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Complete Streets Workshop

Carol Kachadoorian and Bill Schultheiss
Toole Design Group
La Quinta |Boone

HIGHWAY SAFETY RESEARCH CENTER

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- Boone
- Thursday, September 27, 2012

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NCDOT Complete Streets Video

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Welcome and Introduction to Panel Discussion

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Panel Discussion

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Panel discussion

King Street roadway widening

- Transportation goals
  - New high school access
  - ASU students and parents
  - Daily commuter congestion

Panel discussion

- Multi-modal outcome
  - Bike lanes
  - High visibility crosswalks
  - Pedestrian signals
  - Pedestrian-oriented lighting
  - Sidewalks with buffer
  - Bus stops
  - Access management
  - Landscaping
  - Overall aesthetics
  - Utilities underground

Panel discussion

- Panelists:
  - Mayor Loretta Clawson
  - Council Member Andy Ball
  - Public Works Director, Blake Brown
  - NCDOT State Roadway Design Engineer, Jay Bennett
  - NCDOT Division 11 Traffic Engineer, Dean Ledbetter


TOYOTA


ONE WAY

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Workshop Overview

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Workshop Overview

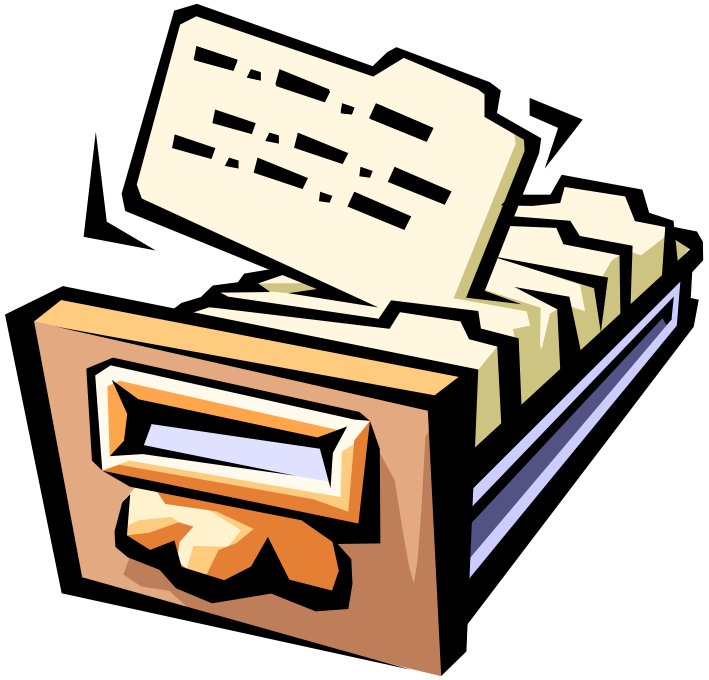
- Purpose
  - Tell North Carolina Complete Streets story
  - Begin implementation
  - Promote two-day training course in 2013
- Who's here today?
- What do you hear about Complete Streets?

Agenda

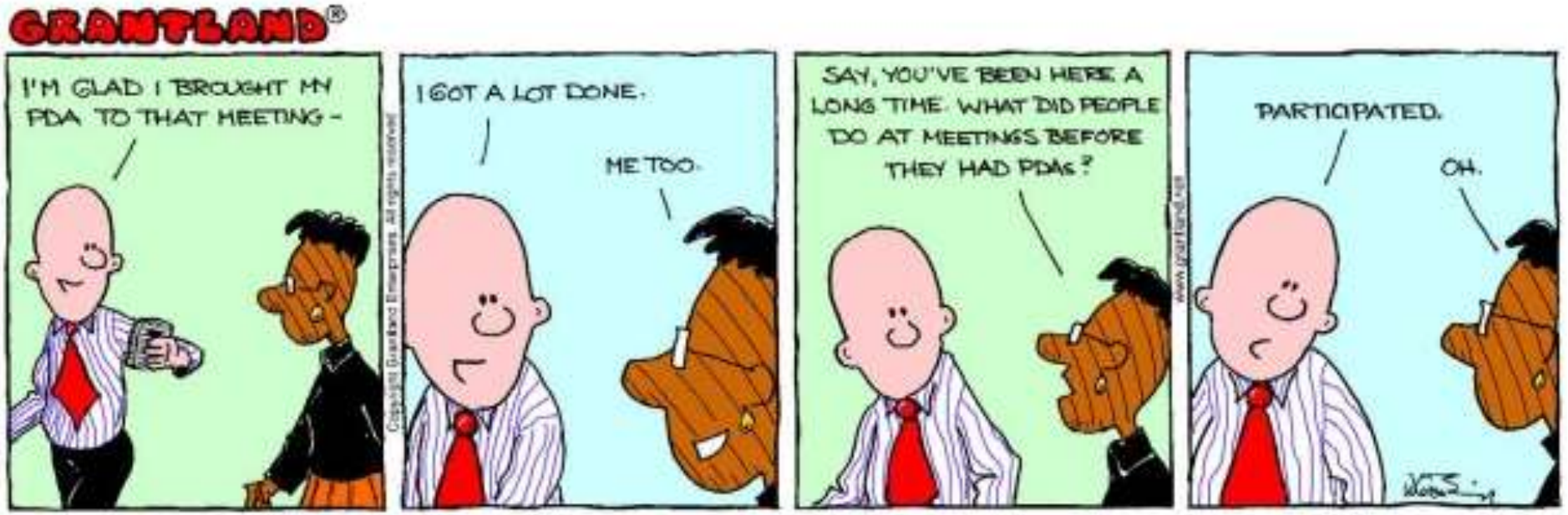
- Morning
  - Complete Streets in North Carolina
  - User experience
  - Implementation
- Lunchtime
  - Field visit
- Afternoon
  - Action Plan

Other items

- Complete Streets project map
- Map of workshop participants
- Issues and concerns on 3 x 5 cards



Help get the most out of today



Understanding user needs

- Levi Marland
- Emma Hudspeth
- Josh Lamont

Background

We have been riding our bikes to school consistently when the weather permits for our second year now. By doing this we are saving car gas and encouraging healthy activity among neighbors and classmates. We have been working on a bike rack project since the end of last year up until this point, in which we were promised by the Health Department at least $500.00 for bike racks at our school.

Riding to School

We always take a safe route to school so that we only have to pass through one large intersection and don't have to ride along any dangerous roads. Our school staff, particularly our principal, Mrs. Smalling, has been excellently supportive of our riding and of our bike rack project.

Survey Responses

In the "Walking and Biking to Hardin Park Elementary: Initial Findings" survey, we found that 72% of parents think that riding to school is healthy.

We also found that around 75% of parents' decisions to not allow a child to walk or bike to or from school is because of the amount of traffic safety along the route.

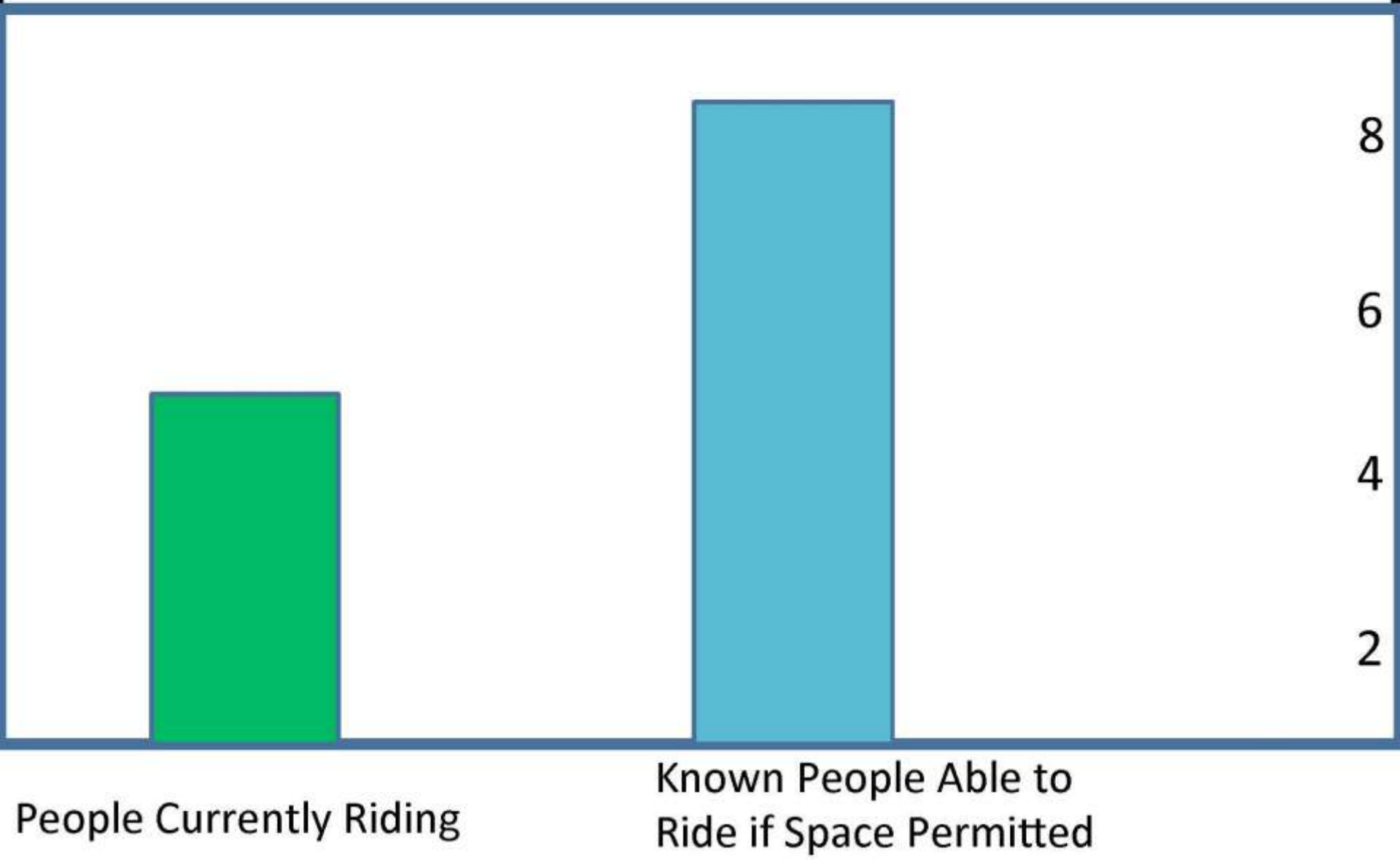
Comments from Parents:

"My children ride their bikes occasionally, but I would encourage them to do it more if it were safer to cross New Market Blvd."

"Road safety is a key issue…"

"I would not have a problem biking to school with my son if the traffic was better. I feel it is unsafe for me to bike down 421. If I lived in town, it would be different. However, I would never allow my child near the roads alone."

Biker Comparison




HARO
TREK

What We Need

The only thing left to make riding our bikes to school as safe and fun as possible is to add crossroads and stop signs in areas that we pass through. The major intersection is between the Methodist church and the Council of Government building. If a crossroad was built there and a stop sign set up nearby, then it would be much easier to pass through safely.

Crossing the Major Road

We believe it's important for kids like us to become involved in riding their bikes to school because not only does it help the environment but it helps to grow self confidence and independence.

–Kelsey Marlett, Katie Mac Knight, and Levi Marland

Thanks for Watching!

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Are you ready to begin?

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Complete Streets in 15 minutes or less





9/29/1999 2:06pm

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**

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What is Complete Streets?

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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
- How funded?
  - Through planned maintenance
  - Project scope, no additional right-of-way needed: may be small additional cost
  - Project scope, additional right-of-way needed
  - Developer, if there is a local land use and development plan; a multi-modal transportation plan

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.

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Why does North Carolina have a Complete Streets policy?

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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
  - 2,510 pedestrians hit in 2008 (165 killed)
  - 1,042 bicyclists hit in 2008 (29 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%

Why Complete Streets?

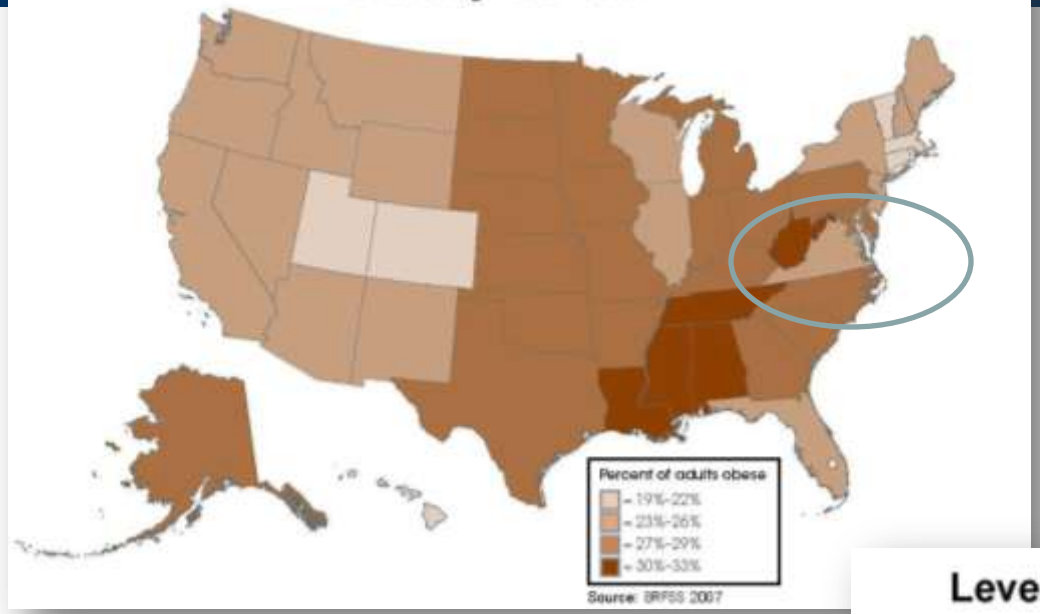
- Contributes to public health goals
  - 100 recent studies show obesity-automobile dependence connection
  - 2009 CDC recommended complete streets policy adoption to fight against obesity

