Trainers

Emiko Atherton
National Complete Streets Coalition

Mike Rutkowski
P.E., AICP
Stantec
Agenda

✓ Creating a Plan – Implementing CS
✓ Complete Streets, the Process
✓ Funding 101/Outreach
✓ Project Development/Review Process
✓ Next Steps
Implementing Complete Streets

Emiko Atherton
“Complete Streets policies are intended to end (this) project-by-project approach to change, and they do so by focusing not on projects but on changing the internal guidelines, policies, processes and systems that have been set up to provide for a single mode.”

-Barbara McCann, founder of the Complete Streets movement
Policy to Practice

How do you move from here?  To here!

POLICY  PRACTICE

IMPLEMENTATION
Implementation Activities

1. Organize implementation activities
2. Restructure processes, procedures, policies, plans, and programs
3. Rewrite or update design guidance
4. Offer educational opportunities to transportation staff, community leaders, and the general public
5. Create new performance measures
1. Organize Implementation

• Create an Implementation Committee

• Assess what you have

• Develop an implementation plan
• **Internal**: Easier to manage expectations, achieve goals

  – An internal committee charged with implementing a policy becomes a driver of change because it provides a forum for different departments to work out problems.
Implementation Committee

- **External**: Builds stronger community and political will
  - Places with successful Complete Streets policies include more people in the decision-making process.
Assess what you have...

Get a clear picture of all the steps involved in choosing, planning, and building your transportation projects.
Assess what you have...

- Understanding the current process is essential because the project development system dictates how decisions are made.
  
  • Checklists, design trees, procedures, plans, processes, code/ordinances, design guidance, performance measures currently used
  
  • Also consider looking at land use, zoning, and subdivision regulations.
Create an implementation plan

- “Best practices”
- Clear path forward
- Measures internal and external change
- Communications tool
2. Process & procedure

After you identify the current processes and procedures, you can identify the barriers to Complete Streets implementation.
Opportunities for change

• Update documents to comply with Complete streets (RFPs, plans, regulations, codes, project scope)
• Modify process, procedures, and documents
• Prioritize projects that achieve CS goals
• Clarify exceptions process, accountability
• Adopt or update supporting plans and policies
• Take advantage of maintenance and operations opportunities
Change project procedures

- Planning
- Programming
- Scoping
- Design
- Construction
- Maintenance*
- Operations*

- Capital projects
  - New, retrofit, reconstruction
- Repair, resurfacing, restoration, rehabilitation
- Bridges

*More opportunities than with CIP/TIP projects!
Modify procedural documents

• Checklists
  – Roadway design, signals, streetscaping, ADA, development reviews, etc.

• Decision trees

• Design vehicle

• Standard operating procedures

• Project development forms
3. Update design guidance

- Create new document or revise existing
- Reference latest and best national/state guides
- Public and private development
- Set new standard templates
- Pilot new designs
- Integrate new techniques into practice
Design Guidelines

• Design guidelines are a set of rules and standards to guide a community’s design.

• Revising design manuals to support multimodal efforts is one of the major actions taken to implement Complete Streets.

• Gives engineers and planners better decision-making tools
Agency-specific examples
Adoptable/adaptable models
Refer to state standards
4. Educate and Train

- **Public**
  - Determine what people want out of their streets
  - Explain new treatments
  - Educate on the transportation process

- **Public Officials**
  - Understand how the policy is being translated to projects on the ground
  - Educate on the transportation process

- **Practitioners**
  - Professional transportation training
  - Community engagement
Identify different training needs

- Department heads, managers, program staff
- Planning/design staff
- Construction/field operations staff
- Cooperating agencies
Offer training

Formal & informal training for all staff levels

– Series of technical training sessions
– Walk/bike tours and audits
– Conferences, webinars
– Walk to lunch with coworker
Offer training

Technical and non-technical issues
  – Not always needed for design, but for procedures
Multi-departmental
Public outreach and education is key
PERFORMANCE MEASURES
Performance Measures

- MAP-21 requirements
- Accountability to goals and policies
- Transparency of decisions
  - Guidance making trade-offs
- Biggest bang for the buck
  - Incl. impact on other sectors
- Making the case for transportation projects
Measures flow from goals.

