



**City of Kingston
Report to Council
Report Number 24-056**

To: Mayor and Members of Council
From: Brad Joyce, Commissioner, Infrastructure, Transportation & Emergency Services
Resource Staff: Ian Semple, Director, Transportation & Transit
Date of Meeting: February 6, 2024
Subject: All-Way Stop Review

Council Strategic Plan Alignment:

Theme: 3. Build an Active and Connected Community

Goal: 3.4 Improve road construction, performance, and safety.

Executive Summary:

This report provides an analysis of requests received for All-Way Stop Control (AWSC) implementation at 33 intersections across the city since the beginning of 2023. Following guidance from the Transportation Association of Canada (TAC) and the Ontario Traffic Manual (OTM) Book 5, the report recommends AWSC implementation at seven locations. The recommendations necessitate amendments to the City of Kingston [By-law Number 2003-209](#), “A By-law to Regulate Traffic”.

AWSC can be used as a safety enhancement to mitigate collision risks at intersections and aligns with the City's Vision Zero Road Safety Plan. However, there are also risks associated with implementing AWSC where they are not warranted, underscoring the need for careful consideration. Three warrants outlined in OTM Book 5 guide AWSC implementation: the Minimum Volume Warrant, Collision Warrant, and Visibility Warrant. Each intersection underwent a thorough assessment against these warrants.

The report details the criteria for each warrant and provides specific recommendations for AWSC implementation at five locations based on satisfying the volume warrants. Two additional locations are recommended for AWSC based on staff review.

February 6, 2024

Page 2 of 8

The seven locations recommended for implementation are as follows:

- Development Drive at Truedell Road
- Lancaster Drive at Bridle Path Crescent/Strand Boulevard
- Bagot Street at William Street
- Gore Road at Rose Abbey Drive
- Conacher Drive at Wilson Street
- Dolshire Street at Malabar Drive
- William Street at Aberdeen Street

The remaining 26 locations are not recommended for AWSC implementation based on provincial guidelines and the assessment completed by staff but will be reviewed as part of other related transportation programs or infrastructure, including planned pedestrian crossing upgrades, the traffic calming program, or other available or planned road safety initiatives.

Recommendation:

That By-law Number 2003-209, "A By-law to Regulate Traffic", as amended, be further amended in accordance with Exhibit A to Report Number 24-056.

February 6, 2024

Page 3 of 8

Authorizing Signatures:

ORIGINAL SIGNED BY COMMISSIONER

**Brad Joyce, Commissioner,
Infrastructure, Transportation &
Emergency Services**

ORIGINAL SIGNED BY CHIEF

ADMINISTRATIVE OFFICER

**Lanie Hurdle, Chief
Administrative Officer**

Consultation with the following Members of the Corporate Management Team:

Paige Agnew, Commissioner, Growth & Development Services	Not required
Jennifer Campbell, Commissioner, Community Services	Not required
Neil Carbone, Commissioner, Corporate Services	Not required
David Fell, President & CEO, Utilities Kingston	Not required
Peter Huigenbos, Commissioner, Major Projects & Strategic Initiatives	Not required
Desirée Kennedy, Chief Financial Officer & City Treasurer	Not required

February 6, 2024

Page 4 of 8

Options/Discussion:

All-Way Stop Control (AWSC), also known as a four or three-way stop, is a form of traffic control that requires vehicles to stop at all approaches to an intersection. The implementation of AWSC is informed by guidance provided by the Transportation Association of Canada (TAC) and the Ontario Traffic Manual (OTM) Book 5, which was recently updated in December 2021.

Since the beginning of 2023, staff received requests for the implementation of all-way stops at 33 unique intersections across the city, as listed in Exhibit B of this report. Staff have completed an assessment at all locations, including traffic counts, collision history reviews and, in some cases, site visits. This report is intended to summarize the results of these findings, including the recommendations of staff for AWSC implementation at seven locations. These recommendations require amendments to the City of Kingston By-law Number 2003-209 "A By-Law to Regulate Traffic", attached as Exhibit A.

Background

Stop signs are installed as a form of traffic control to assign and regulate right-of-way at intersections with the potential for conflict. In certain instances, AWSC implementation can improve safety for road users at intersections where they are warranted or otherwise recommended through engineering-based studies. AWSC can be an effective safety enhancement to help prevent the risk of collisions resulting in serious injuries or fatalities and, as such, is included as part of one of several countermeasures included in the City's [Vision Zero Road Safety Plan](#).

