

City of Edmonton 2021 Automated Traffic Enforcement Report

The City of Edmonton is committed to achieving Vision Zero, the internationally recognized goal of zero traffic-related fatalities and serious injuries, through safe and livable streets by 2032. Safe speeds are fundamental to achieving this goal by giving people more time to react to the unexpected, reducing crash frequency and severity, and making streets calmer, quieter, and safer for all people using all modes of travel.

Safe Mobility Strategy 2021 - 2025

The City of Edmonton's *Safe Mobility Strategy 2021-2025*, is an innovative approach designed to accelerate our journey to Vision Zero. The *Safe Mobility Strategy* replaces the previous *Road Safety Strategy 2016-2020* which delivered significant results and made considerable progress towards the goal of Vision Zero with fatalities and serious injuries decreasing by 63% and 40% respectively, from 2015 to 2020. Sustaining this momentum, however, required a more holistic and equitable approach to safe mobility.

The *Safe Mobility Strategy* sets out a collaborative and integrated set of deliberate actions and strategies that are grounded in the Safe System Approach, an approach that is people-centered and views human life and health as paramount. Using this approach, the City of Edmonton is actively confronting the systemic factors that contribute to serious crashes, including unsafe speeds.

The speed at which people drive is complex and impacted by numerous factors. Through the application of the Safe System Approach, people in Edmonton are encouraged to drive at a safe speed through a combination of measures including the use of driver feedback signs (DFS), engineering upgrades, education and awareness campaigns and automated enforcement in coordination with the Edmonton Police Service's in-person enforcement.

'*Strategic Collaboration with the Edmonton Police Service*' is a *Key Action* in the *Safe Mobility Strategy*, which includes supporting the strategic location selection and scheduling of both in-person traffic enforcement and City-led automated enforcement. The *Safe Mobility Strategy 2021-2025*, is included as [Attachment 1](#).

Automated enforcement, including Mobile Photo Enforcement (MPE) and Intersection Safety Devices (ISDs) is a proven countermeasure for increasing traffic safety. The presence of MPE increases perceived risk of detection, and therefore general deterrence. Research to investigate the safety impacts of MPE conducted by the City of Edmonton's Research Chair in Urban Traffic Safety at the University of Alberta has shown that efficient and effective strategic deployment of

MPE reduces both speed and collisions, underscoring the significance of this tool for improving traffic safety.¹

Please find below a summary of the outcomes of the City of Edmonton's automated enforcement program for 2021, prepared by the City of Edmonton's Safe Mobility Section.

Automated Enforcement Summary

Automated traffic enforcement is deployed across the City of Edmonton in accordance with the guidelines set out by the Province of Alberta. Once sites have been selected, the deployment of available automated enforcement visits across eligible sites is carried out through the application of an optimization tool designed by the University of Alberta. The tool considers several factors for each site and provides the optimal distribution of visits to maximize the safety impact. The factors considered by the deployment tool for each site include:

- frequency and severity of collisions;
- frequency and severity of vulnerable road user collisions;
- speed compliance rates;
- number of speed complaints filed by residents each site; and
- historical violation rates.

The automated enforcement program is delivered and managed by the City of Edmonton's Safe Mobility Section with the oversight and direction of the Edmonton Police Service. Mobile speed enforcement systems include 17 Photo Radar units and 19 Photo Laser units used to enforce speeding violations throughout Edmonton. Intersection Safety Devices (ISDs) are installed at 105 locations (76 intersections) to enforce red light running and speeding. In order to assess the impact of mobile speed enforcement, traffic flow data, violation rates, ticket numbers and collision data for 2019 to 2021 were gathered per site, as provided in [Attachment 2](#).

An analysis of violation and ticket numbers for 2019 and 2021 (Table 1) shows that despite an increase in deployment hours (due to contractor performance improvement to contract requirements), the number of recorded violations and issued tickets decreased by 53% and 54% in 2021 compared to 2019. The average speed of traffic through enforced roads also decreased by 10% and the number of ticketed vehicles as a percentage of all traffic decreased by 61%. Moreover, the number of midblock collisions associated with enforcement sites decreased by 21%, similar to the Citywide decrease of 25%.

It is important to note that as a result of the moratorium, the inability to adapt to changing circumstances and implement new enforcement sites may impact violation numbers moving forward. The effects of not being able to introduce new enforcement sites in areas of the city where enforcement would otherwise have been established to increase deterrence is yet to be determined.

¹ Agina, S. and El-Basyouny, K. 2022. Impact of Mobile Speed Enforcement (MPE): An Analysis of the Duration between Collisions at Enforced Sites (*forthcoming*).

