



COMMONWEALTH of VIRGINIA

Commonwealth Transportation Board

Shannon Valentine
Chairperson

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COMMONWEALTH TRANSPORTATION BOARD WORKSHOP AGENDA

Delta Hotels Chesapeake Norfolk
725 Woodlake Drive
Chesapeake, Virginia 23320

March 20, 2019
10:00 a.m.

1. Hampton Roads Bridge Tunnel Procurement Update
Morteza Farajian, Office of the Secretary of Transportation
Stephen Brich, Virginia Department of Transportation
2. Hampton Roads Bridge Tunnel Project
South Island Bridge Replacement Work
Nick Donohue, Office of the Secretary of Transportation
Stephen Brich, Virginia Department of Transportation
3. Route 29
John Lynch, Virginia Department of Transportation
4. WMATA Platform Improvement Program
Jennifer DeBruhl, Virginia Department of Rail & Public Transportation
5. Innovation and Technology Transportation Fund
Cathy McGhee, Director, Research and Innovation
6. Utilities Working Group
Rob Cary, Virginia Department of Transportation
Marty Williams, Member, Commonwealth Transportation Board
7. SMARTSCALE Round 3
Nick Donohue, Office of the Secretary of Transportation
8. Legislative Update
Nick Donohue, Office of the Secretary of Transportation
Richard Walton, Virginia Department of Transportation

Agenda
Meeting of the Commonwealth Transportation Board
Workshop Session
March 20, 2019
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9. Director's Items
Jennifer Mitchell, Virginia Department of Rail & Public Transportation
10. Commissioner's Items
Stephen Brich, Virginia Department of Transportation
11. Secretary's Items
Shannon Valentine, Secretary of Transportation
#



I-64 Hampton Roads Bridge Tunnel Expansion Project Procurement Updates

**Commonwealth Transportation Board
March 20, 2019**

Agenda

1. **Procurement progress updates**
2. **PPTA Independent Audit results**
3. **Commissioner's Certification to the Governor and General Assembly**
4. **Project Agreement for Funding and Administration**

Procurement Progress

- From January to February 2019, VDOT received and evaluated Proposals from Hampton Roads Capacity Constructors (HRCC) and the Hampton Roads Connector Partners (HRCP).
- On February 21, 2019, VDOT notified the CTB on:
 - Identification of the Apparent Best Value Proposer and intention to execute an agreement with Hampton Roads Connector Partners
 - The Term Sheet drafted for Project Agreement for Funding and Administration (PAFA) with HRTAC
- Following the February 2019 CTB meeting, VDOT has finalized:
 - the independent audit required by the Public-Private Transportation ACT (PPTA)
 - the reevaluation of Finding of Public Interest (FOPI) issued by Commissioner of Highways in 2018
 - the PAFA in coordination with Hampton Roads Transportation Accountability Commission (HRTAC)

Project Cost Update

Sources of Funds

AVAILABLE FUNDS	AMOUNT
HRTAC (Debt and Cash)*	\$3,208,469,673
Toll-Backed Bond Proceeds	\$345,000,000
SMART SCALE (Value Reserved)	\$200,000,000
<i>Subtotal</i>	\$3,753,469,673
VDOT – Bridge and SGR (South Island Trestle Bridge)	\$108,527,554
TOTAL	\$3,861,997,227

Uses of Funds

PROJECT COSTS	AMOUNT
Administration Costs (PE & CEI)	\$122,000,000
Right-of-Way	\$15,000,000
Design-Build Contract (Not to Exceed)	\$3,299,997,227
No Excuses Incentive	\$90,000,000
Contingency (Includes \$4M Stipend)	\$335,000,000
TOTAL	\$3,861,997,227

* Maximum Commission Financial Commitment set out as \$3.217 billion in the PAFA

2. INDEPENDENT AUDIT REQUIRED UNDER PPTA

Statutory Basis

Va. Code § Section 33.2-1803(F)

“....an independent audit of any and all traffic and cost estimates associated with the private entity's proposal, as well as a review of all public costs and potential liabilities to which taxpayers could be exposed (including improvements to other transportation facilities that may be needed as a result of the proposal, failure by the private entity to reimburse the responsible public entity for services provided, and potential risk and liability in the event the private entity defaults on the comprehensive agreement or on bonds issued for the project)....”



Independent Auditors & Scope of Audit

- **H. W. Lochner, Inc. (Consulting Engineers)** was engaged as independent auditors on February 15, 2019
- The Scope of Work for this Audit included three specific reviews:
 1. Comprehensive Agreement Review
 2. Design-Build and Public Cost Estimate Reviews
 3. FHWA Cost Estimate Review and Risk

Audit Results – CA Review

- Reviewed Project's Comprehensive Agreement (CA) to identify, and, where possible, quantify the potential risks and liabilities to which the State of Virginia could be exposed
- After reviewing the risk allocation between VDOT and the Apparent Best Value Proposer, the Audit Team concluded that risks have been properly identified and have been appropriately allocated to the party best suited to accept them
- Specifically identified multiple LNTPs as a step-by-step process that limits public's exposure to excessive costs in event of default

Audit Results – DB/Public Costs Review

- Reviewed the (a) Apparent Best Value Proposer's final design-build cost estimates and (b) VDOT'S project costs
- Used a top-down methodology of cost per square foot and/or cost per lane mile. Analysis confirmed that costs and cost distribution are reasonable and within range of industry norms
- Specifically found that number of management personnel in Apparent Best Value Proposal is reasonable for a project of this size, complexity, and duration
- Specifically found that VDOT's general administrative costs are reasonable and adequate to perform contract administration and oversight



Audit Results - FHWA Cost Estimate Review and Risk Register

- Reviewed and compared the information contained the VDOT Risk Register (December 2018) and the VDOT-FHWA Major Project Cost Estimate Review (CER)
- Concluded that standard FHWA CER procedures were followed
- Concluded that VDOT Risk Register is well-developed and comprehensive
- Concluded the process followed the VDOT P3 Risk Management Guidelines, as appropriate for a Design-Build delivery model

3. COMMISSIONER'S CERTIFICATION TO GOVERNOR AND THE GENERAL ASSEMBLY

FOPI – January/May 2018

- In January 2018, the Commissioner issued a Finding of Public Interest (FOPI) for the Project
- This FOPI was re-affirmed in May 2018 to the Transportation Public-Private Partnership Steering Committee and procurement documents were prepared based on the benefits described in the FOPI
- The FOPI covers (Va. Code § Section 33.2-1803.1):
 - Expected Project benefits
 - Maximum public contribution
 - Benefits of PPTA delivery
 - Risks, liabilities and responsibilities
 - Level of Project delivery risk
 - Use of competitive negotiation

Certification – March 2019

	FOPI (January and May 2018)	CERTIFICATION (March 2019)
Expected benefits of Project Development	Increased person throughput, congestion mitigation, safety, economic development, environmental quality, land use based on the Final Supplemental Environmental Impact Statement (FSEIS) dated April 2017.	Same benefits based on the Environmental Assessment of the Re-evaluation of the FSEIS dated June 2018.
Maximum public contribution	Public Sector Analysis & Competition (PSAC) concluded that this does not apply because there is no private financing	Updated PSAC concluded that there has been no material changes.
Benefits of PPTA Delivery	Flexibility in contracting terms	Benefit realized through RFP development process
Risks, Liabilities, and Responsibilities	Design and construction risk – private sector O&M and revenue risks – public sector	Same
Level of Project Delivery Risk	Medium due to VDOT's experience with similar projects, close engagement with stakeholders) based on internal risk workshop done in May 2017, January and February 2018	Same based on FHWA Risk Workshops on September (Pre-CER) and November (CER) 2018. Risk assessment will continue through the construction phase.
Use of competitive negotiation	Procurement to follow 2017 PPTA Implementation Manual and Guidelines	Complied
Comprehensive Agreement	Per Major Business Terms issued on December 2017	Major Business Terms presented to the CTB on June 2018 has not altered materially.

Certification to the Governor and General Assembly

- Pursuant to Va. Code § 33.2-1803(D), the FOPI was updated and the Commissioner requests the CTB's endorsement of his certification, indicating support for the execution of the Comprehensive Agreement with the Apparent Best Value Proposer:
 1. The FOPI, re-affirmed in May 2018, is still valid.
 2. The risk transfer profile set out in the draft Comprehensive Agreement has not materially changed since the original FOPI was issued.
 3. The concept of maximum public contribution required by Virginia Code § 33.2-1803.1:1 does not apply because there is no element of private financing.

