Report to: Development Services Committee Meeting Date: January 31, 2023

SUBJECT: Current Process for the Review and Implementation of Traffic Control Measures (City-wide)

PREPARED BY: David Porretta, Manager, Traffic Engineering, Ext. 2040
Kabir Kolawole, Traffic Systems Engineer, Ext. 2736

RECOMMENDATION:
That the staff report titled "Current Process for the Review and Implementation of Traffic Control Measures (City-wide)" be received for information.

PURPOSE:
This information report seeks to advise Council of the current practices regarding the application of specific traffic control measures and on-street parking and stopping prohibitions that fall within basic technical justifications and design guidelines as defined by the Ministry of Transportation of Ontario (MTO) and documented in the Ontario Traffic Manual (OTM). Traffic control measures included in this report are all-way stop controls, traffic control signals and pedestrian cross-overs (PXO).

BACKGROUND:
The City has a process and procedure in place when receiving, reviewing and responding to traffic safety concerns
The City routinely receives requests from Council and members of the public regarding issues and concerns associated with traffic operations and safety. When a request is received, a "case" is created through the Active Citizen Request (ACR) system, a case ID assigned, and submitted to Traffic Engineering for investigation and response.

Key components of a traffic investigation include the collection of vehicular and pedestrian data, conducting site surveys and observations, reviewing the road and intersection geometrics, and reviewing the collision history at the subject location. If the request is specific to the implementation of a new traffic control measure, such as an all-way stop, traffic signal, or PXO, staff will apply the justification criteria prescribed to determine if that particular method of traffic control is warranted.

Notwithstanding requests from the public, staff also strive to proactively assess key intersections and corridors where it is anticipated that a higher-order traffic control measure may be required.

DISCUSSION:
All-Way Stop Control
An All-Way Stop (AWS) control provides for the orderly movement of traffic and is recommended at intersections of two lower volume roadways with relatively similar traffic volumes and operating characteristics on all approaches. They may also be considered at

intersections with high collision frequency to help reduce right-angle and turning movement collisions. The All-way Stop control warrant is a fundamental tool used to determine whether an intersection is suitable to be converted from a side-stop controlled intersection (where the main road has right-of-way), to an intersection where stop control is assigned to all approaches.

The MTO justification criteria used when determining if an AWS is justified can be found in Attachment "A". A general overview of the criteria is summarized below.

- Vehicular and Pedestrian Volume – The intersection must have a minimum number of vehicles and pedestrians entering the intersection during the busiest 4-hour or 8-hour travel period; **AND**

- Volume Split – For three-way intersections, at least 25% of all vehicles entering the intersection must be entering from the side-street, including pedestrians crossing the major roadway. For four-way intersections, it must be at least 30%; **OR**

- Collision History – Review and identification of high frequency and a demonstrated pattern of prior collisions at the intersection, where the implementation of an all-way stop could reduce such collisions from occurring.

All-way stop controls are the most common form of traffic control used to assign right-of-way at intersections in the City, except for traditional side-street stop controls. While the criteria is applicable in virtually all circumstances, there may be unique environmental site conditions that may require special consideration that do not necessarily fall within the justification criteria. However, it must be noted that the application of all-way stop control as a form of speed mitigation is not recommended. Unwarranted all-way stops can create apathy among motorists, resulting in increased non-compliance and, depending on their frequency, higher vehicle speeds between consecutive intersection stops.

Traffic Control Signal

The use of a Traffic Control Signal is intended to provide alternating right-of-way at an intersection, or provide right-of-way for pedestrians at a mid-block crossing, while improving safety and efficiency. Traffic signals typically replace all-way stops as traffic and/or pedestrian volumes increase and a more efficient method of managing right-of-way is needed. The MTO traffic signal justification warrant criteria is outlined in Attachment "B".

Currently, there are 101 traffic signals within the City road network and ten (10) additional locations where traffic signals are warranted (see Attachment "C"). Staff will prepare annual capital budget requests for the design and construction of these new traffic signals, for Council endorsement.

Pedestrian Cross-Over (PXO)

PXO's clearly assign the right-of-way between pedestrians and motorists, providing pedestrians with controlled crossing opportunities by requiring motorists to stop and allow for pedestrians to safely cross. All drivers and cyclists are legally required by the HTA to stop behind the yield line to allow pedestrians to completely cross the street. Depending on the type of PXO, pedestrian actuated flashers may be required.

PXO's are ideal for locations where pedestrian demand exists but vehicular traffic volume is not high enough to warrant traditional pedestrian traffic signals. Costing significantly less to install and maintain than a pedestrian traffic signal, PXO's provide controlled crossing opportunities and safety benefits.

