

Complete Streets

Greenfield Tool Box

✓ DESIGN..... Site Configuration
PROCESS
IMPLEMENTATION



Credit | O2 Planning + Design Inc.



Credit | The City of Charlotte



TOOL DESCRIPTION

Complete Streets are intended to “balance safety and convenience for everyone using the road” and to get the most “productivity out of the existing road and public transportation network” by providing for alternative transportation choices¹. This is achieved through the design of right-of-ways that can accommodate multiple modes of transportation, including cars, bicycles, public transit, and walking, with an emphasis on pedestrian accessibility, safety, and comfort. In this way, Complete Streets “increase the overall capacity of the transportation network.”² Complete Street standards are more than a purely functional means of increasing mobility and connectivity while increasing safety – they are streets designed to serve as a meaningful component of the public realm.

There are no specific elements or values that define the ideal Complete Street. Design is informed by community goals, needs, and context, and a number of physical design components and concepts can be incorporated into any Complete Street.

Pedestrian components

The provision of a pedestrian right-of-way is a critical element for any Complete Street. Beyond providing simple features like sidewalks or crosswalks, the pedestrian components of Complete Streets help to improve access and safety:

- › Pedestrian priority signaling can help to make high-volume intersections more pedestrian-accessible.
- › Bump-outs or curb extensions provide pedestrians a ‘jumping-off’ and ‘landing’ point for crossing large intersections, decreasing the distance required to travel across vehicular travel lanes.
- › Median islands provide a safe haven at intersections that are large or have abnormal traffic flow patterns.
- › Traffic calming devices, which include street design elements such as street trees or narrow travel lanes, encourage careful driving, as drivers are less likely to speed if the perceived physical safety margin afforded by ultra-wide streets does not exist. This makes the streets safer for the pedestrian by slowing down traffic and by providing a physical division between moving vehicles and pedestrian spaces.

1. <http://www.completestreets.org/complete-streets-fundamentals/complete-streets-faq/>
2. <http://www.completestreets.org/changing-policy/implementation-faq/>

Tool Intent

Complete Streets increase transportation network capacity by providing a physical environment that facilitates mobility by car, transit, bicycle, and foot.

USERS

Municipal Officials

- ✓ Municipal Planning Staff
- ✓ Planning + Design Professionals
- ✓ Engineers
- ✓ Land Developers
- Landowners
- Community Members

Bicycle components

Complete Streets include bicycling as a transportation choice. As a design element, bicycling can be accommodated in several ways. Bicycle lanes provide cyclists with a right-of-way separate from motorized vehicles, and make the motorist aware of the potential presence of bicyclists, improving cyclist safety. On lower volume and lower speed roads, specialized bicycle lanes may not be necessary; widened and paved shoulders may suffice, or it may be possible for bicyclists to share lanes with vehicular traffic without issue.³ However, the right-of-way (ROW) of a Complete Street should be able to accommodate a future separation of modes if necessary.

Vehicular components

Typical street design standards emphasize level of service indicators in street design based on motor vehicle traffic efficiency measured in terms of speed and delay times. These do not consider the efficiency of movement for other modes, however. Complete Street standards balance the efficiency of vehicular traffic with the needs of pedestrians, cyclists, and users of public transit. Typically, this means taking steps to de-emphasize the priority of vehicles: lowering speeds, decreasing turning radii and curb cuts, narrowing lanes, and using physical design elements on the edge of the street to create a sense of enclosure, which tends to make drivers drive more carefully. These steps increase pedestrian accessibility and safety and improve the walkability of the street.

Public Transit components

If public transit service exists or is expected for the development, pedestrian-friendly connections to transit stops and specialized transit rights-of-way should be considered. On arterial roads, bus-only lanes allow high-volume bus routes to avoid traffic. Fixed-rail transit (streetcars, light rail) that share the vehicular ROW can be given priority at traffic lights to maximize efficiency. The design of public ROWs can accommodate public transit through pedestrian-friendly transit stops and encourage the use of these systems. Since transit represents a substantial public investment, and incorporating such design elements into Complete Streets standards is critical in ensuring the system by design does not discourage use, but rather makes it a viable, attractive, and obvious option.

Ecological infrastructure components

Complete Streets can serve as part of an open space network, providing pedestrian and ecological links between public/green spaces. As part of a greenway and open space network, ecological infrastructure components such as swales for storm water management allow the public ROW to serve ecological functions. Street trees also have a role in traffic calming, and can provide a barrier between pedestrians and moving traffic.

WHEN IN THE PROCESS IS IT USED?

The incorporation of Complete Streets standards into greenfield development occurs at the design stage of the process, when transit and pedestrian rights-of-way and open space networks are defined as part of the site's physical framework.⁴

There are several considerations for incorporating Complete Streets components into a design. The context of existing transportation networks must be considered, as well as how the standards might help in enhancing those networks. By considering Complete Streets as part of the greater transportation network, they can “balance the needs of all users. Instead of trying to make each street perfect for every traveler, communities can create an interwoven array of streets that emphasize different modes and provide quality accessibility for everyone.”

3. <http://www.completestreets.org/changing-policy/implementation-faq/#bikelanes>; Conor CO Reynolds, et al, "The Impact of transportation infrastructure on bicycling injuries and crashes: a review of the literature," in *Environmental Health*, 2009, 8:47.