Public Health in 50 States

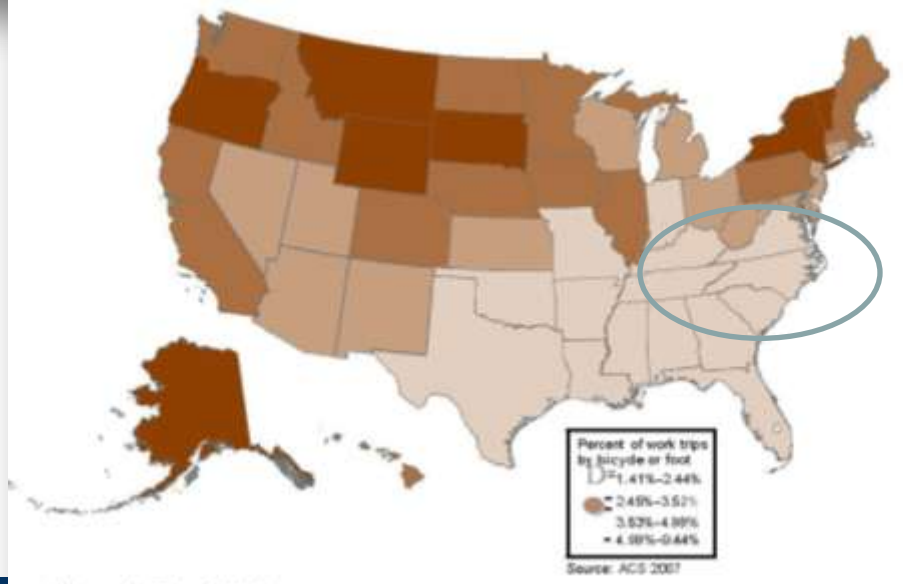
State	% population overweight(1)	% population obese	% adults w/ 30+ min physical activity	% adults ever told have diabetes	% adults ever told have asthma	% adults ever told have hypertension
New Jersey	62%	24%	48%	9%	8%	28%
New Mexico	61%	25%	53%	8%	9%	26%
New York	62%	26%	49%	8%	9%	27%
North Carolina	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%


Obesity levels
Percent of adults obese
19%-22%
23%-26%
27%-29%
30%-33%
Source: BRFSS 2007

Obesity levels



Levels of Bicycling and Walking to Work



Alliance for Biking & Walking

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%

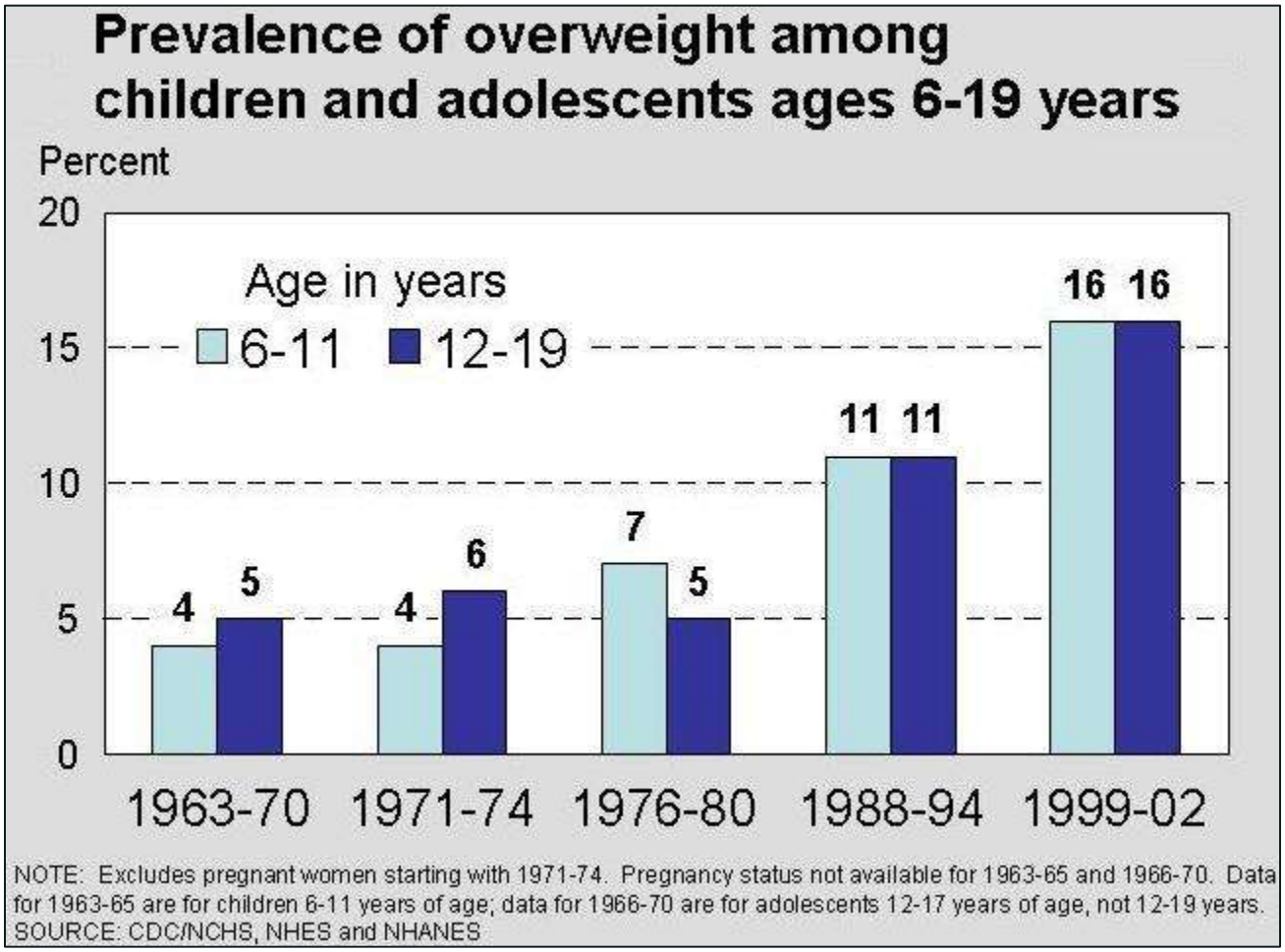
(Journal of the American Medical Association [JAMA], 2001)

Safe Routes to School health lessons

1969	2009
48% of kids walked or biked to school*	13% of kids walked or biked to school*
89% within 1 mile of school walked or biked**	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.

Why Complete Streets?

- Contributes to economic vitality and quality of life

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**

Example: Boone

Example: Hendersonville Main Street

- Includes new water lines, storm water management, sidewalks, trees, etc.

Take away messages

- Complete Streets is part of other community goals
- Local land use and economic development plans create a solid context for planning complete streets.

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Break

- Be back in 10 minutes

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How is Complete Streets implemented?

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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.

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The North Carolina Department of Transportation is offering free one-day workshops in 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 motorists, transit users, pedestrians, 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://www.ncompletestreets.org 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. Workshops will be facilitated by staff from UNC's Highway Safety Research Center and Toole Design Group.

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?

1st steps ➔	Output ➔	Outcomes
▪ Set departmental performance goals ▪ Develop employee performance plans ▪ Attend training ▪ Collaborate with localities	▪ Miles of new sidewalk ▪ Miles of new bicycle lanes ▪ Number of pedestrian signals	▪ 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

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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

Here's my story

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What do user needs tell us?

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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.
- Lack of a safe and comfortable walking or bicycling network.
- Transportation system and its ease of use affects **mode choice**

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**

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?

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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
- Plan, design, build and maintain projects cost-effectively
- 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

Example Road Diets ~ Conversion

What does research tell us?

