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Date December 1, 2020 **Report No.** 2020-471

To Chair and Members
Committee of the Whole – Operations and Administration

From Indie Hans. P. Eng.
General Manager, Public Works Commission

1.0 Type of Report

Consent Item	[]
Item For Consideration	[X]

2.0 Topic Alfred Street and Arthur Street at Shallow Creek Park – Traffic Control [Financial Impact – None]

3.0 Recommendation

A. THAT report no. 2020-471 regarding "Alfred Street and Arthur Street at Shallow Creek Park – Traffic Control" BE RECEIVED.

4.0 Purpose and Overview

To provide City Council the results of the all-way stop control study conducted at the intersection of Alfred Street at Arthur Street, and the results of the speed limit review along Alfred Street adjacent to Shallow Creek Park.

5.0 Background

City Council passed the following resolution at its meeting held August 25, 2020:

Alfred Street and Arthur Street at Shallow Creek Park - Traffic Control

WHEREAS there is no pedestrian crosswalk painted across Alfred Street at the Alfred Street and Arthur Street intersection; and

WHEREAS pedestrians regularly cross Alfred Street to gain entry to Shallow Creek park; and

WHEREAS Arthur Street sees consistent traffic with numerous report of speeding and reckless driving making crossing Arthur Street unsafe to cross without a crosswalk and/or traffic calming measures; and

WHEREAS vehicles on Alfred Street are not required to stop at the Alfred Street and Arthur Street intersection; and

WHEREAS it is important to ensure safe access to public spaces and to deter speeding and unsafe driving in our community;

NOW THEREFORE BE IT RESOLVED:

A. THAT staff BE DIRECTED to undertake an all-way stop warrant study at the intersection of Alfred Street and Arthur Street; and

B. THAT staff BE DIRECTED to report back to Council on study finding in Q4 2020.

C. THAT staff BE DIRECTED to investigate the feasibility of a 40km/h zone.

6.0 Corporate Policy Context

City of Brantford Council Priorities, 2020-2021, #3:

- A safe, efficient transportation system connects the community across neighbourhoods, with neighbouring communities and provincial transportation network.

7.0 Input from Other Sources

Not applicable.

8.0 Analysis

8.1 All-way Stop Control Warrant

Staff conducted a traffic study to determine if an all-way stop control is warranted at the intersection of Alfred Street at Arthur Street. The study location is shown in Figure 1. The intersection of Alfred Street at Arthur Street is a "T" intersection with Alfred Street by-lawed as the through street. An all-way stop control study was conducted at the intersection in accordance with Public Works-009 All-way Stop Control – Warrants policy. For an all-way stop control to be warranted, one of the following warrants must be met:

Collision Hazard
A total of twelve (12) turning movement/right angle collisions would need to occur over the most recent three (3) year period, which is susceptible to correction with an all-way stop control.

For the most recent three (3) year period of available collision reports, 2017 to present, there has not been any turning movement/right angle collisions reported at the intersection. Based on the collision history, an all-way stop control is not warranted.

