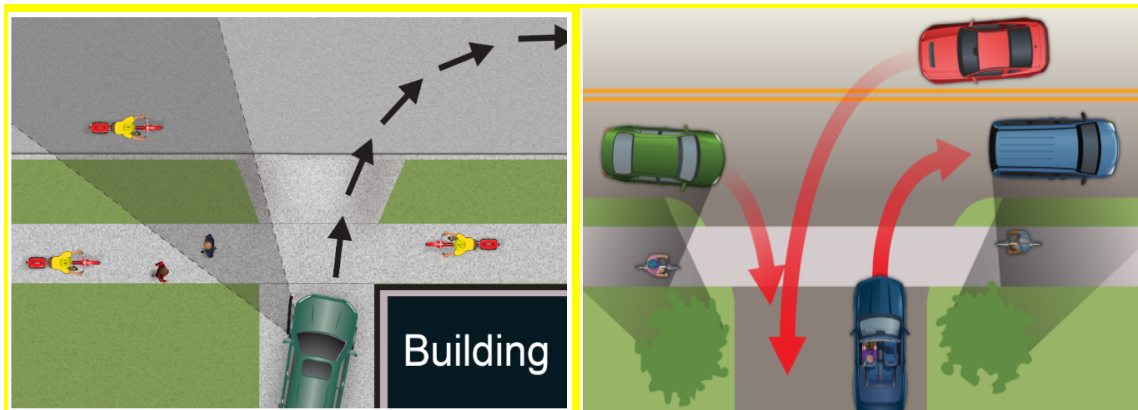


## Safety Analysis: Riding on Sidewalks

### Safety, Equity and Engineering Review

While there is a common perception that riding on sidewalks is a safer alternative to roadways, Edmonton collision data (2017-2023) shows that using bikes, e-bikes and e-scooters on the sidewalk is not safer than roadways and can create increased crash risk, particularly at intersections. This finding is counterintuitive to the experience and assumptions of many who see sidewalks as protected spaces with less risk of conflict with vehicles. However, intersections are a critical conflict point for all modes, and sidewalks are designed with slow-moving road users (pedestrians) in mind.

A literature and collision data review confirms that drivers are primarily focused on the road and may not see or be able to respond quickly to fast moving road users on sidewalks or approaching intersections from sidewalks. This conflict risk is represented in the graphics below; in the left graphic, a driver turning right does not check to the right for the approaching cyclist and has lower visibility to the cyclist on the sidewalk compared to the roadway. The right graphic shows the potential conflict points between cyclists and drivers, with the risk enhanced due to the higher speed of cyclists compared to pedestrians.



According to 2017-2023 collision data compiled and analyzed by Safe Mobility:

- *Cyclists riding from sidewalks are more likely to be struck by right-turning vehicles than cyclists riding on the road:* over 50 per cent of collisions city-wide involving cyclists and e-scooters occurred in a crosswalk or riding from the sidewalk, including 44 per cent of riders who were struck by right-turning vehicles, compared with 12 per cent of cyclists on the road.
- *Low speed, low volume roads and roads with cycling infrastructure are not high risk spaces for crashes:* the majority of crashes occurred on arterial roads compared with other road types.

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- *When a crash does occur on the road or a sidewalk, the location does not change the severity of injury:* 15 per cent of cyclist or e-scooter crashes resulted in a fatality or major injury, and the severity of crashes is similar for sidewalks and roads.
- *Intersections along arterial roads with parking and without cycling infrastructure are the highest risk locations for cyclist/e-scooter crashes:* 70 per cent of cyclist/e-scooter crashes in Edmonton occurred along arterial roads, and 60 per cent of those crashes occurred when cyclists were leaving the sidewalk or were in crosswalks.

Multiple studies conducted by the University of British Columbia and Simon Fraser University show that the collision risk on sidewalks is 5.3 - 16.3 times higher on sidewalks when taking into account ridership frequency and volumes<sup>1</sup> <sup>2</sup>. Falls and injuries for cyclists on sidewalks are four times more frequent due to sharing of limited space with pedestrians and other objects, as well as uneven surfaces<sup>3</sup>.