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

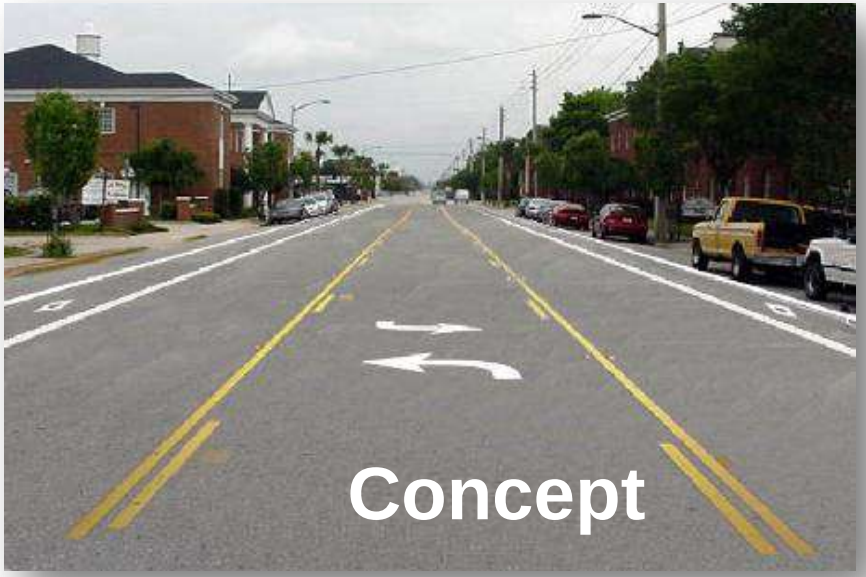
Road Diet ~ Conversion Example

"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

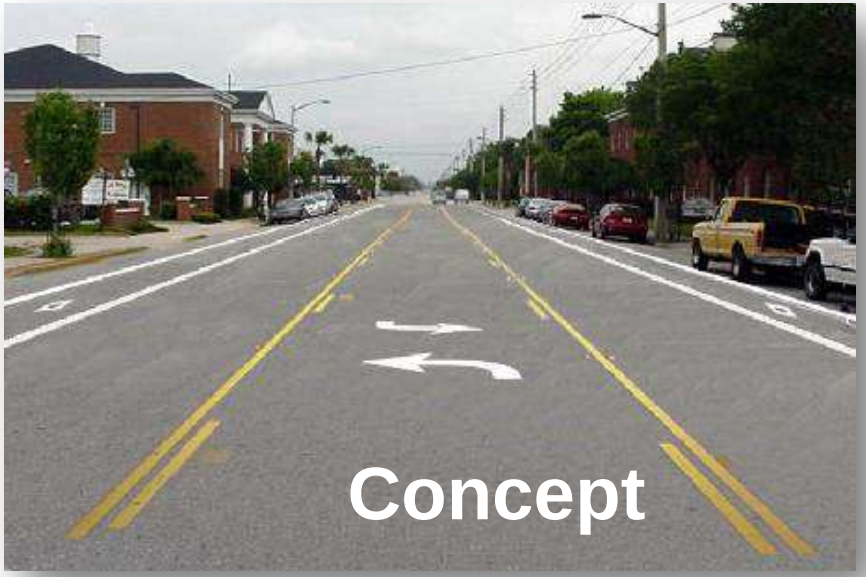



Reality: Before

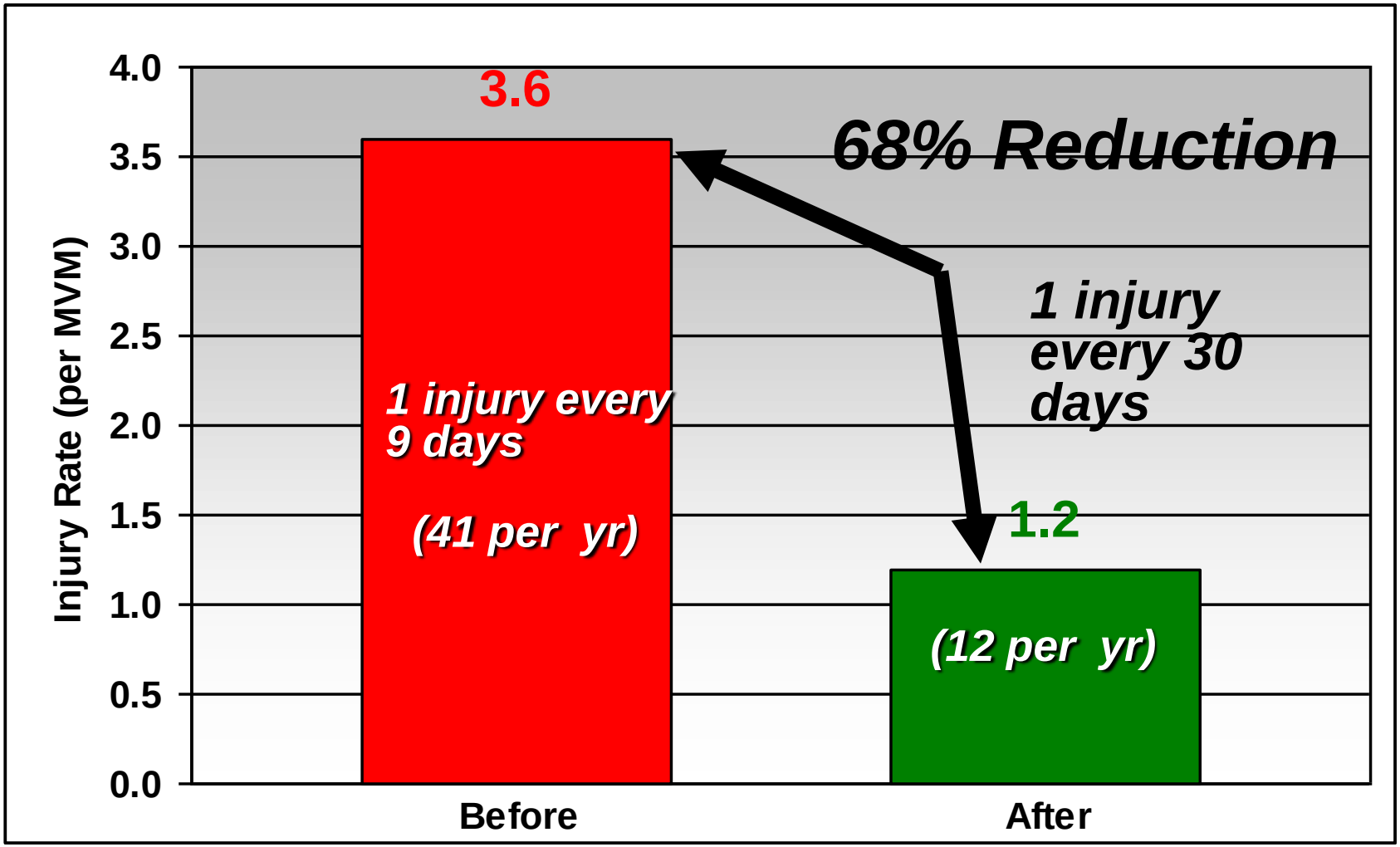

Reality: After

Edgewater Drive (Orlando FL) Resurfacing Project

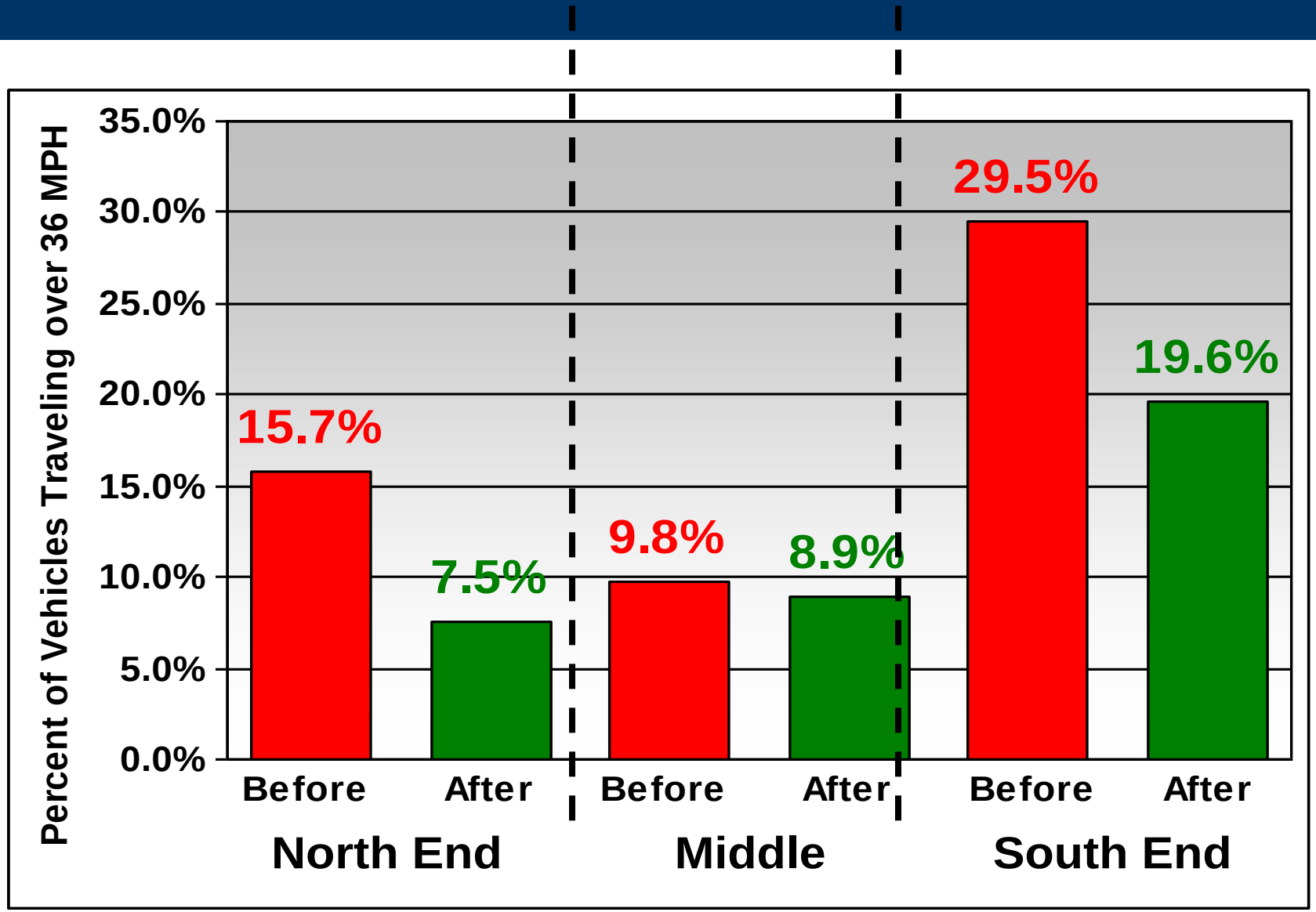
- Repaving project scheduled in FDOT 5-year work plan
- Changes must be accepted by neighborhood and business associations
- **City must conduct before/after studies**



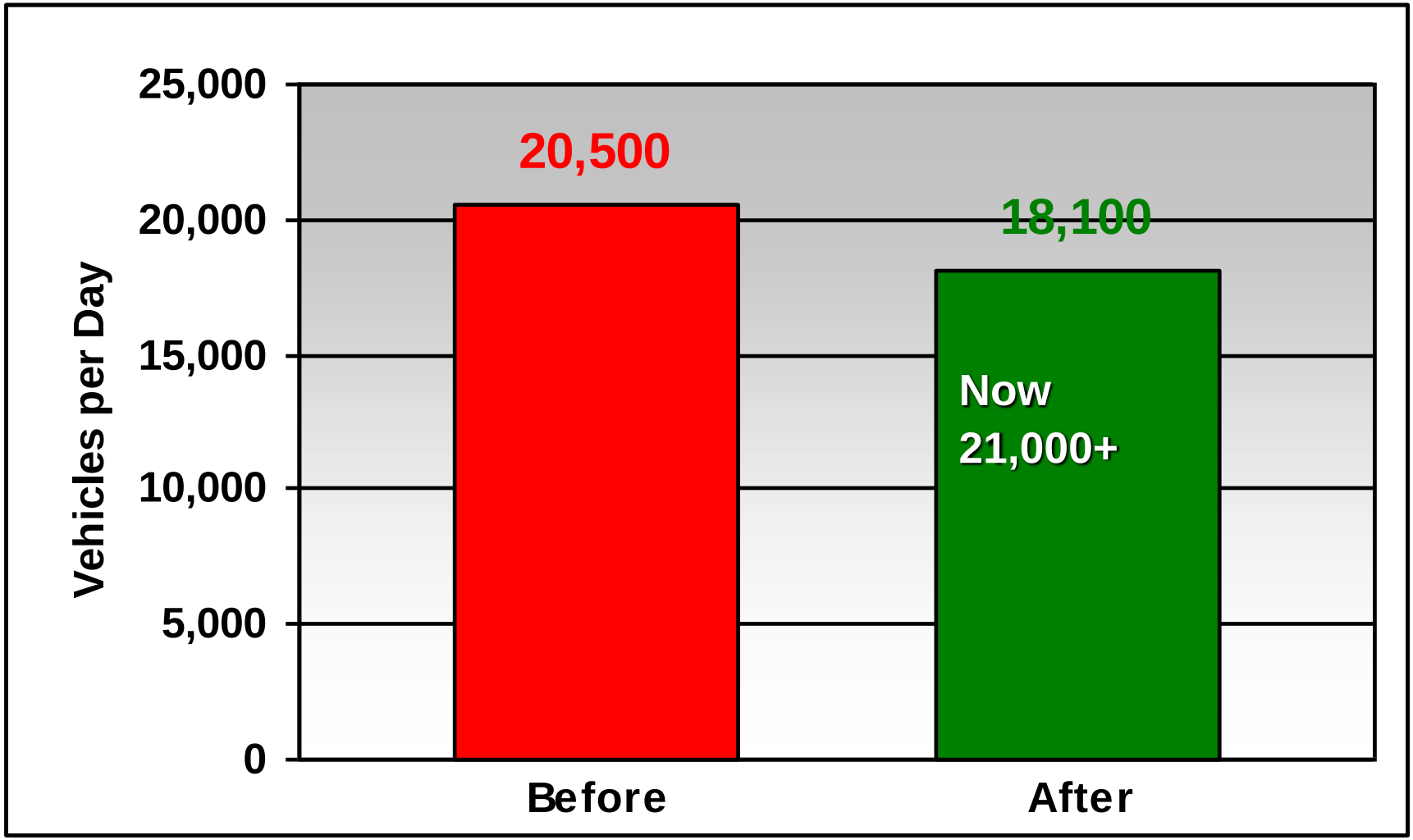
Injury rate


Injury Rate (per MVM)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
3.6
68% Reduction
1 injury every 9 days
(41 per yr)
1 injury every 30 days
1.2
(12 per yr)
Before
After

