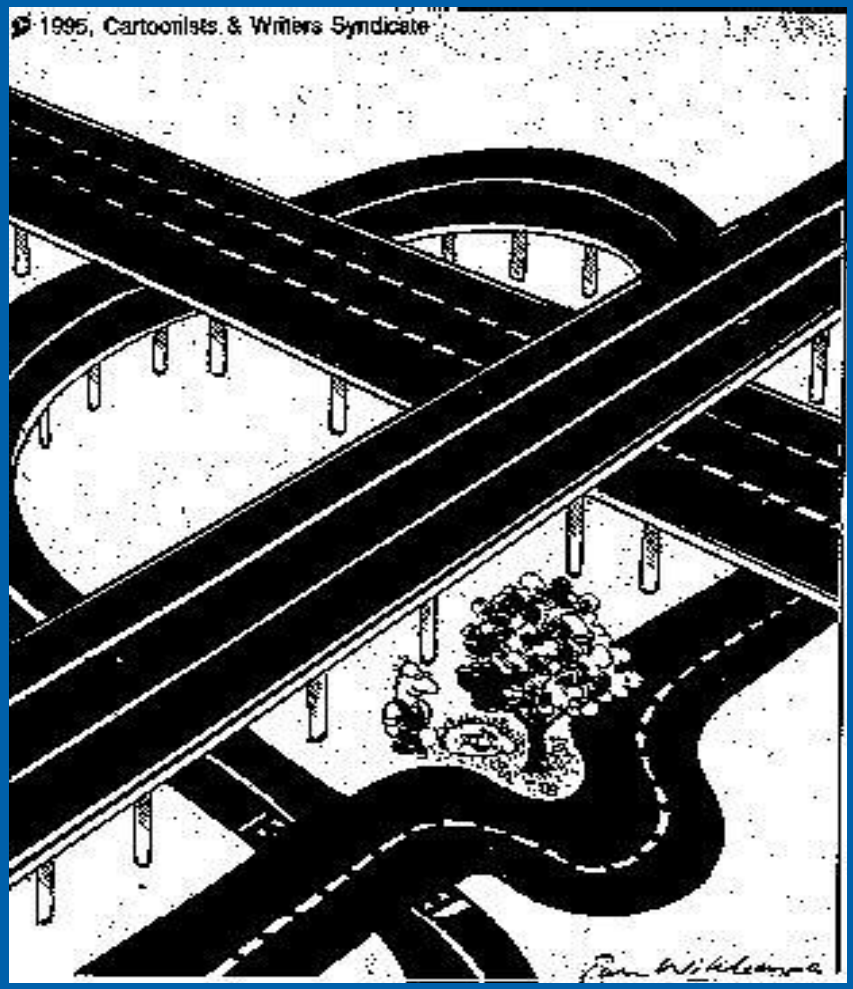
CONTEXT SENSITIVE SOLUTIONS




# The Virginia Experience

Randy Hodgson, AICP

12/5/06

- Purpose of Presentation
  - A brief overview of Virginia Department of Transportation CSS/CSD activities
  - Activities placed within Historical and Planning context
  - Examples of CSS in Virginia
  - Description of where VDOT is going with CSS

# Context Sensitive Solutions (CSS)

"Context sensitive solutions asks questions first about the need and purpose of the transportation project, and then equally addresses safety, mobility, and the preservation of scenic, aesthetic, historic, environmental, and other community values. Context sensitive solutions involves a collaborative, interdisciplinary approach in which citizens are part of the design team"

Thinking Beyond the Pavement, Maryland State Highway Administration Workshop, 1998: NCHRP 480 Report

# Principles of CSS

- **Actively engage** communities and other stakeholders early and often (Meaningful public involvement)
- **Balance** safety, mobility, and economic goals with the preservation of environmental, scenic, aesthetic, historic, and cultural values
- Build projects that add lasting value to and **minimally disrupt** communities
- **Flexible** design process
- **Exceeds the expectations** of designers and stakeholders

Source: www.fhwa.dot.gov/environment/strmlng/mar03nl.htm

**VIRGINIA DEPARTMENT OF TRANSPORTATION**
**INSTRUCTIONAL AND INFORMATIONAL MEMORANDUM**

GENERAL SUBJECT:
CONTEXT SENSITIVE SOLUTIONS

NUMBER: **IIM-LD-235**
DATE: AUGUST 23, 2006

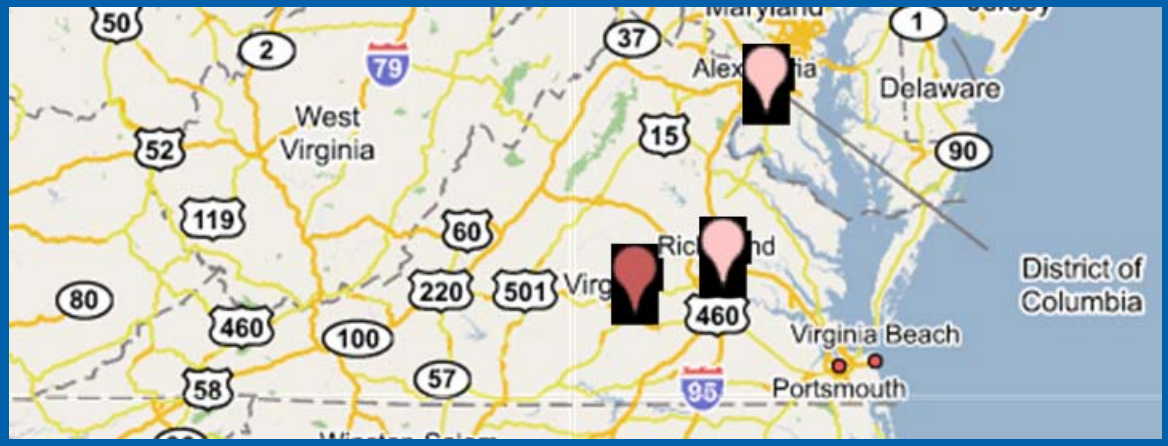
CHIEF ENGINEER APPROVAL: Malcolm T. Kerley, P.E.
Chief Engineer
Approved August 23, 2006

