



North Carolina DOT
completestreets

Complete Streets Workshop

Willis Building | Greenville
Friday, October 5, 2012



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NCDOT Complete Streets Video





North Carolina DOT
complete streets

Workshop Overview



Carol Kachadoorian and Vivian Coleman
Toole Design Group

Libby Thomas and Dan Gelinne
Highway Safety Research Center

Workshop Overview

- ❖ Purpose
 - Tell North Carolina Complete Streets story
 - Begin implementation
 - Promote two-day training course in 2013
- ❖ Who's here today?



Other items

- ❖ Handouts
- ❖ Complete Streets project map
- ❖ Map of workshop participants



Workshop Overview

- ❖ What do you hear about Complete Streets?
- ❖ Did you look at the guidelines?
- ❖ Done projects using a complete streets approach?
- ❖ Don't know about complete streets?



Agenda

- ❖ Morning
 - Complete Streets in North Carolina
 - User experience
 - Implementation
- ❖ Lunchtime
 - Walkabout
- ❖ Afternoon
 - Joint Action Plan



Help get the most out of today



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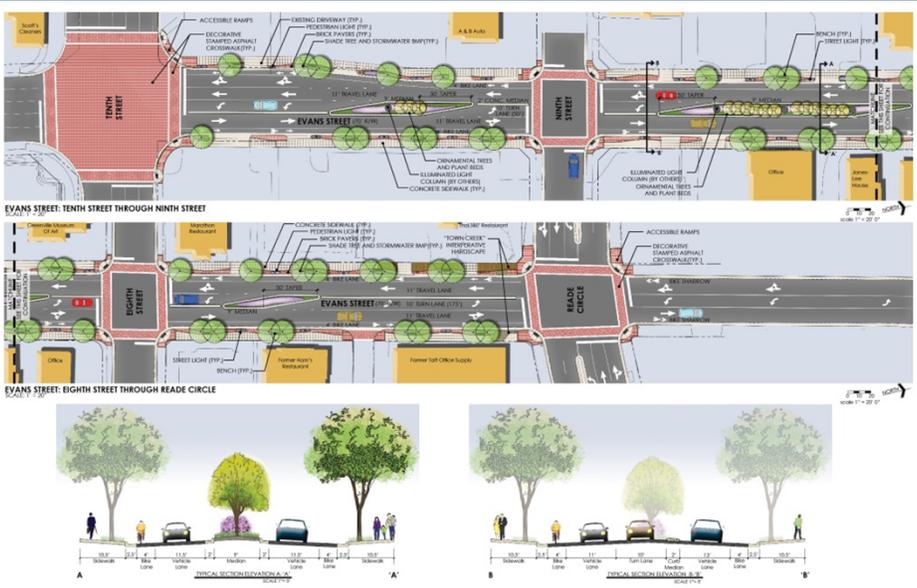
Are you ready to begin?





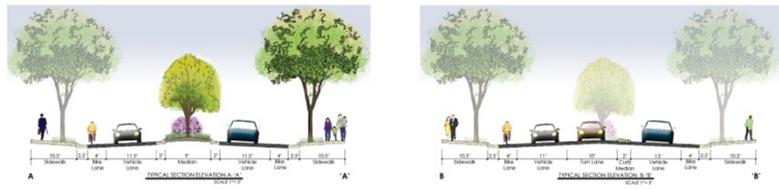
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Panel Discussion



EVANS STREET: TENTH STREET THROUGH NINTH STREET

EVANS STREET: EIGHTH STREET THROUGH READE CIRCLE



Evans Street Gateway Project
City of Greenville, North Carolina
Schematic Design: September 2011



Panel discussion

Evans Street Gateway Project, Greenville

- ❖ Economic Development goals
 - Support existing and anticipated redevelopment
 - Create gateway
- ❖ Community's Transportation goals
 - Calm traffic
 - Increase walkability and bikeability

Timeline

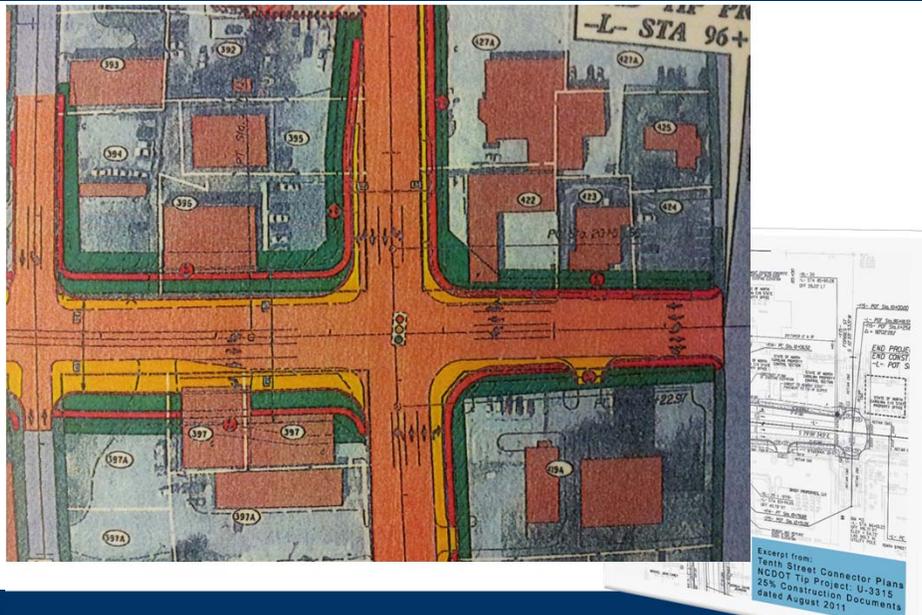
- ❖ Strategic Economic Development Plan
- ❖ Redevelopment Plan
- ❖ 2006 Streetscape plan
- ❖ 2009 – 2035 Long Range Transportation Plan
- ❖ Early 2011 Bicycle and Pedestrian Plan
- ❖ Fall 2011 City Council-approved Evans Street Corridor concept

Overlapping projects, changing needs

- ❖ NCDOT: 10th Street Overpass
- ❖ Greenville: Evans Street Gateway

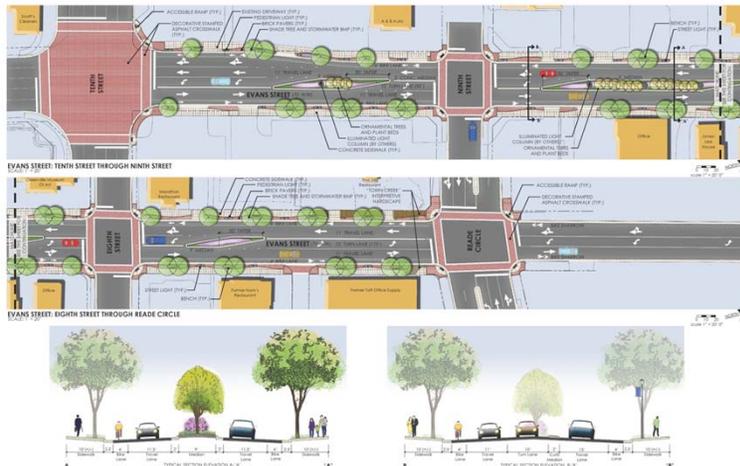
- ❖ 10th Street Overpass project planning began in early 2000s
- ❖ Downtown area changed during past decade

NCDOT's Plans, August 2011





Greenville's Concept, September 2011



Evans Street Gateway Project
City of Greenville, North Carolina
Schematic Design: September 2011



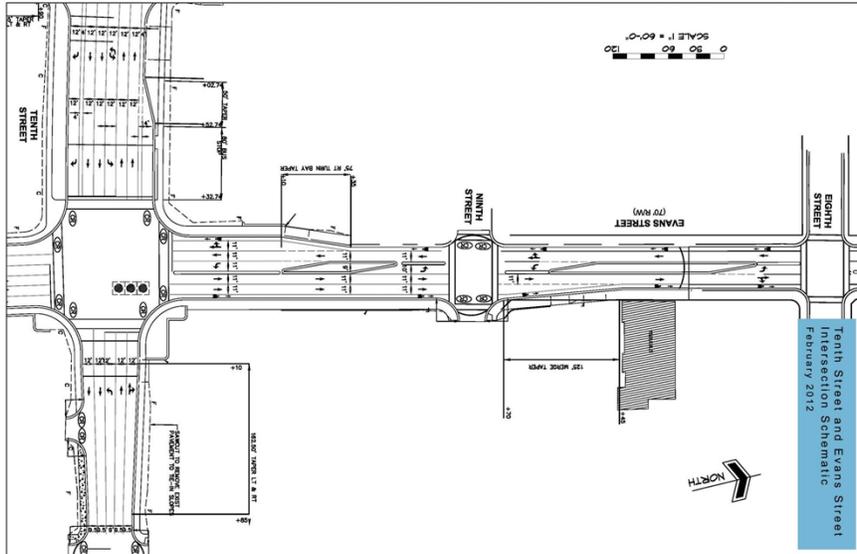
Bus stops



Timeline

- ❖ March 2012 Joint NCDOT – Greenville consensus
- ❖ Evans Street Gateway project status:
 - Final design and construction documents late 2013
 - Bid phase early 2013

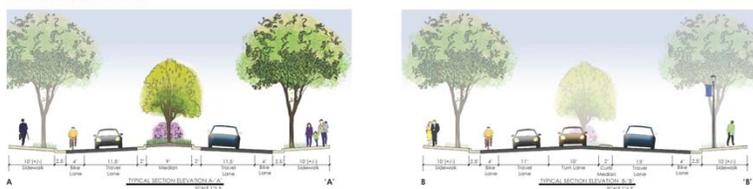
Outcome of Joint Meeting February 2012



Panel discussion

❖ Panelists:

- Rik DiCesare, Greenville Traffic Engineer
- Durk Tyson, Rivers Associates
- Steve Hamilton, NCDOT Division 2 Traffic Engineer
- Jay Bennett, State Traffic Engineer

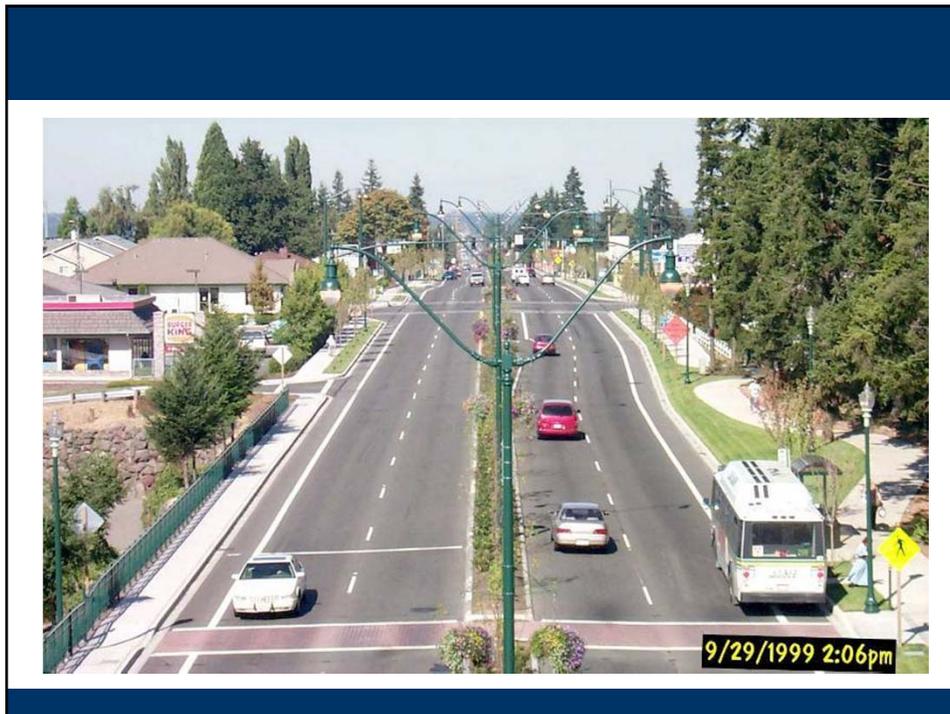
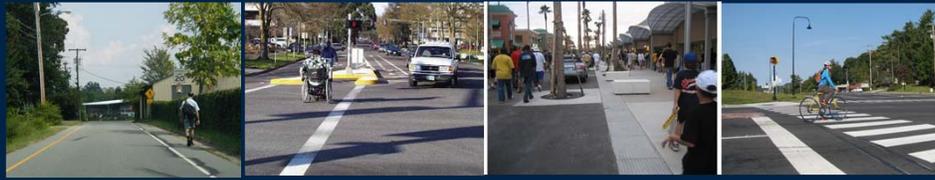