Goal

Measures
• Objectives

Metrics
• Data
For example:

Goal

- Objectives

Measures

- Person trips
  - Increase walk, bike, transit

Metrics

- Data

Helping people get to A and B

Active transport trips as portion of all trips
- ACS, Household Travel Survey, Automated counters…
Simple measures can be good measures

Some goals need complex measurements, but they’re not the only ones you can use.

Helping people get to A and B

Connect destinations: Increase access to transit stops/stations

- % HHs within ½-mile walk
- % HHs within 3-mile bike
- % ADA bus stops
- % stops connected to bike network
Outcome-oriented performance measures

• Beyond mobility-based or system condition measures
  – V/C, LOS, pavement quality

• Use data to support:
  – Long term decisions
    • E.g., Program funding, LRTP, STIP
  – Short term decisions
    • E.g., Alternatives analysis, design choices

• Set goals, objectives, then measures of success
### Types of results

#### You control outputs

Examples:

- Blocks of sidewalks, new and repaired
- Percentage of accessible bus stops
- Percentage of bike plan completed
- Miles of repaved travel lanes
- Average distance between crosswalks

#### You influence outcomes

Examples:

- Number of people walking
- Parking utilization
- Rate of fatalities per mode
- Retail sales
- Property values
- Amount of physical activity
- Rate of chronic diseases
Tell your story!

Making bus routes work better: Fordham Road (Bronx)

- 20% increase in bus speeds
- 10% increase in bus ridership
- 71% increase in retail sales (at locally-based businesses, compared to 23% borough-wide)

Delivery windows (curb dedicated to trucks at key times)

Curb-side red bus lanes

Neighborhood traffic calming: East 180th Street (Bronx)

- 67% decrease in pedestrian crashes
- 29% decrease in eastbound speeding
- 32% decrease in westbound speeding

Painted median

Dedicated left turn bay

Widened parking lanes
Case Study: Edgewater Drive, FL
• Repaving project scheduled by FDOT
• FDOT was open to reconfiguration if City takes over jurisdiction
• Changes needed to be accepted by neighborhood and a before/after study must be conducted
  – Public determined 9 “measures of effectiveness”
After
# Performance measures

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<td>2  Reduce speeding on Edgewater Drive</td>
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<td>3  Increase number of people bicycling</td>
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<td>5  Reduce crashes</td>
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<td>6  Increase use of on-street parking</td>
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<td>7  Increase pedestrian satisfaction among residents</td>
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<td>8  Increase pedestrian satisfaction among merchants</td>
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<td>9  Increase parking satisfaction among residents</td>
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</table>
Crash rate

- Before: 1 crash every 2.5 days (146 per yr)
- After: 1 crash every 4.2 days (87 per yr)

34% Reduction
Injury rate

- Before: 1 injury every 9 days (41 per yr)
- After: 1 injury every 30 days (12 per yr)

68% Reduction
Speeding

Percent of Vehicles Traveling over 36 MPH

North End
- Before: 15.7%
- After: 7.5%

Middle
- Before: 9.8%
- After: 8.9%

South End
- Before: 29.5%
- After: 19.6%
Automobile traffic volumes

Generally remained in 18k-20k range now

Vehicles per Day

Before

After

20,500

18,100

Generally remained in 18k-20k range now
On-street parking use

- **Before:** 29%
- **After:** 41%
People walking

23% Increase

Number of Pedestrians

Before

After

2,136

2,632
People bicycling

30% Increase

Before: 375
After: 486

Number of Bicycles

0 100 200 300 400 500 600
Average peak period travel time

Northbound
Southbound

AM Before
AM After
PM Before
PM After
Property values

- 77 net new businesses open and 560 new jobs created since 2008.
- Average daily automobile traffic, which saw a slight dip following project completion, has returned to its original pre-project level and on-street parking use has gone up 41 percent.
- The value of property adjacent to Edgewater Drive has risen 80 percent, and the value of property within half a mile of the road has risen 70 percent.
30 Minute Lunch Break
What are Complete Streets?

