COMPLETE STREETS DESIGN AND CONSTRUCTION STANDARDS

Public Primer

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Introduction

Complete Streets are streets for everyone: people who walk, wheel, bike, take transit, or drive. They are designed to be safe, attractive, comfortable, and welcoming to people of all ages and abilities.

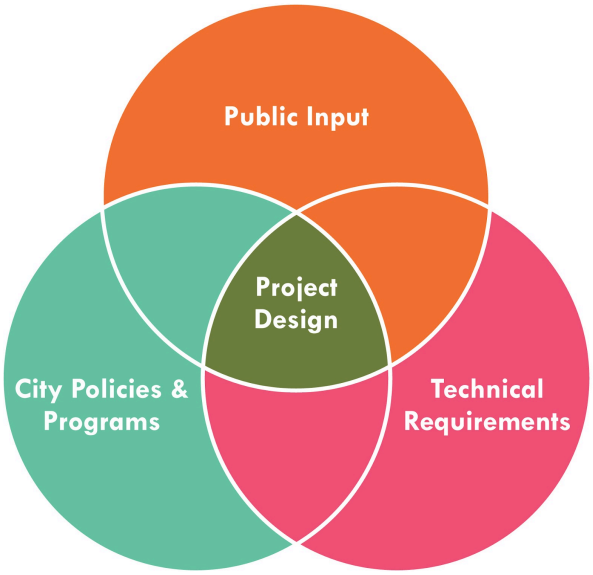
Complete Streets can exist in neighbourhoods of all shapes and sizes; from Downtown to Strathcona and in more suburban neighbourhoods such as Ambleside, Allard, Meadows, and Secord. The Complete Streets Design and Construction Standards ensure that planners, engineers and developers consistently design streets for their context and users, and that they operate safely for everyone.

Streets are Both a Link and a Place

Streets take up a significant amount of space in our city. When we only use them for driving, they are less inviting for other people who might want to use that space. Streets can connect people to their destination and can also be places themselves where people live, work, and play. When we use streets as both links to get us around, and places where we can spend time, they become more valuable to residents and businesses.

The Complete Streets design approach considers many things such as:

- Street type and purpose
- Ease of construction
- Ease of operation and maintenance
- Sustainability of the design
- City policies
- Future planning
- Availability of funding



In addition to City policies and technical requirements, where applicable, public input can be considered in accordance with the City's 'Public Engagement Policy' C593.

Street Types *(section 1.9.1, pages 25-28)*

Street type considers the following:

- Relationship of buildings to the street (Do the buildings face the street or back on to it?)
- Surrounding land use (What kinds of buildings are along the street?)
- Functional classification of the street (What is the street primarily designed to do?)

1. Relationship of the Building to the Street:

	
***Street Oriented*:** Characterized by buildings that are built to minimum setbacks with building entrances directly on the street, prioritizing walking and wheeling activity over driving activity. Vehicle access is typically from side streets or alleys.	***Non-Street Oriented***: Characterized by greater building setbacks from the street and building entrances that face away from the street (most often facing surface parking lots or other streets).

Street Types *(cont.)* *(section 1.9.1, pages 25-28)*

2. Surrounding Land Use:

Residential: Areas where people live.

Community Destinations and Open Spaces: Areas that are visited by residents on a regular basis, like schools, district parks, recreation centres, hospitals, universities and colleges, and other major public and institutional uses.

Commercial/Mixed Use: Areas with commercial and retail uses and places of employment ranging from main street-style retail areas, to downtown office towers, to shopping malls. Mixed use is achieved when these areas also have places of residence, which encourages people to live, work and socialize in the same area.

The nodes and corridors network, as designated in The City Plan, are anticipated to continue transitioning towards commercial/mixed use land uses, areas of focused density, and activity centres with both residential and employment opportunities.