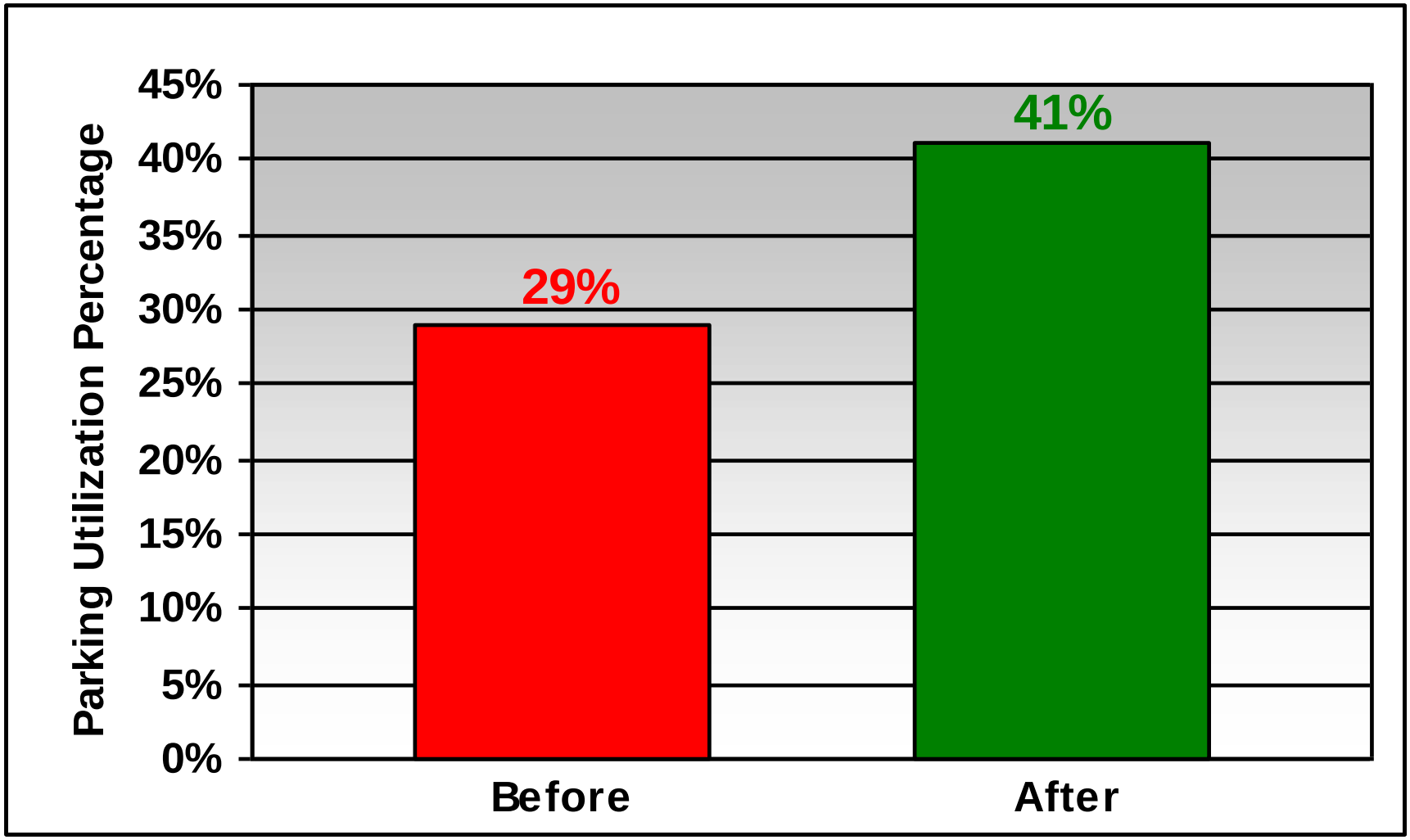
Speeding analysis



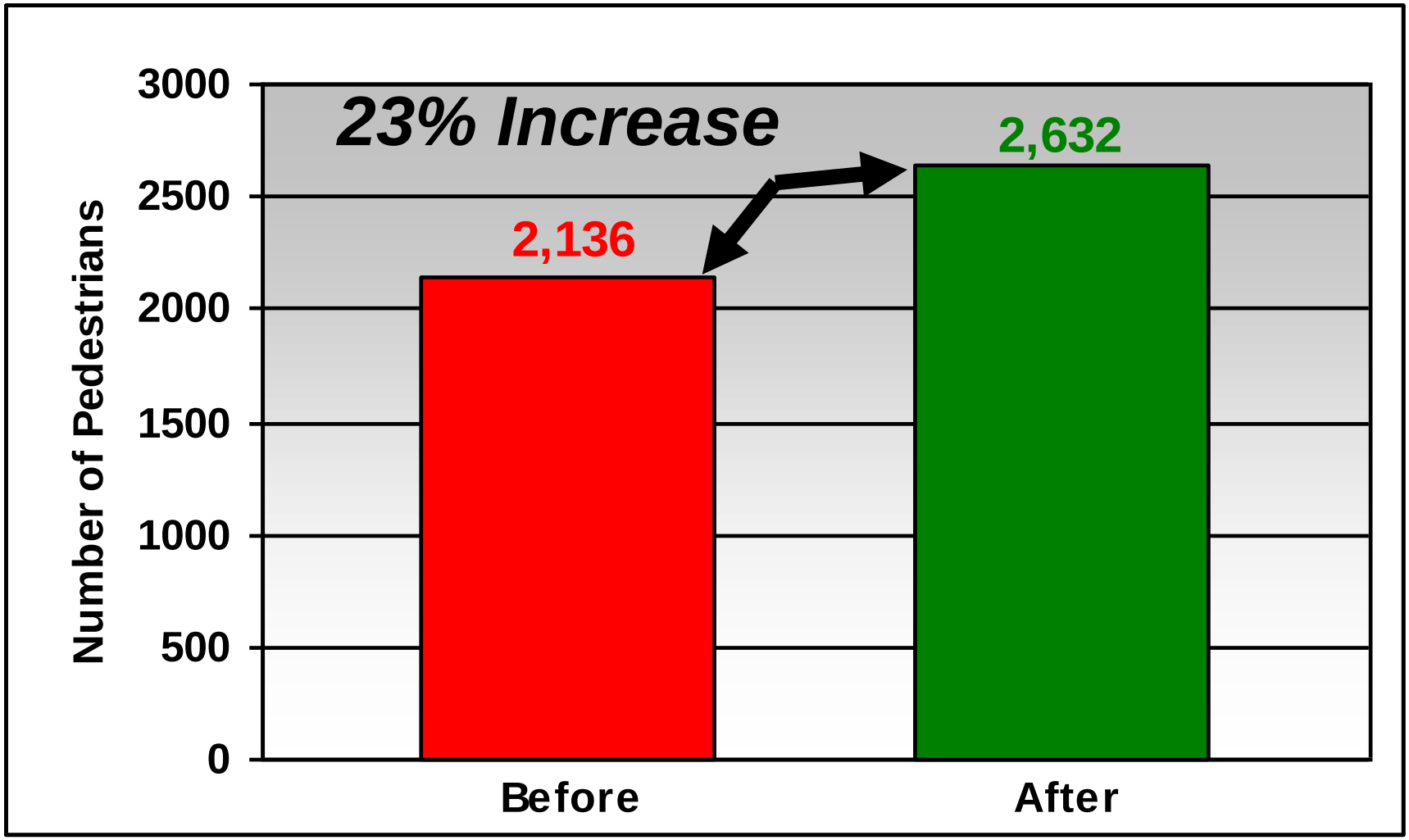
Traffic volumes



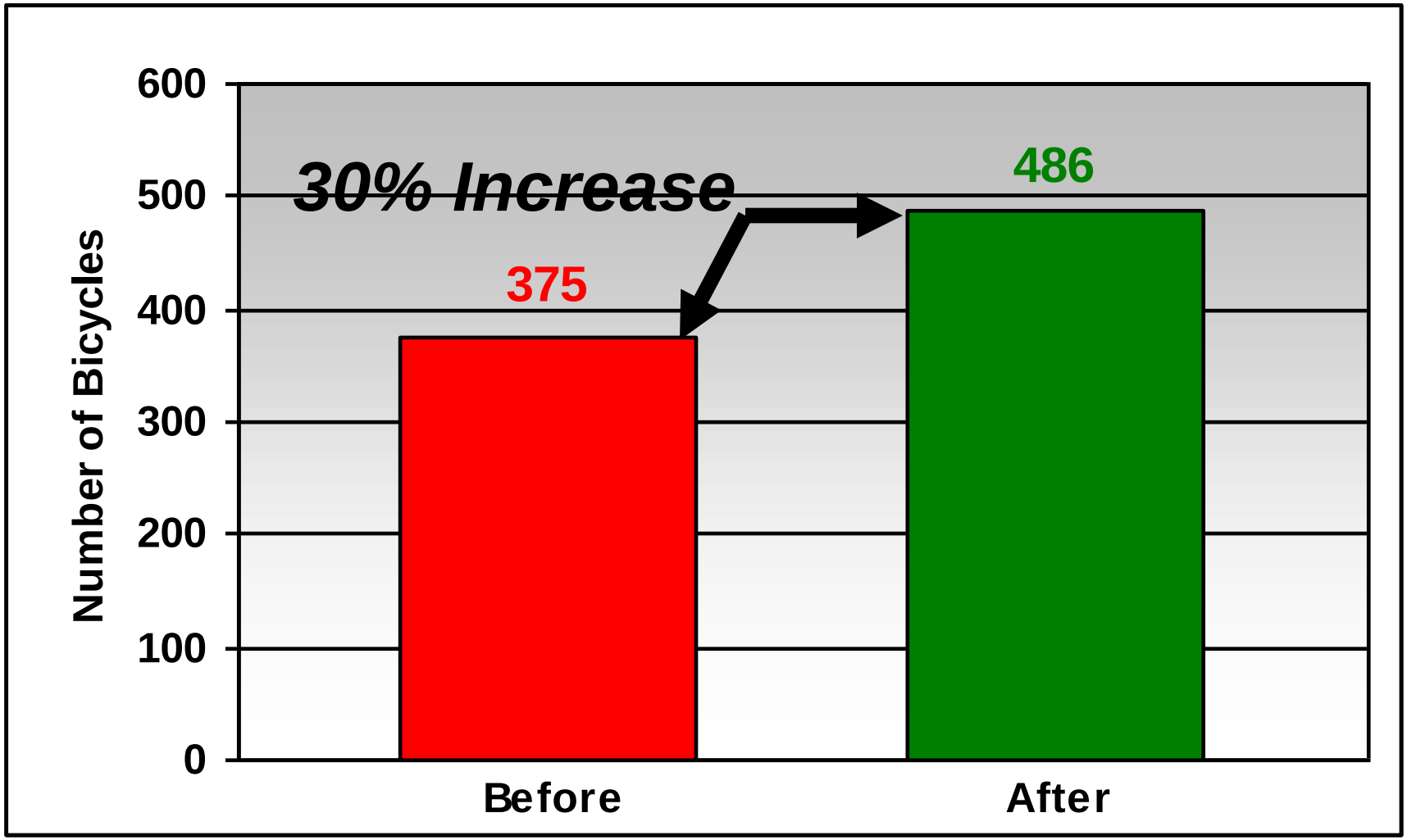
On-street parking use



Pedestrian volumes



Bicyclist volumes



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What are your thoughts and questions?

- About implementing the policy and guidelines

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What are your thoughts and questions

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Overview of Guidelines

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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 Com
  Carolina
  - Preface, Chapte
- Planning and De
  - 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 D
  - Chapter 2, Cha
- Planning and D
  - Chapter 5, Cha
- **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

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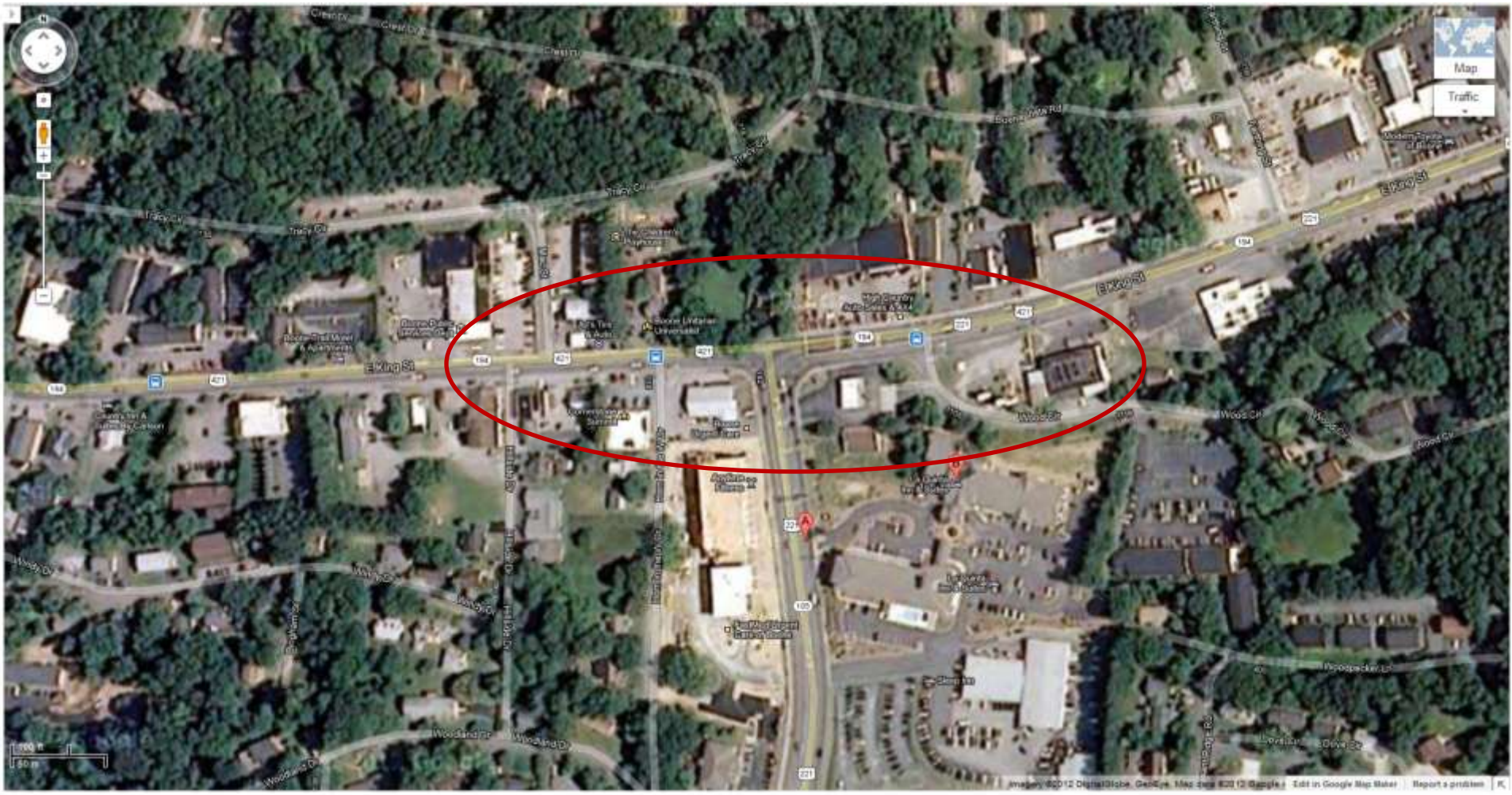
Field visit

Purpose:

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

Field Visit



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

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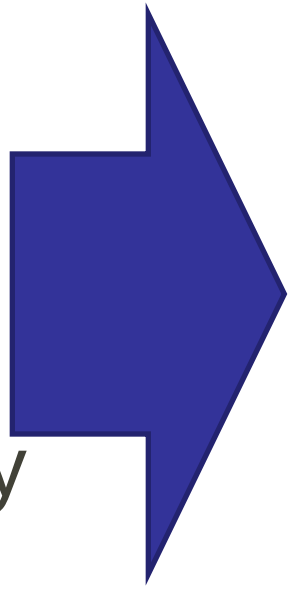

AND

- **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

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Afternoon Sessions

- Begins at 1:00

HIGHWAY SAFETY RESEARCH CENTER

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**

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Visioning and designing complete streets

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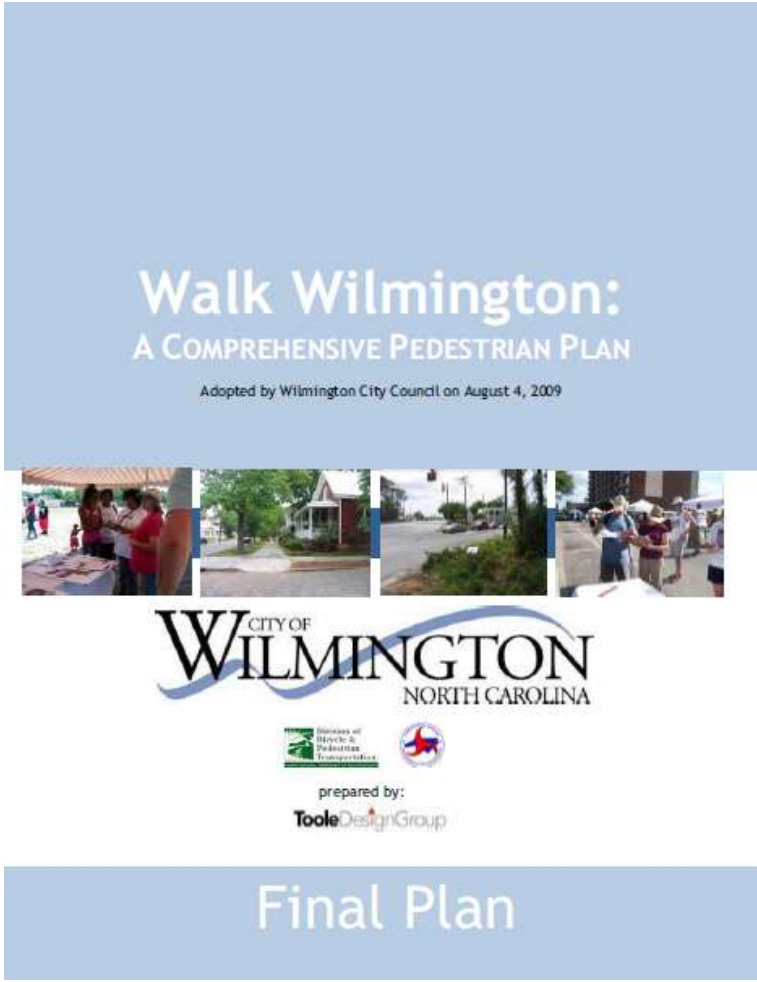
9/29/1999 2:06pm