Benefits of Complete Streets

- Safety
- Equity
- Health benefits
- Increase demand for different modes
- People with disabilities
- Children and aging population
- Relieve congestion

Here are 200 people in 177 cars
34.9% of Americans are obese.
Benefits: Health

Obesity Trends* Among U.S. Adults
BRFSS, 1990
(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

Source: Behavioral Risk Factor Surveillance System, CDC.

Obesity Trends* Among U.S. Adults
BRFSS, 1995
(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

Source: Behavioral Risk Factor Surveillance System, CDC.

Obesity Trends* Among U.S. Adults
BRFSS, 2000
(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

Source: Behavioral Risk Factor Surveillance System, CDC.

Obesity Trends* Among U.S. Adults
BRFSS, 2005
(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

Source: Behavioral Risk Factor Surveillance System, CDC.

Obesity Trends* Among U.S. Adults
BRFSS, 2010
(*BMI ≥30, or ~ 30 lbs. overweight for 5' 4" person)

Source: Behavioral Risk Factor Surveillance System, CDC.

Smart Growth America and National Complete Streets Coalition
States with the lowest levels of biking and walking have, on average, the highest rates of obesity, diabetes, and high blood pressure.
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There were 32,719 traffic fatalities in the U.S. in 2015. Of these fatalities:

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

Safety Benefits

- Sidewalks reduce pedestrian crashes 88% (FHWA)
- Shoulders reduce pedestrian crashes 71% (FDOT)
- Medians reduce crashes 40% (NCHRP)
- Road diets reduce crashes 18 – 49% (ITE)
- Countdown signals reduce crashes 25% (FHWA)
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:

“It’s a process, not a product” - MMR

☑ Define Success
☑ Prioritize Modes
☑ Define Design Features/Limitations
☑ Make Tradeoffs
☑ Design in detail
☑ Measure Success
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 and Bike/Ped Crashes
Lighting
WHY

SECURITY MATTERS TO US

When we talk to people, they tell us all about their places. We tend to tune out the parts we don’t want to hear, or that we can’t address, or that aren’t part of the scope. Big Mistake.

Start Listening.

“Complete Streets don’t deserve the name if they aren’t safe for people to use.”
WHY

SECURITY MATTERS TO US

When we talk to people, they tell us all about their places. We tend to tune out the parts we don't want to hear, or that we can't address, or that aren't part of the scope. Big Mistake.

Complete Streets don't deserve the name if they aren't safe for people to use.

Start Listening.
Principles of CPTED

Crime Prevention through Environmental Design

**Maintenance**
If a window is broken, then a door follows, then it gets worse from there.

**Natural Access Control**
Traffic calming, street access, gateway treatments, and parking design influence access.

**Territorial Reinforcement**
Space should be easily defined as public, semi-public, and private.

**Natural Surveillance**
Jane Jacobs' “Eyes on the Street” is still just as important as it was 50 years ago.
Not just lighting

There’s more to lighting than you think.

Pattern, illumination source, and placement make a big difference in the result.
Not Just lighting
But there’s more to lighting than you think.

Pattern, illumination source, and placement make a big difference in the result.
Not just lighting

There’s more to lighting than you think.

Pattern, illumination source, and placement make a big difference in the result.
Making a Difference

North Carolina State University
Western Boulevard Complete Street Study

Lighting Inventory
Intercept Survey
Influence on the Ultimate Design
Making a Difference

North Carolina State University

Lighting Inventory

Intercept Survey

Influence on the Ultimate Design
How does it all work together?
Traffic, Traffic, Traffic!
Corridor Transition
Corridor Cross-Section
Bicycle/Pedestrian
Intersection Treatments

Major intersections

Minor Cross Streets
Addition to the 2013 Complete Streets Guidelines (by Stantec)

Outlines:
- Design Parameters for Main Streets
- Design Process
- Guidelines for Requirements for Main Street Design Elements

Definition of Design Zones

2.2 MAIN STREET DESIGN ZONES

The main street right of way is divided into design zones that provide different functionality for people accessing, spending time, and travelling through main streets. This document defines each main street design zone.