CK15



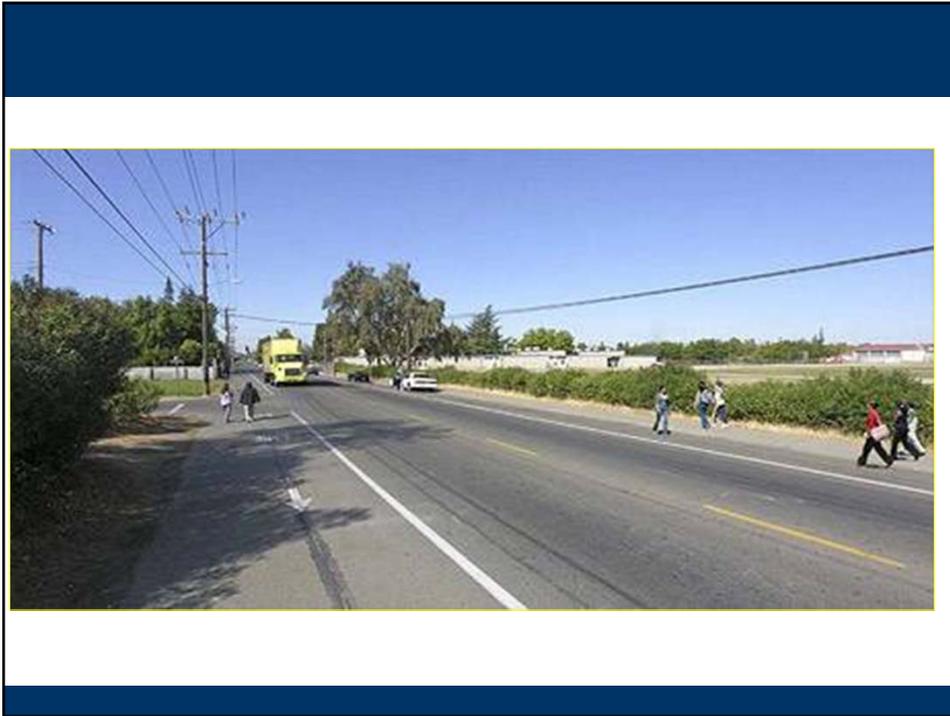
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Complete Streets in 15 minutes or less



Slide 23

CK15 run through these good-bad comparison slides very quickly.
Carol Kachadoorian, 9/21/2012





Complete Streets in 15 minutes or less

❖ **What: NCDOT definition**

Complete Streets in 15 minutes or less

- ❖ What: NCDOT definition
- ❖ **Why: Benefits of Complete Streets**

Complete Streets in 15 minutes or less

- ❖ What: NCDOT definition
- ❖ Why: Benefits of Complete Streets
- ❖ **How:**
 - **Policy**
 - **Design guidelines**
 - **Decision-making process**
 - **Knowledge**
 - **Measures and Evaluation**

Complete Streets in 15 minutes or less

- ❖ What: NCDOT definition
- ❖ Why: Benefits of Complete Streets
- ❖ How: Policy, design guidelines, decision-making process, knowledge, measures and evaluation
- ❖ **Locally relevant case study examples from other states**
 - E.g., road diet with evaluation from
 - DC economic development benefit



What is Complete Streets?

What is Complete Streets?

A policy, set of planning and design guidelines, and method of doing business that ensures “interdependent, multi-modal transportation networks that safely accommodate access and travel for all users.”

-- NCDOT CS policy definition from the CS Design and Planning Guidelines

What is Complete Streets

- ❖ Incorporate into normal processes
 - With some differences
- ❖ Process for new projects, existing projects and maintenance projects

Project decision points

- ❖ New projects
 - Work for a shared solution for any transportation facility
 - Early in the process

Project decision points

- ❖ Existing projects
 - Treat as new project if before 'design public hearing stage'
 - Joint project feasibility review if listed in NCDOT 10-year work program

Project decision points

❖ Maintenance projects

- NCDOT to provide list to localities
- Provide opportunity to review scope of maintenance and operations projects
- Locality identifies Complete Streets features to incorporate, e.g., bike lane striping

→ More in afternoon

What is Complete Streets?

Significant change in street design approach

- From moving cars to moving people
- Transportation is an element of community-building



What is Complete Streets

Significant change in street design approach

- Provide transportation options
- Meet travel needs of large cities and small towns



What is Complete Streets

Significant change in street design approach

- ❖ NCDOT – local collaboration
- ❖ Builds on local land use plan



Take away messages:

- ❖ NCDOT's Complete Streets policy applies to all NCDOT-maintained street projects (except where pedestrians and bicyclists are prohibited by law)
- ❖ NCDOT intends to collaborate with local governments to develop transportation visions on State roadways
- ❖ No new funding; but funding needs to be resolved over time.



Why does North Carolina have a Complete Streets policy?

Why Complete Streets?

“Connecting people and places, safely and efficiently, with accountability and environmental sensitivity, to enhance the economy, health, and well-being of North Carolina.”



Why Complete Streets?

Goals

- ❖ To establish transportation choices
- ❖ Support economic development goals
- ❖ Support public health goals
- ❖ Support local community-building
- ❖ Support air quality goals



Why Complete Streets?

For the outcome

- ❖ Sustainable and livable communities
- ❖ Transportation choices that accommodate needs
- ❖ New type of DOT-local government partnership
- ❖ Locally-specific complete streets solutions
- ❖ Complements land use

Why Complete Streets?

For the outcome

- ❖ Sustainable and livable communities
- ❖ Transportation choices that accommodate needs
- ❖ **New type of DOT-local government partnership**
- ❖ Locally-specific complete streets solutions
- ❖ Complements land development

Why Complete Streets?

- ❖ Addresses safety needs
- ❖ North Carolina safety statistics
 - 2,454 pedestrians hit in 2010 (172 killed)
 - 941 bicyclists hit in 2010 (20 killed)



John Kirk Intersection, Newsome

Why Complete Streets?

Complete Streets toolkit includes:

- ❖ Sidewalks of sufficient width and with buffers
- ❖ Wide, maintained shoulders for walking and biking in rural areas
- ❖ Road diets where appropriate to lower speeds, reduce crashes and injuries
- ❖ Operational changes to increase pedestrian visibility

Complete Streets Toolkit examples

Countermeasure	Measure of Effectiveness (MOE)	Crash Reduction Factor (CRF)
Leading Pedestrian Interval (LPI)	High	5%
Pedestrian countdown signals	High	25%
In-street pedestrian signs	High	15%
Activated flashing beacons	High	15%
Rectangular rapid flash beacons	High	80-88%
Advance yield markings	High	NA
“Yield Here to Pedestrians” signs	High	15%
“No Turn on Red” signs	Moderate	10%
Prohibitions on permissive left turn	Moderate	70-80%
High visibility crosswalks	Low	20 to 29%
“Pedestrian Zone” signs	Low	15%
Sidewalks	High	88%
Paved shoulders	High	70%

CK3

Why Complete Streets?

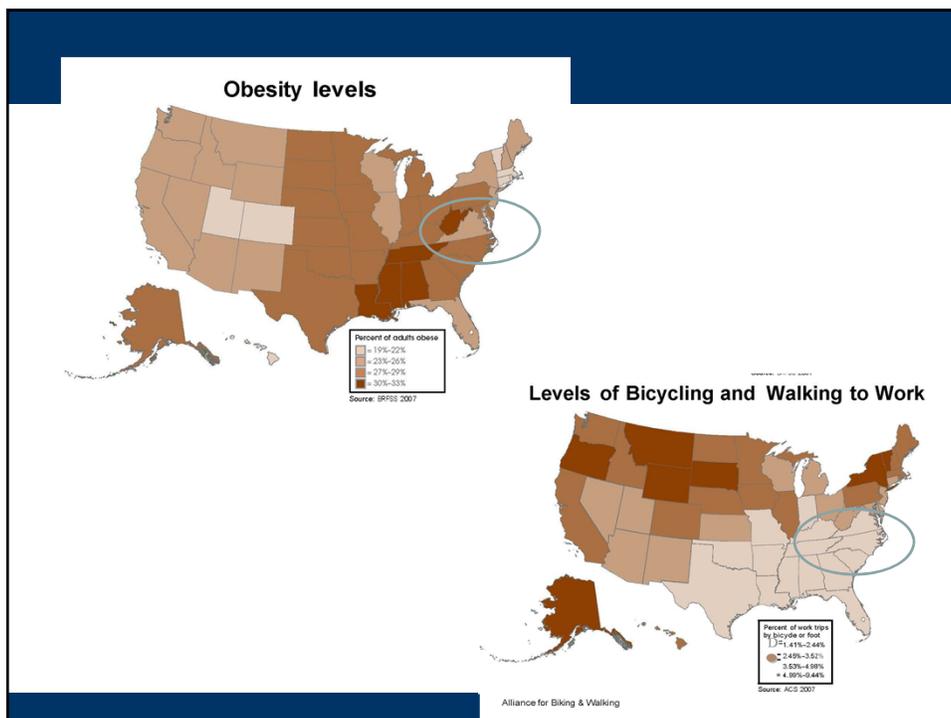
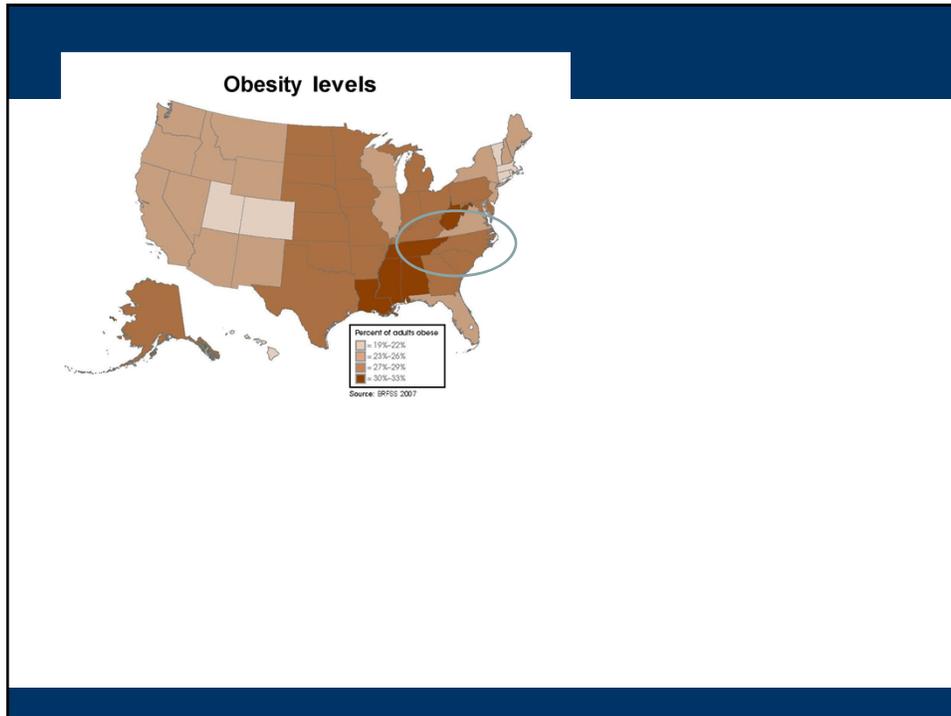
- ❖ Contributes to public health goals
 - 100 recent studies show obesity-automobile dependence connection
 - 2009 CDC recommended complete streets policy adoption to fight against obesity