4. <http://www.completestreets.org/webdocs/policy/cs-policyelements.pdf>

CASE STUDIES | BEST PRACTICES

Charlotte's Urban Street Design Guidelines: A Context Sensitive Decision-Making Method



Credit | City of Charlotte | USDG

The City of Charlotte, North Carolina, created a comprehensive set of urban street design guidelines (USDG) to address street design and network issues that developed during a period of rapid urban and suburban expansion. This USDG report promotes Complete Streets design features to enhance accessibility, mobility, and safety for pedestrians, as well as a means of making public transit systems complement the street. Importantly, the USDG report also acknowledges streets as a critical component of the public realm, and suggest design elements and strategies to ensure that streets and adjacent land uses work together to create better places. The City applies the USDG design recommendations to capital projects. To date, this includes a total of:

- › 8 new thoroughfares
- › 10 streetscape projects
- › 9 road conversions
- › 11 rebuilt intersections
- › 15 sidewalk projects

Additionally, it has been suggested that “connected, complete streets are a prerequisite to true walkable urbanism.” According to land use strategist, professor, and author Chris Leinberger, “If you have an eight lane arterial without complete streets infrastructure, you will never see high density walkable urbanism take place along that corridor. Complete streets will be a precondition before you can get walkable urban development that will help meet the pent-up demand for this type of neighborhood.”⁵ If the goal for the design of greenfield development is to ensure that the physical framework allows for the evolution of a site into the future, then Complete Street standards are the critical element that allows that to happen.

POLICY SUPPORT

Calgary MDP (2009)

2.5.1. *Objective: Maintain automobile, commercial goods and emergency vehicle mobility in Calgary while placing increased emphasis on sustainable modes of transportation (walking, cycling and transit).*

Calgary Transportation Plan 2009

3.1.a. *The needs of sustainable modes of transportation (walking, cycling and transit) should be considered in all transportation planning projects.*

3.1.b. *Pedestrians and cyclists should be given the highest priority in the planning, design, operation and maintenance of transportation infrastructure in Activity Centres and Corridors.*

3.1.h. *On facilities where multiple users compete for priority, a balanced approach should be used to address the trade-offs and risks of various design decisions.*

Cochrane MDP

6.3.12 (b) *The Town shall promote the reduction of greenhouse gas emissions through the following measures:*

- › *Providing alternatives to single occupant vehicle use, including transit*

6.3.13 (a) *Developers shall design subdivisions and developments that:*

- › *(iv) Promote walkable design and access to transit options*

9.2 GOALS

- › *(1) To design a strong multi-modal transportation network that provides the safe and efficient movement of people, goods, and vehicles. The design shall address vehicular and pedestrian movements and connections throughout the Town and region.*

9.3.1 Multi-Modal System

- › *(e) The transportation network shall address alternative modes of transportation that include automobile, walking, cycling, and local and regional transit.*
- › *(f) The transportation network shall incorporate designs and standards appropriate for a public transit service.*

LOCAL APPLICATIONS

While there is no comprehensive example of a complete street system in the Calgary metropolitan area, plans in several municipalities provide support for mobility choice through transportation network planning and design. The Calgary Transportation Plan (2009) specifically describes the Complete Streets concept, defines a range of appropriate applications, and provides a set of policies to guide implementation.



Credit | GOOD | Livable Streets Contest | Steve Price

⁵ <http://www.completestreets.org/changing-policy/implementation-faq/>

Policy models

The National Complete Streets Coalition has developed model legislation for state-level implementation of Complete Street standards in the United States. While not directly applicable to an Alberta policy framework, it provides guidance to the appropriate scope for possible legislation in the province. At its core, the Coalition suggests general approaches for ensuring that standards are legally supported or required through an ideal Complete Streets policy which :

- › Includes a vision for how and why the community wants to complete its streets.
- › Specifies that considered users include pedestrians, bicyclists, and transit passengers of all ages and abilities, as well as trucks, buses, and automobiles.
- › Applies to both new and retrofit projects, including design, planning, maintenance, and operations, for the entire right of way.
- › Makes any exceptions specific and sets a clear procedure that requires high-level approval of exceptions.
- › Encourages street connectivity and aims to create a comprehensive, integrated, connected network for all modes.
- › Is adoptable by all agencies to cover all roads.
- › Directs the use of the latest and best design criteria and guidelines while recognizing the need for flexibility in balancing user needs.
- › Directs that complete streets solutions will complement the context of the community.
- › Establishes performance standards with measurable outcomes.
- › Includes specific next steps for implementation of the policy.



RELATED TOOLS

Transit-Ready Planning

Residential Street Patterns

Greenway and Open Space Networks

Walkability Audit

Bikeability Audit

ADDITIONAL RESOURCES

Sustainable Alberta Association (calgarycommute.ca/wordpress/)

Charlotte Department of Transportation Urban Design Street Guidelines (www.charmeck.org/city/charlotte/Transportation/PlansProjects/Pages/Urban%20Street%20Design%20Guidelines.aspx)

Transport Canada – Complete Streets: Making Canada’s roads safer for all (www.tc.gc.ca/eng/programs/environment-utsp-casestudy-cs72e-completestreets-812.htm)

National Complete Streets Coalition (<http://www.completestreets.org>)

Complete Streets Resource Toolkit (www.sacog.org/complete-streets/toolkit/START.html)

Transportation for America. Dangerous by Design (t4america.org/docs/dbd2011/ca-dangerous-by-design.pdf)

Emergency Response and Street Design (www.cnu.org/emergencyresponse)

Victoria Transport Policy Institute (www.vtpi.org)