2.1.1 Adjacent Lands

This space provides on-street uses such as ground floor retail and food and beverage establishments that attract people to the streets of main streets and promote pedestrian activity.

2.1.2 Frontage Zone

Adjacent to the building, this space is used as a support and/or extension of pedestrian activity. This area can include ground floor retail space, advertising, temporary signage, line areas, and other activities to support active uses of the street by people and businesses.

2.1.3 Pedestrian Through Zone

This space provides an area for pedestrian mobility for people of all ages and abilities to access the numerous pedestrian oriented destinations along and around Edmonton main streets.

2.1.4 Furnishing Zone

This space provides an area for people travelling through main streets by foot, cycling, wheelchair, and small vehicles. This space may be used as an active pedestrian sidewalk and can also be closed at times to accommodate special events and festivals.

2.1.5 Ancillary Zone

This space provides an area for people travelling through main streets by automobile and transit, and for the delivery of goods. In some small towns, this space may be used as an active street parking and loading and can also be closed at times to accommodate special events and festivals.
High Priority Transit Corridor
Furnishings, Public Art, Streetscape
LID & Stormwater BMPs

Example: Honore Avenue, Sarasota, FL (2013)

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

- Context-sensitive design and low impact development (LID) strategies reduced floodplain impacts by 23.2 acre-feet
- Saved 1000 mature trees
- Buffered ped/bike facilities with connections to school/parks

Reduced Floodplain Compensation Area
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 gateway
- Measurable increase in LOS for cars, bikes, pedestrian and transit
Final Thoughts...

- It’s a process, not a product
- Context Defined
- Prioritize modes
- There’s always tradeoffs
- Intersection Design Exceptions
- Available Design Guidelines
- Measure your success!
Many Complete Streets improvements are modest in size and low cost.

A Complete Streets approach means thinking ahead and thinking smart—and that can lead to decisions that save money and avoid costly mistakes.

The incremental cost of features such as bicycle lanes and sidewalks are dwarfed by much bigger cost concerns, such as variable labor and materials costs.
Simple, low-cost, high-impact
Simple Changes, Small Budgets

• restriping to narrow travel lanes and provide more room for bicycles and/or pedestrians;
• changing signal timing;
• installing refuge islands, medians, and curb extensions;
• restriping crosswalks to be more visible;
• installing temporary curbside plazas;
• adding pedestrian countdown signals;
• using on-street head-out angled parking, instead of parallel parking, to narrow wide, dangerous roadways.
Complete Streets = Funding Opportunities

• Complete Streets policies are necessary to safely accommodate existing users
• Complete Streets can be achieved within existing budgets.
• Complete Streets can lead to new transportation funding opportunities.
• Complete Streets add lasting value.
Funding Opportunities

• Multimodal planning and design can be an opportunity rather than a constraint.
• Complete Streets projects can make transportation projects more popular and garner more support for transportation funding.
• A multimodal design can make projects more competitive for some federal, state, and regional funding opportunities.
Pedestrian and Bicycle Funding Opportunities
U.S. Department of Transportation Transit, Highway, and Safety Funds
Revised August 12, 2016

This table indicates potential eligibility for pedestrian and bicycle projects under U.S. Department of Transportation surface transportation funding programs. Additional restrictions may apply. See notes and basic program requirements below, and see program guidance for detailed requirements. Project sponsors should fully integrate nonmotorized accommodation into surface transportation projects. Section 1404 of the Fixing America’s Surface Transportation (FAST) Act modified 23 U.S.C. 109 to require federally-funded projects on the National Highway System to consider access for other modes of transportation, and provides greater design flexibility to do so.

Key: $ = Funds may be used for this activity (restrictions may apply). $* = See program-specific notes for restrictions. ~$ = Eligible, but not competitive unless part of a larger project.

<table>
<thead>
<tr>
<th>Pedestrian and Bicycle Funding Opportunities</th>
<th>TIGER</th>
<th>TIFIA</th>
<th>FTA</th>
<th>ATI</th>
<th>CMAQ</th>
<th>HSIP</th>
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TIGER Funding

• The Transportation Investment Generating Economic Recovery, or TIGER Discretionary Grant program, provides a unique opportunity for the DOT to invest in road, rail, transit and port projects that promise to achieve national objectives.

