



Complete Streets



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Hickory, NC
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Complete Streets



Transforming to the Complete Streets State

Board directed NCDOT staff to develop a Complete Streets Policy – January 2009

Board adopted policy – July 2009

Policy directs NCDOT to develop comprehensive planning and design guidelines to support this policy

Policy Definition

- Complete Streets is NC's approach to interdependent, multi-modal networks that safely accommodates access and travel for all users (walking, biking, transit and motorist)
- Past NCDOT policies have focused on individual modes and projects



Policy Highlights

- Requires NCDOT planners and designers to consider and incorporate multi-modal alternatives
- Requires NCDOT to consider the needs of all users on new and improved infrastructure projects
- Requires NCDOT to collaborate with local areas to ensure local plans and options are included



Policy Highlights

- Purpose is to guide existing and future NCDOT design and decision-making processes
- Policy generally applies to all NCDOT facilities (network)
- Policy builds on current NCDOT practices, policies, and encourages flexibility and staff creativity



Policy Benefits

- Improved network safety and mobility for all users
- Enhanced access and connectivity between modes
- Increased use of alternate forms of transportation
- Improved statewide quality of life, air quality, growth and economic development



Next Steps

- Develop planning and design guidelines to support policy implementation
- Goals:
 - Develop products that integrate policy requirements into NCDOT work processes and design standards
 - Broad based stakeholder involvement and input



Complete Streets Implementation

1) Change Procedures

(Develop planning and design guidelines to support the Complete Streets Policy adopted in July 2009)



Complete Streets Advisory Group

Jay Bennett – Roadway Design Unit (Co-Chair)

Tracy Newsome - Charlotte Department of Transportation (Co-Chair)

Kumar Trivedi – Bicycle and Pedestrian Division

Joey Hopkins – Deputy Division Engineer, Division 5

Andy Bailey – Senior Planner, Transportation Planning Branch

Kevin Lacy – Transportation Mobility and Safety

Eric Midkiff – Project Development Unit Head, Central Region, PDEA

Miriam Perry – Public Transportation Division

Hanna Cockburn - Piedmont Triad Council of Governments

John Tippett - Western Piedmont Council of Governments

Mike Kozlosky - Wilmington MPO

Carrie Reeves - City of Greensboro DOT

Margaret Bessette - City of Winston-Salem

John Tallmadge – Triangle Transit

Rick Heicksen - Fayetteville Area MPO

Odessa McGlown – Quality Enhancement Unit

Jerry Higgins - Communications Office

Joseph Geigle - Federal Highway Administration

Complete Streets Implementation

2) Training

(Training for various internal and external stakeholders will be provided after the guidelines are completed – training to start early spring 2012)



Creating a Better Street Network (combining the planning and design process)

- Follow a series of steps for all street projects to help establish a shared solution for the transportation facility
- The key = evaluate the existing and future users of the street and determine how to make the facility safe and accessible for these users

Creating a Better Street Network (combining the planning and design process)

- Existing and Future Conditions (define land use context, define transportation context)
- Goals and Objectives (identify issues and opportunities, define objectives)
- Decision-making (define contextual solutions, define trade-offs, alternatives)
- Groups of individuals establishing a recommended alternative

Guideline Development

(what do we hear?)

Held stakeholder interviews in the summer of 2010

- Complete Street Guidelines should be flexible
- Complete Street Guidelines should be based on context, in terms of location (urban and rural)
- How are projects going to be funded? (Cost sharing and spatial constraints for future transportation improvement projects have to be addressed)
- Streets should be multi-modal
- Public input for design often happens too late in the plan development process
- Project planning and design process needs to be more balanced and collaborative

Guideline Development

(where are we now?)