TABLE 1 - MOBILE PHOTO ENFORCEMENT

	2019	2020	2021	Change
Total Deployment Hours	43,021	51,415	53,016	23%
Total Violations	299,448	142,367	140,287	-53%
Total Tickets	260,715	121,667	120,110	-54%
Total Tickets 21+ km/h Over the Speed Limit	24,476	15,670	15,739	-36%
Violations per Deployment Hour	6.96	2.77	2.65	-62%
Tickets per Deployment Hour	6.06	2.37	2.27	-63%
Tickets 21+ km/h per Deployment Hour	0.57	0.30	0.30	-48%
Average Site Average Traffic Speed (km/h)	40.52	36.78	36.43	-10%
Average Site Ticketed Vehicle Percentage	2.06%	0.72%	0.81%	-61%
Total Midblock Collisions*	284	179	223	-21%
Total Midblock + Intersection Collisions	885	639	710	-20%
Citywide Midblock Collisions*	6,935	4,887	5,227	-25%
Citywide Midblock + Intersection Collisions	19,704	14,129	15,664	-21%

* Collisions that happened at lanes, service roads, or unknown portions are not included.

In order to summarize the impact of Intersection Safety Devices, traffic flow data, violation rates, ticket numbers and collision data for 2019 to 2021 were gathered per site, as provided in [Attachment 3](#).

In 2020 and 2021, the number of Intersection Safety Devices remained the same due to the moratorium on new enforcement locations, now extended to December 1, 2022. Prior to that, in 2018 and 2019, the number of ISDs in the City increased from 50 to 105, with 80% of the additional sites being activated in 2019. This significant increase in the number of ISDs and introduction of new enforcement sites (which typically bring with them a higher number of violations during the first year of implementation), led to an increase in violation and ticket numbers. The impact of the COVID pandemic on traffic patterns and driving behaviour during 2020 and 2021, including speed, must be considered for this analysis.

A comparison of the ISD statistics from 2019 to 2021 (Table 2), shows there was a 3% increase in the total number of speeding tickets, an 8% reduction in the number of 21+ km/h over the speed limit speeding tickets, and a 54% reduction in the average ticketed vehicle percentage in 2021 compared to 2019. In addition, there were reductions in both intersection through-lane collisions (19%) and intersection total collisions (16%), which were comparable to the citywide level.

TABLE 2 - INTERSECTION SAFETY DEVICES

	2019	2020	2021	Change
Total ISD Days	23,923	37,069	37,660	57%
Total Speeding Tickets	269,393	352,543	276,973	3%
Total Speeding Tickets 21+ km/h Over the Speed Limit	12,948	16,014	11,891	-8%
Total ISD Red Light Tickets	25,944	27,832	28,211	9%
Speeding Tickets per ISD Day	11.26	9.51	7.35	-35%
Speeding Tickets 21+ km/h per ISD Day	0.54	0.43	0.32	-42%
Red Light Tickets per ISD Day	1.08	0.75	0.75	-31%
Average Site Average Traffic Speed (km/h)	32.07	31.90	31.94	0%
Average Site Ticketed Vehicle Percentage	0.13%	0.08%	0.06%	-54%
Intersection Through Lane Collisions	427	253	348	-19%
Intersection Collisions	979	643	825	-16%
Citywide Intersection Through Lane Collisions	7,431	5,229	5,770	-22%
Citywide Intersection Collisions	12,769	9,242	10,437	-18%

* Traffic data of some ISD sites were not complete in 2019 due to software changes.

Open Data

The City of Edmonton is committed to a transparent and accountable automated enforcement Program and currently shares information about enforcement locations and violations through open data (data.edmonton.ca) as follows:

[Open Data Scheduled Mobile Speed Enforcement Zones](#) - A map provides locations where automated enforcement is expected to be operating. The list is updated every Friday for the enforcement locations selected for the following calendar week (Monday through Sunday).

[Open Data Intersection Safety Device Locations](#) - A map provides locations where intersection safety devices operate. The list is updated each time the new location is added.

[Open Data Mobile Automated Traffic Enforcement Tickets Issued By Month](#) - This dataset contains the location (the approximate latitude/longitude of the enforcement zone's mid point), the number of tickets issued at the various speed ranges in excess of the enforced speed limit and the number of enforcement hours (deployment hours) by month.

Taking into consideration the new Automated Traffic Enforcement Technology Guideline (2021), Safe Mobility will continue to enhance how Edmontonians receive timely information about speed limits, safe speeds, and automated enforcement.

Mobile Automated Enforcement Vehicle Wraps and Parking

In January 2020, the City of Edmonton completed a project to increase the visibility of all speed enforcement vehicles for drivers. City-owned vehicles feature vinyl wraps while leased vehicles are clearly marked with decals. All vehicles also feature safety whip flags.

In addition to changes to the look of the vehicles, parking locations have been adjusted to ensure vehicles can be clearly seen by drivers in the enforcement area. New parking standards are as follows:

- park on roadways where vehicles are clearly visible to drivers;
- park as openly as possible at all enforcement sites; and,
- no parking in locations where the presence of enforcement is not visible to traffic being monitored.