4. PROJECT AGREEMENT ON FUNDING AND ADMINISTRATION (PAFA)



Project Agreement for Funding and Administration

- **VDOT and HRTAC have worked collaboratively to develop a draft Project Agreement for Funding and Administration (PAFA)**
 - Broad terms agreed to on February 8, 2019 and the Term Sheet was presented to CTB and HRTAC HRBT Funding Agreement Advisory Committee in their respective meetings in February 2019
 - PAFA has been drafted in accordance to the Term Sheet and in coordination with HRTAC
- **PAFA can be executed by the HRTAC Chairman and Commissioner of Highways after CTB and HRTAC Board take actions to authorize execution of PAFA**

Summary of Major Terms of PAFA

ARTICLE 1. DEFINITIONS, INTERPRETATION, AND PRECEDENCE

ARTICLE 2. PROCUREMENT OF THE PROJECT

ARTICLE 3. PROJECT FUNDING

- Outlines the rights and obligations of the parties
- Sets out HRTAC's Maximum Financial Commitment – \$3.217 Billion
- How the Maximum Financial Commitment will be adjusted for SMART SCALE and/or toll-backed bond proceeds if issued by HRTAC
- Defines the anticipated project Administration Costs included in the project budget
- Availability of Contingency Reserves through project allocations
- How risk of Additional Costs will be managed
- Provides for the limitation of funding for Early Work and HRTAC's related protection
 - Limited to \$250M
 - Can be increased by \$75M if defined conditions are met
 - Department will reimburse the increased amount project terminated prior to issuance of NTP

Summary of Major Terms of PAFA

ARTICLE 4. DELIVERY OF THE PROJECT

- Provides the General Obligations of the Department
- Outlines the process for Work Orders, including approval requirements
- Defines the Optional Work item for the I-564 Direct Connections and the Bridge Repair Option Work

ARTICLE 5. ADMINISTRATION OF THE AGREEMENT

- Outlines the Payment of Requisitions process
- Provides for right to Periodic Compliance Reviews

ARTICLE 6. DISPUTE RESOLUTION

ARTICLE 7. MISCELLANEOUS

- Includes general information about the term and termination of the PAFA
- Reaffirms Department's commitments made in the January 22, 2019 Letter to work in good faith with the Commission to finalize the Master Tolling Agreement after operational analysis and traffic and revenue study are completed.

Next Project Milestones

ACTIVITY	DATE
CTB actions: 1. Endorsement of Certification to Governor and General Assembly 2. Authorization for Commissioner to execute PAFA	March 21, 2019
Anticipate HRTAC action to authorize PAFA execution	March 28, 2019
PAFA Execution	Prior to CA Execution
Comprehensive Agreement Execution	NLT April 15, 2019
PPTA Steering Committee Briefing	NLT 60 days after CA execution
Issue LNTP 1	April 2019
Final Completion	November 1, 2025



I-64 Hampton Roads Bridge Tunnel Expansion Project South Island Bridge Replacement Work

**Commonwealth Transportation Board
March 20, 2019**

South Trestle Approach Bridges



Inclusion of South Trestles in Base Bid

➤ Limited remaining service life of existing trestles

- Existing I-64 WB lanes (1950s original construction)
 - Overall condition: Structurally deficient
- Existing I-64 EB lanes (1970s original construction)
 - Overall condition: Fair to poor

➤ Benefits of replacing now

- Reduced traffic impacts to region
- Economies of scale – resulting in lower costs
- Advantages of PPTA innovation

➤ Other benefits

- Modern corrosion-resistant materials will provide 100-year service life
- New structure will have increased height for sea level rise

Value in Replacing Trestles Now

- **Estimate as standalone project: \$375,000,000**
 - Does not incorporate economies of scale or design innovation
- **Estimate as part of larger project scope: \$200,507,000**
 - With some economies of scale and identical design configuration
- **Actual line-item bid in HRCP proposal: \$95,427,976**
 - PPTA process enabled opportunities for significant innovation
- **Line-item detail in HRCP proposal:**

HRBT South Trestle (8 lane bridge)	\$189,049,178
– <i>Sub-item: 4 lanes EB</i>	\$93,621,202 ← New capacity
– <i>Sub-item: 4 lanes WB</i>	\$95,427,976 ← Replacement of existing capacity



Proposed Plan of Finance

(in millions)

Total Cost to Replace (DB price, Project Development and Contingency)	\$ 108.5
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Funding Sources:

CTB Formula Bridge Balance	30.7
State of Good Repair Program (SGR)	
VDOT Hampton Roads District Bridge Funds	
Unallocated in current SYIP through FY 2024	21.1
FY 2025 anticipated SGR allocation	18.4
<i>Balance Needed</i>	\$ 38.3

Proposed Plan of Finance

- **SB1749 provides Board with flexibility for large projects to use an extra year – the 7th year – for projects that:**
 - the design and construction of which cannot be completed within six years,
 - the estimated costs of which exceed \$2 billion, and
 - that requires the Board to exercise its authority to waive the funding cap pursuant to subsection B of § 33.2-369
- **Exercising this authority will provide another \$18.4M in FY 2026 by obligating the VDOT share of the Hampton Roads SGR funds**
- **After these extraordinary efforts there is still a gap of ~\$20M for the trestle replacement**

State of Good Repair Program

- **State of Good Repair program was established in 2015**
- **Provides that districts shall receive between 5.5% and 17.5% of available funds based on needs**
- **At the time it was recognized that the cap may impact the ability of VDOT to address large projects**
- **Code includes provisions that allows the Board to waive this cap “when it determines that due to extraordinary circumstances or needs the cap inhibits the ability of the Department to address a key pavement or bridge need that has been identified”**

State of Good Repair Program

- **Hampton Roads District is currently being constrained at the 17.5 percent cap**
- **Actual share of needs is 22.6 percent**
- **To address gap on trestle replacement, VDOT is proposing that the Board take a one-time action to increase Hampton Roads share to ~21% for two fiscal years (FY 2025 and FY 2026)**
- **This will not impact any on-going or currently planned SGR projects**
- **It will redirect ~\$10M/year to Hampton Roads**
- **No district is impacted by more than \$1.9M/year**



Additional Commonwealth Funding for the HRBT Expansion Project

- **The Hampton Roads Transportation Planning Organization, (“HRTPO”) submitted a Round 3 SMART SCALE seeking \$200 million in funding for the Project**
- **As presented at the January 2019 CTB meeting**
 - **The Project ranked as the top application/project for congestion mitigation in Round, and**
 - **Was recommended by staff for funding**

Requested CTB Actions

- **Transfer of CTB Formula Bridge funds to the South Island Trestle Bridge project**
- **Pursuant to Code of Virginia, Section 33.2-369(B), the CTB is requested to provide a waiver of Hampton Roads District's SGR cap in FY 2025 and 2026 to support fully funding the project by FY 2026**
- **To indicate funding support for the Hampton Roads Expansion Project by expressing the CTB's intent to award the HRTPO's SMART SCALE application providing \$200 million to the Project**



**ROUTE 29 / NEW BALTIMORE
“CUT THE HILLS” SAFETY IMPROVEMENT PROJECT**

March 20, 2019

Purpose and Need

❖ Improve safety on northbound approach to signalized intersection

- 113 crashes in the 5-year period from 2013-2017
- Traffic conditions & roadway geometrics contribute to frequent crashes.
- #1 highest targeted safety need in the Culpeper District
- Best candidate for safety improvement based on statistics

❖ Address substandard vertical alignment

- Existing vertical curves provide 35 mph equivalent design speed
- Sight distance is well below corridor's 60 mph design speed



Communications & Public Outreach

❖ Early Engagement

- Route 29 New Baltimore Advisory Panel
- Local & regional news media
- Notification of adjacent local governments & other interested parties
- Targeted messaging
- Dissemination of closure & detour information

❖ Before & During Construction

- Message boards on Route 29
- VDOT social media
- GPS & Navigation providers
- Media messaging along entire corridor
- Radio advertising campaign



Maintenance of Traffic - Alternative 4

❖ Total Closure of Northbound Lanes

- 26 days (July 8 to August 2)
- NB Thru Traffic Detour via US 17 & I-66
- Local Traffic Detour via Route 600



❖ Advantages

- Lowers MOT Construction Cost by \$1M
- Shortest Construction Time
- Minimizes Disturbed Area
- Maintains access to/from Rte. 215 & adjacent properties