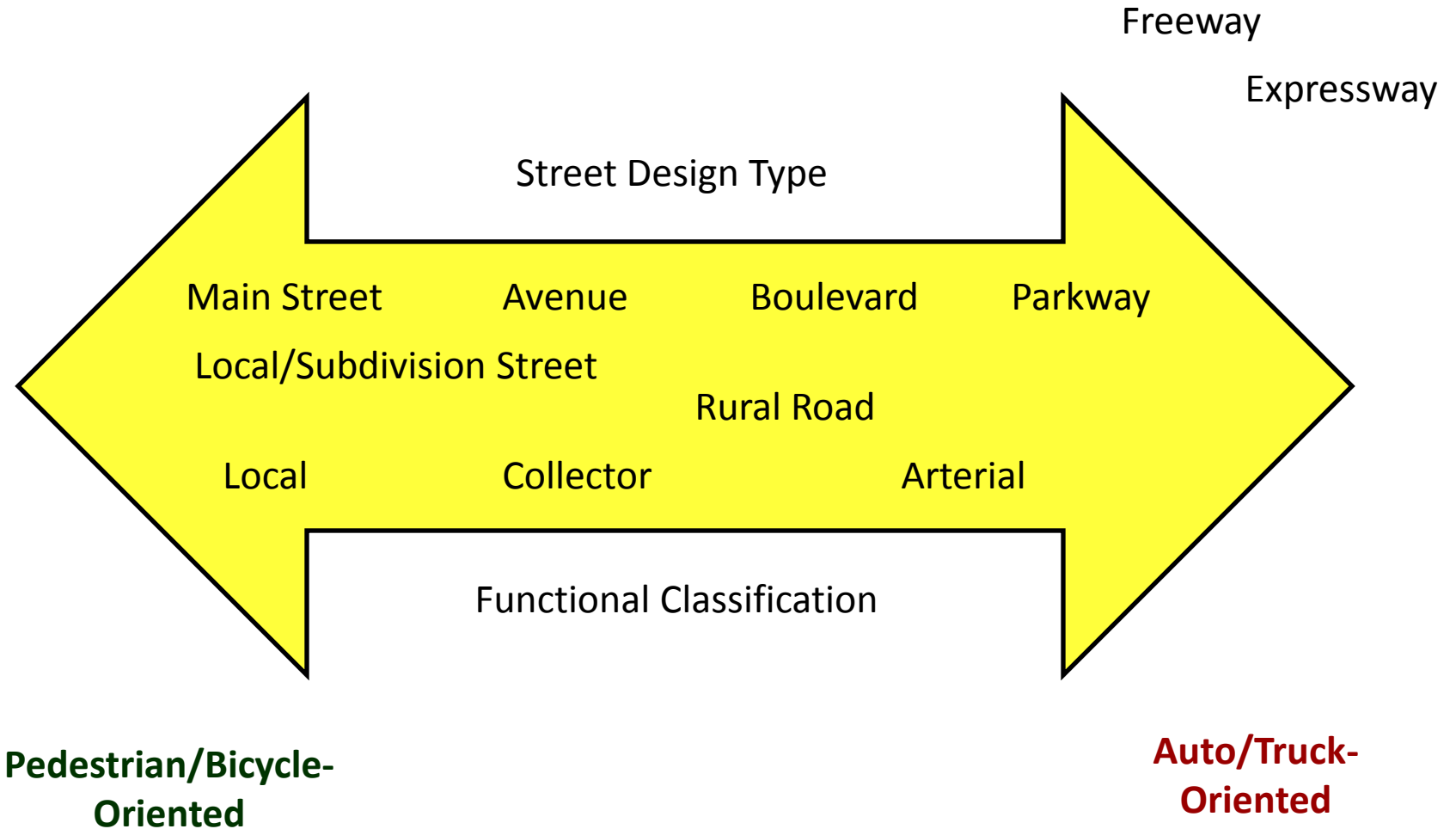
June 2011:

Providing the content for the planning and design guidelines to stakeholders (coming soon)

- Reviewing draft content and framework in summer 2011 (framework out for comment June 2011)
 - Finalize guidelines in 2011



Functional Classification and Street Type



Morganton, NC

(Complete Street -- street type Main Street)



Front Street Wilmington, NC

(Complete Street -- street type Main Street)



Hillsborough St Raleigh, NC

(Street -- street type Avenue)



Prosperity Church Road Charlotte, NC

(Complete Street -- street type Boulevard)



Rozzelles Ferry Road Charlotte, NC



East Boulevard Charlotte, NC



Dawson McDowell Connector – Raleigh, NC

(Complete Street -- street type Parkway)



Interstate I-277 Charlotte, NC

(Functional Classification -- Interstate/Freeway)



Residential Street

(Complete Street -- street type
Local/Subdivision Street)