Industrial: Areas comprising Business Employment Zones (light industrial and small commercial businesses), Medium Industrial Zones (light and medium industrial development) and Heavy Industrial Zones (Heavy Industrial) Transportation behaviour is unique from other employment areas due to truck access requirements and the variety of uses.

For instance, in some historically industrial areas, redevelopment and land use changes may result in a transition towards more commercial/mixed use land uses, requiring a consideration of transportation behaviour that is different from exclusively industrial areas.

Street Types *(cont.)* *(section 1.9.1, pages 25-28)*

3. Functional Classification of the Street:

- **Highways and Freeways**: high traffic volume, with grade separated limited access, and high speed (e.g. Whitemud Drive or Anthony Henday Drive). Typical volumes can often exceed 100,000 vehicles per day.
- **Expressway:** These streets are high capacity, relatively high-speed roadways with limited access points, and accommodation of transit and active modes mixed within the corridor (e.g. Terwillegar Drive). Expressway volumes may exceed 60,000 vehicles per day.
- **Principal Roadway:** defined and identified in the City Plan, these streets provide cross–town auto and goods movement on a higher standard facility with strategic grade separations, often providing a link between highway and freeways and typically classified as Arterials in the Transportation Systems Bylaw. Some principal roadways form part of the nodes and corridors network and require special design and planning considerations. Typical volumes are similar to those of arterials.
- **Arterial:** Arterial: high traffic volume, connects collector roads to freeways or allow for cross-town travel (e.g. 170 St or 23 Ave). Typical two lane arterials can carry volumes of up to 16,000 vehicles per day, while typical four lane arterials can carry volumes of up to 40,000 vehicles per day.
- **Collector:** Collector: low to medium volume road that connects local streets to arterial roads (e.g. Mill Woods Road or Greisbach Road). Typical two lane collectors carry volumes of up to 5,000 to 10,000 vehicles per day with appropriate access control.
- **Local:** low volume road within a neighbourhood that provides access to people's homes or businesses (e.g. McLean Close SW or Ebbers Way). Typical locals carry volumes of up to 2,000 vehicles per day.
- **Alley:** low volume road within a neighbourhood that provides rear access to people's homes or businesses. Types of alleys can include residential alleys, commercial alleys, shared alleys and reverse alleys.
- **Shared Street:** low volume, low speed streets that are shared among users and primarily designed for people walking and biking (e.g. Rice Howard Way and 96 Street (The Armature)).
- **Car Free Street:** streets that prohibit vehicles at all times, or at specific times (e.g. 104 Street during the Downtown Farmer's Market).
- **Local Street Bikeway:** employ design interventions such as traffic calming and diversion to reduce vehicle speeds and volumes and communicate the priority of people cycling within the travelled way.

Modal Priority *(section 1.9.2, pages 29-32)*

When designing a street, some modes are given a higher priority than others. This helps to inform which design elements should be included and what trade-offs might need to be made. For example, on a walking priority street, people walking and wheeling would be given more consideration in the design process than other modes. However, all modes that are planned to use a street will be accommodated safely or moved to parallel routes.

Modes are different ways of getting around -- whether it's walking, wheeling, riding the bus, biking, or driving.

