

## STANDARDS FOR PUBLIC REALM INFRASTRUCTURE

### RECOMMENDATION

That the September 19, 2023, Integrated Infrastructure Services report IIS01428, be received for information.

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| <b>Requested Action</b>   | Information only   |   |                  |
| <b>ConnectEdmonton's Guiding Principle</b>                                | <b>ConnectEdmonton Strategic Goals</b>   |   |                  |
| <b>CONNECTED</b><br>This unifies our work to achieve our strategic goals. | <b>Healthy City</b>  |   |                  |
| <b>City Plan Values.</b>  | ACCESS   |   |                  |
| <b>City Plan Big City Move(s)</b>   | Inclusive and compassionate  | <b>Relationship to Council's Strategic Priorities</b> | Mobility Network |
| <b>Corporate Business Plan</b>  | Serving Edmontonians   |   |                  |
| <b>Council Policy, Program or Project Relationships</b>                   | <ul style="list-style-type: none"> <li>● C602 - Accessibility for People with Disabilities</li> <li>● C573A - Complete Streets</li> <li>● Complete Streets Design and Construction Standards</li> <li>● Safe Mobility Strategy: 2021-2025</li> <li>● Safe Crossings Program</li> </ul>   |   |                  |
| <b>Related Council Discussions</b>  | <ul style="list-style-type: none"> <li>● IIS01193, Complete Streets Design and Construction Standards, Urban Planning Committee, August 9, 2022</li> <li>● UPE CR_7889, The Bike Plan Implementation guide, Urban Planning Committee, February 15, 2022</li> <li>● UPE00491, Mobility Network Assessment, Urban Planning Committee, February 15, 2022</li> </ul> |   |                  |

## STANDARDS FOR PUBLIC REALM INFRASTRUCTURE

### Previous Council/Committee Action

The following motion was passed at the August 9, 2022, Urban Planning Committee meeting:

That Administration provide a report to Committee that includes stakeholder engagement and outlines:

1. how standards are determined for public realm infrastructure such as crosswalks, shared use paths, bike lanes, boulevards and sidewalks;
2. proposed changes and analysis on what could be updated to be explicit to improve active transportation safety/accessibility and operational effectiveness, including standardization of raised crosswalks/intersections, pedestrian through zones, active pathways, boulevards, etc.

The following motion was passed at the January 31, 2023, City Council meeting:

That through the review of the Complete Streets Design and Construction Standards, and within the existing standard footprint right-of-way, Administration engage with stakeholders and evaluate the opportunities and impacts of implementing the following standards:

- when reconstructing a road/sidewalk, multi-use trails will be the standard instead of sidewalks,
- installing raised crosswalks running parallel to arterial/collector roads that intersect with local roads and at key locations in residential communities,
- installing raised crosswalk crossings at all alley access points,
- requiring boulevards on all roads,
- curb extensions will be standard at most intersections,

and report back with draft amendments as part of Integrated Infrastructure Services report IIS01428 - Standards for Public Realm Infrastructure.

### Executive Summary

- The City of Edmonton's policies and design standards, including the Complete Streets Design and Construction Standards (Complete Streets Standards), provide guidance on public infrastructure, including curb extensions, raised crossings, active mode infrastructure and many other elements.
- The Complete Streets Standards are developed based on approved City policies, industry best practices, jurisdictional reviews, and examination of lived experience with the standards currently being used in Edmonton.
- The development of the Complete Streets Standards is further supported by engagement with internal and external stakeholders and city building partners.
- Significant progress has been made in transforming city infrastructure to meet modern design expectations, including the construction of over 520 curb extensions, 80 permanent raised crossings, and over 150 adaptable curb extensions and two-staged crossings.

## STANDARDS FOR PUBLIC REALM INFRASTRUCTURE

- Private developers have begun installing curb extensions and raised crosswalks for a number of both infill and greenfield neighbourhoods.
- Each roadway within the City of Edmonton is unique, with varying stakeholder needs, right-of-way constraints and utility conflicts. Infrastructure solutions require thorough location specific evaluation and discussion of benefits and trade-offs.
- The Complete Streets Standards are currently being updated. The updates will include further review related to public realm infrastructure.