In 1988, MTO, in co-operation with the Ontario Traffic Conference and Municipalities in Ontario developed guidelines to ensure uniformity in the installation of pedestrian crossovers in Ontario. These guidelines, which are now incorporated in the OTM and the HTA Regulations, include installation criteria (warrant requirements), ground mounted and overhead signage, pavement markings and pedestrian actuated flashing amber beacons.

The PXO is a passive device that relies on the motorist and pedestrian sharing responsibility for pedestrians' safety. The HTA legislation is written such that the motorist is required to yield to a pedestrian at or within the crossover; a pedestrian is also required to wait for a sufficient gap in traffic before attempting to cross. On roadways where traffic volumes are higher or where there are more than 2-lanes that need to be crossed, pedestrian actuated flashing amber beacons may be provided and are a warning to motorists that a pedestrian is waiting to cross, or is within the crossover. Regardless of whether flashing beacons are provided, or if they are activated or not by a pedestrian, a motorist is required to yield to pedestrians within the crossover.

PXO Warrant Guidelines are included in Attachment "D". The four different types of PXO's permitted are illustrated in Attachment "E". The type selected is dependent on the road characteristics, particularly the vehicular traffic volume, the width of the crossing and the posted speed limit (see Attachment "F"). Environmental site conditions are also evaluated to ensure that the installation of a PXO is appropriate at the location.
Currently, the City has 13 PXO's. This will increase to 41 locations by the end of 2022 (two new locations on Copper Creek Drive plus 26 locations at existing supervised school crossings).

Parking and Stopping Prohibitions

In many situations, prohibiting parking and stopping of vehicles is necessary to improve traffic safety. Further, the HTA is clear that no person shall park or "stand" a vehicle on a public street in such a manner as to interfere with the movement of traffic. Traffic

Engineering staff routinely receives, reviews and responds to issues where street parking and the loading and unloading of passengers have an adverse impact on traffic safety.

When considering the implementation of a parking or stopping prohibition, traffic safety takes priority over loading and unloading of passengers, which in turn takes priority over curb lane parking. Parking and stopping prohibitions have several benefits including, but not limited to, maintaining two-way traffic flow, allowing for the safe movement of emergency, transit and service vehicles, ensuring sightline visibility requirements are being achieved, and maintaining the safe and unimpeded movement of pedestrians at designated pedestrian crossings. Depending on the particular situation, these prohibitions may be limited to time-of-day, or day-of-week.

When a parking or stopping prohibition is necessary to resolve a traffic safety issue, Parking By-law 2005-188 must be amended, as approved by Council. The exception to this requirement are in locations that fall under HTA regulation, fall within the general provisions of the Parking By-law, such as within 3 metres of a fire hydrant, within 15 metres of a signalized intersection, or within 150 metres of a public school.

Parking control regulations that are not associated with traffic safety, such as the City's overnight permit parking program, are under the purview of the Bylaw & Regulatory Services Department, and subject to a different set of parameters not covered in this report.

Deputations to Council regarding traffic controls or parking/stopping prohibitions can be referred to staff for review and response

Residents may appear at any public meeting of Council or a Committee of Council and present a deputation to request an all-way stop, traffic signal, PXO, parking/stopping prohibition, or request the results of a previous assessment be reconsidered. Council may refer the deputation to staff for review and to approve or deny the request, based on the criteria outlined in this report.

FINANCIAL CONSIDERATIONS

Implementation of all-way stop controls, routine parking restrictions, and a limited quantity of low-tier PXO's will not impact existing annual budgets. However, the installation of more complex PXO's and new traffic signals will need to be addressed through the annual budget approval process.

HUMAN RESOURCES CONSIDERATIONS

Not applicable.

ALIGNMENT WITH STRATEGIC PRIORITIES:

In the Building Markham's Future Together Strategic Plan, implementation of traffic control measures, where warranted, aligns with the strategic focus for a Safe & Sustainable Community by improving safety for all road users.

BUSINESS UNITS CONSULTED AND AFFECTED:
Not applicable.

RECOMMENDED BY:

Frank Clarizio, P.Eng.
Director of Engineering

Arvin Prasad, MPA, RPP, MCIP
Commissioner of Development Services

ATTACHMENTS:
Attachment "A" – All-way Stop Warrant Criteria
Attachment "B" – Traffic Signal Warrant Criteria
Attachment "C" – Warranted Traffic Signal Locations
Attachment "D" – Pedestrian Cross-over Warrant Criteria
Attachment "E" – Types of Pedestrian Cross-overs
Attachment "F" – Pedestrian Cross-over Selection Tool