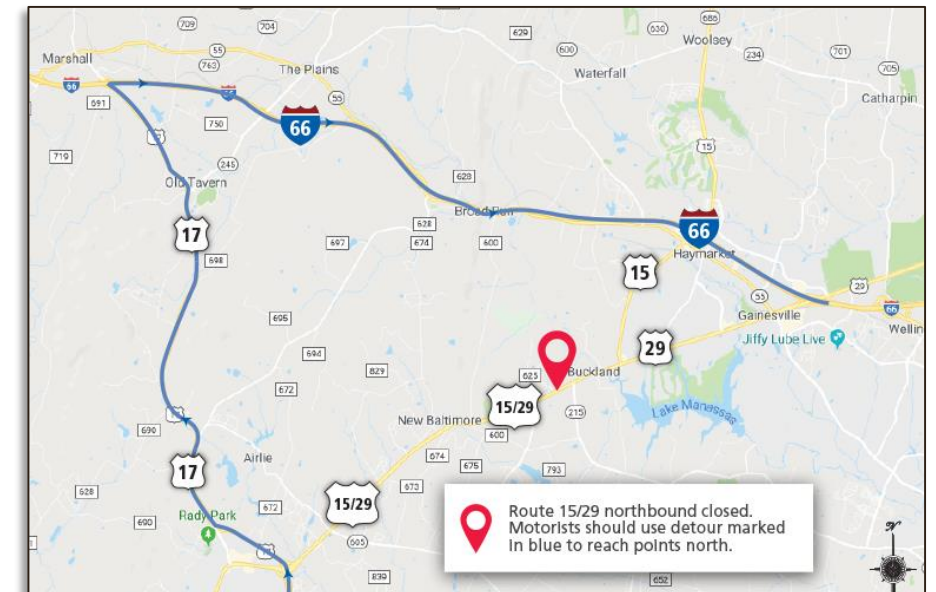
❖ Disadvantages

- Significant traffic disruption (short term)



“Cut the Hills” Project Schedule

- ✓ Request for Proposals release Feb. 4, 2019
- ✓ Submittal & Price Proposals due March 19, 2019 (4 p.m.)
 - Price Proposal opening March 21, 2019 (9 a.m.)
 - Notice of Intent to award contract March 25, 2019
 - CTB contract award April 10, 2019
 - Route 29 Northbound full closure July 8 to Aug. 2, 2019
 - Final project completion Sept. 30, 2019





Virginia Department of Rail and Public Transportation

WMATA Platform Improvement Program – Summer 2019

Virginia Supplemental Mitigation Plan

March 20, 2019

Jennifer DeBruhl
Chief of Public
Transportation

WMATA Platform Improvement Project



- 45 outdoor stations – concrete platforms have been exposed to weather and de-icing agents for decades
- Platforms built 35-40 years ago are now deteriorating
 - 10 stations already have rebuilt platforms
 - 15 stations have platforms in good condition
 - 20 stations have platforms requiring immediate attention; temporary measures installed where needed to stabilize and ensure safety until reconstruction occurs (includes outdoor stations on the Blue, Yellow, and Orange lines in Virginia)
- Concrete repair is a necessary safety project

Examples of Existing Conditions



King St Station



Van Dorn Station



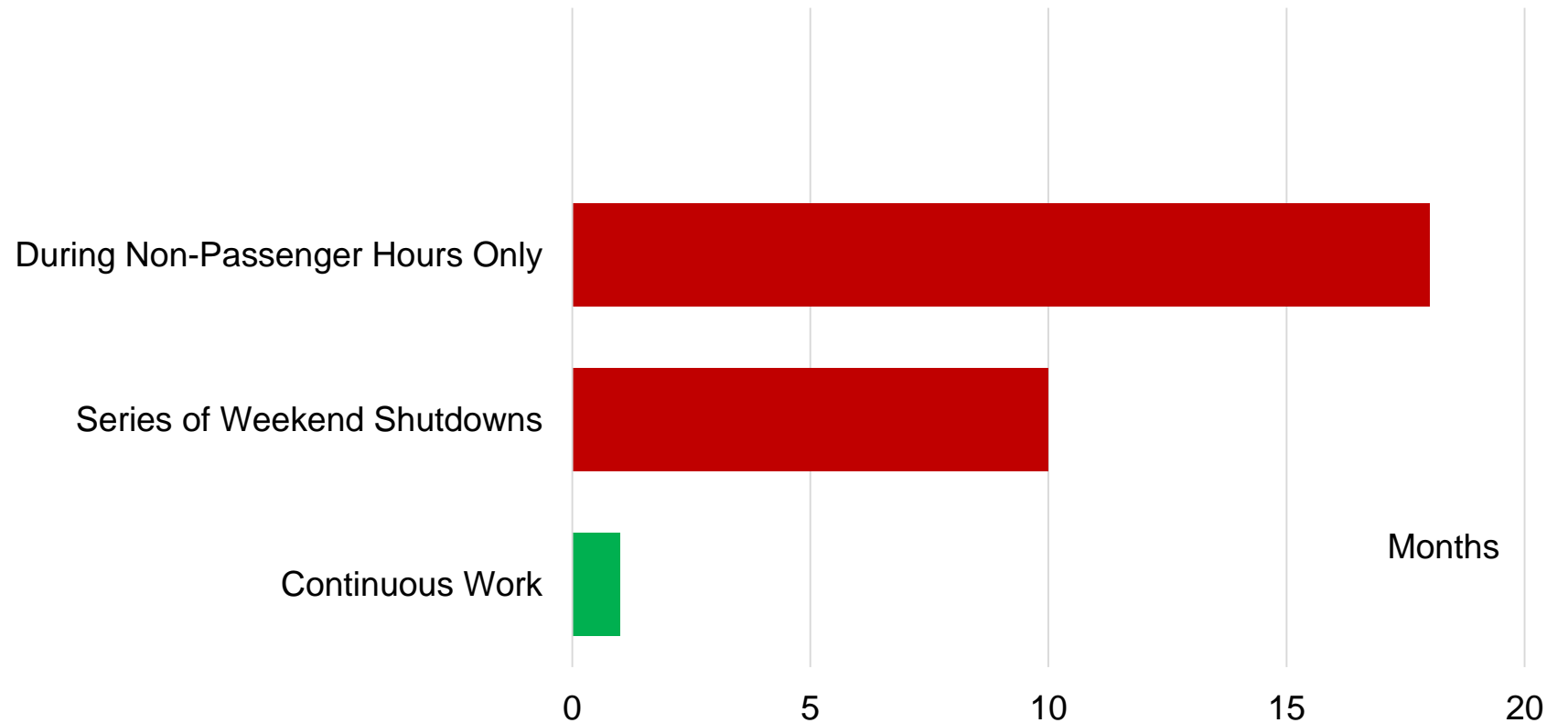
Braddock Road Station



Comparison of Different Construction Approaches



Time to Complete One Station



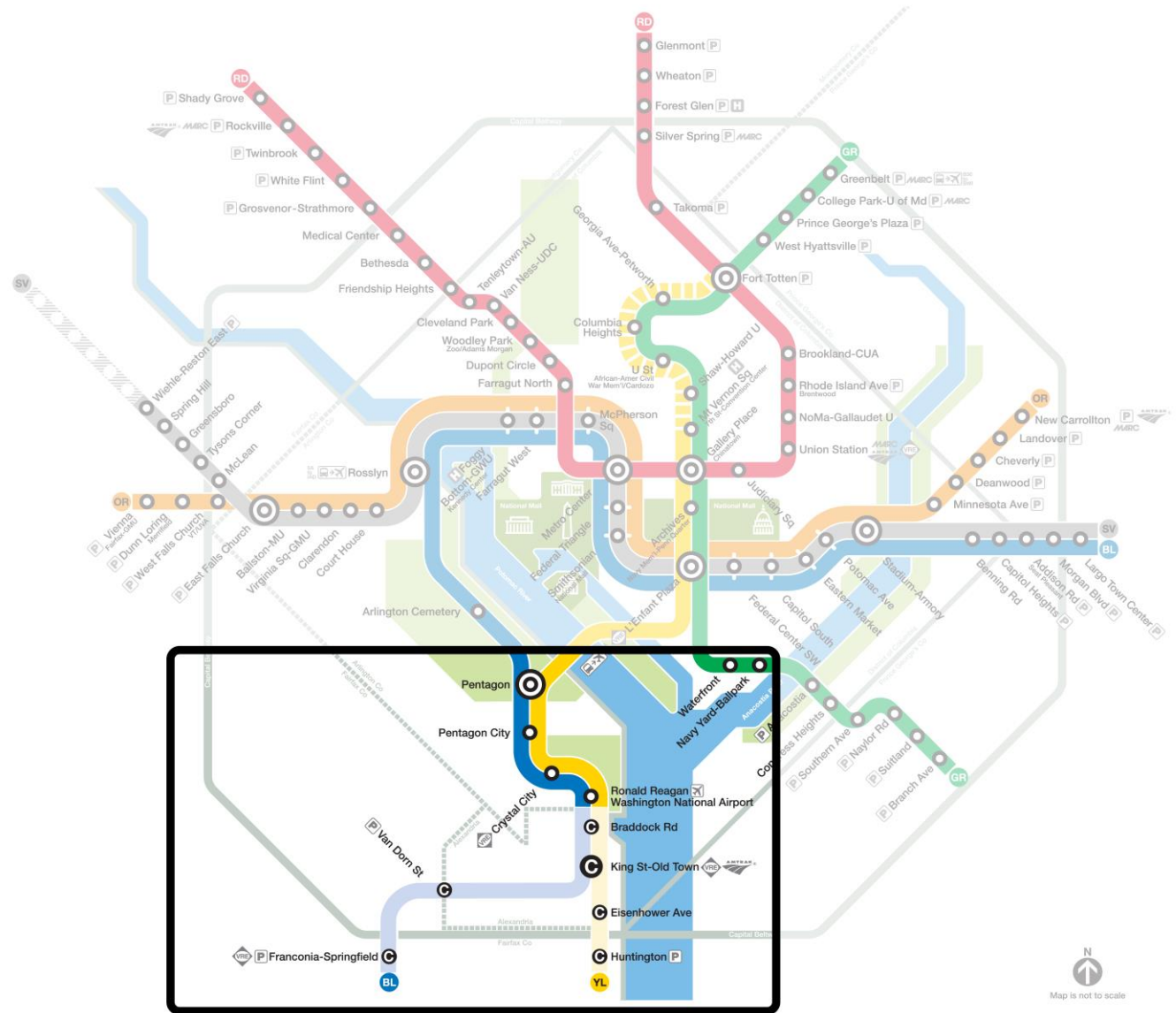
- Providing 24/7 track access substantially reduces **project duration**, is **safer**, and **costs less**