Equity and engineering considerations indicate that permitting fast-moving cyclists and e-scooters within pedestrian spaces compromises the safety and livability of all sidewalk users and creates further inequities for pedestrians who rely on the limited space offered by sidewalks for foot travel. Edmonton's sidewalk widths<sup>4</sup> and sightlines are designed primarily for pedestrian usage and are too narrow (1.8m) to accommodate bikes and e-scooters, in contrast with the wider (3m) shared use paths.

### **Review and Analysis of Current and Future Bike Network Coverage**

The City has and continues to invest in cycling infrastructure. Administration conducted a review and analysis of Edmonton's road network to determine the percentage of current and planned future bike infrastructure coverage in order to identify whether any gaps in coverage may exist once facility construction under the Bike Plan is complete by the end of 2026.

Based on the analysis shown in the table below, by 2026, 83 per cent of Edmonton's road network will:

- Feature dedicated bike infrastructure
- Be adjacent to dedicated bike infrastructure within the Bike Plan's prescribed buffer zone of 200m
- Have a speed limit of 30-40 km/hr (low speed, low volume roadways that are

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<sup>1</sup> Moritz W Adult bicyclists in the United States: Characteristics and riding experience in 1996 Transport Res Record 1998;1636:1- 7

<sup>2</sup> Moritz W Survey of North American bicycle commuters: Design and aggregate results Transport Res Record 1997;1578:91-101

<sup>3</sup> Aultman-Hall L Ottawa-Carleton commuter cyclist on and off-road incident rates Accident Anal Prev 1998;30(1):29-43

<sup>4</sup> City of Edmonton. Complete Streets Design and Construction Standards 2021, Version 4.

considered safer for cycling without dedicated bike infrastructure than other road types)

Category of Bike Infrastructure*	Coverage	% Coverage of Road Network
<b>Current</b> (2024 and Prior)	Actual	76.84%
	With 200 m Buffer	81.19%
<b>Future</b> (Planned by End of 2026)	Actual	78.71%
	With 200 m Buffer	<b>83.17%</b>

*\*Includes painted and protected bike lanes, Shared Use Pathways, river valley shared pathways and unpaved trails; includes both substandard and standard routes.*

The results show that by the end of 2026, the network coverage available for cycling and e-scooter use along lower-speed Edmonton roads and through dedicated bike infrastructure will be substantial. The bike network will continue to provide increased coverage and address most missing network links over the next two years.