Preliminary Complete Streets Planning and Design Guideline Framework



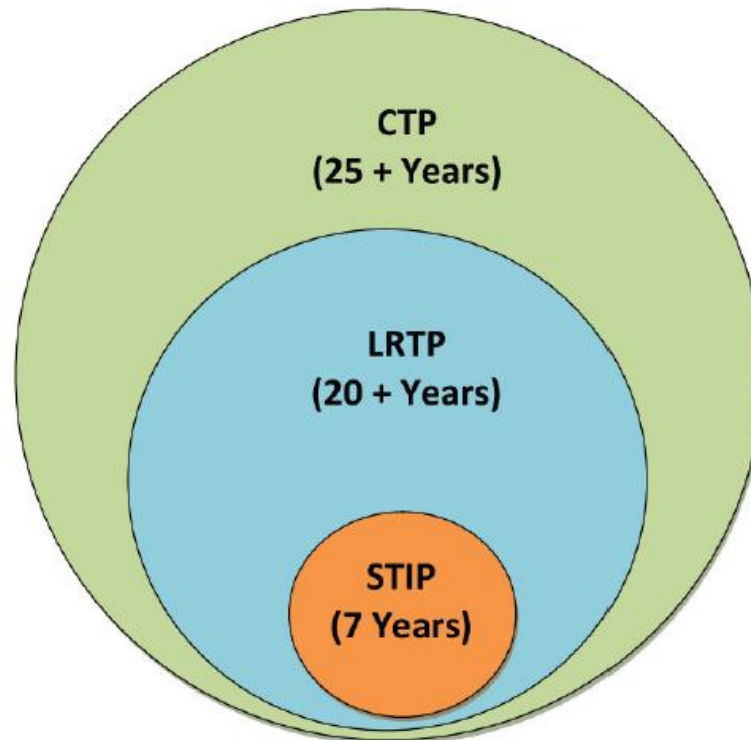
Chapter 1 – “Implementing Complete Streets in North Carolina”



Chapter 2 – “Process”

Complete Streets guidelines establish a process for incorporating all modes into both existing and future transportation improvement projects

Figure 1: Transportation Planning Process



Chapter 3 – “Understanding Context and Designing for all Users”

Suburban Center

Suburban Centers
have higher
density, greater
mix of uses and
modal form.
Concentration of
commercial and
residential use



Chapter 3 – “Understanding Context and Designing for all Users”

Suburban Corridor

Areas that are characterized by auto-oriented development. Development is linear and may span for miles. Numerous commercial and retail destinations with residential development located adjacent to commercial properties.



Chapter 3 – “Understanding Context and Designing for all Users” Suburban Residential

Areas have transitioned from rural setting to predominately residential (low to medium density) with intermediate commercial and non-residential property between.



Chapter 3 – “Understanding Context and Designing for all Users”

Central Business District – Urban Center – Urban Residential



Chapter 3 – “Quality of Service”

Quality of service is based on street design elements that improve street functionality for bicyclists, pedestrians and transit users

Quality of service considers the ways in which buildings, parking and landscape are arranged on an adjacent site and the effect it has on where the street and its context fall in the continuum of street networks

For walking, biking and transit to be attractive travel options, the experience of using non-motorized transportation must feel comfortable and safe

Chapter 4 – “Planning and Design Elements”



Erwin Road – Durham (Before)



Erwin Road – Durham (After)

Chapter 4 – “Planning and Design Elements”