Capital Investment: Platform Improvement Project



- During Summer 2019, there will be no Blue or Yellow Line rail service south of National Airport from Saturday, May 25 to Monday, September 2, 2019
- Anticipated Construction Schedule:
 - May 25- September 2, 2019: Braddock Rd, King St-Old Town, and Eisenhower Ave
 - May 25-October 4, 2019: Van Dorn St
 - May 25-December 2, 2019: Huntington and Franconia-Springfield
- Average AM peak period entries: 17,000
- Project will occur while 395 Express Lanes are also under construction

Capital Investment: Platform Improvement Project



Regional Network Coordination



- Metro announced work in May 2018, over one year in advance of summer 2019 station renovation program
- Northern Virginia Stakeholder Group led by Metro and supported by the Northern Virginia Transportation Commission (NVTC)
- More than 140 members: local government, state government, Congressional offices, federal government, transit providers, police and emergency management, MWAA
- Using SafeTrack coordination effort as model

WMATA Mitigation Plan



Free Shuttle Service

- Franconia-Pentagon Express
- Blue Line Shuttle
- Huntington-Pentagon Express
- Yellow Line Shuttle

Convenient Bus Options

- metrobus
- metroway

- closed May 25–Sept 2
- No Blue or Yellow Line rail service south of National Airport
- south of National Airport



Virginia Supplemental Mitigation Plan



- Similar to Safe Track, DRPT has worked with local transit agencies, NVTC, and VDOT to develop a plan of supplemental services to complement the WMATA plan.
- The goals of the supplemental plan are:
 - To provide options to impacted transit riders and those that travel major corridors to minimize a shift to single occupant vehicle use during the shutdown period and beyond.
 - To educate local communities on potential changes in travel patterns that may impact normal commuting patterns.
 - To manage demand by incentivizing use of transit, ridesharing, flexible work schedules, and telework.

Recommended Strategies



- City of Alexandria - \$2,728,700
 - Supplemental DASH Service & Trolley Operations
 - Mobile Ticketing Application
 - Community Outreach, Vanpool Formation
 - Enhanced bikeshare, water taxi
 - Bus bridge operational enhancements (signals, CCTV, Police)
- Fairfax County - \$838,670
 - Supplemental Fairfax Connector service
 - Huntington Shuttle (if required)
 - Outreach, promotion of park-and-ride facilities for carpooling/slugging

Recommended Strategies



- OmniRide (PRTC) - \$220,317
 - Free shuttles from park-and-ride lots to Rippon and Woodbridge VRE
 - Outreach, rideshare promotion
- VRE/Amtrak (DRPT) - \$200,000
 - Reduce VRE step-up ticket cost to expand Amtrak usage
- VDOT - \$100,000
 - Bus on shoulder along Capital Beltway Outer Loop between Eisenhower Ave Connector and Telegraph Road
 - Huntington Avenue "Transit Zone"
- NVTC - \$395,725
 - Post-Platform Shutdown Marketing Campaign

Recommended Funding by Purpose



	Total Cost	State Share
Bus Transit	\$1,621,137	\$1,296,910
Alternative Transportation	\$856,000	\$724,800
TDM/Marketing/ Outreach	\$1,064,275	\$851,420
Highway/Operational Improvements	\$942,000	\$773,600
Total	\$4,483,412	\$3,646,730

Recommended Funding by Recipient



	State Share	Local Share
City of Alexandria	\$2,182,960	\$545,740
Fairfax County	\$670,936	\$167,734
Omni Ride (PRTC)	\$176,254	\$44,063
NVTC	\$316,580	\$79,145
VRE/Amtrak (DRPT)	\$200,000	\$0
VDOT	\$100,000	\$0
Total	\$3,646,730	\$836,682

Next Steps

- DRPT has identified deobligated balances from completed projects that can be utilized to support the mitigation efforts
- Localities are already working to deploy strategies in advance of work beginning in May
- CTB Action to allocate funding and modify the Six Year Improvement Program is necessary before DRPT can provide financial assistance
- Implementation of strategies will be monitored continually – allow for real-time adjustments based on utilization
- Additional platform projects along the Orange Line are planned as part of the 3 year program and will require similar considerations
- Project information: wmata.com/platforms





Virginia Department of Rail and Public Transportation

WMATA Platform Improvement Program – Summer 2019

Virginia Supplemental Mitigation Plan

March 20, 2019

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Chief of Public
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COMMONWEALTH *of* VIRGINIA
Office of the
SECRETARY *of* TRANSPORTATION

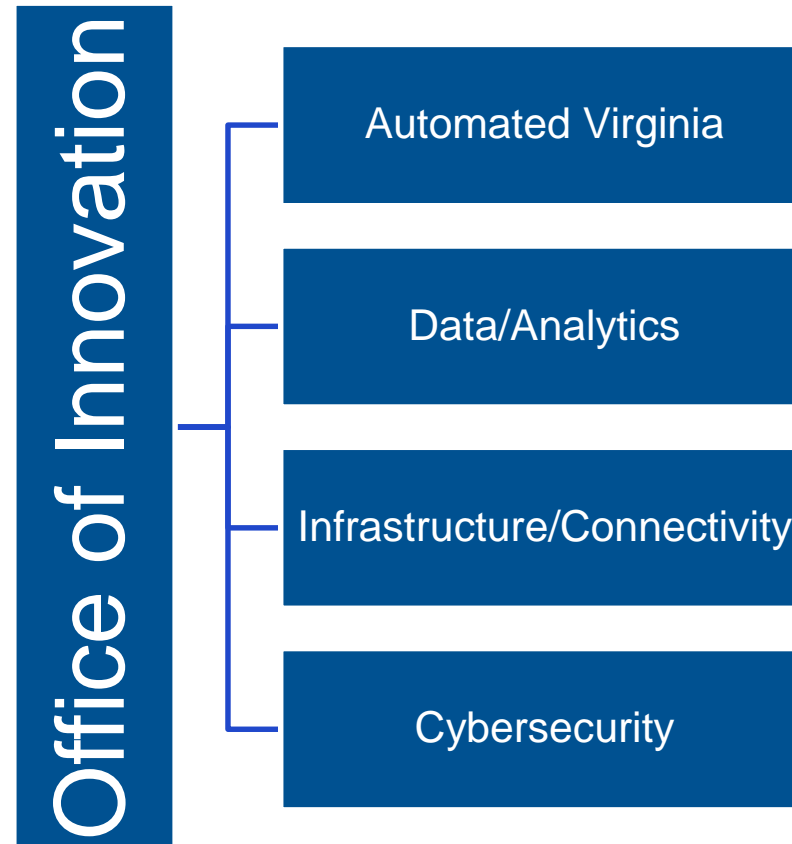
Cathy McGhee, PE
Director of Research and Innovation

Office of Transportation Innovation

Drive and enable innovation in Virginia's transportation ecosystem to ensure advanced technology and ideas are leveraged to solve the most pressing transportation issues.