- IIM-LD-235
  - "a realistic and practical balance is sought between the traditional objectives, such as mobility and safety, and established community values and needs"

# CONTEXT SENSITIVE SOLUTIONS

Virginia does not have a formalized program at this time. However, the Location and Design division of Virginia Department of Transportation does implement flexibility in geometric design practices throughout the state. On some of their "higher profile" projects, they have informally, and in some cases, randomly, adopted some portions of CSS practice in the development of alternatives analysis and public involvement of key stakeholders in the project development process. VDOT also has design practices and methodologies that permit lesser geometric standards of design, depending on the types and locations of projects, funding, the nature and volume of traffic to be conveyed, etc. These fall under the overall concept of "pave in place" type projects that do not look to make significant changes in the "context" of the physical environment of the project itself.

VDOT also has a program called "Rural Rustic Roads" that addresses extremely low volume "farm to market" type roads that are in the most rural of settings. This program permits VDOT to simply pave them in place and maintain minimum roadway widths. This is not so much a design methodology as it is a maintenance option that permits them the ability to provide minor improvements to the road surfaces, add life to them, and control dust and its environmental impacts.

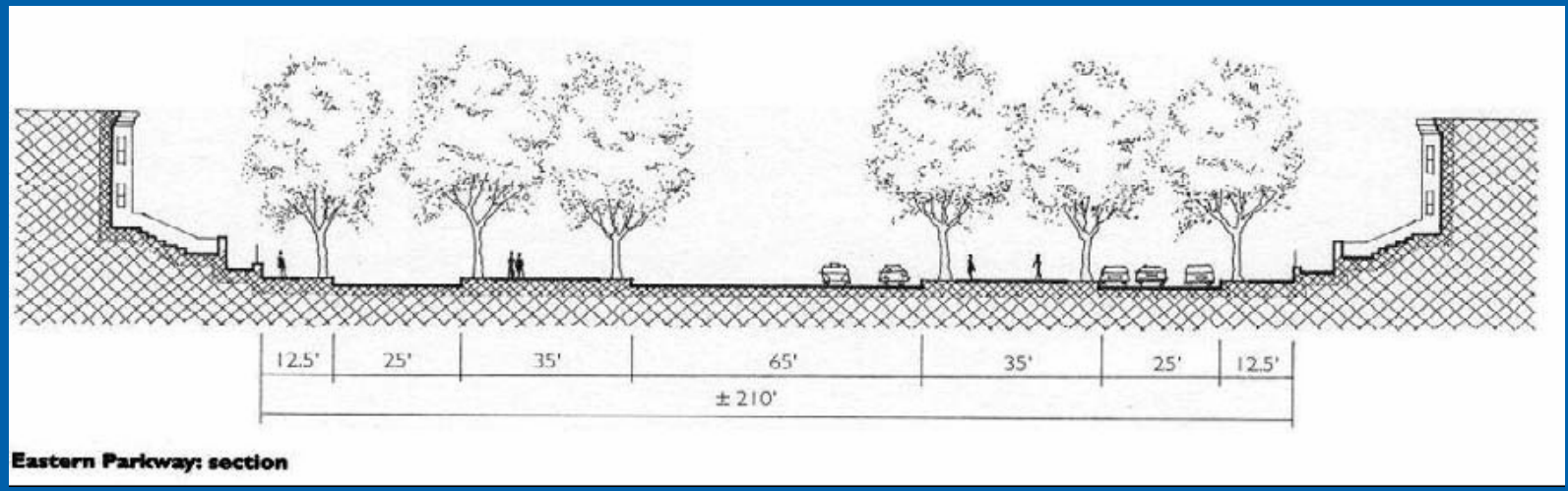



# CSS Activities at NoVA District

- TRB Meetings
- 3 day FHWA Training
- Proposal for Consultant
  - Transportation Research Council's TPRAC Study
- February 2004 Letter to VDOT from FHWA – VA Division
- NoVA District Training for Localities
- Division between Land Use Planning and Transportation Implementation

# Past History of CSD/CSS

- Late 1800s - Multi-Use Parkway
- Early 20th Century Parkways




Cross Section of
Eastern Parkway, NYC

Blue Ridge Parkway,
Tennessee

- From 1930s on, more automobiles; design speed & capacity are top criteria
- Functional Classification / mimicking zoning

# Recent History

- AASHTO recommends a National Highway System (1988)
- ISTEA (1991)
- AASHTO adopts National Highway System design standards (1994)
- NHS Designation Act (1995)

Excerpt from 1995 NHS Designation Act:

– A design for new construction, reconstruction, resurfacing...restoration, or rehabilitation of highways on the National Highway System (other than a highway also on the Interstate System) may take into account...[in addition to safety, durability and economy of maintenance]...
  - the constructed and natural environment of the area;
  - the environmental, scenic, aesthetic, historic, community, and preservation impacts of the activity; and
  - access for other modes of transportation.

