Chief Deputy Commissioner Rob Cary, PE, LS
Strategic Highway Research Program (SHRP) 2 – Implementation (Round 6)

- VDOT participated in the implementation for SHRP 2 renewal product R21: Composite Pavement System

- Constructed a section in Oct. 2017
  - US 60 West in Richmond
  - 8-inch Continuously-Reinforced Concrete Pavement (CRCP)
  - Overlaid immediately with 2-inch Stone Matrix Asphalt (SMA)

- VDOT and FHWA arranged a Peer Exchange
  - Several state DOTs and Illinois Tollway
  - Federal Highway Administration
  - American Concrete Pavement Association and Virginia Asphalt Association
**Benefits of Composite Pavement – SHRP 2 Study**

- Optimized pavement surface (friction, noise, etc.)
- Renewable (surface mill and fill)
- Designed as composite structure (cost competitive)
- Long service life
- VDOT has good experience
  - Old CRCP overlaid with SMA
  - Pavement Condition Rating
    - Mostly > 80 after 15 years of service

![Performance of SMA BOC](chart)
Construction

Concrete removal

Base stabilization

Reinforcing steel

CRCP– One lane paving

Concrete finishing

2-inch asphalt overlay

Virginia Department of Transportation
Ride Quality

- International Roughness Index
  - Left lane – 58 in/mile
  - Right lane – 55 in/mile
- Overall roadway received bonus
One Year In Service

- Performing satisfactorily
- VDOT plans to monitor long-term performance
Major Projects
Hampton Roads Bridge-Tunnel Expansion Project

- Settlers Landing in Hampton to Interstate 564 Norfolk (10 miles)

- I-64 improvements include 6 lanes of highway and drivable shoulder, and construction of 4-lane bridge/tunnel

- New HRBT tunnels will serve eastbound traffic

- Two existing HRBT tunnels will serve westbound traffic
495 Express Lanes Extension Study

- Three-mile northern extension of Express Lanes from Dulles Toll Road to the American Legion Bridge/Maryland line
- To reduce congestion, improve safety, provide additional travel choices and reliability
- Closely coordinated with Maryland’s plans
- Environmental study expected to be complete in Spring 2019
- Public information meeting in Spring 2019 and location public hearing in Fall 2019
I-95 Auxiliary Lane at Occoquan

- New southbound auxiliary lane in Woodbridge to address bottleneck at the Occoquan Bridge
- Connects the southbound Route 123 ramp to I-95 with the off-ramp to Prince William Parkway
- VDOT to construct under agreement with Transurban
- Under development with construction as early as 2020
95 Express Ramp at Opitz Boulevard

• Under agreement with Transurban, adds a new, reversible ramp connecting the existing 95 Express Lanes at Opitz Boulevard

• Will provide improved access to Potomac Mills and Sentara Virginia Medical Center

• Will offer Express Lanes’ drivers the option to exit directly onto Opitz Boulevard

• Design and construction to be completed by Transurban, work begins as early as 2020
I-95 Projects
Fredericksburg Area

Nearly $1 billion in highway corridor investment

Major I-95 projects finished by 2023:
• I-95 Express Lanes Fredericksburg Extension
• I-95 Rappahannock River Crossing – NB and SB
• Exit 140 Diverging Diamond Interchange and Widening

Plus:
• New commuter parking
• I-95 overpass replacements
• Virginia Railway Express station improvements
**I-95 Fredericksburg Area Improvements Timeline**

- **2018**: Exit 140 – Diverging Diamond Interchange
- **2019**: I-95 Express Lanes Fredericksburg Extension “FredEx”
- **2020**: I-95 Southbound Rappahannock River Crossing
- **2021**: I-95 Northbound Rappahannock River Crossing
- **2022**: Exit 118 Interchange at Thornburg
- **2023**: All new lanes open to traffic
- **2024**:
I-95 Express Lanes Fredericksburg Extension (FredEx)

- Extends I-95 Express Lanes 10 miles south to Route 17 interchange
- Two reversible lanes – tolled facility
- Connects with I-95 Rappahannock River Crossing projects
- Replaces American Legion and Truslow Road overpasses
- New access at Route 17, Courthouse Road and Russell Road at Quantico interchanges
I-95 Rappahannock River Crossings, Northbound and Southbound

- Southbound construction underway by Wagman Heavy Civil, Inc., with design partner JMT, Inc.