Public Health in 50 States

State	% population overweight(1)	% population obese	% adults w/ 30+ min physical activity	% adults ever told have diabetes	% adults ever told have asthma	% adults ever told have hypertension
New Jersey	62%	24%	48%	9%	8%	28%
New Mexico	61%	25%	53%	8%	9%	26%
New York	62%	26%	49%	8%	9%	27%
North Carolina	65%	29%	44%	9%	8%	29%
North Dakota	65%	27%	53%	6%	8%	26%
Ohio	63%	28%	50%	10%	9%	28%
Oklahoma	65%	29%	46%	10%	9%	32%
Oregon	62%	26%	56%	7%	10%	27%
Pennsylvania	63%	28%	50%	9%	9%	28%

Slide 50

CK3 not sure if we need this slide
Carol Kachadoorian, 9/14/2012



1996 Summer Olympic Games banned single occupant cars in downtown Atlanta



Results of the ban

- ❖ Morning traffic – ↓ 23%
- ❖ Peak ozone – ↓ 28%
- ❖ Asthma-related events for kids – ↓ 42%

(Journal of the American Medical Association [JAMA], 2001)

Safe Routes to School health lessons

1969

48% of kids walked or biked to school*

89% within 1 mile of school walked or biked**

2009

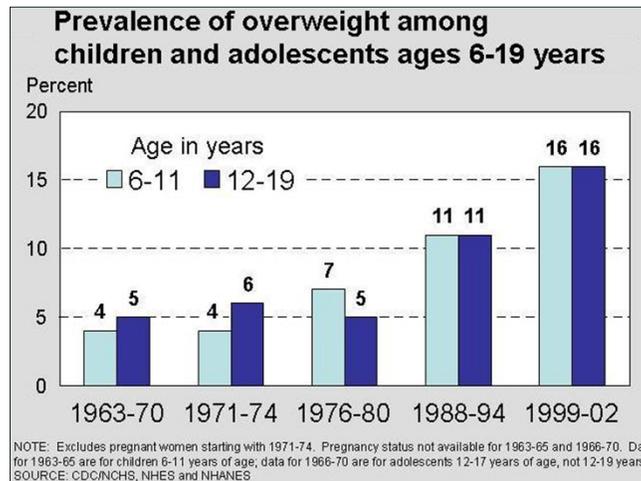
13% of kids walked or biked to school*

35% within 1 mile of school walked or biked**



*Ages 5 to 14
** grades K to 8

U.S. youth overweight rates



(National Center for Health Statistics)

As a result

Today's children may be the first generation to have a shorter life expectancy than their parents have.



CK5

Why Complete Streets?

- ❖ Contributes to economic vitality and quality of life

Slide 58

CK5 may keep this because we have a good case study. is there one from north carolina? for examle, in charlotte or in asheville?

Carol Kachadoorian, 9/18/2012

Example: Washington DC (Barracks Row)



- ❖ \$8 million public investment in streetscape improvement 2003-2004

- ❖ \$8 million in private investment in next 2 years



- ❖ 32 new business establishments

- ❖ \$80,000 in sales tax annually

Hillsborough Street, Raleigh



Hillsborough Street BID

- ❖ Over 20 new or renovated businesses
- ❖ \$250+ million proposed, under construction or completed (\$270+ sites just outside the BID)
- ❖ Foot traffic up noticeably
- ❖ Nearly all merchants report improved sales
- ❖ 28%+ food and beverage sales tax revenue increase

Hillsborough Street, Raleigh



Hillsborough Street BID

- ❖ Learning lab - 25 interns from a wide range of academic backgrounds
- ❖ Interactive website with business directory, calendar of events, mapping, transportation and parking information, etc.
- ❖ BID sponsored and cosponsored events and activities on the street
- ❖ Beautification:
 - Hillsborough Street banners and hardware
 - 500 hours community service-trash pick up in nearby residences

Example: Boone





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Break

❖ Be back in 10 minutes



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How is Complete Streets
implemented?



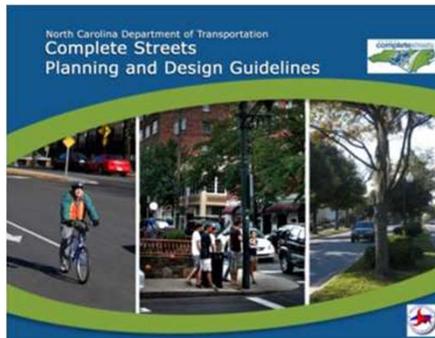
Implementing Complete Streets

Policy -- CS policy adopted in July 2009

Implementing Complete Streets

Policy -- CS policy adopted in July 2009

Planning and Design Guidelines -- June 2012



Implementing Complete Streets

Planning and design guidelines address:

- ❖ Planning
- ❖ Project scoping
- ❖ Project design

Implementing requires adapting current practices (more this afternoon)

Implementing Complete Streets

Policy -- CS policy adopted in July 2009

Design guidelines -- June 2012

**Staff Knowledge – Fall 2012 workshops;
2013 two-day training courses**

Learn more about Complete Streets in North Carolina.

The North Carolina Department of Transportation is offering three one-day workshops to four North Carolina communities to describe a process for training practitioners and implementing its Complete Streets Policy.



Complete streets are a great way for communities to respond to concerns about safety and provide an efficient transportation system that supports economic development. NCDOT adopted the Complete Streets Policy in 2009 to encourage municipalities and counties to design and build roads that are friendly and accessible to all road users, including pedestrians, transit users, bicyclists, and others. The Complete Streets Planning and Design Guidelines were completed in July 2012 to provide direction for the design and construction of complete streets in North Carolina. Please go to <http://dot.nc.gov/completestreets> to find the final version of the design guidelines.

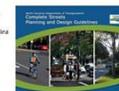
WHO SHOULD ATTEND: State and local government leaders and elected officials, as well as NCDOT decision-makers and managers are strongly encouraged to attend. Workshop participants will be asked to return to their agencies and ask practitioners, such as engineers and planners, to register for one in a series of multi-day training events in 2013.

WORKSHOP PURPOSE & AGENDA: These one-day interactive workshops will explain the purpose of NCDOT's Complete Streets Policy and outline the steps to help communities and agencies use the Complete Streets Planning and Design Guidelines. The workshop will include:

- Overview about the Complete Streets approach, including challenges and benefits to implementation
- Examples of successful Complete Streets projects around North Carolina
- Information on future training opportunities and useful resources

DATES & LOCATIONS: So far, three workshops have been scheduled:

- Thursday, September 27, 2012 in Boone, NC
- Friday, October 5, 2012 in Greenville, NC
- Thursday, October 18, 2012 in Salisbury, NC
- Friday, November 2, 2012 in Morehead City, NC



Sign in begins at 8:30 am and workshops will run from 9:00am to 3:00pm. Refreshments and lunch will be provided.

Implementing Complete Streets

Policy -- CS policy adopted in July 2009

Design guidelines -- June 2012

Staff Knowledge – Fall 2012 workshops;
2013 courses

Revised decision-making processes

- ❖ **project scoping**
- ❖ **development review**
- ❖ **public participation**
- ❖ **maintenance projects**
- ❖ **project approval**

Implementing Complete Streets

Policy -- CS policy adopted in July 2009

Design guidelines -- June 2012

Staff Knowledge – Fall 2012 workshops;
2013 courses

Decision-making processes - project
scoping, development, public participation,
approval

**Measures and Evaluation – showing the
impact**

Implementing Complete Streets

What to measure and when?

1 st steps →	Output →	Outcomes
<ul style="list-style-type: none"> ▪ Set departmental performance goals ▪ Develop employee performance plans ▪ Attend training ▪ Collaborate with localities 	<ul style="list-style-type: none"> ▪ Miles of new sidewalk ▪ Miles of new bicycle lanes ▪ Number of pedestrian signals 	<ul style="list-style-type: none"> ▪ Increases walking and biking rates ▪ Fewer crashes ▪ Increases in local sales tax ▪ Fewer emergency room visits for asthma, etc.

NCDOT's Implementation Approach



Clanton Bridge bike lane

NCDOT's Implementation Approach

- ❖ **Collaborate** with cities, towns, and communities to ensure a shared Complete Streets transportation vision.
- ❖ Use **shared long-range planning** to meet Complete Street goals.
- ❖ Capture **short-term opportunities** through maintenance projects.

NCDOT's Implementation Approach

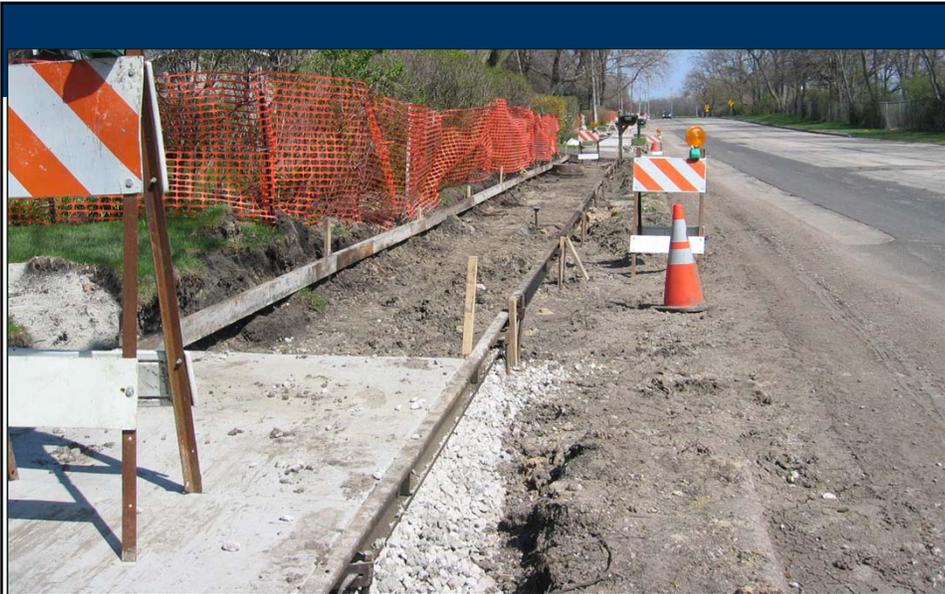
- ❖ **Collaborate with cities, towns, and communities to ensure a shared CS transportation vision.**
 - **Pedestrian, bicycle and transit options**
 - **Integral part of vision, shaped by local land use plans**
- ❖ Use shared long-range planning to meet CS goals.
- ❖ Capture short-term opportunities through maintenance projects

NCDOT's Implementation Approach

- ❖ Collaborate with cities, towns, and communities to ensure a shared CS transportation vision.
- ❖ **Use shared long-range planning to meet CS goals.**
 - **optimize connectivity**
 - **network interdependence**
 - **context sensitive options**
 - **multimodal transportation choices**
- ❖ Capture short-term opportunities through maintenance projects.