- ISTEA (1991)
- Five pilot states selected to implement CSS Approach (Conn., KY, MD, Minn. & Utah) (1998)
- FHWA's Flexibility in Highway Design (1997)
- AASHTO prepares bridging document between Green Book and Flexibility in Highway Design called Guide for Achieving Flexibility in Highway Design (1999)

# Moving away from “Design and Defend”

- A more collaborative model
- “If the design of streets is linked to how communities grow and prosper, how people interact with one another, and peoples’ sense of citizenship belongs to stewardship, then our street design process must come from a fundamentally different starting point than traditional traffic engineering design manuals”
  - New Urbanism

# FHWA CSD/CSS Training

Competing Objectives:

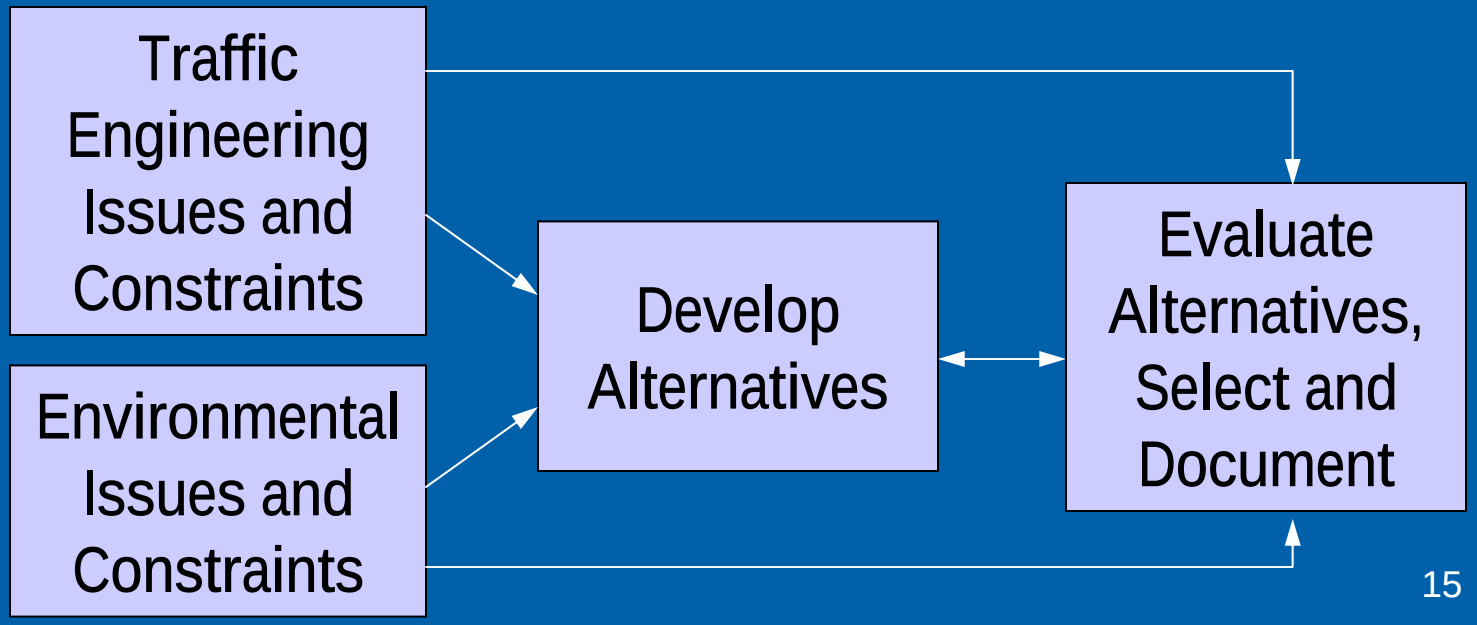
- Business access vs. traffic safety
- Auto-oriented vs. pedestrian-friendly design
- Revitalization/improved image vs. status quo
- Economic development vs. farmland preservation
- Increased traffic capacity vs. minimized neighborhood impacts
- Sidewalks vs. loss of parking

# Competing Objectives May Provide Opportunities:

- Highlights different interpretations of community vision
- Improves in-depth discussion of trade-offs
- Enables stakeholders to learn from – and empathize with – other points of view
- Allows planners/designers to understand the “context” for decision-making
- Encourages planners/designers to develop comprehensive solutions that find common ground and balance needs

## ‘Old Model’


## ‘New Model’ – Integrates Environmental Studies with Engineering



- Tort Liability and CSS
  - What features of CSS potentially increase liability?
    - Features that conflict with accepted safety principles for transportation facilities
    - Design flexibility that allows ad hoc design rather than designs based on pre-existing standards
  - Is there immunity for design decisions?
    - Only in some jurisdictions
    - Generally limited to designs that comply with accepted standards

- Tort Liability and Risk Management (cont.)
- "CSS does not mean one can "throw away the book" or otherwise ignore what is considered professional care" - (VDOT L&D Presentation to Fairfax County)
  - Good Design practice and risk management demands we employ 'best practices' (meet the standard of care)
  - Indeed – CSS demands we understand the basis or background behind 'best practices'

# Tort Liability and Risk Management (cont.)

- "The AASHTO Policy is a flexible document; the intent is for it to be used flexibly and responsibly"
  - Flexibility
    - The design process includes choices
    - AASHTO criteria are flexible
  - Responsibility
    - Choices should be reasonable and consistent
    - Choices should reflect purpose and need

# Examples of CSS in Nova District

- Route 50 Traffic Calming
- I-66 Inside the Beltway
- Hunter Mill Road Traffic Calming