Gridley, California

NCDOT Transportation Planning

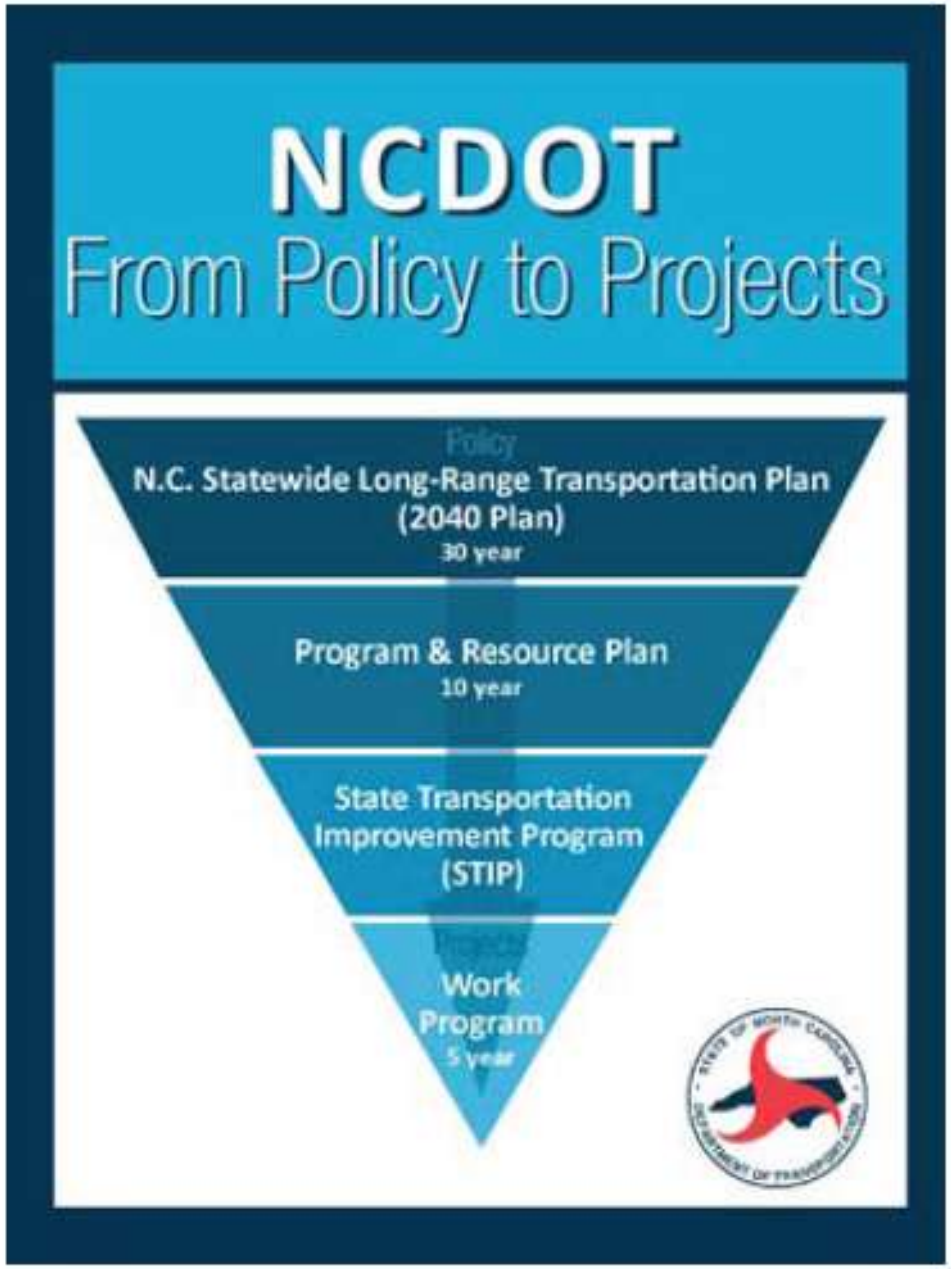
NCDOT will partner with local governments in the ***development of local transportation visions****.*

….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

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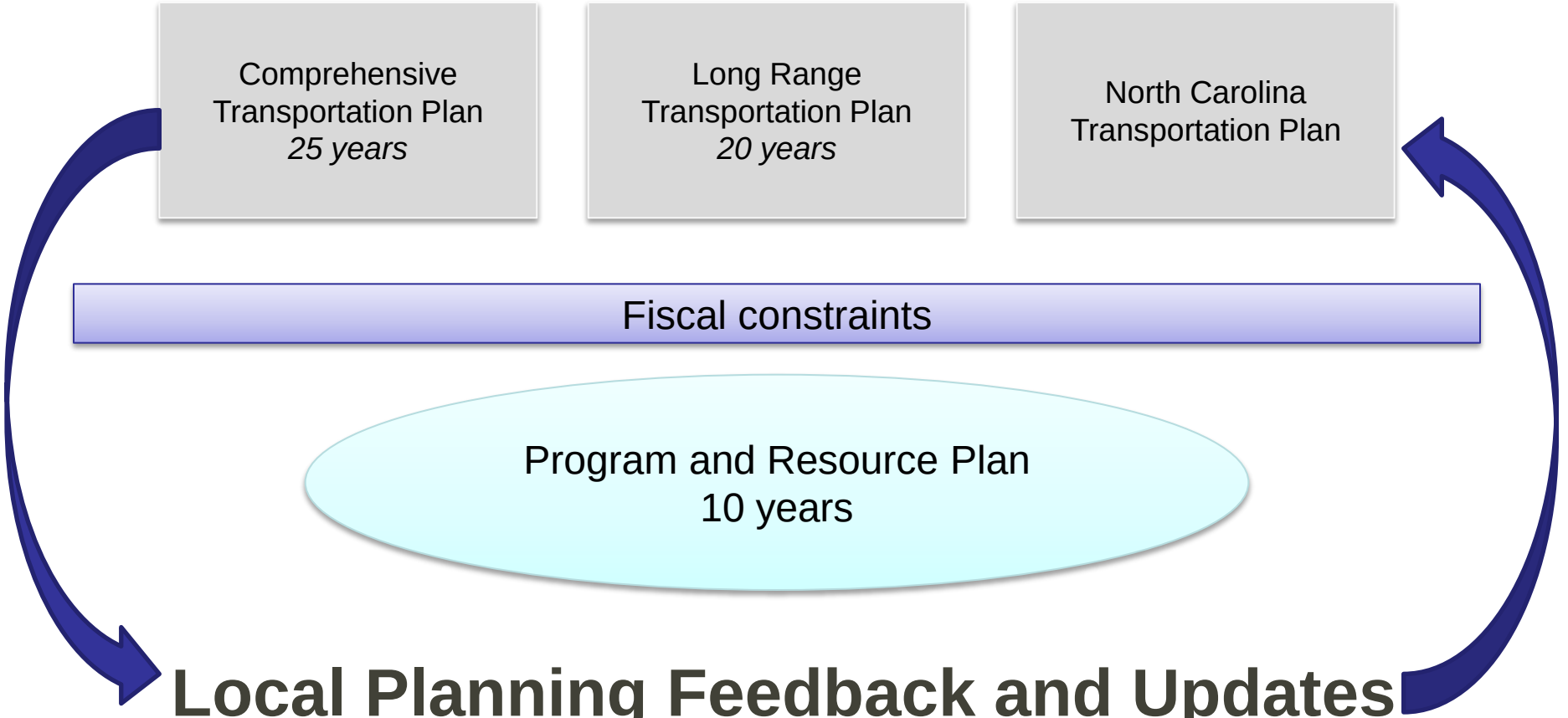
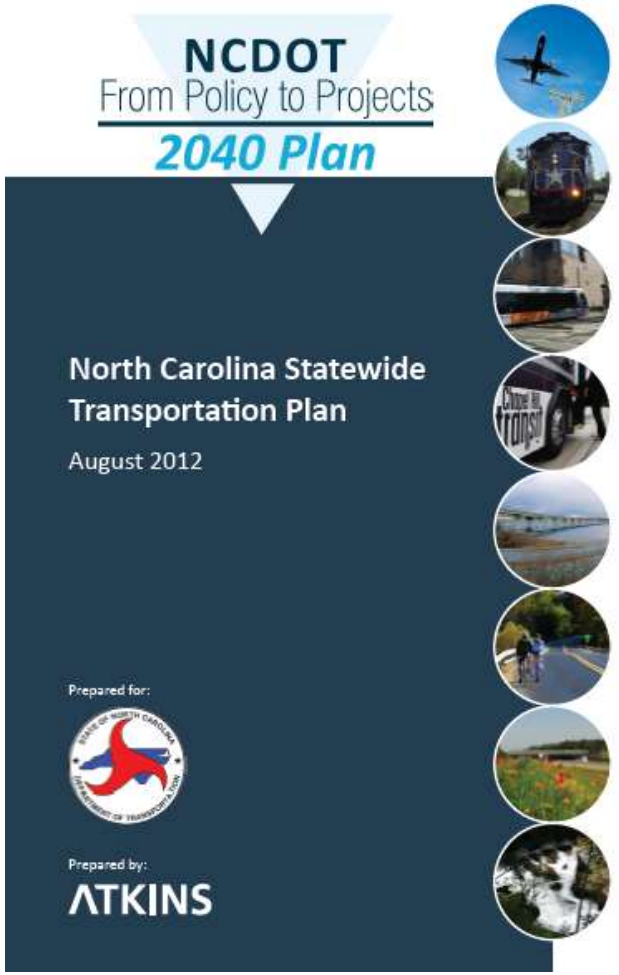


NCDOT Transportation Planning

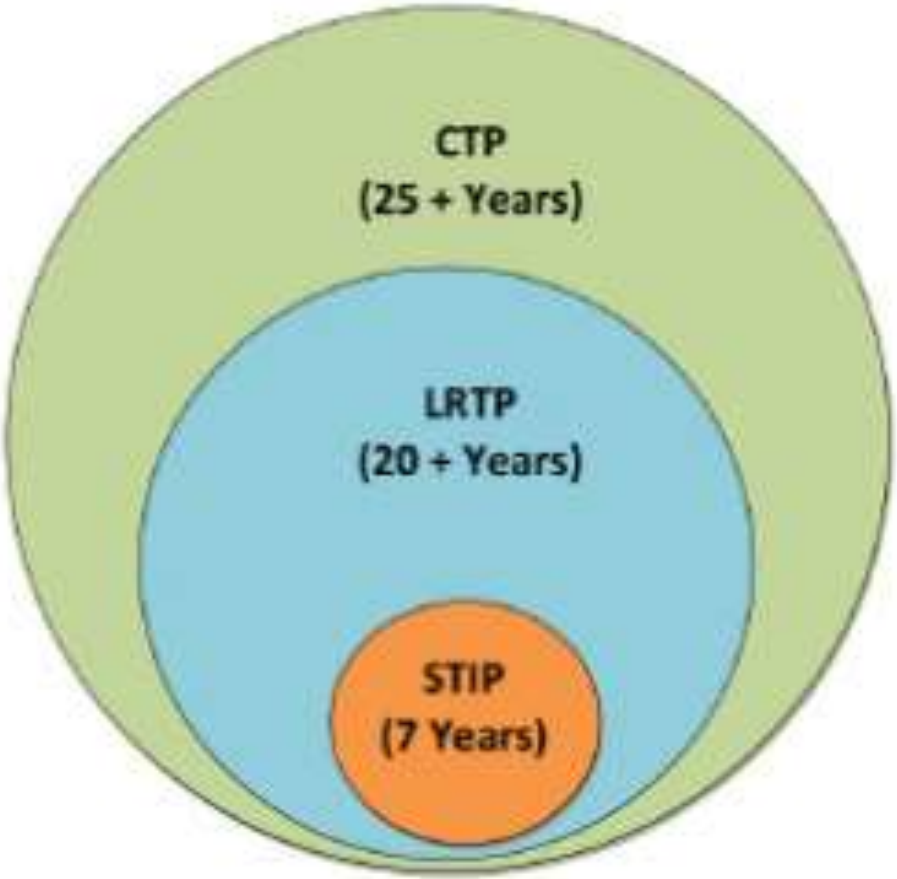
North Carolina Transportation Plan (2040 Plan)

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



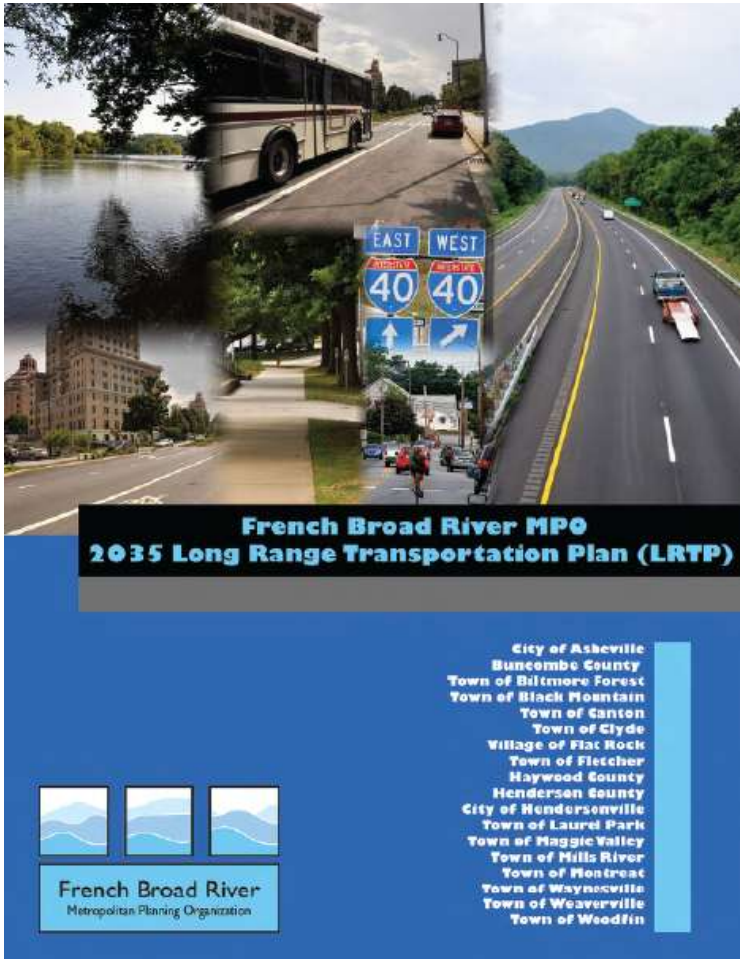
Transportation Planning Process

- **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

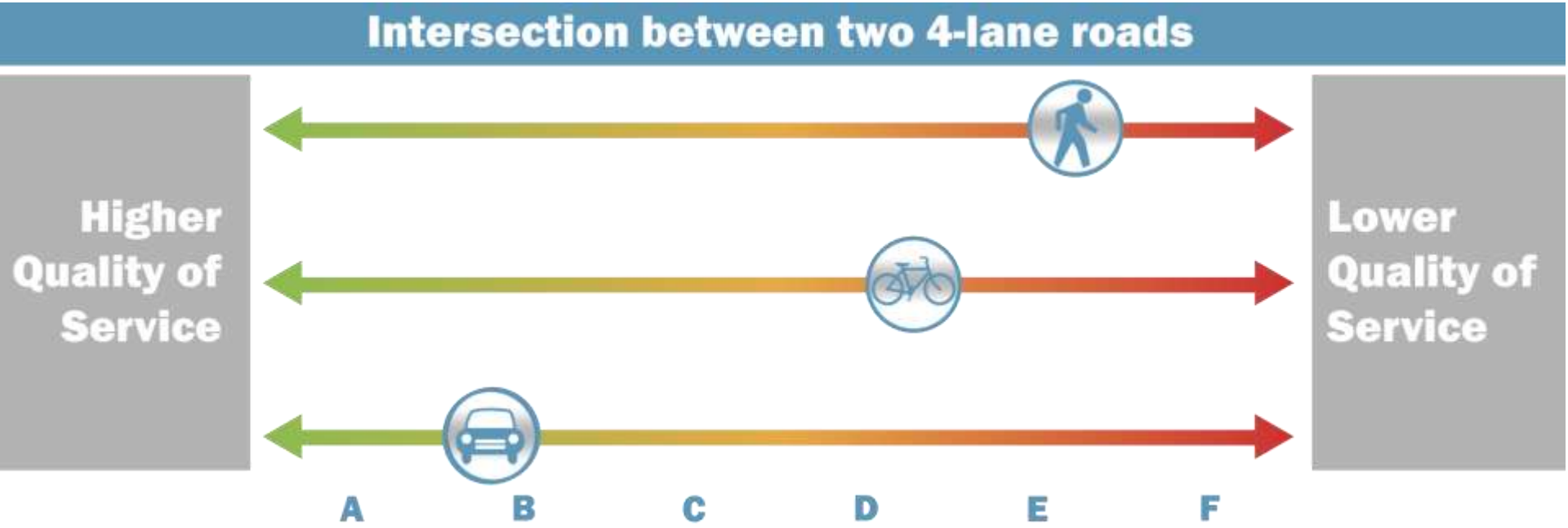


Street design quality considerations

- Street design effects functionality and comfort for each mode
  - **Quality of Service**
  - **Level of Service**
- Complete streets
  - Emphasize connectivity
  - Complete networks
  - Balances QOS for pedestrians, bicyclists with motorist LOS.
- Tradeoffs