• Since 2009, Congress has dedicated nearly $4.6 billion for seven rounds of TIGER to fund projects that have a significant impact on the Nation, a region or a metropolitan area.

Source (USDOT)
TIGER: Dahlonega, GA

5.1 million awarded in 2014 for Downtown Dahlonega Complete Streets Corridor Improvements

- Gaps in sidewalk network
- Adds better crossing
- Introduces bicycle facilities
TIGER: Kauai, HI

$13 million for the revitalization of the Lihue Town Core

$2.5 million in matching funding from the county
Reconnecting Mobile

One Mobile: Reconnecting People, Work and Play Through Complete Streets

City of Mobile awarded $14.5 Million Federal Grant to Connect Citizens to Jobs
Safe Routes to Schools
Surface Transportation Block Grants

- Formally TAP (Transportation Alternatives Program) grant.

- Federal funding for programs and projects defined as *transportation alternatives*.

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<th>Year</th>
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Other Sources of Funding

- Metropolitan Planning Organizations
- CMAQ
- Federal Transit Administration (FTA)
- Community Development Block Grants
- Main Street Programs
- Local funding strategies (bond measures, sales and property tax, business improvement districts, tax increment financing)
OUTREACH 101
Project Symposia/Workshops

- Interactive Polling
- StreetMix
- Tablet Surveys
Traveling Roadshows
■ Host interactive booths at festivals/events

Small Group Interviews
■ Reach out to interest groups to solicit input
■ In person or phone call

One on One Interviews
■ Engaging discussions
■ Specific topics and questions
Project Advisory Committees

- Mix of staff, elected officials, retail owners, emergency services, school administration, parks & recreation, citizens.

- Interactive
  - Discussions, mapping activities, tours/walks

- Never boring!
Charrette

- Work Collaboratively
- Work in Detail
- Use design to create a shared vision & create holistic solutions
- Deliverable produced at the end of the session
WikiMapping

- Interactive Mapping Platform
- Spatial results (Arc)

Project Websites

- Platform for providing up-to-date information and links to surveys/mapping activities
Social Media

- Facebook, Twitter, Instagram, Local Apps
- Live discussions, collaboration, cost efficient

Surveys

- SurveyMonkey, QuestionPro,
- Gather information from direct and open-ended questions.
- Gather demographics

Online Engagement (MindMixer/mySidewalk)

- Interactive
- Change topics often to keep interests alive
Story Map

- Dynamic visualization tool that combines a web map and other presentation quality graphics and multimedia content

Telephone Survey (Robocall)

- Inexpensive
- Fast responses

Newsletters

- Up-to-date information
- Work with schools, churches, civic organizations to distribute
5 Minute Break
Project Development/ Review Process

Mike Rutkowski, P.E., AICP
Topics Covered:

- Embracing Complete Streets in the planning process
- Project scoping, checklists; burden of proof; assuming all needs must be accommodated
- Reviewing Santa Clara’s project review process
Holistic Project-Development Process

Existing and future conditions

1. Define land use context
2. Define transportation context

Goals and objectives

3. Identify deficiencies
4. Describe who you are trying to serve

Decision-making

5. Define street type and Modal Priorities
6. Describe trade-offs and select cross-section
Choices are made in each stage...

**PLAN**
Set goals and figure out what transportation systems are needed to move people and goods.
Write transportation plans that describe how to achieve these goals.

**FUND**
Calculate the dollars that will be available for transportation from taxes, fares, tolls and other sources.
Create a list of top projects to fund from the transportation plans.

**DESIGN**
Choose routes and design infrastructure.
Look for ways to avoid or find solutions for the impacts that transportation will have on the community and the environment.

**BUILD**
Build and repair roads, bridges, trails and other infrastructure, and purchase buses and trains.
Complete work on schedule, within budget and according to design.