# Route 50

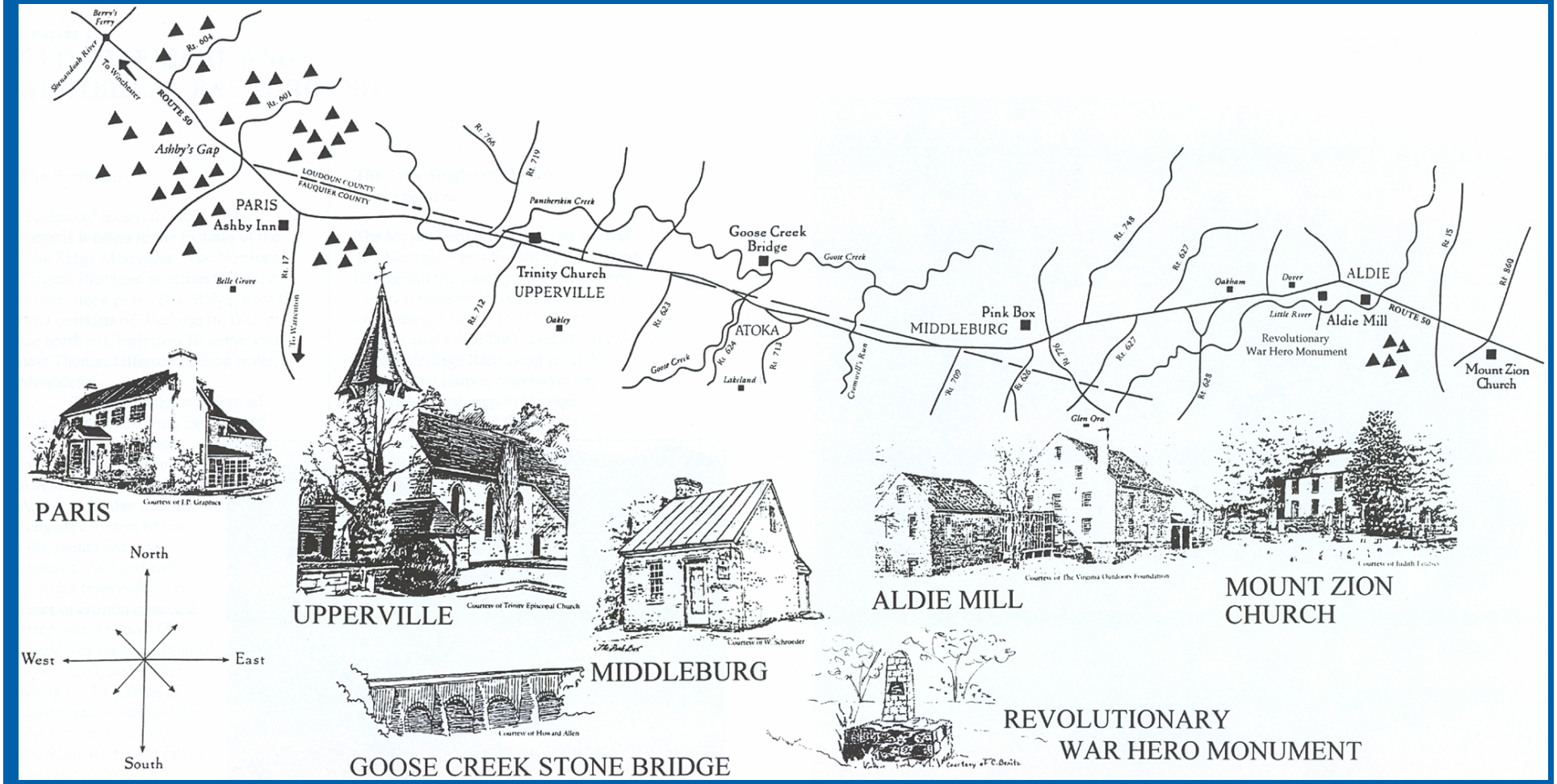
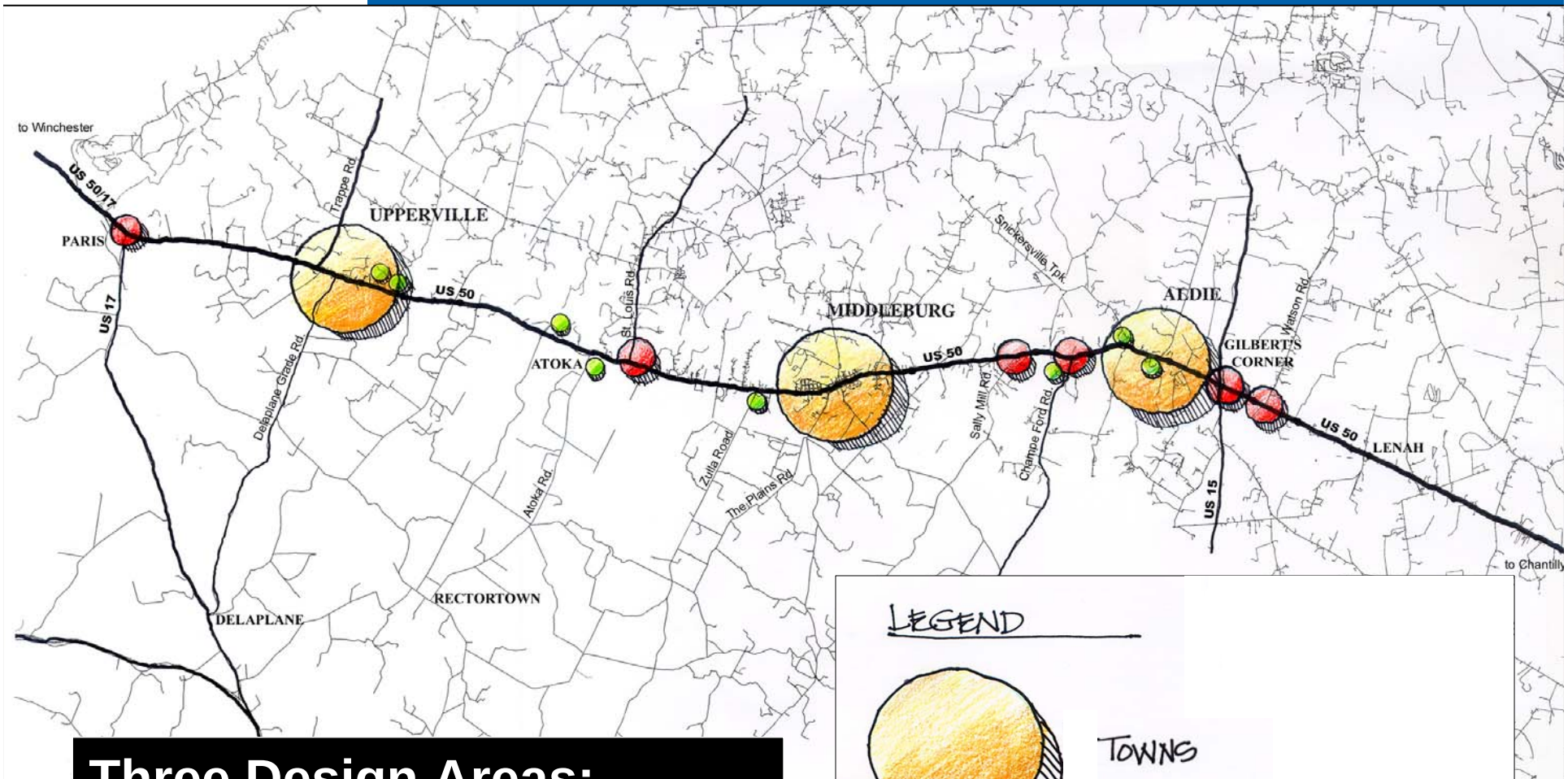