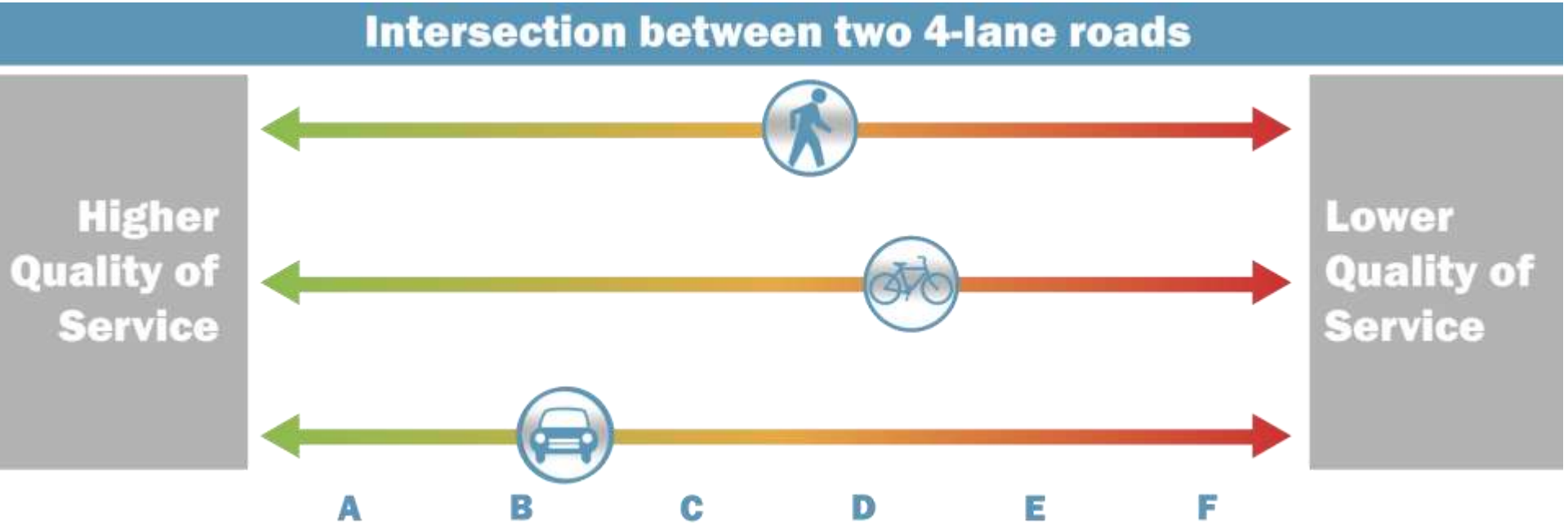
Quality of Service

Typical Existing Conditions



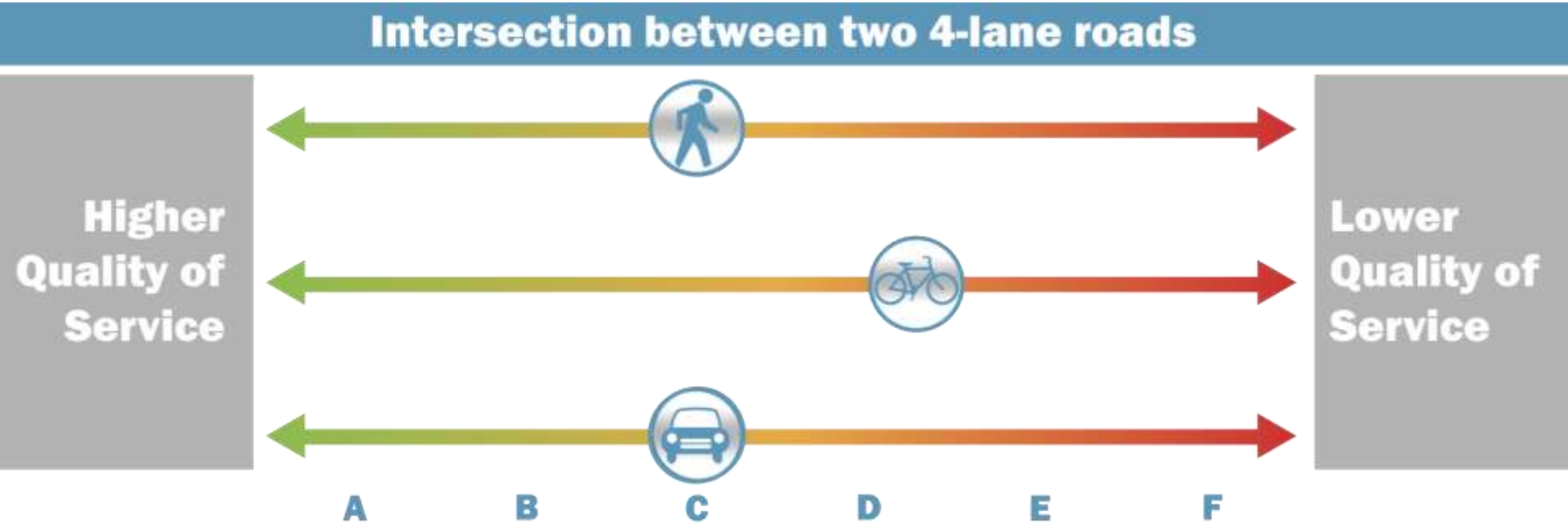
Quality of Service

Add a median refuge and reduce corner radii



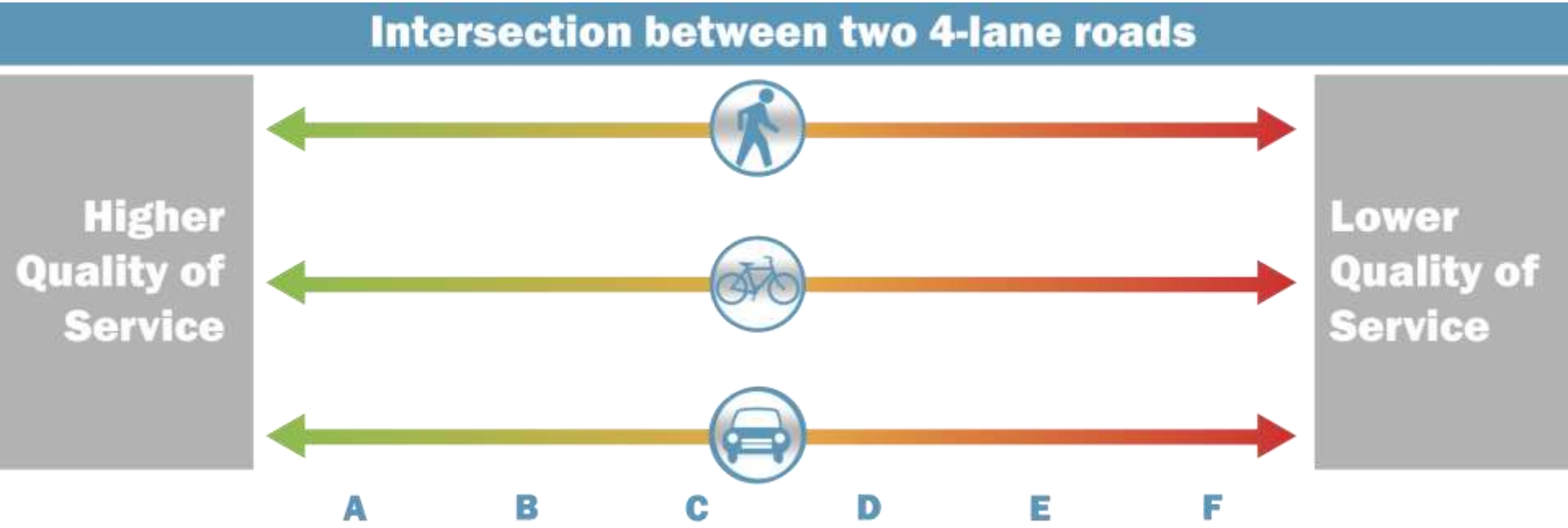
Quality of Service

Add leading pedestrian internal and accessible signals

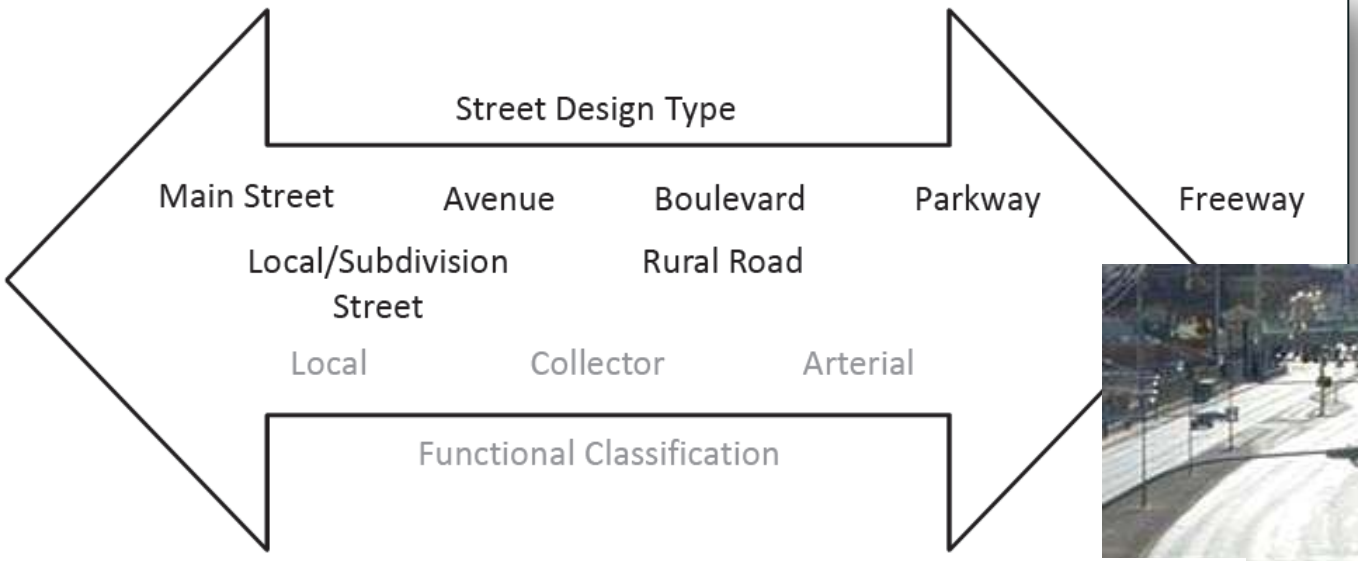


Quality of Service

Add bike lanes on roadway



Integrate land use with street types



Pedestrian Oriented

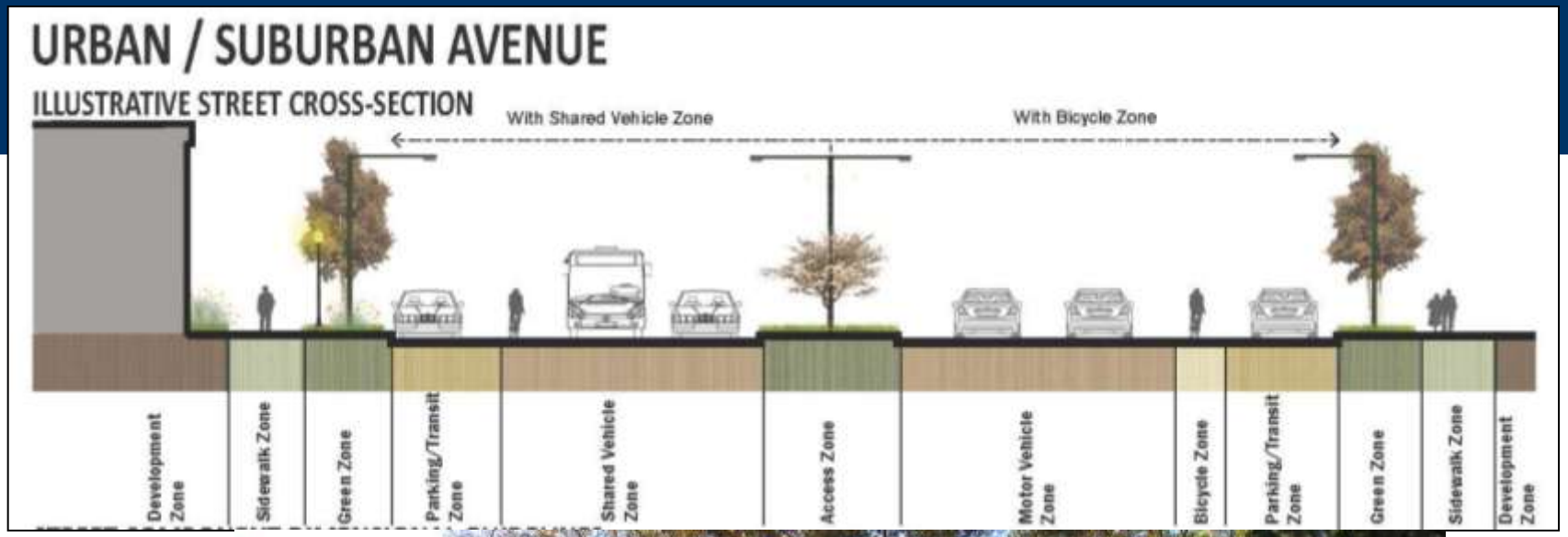
Auto Oriented

Selecting street types

- Examples

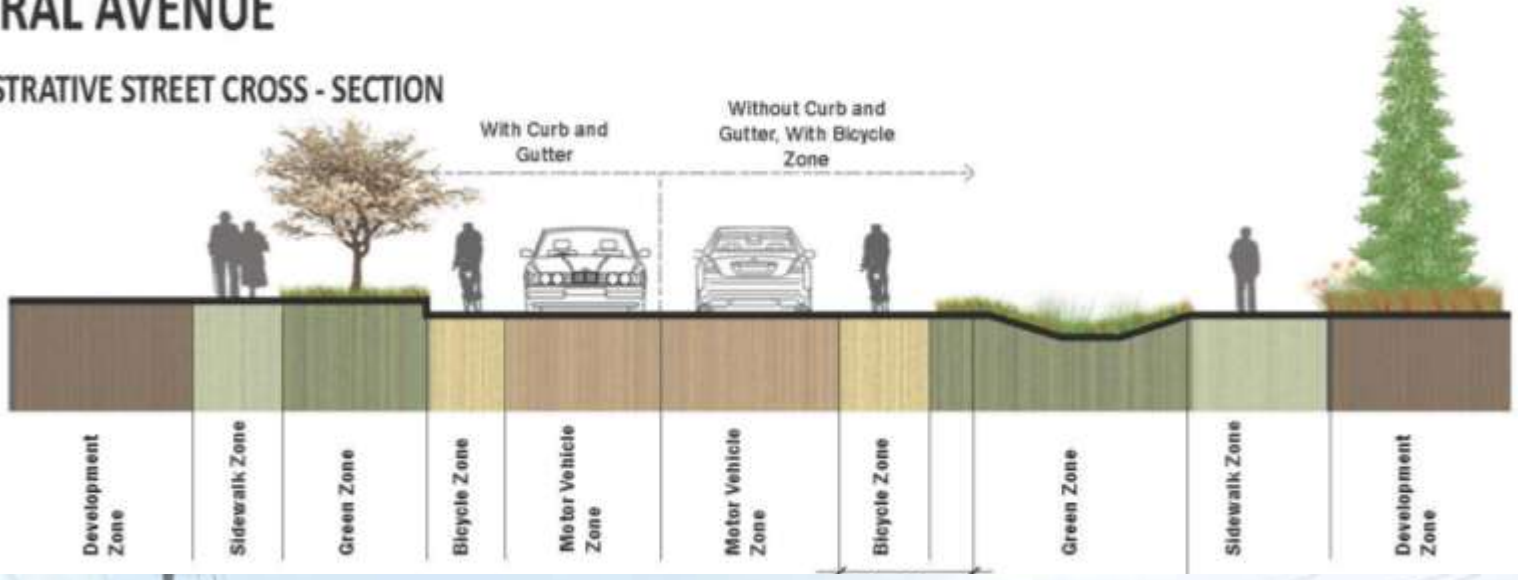
URBAN / SUBURBAN AVENUE

ILLUSTRATIVE STREET CROSS-SECTION



RURAL AVENUE

ILLUSTRATIVE STREET CROSS - SECTION



Action Plan

5-minutes for action plan

1a. Identify items in your action plan 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.