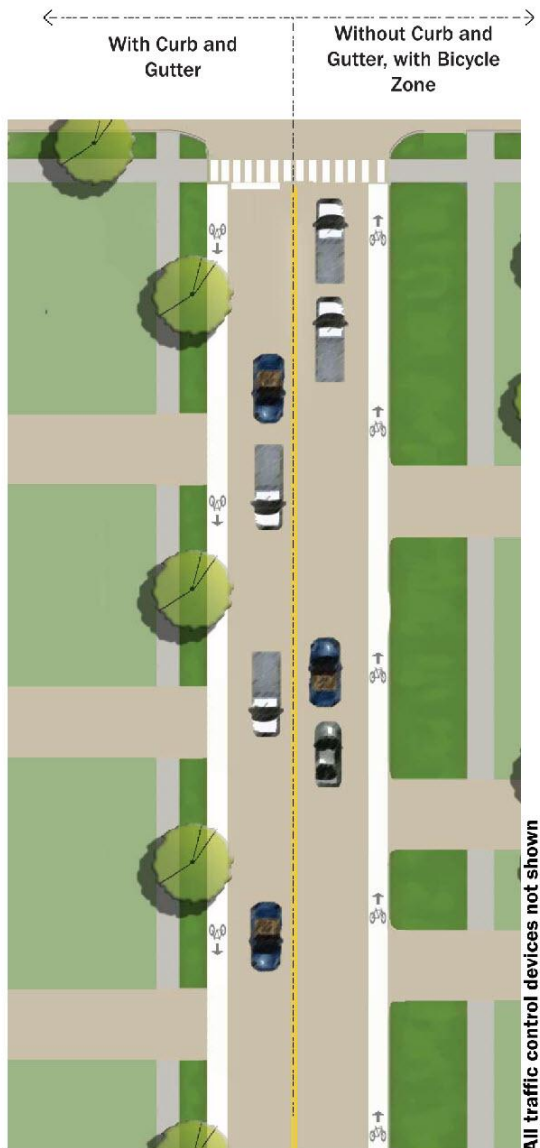
Reedy Creek Road - Raleigh (Before)



Reedy Creek Road - Raleigh (After)

RURAL AVENUE

PLAN VIEW



KEY ELEMENTS

- May function as an arterial, collector or local, route, but generally at low to moderate speeds and volumes.
- A rural street serving a range of traffic levels within and between various area types.
- Characterized by wide sidewalks (scales to the surrounding land uses) and on-street bicycle facilities.
- May have on-street parking.
- Transit stops, shelters and other amenities are located along the roadway, preferably within the right of way.