Office of Innovation – Initial Focus Areas



Innovation and Technology Transportation Fund

The ITTF provides funding specifically for the purposes of funding pilot programs and fully developed initiatives pertaining to high-tech infrastructure improvements with a focus on:

- Reducing congestion
- Improving mobility
- Improving safety
- Providing up-to-date travel data
- Improving emergency response

ITTF projects are guided by the members of the CTB Innovation and Technology Subcommittee

ITTF Project Selection

Projects can be recommended by VDOT, DRPT, or localities

Projects are evaluated based on:

- Contribution to innovation
- Potential for transferability
- Applicability across modes
- Anticipated benefit
- Acceptability of risk

ITTF Projects Currently Funded

- In January 2016, the Board was briefed on the ITTF and provided a spreadsheet of proposed projects
 - 7 projects proposed for Smart Roadway Technology Funds at \$25,931,214
 - 24 projects proposed for ITTF funds at \$74,771,332
- At February 2016 CTB meeting, approval for funding for ITTF was granted

Currently Funded Projects

- HRBT Control room upgrades
- Big Walker and East River Mountain Tunnel lane control systems
- Arterial corridor signal improvements (various locations, statewide)
- CCTV camera upgrades/enhancements (arterial corridors, NOVA region)
- HRBT Overheight detection system
- MMMBT traffic and safety improvements
- ITS Deployment – Fredericksburg
- ITS Deployment - Richmond
- Richmond TOC upgrades
- SSP Communications upgrade
- I-95 Ramp Metering (PE)
- Statewide truck parking management (I-81/I-95)
- ATMS statewide central system upgrade
- Statewide transit enabling technology (FY21)
- Community wide adaptive signal systems (FY21)
- Pedestrian collision avoidance (transit)
- Statewide advanced traffic signal controllers
- UAS Technology Pilot (crash reconstruction)
- Statewide emerging technology research

Proposed Projects

Automated Virginia	Infrastructure/Connectivity	Data/Analytics	Cybersecurity	Other
<ul style="list-style-type: none">• Virtual ATMS• I-95 Active Traffic Management• Hanover Specialized Transit• MicroTransit Pilot• Worker Alert	<ul style="list-style-type: none">• Signal Controller Connectivity	<ul style="list-style-type: none">• Regional Multimodal Mobility Program• Data Analytics for Safety• Performance Parking• Customer Service Bots• Arterial Operations Dashboard	<ul style="list-style-type: none">• Cybersecurity Upgrades for Operations	<ul style="list-style-type: none">• I-64 Afton Mountain Safety Improvements• Pilot Program for Innovation• Local Innovations

Proposed Projects

Improve Safety

- Regional Multimodal Mobility Program
- I-95 Active Traffic Management
- Virtual ATM
- I-64 Afton Mountain Safety Improvements
- Data Analytics for Safety
- Worker Alert
- Cybersecurity Upgrades for Operations

Reduce Congestion

- Regional Multimodal Mobility Program
- Performance Parking
- I-95 Active Traffic Management
- Virtual ATM
- Arterial Operations Dashboard
- Signal Controller Connectivity
- I-64 Afton Mountain Safety Improvements

Improve Traveler Information

- Regional Multimodal Mobility Program
- Performance Parking
- I-95 Active Traffic Management
- I-64 Afton Mountain Safety Improvements
- Data Analytics for Safety
- Customer Service Bots

Enhance Emergency Response

- Signal Controller Connectivity
- Data Analytics for Safety
- Worker Alert

Improve Mobility

- Hanover Specialized Transit
- MicroTransit Pilot

Northern Virginia Regional Multi-Modal Mobility Program (RM3P)

- Builds off an Integrated Corridor Management planning grant
- Includes four distinct but inter-related tasks
 - Enhance commuter parking data
 - Develop a Mobility as a Service (MaaS) Dynamic Service Gap Dashboard
 - Implement and AI-based decision support system with prediction
 - Deploy a data driven tool to incentivize customer mode and route choice
- Total cost - \$15 million

Data Analytics for Safety

- Integrate a variety of data (crash, weather, event, pavement condition, traffic/congestion, etc.) in a data platform to which artificial intelligence tools can be applied.
- Extension of the decision support tool developed in the RM3P project to address a wider range of safety challenges
- Nevada pilot indicated a 17% reduction in crashes through prepositioning of assets
- Total cost: \$2 million

Arterial Operations Dashboard

- Leverage ongoing efforts to upgrade signal controllers and a central signal system
- Dashboard will provide metrics on signal performance and travel time reliability
- Initial deployment on 70 corridor segments (1,128 intersections) including corridors through about 50 localities and towns
- Three to five corridors will combine automated signal performance metrics and travel time metrics to improve real-time operations
- Total cost: \$1.25 million

Performance Parking Deployment in Commercial Corridors

- **Focus on Arlington County's two Metrorail corridors to provide data-driven variable pricing coupled with real-time information**
- **Goal is to reduce congestion as travelers search for available parking (balance demand geographically)**
- **Similar program in San Francisco showed decreases in time to find a parking spot, reduced emissions, and lower vehicle miles traveled**
- **Total cost: \$5.4 million**