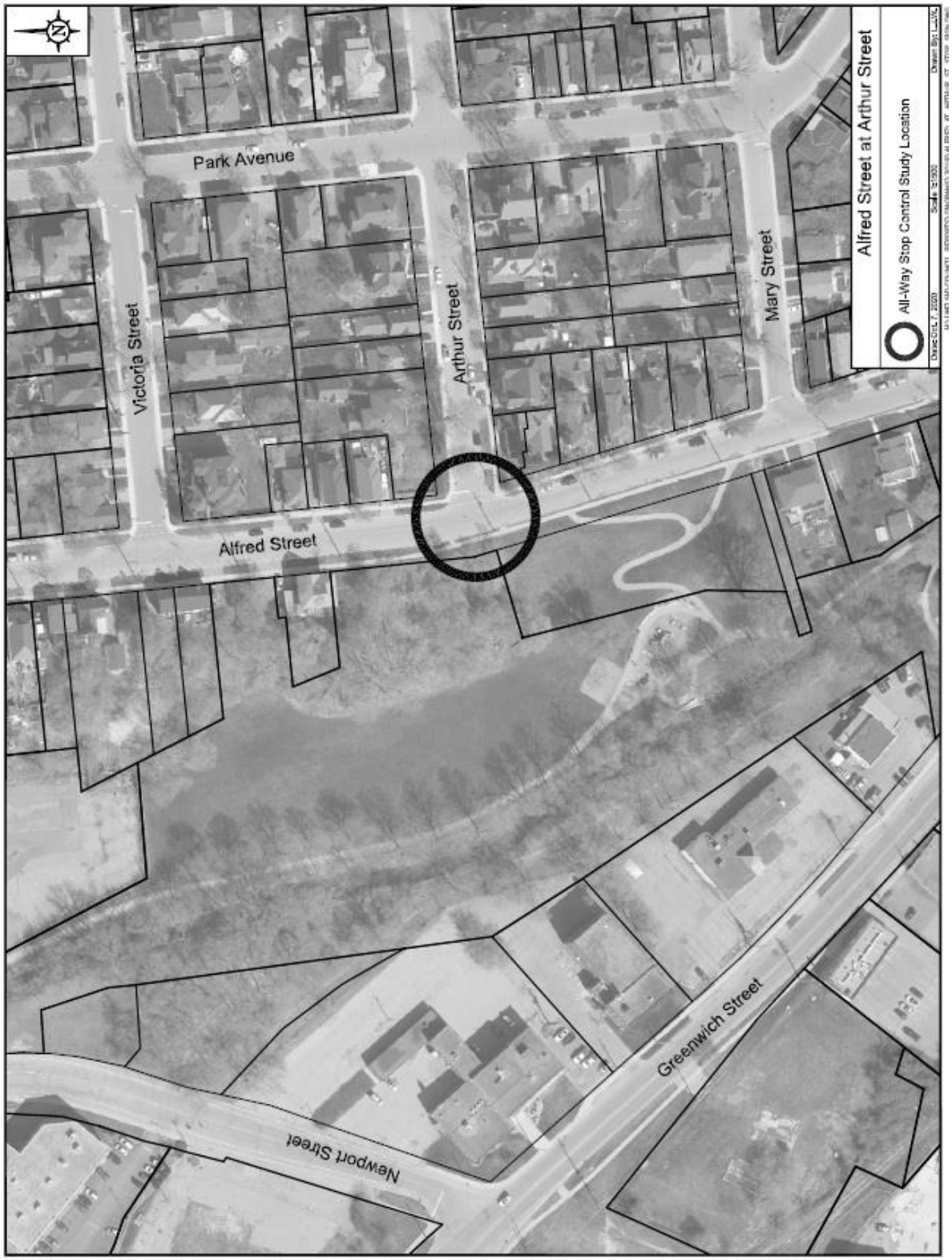
Vehicular Volume Warrant
At the intersection of a local and minor collector road, an average of three hundred (300) vehicles per hour must be recorded on the approach to the intersection during the highest eight (8) hours of vehicular travel for an all-way stop to be warranted. The volume split must also not exceed seventy-five (75%) percent on the main street.

An eight (8) hour intersection traffic count was conducted on September 22, 2020. An average of sixty-eight (68) vehicles per hour was recorded approaching the intersection during the traffic study period. The percent volume split for Alfred Street/Arthur Street was 86/14.

Based on the total entering volume of vehicles at the intersection and volume split, an all-way stop control is not warranted at the intersection.

Staff consider the existing traffic control to be adequate based on existing conditions and do not support the installation of all-way stop control at the intersection.

Figure 1 - Alfred St. at Arthur St. All-way Stop Control Study Location



8.2 The Negative Impacts of Unwarranted All-way Stop Control

The main purpose of all-way stop control is to assign right-of-way at the intersection of two roadways with relatively equal volume. Provincial guidelines state that an all-way stop control should not be used as a device to control vehicle speeds.

Observations have revealed that the introduction of unwarranted all-way stop controls often results in the following:

- **Poor Stop Sign Compliance** - motorists familiar with the intersection will not come to a complete stop, instead, reduce their travel speed, and accelerate through the intersection when no opposing traffic is observed. In general, if motorists see no reason for a "Stop" sign, they will disregard the sign. Excessive unwarranted stop sign usage breeds disregard for traffic signs. Inappropriate signs become part of the landscape and their effectiveness is reduced.

  Given eighty-six (86%) percent of traffic entering the intersection arrives from Alfred Street, the likelihood of motorists observing an opposing vehicle on Arthur Street will be relatively low. Motorists will likely not come to a complete stop at the "Stop" sign.

- **False Sense of Security** – disregard for the "Stop" signs may decrease safety. Pedestrians may be lured in to the false sense of security by the presence of a "Stop" sign by assuming motorists will stop. Children who are raised to believe people obey laws are the most vulnerable. Motorists may also assume a motorist will stop because of the "Stop" sign and enter the intersection when it is not safe to do so, resulting in a potential collision.

- **Collisions** – all-way stop control can increase the number of rear-end and fixed object collisions, especially if there is a high volume of traffic being required to stop unnecessarily.