## REPORT

### Complete Streets Standards Current State and How They Are Used

The City of Edmonton's Complete Street Design and Construction Standards<sup>1</sup> (Complete Streets Standards) were published in 2018 with a focus on amalgamating various guiding documents, including the Complete Streets Guidelines, the 2015 Roadway Design and Construction Standards, Universal Design Guidelines and the Main Streets Guidelines. This document was developed with a strong focus on urban design for all users, including active modes.

The development of the Complete Streets Standards took two years, including extensive internal and external stakeholder involvement. A summary of the engagement approach that was applied is included in Attachment 1. In addition to engagement input, the process included literature and jurisdictional reviews of key areas of geometric design such as cross-sections, lane widths, other municipal design standards and recommended best practices. These recommended best practices were reviewed and adapted to align with the City of Edmonton's policies and practices.

When new assets are planned, or existing assets are scheduled for major renewal, Administration seeks to achieve applicable modern standards. The Complete Streets Standards form the foundation for these design decisions, providing guidance on public realm infrastructure, including curb extensions, raised crossings, active mode infrastructure and many other elements.

The Complete Streets Design and Construction Standards were only applicable to projects initiated after June 5, 2018, and extensive work has been done to transform City infrastructure to meet modern expectations. Some of the achievements include:

- As part of capital projects, Administration has:
  - constructed over 520 curb extensions since 2018, with an additional 180 to be completed in 2023.
  - completed the installation of over 80 permanent raised crossings, with planning for more than 50 additional raised crossings for construction in 2024.
- As part of the Safe Crossings and Street Labs program:
  - 150 adaptable curb extensions, two two-stage crossings and five centre-medians were installed in 2021 and 2022.

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<sup>1</sup> City of Edmonton's Complete Street Design and Construction Standards.

[https://www.edmonton.ca/sites/default/files/public-files/assets/PDF/COE-IM-GUIDE-0011\\_DSOPEGPWP.pdf?cb=1678734972](https://www.edmonton.ca/sites/default/files/public-files/assets/PDF/COE-IM-GUIDE-0011_DSOPEGPWP.pdf?cb=1678734972)

## STANDARDS FOR PUBLIC REALM INFRASTRUCTURE

- an additional 50 locations are planned to be retrofitted with asphalt raised crosswalks and permanent two-stage crossings from 2023 to 2026.
- In addition to capital projects, developers have constructed curb extensions and raised crosswalks in several infill and greenfield neighbourhoods, including:
  - Blatchford - raised crosswalk and curb extensions
  - Keswick - curb extensions
  - Desrochers - curb extensions
  - Clifton Place - raised crosswalk
  - Griesbach - curb extensions
  - Windermere - raised crosswalk and curb extensions

Since 2015, fatalities and major injuries have dropped by over 56 per cent and 12 per cent, respectively. With improvements to the Complete Streets Standards and other safety related actions, the city continues to see safety improvements overall, with trends toward reaching the goal of Vision Zero for zero traffic-related serious injuries and fatalities through safer, more livable streets for all by 2032.

### Updates to the Complete Streets Standards

The Complete Streets Standards were developed with the intent of regular updates as policies and practices evolve.

#### Interim Update

An interim update for 2023 is underway to address emerging issues, including feedback from internal and external stakeholders identified over the past five years since the Complete Streets Standards were published. This included the following updates:

- Guidelines and standard details for raised crosswalks, raised intersections and continuous crossings.
- Expanded guidance related to active mode infrastructure, such as bike facilities.
- Updates to the construction specifications (requirements for road construction).

#### Complete Streets Standards Refresh

In addition to the interim update, a more extensive update to the Complete Streets Standards is underway for 2023 and 2024. This update will employ a process similar to that used for the development of the Complete Streets Standards published in 2018, including a review of the standards and best practices used in other jurisdictions and an examination of experience in Edmonton with the standards currently being used. This process will be supported by extensive engagement with internal and external stakeholders and city building partners.

While engagement with city building partners will aid in confirming the scope of the update, a major component of the update will be to strengthen the relationship between design requirements outlined in Complete Streets Standards and several key policies adopted by Council

## STANDARDS FOR PUBLIC REALM INFRASTRUCTURE

since the Complete Streets Standards were published in 2018, such as The City Plan, the Bike Plan, the Energy Transition Strategy and the Climate Resilience Adaptation Strategy.