NCDOT's Implementation Approach

- ❖ Collaborate with cities, towns, and communities to ensure a shared CS transportation vision.
- ❖ Use shared long-range planning to meet Complete Street goals.
- ❖ **Capture short-term opportunities through maintenance projects.**
 - **Road Diets and bike lanes with paving and re-striping**
 - **Sidewalk installation – piggyback with other public works, utilities projects**



Sidewalks added after fiber optic cable laid

Take away messages

- ❖ Collaborate on projects
- ❖ Joint transportation planning that is context sensitive
- ❖ Capture short term opportunities



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Implementation Matters

❖ **Balancing User Needs**



Implementation Matters

Defining criteria of project outcome includes engaging stakeholders and partners to learn their needs and goals.

Implementation Matters

- ❖ It matters to all people
- ❖ Includes average adult resident, local business owners, people under 18 and over 65, residents and visitors with disabilities, transit users, bicyclists



User Needs Panel

- ❖ Jennifer Smith
- ❖ Alice Keene
- ❖ Melissia Larson
- ❖ Bob Thompson
- ❖ Harry Stubs
- ❖ Transit user



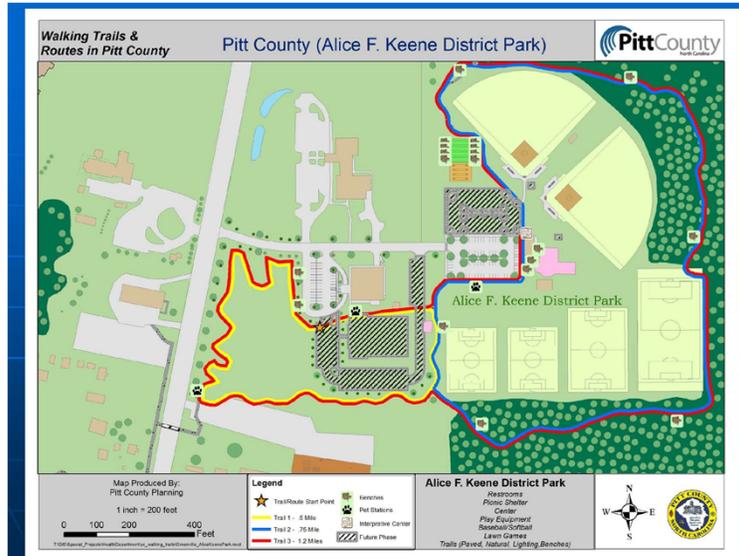
Community Connections



Community connections



Community Connections



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What do user needs tell us?

Typical problems for the users

- ❖ Emphasis on driving as the default travel mode.



Typical problems for the users

- ❖ Emphasis on driving as the default travel mode.
- ❖ Lack of a safe and comfortable walking or bicycling network.



Typical problems for the users

- ❖ Emphasis on driving as the default travel mode.
- ❖ Lack of a safe and comfortable walking or bicycling network.
- ❖ Transportation system and its ease of use affects. . .

Typical problems for the users

- ❖ Emphasis on driving as the default travel mode.
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- ❖ Transportation system and its ease of use affects **mode choice**

Typical problems for the users

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- ❖ Transportation system and its ease of use affects mode choice; **comfort and safety**

Typical problems for the users

- ❖ Emphasis on driving as the default travel mode.
- ❖ Lack of a safe and comfortable walking or bicycling network.
- ❖ Transportation system and its ease of use affects mode choice; comfort and safety; and **decisions on where to live, work, locate a business.**



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How are user needs addressed?



How are user needs addressed?

NCDOT's Responsibilities and Interests

- ❖ Maintain vehicular flow between corporate limits
- ❖ Accommodate local needs within corporate limits
- ❖ Ensure multi-modal accommodation throughout
- ❖ Plan, design, build and maintain projects cost-effectively
- ❖ Maximize private dollars for transportation infrastructure

How are user needs addressed?

NCDOT's Responsibilities and Interests

- ❖ Maintain vehicular flow between corporate limits
- ❖ Accommodate local needs within corporate limits
- ❖ Ensure multi-modal accommodation throughout
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- ❖ Maximize private dollars for transportation infrastructure

Locality's Responsibilities and Interests

- ❖ Maintain vehicular flow within corporate limits
- ❖ Offer safe & comfortable transportation choices for all users
- ❖ Plan, design, build and maintain projects cost-effectively
- ❖ Maximize private \$\$\$ for transportation infrastructure
- ❖ Ensure public participation and support for projects
- ❖ Satisfy local transportation and land use goals

How do you know what user needs are?

- ❖ Public input is key
- ❖ Changing ways to communication or do public outreach
 - People don't know when meetings are
 - Find out after the fact
 - Should not have to rely on advocates as proxies for good communication



Do you have a story to share?

Example Road Diets ~ Conversion

What does research tell us?



Erwin Road conversion, Durham

Example 2: Road Diet

What does research tell us?

When local conditions allow, road diets ~ conversions

- ❖ Reduce crashes in wide volume ranges
- ❖ Reduce injuries
- ❖ Reduce speeds
- ❖ Shorten pedestrian crossing distances

Road Diet ~ Conversion Example

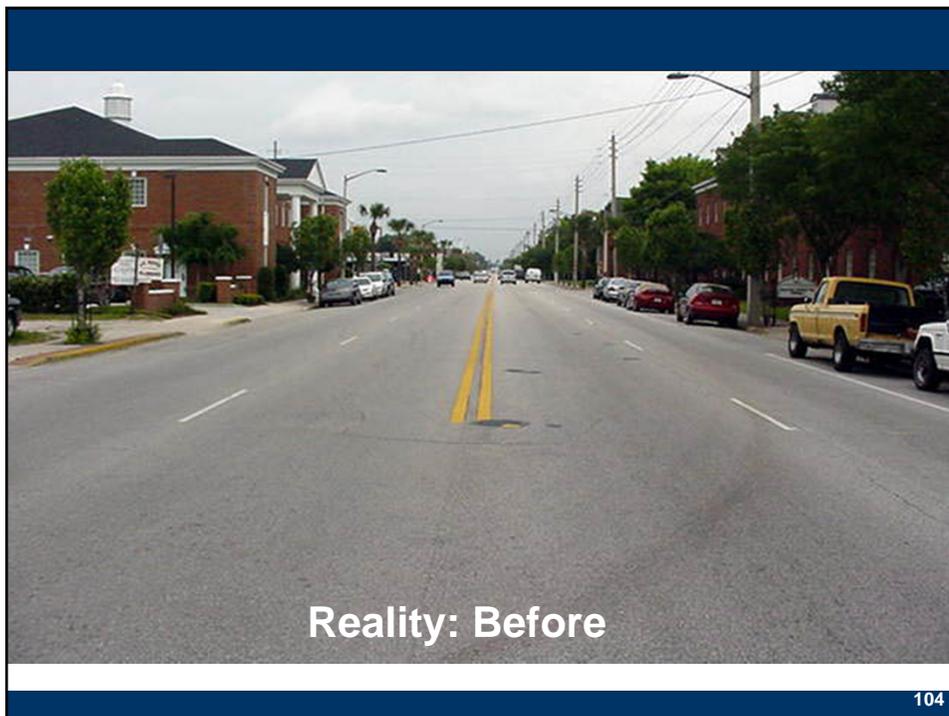
“A road diet will have a negative impact on motor vehicle travel and retail establishments. People will start using neighborhood streets instead.”



“A road diet will have a negligible impact on motor vehicle travel, increase pedestrian and bicycle use, and reduce crashes and injuries.”

Edgewater Drive (Orlando FL) Resurfacing Project

- ❖ Repaving project scheduled in FDOT 5-year work plan
- ❖ Changes must be accepted by neighborhood and business associations
- ❖ City must conduct before/after studies



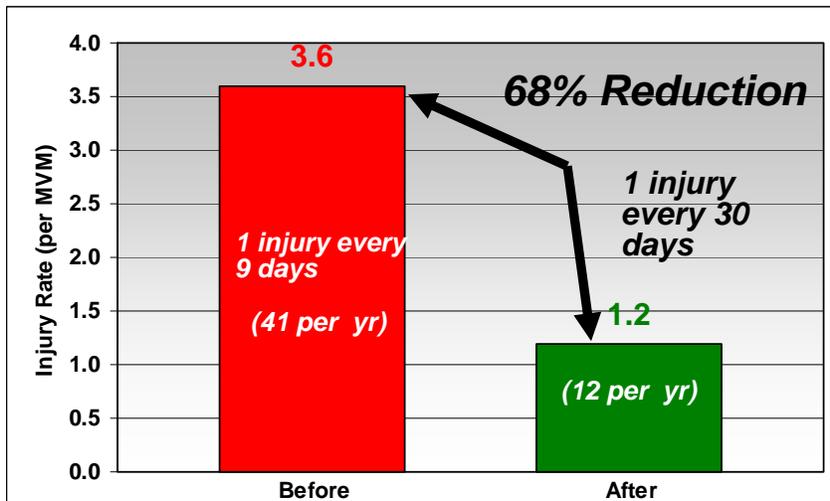


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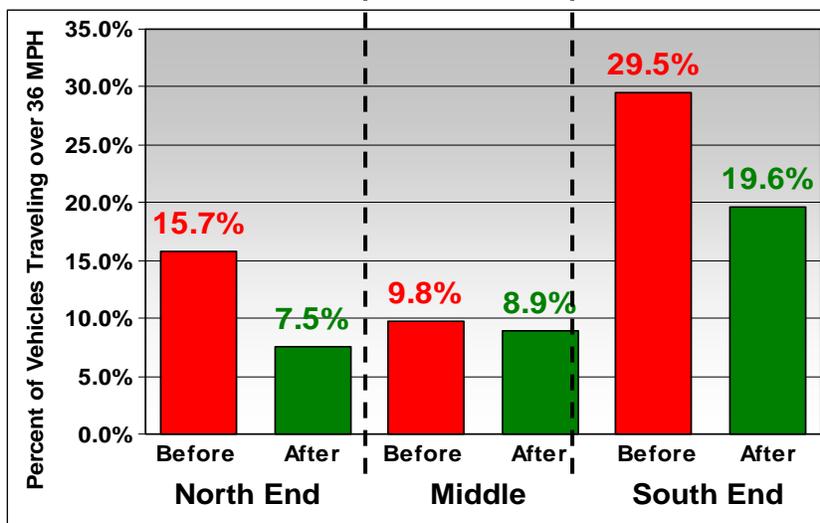