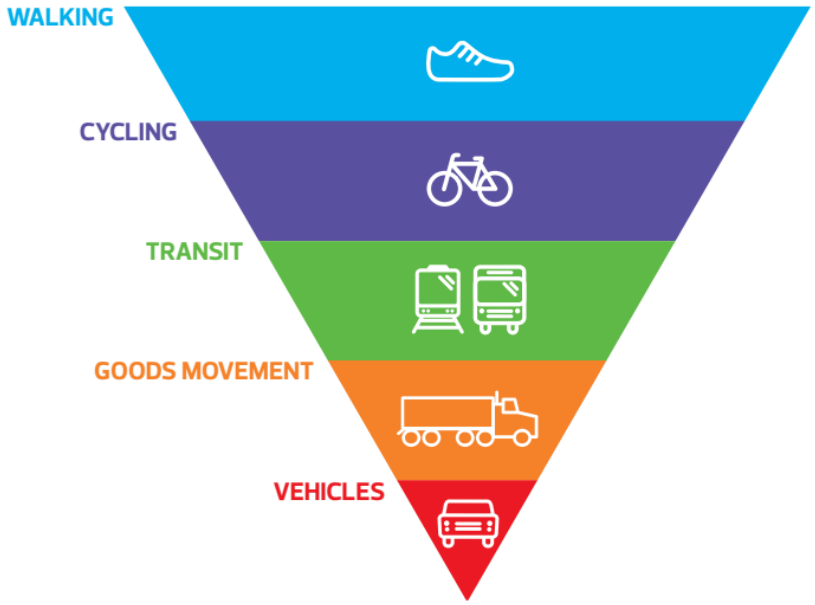


Figure1 Example modal priority triangle for a walking and wheeling priority street

Design Zones

(section 2.1.1, pages 34-35)

In Edmonton, the area used for streets is divided into a series of design zones that include space for people who are driving, those who are walking or wheeling, and those who are biking. The zones apply to all streets, but elements in the design zones look different depending on the context.

Figure 1 - This picture is an example of zones for a residential local road.

Figure 2 - This picture shows the zones for a street oriented commercial road.

The design zones include the following:

- **Adjacent Lands**: the land (or buildings) that are directly beside the street.
- **Frontage Zone**: the space between the adjacent land and the pedestrian zone. This provides clearance from building fronts, doors opening outwards, and architectural features. It can be a combination of public or private space.
- **Pedestrian Through Zone**: the area where people walk and wheel.
- **Curbside Zone**: located on streets with separated sidewalks between the curb and the Pedestrian Through Zone. It serves as a safety separation, and as an area to place items such as traffic signs, street lights, transit shelters, benches, trees, landscaping, and snow storage.
- **Travelled Way**: the space for people to travel - whether they're riding the bus, biking, or driving, or walking and wheeling as they cross the street.

Together, the furnishing zone, adjacent lands, pedestrian through zone, and curbside zone make up the "public realm".

Figure 3 - Curbside zone uses - curb extensions and parklets (small scale public parks, seating areas, or sidewalk cafes)

Designing in Constrained Situations

(section 2.2, pages 38-39)

The redesign of existing streets poses many challenges which are different from the design of new streets. Designs for existing streets must consider things like the locations of existing buildings, mature trees, utilities, major infrastructure such as LRT and private landscaping.

In some cases it may not be possible to meet the minimum requirements in the standards and trade-offs may be required. Overall, it is important that design elements are consistent within an area, and that transitions between areas make sense. Some examples of trade-offs (in no particular order) include:

- Reduce the design speed
- Remove the parking lane on one or both sides of the street
- Remove medians and turning lanes
- Remove motor vehicle lanes
- In exceptional circumstances, place the sidewalk facility next to the curb, and remove or

reduce the furnishing zone (if traffic volumes, speeds, and winter operations allow this to be suitable).

- Acquire additional right of way
- Remove trees
- Relocate utilities
- Add shared pathways instead of separate sidewalks and bike lanes
- Convert to one-way traffic where applicable

Figure 4 - Whenever possible, the City designs and constructs in ways to make sure trees are protected. In some cases trade-offs need to be made which could include reducing the roadway width, sidewalk widths, or in rare cases, removing the tree.

Designing for People Walking

(section 3.3.4, pages 114-116)

Figure 5: Pedestrian Zone

The Complete Streets Design and Construction Standards have a strong focus on designing for people walking and wheeling. Generally, the standards follow the universal design principles and recommend the following:

- Wider minimum sidewalk widths to better serve people walking and wheeling. This will allow a person holding a child's hand to pass another person, or for a wheelchair user to pass another user.
- Building shared pathways on both sides of new arterial roadways and one side of collector roadways to better serve people riding bicycles.
- Enhancing the safety of curb ramps for people walking and wheeling.