**Figure published in *A Traffic Calming Plan for Virginia's Rural Route 50 Corridor***

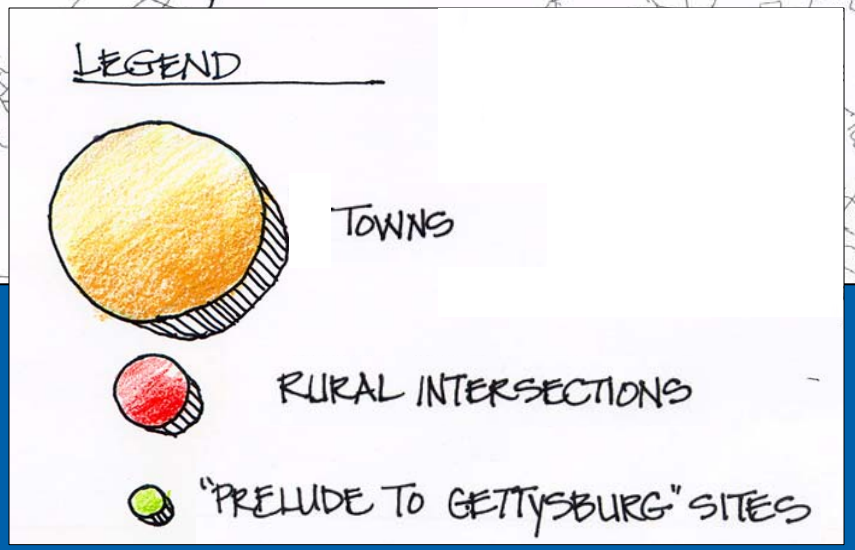
***Developed at a grassroots level…***

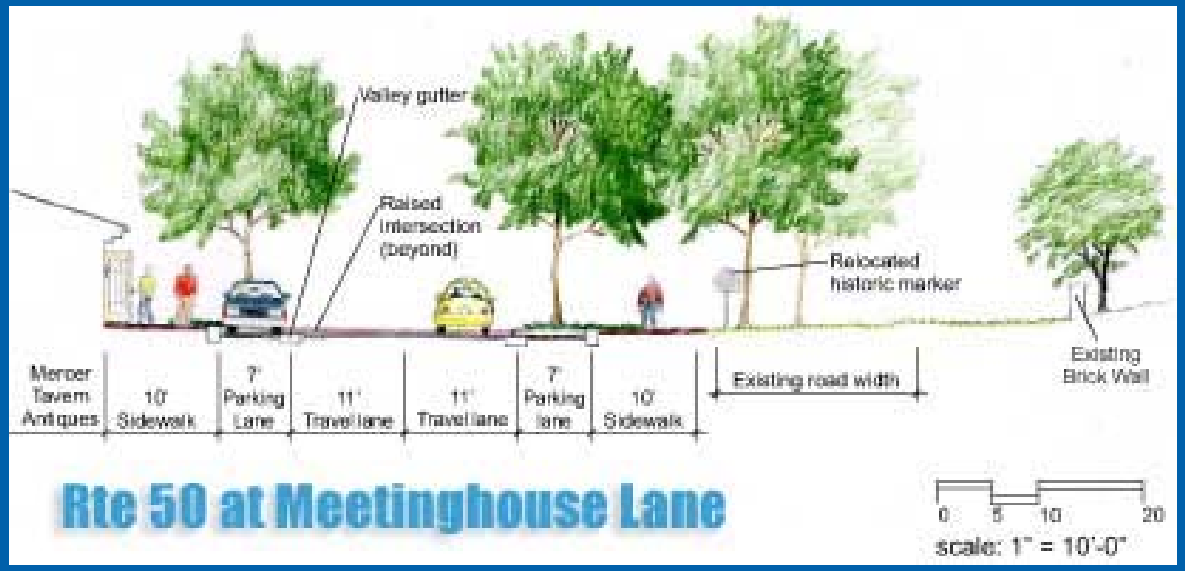
- **Public Workshops/Meetings**
- **Design Charrettes**
- **Small Group Meetings**
- **Public Hearing**