Injury rate

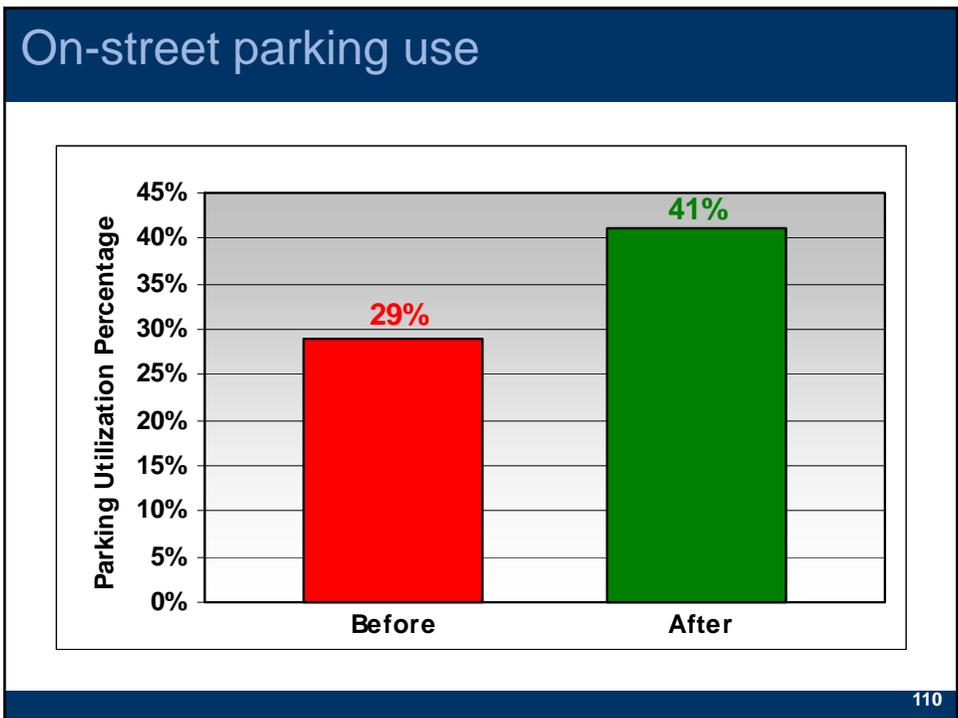
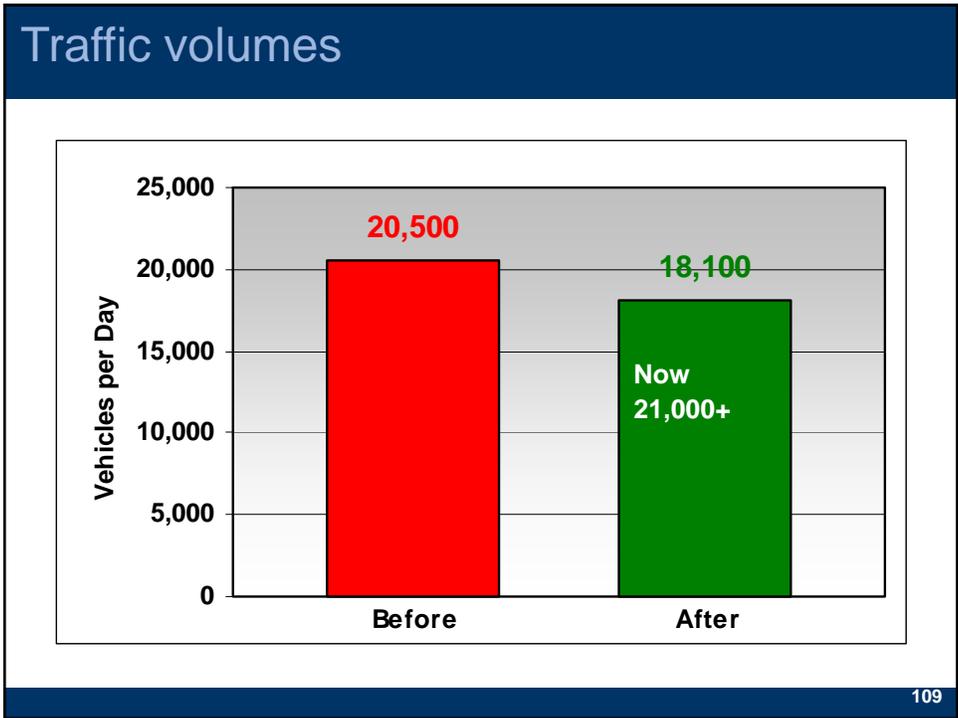


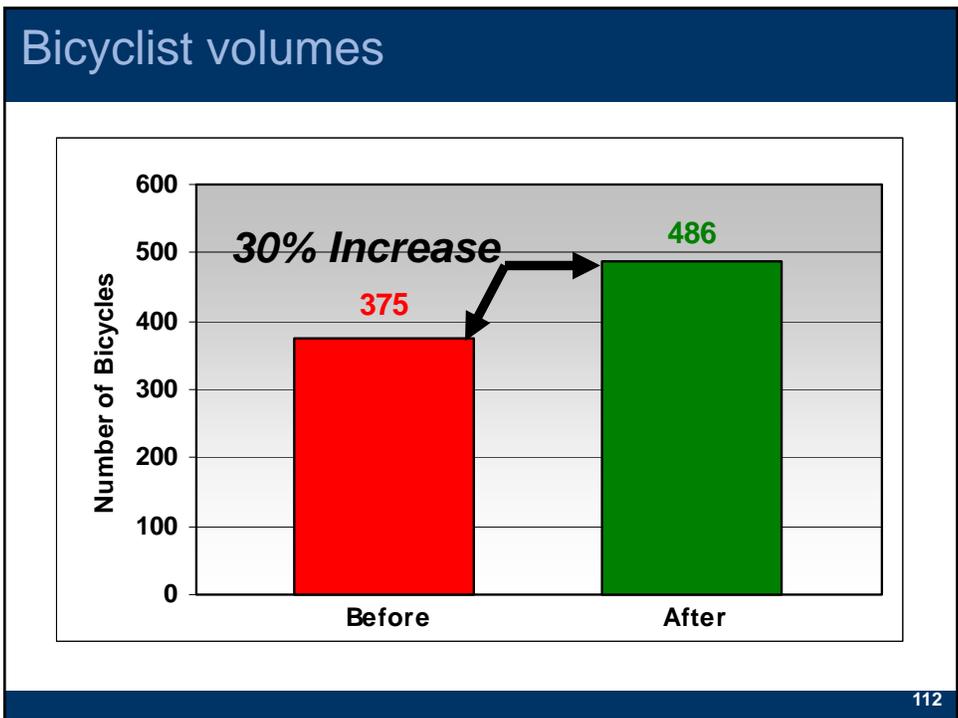
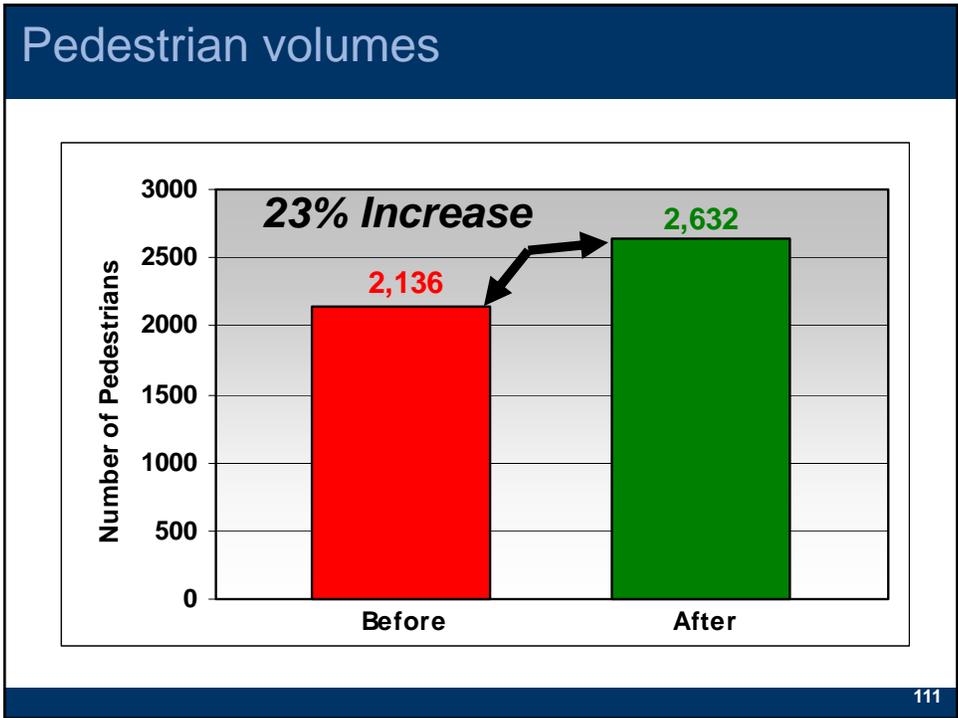
107

Speeding analysis



108







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What are your thoughts and questions?

❖ About implementing the policy and guidelines



What are your thoughts and questions



Overview of Guidelines



Overview of Guidelines

❖ Context for Complete Streets in North Carolina

- Preface, Chapter 1



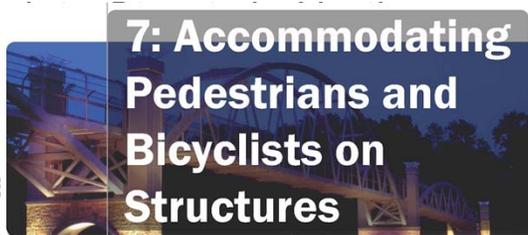
Overview of Guidelines

- ❖ Context for Complete Streets in North Carolina
 - Preface, Chapter 1
- ❖ **Planning and Design Context**
 - **Chapter 2, Chapter 3, Chapter 4**



Overview of Guidelines

- ❖ Context for Complete Streets in North Carolina
 - Preface, Chapter 1
- ❖ **Planning and Design Context**
 - **Chapter 2, Chapter 3, Chapter 4**
- ❖ **Planning and Design Details**
 - **Chapter 5, Chapter 6, Chapter 7, Chapter 9**



Overview of Guidelines

- ❖ Context for Complete Streets in North Carolina

- Preface, Chapter 1

- ❖ Planning and Design

- Chapter 2, Chapter 3

- ❖ Planning and Design

- Chapter 5, Chapter 6

- ❖ **Other considerations**

- **Chapter 8, Chapter 9**



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Break for lunch

❖ **Get lunch and settle in at your table by 11:30**





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Field visit

❖ Between 12:00 and 1:00



Field visit

Purpose:

- ❖ See roadway from different perspectives
- ❖ Reinforce the messages from earlier in the workshop
- ❖ Bridge user needs to implementation

Field Visit: 1st Street Conversion



Field Visit

Step 1: View the right of way from the perspective of several users:

- ❖ Motorist
- ❖ Pedestrian
- ❖ Bicyclist
- ❖ Bus rider
- ❖ Person with Disability
- ❖ Under 18
- ❖ Over 65

Field Visit

Step 1: View the right of way from the perspective of several users:

- ❖ Motorist
 - ❖ Pedestrian
 - ❖ Bicyclist
 - ❖ Bus rider
 - ❖ Person with Disability
 - ❖ Under 18
 - ❖ Over 65
- 
- ❖ Resident
 - ❖ Business Owner
 - ❖ Employee
 - ❖ Customer
 - ❖ Property Owner

Field Visit

Step 2:

- ❖ Consider an action plan for addressing unmet user needs
- ❖ In doing so, how would you change procedures and decisions made in your office?
- ❖ Action plan



North Carolina DOT
complete streets

Afternoon Sessions

❖ Begins at 1:00



Walkabout de-brief

- ❖ What did you observe?
 - Context
 - Land use
 - User needs?
- ❖ Potential for safety, connectivity, complete a network link, economic vitality, institutional, recreational, or other street uses for one or more modes?
- ❖ Issues with balancing user needs for this street?