While road safety improvements can be realized through the implementation of AWSC, an equally important counteracting risk can arise when AWSC is implemented where it is not warranted. Generally, AWSC should only be considered at an intersection of two relatively equal roadways having similar and sufficient traffic volume and operating characteristics. There is a relatively high threshold for this, requiring balanced and frequent use of all approaches of the intersection to ensure that drivers who travel through the area do not 'roll' through the new stop control that is introduced along the major street.

Introducing AWSC at locations that do not meet the recommended criteria can lead to lower compliance and other driver behaviour-related issues, including an increased tendency for drivers along the main road to perform a rolling stop, particularly if there is not consistently sufficient volume originating from the intersecting roadway. Placing stop signs at locations where warrants have not been met may contribute to lower compliance levels at other stop-controlled locations in the city. This can lead to an increased risk for all road users, including vulnerable road users such as pedestrians and cyclists, by falsely setting the expectation of full-stop compliance by motorists.

Provincial guidance is also clear that stop signs are not to be used as a traffic-calming measure. Studies and experience from other jurisdictions indicate that drivers tend to quickly accelerate to reach normal operating speeds after being forced to stop at an unwarranted stop sign. AWSC usage should be limited to the control of right-of-way conflicts and should only be implemented

February 6, 2024

Page 5 of 8

where studies considering such factors as traffic volumes, restricted sight lines, and collision history indicate that this form of control is warranted.

Additionally, the Ontario Traffic Manual indicates that AWSC should not be used where the protection of pedestrians, particularly school children, is the primary concern. This concern is typically better addressed by other means of control, such as a controlled pedestrian crossing. AWSC should also not be used as a means of deterring the movement of traffic in a residential area, which is similarly better addressed through other tools such as traffic-calming measures.

All-Way Stop Control (AWSC) Warrant Process

The Ontario Traffic Manual (OTM) and Transportation Association of Canada Geometric Design for Canadian Roads guide the use of all-way stop control by road authorities provincially and nationally, respectively. The warrants outlined in the OTM include a minimum volume warrant, a collision warrant, and a visibility warrant. The use of all-way stop control at any specific intersection is justified if any one of these three warrants is met. While operating speeds may be considered as part of the assessment for other treatments and traffic warranting processes, they are not part of the technical warrant criteria as prescribed by the manual.

The warrants as outlined in OTM Book 5 for local roads are as follows:

1. The All-Way Stop Minimum Volume Warrant established by OTM Book 5 establishes consistent criteria for municipalities in Ontario. For roadways designated as minor or local roadways, the following three criteria must all be met for the implementation of an all-way stop to be warranted:
 - a. The total vehicle volume on all intersection approaches exceeds 200 vehicles per hour for each of the highest four hours of the day; and,
 - b. The combined vehicle and pedestrian volume on the minor street exceeds 75 units per hour (all vehicles plus pedestrians wishing to enter the intersection) for each of the same four hours as the total volume; and,
 - c. The volume split does not exceed 70/30 (that is the minor street must not be less than 30% of the total volume entering the intersection) as measured over the entire four-hour count period. Volume on the major street is defined as vehicles only. Volume on the minor street includes all vehicles plus any pedestrians wishing to cross the major roadway. For three-legged intersections a volume split of 75/25 is permissible.
2. AWSC may be warranted for a location experiencing an unusually high number of right-angle or turning collisions. Specifically, an average of three collisions per year over a three-year period (i.e. nine collisions over three years).
3. Under some circumstances, sufficient sight distance is not available for traffic exiting the stop-controlled approaches of a two-way stop intersection, based on geometric design requirements. If all efforts to improve the sight distance have been exhausted and the

February 6, 2024

Page 6 of 8

sight distance cannot be brought up to the guidelines, conversion of the intersection to AWSC may be considered.

Warrants #1 and #2 were completed at each of the 33 requested locations. Warrant #3 was reviewed where applicable.

AWSC Analysis

Based on the results of Warrant #1, the following locations are recommended for AWSC implementation:

- Development Drive at Truedell Road
- Lancaster Drive at Bridle Path Crescent/Strand Boulevard
- Bagot Street at William Street
- Gore Road at Rose Abbey Drive
- Conacher Drive at Wilson Street

All above locations meet and/or are within an acceptable margin of each of the criteria set out in OTM Book 5 and are supported by engineering judgment.