## Three Design Areas:

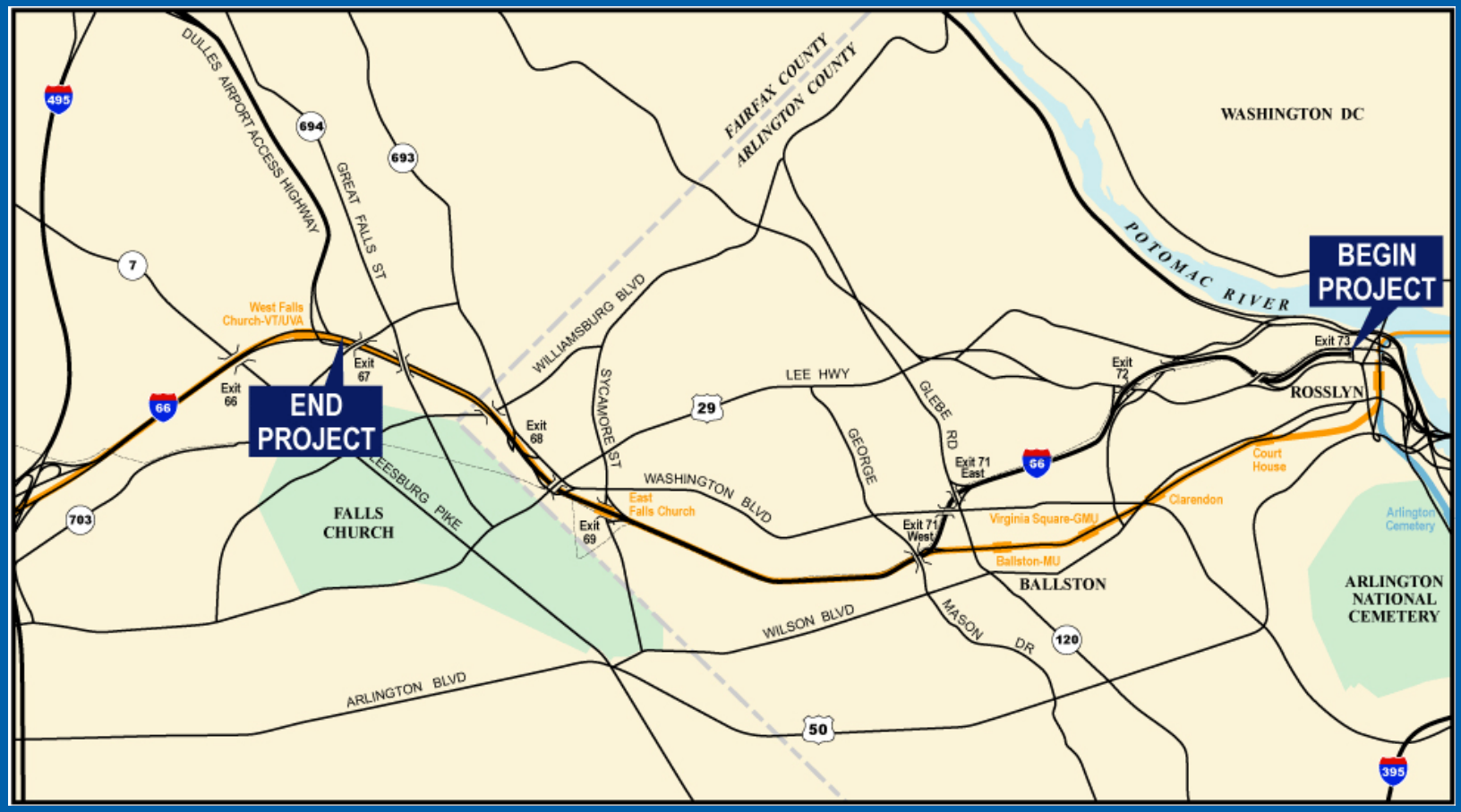
- **Rural Areas** — **50 mph**
- **Transition Areas** — **35 mph**
- **Towns** — **25 mph**




Valley gutter
Raised intersection (beyond)
Relocated historic marker
Existing Brick Wall
Mercer Tavern Antiques
10' Sidewalk
7' Parking Lane
11' Travel lane
11' Travel lane
7' Parking lane
10' Sidewalk
Existing road width
Rte 50 at Meetinghouse Lane
0 5 10 20
scale: 1" = 10'-0"


