From Planning to Design: How to Know When Your Relationship with Complete Streets Needs to Move to the Next Level

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Complete Streets

What is it & Why is it important?
What are Complete Streets?
Benefit All Users.
What are Complete Streets?

34.9% of Americans are obese.
Benefits: Health

States with the lowest levels of biking and walking have, on average, the highest rates of obesity, diabetes, and high blood pressure.
People 65 and older account for **13 percent** of the U.S. population, yet their pedestrian deaths make up **21 percent** of all pedestrian deaths.

NHSTA, National Pedestrian Crash Report
Benefits: Safety

There were 32,719 traffic fatalities in the U.S. in 2013. Of these fatalities:

- **23,303** were people in cars
- **4,735** were people walking
- **743** were people on bicycles

Benefits: Safety

More than 40% of pedestrian fatalities occur where there is no available crosswalk.
Benefits: Economy

“...
Young people do not want to work in office parks anymore... We’re seeing this big change in this country. It’s not political...it’s generational... This is where we need to think very differently, because if you don’t, you will be left behind.”

-Mitchell Silver, former Planning Director, Raleigh, N.C.
Benefits: Economy
Fayetteville Street, Raleigh

$15 million public investment in streetscape improvement 2006

$50 million in private investment in following 5 years

20 new business establishments

$5 million in sales tax annually
2.1% of federal transportation dollars go to biking and walking infrastructure, but 11% of trips and 14% of fatalities occur within those modes of travel.
Complete Streets

How we do it?
Complete Streets:

“It’s a process, not a product”

✓ **Define Success**
✓ Prioritize Modes of Travel
✓ Define Design Features/Limitations
✓ Make Tradeoffs
✓ Design in Detail

“I Would Spend 55 Minutes Defining the Problem and Five Minutes Solving It”
Look holistically…

Travel Zone
Pedestrian Zone
Building Zone
Link and Place

**Link**
- Street as a facility for the movement of people
- Connect people from Point A to Point B

**Place**
- Street as a destination in its own right
Complete Streets
Design Elements
Area Context

Parkway Boulevard
From Lynn Street to Loft Lane

Urban Boulevard
From Loft Lane to Windel Drive

Parkway Boulevard
From Windel Drive to Northbrook Drive

Urban Boulevard
From Northbrook Drive to I-440 Interchange
Area Context
Walksheds & Bike/Ped Crashes

Cameron Village Walksheds, 5, 10, 15 Minutes

Stantec

Complete Streets
Lighting
Suspicious

I Am...
Traffic - Traffic - Traffic!

Future Year 2035 Left-Turn Performance

Preliminary Six Forks Corridor Average and 95th Percentile Left-Turn Lane Queuing
How does it all work together?
Corridor Transition

Design Workshop/Raleigh Urban Design Center
Corridor Cross-Section

Design Workshop/Raleigh Urban Design Center
Bicycle/Pedestrian

Design Workshop/Raleigh Urban Design Center
Intersection Treatments

Major Intersections

Minor Cross Streets
Consultants Got Principles. And not just the kind found at the top of an organization chart.
High Priority Transit Corridor

- ¼-mile to a safe pedestrian crossing
- ½-mile to a high-quality transit stop
Furnishings, Public Art, Streetscape
LID & Stormwater BMPs

Example: Honore Avenue, Sarasota, FL (2012)

- Two-Lane vs. Four-Lane
- Limited ROW
- Needed better connections to school and parks
- What to do with the water?
- Save the Trees!

Context-sensitive design saves mature trees and enhances aesthetics.
The Idea Behind Stormwater
Measuring Success

- 3X the area for bikes, pedestrians and streetscape
- Consistent lanes, with only a 26% increase in asphalt roadway paving
- 10 new high quality bus shelters
- 52 high visibility crosswalks
- Over 4 miles of grade separated bike lanes
- Over 4 miles of new wider sidewalks
- Almost 8 million gallons of water quality treatment
- Locations for over 700 canopy and flowering trees
- Over 3 acres of planted medians
- Plans for 10 neighborhood gateways

- **Measurable increase in LOS for cars, bikes, pedestrian and transit**
Complete Streets
Nothing like a great example!