Designing for People Riding Bicycles

(section 3.2.3, pages 65-87)

The standards introduce more guidance on biking. The main focus is on designing facilities for all ages and abilities, which means that they are safe, universally designed, context sensitive, and that they promote year-round biking.

The Bike Plan (2020) and The Bike Plan Implementation Guide (2021-2026) lay the foundation for a network that is accessible and predictable for people of all ages and abilities and where people can choose to bike for any reason and in any season.. (edmonton.ca/bikeplan)

The three main bike facility types are:

1) On-street bike lanes - which includes unprotected painted lanes (with or without a buffer), and protected bike lanes.
2) Off-street - Either for the exclusive use of people biking (like bike paths), or shared pathways.
3) Shared roadways - On the street, where people biking and people driving share the travelled way.

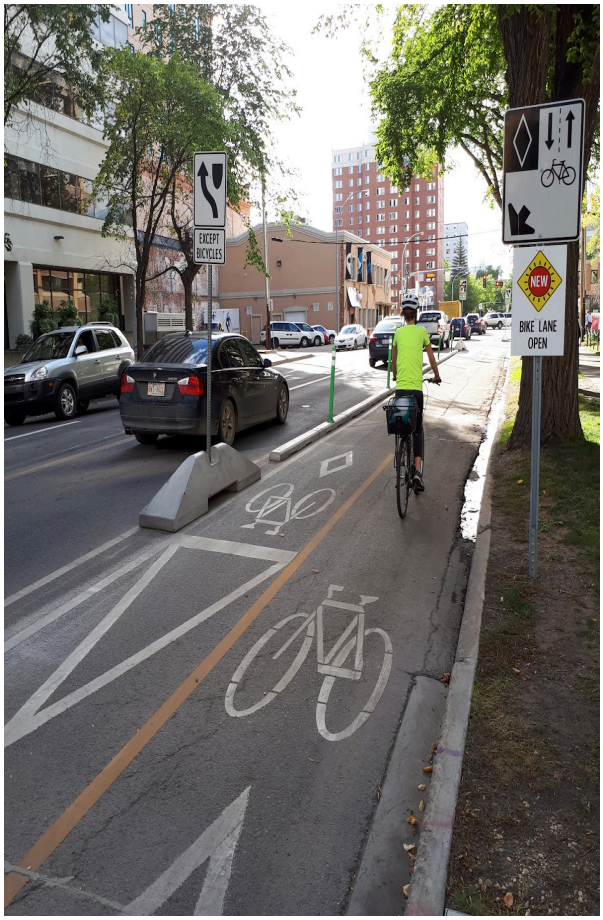


Figure 6 - Example of protected on-street bike lanes

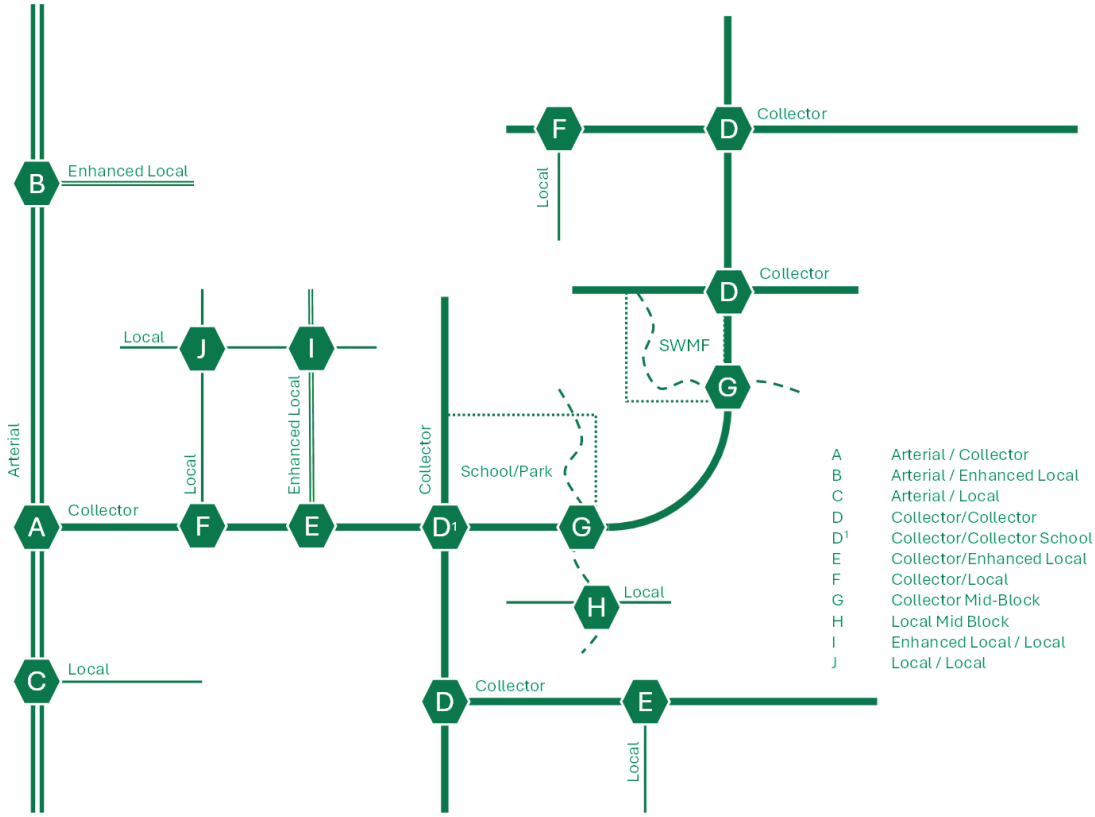
Figure 7 - Example of a shared pathway

Figure 8 - Example of a shared roadway

Designing Neighbourhoods in Edmonton

(section 2.4, pages 41-47)

Neighbourhood streets in Edmonton shall be designed in a way which encourages motorists to drive slower and exercise caution to create liveable safe streets that align with their intended use while limiting the negative effects on emergency response agencies and operational costs. To encourage operating speeds of no more than 40 km/h in residential neighbourhoods, traffic calming measures shall be engineered into the design of local and collector roadways to create a "naturally calm" street. New neighbourhoods shall be designed using a "modified grid" layout wherever feasible, while maintaining grid-like permeability for people walking and cycling through the use of breezeways and walkway connections.