SFpark Evaluation Results

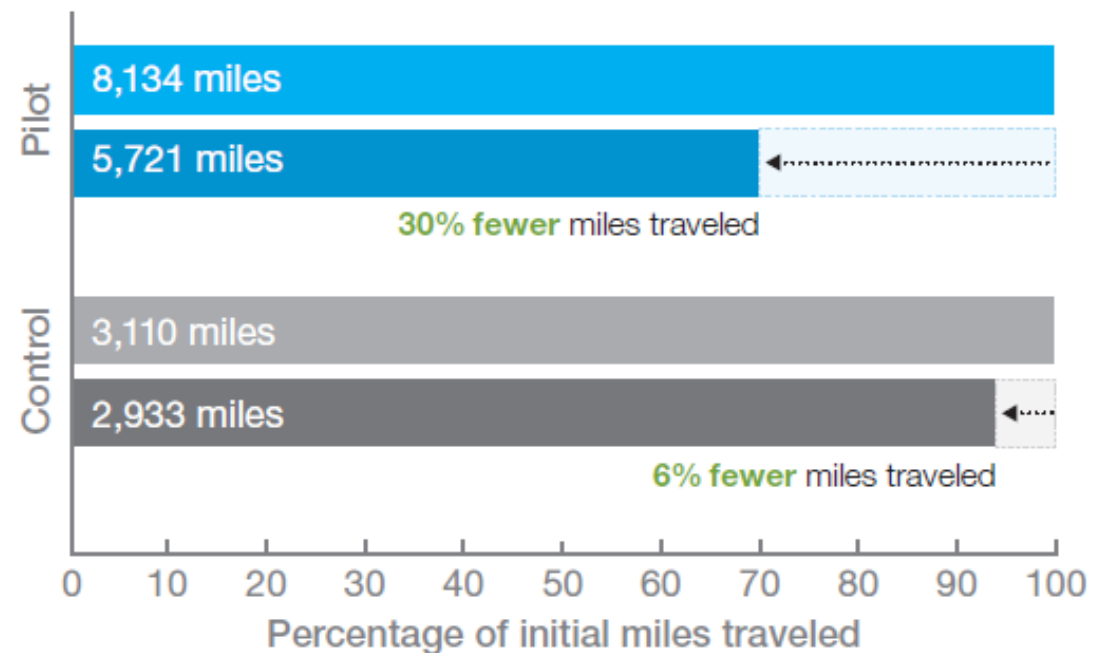
Hourly parking rates in SFpark areas

Before vs. after (10 rate changes)
On- and off-street rates



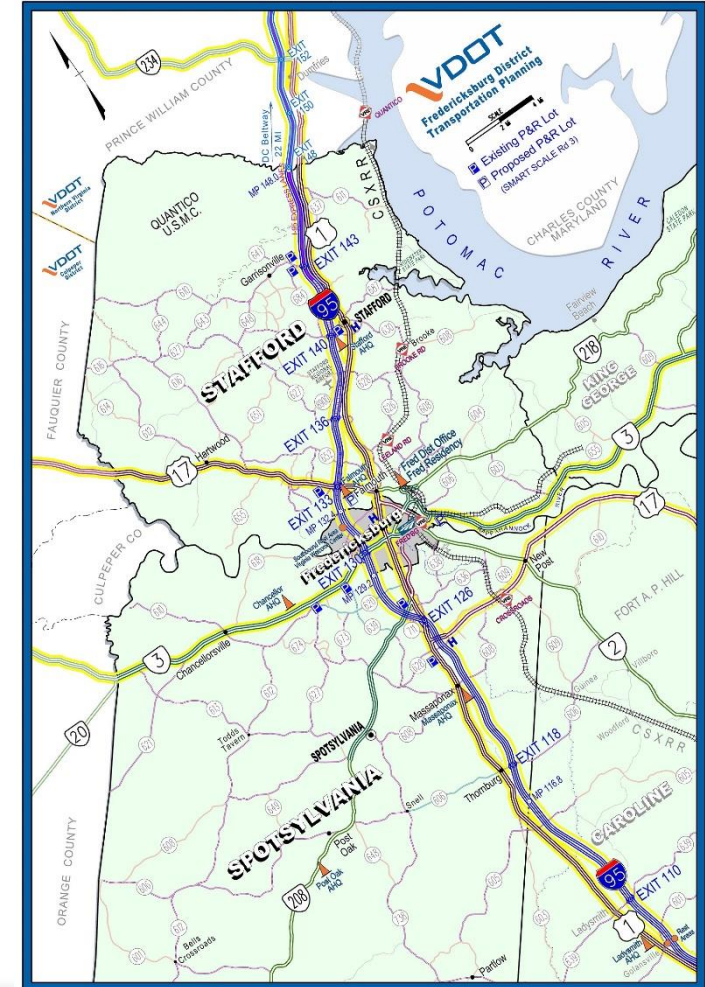
Daily vehicle miles traveled

Before vs. after
Pilot vs. control areas | Weekdays 9am to 6pm



Parking Demand Management System

- Provide real-time parking information for 8 park & ride lots on I-95 that support VRE
- Sensors at entry and exit
- Real-time information display and publication to portal for further dissemination
- Total Cost: \$1,950,000



Parking Demand Management System



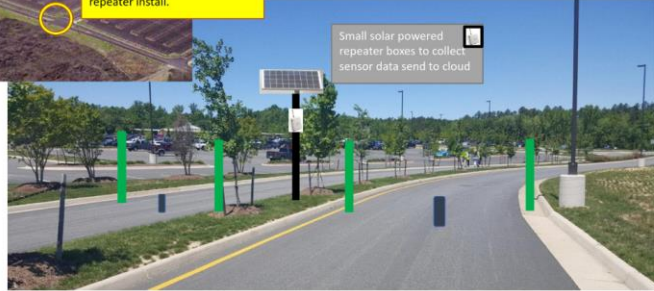
Updated location of sensors and repeater to simplify repeater install.

Installation Requirements:

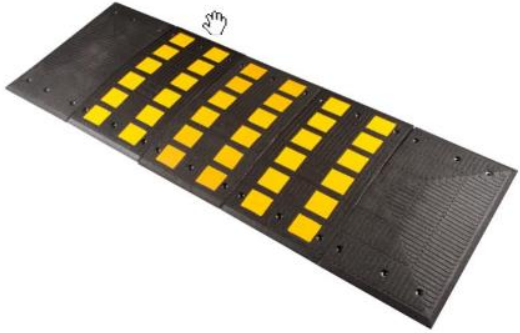
- Install u channel pole for repeater placement
- Assemble & attach repeater and solar panel to pole
- Drill 2 sensor holes & embed sensors
- Diagnostics & testing

Sensors are installed flush with the pavement at entry and exit lanes to count car traffic.

Rubber bendable delineators are installed 12 - 14ft apart to leave room for snow plows and funnel traffic over sensors



Small solar powered repeater boxes to collect sensor data send to cloud



Statewide Technology for Operations

- There are a number of strategies that have been tested or piloted that could result in significant operational improvement statewide
 - Customer service bots – handle routine or low-priority calls during high volume events to free customer service agents for higher priority issues
 - Worker alert system – emergency responders on the roadside are at high risk. Alert system would provide a geo-fenced presence alert through 3rd party apps or agency developed systems
 - Virtual ATM – provides benefits of an ATM without the heavy infrastructure investment
- Total cost: \$2 million

Remaining Projects

- **I-95 Variable Speed Limits**
- **I-64 Afton Mountain Safety and Congestion**
- **Innovative Transit Pilots**
- **Pilot Program for Innovation**
- **Innovation Program for Localities**
- **High Speed Communications for Signals**
- **Cyber Security Upgrades for Operations**



COMMONWEALTH *of* VIRGINIA
Office of the
SECRETARY *of* TRANSPORTATION



CTB UTILITY RELOCATION WORKING GROUP

Marty Williams, Member, Commonwealth Transportation Board
Rob Cary, PE, LS, Chief Deputy Commissioner

March 20, 2019

Utility Relocation Working Group

- **Chaired by CTB member Marty Williams and comprised:**
 - Chief Deputy Commissioner, Chief Engineer and other VDOT staff;
 - Utility owners;
 - Locality representatives; and,
 - Contractor representatives
- **Focused on driving improved utility relocation performance on all VDOT projects**
 - Reviewing processes, procedures and policies;
 - Reviewing all projects; but, bringing extra focus to design-build and locally administered projects;
 - Working group has been meeting since November to develop recommendations for the CTB's consideration

Draft Recommendations



Draft Recommendations

1. VDOT should identify an overall champion to continue and enhance the implementation of improvements developed through the Utility Working Group.
2. VDOT should develop a policy whereby early phase project drawings with basic project details would be provided to utility companies earlier in the project development process. These early drawings will provide utilities with an early notice of the project in a standard format the opportunity to provide a standard set of responses to potential design-build contractors in advance of the project's procurement.

Draft Recommendations (continued)

3. VDOT should develop common templates for use by utilities, contractors, VDOT and local partners in the planning and relocation processes for utilities on VDOT funded projects. These templates will list the information, documentation and protocols for each phase of the utility relocation process to be followed by all involved.
4. VDOT should develop a policy requiring trained and certified utility coordinators be utilized on VDOT funded projects based upon project size and complexity criteria. This policy should also require trained utility inspectors be utilized on VDOT funded projects based upon project size and complexity criteria.

Draft Recommendations (continued)

5. VDOT should develop a policy regarding providing a stipend to utility companies under certain conditions and circumstances. This stipend could be offered to utility companies to facilitate their efforts in the early phases of project development to reduce their risks of designing utility relocations which may later change. This policy should consider project size and complexity criteria.
6. VDOT should implement any approved policy improvements to its Utility and Locally Administered Program Manuals, and other guidance documents, to provide clear direction to all utility companies, local partners, VDOT staff, and contractors.

Draft Recommendations (continued)

7. VDOT should develop a policy regarding allowing for a time-only contract extension for design-build projects based upon utility delays outside of the contractor's control if strict criteria are met.
8. VDOT should implement additional utility relocation training for all involved parties. This training will enhance understanding of utility relocation requirements and will allow key project delivery personnel to gain certifications as utility relocations specialists and/or utility inspectors.

Draft Recommendations (continued)

9. VDOT should add language to the agency's permit manual to solicit reviews and comments from local jurisdictions as part of the permitting process for the placement of utilities in the rights of ways for roadways planned for widening as part of the local jurisdiction's comprehensive plan.
10. VDOT should establish best practices and timelines for the relocation of private fiber companies' infrastructure within established timeframes.





SMART SCALE

*Funding the Right
Transportation Projects
in Virginia*

SMART SCALE Round 3

Summary of Feedback To-Date



- Perception process favors low cost projects
- HRBT's scores distorted the results for other projects
- There is not any funding in 'my locality' – why aren't we benefitting?
- General recognition that limited funding is major issue

Low Cost Projects



	Funded Projects		
	$\leq \$5,000,000$	$> \$5,000,000$ $< \$20,000,000$	$\geq \$20,000,000$
SYIP*	10%	28%	62%
Round 1**	11%	32%	57%
Round 2**	17%	24%	59%
Round 3**	17%	28%	54%

*Analysis based on FY06-11 SYIP excludes projects that would not otherwise be eligible for SMART SCALE, and excludes Transform66: Outside the Beltway

** Analysis includes projects selected or recommended for funding

Low Cost Bias – Round 3 Recommendations



- **62 of 98 (63%) projects recommend for funding have total cost less than or equal to \$5M**
 - Funding requests total \$129M - about 17% of Round 3 pot
- **30 projects have total cost between \$5M and \$20M**
 - Funding requests total \$208M - about 28% of Round 3 pot
- **6 projects greater than or equal to \$20M**
 - These 7 projects total over \$4.4B (approx \$4B leveraged)
 - Funding requests total \$404M - about 54% of the Round 3 pot

Assessment of Low Cost Bias



District	Project Rec for Funding	Average SMART SCALE Award
Bristol	3	\$6,687,105
Culpeper	4	\$5,202,316
Fredericksburg	10	\$3,982,646
Hampton Roads	26	\$10,965,345
Lynchburg	8	\$6,517,076
Northern Virginia	11	\$18,166,005
Richmond	14	\$4,576,887
Salem	6	\$5,229,487
Staunton	16	\$1,784,022

Are Smaller Projects Less Beneficial?