- **Speeding** - the unnecessary delays from a stop sign results in motorists increasing their travel speed to make up for the perceived time lost.

- **Emergency Response** - response time for emergency services vehicles will be negatively impacted because they are required to come to a complete stop at all stop signs as per the Highway Traffic Act.

- **Noise and Air Pollution** – residents living nearest to the intersection will experience an increase in traffic noise from vehicles stopping and accelerating (braking noise and engine noise). Stopping and accelerating also increases environmental emissions and fuel consumption.

8.3 Establishing the Appropriate Posted Speed Limit

Although the resolution from Council indicated concern for speeding on Arthur Street and the need for a pedestrian crossing, staff confirmed with the Ward Councillor that the concerns pertain to Alfred Street, which is the through street at the intersection.

It is practice to reduce the posted speed limit to 40 km/h on local and collector roadways adjacent to elementary schools and parks as per Public Works-017 Guidelines for Establishing Posted Speed Limits policy. Since Shallow Creek Park abuts Alfred Street, the need for a posted speed limit of 40 km/h was reviewed using the Transportation Association of Canada (TAC) *"School and Playground Areas and Zones: Guidelines for Application and Implementation* as outlined in the Public Works policy. These guidelines are used to determine if a speed limit change is warranted by using the following factors to establish a posted speed limit on a street adjacent to a playground:

- Playground type;
- Road classification;
- Fencing;
- Property line separation;
- Playground entrance; and
- Sidewalks.

The required data was entered into the Playground Zone Input Worksheet, and the resulting output (Score of 80) indicates that Alfred Street adjacent to Shallow Creek Park should be signed as a "Playground Area" with warning signs and a posted speed limit of 50 km/h. The recommended "Playground Ahead" signs are installed on Alfred Street. A copy of the worksheet is attached as Appendix A.

8.4 The Ineffectiveness of Reducing the Posted Speed Limit

Staff receive requests to establish 40 km/h zones on residential streets to reduce vehicle speed. Speed studies conducted show that a lowered speed limit alone is ineffective at reducing speeds. A 40 km/h speed limit zone should not be implemented for the sole purpose of attempting to reduce vehicle speed. To address speeding concerns on residential streets, traffic calming, the Speed Watch Program, or Vehicle Activated Traffic Calming Signs (VATCS), should be considered.

8.5 Pedestrian Crossover

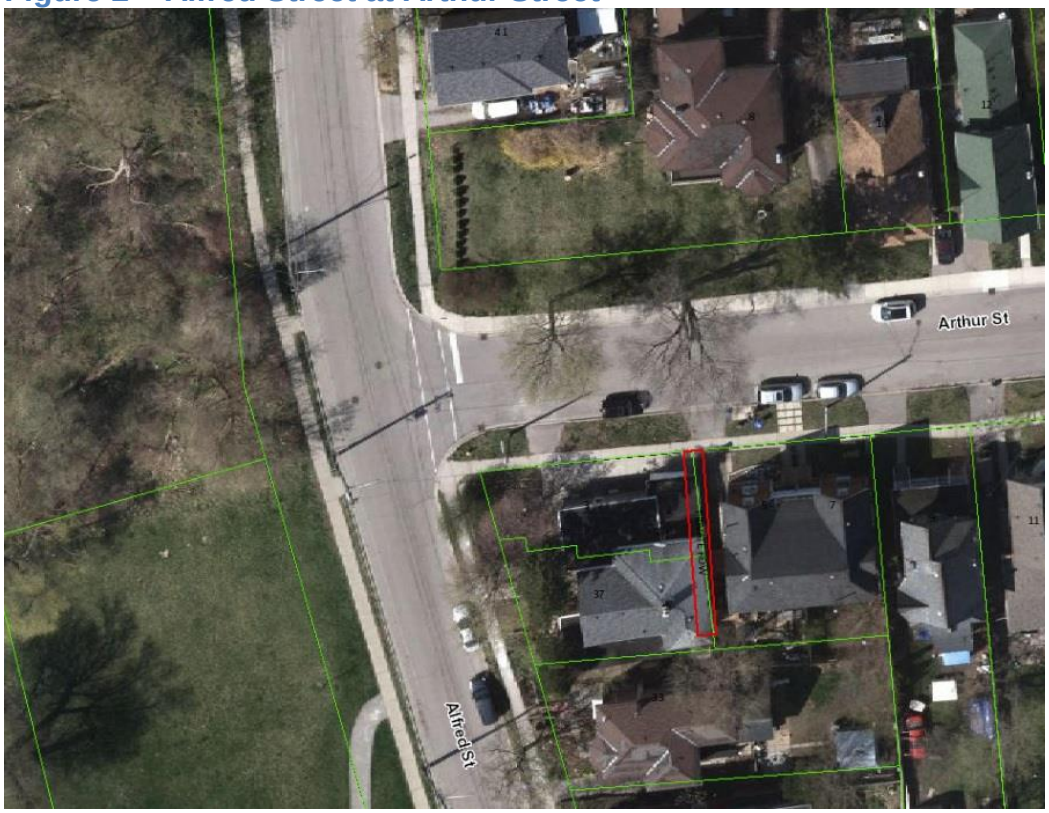
Although not part of the direction from Council, staff used the traffic count data collected for the all-way stop warrant to determine if a pedestrian crossover

