



DEVELOPMENT SERVICES MEMORANDUM

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TO: **MAYOR A. NUTTALL AND MEMBERS OF COUNCIL**

FROM: **A. PURCELL, SENIOR TRANSPORTATION OPERATIONS TECHNOLOGIST**

WARD: **4**

NOTED: **M. BANFIELD, RPP, DIRECTOR OF DEVELOPMENT SERVICES**

B. ARANIYASUNDARAN, P. ENG., PMP, GENERAL MANAGER OF INFRASTRUCTURE AND GROWTH MANAGEMENT

M. PROWSE, CHIEF ADMINISTRATIVE OFFICER

RE: **ANNE STREET NORTH AND HANMER STREET WEST ALL-WAY STOP INVESTIGATION**

DATE: **FEBRUARY 7, 2024**

The purpose of this Memorandum is to provide members of Council with an update concerning the investigation of All-Way Stop control at the intersection of Anne Street North (Major Street) and Hanmer Street West (Minor Street). Current traffic operations of the intersection have Hanmer Street West (Minor Street) stop at Anne Street North (Major Street). Please see attached Appendix "A" for a map of the study area.

Anne Street North (Major Street) is an Arterial Road with a pavement width of 9 metres and an Average Annual Daily Traffic of approximately 2,600 vehicles. There are sidewalks along both sides of the road.

Hanmer Street West (Minor Street) is a Local Road with a pavement width of 8.5 metres and an Average Annual Daily Traffic of approximately 700 vehicles. There are sidewalks along both sides of the road.

Staff have investigated the intersection of Anne Street North and Hanmer Street West to determine if an All-Way Stop is warranted based on criteria within the Ontario Traffic Manual (OTM) Book 5 – Regulatory Signs.

The OTM warrant is based on volume, collision history, and stopping sight distance at the intersection. There are three classes of warrants identified in the OTM. Each class is based on the classifications of roadways.

1. Urban Arterial Roads
2. Collector Roads and Rural Arterial Roads
3. Local Roads

Road Classification is determined using the City of Barrie Official Plan, 2023, Map 4b Mobility Network.

Based on the classification of Anne Street North and Hanmer Street West, the Urban Arterial Roads warrant is used. Below are the components to the warrant. Each can satisfy the warrant independently.

1. Minimum Volume Warrant

- a) The total vehicle volume on all approaches exceeds 500 vehicles per hour for each of the highest eight hours of the day.
- b) The combined vehicle and pedestrian volume on the minor street exceed 200 units per hour for the same eight hours.

c) The volume split does not exceed 75/25. The minor street must not be less than 25% of the total volume entering the intersection.

2. **Collision Warrant** - Reviews high collision frequency. Only right angle and turning movement collisions that are reported to Barrie Police Services are considered. The threshold for a high collision frequency for urban arterial roads is four collisions per year over three years (i.e., 12 collisions in 36 months).

3. **Visibility Warrant** - The distance required for a driver to see ahead to stop if necessary. If all efforts have been exhausted and stopping sight distance cannot be brought up to the guidelines (less than 105m), conversion of the intersection to an all-way stop may be considered.

An eight-hour Turning Movement Count was completed on October 24, 2023, for the purpose of completing an All-Way Stop warrant. The results of the warrant analysis are summarized below.

Description	All-Way Warrant	Recorded Data	Satisfied All-Way Warrant	
			Yes	No
Part 1a – Total Volume Total vehicle volume on all approaches	500 vehicles per hour for each of the highest eight hours of the day.	314 Vehicles (7:00-8:00) 460 Vehicles (8:00-9:00) 296 Vehicles (11:00-12:00) 337 Vehicles (12:00-13:00) 344 Vehicles (13:00-14:00) 497 Vehicles (15:00-16:00) 583 Vehicles (16:00-17:00) 527 Vehicles (17:00-18:00)		
Part 1b – Minor Street Volume Combined vehicle and pedestrian volume on (Minor Street)	200 units per hour wishing to enter the intersection for each of the same 8 hours as the total volume.	71 Units (7:00-8:00) 106 Units (8:00-9:00) 46 Units (11:00-12:00) 66 Units (12:00-13:00) 80 Units (13:00-14:00) 139 Units (15:00-16:00) 107 Units (16:00-17:00) 90 Units (17:00-18:00)		X
Part 1c – Volume Split Volume of Traffic on (Minor Street) (Minor Street must not be less than 30% of the total volume entering the intersection)	Volume split does not exceed 70%/30% at the intersection (Minor Street must not be less than 30% of the total volume entering the intersection). Measured over the entire 8-hour count. Volume on Major Street is vehicles only. Volume on Minor Street is vehicles and pedestrians. 75%/25% for three-legged intersections.	79%/21% Volume Split		
Part 2 – Collision Intersection Collision Frequency	4 collisions per year over three years (*example* 12 collisions in 36 months)	1 reported collision over a 3-year period		X

Part 3 – Visibility Stopping Sight Distance from Minor Street	Less than 105m	No restrictions		X
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Traffic's typical eight-hour Turning Movement Count are completed 7:00am-9:00am, 11:00am-2:00pm, and 3:00pm-6:00pm. These eight hours were used for the All-Way Stop warrant analysis. Throughout the highest eight hours, traffic volumes on the minor street never exceeded volume thresholds for the warrant. In the peak hour (3:00pm-4:00pm), there was a total vehicle volume of 583 vehicles, 139 units entering. The warrant requires each hour to have 500 total vehicles and 200 units entering. The volume split of the intersection for a total of eight hours is 79%/21%. Volume Parts 1a, 2b, 2c of the All-Way Stop analysis do not meet the criteria to satisfy an All-Way Stop at the intersection.

Collision history was pulled from the database for investigation. Staff found there was one (1) reported collision at the intersection in the past three years. This does not satisfy the Urban Arterial Roads All-Way Stop warrant.

Staff have completed site visits to the intersection to analyze operation of the intersection and stopping sight distance. Current operation of the intersection has vehicles travelling westbound on Hanmer Street West (Minor Street) to stop at Anne Street North (Major Street). When stopped at the stop signs on Hanmer Street West (Minor Street) and proceeding to the projected curb of Anne Street North (Major Street), Staff found that there were no sight restrictions, and motorists had clear vision to maneuver in the intersection when safe to do so.

Staff prepared a questionnaire that was mail to 27 property owners on Anne Street North (Major Street) and Hanmer Street West (Minor Street) to seek input on the implementation for an All-Way Stop. Staff received four (4) responses and the results of the questionnaire are below.

ALL-WAY STOP AT ANNE STREET NORTH AND HANMER STREET WEST SURVEY	RESPONSES RECEIVED IN FAVOUR	PERCENTAGE OF RESPONSES
<u>Option "A"</u> – An All-Way Stop be Implemented.	2	50%
<u>Option "B"</u> – No change be made (stop remains on Hanmer Street West only)	2	50%
TOTAL (Out of 27)	4	15%

A review of the questionnaire responses identified a total participation of 15%. From the responses, two (2) are opposed to an All-Way Stop and two (2) were in favour. Residents expressed concern that implementing an All-Way Stop will impede traffic on Anne Street North (Major Street) and maneuvering in and out of the driveway will become difficult.

Staff do not recommend installing an All-Way Stop at the intersection of Anne Street North (Major Street) and Hanmer Street West (Minor Street) due to the low vehicular volume on both roads and no restrictions through the sightlines. Staff will continue to monitor the traffic operations at this intersection to ensure continued safe operation.

APPENDIX "A"**All-Way Stop Investigation**