Virginia's Highway System

57,867 miles of state-maintained system

1,118 miles of Interstate
8,111 miles of Primaries
48,305 miles Secondaries
More than just roads…

VDOT is also responsible for

- 12,603 bridges +
- 4 underwater crossings in the Hampton Roads area
- 2 mountain tunnels
- 3 toll roads
- 1 toll bridge
- 4 ferry services
- 41 safety rest areas
- 10 welcome centers
- More than 100 commuter parking lots
Operations Directorate

Chief of System Operations

- Maintenance
- Operations and Security
- Operations Planning
- Traffic Engineering
Traffic Engineering Division

State Traffic Engineer

Safety
- Highway Improvements
- Work zones
- Crash Records

Engineering Studies and Data Analysis
- Traffic Monitoring
- Data Analysis
- Studies
- System Analysis

Traffic Control Devices
- Traffic Systems Management
- Electrical Systems management
- Special Signing
- TCD Engineering
- Program Planning & contracts
**Roundabouts: The Virginia Experience**

Roundabout Program Formally Established in Virginia in 1997

- Encouraged new roundabouts on construction projects
- Created centralized review committee
- Relied on FHWA guidance; Currently use "Roundabouts: An Informational Guide"
- Use aaSIDRA for evaluations
Approval Process

District Approves:
- Approach volumes $\leq 10,000$ vpd
- Subdivisions

Review Committee:
- 4 members representing TE, L&D & Planning
- State L&D engineer makes final decision
- 101 operating; 104 in planning stages
Google Earth Aerials

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Google Earth Aerials

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Design Features

Follow Roundabout Design Guide

• Parking normally not allowed within functional area of roundabouts (bulb outs may be an exception)

• Recommend curbs on approaches and throughout roundabout to provide better containment of vehicles

• Prefer raised splitter islands but have allowed flush if no ped traffic.

• Have used exclusive right turn lanes but have concerns with merge points where ROW limits acceleration lane
Challenges

Pedestrians and bicyclists

- All ped crossings comply with ADA requirements; designed to provide shortest walking distance possible.
- Use 6’ wide raised splitter islands at the ped crossing point
- All ped crossings are located 20’ upstream
- Sidewalk widths range from 5’ up to 10’ when shared use
- Recommend a minimum 2’ landscaping strip between sidewalks and curb
- Bike lanes terminate 100’ prior to the edge of the circulatory roadway; bikes can use curb cut ramps/sidewalks
Va Tech Campus
VUU City of Richmond
Challenges (continued)

Access / driveways in close proximity
- Shift; Shortened splitter islands or used flush islands
- Will allow access to gas station only in rural, less congested area.
- Acquire parcel as last resort

Trucks
- Mountable curbs used on truck aprons; Less mountable curbs used on approaches / departures from roundabout.
- For inside truck aprons, the slope should be similar to the roadway
- Outside truck aprons for easier right turns by large trucks
- Evaluations include auto turn tracking.
Christopher Newport University
(Newport News)
Outside Truck Aprons
Challenges (continued)

**Landscaping**
- Encourage landscaping as long as sight lines are maintained

**High Speed Approaches**
- Lane narrowing such as low growth plants/raised islands
- Signing
- Speed reductions
- In-lane rumble strips

**Lighting**
- Advocate for lighting at each location; if cost prohibitive, we recommend retro-reflective edge line markers or Bollards
Amherst Roundabout
Traffic calming

- Different objectives than traditional roundabouts
- Use consistent yield at entry and deflection to maintain driver expectancy
Challenges (continued)

- **Driver Education / Public Opinion**
  - Website / video
  - Coordinate with DMV
  - Pamphlets
  - Simulation at public hearings

- **Educate and Train VDOT designers, traffic engineers and planners**
  - Think beyond on-time and on-budget during project development
  - Break out of signal comfort zone
  - More evaluation needed
Town of Amherst
Questions?
Gloucester