The update will also consider the modernization of standards related to:

- Active Modes, such as bike design and raised crossings
- Construction Specifications
- Cross-sections, including review of shared pathway and boulevard guidance
- Low Impact Development (LID), including landscaping, tree planting and naturalization
- Roundabout design
- Traffic calming, including curb extensions
- Design considerations for 30km/h and 40km/h roadways
- Any additional emerging issues identified by industry and stakeholders

The process will also include a review of requirements related to new developments and the incorporation of improvements for active transportation safety, accessibility and operational effectiveness. Care will be taken to review this with a lens to not constrain or limit innovation in new developments and to allow for flexibility and the best recommendations to be shared based on analysis completed by engineers and urban planners.

The focus areas are subject to change as the work plan advances and as engagement with city building partners progresses. The process is anticipated to take approximately 12 to 18 months. A schedule with high level milestones is included in Attachment 2.

There will be multiple opportunities for city building partners to provide input and engage in this process. At this early stage, feedback is anticipated to be gathered through an online survey, targeted workshops and stakeholder meetings.

### **Public Realm Infrastructure - Review of Standardization and Enhancements**

The following sections outline the considerations, impacts, costs and stakeholder feedback associated with standardizing enhanced public realm infrastructure.

#### Shared Pathways and Sidewalks

Shared pathways are critical components of the active transportation network. The current standard arterial cross-sections permit the use of shared pathways (formerly known as multi-use trails or shared-use paths) on both sides of the road where right-of-way is available.

During Neighbourhood Renewal, shared pathways are often considered as one option to improve the walking and/or biking network. Such features are often used along collector roadways and are considered an option to accommodate neighbourhood-level active modes of transportation. Changes and associated trade-offs are evaluated when developing design options. Evaluations may include a review of parking, converting two-way roads to one-way roads, evaluation of infrastructure widths, consideration of biking infrastructure and impact to mature trees, among other factors. Existing utilities, such as water or sewer facilities, may limit opportunities for shared pathways in some instances.

While shared pathways are incorporated into Edmonton roadways routinely, they are not universally appropriate design solutions. Local context is required to determine where they are

## STANDARDS FOR PUBLIC REALM INFRASTRUCTURE

feasible and where they may be the best design solution for users of all ages and abilities. Some context to consider includes:

- Current road rights-of-way (collectors and locals) are sometimes only wide enough to accommodate shared pathways with the removal of other features, such as parking, mature boulevard trees, or with additional land dedication in new developments.
- Where high pedestrian volumes are present, shared pathways can result in increased conflict between people biking and people walking.
- Shared pathways are commonly constructed of asphalt, requiring more operating and capital investments over the same timeframe as compared to concrete sidewalks.
- Introducing more shared pathways adds to the City's inventory for snow and ice control and has significant operational implications. The Snow and Ice Control Policy (C490K) may require updates and prioritization of infrastructure maintenance activities would need to be examined in more detail.

More detail on factors related to the use of shared pathways is included in Attachment 3. Based on these factors and the importance of context explained above, Administration does not recommend making the shared pathways standard in all roadway construction or reconstruction instead of sidewalks. The Complete Streets Standards will be updated based on this assumption.

### Raised Crosswalks - Installing parallel to arterial/collector roads that intersect with local roads and at key locations in residential communities.

The 2023 interim update to the Complete Streets Standards provides clarity about where to implement raised crosswalks and continuous crossings. Such measures are best applied strategically along key corridors where the mode priority and land use support them.

Raised crossings generally improve safety for people who walk and bike. Their elevated nature requires drivers to be more cautious as they approach the crossing by slowing down. This, in turn, increases yielding to people crossing and encourages slower travel speeds along a corridor, particularly when combined with other traffic calming measures. This gives drivers a longer reaction time and results in reduced collision severity should a collision occur.

In addition, raised crossings also have a beneficial effect on accessibility and comfort for people crossing. Raising the crossing reduces the amount of water, snow and slush accumulation that often blocks curb ramps, and alleviates the discomfort of navigating multiple ramps and gutters.