Based on the results of Warrant #3, which included a review of the sightlines and observations of the traffic movements, it is also recommended that AWSC be introduced at:

- Dolshire Street at Malabar Drive
- William Street at Aberdeen Street

The implementation of AWSC control at Dolshire Street at Malabar Drive is intended to address sightline concerns for turning vehicles and is supported by the turning movement patterns through the intersection.

Additionally, based on a review of the traffic counts conducted, it is recommended that stop control be introduced on William Street at Aberdeen Street. Currently, a significant volume of pedestrians is crossing William Street at both legs of the intersection. This contributes to a combined volume of vehicles approaching from Aberdeen Street and pedestrians crossing William Street that far outweighs the volume of vehicles approaching from William Street. In line with provincial guidance, these findings support the implementation of AWSC, at minimum in the interim, to better support the patterns through the intersection.

Staff are recommending that AWSC be implemented at the above seven locations based on the potential to improve road safety at each respective location for all road users.

Related Transportation Programs

Staff note that a number of locations that were assessed for AWSC were also identified as part of [Report Number 22-167 – Planned Pedestrian Crossing Upgrades](#) as candidate pedestrian

February 6, 2024

Page 7 of 8

crossing locations, forming part of the preliminary list of 51 locations that are being considered as part of a broader city-wide program to upgrade pedestrian crossings, including:

- Helen Street at Mack Street
- Mowat Avenue at Forsythe Avenue
- Mona Drive at Woodside Drive
- Woodside Drive at Marsh Crescent
- Barrie Street at Union Street

Staff note that Barrie Street at Union Street was within an acceptable margin of AWSC Warrant #1, however, the location requires further study due to its geometric configuration as it relates to its intersection with Court Street being in close proximity.

The 51 candidate locations, including the five locations identified above, are not committed at this time but are being carried forward for consideration as part of future capital plans. They are distinct from the list of 31 locations that were committed to be upgraded to controlled pedestrian crossings as part of the Canada Infrastructure Program (ICIP) from 2023 to 2026.

AWSC control is one of several tools available to improve road safety. Other supportive programs of the City's road safety policies include community-based measures, annual selection, and capital work as part of the City's Traffic Calming program, Community Safety Zones and planned corresponding Automated Speed Enforcement, ongoing and planned neighbourhood speed limit reductions, new traffic signals, school crossing guards and school travel planning, and active-transportation focused capital work and road reconstruction at intersections and along corridors.

AWSC Implementation

The implementation of AWSC involves the installation of signage, including "NEW" starburst signage in advance of the STOP sign when the AWSC is first introduced. Stop bars will also be implemented at each location in coordination with signage installations. AWSC installation may also involve additional capital work, such as concrete and curb construction to install crosswalks where appropriate. Staff will endeavour to construct crosswalks where sidewalk connections, ramps and/or bus pads are already in place, and where sufficient boulevard space is available free of utility and driveway conflicts. Each location will undergo a detailed site review to determine an implementation plan and any capital works required to enhance the location for pedestrian use.

Indigenization, Inclusion, Diversity, Equity & Accessibility (IIDEA) Considerations

As part of the design process for AWSC locations that have been identified for implementation, the City will consider, where appropriate, improvements to civil infrastructure to ensure crosswalks are accessible and in line with the City's and provincial standards. This could include modifications to curbs and sidewalks, and the inclusion of tactile walking surface indicators.

February 6, 2024

Page 8 of 8

Existing Policy/By-Law

By-Law Number 2003-209, "A By-Law to Regulate Traffic"

Financial Considerations

The cost associated with the installation of required signage will be accommodated within the existing capital funds.

Contacts:

Matt Kussin, Manager, Transportation Policy & Programs 613-546-4291 extension 1333

Mark Dickson, Manager, Transportation Systems 613-546-4291 extension 3254

Other City of Kingston Staff Consulted:

Andrew Morton, Transit Service Project Manager, Transit Services

Exhibits Attached:

Exhibit A – Proposed Changes to By-Law Number 2003-209

Exhibit B – List of Intersections Assessed for All-Way Stop Control

City of Kingston By-Law Number 2023–xxx

By-Law to Amend City of Kingston By-Law Number 2003-209 A By-Law to Regulate Traffic

Whereas:

The Corporation of the City of Kingston (the “**City**”) is a single-tier municipality incorporated pursuant to an order made under section 25.2 of the *Municipal Act*, R.S.O. 1990, c. M.45.