- **4 projects recommended for funding**
 - John Marshall Hwy./Rte. 55 East Safety Improvement Project
 - Intersection Improvements US-211/340 Big Oak Rd
 - Hot Springs - US 220 & VA 615 Intersection Improvements
 - RT 254 - RT 640 Intersection Safety Project
- **Combined Benefit score of 12.29**
- **Total Fatal and Injury Crashes Reduced = 27.87**
- **Total cost of \$6.7M**

Are Smaller Projects Less Beneficial?



- **1 project not recommended for funding**
 - I-81 NB Truck Climbing Lane Extension from 191 to 195
- **Benefit score of 4.77**
- **Total Fatal and Injury Crashes Reduced = 6**
- **Total cost of \$70M**

Are Smaller Projects Less Beneficial?



	Congestion	Safety	Accssibility	Envrio	Econ Dev
4 Small Projects	0.25	36.62	0.02	12.50	0.57
1 Larger Project	0.77	0.82	0.13	10.33	3.30

Combined SMART SCALE score for 4 projects is 18.42

SMART SCALE score for 1 larger project is 1.78

Project Size by Funding Source



The majority of funded projects costing less than \$20,000,000 are funded with District Grant Funds; the majority of funded projects costing more than \$20,000,000 are funded with High Priority funds

%DGP, projects Total Cost <\$20,000,000	82%
%HPP, projects Total Cost >\$20,000,000	92%
%DGP, projects Smart Scale Cost <\$20,000,000	85%
%HPP, projects Smart Scale Cost >\$20,000,000	92%

What if Round 3 had the same funding as Round 1?



District	Current Recommendation	Recommendations with Round 1 Funding Levels
Bristol	\$20.1M	\$57.7M
Culpeper	\$20.8M	\$53.4M
Fredericksburg	\$39.8M	\$94.4M
Hampton Roads	\$285.1M	\$372.3M
Lynchburg	\$55.0M	\$78.8M
Northern Virginia	\$199.8M	\$427.4M
Richmond	\$64.1M	\$122.4M
Salem	\$31.4M	\$100.6M
Staunton	\$28.5	\$100.9M

No HRBT Scenario



	Additional Projects Funded	Projects No Longer Funded
Bristol	-	-
Culpeper	1	2
Fredericksburg	-	2
Hampton Roads	2	7
Lynchburg	-	1
NOVA	1	1
Richmond	-	-
Salem	1	1
Staunton	-	1

Transportation Needs are Regional in Nature



“the staff-recommended draft project list would seem to indicate that the rating system is seriously broken ... includes less than \$16 million in highway funding, with \$184 million going to transit, [bike/ped] projects”

“no funding is directed to Prince William County, and only \$1.3 million to Loudoun, the two fastest-growing localities in [NOVA]”

“It is obvious that this is not the best way to reduce road congestion in Northern Virginia”

Transportation Needs are Regional in Nature



SMART SCALE

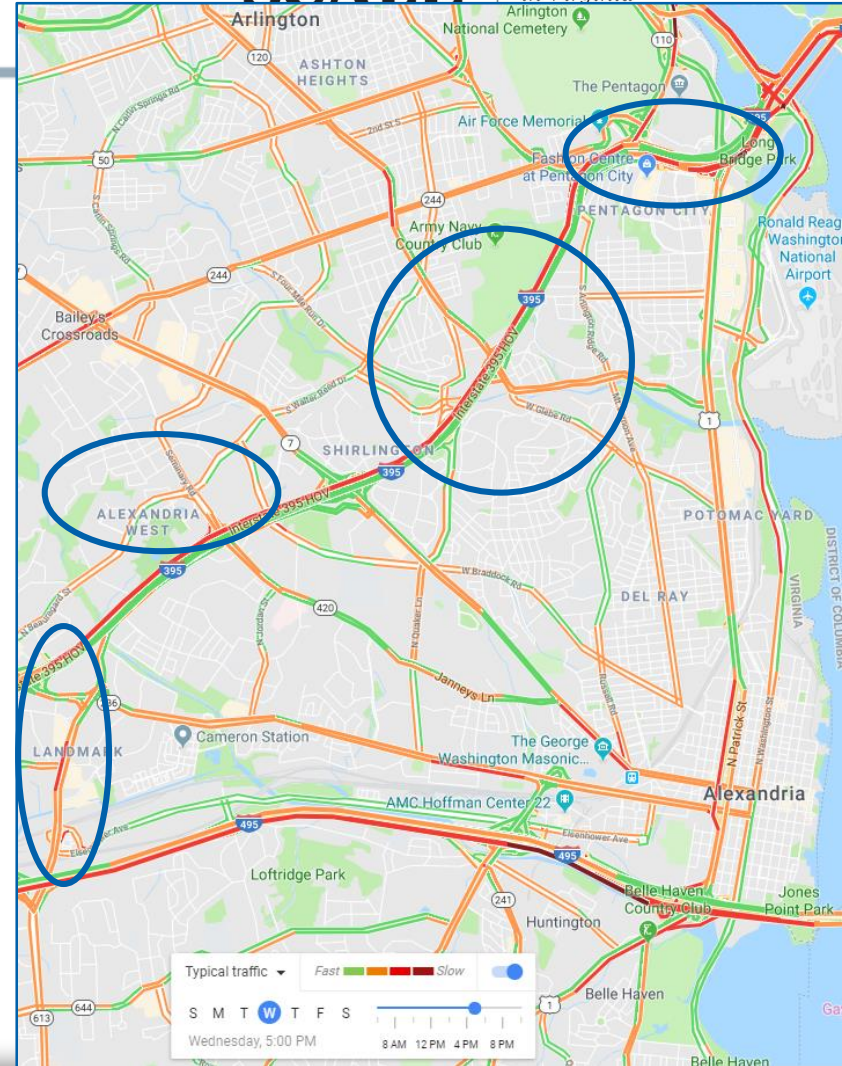
Funding the Right Transportation Projects in Virginia