Driver Feedback Signs

One of many tools to increase speed compliance, the City of Edmonton uses driver feedback signs to share vehicle speed information with drivers and alert them to when they are speeding. Since 2011, 215 DFS have been installed across the City. In addition, portable DFS are now available upon request by citizens as part of the new [Safe Speeds Toolkit](#) program.

The City of Edmonton's Research Chair in Urban Traffic Safety at the University of Alberta, conducted research on the effectiveness of DFS use on different roads and intervention types. Results showed significant collision reductions in all scenarios ranging from 31.0% to 41.6%. DFS were more effective in reducing collisions for arterials compared to collectors. Also, the combined use of DFS and mobile photo enforcement had a slightly higher impact on safety.²

Speed Limit Reduction

Speed limit reduction is a *Key Action* outlined in the *Safe Mobility Strategy*, reflecting the fact that speed is a factor in every crash. In alignment with the internationally recognized evidence on the relationship between speed and traffic fatalities and serious injuries, in 2021, Edmonton implemented a reduction in the default speed limit from 50 km/h to 40 km/h, with a focus on residential streets, the downtown core, and high pedestrian areas.

An extensive analysis was conducted to identify streets in residential areas that would not naturally support a reduced speed limit due to their current design and function and ensured they were excluded. In addition, the downtown core, the area with the City's highest concentration of pedestrians, and Main Streets that included adjacent roadways and other high pedestrian locations, were brought into scope to support the enhancement of pedestrian oriented places and prioritize moving people, and not just vehicles.

Lower speeds translate into fewer crashes, injuries and fatalities on our streets. A preliminary analysis of speed limit reduction in Edmonton, conducted by the City of Edmonton's Research Chair in Urban Traffic Safety found that the reduced speed limit could result in 20% fewer fatal

² Wu, M., El-Basyouny, K. and Kwon, T. 2020. A Safety Assessment of Driver Feedback Signs and Development of Future Expansion Program.

crashes, a 10% reduction in injury crashes and a 7% drop in property damage crashes per year, along with a \$2 - 12 million savings in related social and economic impacts.

Safe speeds afford greater protection to our most vulnerable road users including pedestrians, cyclists, users of micro mobility, seniors and children and therefore constitute a critical factor in creating a safe system for all people. Shifting public understanding and expectations as to what constitutes safe and acceptable speeds will further contribute to a larger, more transformational shift in traffic safety culture and help us reach our goal of Vision Zero.

The new Automated Traffic Enforcement Technology Guideline introduced in late 2021 now prohibits the use of mobile photo enforcement in residential neighborhoods with a speed limit of less than 50 km/h outside of playground zones. Although this change restricts the deployment of MPE and limits the effectiveness for collision reduction by eliminating an important general and specific deterrence mechanism, enforcement at playgrounds within these same areas will ensure that speed limit reduction, supplemented by adjoining enforcement, will continue to make an effective contribution to achieving Vision Zero.

Education

The City of Edmonton uses educational tools to raise awareness and help improve driver's speed compliance to increase safety. One of these tools is the use of Dynamic Message Signs (DMS) to support Operation 24 Hours, a high-visibility, enforcement campaign coordinated with the Edmonton Police Service, to reduce speed and other traffic violations. In 2021, the City supported this campaign during the months of April, May, July, and October, featuring the message "BIG TICKET EVENT - DON'T SPEED" on DMS across the city. A total of 3,936 hours were dedicated to this campaign.

To support the Speed Limit Reduction project, the team collaborated with the City of Edmonton Communications and Marketing team to develop a suite of tools to address potential misperceptions and alleviate concerns, such as those related to the expectation of longer travel times, the costs of the project, and signage pollution, and to place emphasis on the positive outcomes that lower speed limits have on safety and livability.

This suite of tools included a new [webpage](#) with up to date information, a [Frequently Asked Questions](#) (FAQs) section, and an 'Ask A Question' section to help address and respond to questions from the public not covered by a FAQ. Notably, the team partnered with University of Alberta students to create the [Estimated Time of Arrival \(ETA\) tool](#). This tool encouraged people to test the impact of the speed limit change on their personal travel times and provided the evidence that little to no change would result. A series of [Awareness Videos](#) and an interactive [Speed Limit Map](#) to help people understand which roads were included in the speed limit reduction, along with 6,454 hours of advertising through dynamic message signs (DMS), and a postcard sent to every household in Edmonton, rounded out the suite of tools.

More recently, the [Safe Speeds Toolkit](#) was created to help Edmontonians promote safe speeds and support the implementation of the 40 km/h default speed limit in their neighbourhoods. This program provides citizens with educational resources, access to free community signage

designed to encourage drivers to follow the new reduced speed limit and the option to request portable DFS to be placed in their neighbourhood.