For vehicles, raised crossings have a detrimental effect on snow and ice control as proper drainage can be difficult to achieve, creating ponding and patches of ice next to the crossing. Further, raised crossings add complexity and can increase time required for winter maintenance activities.

The installation of such features also requires additional capital investment for the construction of new catch basins to ensure proper drainage, replacing curb and gutter, curb ramps, and occasionally sidewalks and boulevards near the raised crossing.

### Raised Crosswalks - Installing at all alley access points

## STANDARDS FOR PUBLIC REALM INFRASTRUCTURE

There are three basic types of alley access points, those with a boulevard sidewalk (sidewalk or pathway separated from the curb and gutter), those with a curb line sidewalk (sidewalk or pathway integrated with the crossing and curb and gutter) and those with no active mode infrastructure.

For boulevard sidewalks, the Complete Streets Standards require that the sidewalk continues without a drop for the active mode users. This design is applied to both greenfield and renewal projects alike.

For curb line sidewalks crossing an alley, the design can be more difficult, with careful design consideration required to prevent cars from bottoming out due to the elevation changes. Further, the Complete Streets Standards require a minimum 1.0 metre section of relatively flat sidewalk to mitigate the drop experienced by active mode users. Further work would be required to review existing alley cross-sections to quantify the impacts of raised crossings at all alley access points.

### Boulevards - Requiring boulevards on all roads

Boulevards provide increased separation from the road and the sidewalk or shared pathway, which is critical for achieving active mode user safety and comfort. Boulevards have many other benefits, including providing space for tree planting, snow storage and utilities.

As roadways are reconstructed, Administration works to upgrade infrastructure to meet modern standards. This includes the conversion of curb line sidewalks to boulevards. In general, Administration provides boulevards where space permits, as they provide an overall improved user experience. This opportunity is found primarily on collector roads or oversized local roads within neighbourhoods that are being reconstructed. For existing roads, when renewal is underway, changes and associated trade-offs are evaluated, which can include a review of parking, evaluation of infrastructure widths, consideration of cycling infrastructure and impact to mature trees, among other factors.

For existing roadways, adjusting the road to include boulevards requires significant investment and significant reconstruction to reallocate right-of-way. There are many constraints, such as utilities and other competing interests (like shared pathways), that may not allow for boulevard conversion on all roadways. Investment and reallocation of space to provide boulevards within existing road rights-of-way are best aligned with roadway reconstruction projects.

From a development perspective, housing options are also very reliant on front boulevards. In many developing neighbourhoods, housing products will have front driveways which creates efficiency in the road sidewalk design. Taking this into account helps give guidance on the type of boulevard that best suits the product type.

Changes to roadways in new developments, including providing boulevards on all roads, would require further engagement with the development industry as this may in turn require additional right-of-way dedication. Such discussions can occur as part of the update to the Complete Streets Standards in 2023 and 2024.

### Curb Extensions - Standard at most intersections



## STANDARDS FOR PUBLIC REALM INFRASTRUCTURE

Curb extensions or bulb-outs extend the curb inwards toward the roadway at intersections and midblock crossings. These features increase the comfort and safety of streets for pedestrians by reducing crossing distances, increasing the visibility of people walking and wheeling by passing drivers, increasing the visibility for motorists that are turning onto or off of streets, reducing motor vehicle speeds, increasing the available pedestrian queuing area and enabling public transit vehicles to stop in the travel lane, as opposed to the parking lane, when passengers are boarding and exiting the vehicle.

Curb extensions are best located where there is existing or proposed on-street parking, corners with marked crosswalks in high activity areas, locations with demonstrated safety issues for people walking and wheeling, wide streets, school crosswalks or mid-block crossings. Typically curb extensions are used on intersecting arterial or collector roadways where there is a notable increase in visibility and reduction in crossing distances for people who walk and wheel. Curb extensions on local to local roadways are not typically implemented in those locations as there is limited benefit to people who walk and wheel.

Using curb extensions, raised crosswalks and combinations of both, provides people who drive with visual and geometric cues to slow down, while providing people who walk with a continuous walking and wheeling corridor at midblock crossings.

Applying curb extensions at all intersections would have a higher upfront financial impact due to the excavation, concrete and sometimes drainage infrastructure required.