Subsection 5 (1) of the *Municipal Act, 2001*, S.O. 2001, c. 25 (the “**Municipal Act, 2001**”) provides that the powers of a municipality must be exercised by its council.

Subsection 5 (3) of the *Municipal Act, 2001* provides that a municipal power must be exercised by by-law unless the municipality is specifically authorized to do otherwise.

Pursuant to subsection 10 (1) of the *Municipal Act, 2001*, a single tier municipality may provide any service or thing that the municipality considers necessary or desirable for the public.

On July 29, 2003, council for the *City* enacted *City of Kingston By-Law Number 2003-209, “A By-Law to Regulate Traffic”*.

Council for the *City* considers it necessary and desirable for the public to amend *City of Kingston By-Law Number 2003-209*:

Therefore, council enacts:

1. Amendment

1.1 *City of Kingston By-Law Number 2003-209* is amended as follows:

- (a) Schedule C-1, Through Highways, is hereby amended by removing the following therefrom:

Bagot Street from North of Earl Street to South of Ordnance Street

Conacher Drive - All

By-Law to Amend By-Law 2003-209

Development Drive - All

Dolshire Street from Arbour Crescent to Melrose Street

Gore Road from West Side of Donald Street/Grenadier Drive to North End of Road

Lancaster Drive from West Side of Milford Drive to Keenan Drive

William Street from University Avenue to West Side of Division Street

- (b) Schedule C-1, Through Highways, is hereby amended by adding the following thereto:

Conacher Drive from West End of Conacher Drive to West Side of Wilson Street

Conacher Drive from East Side of Wilson Street to South Side of Sutherland Drive (Eastern Intersection)

Development Drive from Gardiners Road to East Side of Truedell Road

Development Drive from West Side of Truedell Road to Lincoln Drive/Hudson Drive

Gore Road from East Side of Rose Abbey Drive to North End of Gore Road

Lancaster Drive from East Side of Keenan Drive to West Side of Bridle Path Crescent/Strand Boulevard

- (c) Schedule C-3, All-Way Stop Signs, is hereby amended by adding the following thereto:

Bagot Street at William Street

Conacher Drive at Wilson Street

Development Drive at Truedell Road

Dolshire Street at Malabar Drive

Gore Road at Rose Abbey Drive

By-Law to Amend By-Law 2003-209

Lancaster Drive at Bridle Path Crescent/Strand Boulevard

William Street at Aberdeen Street

2. Coming into Force

2.1 This by-law will come into force and take effect on the day it is passed.

1st Reading date

2nd Reading date

3rd Reading date

Passed date

Janet Jaynes
City Clerk

Bryan Paterson
Mayor

Table 1 – List of Intersections Assessed for All-Way Stop Control

Number	Location
1	Aylmer Crescent at Clark Crescent (north)
2	Aylmer Crescent at Clark Crescent (south)
3	Bagot Street at William Street
4	Barrie Street at Union Street
5	Carruthers Avenue at College Street
6	Carruthers Avenue at Helen Street
7	Conacher Drive at Sutherland Drive (west)
8	Conacher Drive at Wilson Street
9	Crerar Boulevard at Lakeshore Boulevard
10	Development Drive at Truedell Road
11	Dolshire Street at Arbour Crescent
12	Dolshire Street at Malabar Drive
13	Glengarry Road at Westmoreland Road
14	Gore Road at Rose Abbey Drive
15	Helen Street at Mack Street
16	Humberside Drive at Ryan Court
17	King Street at William Street
18	Lancaster Drive and Bridle Path/Strand Boulevard
19	Lincoln Drive at Forest Hill Drive
20	Lincoln Drive at Graceland Avenue
21	Malabar Drive at Fernmoor Drive

Exhibit B to Report Number 24-056

Number	Location
22	Malabar Drive at Teal Court
23	Mona Drive at Woodside Drive
24	Mowat Avenue at Forsythe Avenue
25	Old Colony Road at Somerset Crescent (South) / Braeside Crescent
26	Old Colony Road at Somerset Crescent (North)
27	Old Oak Road at Collegeview Road
28	Park Street at Toronto Street
29	Portsmouth Drive at Glengarry Road
30	Tanner Drive at Arbour Crescent / Farnham Court
31	William Street at Aberdeen Street
32	Wilson Street at MacCauley Street
33	Woodside Drive at Marsh Crescent (East)