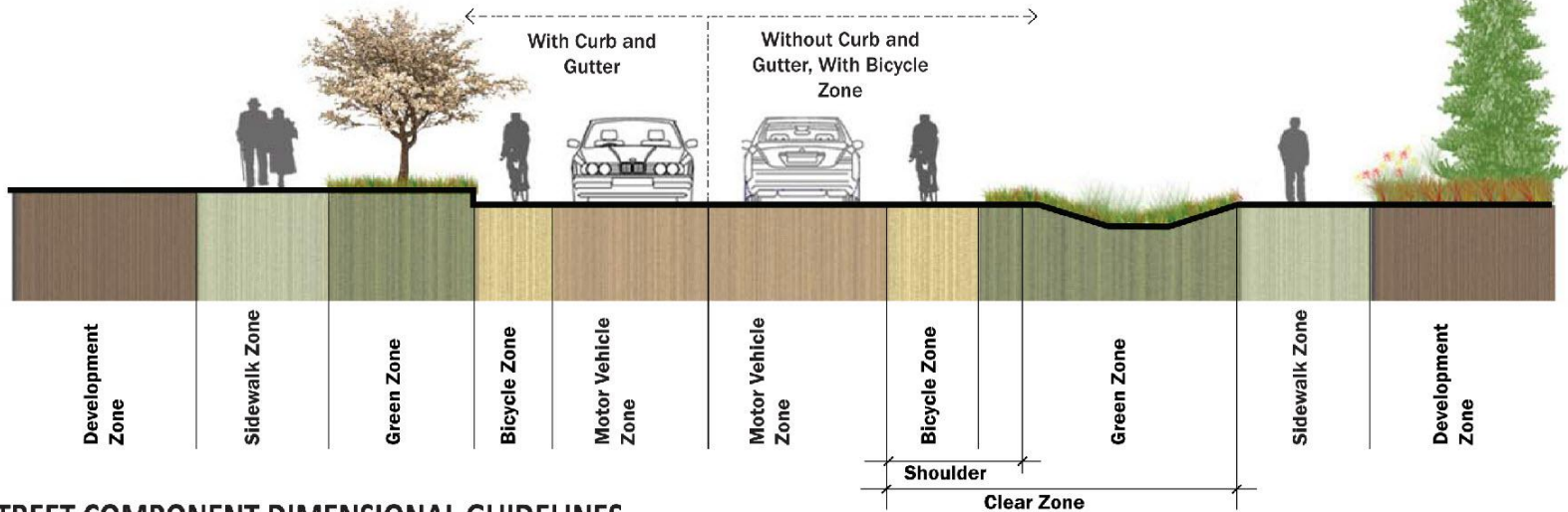


STREET CROSS - SECTION ZONES

- **Sidewalk Zone:** The pedestrian walk area is of sufficient width to allow pedestrians to walk safely and comfortably.
- **Green Zone:** The landscaped or hardscaped area along the edge of a street. On avenues this zone should include grass, landscaping, trees in planting strips or, in some cases, hardscaped amenity zones. Pedestrian or decorative lighting may be provided when appropriate for adjacent land uses.
- **Bicycle Zone:** Accommodation for bicyclists in a zone separate from the motor vehicle zone.
- **Motor Vehicle Zone:** The primary travel way for through vehicles. In a rural avenue without curb and gutter, the green zone would be relied on for drainage conveyance.
- **Development Zone:** Development should be orientated towards the street with good functional and visual connection to the street.

RURAL AVENUE

ILLUSTRATIVE STREET CROSS - SECTION



STREET COMPONENT DIMENSIONAL GUIDELINES

	Sidewalk Zone (feet)	Green Zone (feet)	Shoulder Zone (feet)	Bicycle Zone (feet)	Motor Vehicle Zone (lane width-feet)
Rural Village	6' - 8'	4' - 12' (see notes 2 and 3)	8' - 10'	4'-6' bicycle lanes (see notes 6 and 7)	10' - 12' lanes
Rural Developed	5' - 8'	4' - 12' (see notes 2 and 3)	8' - 10'	4'-6' bicycle lanes (see notes 6 and 7)	10' - 12' lanes

1. Sidewalk zone should typically be a minimum unobstructed width of 6'. In areas that are currently or are planned to be pedestrian-oriented or mixed-use development, 8' wide unobstructed sidewalks can be provided.
2. Green zone may include landscaping, street trees, lighting, street furniture, hardscaping in some circumstances and related pedestrian/bike/transit amenities. 8' minimum green zone is preferred, to allow for separation between pedestrians and vehicles, and space for street trees.
3. For areas outside of towns and communities, wider green zones of 10' to 12' are preferred where street trees are provided.
4. Parking is an option on avenues. Parking zone dimensions vary depending upon the type of parking provided. Angle parking will require a wider dimension than shown.
5. Bicycle lanes are the preferred treatment. If bicycle lanes are not possible, shared lanes may be allowed. For a shared lane, the outside lane should be a minimum of 14' wide. Sharrows can be used on streets < 35mph, with either shared lane or standard lane dimensions.
6. In the shared vehicle zone and the bicycle zone, the gutter pan is not considered part of the lane width or the bicycle lane width.
7. Bicycle lanes located next to on-street parking should be a minimum of 5' wide (generally, the combined dimension for parking and a bicycle lane should be at least 13' from the face of the curb).
8. Avenues may or may not include a center turn lane with intermittent landscaped islands. Avenues typically do not include a continuous median, but it may be allowed in some circumstances.
9. Pedestrian lighting should be considered adjacent to development.

RURAL BOULEVARD

PLAN VIEW



KEY ELEMENTS

- Most often functions as an arterial designed to carry vehicles at moderate speeds.
- Thoroughfare characterized by multiple lanes and including a street median.
- Wide sidewalks and on-street bicycle lanes are necessary to accommodate pedestrians and bicyclists due to higher speeds and higher traffic volumes for motor vehicles.
- Building setbacks will typically be deeper than on avenues.
- Transit stops and shelters may be located within the right of way, requiring connections to sidewalks.
- On-street parking is not required. It is allowed where appropriate, but rare due to the nature of the street.