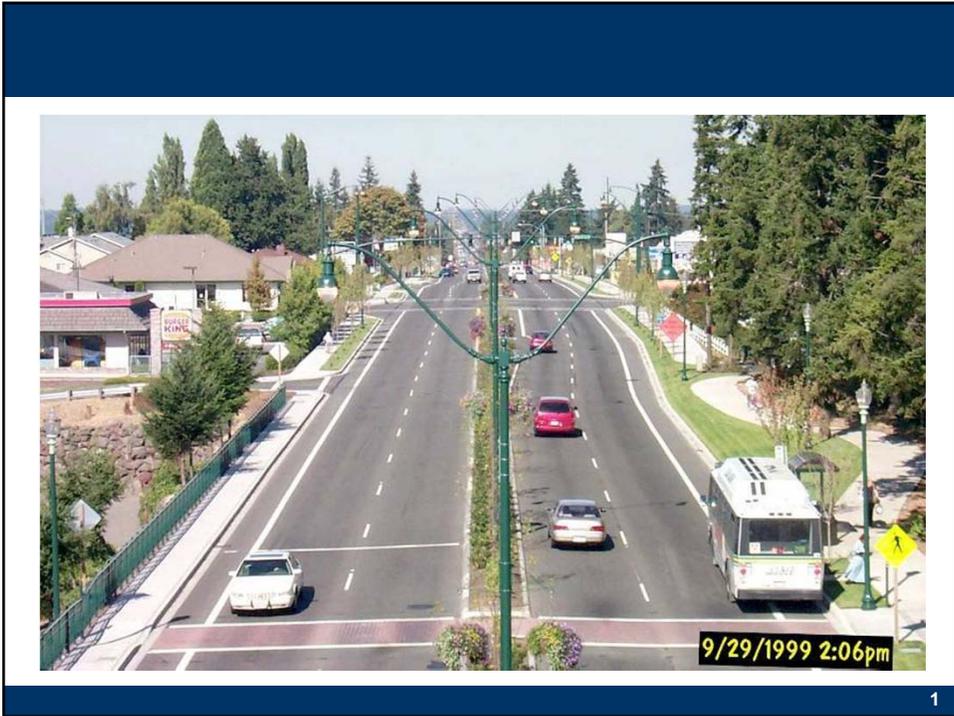
Action Plan	
1a.	Visioning and Designing
1b.	Planning and Design Process
1c.	Maintenance and Operations
2.	Communicating Complete Streets to your staff
3.	Preparing your staff to incorporate Completes Streets in projects



North Carolina DOT
complete streets

**Visioning and designing
complete streets**





Gridley, California

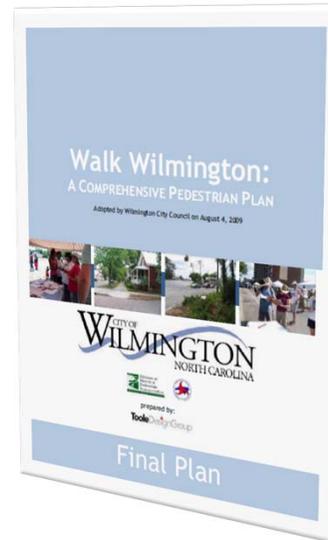




NCDOT Transportation Planning

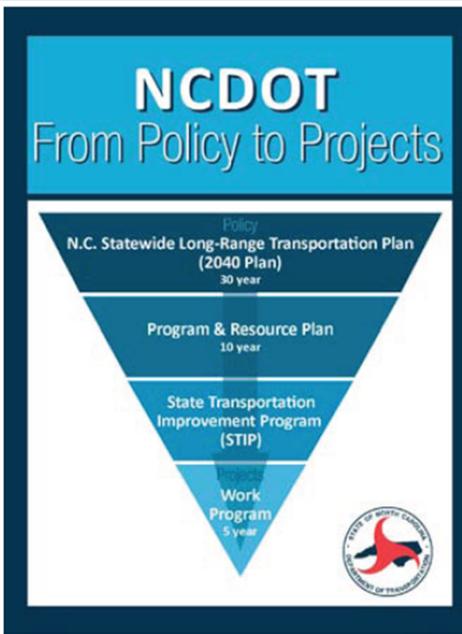
*NCDOT will partner with local governments in the **development of local transportation visions.***

....should promote and identify projects that work toward an interconnected network of context sensitive and multimodal complete streets.



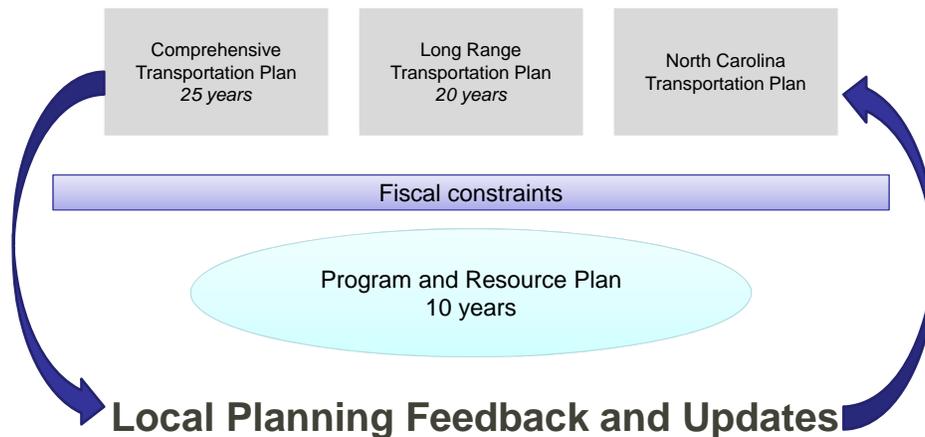
Incorporating Complete Streets in Planning and Design Process

- ❖ Complete Streets can be incorporated into all NCDOT plans and projects



NCDOT Transportation Planning

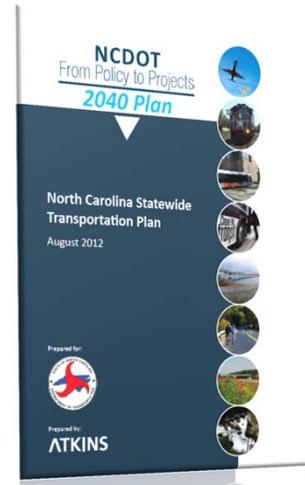
- ❖ Complete Streets can be incorporated into all NCDOT plans and projects



NCDOT Transportation Planning

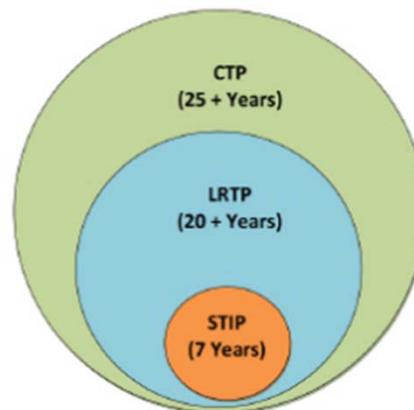
North Carolina Transportation Plan (2040 Plan)

- Major revision - 8 years
- Minor updates - 4 years
- Input from MPO, RPO, local governments, general public



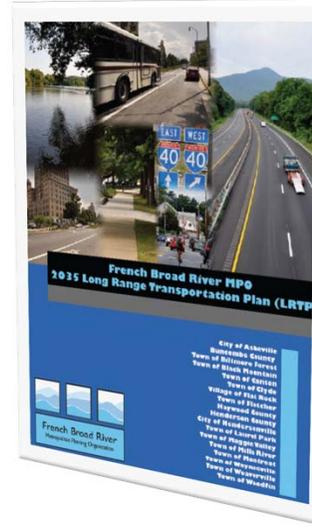
Transportation Planning Process

- ❖ **CTP** – Unconstrained wish list
- ❖ **LRTP** – Constrained priority projects
- ❖ **STIP** – Scoped & funded projects proceed to project development phase



Locally Initiated Complete Streets

- ❖ Through
 - Comprehensive Plans
 - Modal Transportation Plans
 - Zoning Maps
 - Corridor Plans
 - Repaving Process
- ❖ RPOs use STIP as their plan
- ❖ Community Impact Assessment (CIA) reflects concerns to be addressed in transportation decision-making



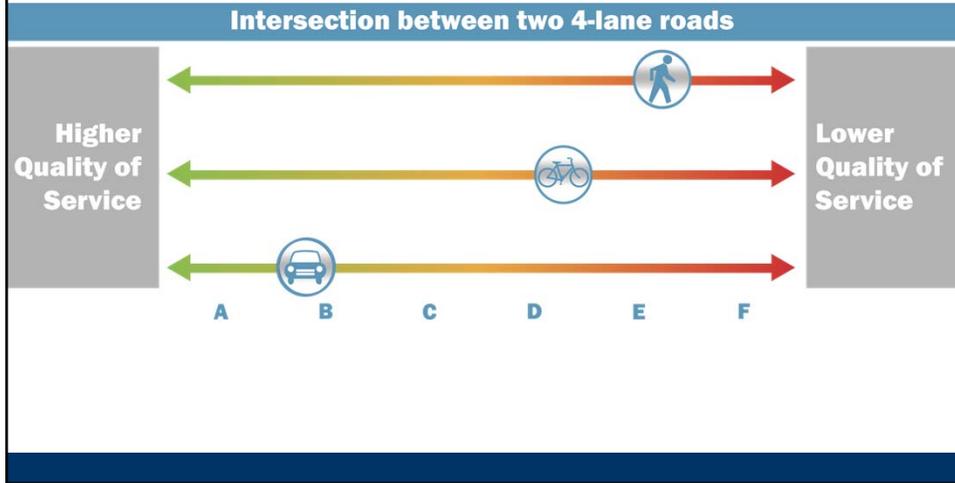
Street design quality considerations

- ❖ Street design effects functionality and comfort for each mode
- ❖ Complete streets
 - Balances QOS for pedestrians, bicyclists with motorist LOS
 - Emphasize connectivity
 - Complete networks
- ❖ Tradeoffs