1
2
3
Aldie's West End

# I-66 Inside the Beltway



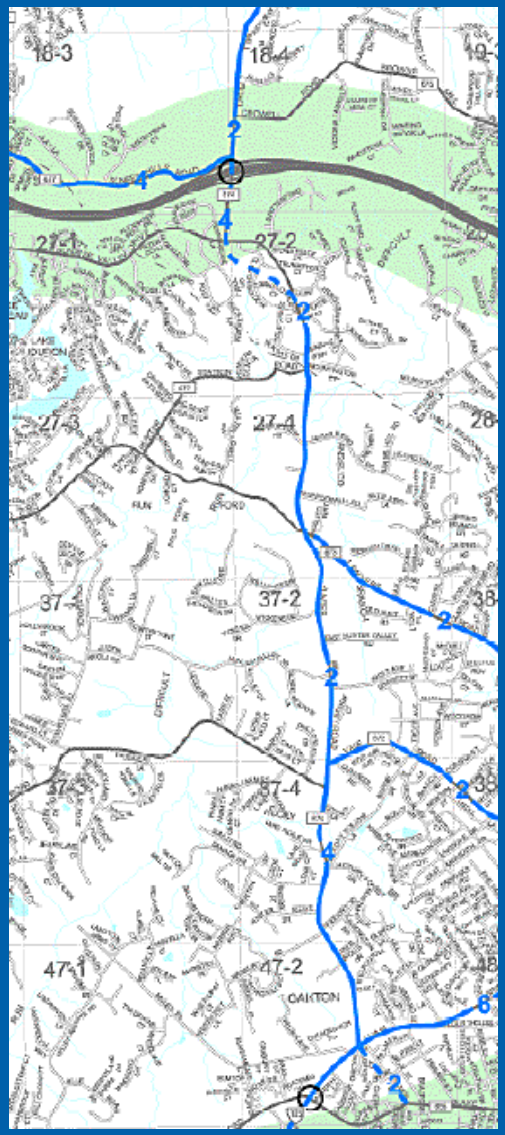
# I-66 Inside the Beltway

## SPOT IMPROVEMENTS

| Spot Improvement | Description | Comments |
|---|---|---|
| 1 | Lane Balancing – Fairfax Drive on-ramp to Sycamore Street off-ramp | |
| 2 | Lane Balancing – Sycamore St/Washington Blvd on-ramp to DAAR off-ramp | |
| 3 | Lane Balancing – Lee Hwy/Spout Run on-ramp to Glebe Road off-ramp | |
| 4 | Lane Balancing – Scott Street on-ramp to Lee Highway on-ramp | |
| 5 | Enforcement Areas/Safety Pull-off Areas | |
| 6 | Reconstruct Outside Shoulder | |
| 7 | Add lane to Sycamore St/Washington Blvd on-ramp | Included in #2 Above |
| 8 | Signing Evaluation Study | |
| 9 | TMS Evaluation Study | On-going Study |
| 10 | Sight Distance Improvement Study | |
| 11 | Optimize Signalization for Parallel Roadways Study | Updated Yearly by Arlington County |
| 12 | Evaluate Ramp Metering Study | On-going Study |

# Hunter Mill Road Traffic Calming

- Minor Arterial
  - 19,000 Daily Volume
  - 2 and 4 lane segments listed
- Stakeholder Concerns:
  - Speed/Safety
  - Character of Development
  - Multi-use Compatibility

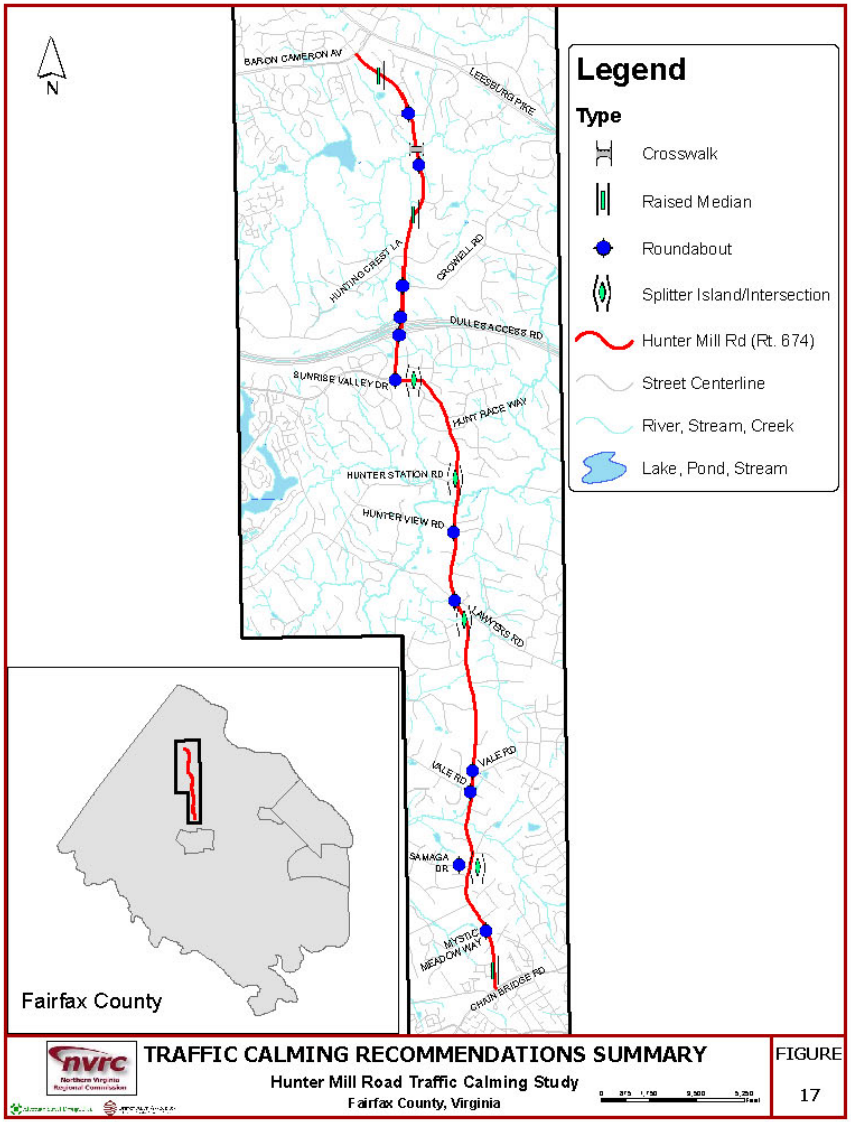


# Study Goals

- Safe corridor for all travelers – auto, pedestrian, bikers, equestrians.
- Optimum efficiency of a 2-lane roadway.
- Maintain, enhance, minimize adverse impacts to Scenic Byway character.
- Enhance neighborhood livability conditions through traffic calming techniques.

# Study Options

- Do-nothing option or retain the status quo.
- Traditional engineering highway plan that includes widening and straightening the vertical and horizontal curves of the roadway and traffic lights at intersections.
- Traffic calming alternative plan that includes signage, splitters, and roundabouts, providing for trails for pedestrians, cyclists, and equestrians, and crosswalks at street intersections and trail crossings.