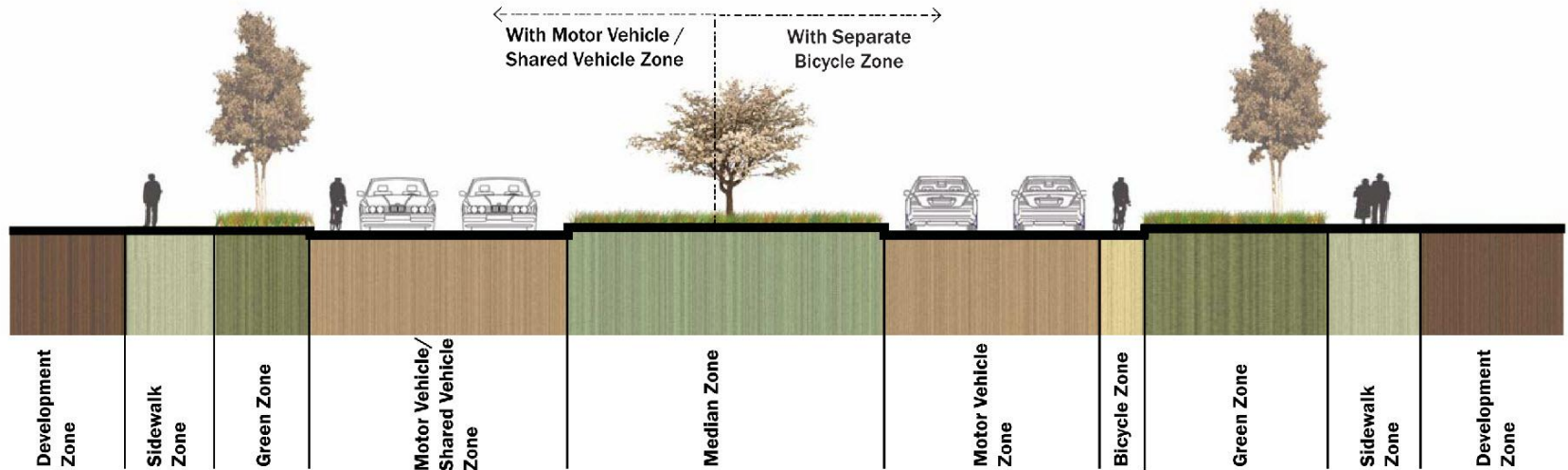


STREET CROSS - SECTION ZONES

- **Sidewalk Zone:** The pedestrian walk area is of sufficient width to allow pedestrians to walk safely and comfortably.
- **Green Zone:** This zone serves to separate the sidewalk from the vehicles. This zone contains landscaping and trees or, in some circumstances, hardscape treatments. The green zone may be wider if providing an intermittent parking / transit zone.
- **Bicycle Zone:** Accommodation for bicyclists either in a separate zone or within the shared vehicle zone.
- **Motor Vehicle/Shared Vehicle Zone:** The primary travel way for through vehicles. A shared vehicle zone has mixed traffic (cars, trucks, buses and bicycles).
- **Median Zone:** A landscaped zone located between the travel lanes as a center median. Median zones should consider provision of turn bays at intersections. The median zone may include hardscaping at pedestrian crossings.
- **Development Zone:** Building setbacks vary, but are typically deeper than avenues. Building frontage may not always be directed to the street, but physical connections to the street from building entrances are important.

RURAL BOULEVARD

ILLUSTRATIVE STREET CROSS - SECTION



STREET COMPONENT DIMENSIONAL GUIDELINES

	Sidewalk Zone (feet)	Green Zone (feet)	Motor Vehicle/ Shared Vehicle Zone (lane width- feet)	Median Zone (feet)	Bicycle Zone (feet)
Rural Village / Rural Developed	6' - 8'	6' - 10' (see notes 2 and 3)	10' - 12'	17' 6" - 30'	4' - 6' bicycle lanes (see note 4)

1. Sidewalk zone should typically be a minimum unobstructed width of 6'. In areas that are currently or are planned to be pedestrian-oriented or mixed use development, 8' wide unobstructed sidewalks can be provided.
2. Green zone may include landscaping, street trees, lighting, street furniture, and related pedestrian/bike/transit amenities. 8' minimum green zone is preferred, to allow for separation between pedestrians and vehicles, and space for street trees. Green zone may be wider if providing intermittent parking / transit stop zone. Parking/transit stop zone is rare, but allowed where appropriate.
3. Bicycle lanes are the preferred treatment. If bicycle lanes are not possible, shared lanes may be allowed. For a shared lane, the outside lane should be a minimum of 14' wide. Sharrow can be used on streets < 35 mph, with either shared lane or standard lane dimensions.
4. The gutter pan is not considered part of the bicycle lane width. Bicycle lanes located next to parking should be a minimum of 5' wide.
5. The gutter pan is not considered part of the motor vehicle lane width, in most circumstances.
6. Median zone requirements vary depending upon appropriate treatment (hardscape, landscape, drainage, curb and gutter, or street trees). Though the width may vary, the median will typically be between 17'-6" - 30', to allow for a turn lane and pedestrian refuge at intersections.
7. Continuous two-way left turn lanes are not permitted on a boulevard.

