



## CITY OF ST. ALBERT ADMINISTRATIVE BACKGROUNDER

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### TITLE: THREE WAY STOP

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On January 31, 2017 Councillor Russell provided notice in accordance with Section 23 of Procedure Bylaw 35/2009 that he intended to bring forward the proposed motion below.

*In order for Council to debate the motion, the motion must be formally moved.*

### PROPOSED MOTION(S):

“That Administration take steps to install 3way stop signs at the corner of Grenfell Avenue and Grosvenor Boulevard prior to May 1<sup>st</sup>, 2017.”

### BACKGROUND:

Following communication of concerns from residents for the intersection of Grosvenor Boulevard and Grenfell Avenue in 2015, steps were taken to collect intersection data and perform a multi-way stop warrant analysis to evaluate the potential need to implement a multi-way stop at the intersection. The same warrant process, following Canadian multi-way stop warrant criteria was performed in 2016 with updated traffic data.

The Canadian Manual of Uniform Traffic Control Devices (MUTCD Canadian Version), provides specific guidelines and criteria around the implementation of multi-way stops. Criteria to be evaluated and met, with additional information specific to the results of data information collected from the intersection of Grosvenor Boulevard and Grenfell Avenue is shown in the following:

Criteria 1: Traffic volumes of the intersecting roadways are approximately equal.  
Grosvenor @ Grenfell: 2016 traffic volumes on the roadways at this intersection were recorded at:

- Grosvenor Boulevard: 2,307 vehicles per day
- Grenfell Avenue: 1,379 vehicles per day

Criteria 2: The combined pedestrian and vehicle volumes on the minor road (in this case Grenfell Avenue) average 200 per hour for an eight-hour period:

Grosvenor @ Grenfell: There were no times of day that reached an average 200 vehicles per hour. The highest hourly volume on Grenfell Avenue

occurred from 11 am to 12 pm and equates to 167 vehicles within that hour period.

Criteria 3: During the peak hour period the average delay to the side street (Grenfell Avenue) traffic is equal to or greater than 30 seconds:

Grosvenor @ Grenfell: The recorded average delay to the side street during the peak period was four seconds.

Criteria 4: Five or more collisions per year occur that are preventable by implementation of a multi-way stop (for example: right angle collisions)

Our collision database has a total of four (4) motor vehicle collisions at the intersection;

- 2 incidents occurred in 2012 – both related to parked vehicles; 1 resulted in an injury; 1 involved impaired driving
- 1 incident occurred in 2015 – involved a cyclist and resulted in an injury
- 1 incident in 2016 – involved a vehicle leaving the roadway

There are additional considerations for when a multi-way stop may be implemented; however, in the case of the Grosvenor Boulevard at Grenfell Avenue intersection, these considerations were not relevant. They are:

- As an interim measure prior to installing traffic signals.
  - There are currently no intentions to implement a set of traffic signals at this intersection.
  - During a full review of the intersection, the traffic data collected was utilized within the Canadian Traffic Signal Warrant Analysis and the resulting warrant number was “8”. A warrant value of “100” represents the potential need for signaling an intersection for control.
- As an interim measure, for a period of approximately one month, prior to the switching of the stop control from one road to an intersecting road.
  - There are no current intentions to shift the current Stop control from the Grenfell Avenue leg of the intersection to one of the legs of Grosvenor Boulevard.

There are general concerns around the implementation of a multi-way stop if it is not a “warranted” location. These concerns are identified within multiple studies and research papers. Please note – although these concerns are not specific to any St. Albert location, they are general industry concerns around the misuse of stop sign traffic control.

- Stop signs are not intended nor effective for speed control / management.
  - Some studies have identified that travel speeds on the roadway down or upstream from the stop sign increase due to drivers “making up lost time” at what may be perceived as an unnecessary stop location.
- Stop compliance is poor at unwarranted multi-way stop locations; this is based upon drivers experiencing minimal need to stop and as a result “running” the stop sign.

- Reduced safety of pedestrians at unwarranted multi-way stop locations, particularly for children, as there is a false sense of security created for the pedestrian with an expectation that the vehicles will stop, whereas (as per above) drivers of the perceived “main road” do not recognize a consistent conflict and as a result may create higher violations of running the stop sign.

In terms of sustainable actions that result in “self enforcement”, a multi-way stop does not redesign the roadway to encourage the actual desired action. It is the simplistic placement of a sign that may not coincide with actual traffic needs (for example, there is not a high volume of side street traffic that would necessitate the main road vehicle to require to stop). This then results in a need for stronger enforcement at the intersection to enforce the actual traffic control, which due to a high volume of traffic issues being reported throughout the City may not be a sustainable action.

An evaluation was performed for this intersection in an attempt to address concerns communicated from residents in the area that focused around:

1. Grosvenor vehicle speeds (not obeying the existing 30 km/h speed limit), particularly around the am and pm peak periods.
  - a. Identified a perception of vehicles driving 20 – 30 km/h over the posted speed limit – which as the area is posted at 30 km/h would involve a driver travelling at 50 km/h.
2. Intersection driver visibility (at the intersection of Grosvenor @ Grenfell)
3. Driver behaviour in reduced use of signals for informing others of “turning” intentions.
4. Home owner access from private driveways to the roadway and conflict with vehicles on Grosvenor Blvd.
  - a. Also, resulting negative behaviour from drivers towards home owners trying to access or leave their homes (honking, angry communication).
5. Posted speed of Grosvenor Blvd prior to and after the intersection of Grosvenor and Grenfell. 50 km/h is too high and impacts pedestrian safety, particularly considering the vicinity of vulnerable road user “land use” generators such as the pool, school and green space.