Modified Grid and Curvilinear Network Design

Enhanced traffic calming will be required at each intersection type and different spacings depending on the roadway classification and land uses.

Traffic Calming

(section 3.8, pages 186-200)

As our city grows, our roads face more demands. When arterial roads are busy, some drivers will shortcut through neighbourhoods. The City has developed the Community Traffic Management Policy C590 to help neighbourhoods find solutions for shortcutting and other traffic issues. In both new and mature neighbourhoods, traffic calming can be applied to help reinforce the intended speed and use of a street. Traffic calming measures are grouped into three general categories: vertical deflections, horizontal deflections, and obstructions.

Traffic calming uses a combination of mainly physical measures to reduce the negative effects of vehicle traffic for neighbourhood residents and road users. Traffic calming measures can encourage slower speeds, discourage shortcutting, and improve safety for people who drive, bike and walk.

Figure 9 - A raised crosswalk, which is an example of a vertical deflection (**left image**). Chicanes, which are an example of a horizontal deflection (**right image**).

Figure 11 - A full closure of a roadway, which is an example of an obstruction.

Closing

The Complete Streets Design and Construction Standards represent a major milestone for the implementation of Complete Streets in Edmonton. Over time, use of these standards will help to create a transportation network that can accommodate the needs of all users in a safe and context sensitive manner.

For more information on Complete Streets, please visit edmonton.ca/completestreets.