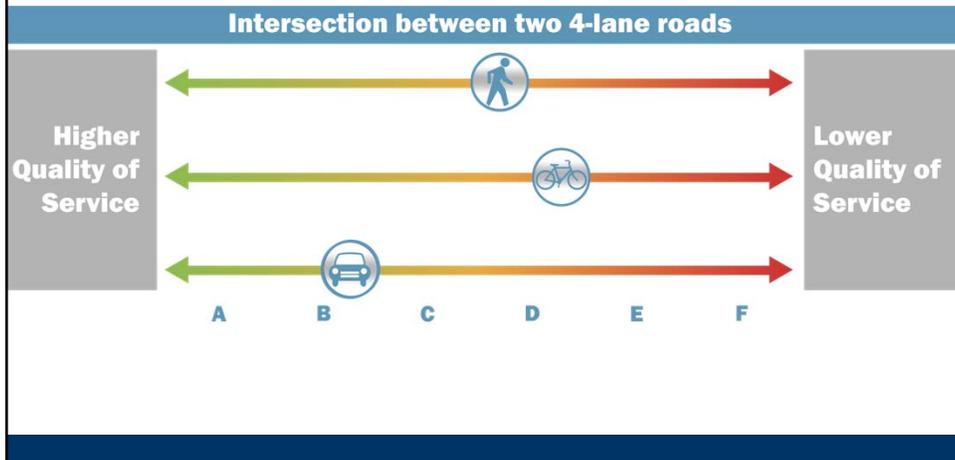
Balancing act

Typical existing conditions



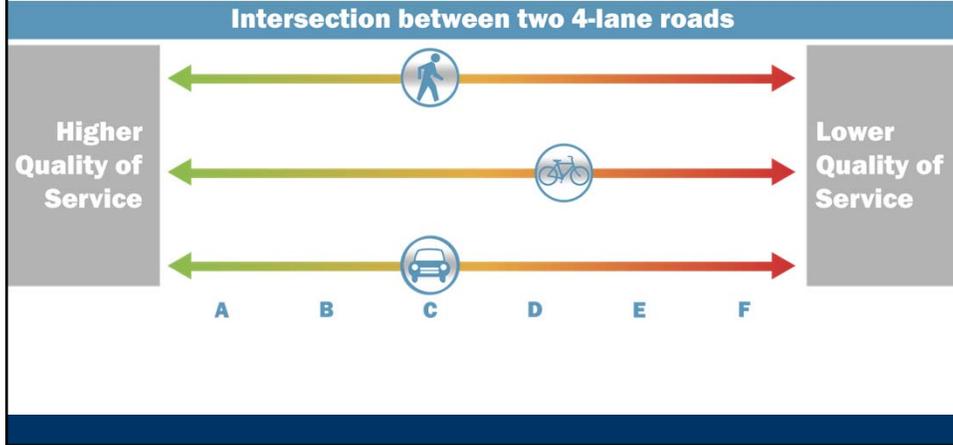
Balancing act

Add a median refuge and reduce corner radii



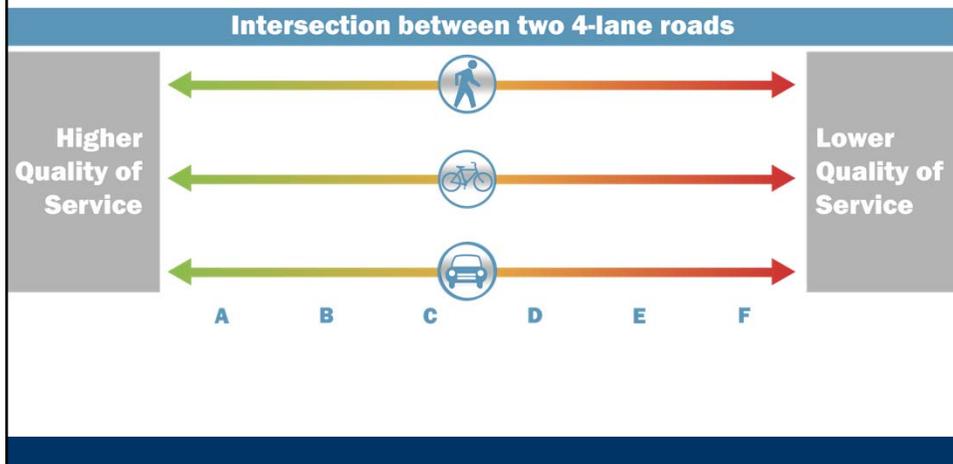
Balancing act

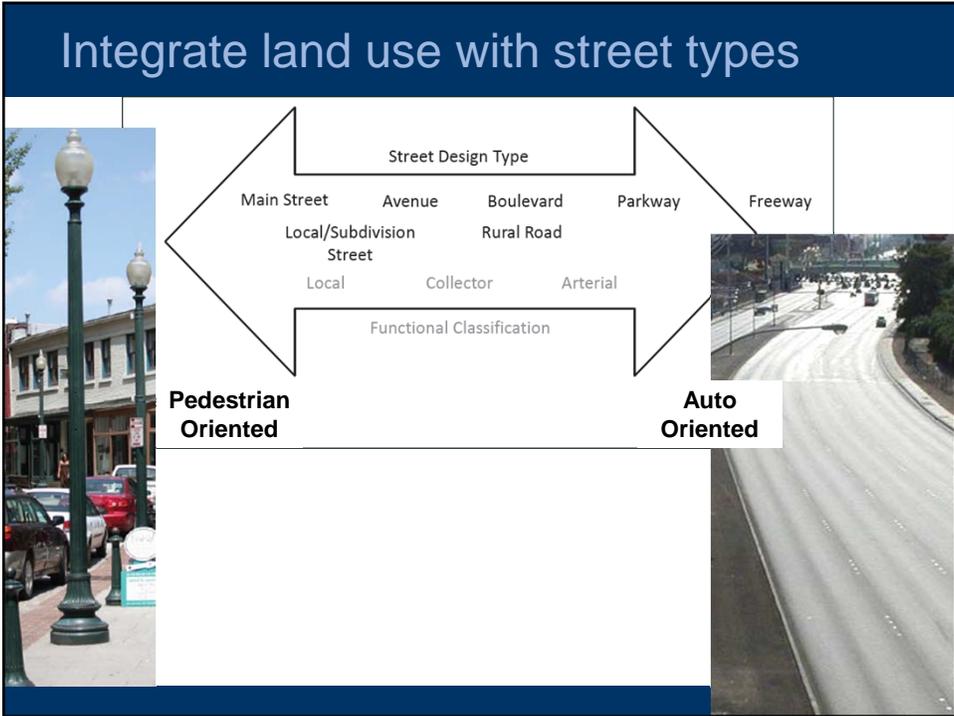
Add leading pedestrian interval and accessible signals



Balancing act

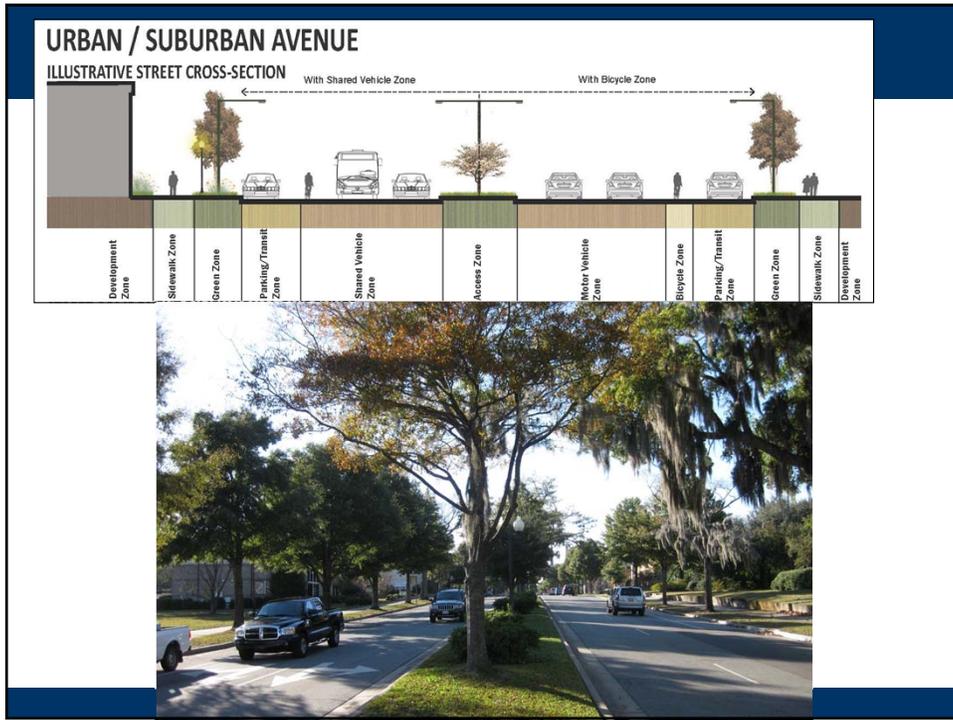
Add bike lanes on roadway





Selecting street types

❖ Examples



Action Plan

Action Plan

- ❖ Small groups work
- ❖ Focus on collaboration
- ❖ Focus on each agency

5-minutes for action plan

1a. Identify items that relate to visioning and designing.

❖ Example action items:

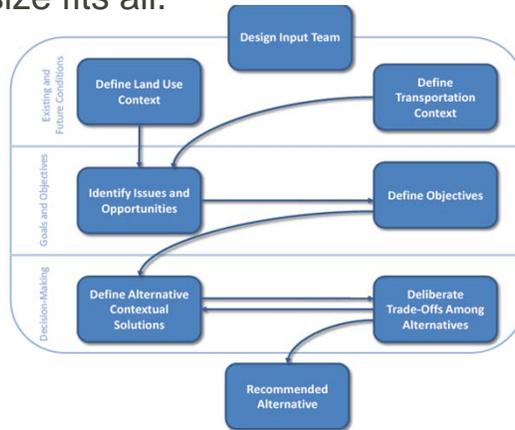
- Assess the purposes of the roads in my district with respect to the adjacent land uses.
- Compile street types from local governments in my district; create cross-walk document between NCDOT Complete Street streets types and local street types.



Incorporating complete streets in
planning and design process

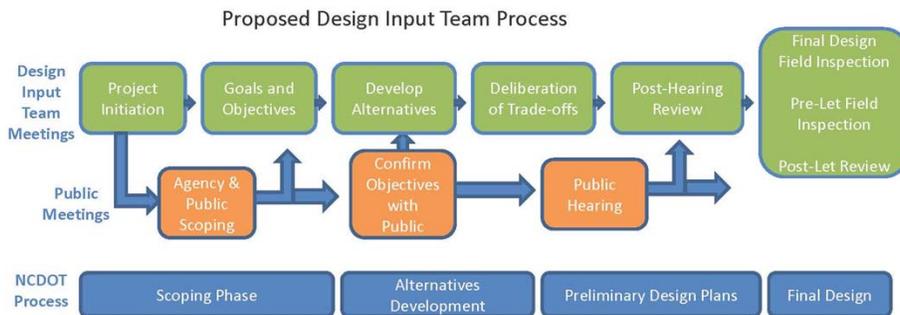
Project Development Process

Project defined and prioritized through CTP, LRTP, STIP → proceeds to project development
 Not one size fits all.