**MAINTAIN**
Provide service, operate and maintain transportation systems and keep them in a state of good repair so that they meet the goals in the plans.
Scope – Establish Purpose and Need

- Clearly answer “Why do we need the project?” without making design choices
- Describe how each alternative will:
  - Affect all users – Who wins? Who loses?
  - Reflect land use/community context
  - Meet broader plans, visions, goals
- Assume presence of walking, bicycling, & transit patrons, of all ages and abilities
- Choose measures of success
Scope – Reversed ‘Burden of Proof’

Assume facilities for all users with limited exceptions:

- No expected users = no need now or in the future,
- Costs disproportionately high relative to need/goals, or
- Avoid “Build it and they will come” mentality

Rural, homogeneous land use; no sidewalk needs *now or in the future*

Slow speed, no need for bike lanes

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Smart Growth America
Improving lives by improving communities

National Complete Streets Coalition

Complete Streets
Fund

- Use all available sources
  - Federal/State: STP, HSIP, CMAQ, TAP, 402, TIGER
  - Local: property & sales taxes, bonds, user fees, development fees, grants, PPPs, discretionary budgets, etc.
- Have a capital plan
  - Coordinate with ADA transition, pavement management, master plans, etc.
- Robust ROI analysis that includes impacts all users, on other sectors
Plan

- Begin discussion of specific design elements
- Use your design resources (NACTO)
- Understand who you are trying to serve!
- Additional opportunities for community engagement – “Build Advocacy”
- Include design staff in plan process
- Go to site and observe how people use it
Design

- Final decisions for specific design elements
- Include planning staff in design process
- Go to site and observe how people use it
  - Prioritize Modes
  - Identify Tradeoffs
  - Design in Detail
  - Minimize C/G displacement
Design Guidance
Design Guidance

- Complete Streets Guidelines
- Separated Bike Lane Planning Guide
- Guide for the Development of Bicycle Facilities
- Urban Street Design Guide
- Bus Stop Design Guidelines

Smart Growth America
National Complete Streets Coalition
Complete Street Guidelines

Evidence-based design tailored to local conditions

4.3.6 Cycle Tracks

**Description:** A cycle track is an exclusive bike facility that combines the user experience of a separated path with the on-street infrastructure of a bike lane. A cycle track provides a higher level of comfort than Bike Lanes or Shared Use Paths and are attractive to a wide range of the public.

**Operational Considerations**
- Bike facilities should be considered as part of the street system from an operational and design perspective. Consideration should be given to how bike facilities fit into the broader transportation network.

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

**Evidence-based design tailored to local conditions**

**Application Context**
- Context:
  - Citywide bike routes on the Bike Network
  - Streets with high motor vehicle volumes and speeds
  - Transit facilities

**On-Street Cycle Track Without Parking**

- Raised Cycle Track
- Adjacent to travel lanes, a raised cycle track may use a 0.5 m mountable curb.

**References**
- BC Ministry of Transportation and Infrastructure, Urban Bikeway Design Guide. 2012
- Institute of Transportation Engineers, Urban Bikeway Design Guide. 2012
- National Association of City Transportation Officials, 2012
- Transportation Association of Canada, 2016
- Canadian Urban Designs, 2011
Addition to the 2013 Complete Streets Guidelines (by Stantec)

Outlines:

- Design Parameters for Main Streets
- Design Process
- Guidelines for Requirements for Main Street Design Elements

Definition of Design Zones

2.2 MAIN STREET DESIGN ZONES

The Main Street right-of-way is divided into design zones that provide different levels of walkability and pedestrian mobility for people accessing spending times and travelling through Main Streets. This following defines each Main Street design zone:

2.1.1 Adjacent Lands
This space provides access to land uses such as ground floor retail and food and beverage establishments that attract people to Main Streets and generate pedestrian activity.

2.1.3 Pedestrian Through Zone
This space provides an area for pedestrian mobility for people of all ages and activities to access the Main Street pedestrian-oriented destinations along and around Edmonton Main Streets.

2.1.4 Furnishing Zone
This space provides an area for pedestrian mobility for people walking by, in automobile and transit, and for the delivery of goods. It can be used as an area for parking and standing and can also be used as an area for temporary and seasonal event and festivals.