### Administration's Recommendations

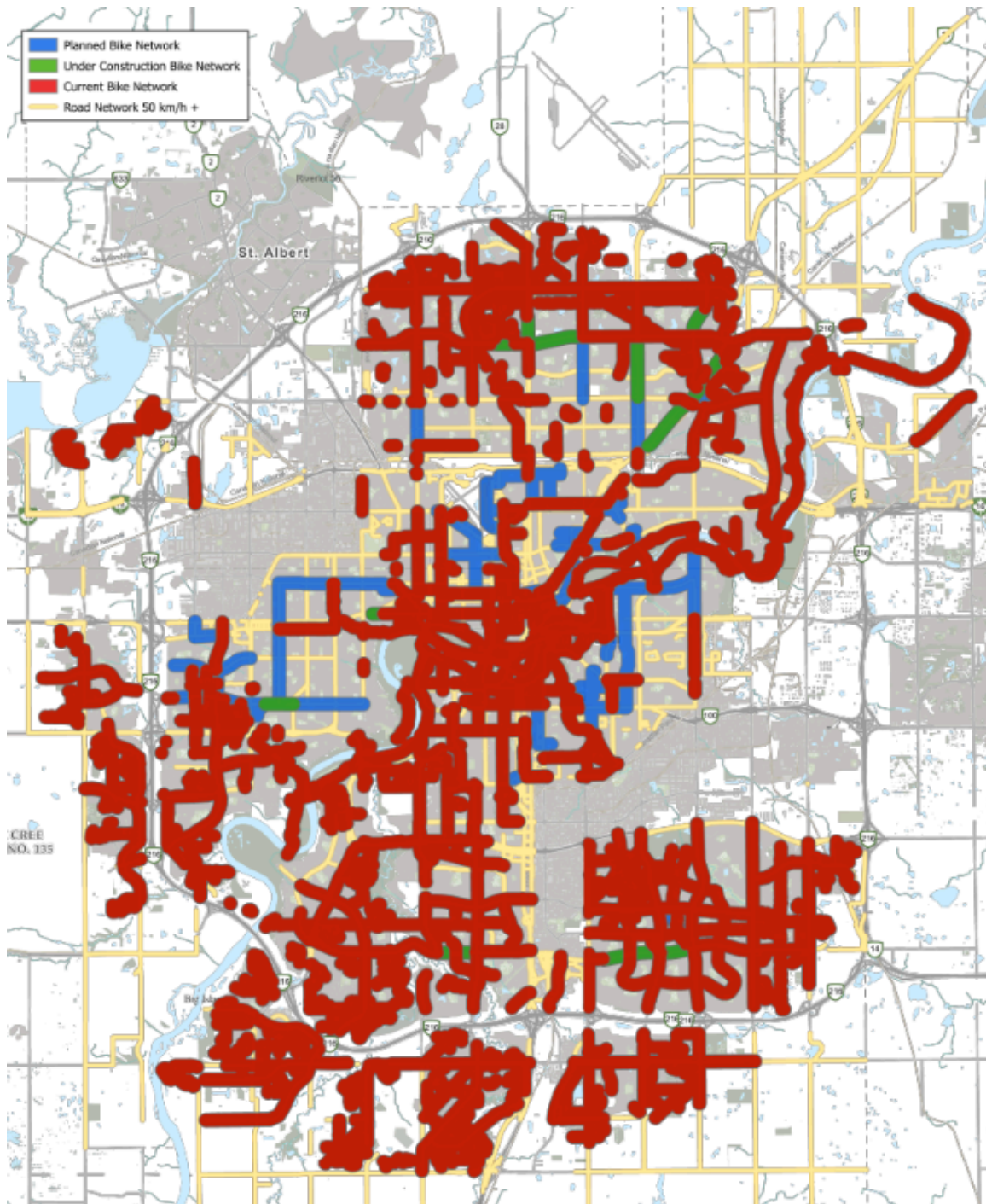
Based on safety and equity data and analysis of the bike network, Administration recommends that:

- Current bike and e-scooter restrictions remain in place for sidewalks
- Current wheel size restrictions (less than 50 cm) for non-motorized bikes should be changed to an age-based restriction, allowing any child under the age of 14 years to ride on the sidewalk, under City of Edmonton Public Spaces Bylaw. This is in alignment with what is permitted under City of Calgary's Traffic Bylaw<sup>5</sup>.

Additionally, Administration will undertake a location-based, data-informed review and analysis to improve safety for cyclists and e-scooter riders at the remaining 16 per cent of roads identified above that will not have efficient access to bike infrastructure following the network expansion work planned through 2026. This work will be completed through existing Safe Mobility programs and funding allocated through the 2023-2026 operating and capital budget, and it will allow for a customized approach that takes into account the unique context of each location. If additional work is required beyond Safe Mobility scope, it will be identified through this analysis and considered for the next budget cycle.

The coverage map below indicates network gaps in yellow:

<sup>5</sup> [City of Calgary Traffic Safety Bylaw](#) 26M96



Improvements will be determined through the review, but could include measures such as:

- Designating a sidewalk as a shared use path and adding in safety improvements such as:

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- Restricting right turns on red at intersections along with leading pedestrian intervals. Leading pedestrian intervals allow sidewalk users to proceed into an intersection prior to the movement of motor vehicles, substantively reducing sightline issues and the likelihood of a turning vehicle crash with a vulnerable road use.
- Providing separate phasing for left or right turns so the pedestrian and cyclist movement are made after or before the driver movement.
- Adding signage that reminds drivers to check both ways when turning.
- Where short term changes are not feasible, a list of locations and potential upgrades will be identified for consideration in the next budget cycle. This will include integration with updates to the Bike Plan Implementation Guide that has recently been initiated by the Urban Planning and Economy department. These upgrades could include new signals and geometric changes.