Route 9A – West Side Manhattan
Calgary Cycle Track
Edmonton CS Design Guidelines
Complete Retrofit

- Elevated freeway
- Transformed into an active Complete Street Boulevard
The Original West Side Highway
West Side Highway
Southern Terminus
Calgary Cycle Track

- 1.5 year pilot project
- $5.5M capital cost
- 2 years from award of planning study to opening of the network
80 Presentations in one year to plan the network with stakeholders
Three different bicycle treatments to create a network using four downtown streets
Complete Street Process

Alignment with Complete Streets Principles

Broad Parameters

Specifics

Final Check Back

3.1 Define Project Goals and Scope

3.2 Identify Modal Priorities

3.3 Identify Street Type

3.4 Select Elements

3.5 Make Trade-offs

3.6 Confirm Recommended Design

Process Flowchart
### Edmonton Complete Streets Guidelines

Evidence-based design tailored to local conditions

#### 4.3.6 Cycle Tracks

**Description**
A cycle track is an exclusive bike facility that confines the user experience of a separated path with the on-street infrastructure of a bike lane. A cycle track is physically protected from motor vehicle traffic and pedestrians, cycle tracks can offer a higher level of comfort than Bike Lanes or Shared Use Paths and are attractive to a wide range of the public.

**Application Contexts: Land Use, Street Type and Orientation**
- Citywide bike routes on the Bikeway Network
- High volumes of vehicle volumes and speeds
- On Transit Network streets consider integration with other modes
- Bike facility selection should be based on an analysis of roadway volumes and speed and other local characteristics.

**Operational Considerations**

<table>
<thead>
<tr>
<th>Design Details and Dimensions</th>
<th>Operational Considerations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Best on Roadways:</td>
<td>City of Edmonton practices for snow removal on bike facilities are currently not enforced. On cycle tracks the expectation is that snow removal will be cleared away. The snow removal of crosswalks on the cycle track:</td>
</tr>
<tr>
<td>- 10,000 vehicles/day</td>
<td>- Snow is cleared away from the cycle track.</td>
</tr>
<tr>
<td>- 120 km/h speed limit</td>
<td>- Snow is cleared away from the cycle track.</td>
</tr>
<tr>
<td>- Frequently congested roadways</td>
<td>- Snow is cleared away from the cycle track.</td>
</tr>
<tr>
<td>- High truck volume streets</td>
<td>- Snow is cleared away from the cycle track.</td>
</tr>
<tr>
<td>- Extra accessible roadway width</td>
<td>- Snow is cleared away from the cycle track.</td>
</tr>
<tr>
<td>- Bid on the left side of a one-way road</td>
<td>- Snow is cleared away from the cycle track.</td>
</tr>
</tbody>
</table>

**Design Details and Dimensions**
Cycle tracks generally require wider dimensions than bike lanes, to provide a higher level of comfort and separation, to permit bicyclists to pass one another.

**Operational Considerations**
- Consider the placement of utilities when designing bike facilities with physical separation and the access to the hydrants.

**References**
- Canadian Institute of Transportation Engineers, 2012
- Bicycle Bikeway Planning and Design Handbook

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**Application Context**

**Cross-sections**

**Design Considerations/Details**

**Operational Considerations**

**References**
Edmonton Complete Streets Guidelines

Pulling it all together: Making it easy to use

Street Oriented Arterial
This example is focused on direct access to adjacent properties. On-street parking is provided where possible and features to support transit and bicycle use are prioritized.

- Treatments emphasize the bikeway crossing. 4.3.8 Bikeways at Intersections
- Curb extensions minimize crossing distance for pedestrians. 4.2.2 Curb Extension
- In Street-Oriented area with high volumes of pedestrians, attention to pedestrian oriented details such as lighting and materials is important. 4.2.3 Streetscape Amenities
- Separate bicyclists and transit vehicles/passengers to reduce conflict. 4.4.5 Transit Integration with Cycle Tracks
- Manage interactions between bicyclists and motorists at right-turn-only lanes. 4.3.9 On-Street Bikeways at Right Turn Only Lanes
- Sidewalk dimensions should consider the potential for high pedestrian volumes. 4.2.1 Sidewalks
- Cycle Tracks offer a high-quality protected experience for bicyclists. 4.3.6 Cycle Tracks
- On-street parking is desirable in street-oriented land use areas. 4.1.3 On-Street Vehicle Parking
Final Thoughts…

- Measure your success!
- It’s a process, not a product
- Context defined
- Prioritize modes
- There’s always tradeoffs
- Design exceptions
- Measure your success!
Just Waiting for a Call...
(Thank You!)

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