Project planning per Guidelines

Figure 3: Relationship Between Project Development Process and Milestones

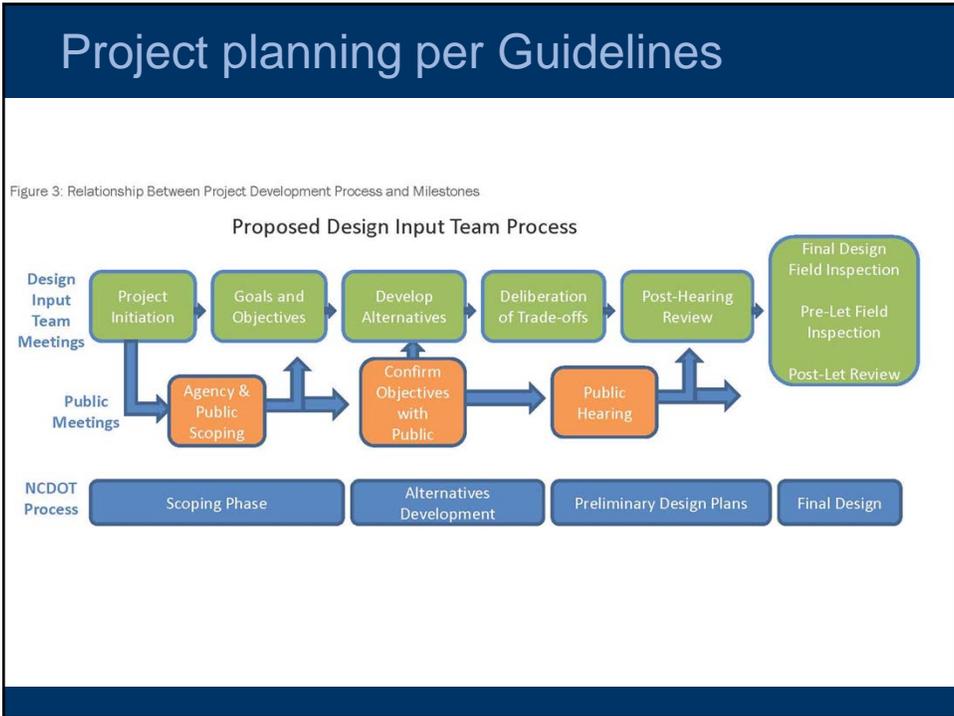


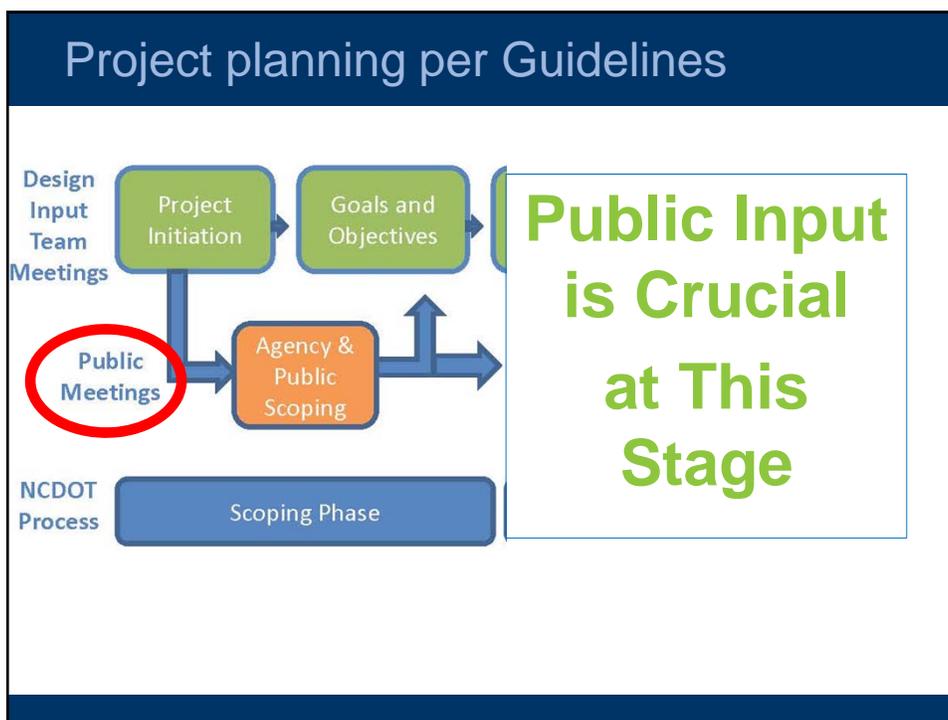
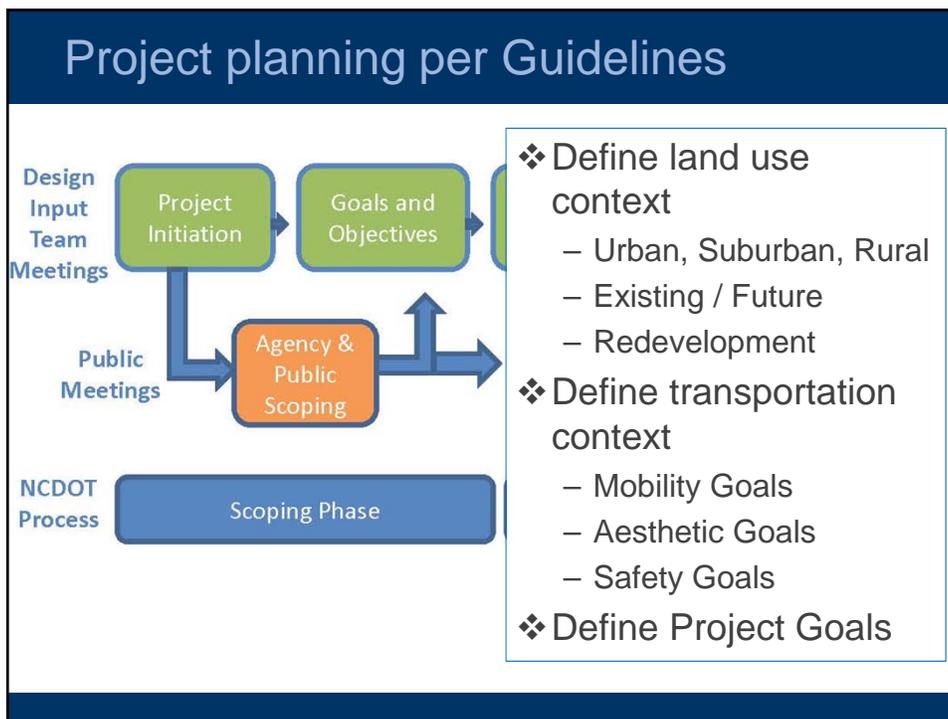
Project planning per Guidelines

Design Input Team Meetings



- NCDOT Roadway Design Project Engineer
- Division Construction Engineer,
- Transportation Planning Branch
- Bicycle and Pedestrian Division, Public Transportation
- Transportation Mobility and Safety
- **Local Agency Staff, MPO, RPO**





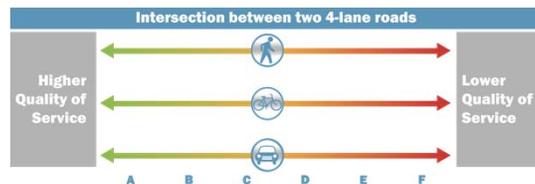
Project planning per Guidelines



Ensure Time for an Iterative Process

Deliberate Tradeoffs

- ❖ Consistency with local context, plans and policies, and project objectives
- ❖ Balanced modal capability
- ❖ Accessibility/functionality for all users
- ❖ Right-of-way availability
- ❖ Environmental considerations
- ❖ Overall cost

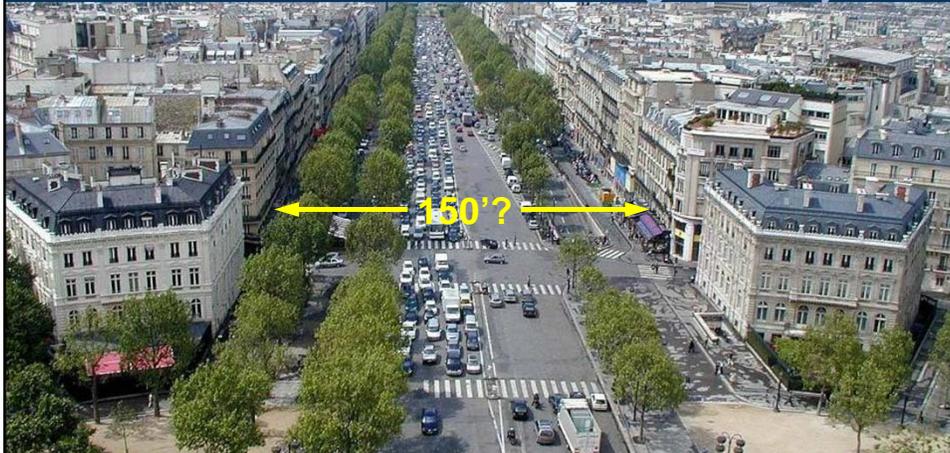


Does it fit within the available right-of-way?



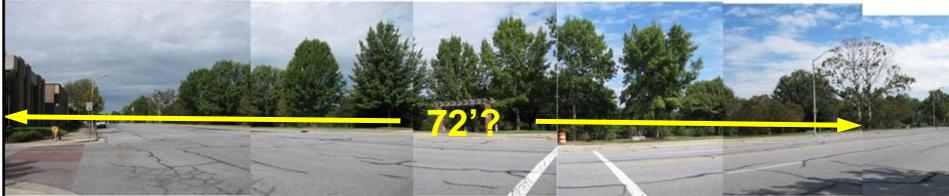
Is this an efficient use the available right-of-way?

Does it fit within the available right-of-way?



Don't ask: "How much ROW do we need?" Ask:
"How much ROW do we have, what do we want, and
how do we design it to fit?"

Does it fit within the available right-of-way?



Is this an efficient use the available right-of-way?

Conventional design – from the inside out



Add up (wide) travel lanes, run out of ROW
Result: one narrow curbside sidewalk

Proposed design – from the outside in



**Add up desirable elements, fit in ROW; result:
comfortable, safer sidewalks, bike lanes,
adequate travel lanes**

Wide roads and high motor vehicle LOS

**Designing to LOS C or higher may not be best use of
limited funding**



Constructing for Future Traffic Volumes

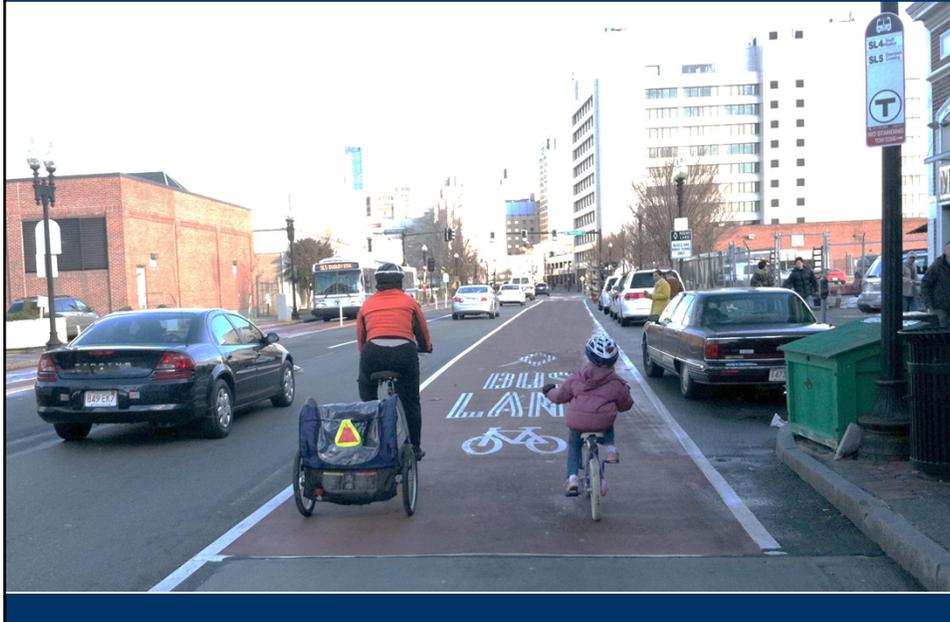
Operating roadway for **long** term projected traffic now degrades Quality of Service for **short** term users



Short Term Options



Short Term Options



Action Plan



5-minutes for action plan

1b. Identify items that relate to project development

- ❖ Example – process for refreshing projects to meet current needs



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Implementing complete streets in
maintenance and operations



Complete Streets through Maintenance

- ❖ Opportunity without reconstruction
- ❖ Include operations (e.g., signal timing/detection)
- ❖ Safety improvements for all modes
- ❖ Iterative improvements to system to meet master plan goals
- ❖ Includes developer-funded improvements
- ❖ **Incorporate early-on through close coordination with all players**

Complete Streets through Maintenance

❖ **Suggested process for resurfacing projects**

- NCDOT shares resurfacing list with local government as soon as possible
- Local government (or MPO/RPO) reviews potential revisions to striping & operations
- Local government recommends modifications
- If approved, NCDOT and local government collaboratively develop implementation plan

Typically compressed timelines

Complete Streets through Maintenance

❖ Suggested process for resurfacing projects

- NCDOT shares resurfacing list with local government as soon as possible;
- Local government (or MPO/RPO) reviews potential revisions to striping & operations
- **Local government recommends modifications**
- If approved, NCDOT and local government collaboratively develop implementation plan.

Typically compressed timelines

Suggestions to Smooth Process

❖ Agree upon reconditioning standards

- Lane widths (consider variances in advance to meet network and safety objectives)
- Turn lane design and warrants

❖ Collect data

- Crash problems
- Complaints, conflict analyses
- Operational problems by time of day
 - Detection issues
 - Timing issues

❖ Resources to develop design quickly

Suggestions to Smooth Process

Remember....

- ❖ Major changes to roadway (road diets, operation plans, new sidewalks) may require substantial public involvement
- ❖ Missed opportunities can engender public frustration or hostility (i.e. why didn't you build the sidewalk while you were doing all this other work?)

Example

- ❖ Case studies, e.g., US 23-74 widening added 2' for bike-friendly shoulders (Division 14, Jackson County)
- ❖ Route 321 resurfacing project will include bike lanes (Boone)



Action Plan

5-minutes for action plan

1c. Identify items that relate to these maintenance and operations

Example: Develop an institutional process to identify complete streets opportunities within planned maintenance projects.

Completing Your Action Plan

2. How will you communicate to your staff the importance of the NCDOT Complete Street Policy?

3. How will you ensure that your staff members are equipped to plan and design for Complete Streets?



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Wrap-up



Wrap-up

- ❖ Action plan – 3 or 4 share action plan
- ❖ Two-day training courses – reminder to send their staff
- ❖ What are you telling us?
 - Review 5 x 7 comment cards
- ❖ Other next steps



Thank you for your time!

www.completestreetsnc.org