### Next Steps

Enhanced public realm features are, and will continue to be, used in city infrastructure projects and in greenfield development, with intention and careful consideration of context. While many of these features are best applied during initial road construction or reconstruction, opportunities to improve the public realm with other development and capital investments will continue to be evaluated. Expanded application of such features in growth priority areas or primary corridors will be considered as investment opportunities are advanced in the future.

Administration did not provide draft amendments as part of this report as the public realm features discussed are addressed in the Complete Streets Standards. Additionally, given the broad range of projects designed using the Complete Streets Standards and the critical importance of site specific context, the Complete Streets Standards will continue to provide guidance on the integration of the public realm features rather than mandate their application.

However, as the Complete Streets Standards are updated, enhanced public realm infrastructure will be further examined and integrate guidance on location where appropriate and based on the engagement with stakeholders and city building partners.

## COMMUNITY INSIGHT

Feedback from Edmontonians has significantly influenced the City's policies and guidelines that are in place to shape infrastructure projects. Key policy direction is provided by The City Plan, the Safe Mobility Strategy, the Complete Streets Guidelines and Policy C602 - Accessibility for People with Disabilities Policy, among others. Administration continues to listen to and engage with the



## STANDARDS FOR PUBLIC REALM INFRASTRUCTURE

public and varied community stakeholders during the different phases of capital infrastructure projects. The feedback gathered through the engagement process helps in adjusting designs and mitigating potential impacts.

### Engagement with Industry

Administration conducted a survey of city building partners (Urban Development Institute, Consulting Engineers of Alberta and Franchise Utility companies) to understand the impacts of implementing the infrastructure noted in the council motion. A summary of the feedback is as follows:

Key themes identified include:

- General support for boulevards
- General non-support for shared pathways being applied to all roads
- Drainage concerns related to shared pathways (increased hard surfaced areas) and raised/continuous crossings (overland drainage issues)
- Concerns with interactions between front driveways and shared pathways on local roads
- Concerns around increased right-of-way requirements and increased infrastructure (raised crossings, curb extensions, boulevards, shared pathways, etc.) for roadways resulting in a lower density of housing and increased cost per lot for residents
- Concerns around snow removal and maintenance of additional hard infrastructure
- General agreement on the safety benefits of raised crossings

The key themes gathered from city building partner feedback highlight the importance of context-sensitive design and evaluation of trade-offs in designing city infrastructure. While widening rights-of-way in developing areas could be an option for accommodating enhanced public realm features, alternatives should be considered, such as narrowing or removing other elements of the carriageway to address the cumulative effect of such features.

A full copy of the feedback received is included in Attachment 4.

### **GBA+**

Gender Based Analysis Plus (GBA+) considerations are essential factors in developing City policies and standards, as well as in the planning and design of infrastructure projects. GBA+ considerations, such as universal accessibility, have influenced the City's Complete Streets Standards and Accessibility for People with Disabilities Policy which play an essential part in how the City's infrastructure is designed. While the update to the Complete Streets Standards is planned as a refresh, rather than a rewrite, evaluation of best practices and other research will inform whether updates may be required to ensure the standards consider equity in the design and construction of Edmonton's mobility network.

As projects advance, public engagement is also a critical factor in influencing how projects are planned and designed for those who use or wish to use City infrastructure. Detailed GBA+ review for Edmonton's transportation infrastructure projects is commonly initiated during the planning and design phases of a project.

## **STANDARDS FOR PUBLIC REALM INFRASTRUCTURE**

GBA+ analysis is conducted to identify stakeholders through the development of public engagement plans and identify meaningful ways of connecting with those stakeholders to gather input that will help shape the plans and designs. The process supports Administration in identifying any stakeholders who may be interested or impacted by the project and those who may be less likely to participate in traditional engagement methods.

The input gathered often leads to the incorporation of equity measures that enhance the accessibility and usability of Edmonton's mobility network. Such measures include universal accessibility enhancements, such as the widening of active mode infrastructure, enhanced pedestrian through zones and the addition of accessibility ramps.

## **ATTACHMENTS**

1. 2018 Complete Streets Standards Engagement Process
2. Proposed Schedule for Complete Streets Standards Update
3. Shared Pathway Considerations
4. Questionnaire Around Public Realm Infrastructure - Verbatim Comments