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Incorporating complete streets in **planning and design process**

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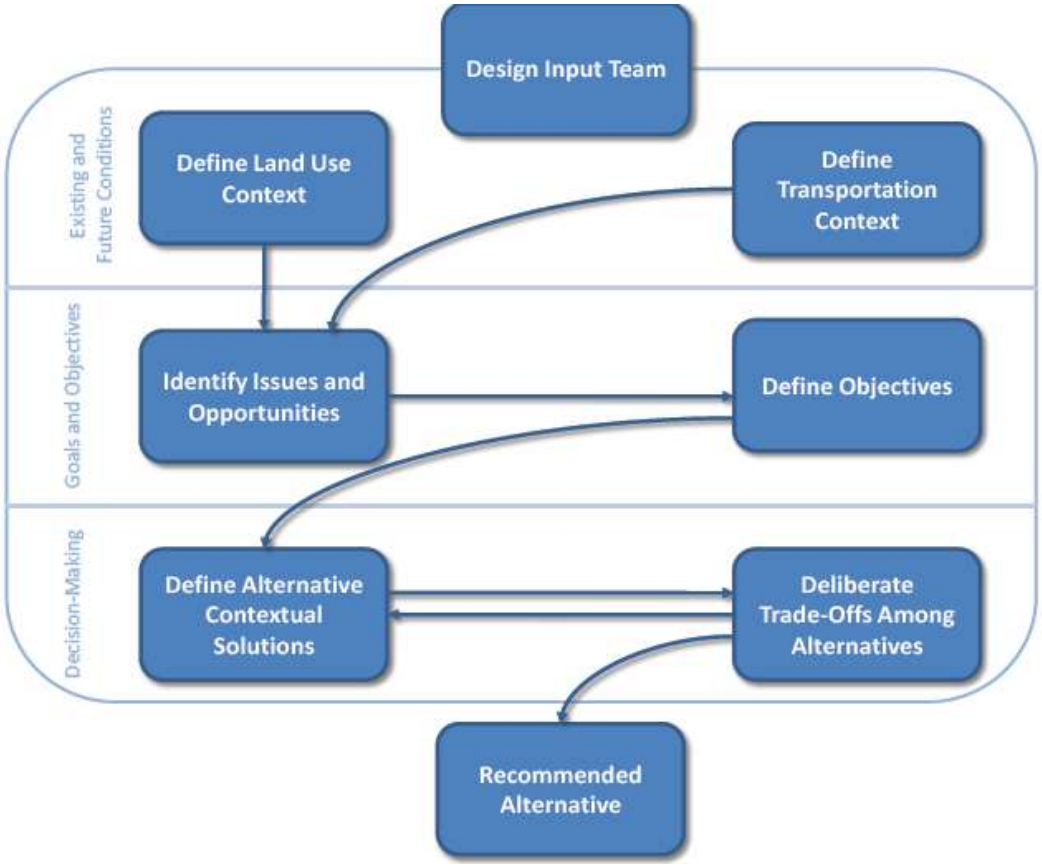
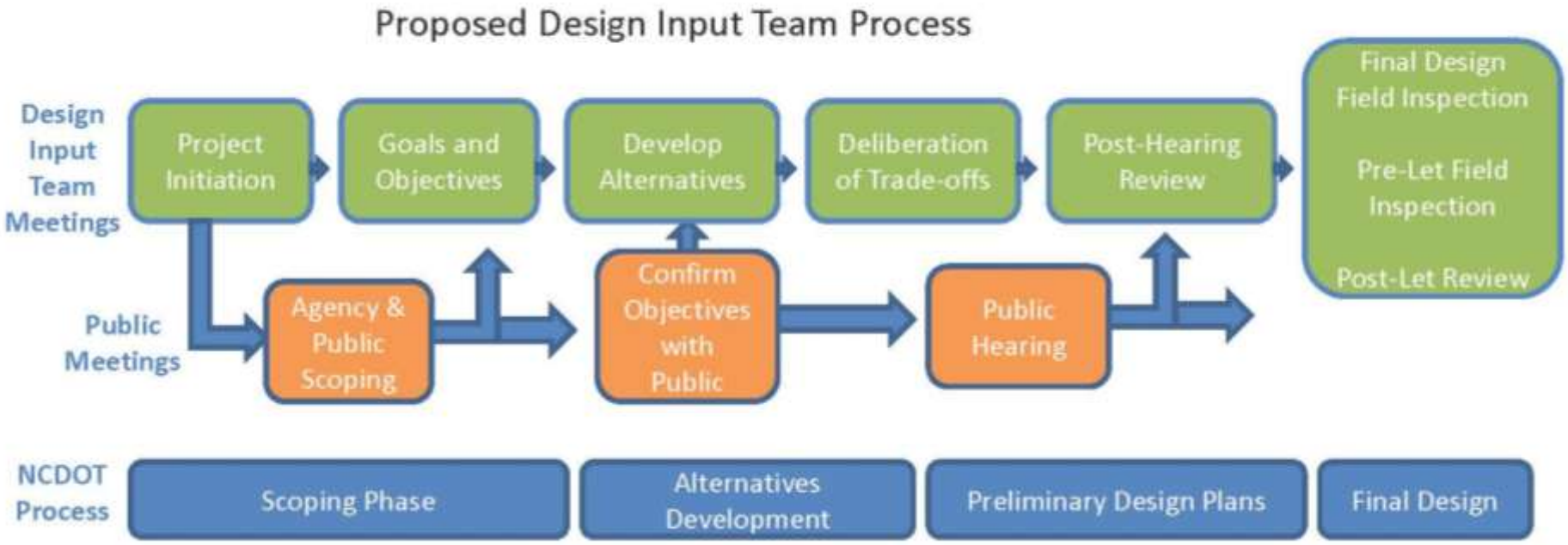
Project Development Process

Project defined and prioritized through CTP, LRTP, STIP →proceeds to project development



Project planning per Guidelines

Figure 3: Relationship Between Project Development Process and Milestones

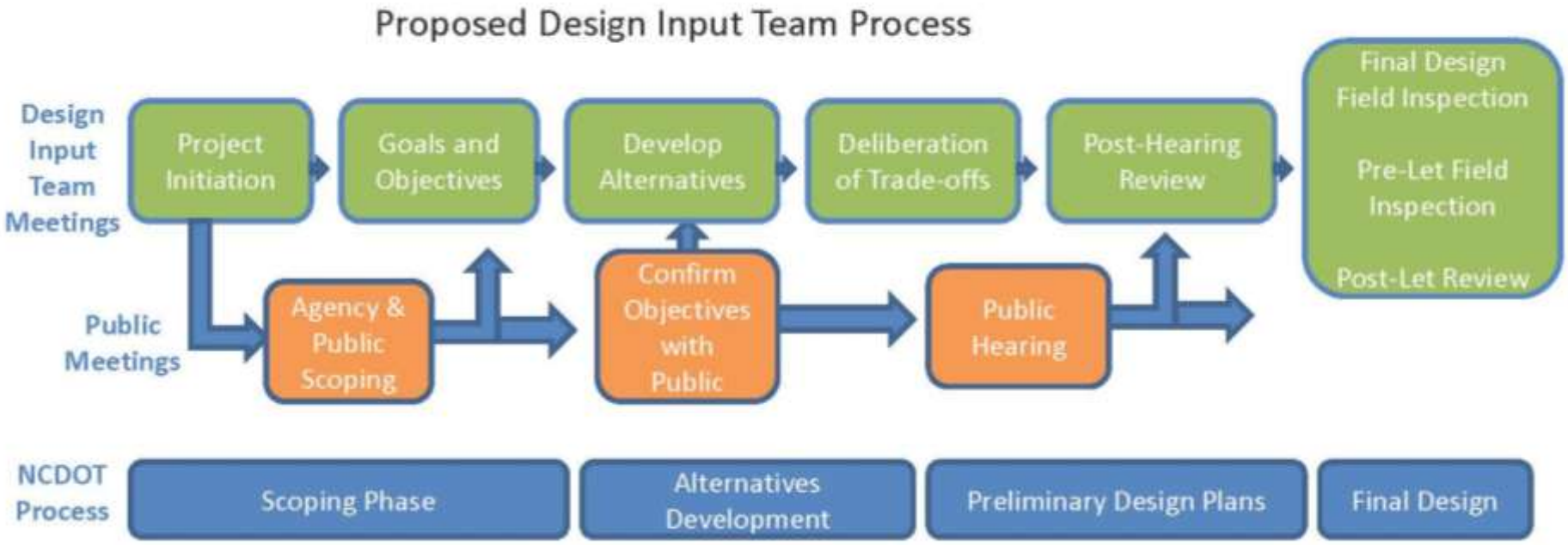


Project planning per Guidelines

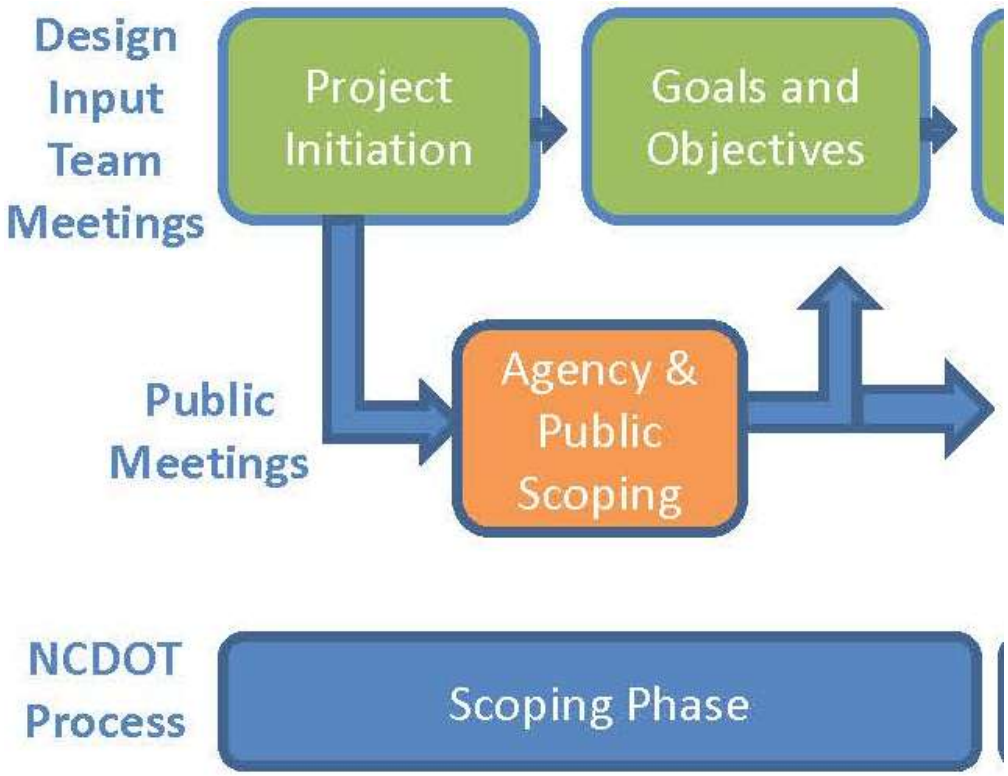
- NCDOT Roadway Design Project Engineer
- Division Construction Engineer,
- Transportation Planning Branch
- Bicycle and Pedestrian Division, Public Transportation
- Transportation Mobility and Safety
- **Local Agency Staff, MPO, RPO**