(PXO) is warranted at the intersection. There has been renewed interest in PXOs since the Ministry of Transportation Ontario published the Pedestrian Crossing Treatments manual in June 2014. Although Brantford has yet to install a PXO, surrounding municipalities have been implementing them for several years.

The Alfred Street at Arthur Street pedestrian crossing location was reviewed for consideration of a PXO following the guidelines outlined in the Pedestrian Crossing Treatments manual.

Alfred Street at Arthur Street has a pedestrian crossing distance of 10 metres. An aerial photograph of the intersection is shown in Figure 2.

Figure 2 – Alfred Street at Arthur Street



An eight (8) hour turning movement count was conducted at the intersection to determine the two-way vehicular traffic volumes and observe pedestrian activity at the intersection. During the study period, sixteen (16) pedestrians crossed Alfred Street.

The eight (8) hour two-way vehicular volume on Alfred Street is 491. Alfred Street has a two-lane cross-section, consisting of one (1) northbound lane and one (1) southbound lane. Using the Pedestrian Crossover Selection Matrix manual, a PXO is not recommended because of the low traffic volume (<750 two-way vehicular volume in the eight (8) hours).

9.0 Financial Implications

There are no financial implications resulting from the recommendation of this report.

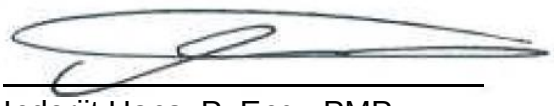
10.0 Conclusion

The all-way stop control study has revealed that an all-way stop control is not presently warranted at the intersection of Alfred Street at Arthur Street. Staff do not recommend that all-way stop control be installed.

Based on the Transportation Association of Canada guidelines, 50 km/h is the appropriate posted speed limit on Arthur Street adjacent to Shallow Creek Park.

A pedestrian crossover (PXO) is also not warranted at the intersection of Alfred Street at Arthur Street.

Mark Jacklyn
Director, Operational Services



Inderjit Hans, P. Eng., PMP
General Manager, Public Works Commission

Attachments

Appendix “A” – TAC Playground Zone Input Worksheet – Alfred Street

In adopting this report, is a by-law or agreement required? If so, it should be referenced in the recommendation section.

By-law required	[ ] yes	[X] no
Agreement(s) or other documents to be signed by Mayor and/or City Clerk	[ ] yes	[X] no
Is the necessary by-law or agreement being sent concurrently to Council?	[ ] yes	[X] no

Appendix "A"

TAC Playground Zone Input Worksheet – Alfred Street

INSTALLATION CRITERION	MAXIMUM POINT VALUE	DESCRIPTION		WEIGHTING FACTOR	Score
Playground **T**ype	40	Frontage	Playground Capacity (number of children)	N/A	
		≥ 50m	16 or more	1.0	
			5 to 15	0.75	
			1 to 4	0.4	
			No play equipment: sports field or open field only	0.2	**T=** 30
		< 50m	Any facilities	0.2	
Road **C**lassification	20	Urban Land Use	Rural Land Use		
		Local		1.0	
		Minor Collector	Local	0.75	
		Collector	Collector	0.5	
		Major Collector / Minor Arterial	Arterial	0.25	
		Major Arterial / Expressway	Freeway	0.0	**C=** 20
Fencing	20	Fully Traversable		1.0	
		Partially Traversable		0.5	
		Non- Traversable/Indoor Facility		0.1	**F=** 20
Property **L**ine Separation	10	Abuts Roadway		1.0	
		Within 50 metres		0.5	
		Further than 50 metres		0.0	**L=** 5
Playground **E**ntrance	5	Main Entrance / Multiple Secondary Entrances		1.0	
		Secondary Entrance		0.6	
		None		0.0	**E=** 5
Sidewalks	5	None (or Non-Playground Side)		1.0	
		Playground Side		0.4	
		Both Sides		0.0	**S=** 0

Total Score (sum of T, C, F , L, E and S)	80