2.1.5 Ancillary Zone
The space provides an area for pedestrian mobility for people walking through Edmonton Main Streets or destinations and other activities to support activity of the street by people and businesses.

2.1.2 Frontage Zone
Adjacent to the building, this space is used as a support and maintenance for the active dead uses along Edmonton Main Streets. This can include general ground retail displays, outdoor seating, temporary signage, line areas, and other activities to support activity of the street by people and businesses.
Build

- Do you need a Demonstration Project?
- Provide temporary accommodations for all users: walking, bicycling, transit
  - Clear signage
  - Advance communication about closures and changed patterns
- Hold contractors to high standards
- Communicate project timeline
Operate

- Celebrate project completion!
- Measure success in achieving project goals
- Observe changed conditions and patterns
- Don’t be afraid to “tweak”
Reviewing Your Project Development Process

“What is your Development Review Process?”
Let’s Test Your Expertise

Case studies 101
Santa Clara’s Complete Streets – Your Turn

- Put yourself as a pedestrian or bicyclists
- Define the problem
- Discuss Priorities & Tradeoffs
- Monitor project performance
Incomplete Streets
88% Reduction in pedestrian crashes by adding sidewalks
(FHWA crash reduction factors)
Santa Clara’s Requirements

- 5’ wide sidewalk
- Anything less may require design exception
Obstacles in Pedestrian Zone

Access Route
50%

More energy to push a wheelchair at a 3% cross slope than at 2% (US Access Board)
Cross Slope Guidelines

- 2% max cross slope “Level” (design to 1.5%)
- “Level Landing” – 2% max slope in all directions (design to 1.5%)
Cross Slope Solutions

Elevation change occurs in furniture zone

2% max  \( \times \% \) 2% max
Pedestrian Crossings

Crosswalk

- Connects sidewalks on opposite sides of roadway
- Any portion of a roadway marked for crossing
Crosswalk Design

- Continental and ladder designs are the most visible to drivers
- Caltrans Standard is “Standard” lines
- Be consistent!
Crosswalk Design

What is wrong with this crosswalk?
Group Discussion

Which crosswalks are Caltrans & FHWA approved?
Group Discussion

Which crosswalks are Caltrans & FHWA approved?

YES  YES  NO - GREEN  NO - YELLOW
Pedestrian Signals

Many pedestrians do not understand “Flashing Don’t Walk” means it’s OK to continue walking

- How much crossing time is left
- Reduces all crashes by 25%
- Included in 2009 MUTCD
Rectangular Rapid Flashing Beacon

- For midblock locations
- Motorist yielding rates increased 18.2% to 81.2% for 2 beacons and to 87.8% for 4 beacons (TRB)
- Pedestrian activated (pushbutton or passive)
- Warning device
- Interim approval from FHWA, July 2008
- Can be solar powered or hard wired
- Costs approximately $20k-$40k
Pedestrian Hybrid Beacon (PHB)

- For midblock locations
- Motorist yielding rate greater than 95%
- Traffic control device
- Up to a 69% reduction in pedestrian crashes (FHWA)
- Up to a 29% reduction in total roadway crashes (FHWA)
- Requires mast arms and foundations
- Costs around $75 - $150K

Old Connecticut Path, Framingham
Pedestrian Crossing Island

- Reduces pedestrian crashes by 46% (FHWA)
- Allows pedestrians a safe place to stop
- Enhances visibility of the crossings
- Reduces the speed of vehicles
- Can be used for access management
- Can be utilized for stormwater management
- Minimum 4’ (8’ preferable)
Crossing Case Study
What Crossing Treatment Would you Choose?

Shared Use Path Crossing
- ADT: 12,600
- Speed: 25 mph
- Two lane roadway
Which Crossing Treatment Would you Choose?

RRFB was chosen based on speed, volume and roadway width
Effect of Large Radius on Drivers

They drive fast, ignoring pedestrians
How would you change it?

Source: Google Maps
Tighten Corner Curb Radii

- Maintain existing sidewalk
- Add landscaped area
- Remove existing island
- Relocate crosswalk
- Spring Street
- Pleasant Street

Source: Google Maps