pedestrian and cyclists crossing High Tech Road, as well as formalize the right-of way for the various movements and reduce the number of collisions. Based on a signal warrant analysis, signalization of this intersection is warranted.

The capacity analysis indicated that all movements during the various weekday and weekend peak hours are expected to operate with acceptable levels of service.

Due to the nature of the Canadian Rail Corridor overpass, it has been determined that the existing portion of the road along High Tech Road has reduced sightline visibility just prior to the cinema driveway intersection, in which an approaching vehicle may not have sufficient sight stopping distance.

In balancing the risks and hazards associated with the existing and proposed conditions, it is determined that the limited visibility can be effectively managed with the provision of an advance signal warning system that is triggered by the traffic signal.