Local Street Residential



Intersections



Structures



What does the implementation of complete streets mean to NCDOT?

- Complete streets guidelines provide effective direction with maximum flexibility to NCDOT and its partners to implement complete streets
- Complete streets will affect all streets (interstates, and freeways/expressways are not considered streets) (complete streets will only affect these types of facilities at their intersection with streets)

What does the implementation of complete streets mean to NCDOT?

- Complete streets features may be considered on NCDOT improvements if they are part of a local regional plan
- Complete streets features may be included in maintenance and construction projects when requested and where the division engineer determines they can be included in the original scope of the project
- If improvements are not possible now, a separate project may need to be considered as a new or future request

What does the implementation of complete streets mean to NCDOT?

- Complete streets are funded in the same manner as other NCDOT infrastructure improvements
- NCDOT is seeking partners and effective ways to mutually fund, implement and operate each complete street project

Key Issues for NCDOT to Address as Policy and Guideline Implementation moves Forward

- Need to give stakeholders the opportunity to provide input on the guidelines
- Need staff support with flexibility in application of the concepts and the enhanced importance of local participation in:
 - land use and infrastructure improvements
 - early communication, coordination, collaboration and win-win decisions
- Moving beyond the complete streets planning and design guidelines and moving toward implementation and policy updates relative to project funding, maintenance, cost sharing and project prioritization

Final Observations

- Complete Streets policy further reinforces NCDOT's desire to encourage/support walking, biking and transit use
- Issues remain with the effective development and coordination of local land use and transportation plans to best promote development and use of alternate modes for travel

Concepts to Discuss Locally

Bike lanes on thoroughfares

Bike Lanes are not needed on local streets

Sidewalks on both sides of local streets

6 foot wide sidewalks on thoroughfares


5 foot wide sidewalks on local streets

Planting strips wide enough to plant street trees




North Carolina's Complete Streets Web Page

<http://www.nccompletestreets.org>



North Carolina **complete**streets

[Home](#) [What are Complete Streets?](#) [Background and Purpose of the Guidelines](#) [Complete Streets Policy](#) [Links](#)



The N.C. Department of Transportation adopted a "Complete Streets" policy in July 2009. The policy directs the Department to consider and incorporate several modes of transportation when building new projects or making improvements to existing infrastructure.


[stakeholder interview results](#)

[advisory group members](#)

Hillsborough Street in Raleigh
Source: Center for Transportation and the Environment

Under the new policy, the Department will collaborate with cities, towns and communities during the planning and design phases of projects. Together, they will decide how to provide the transportation options needed to serve the community and complement the context of the area.


We are developing planning and design guidelines to support this policy. These planning and design guidelines will not only be distributed throughout the Department, but also to local governments to aid as they work with us to create Complete Streets in their communities.



Colony Road in Charlotte
Source: www.thestar.com

The benefits of this new approach include:

- Making it easier for travelers to get where they need to go;
- Encouraging the use of alternative forms of transportation;
- Building more sustainable communities;
- Increasing connectivity between neighborhoods, streets, and transit systems;
- Improving safety for pedestrians, cyclists, and motorists.



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Complete Street Planning and Design Guideline Schedule

- Chapters 1 – 4 to posted for review by stakeholders
June 2011 (60 day comment period)
- Chapters 1 – 7 NCDOT posted for review by
stakeholders late summer 2011
(new comment period)
- Summer 2011 develop basic complete streets planning
and design training
- Complete guidelines in 2011 and training sessions
begin in spring 2012

Implementation of Complete Streets



Delivering a program that builds on current initiatives, creates trust, partnerships, and is embraced by the community, leadership and governmental staff.

Complete Streets

NCDOT becoming more than just a **Highway**
Department



Complete Streets – Co-Chairs

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Marsha Kaiser, AICP, Project Manager, Parsons Brinckerhoff
Experience with Contextually Complete Streets



Questions ?

North Carolina DOT
complete streets

