



Staff Report for Committee of the Whole Meeting

Date of Meeting: July 2, 2019

Report Number: SRPRS.19.134

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

Subject: **SRPRS.19.134 - West Beaver Creek Road and West Pearce Street Interim Traffic Control Measure**

Purpose:

To provide interim traffic control measures at the intersection of West Beaver Creek Road and West Pearce Street prior to the installation of a full set of traffic signals.

Recommendation(s):

- a) That all-way stop control be implemented at the intersection of West Beaver creek Road and West Pearce Street, as an interim traffic control measure, until such a time as traffic signals are installed;
- b) That all necessary pavement markings and signage be implemented in accordance with the Ontario Traffic Manual for the works identified in Recommendation a); and
- c) That Chapter 1128, Stop Sign – Erection - Authority, Schedule 'A', Stop Sign Location, of the Municipal Code be amended by adding the following:

Highway 1: West Beaver Creek Road

Highway 2: West Pearce Street

Traffic Travelling: All directions

Contact Person:

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Report Approval:

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

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.

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Background:

Transportation staff have been monitoring and assessing the traffic operating conditions at the intersection of West Beaver Creek Road and West Pearce Street, in response to the opening of Norman Bethune Avenue connection across Highway 404 and motorist complaints.

Staff's findings are outlined in this report, along with recommendations for improvements to the West Beaver Creek Road and West Pearce Street intersection.

Road Characteristics

West Beaver Creek Road is an industrial collector road (23 metres of Right-of-Way) that extends from Highway 7 to Leslie Street. It has a four-lane cross-section from Highway 7 to West Pearce Street with the pavement width of 13.4 metres, and a sidewalk on the west side of the road. The road has a three-lane cross-section that includes a two-way left turn lane from north of West Pearce Street to Leslie Street with the pavement width of 10.2 metres. The posted maximum speed limit is 50 km/h.

West Pearce Street is also an industrial collector road (23 metres Right-of-Way) that extends from Leslie Street to West Beaver Creek Road. It has a pavement width of 10.2 metres, and a sidewalk along the south side of the road. The road has a two-lane cross-section with an auxiliary left turn lane at the intersection. The default speed limit is 50 km/h.

Attachment 1 shows the area road network, along with the key intersection traffic control devices. The intersection of West Beaver Creek Road and West Pearce Street is currently controlled by a single stop sign at the West Pearce Street approach.

Since the opening of the Norman Bethune Avenue crossing, traffic patterns have changed significantly with more traffic now diverting onto West Pearce Street using the West Beaver Creek Road and West Pearce Street intersection to get to Highway 7 and into the industrial area. These additional motorists are having difficulty finding sufficient suitable gaps to turn left/right on West Beaver Creek Road from the stop at West Pearce Street.

Staff are monitoring the traffic flows on the road network adjacent to Norman Bethune Avenue along with the Region and the City of Markham. This is a coordinated initiative undertaken by the two local municipalities and the Region in order to develop future strategies for safe and efficient traffic operations in the area.

Traffic Signal Warrant Analysis

As part of the most recent assessment, the need for a traffic signal at West Beaver Creek Road and West Pearce Street evaluated under the existing conditions, using the warrant analysis outlined in the Ontario Traffic Manual (OTM) Book 12. The warrant analysis is based on four justifications: Justification 1: Minimum Vehicular Volume, Justification 2: Delay to Cross Traffic, Justification 3: Collision Experience, and

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Justification 4: Combination Justification. At least one of the Justifications must be 100% fulfilled in order to technically justify a traffic signal installation.

Turning movement counts were collected at the subject intersection on October 30, 2018 from 8 to 10 a.m., 12 to 3 p.m. and 4 to 7 p.m., taking into consideration the 8 hour peak traffic volume profile (heaviest traffic volume and the longest delay) for West Beaver Creek Road,

Based on the eight-hour vehicle and pedestrian traffic counts, technical warrants for the installation of traffic control signals for the subject intersection were fulfilled to the following extent:

Justification 1: Minimum Vehicular Volume	83%
Justification 2: Delay to Cross Traffic	90%
Justification 3: Collision Experience	25%
Justification 4: Combination Justification	100%

As Justification 4 has been fulfilled 100%, a set of traffic signals is warranted for the intersection of West Beaver Creek Road and West Pearce Street.

And while the collision justification is not fulfilled, the prevailing type of reported collisions at this intersection are right angle and turning type, which are likely created by aggressive turning motorists trying to create gaps in flowing traffic. As such, these types of collisions can be effectively reduced by the installation of either traffic signals or all-way stop signs.

Staff will be bringing forward a business case for the design and installation of traffic signals at this intersection as part of the 2020 capital budget request process, for design and construction in 2020-2021.

Recommended Interim Traffic Control Measure

Given the timing of proposed traffic signals and the ongoing concerns at this intersection, Staff evaluated the installation of all way stop control at the West Beaver Creek Road and West Pearce Street intersection as an interim traffic control measure, until the signals are in place.

As signalization of this intersection is warranted and being be planned for in the near future, Book 5 of the Ontario Traffic Manual indicates that such an intersection could be considered for all-way stop control as an interim intersection control measure.

Therefore, an all-way stop warrant analysis was undertaken for the subject intersection.

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The OTM warrant analysis for an all-way stop intersection requires a minimum total intersection vehicle volume threshold of 350 vehicles/hour for each of the heaviest hours of a typical day and a minimum 25% side road volume split for each of the same hours of the day to justify an all-way stop control at a three-legged intersection.

Based on the observed data, there was a total volume of 970 vehicles/hour at this intersection which satisfies 100% of the volume criterion. For the side road volume split, the observed volumes are at 23%. This represents about 92% of the side road volume split criterion. Although both of the all-way stop control criteria are not 100% satisfied, the outstanding criterion is at 92%, which is within a reasonable range of the threshold.

Taking into consideration the above, and the potential to reduce the predominant type of collisions at this location (right-angle collisions), an all-way stop control is recommended at the intersection of West Beaver Creek Road and West Pearce Street as an effective, economical interim measure until traffic signals are implemented.

Financial/Staffing/Other Implications:

The financial implication of installing an all-way stop for two (2) new stop signs with pavement stop-bars on the north and south approaches to the intersection including two (2) new stop ahead signs with two (2) "NEW" signs is estimated at approximately \$3,000. The funding for the \$3,000 will come from the existing approved 2019-operating budget of the Community Services Department. As such, no new funding is required.

Funding for the design and construction of the future traffic signal will be requested through a business case as part of the normal 2020 capital budget request process.

Relationship to the Strategic Plan:

The recommendations of staff report SRPRS.19.134 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 neighborhoods".

Conclusion:

Transportation staff have reviewed the intersection of West Beaver Creek Road and West Pearce Street for the installation of traffic signals and all-way stop control. Based on staff's review, it is recommended that an all-way stop provision be approved for the intersection as an interim measure until traffic signals are implemented in the future. The implementation of the interim measures will improve the safety and traffic operations for road users in the area.

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Attachments:

The following attached documents may include scanned images of appendixes, maps and photographs. If you require an alternative format please call 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.19.134 West Beaver Creek Road and West Pearce Street Interim Traffic Control Measure.docx
Attachments:	- Attachment 1.pdf
Final Approval Date:	Jun 24, 2019

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

Dan Terzievski - Jun 24, 2019 - 2:25 PM

Kelvin Kwan - Jun 24, 2019 - 2:27 PM

David Dexter - Jun 24, 2019 - 3:09 PM

Neil Garbe - Jun 24, 2019 - 3:46 PM