As neighbourhood traffic safety is a priority, Administration has reviewed opportunities of actions to address and mitigate the concerns noted above; recognizing that the requested multi-way stop was not a warranted solution following industry standards and best practice, and recognizing that neighbourhood level traffic speeds and pedestrian safety are priorities throughout the city. The review was inclusive of, with the noted results:

- Signalized intersection control: As the warrant process for the multi-way stop failed; all potential traffic control was evaluated, inclusive of the review of signals, which as expected resulted in a substantially low warrant value and thus is not an appropriate location for signal operations.
- Construction of a small local roundabout.

- An option considered the redesign the intersection to encourage reduced speeds, improve upon pedestrian movement, and better communicate right of way to drivers entering the intersection.
- The results of the evaluation found that the roundabout would need to accommodate larger vehicle movement such as school buses, transit and public works maintenance vehicles and due to constrained right of way may not result in the actual reduction of speeds as would be desired for the Grosvenor roadway. Construction costs would be higher with reduced expectation of improvement results.
- Construction of pedestrian curb extensions
  - As noted within the resident concerns, the negative speed influence occurs for all directions approaching the intersection, as well as through the intersection (on Grosvenor Boulevard).
  - Pedestrian curb extensions are a viable and constructible option on the Grosvenor Boulevard and Grenfell Avenue roadways and intersection.
    - Allow for reduced vehicle speed
    - Allow for improved pedestrian connectivity and crossing
  - The redesign of the roadway leading to the intersection (in advance of the intersection) as well as at the intersection would have greater impact for a holistic approach to addressing:
    - Speed on the roadway segment
    - Pedestrian movement in these areas of vulnerable road users like children due to the school and outdoor pool.
    - Opportunity exists to improve the pedestrian crossings at:
      - Grenfell Avenue to the immediate west of the pool.
      - Grosvenor Boulevard to the tail connection south of the Grenfell Avenue intersection
      - Grosvenor Boulevard to the north /east of the intersection at the Gaylord Place intersection.
  - Pedestrian curb extensions are a strong safety enhancement at the neighbourhood level to increase visibility of pedestrians by drivers due to the redesign that extends the curb beyond the parking lanes and allows for direct eye contact between pedestrian and driver.
    - They are a recommended improvement for all key pedestrian crossings, following a safe system approach to road design that enhances safety through basic improved design components such as improved visibility.
    - Pedestrian curb extensions encourage reduced vehicle speeds through the narrowing of the roadway. Early reports of locations completed in 2016 through the Safe Journeys to School Implementation align with these expectations of curb extensions reducing speeds and creating greater driver yielding to pedestrians.
  - Construction activity is planned for Grosvenor Boulevard in 2017, with the planned construction of overlay work and sidewalk construction and there is opportunity to perform roadway improvements that maximize on cost effectiveness through reduced mobilization charges,

minimizes disruption to residents in the area by a “one time” construction impact, and results in a sustainable redesign of the roadway that reduces vehicle speed and improves upon pedestrian safety.

- Softer traffic calming measures. This relates to work to encourage reduced speeds without the construction of hard infrastructure or redesign of the roadway. This work is recommended to move forward aligned with the construction of pedestrian curb extensions and would be inclusive of:
  - Additional speed reduction warning sign for south/westbound traffic on Grosvenor Boulevard approaching the 30 km/hr zone.
  - Yellow centerline within the 30 km/hr zone to give a perception of a narrowed roadway. It also assists in maintaining directional travel through the pedestrian curb extensions.
  - Driver Feedback signs: these signs provide notification to drivers of their speed and encourage adherence to the speed limit through a direct warning to the driver when the speed is in excess of the posted speed.
  - Rectangular Rapid Flashing Beacon (RRFB) pedestrian crossings implemented at the locations of constructed pedestrian curb extensions.
    - These warning flashers provide high visibility notification to drivers when a pedestrian is onsite and requiring to cross the roadway.
    - Note – an RRFB cannot be used with the pedestrian crossing at the intersection of Grosvenor Boulevard and Grenfell Avenue for the pedestrian movement crossing Grenfell Avenue due to the conflict of the Stop sign.

The recommendation from Administration is to not implement a multi-way stop at the intersection of Grosvenor Boulevard and Grenfell Avenue, based upon the existing roadway conditions do not meet the Canadian Manual of Uniform Traffic Control Devices (MUTCD Canadian Version) guidelines and criteria around the implementation of multi-way stops.

Although it is not applicable within this specific scenario, to provide for improved delivery of service, Administration recommends that Council adopt an approach to requests such as these through a Council Directive to Administration to perform an engineering analysis. Administration could then provide propose engineering solutions with estimated costs and impacts of implementation for Council’s consideration. An example motion could be:

*“That Administration take steps to communicate with residents of the area and analyze public concerns and operations at [Intersection/Roadway] to seek opportunity of traffic safety improvements, and bring forward to Council applicable background information and proposed solutions with budget and operational impacts for consideration of budget approval”.*

The rationale that this recommended form of motion is not applicable to the Grenfell Avenue and Grosvenor Boulevard intersection, is based on work being completed in the area for 2017 through existing safety improvements projects and approved City Strategies such as Safe Journeys to School, Pedestrian Crossing Safety Enhancements and Neighbourhood Traffic Calming alignment. The work proposed at the location does not equate to amendments to existing priority levels, service level changes or a shift of funds from one location to another.

Report Date: February 21, 2017  
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