N
BARON CAMERON AV
LEESBURG PIKE
HUNTING CREST LA
GROVELL RD
DULLES ACCESS RD
SUNRISE VALLEY DR
HUNT RACE WAY
HUNTER STATION RD
HUNTER VIEW RD
LAWYERS RD
VALE RD
VALE RD
SAMAGA DR
MYSTIC MEADOW WAY
CHAIN BRIDGE RD
Legend
Type
Crosswalk
Raised Median
Roundabout
Splitter Island/Intersection
Hunter Mill Rd (Rt. 674)
Street Centerline
River, Stream, Creek
Lake, Pond, Stream
Fairfax County
nvrc
TRAFFIC CALMING RECOMMENDATIONS SUMMARY
Hunter Mill Road Traffic Calming Study
Fairfax County, Virginia
FIGURE
17

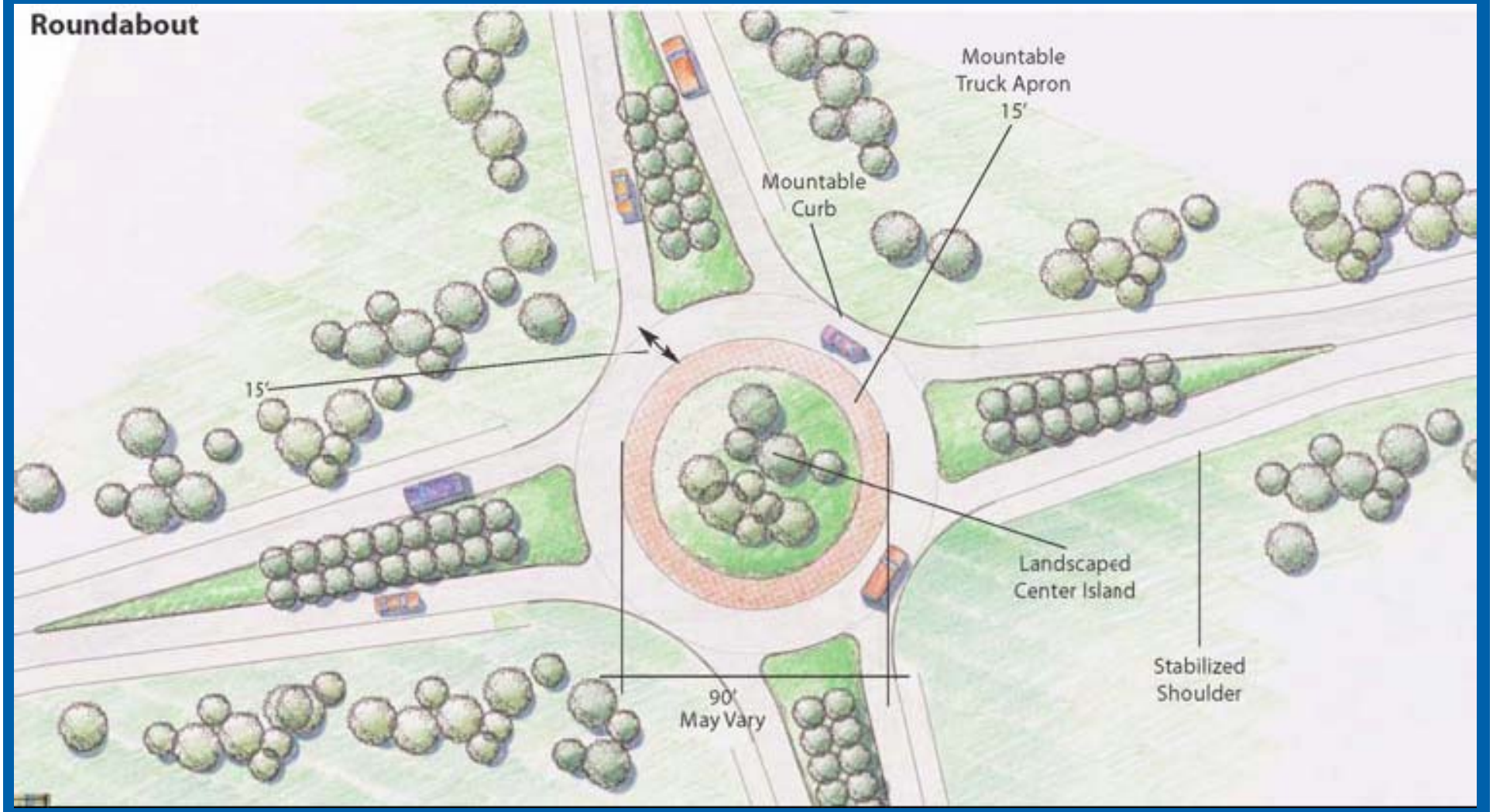

In-Town Splitter Island
Taper at 1:10
SPLITTER WITH CROSS WALK
Hunter Mill Road Traffic Calming Study
Fairfax County, Virginia
FIGURE
25


# COLVIN RUN BRIDGE CONCEPT

**Hunter Mill Road Traffic Calming Study**

Fairfax County, Virginia

**FIGURE 34**


Roundabout
Mountable
Truck Apron
15'
Mountable
Curb
15'
Landscaped
Center Island
Stabilized
Shoulder
90'
May Vary

# Shelburne/Glebe Road in Loudoun County

# Kelly's Ford in Culpeper-Fauquier

# Example Urban Intersections and Treatments


*Alexandria, VA*

# Lessons learned from FHWA Pilot States

- Broad Skill requirements for Project Managers
- Diverse project teams for life of project
- Need for training in CSS
- Need for additional skills and resources
- Development and dissemination of specific policies and procedures
- Importance of keeping promises through construction
- Need for improved information management

# Conclusions:

# Where VDOT is headed


VDOT