- Northbound construction to begin late 2020

- Combined $264 million total cost – estimated $132 million for each direction

- Provides 3 new through-traffic lanes on I-95 southbound between Exit 133 in Stafford and Exit 130 in Fredericksburg, and proposes several additional lanes on same segment of I-95 northbound

- New lanes will interface with Express Lanes extension

- New bridges to be built over the Rappahannock River to carry through lanes in the median

Around 150,000 vehicles a day travel on I-95 between Exit 133 in Stafford County and Exit 130 in Fredericksburg, over the Rappahannock River bridges
Performance Measures
# Pavement Statewide Performance Measures

<table>
<thead>
<tr>
<th>Performance Measure Description</th>
<th>Current Policy (Percent Sufficient)*</th>
<th>Updated Policy (Percent Sufficient)</th>
<th>Current Performance 2018 (Rounded) (Percent Sufficient)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interstate</td>
<td>82% No Section CCI less than 30</td>
<td>82% No Section CCI less than 35</td>
<td>91%</td>
</tr>
<tr>
<td>Primary</td>
<td>82%</td>
<td>82%</td>
<td>85%</td>
</tr>
<tr>
<td>Secondary</td>
<td>65%</td>
<td>65%</td>
<td>60%</td>
</tr>
</tbody>
</table>

Current funding sustains interstate and primary condition

Additional funding required to achieve secondary target

*Sufficient means “Fair” or better

**NOTE:** Objective is to *sustain or improve* current performance on the interstate and primary and achieve target on the secondary
## Bridge Statewide Performance Measures

<table>
<thead>
<tr>
<th>Performance Measure Description</th>
<th>Current Policy (Percentage Not Structurally Deficient)*</th>
<th>Updated Policy (Percentage Not Structurally Deficient)</th>
<th>Current Performance (VDOT and Localities) (Percentage Not Structurally Deficient)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statewide</td>
<td>92%</td>
<td>95.5%</td>
<td>96.0%</td>
</tr>
<tr>
<td>Interstate</td>
<td>97%</td>
<td>99%</td>
<td>98.8%</td>
</tr>
<tr>
<td>Primary</td>
<td>94%</td>
<td>96%</td>
<td>96.7%</td>
</tr>
<tr>
<td>Secondary</td>
<td>89%</td>
<td>94%</td>
<td>95.4%</td>
</tr>
</tbody>
</table>

Updated Performance Goals are Predicted to be Attained with Current Funding by the End of FY18

*Bridges that are not Structurally Deficient are in a “Fair” or “Good” Condition

**NOTE:** Objective is to **sustain or improve** current performance on the interstate and primary and achieve target on the secondary
Despite the improvement with Structurally Deficient (SD) Bridges, there is a wave of Bridges in Fair Condition at risk of becoming SD in the coming years if not addressed in the near term.
- 24% (5,151) of all Bridges are "cusp" (on the verge of becoming SD)
- 214 on Urban System
- 79% of Interstate Bridges are in Fair Condition
- 61% of all Bridges are in Fair Condition
- Average age of Bridges in Fair Condition is 57 years
Bridge Inventory - Age

- 10,837 Structures (≈ 51% of the Inventory) has Exceeded it’s Anticipated 50 Year Service Life
- In 10 Years ≈ 67% of the Inventory will have Exceeded it’s Anticipated 50 Year Service Life

Based on July 1, 2018 Data
VA Responsible Structures
Budget
Hurricane and Tropical Storm Expenditures

Hurricane Florence
  • 721 roads closed
  • Estimated $11 million

Tropical Storm Michael
  • 1,200 roads closed
  • Estimated $35 million

Snow Budget - $205 million includes $50 million reserve
Organizational Changes
VDOT Organizational Changes

Chief Engineer Garrett Moore to retire in fall 2019
• Has tirelessly served for more than 19 years
• Will leave a lasting legacy

Creation of Chief of Maintenance and Operations
• Will lead our multibillion-dollar maintenance and operations programs
  ▪ Maintenance
  ▪ Operations and Emergency Management
  ▪ Land Use
  ▪ Asset Management
  ▪ Traffic Engineering
• Continue to focus on project delivery
• Same devoted emphasis on maintaining and operating our transportation infrastructure
Workforce of Tomorrow
Core Questions

Virginia Department of Transportation
VDOT’s Path

WORK
The fundamental nature of the work performed to achieve mission outcomes

• **HOW** is the nature of the work performed changing to achieve new business goals?

• **WHAT** work may be augmented by digital technologies and what are the workforce implications?

WORKFORCE
The portfolio of talent and skills tapped to perform the work

• **WHO** is best to perform the current and future work and what skills are necessary?

• **HOW** do you close the gap between current and future skills by tapping into alternative talent pools or upskilling the current workforce?

WORKPLACE
The environment and policies – not just the physical structures or location – utilized to maximize collaboration, productivity, and consistency of the talent experience

• **WHERE** is best to perform the work to maximize return on investment (e.g., HQ vs. virtual)?

• **WHAT** physical design and technology maximizes productivity?
The Evolution of VDOT’s Work

- **START?**
  - New work to drive desired outcomes

- **STOP?**
  - Work that is no longer relevant to achieve outcomes

- **CHANGE?**
  - Work that is still critical, yet disrupted by new technology and different delivery mechanisms

- **CONTINUE?**
  - Work that remains the same