Project planning per Guidelines

Figure 3: Relationship Between Project Development Process and Milestones

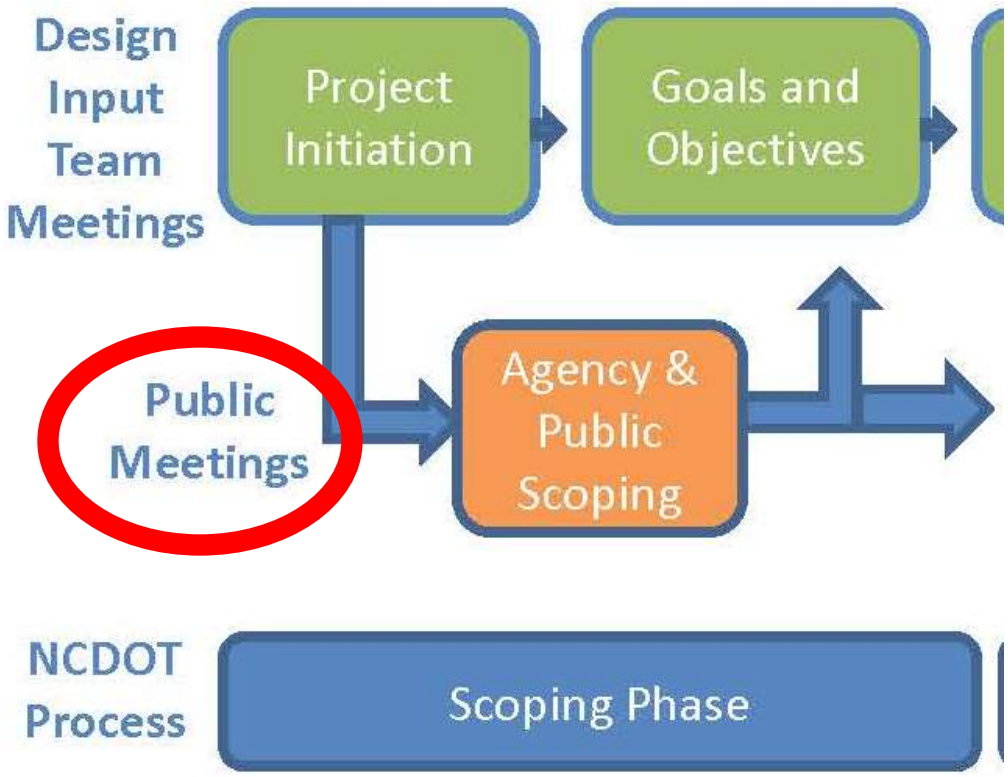


Project planning per Guidelines



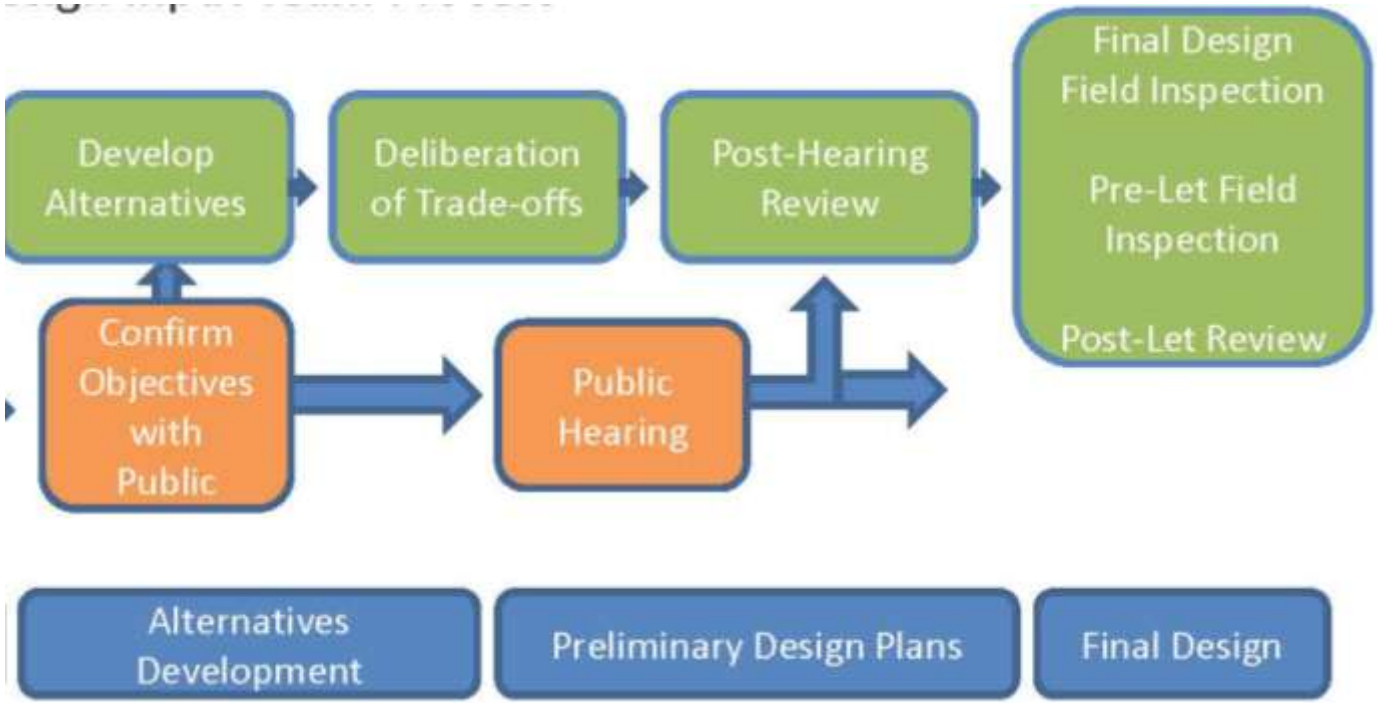
- Define land use context
  - Urban, Suburban, Rural
  - Existing / Future
  - Redevelopment
- Define transportation context
  - Mobility Goals
  - Aesthetic Goals
  - Safety Goals
- Define Project Goals

Project planning per Guidelines



Public Input is Crucial at This Stage

Project planning per Guidelines



Budget Time for an Iterative Process

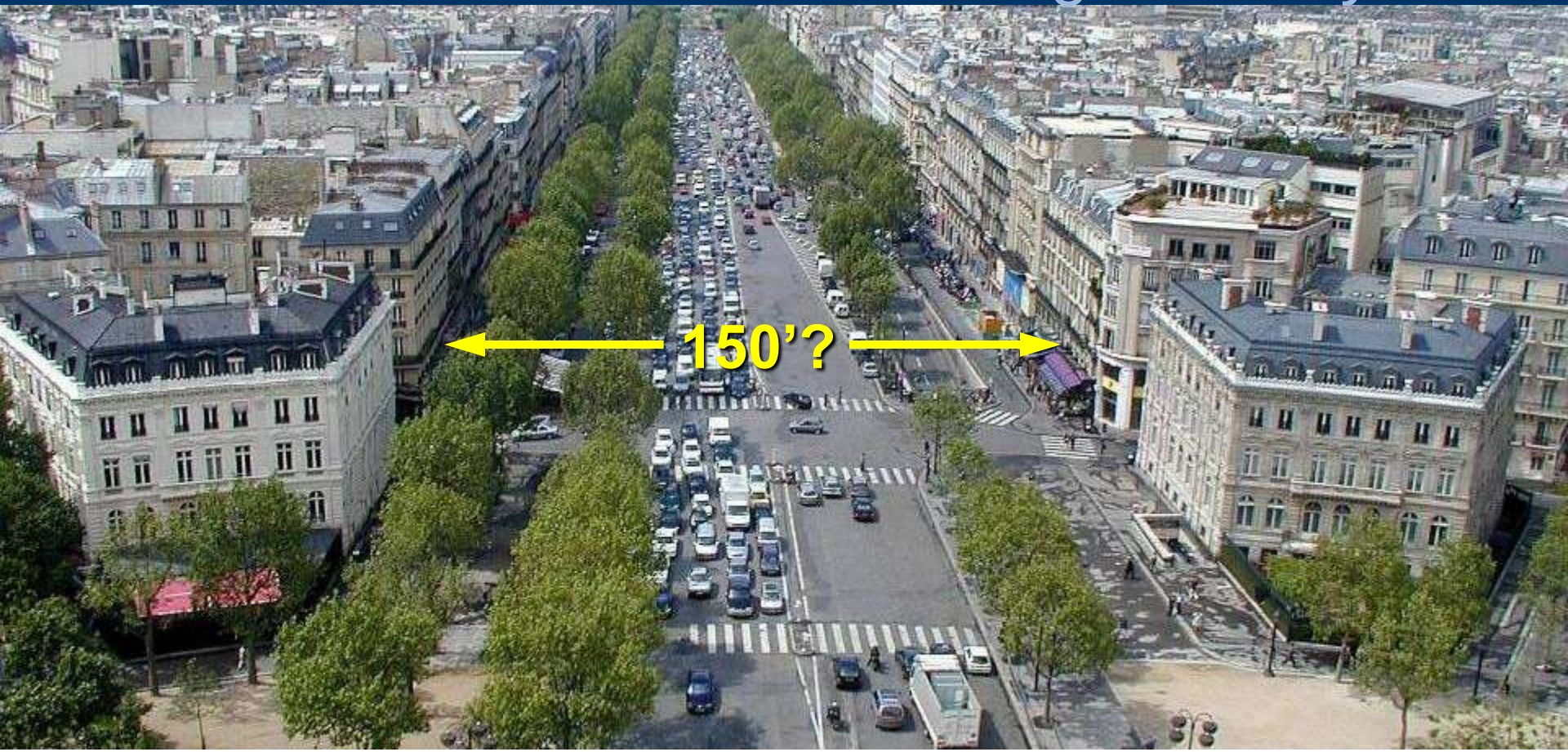
Deliberate Tradeoffs

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

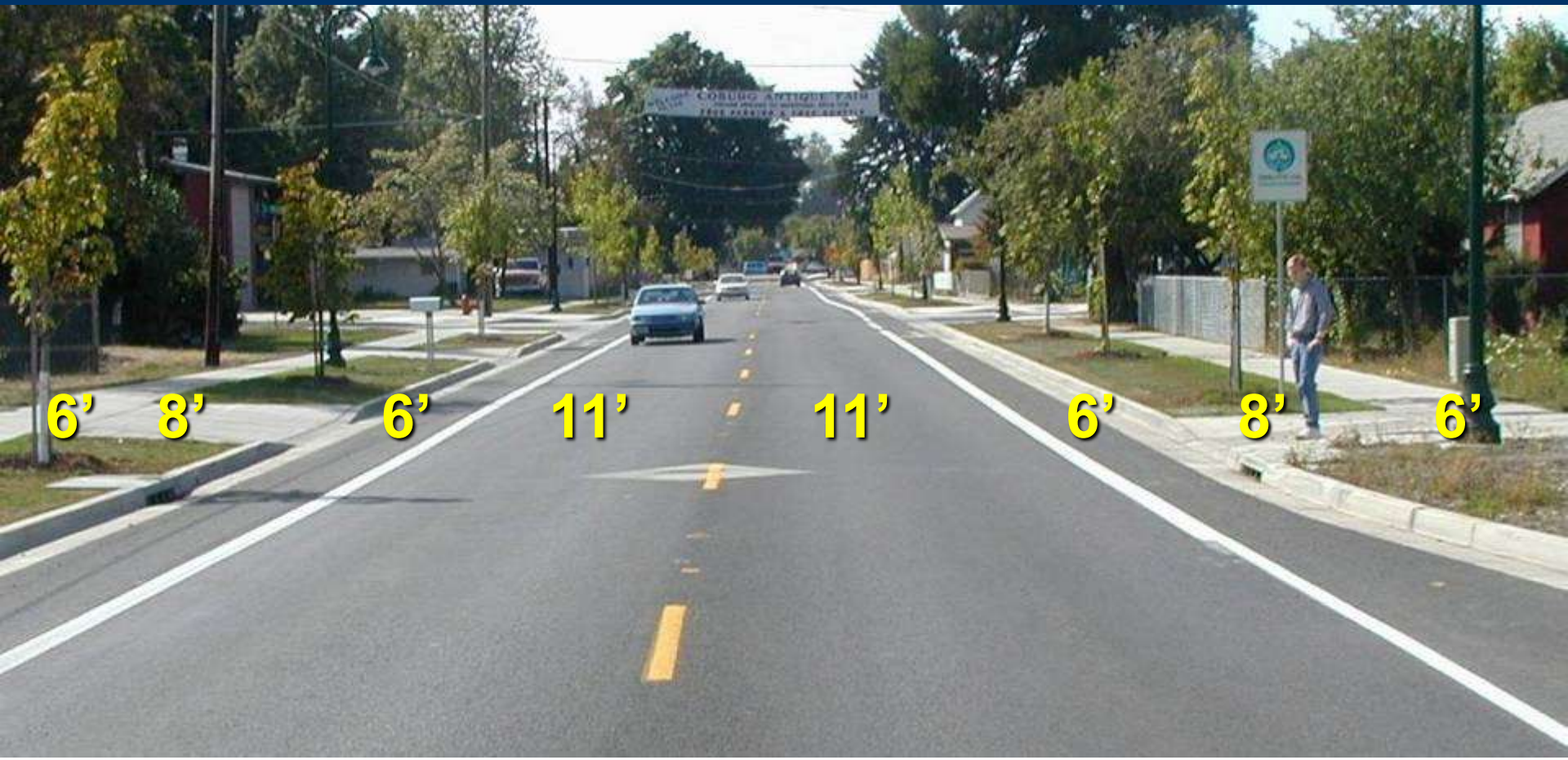


Don't ask: "How much ROW do we need?" Ask: "How much ROW do we have, what do we want, and how do we design it to fit?"

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: nice 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 $$$

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 in your action plan 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**

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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

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 in your action plan 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

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Wrap-up

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

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Thank you for your time!

www.completestreetsnc.org

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