West End Transitway

Anticipated to eliminate 643.9 peak-period, person hours of delay per day

- I-395, Route 110, Van Dorn St and Beauregard St

~113 person hours of delay per \$10M in requested funding



Transportation Needs are Regional in Nature

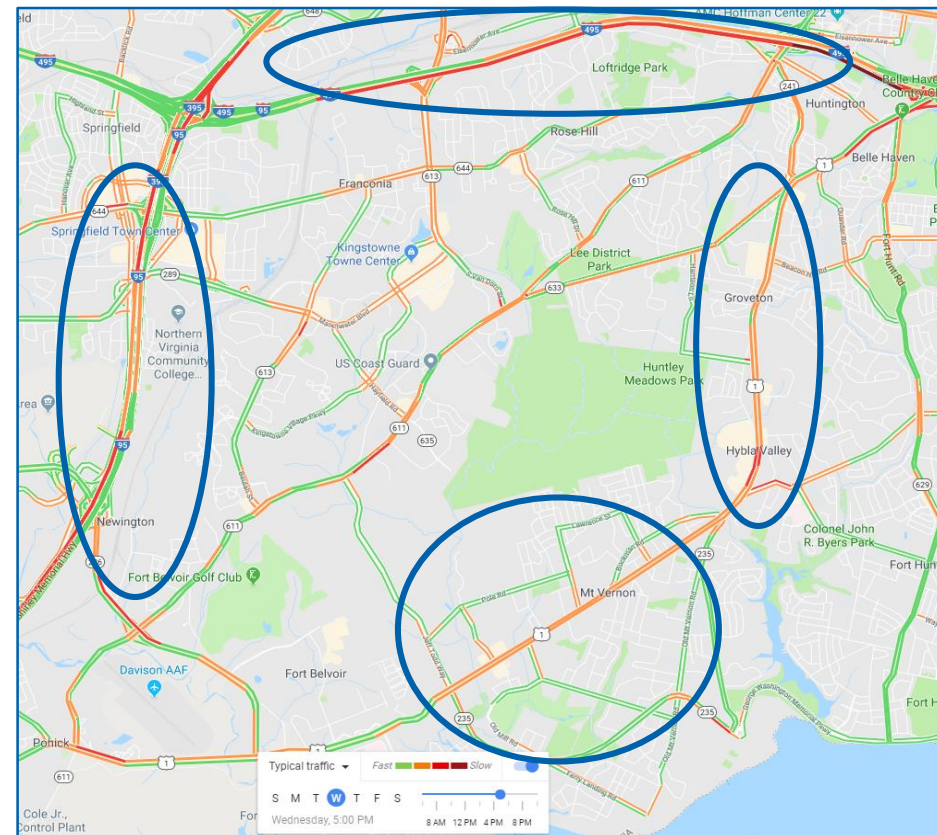


Richmond Highway Bus Rapid Transit

Anticipated to eliminate 141.6 peak-period, person hours of delay per day

- I-495, Route 1, and I-95

~28 person hours of delay per \$10M in requested funding



Transportation Needs are Regional in Nature

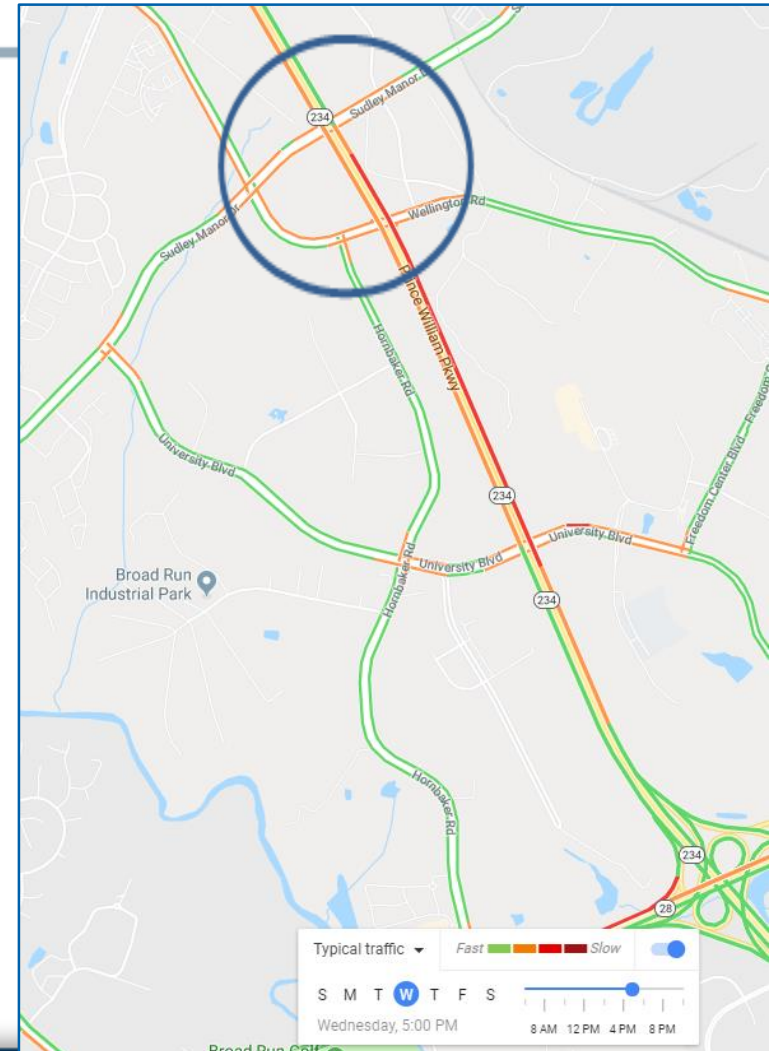


Route 234 and Sudley Manor Drive Interchange

Anticipated to eliminate 104.2 peak-period, person hours of delay per day

- **Route 234, Sudley Manor Dr**

~6 person hours of delay per \$10M in requested funding



Transportation Needs are Regional in Nature

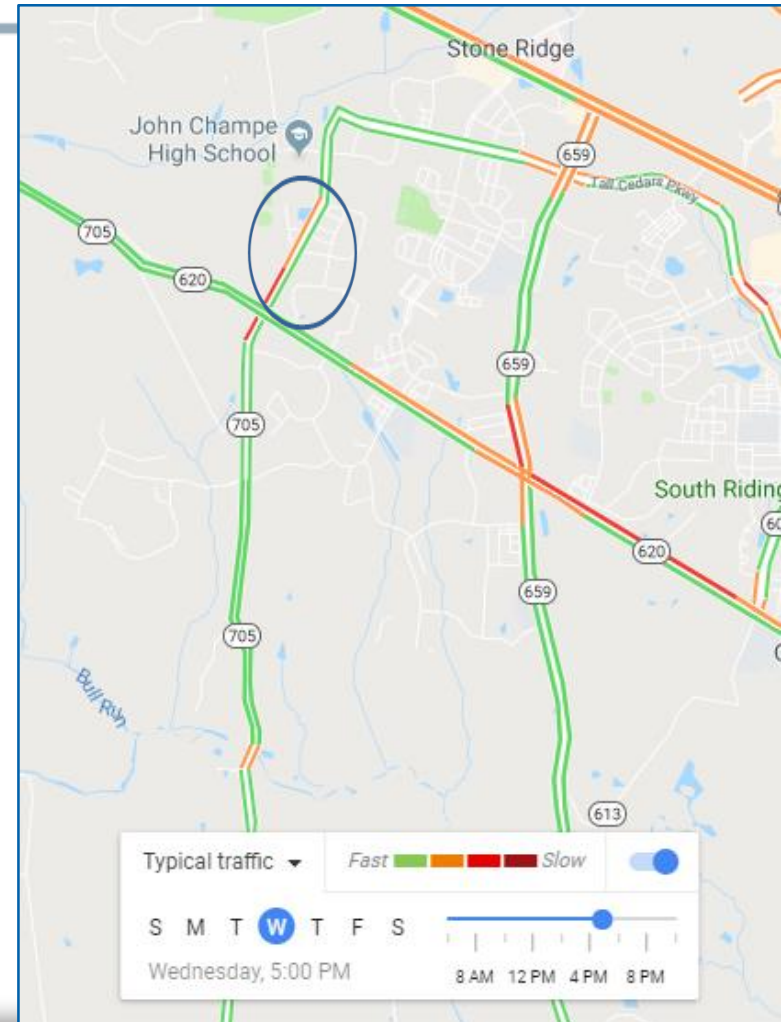


Northstar Blvd (Braddock Rd to Tall Cedars Parkway)

Anticipated to eliminate 5.8 peak-period, person hours of delay

- Northstar Blvd

~2 person hours of delay per \$10M in requested funding



Recommended Modifications to Staff Scenario



Funding is now available from other sources for several projects recommended for funding

- **\$30.3M for Berry Hill Connector Road (HPP)**
 - Route 58 Corridor Development Fund
- **\$27.9M for Crystal City Metro (HPP)**
 - Transit capital and CMAQ funds
- **\$6.6M for Pentagon City-Crystal City-Potomac Yard Transitway (HPP)**
 - Transit capital

\$29.6M from increase in revenue estimates over the six-year window – divided 50/50 between HPP and DGP

Recommended Modifications to Staff Scenario



- **\$107.7M in unallocated High Priority Project funds**
 - \$27.4M unallocated in staff recommended scenario
 - \$65.6M from projects funded by other sources
 - \$14.8M from increases in revenue projections
- **Significantly larger amount unallocated compared to previous rounds**
- **Recommend distributing funds to each district based on district's share of district grant program and funding highest-scoring, unfunded projects**
 - Maintain flexibility to ensure each district can fund next highest scoring, eligible project

Proposed Distribution of High Priority Project Funds



District	Unallocated District Grant Funding	Redistributed High Priority Project Funds
Bristol	\$0.1M	\$7.2M
Culpeper	\$1.8M	\$6.8M
Fredericksburg	\$1.7M	\$7.4M
Hampton Roads	\$0.2M	\$21.5M
Lynchburg	\$3.7M	\$7.6M
Northern Virginia	\$3.4M	\$22.8M
Richmond	\$0.0M	\$15.8M
Salem	\$0.5M	\$10.1M
Staunton	\$1.0M	\$8.4M

Next Steps



- **Identify next highest scoring projects that could be funded in each district**
- **Solicit feedback from district members on those projects**
- **Bring proposed list of projects to be added to staff recommended scenario to the Board in April**
- **Board votes on modifications to staff recommended scenario at May meeting after public hearings in April and May**



COMMONWEALTH of VIRGINIA

Office of the

SECRETARY of TRANSPORTATION

Sustainability of Virginia's Transportation Funding

Nick Donohue

Deputy Secretary of Transportation

March 20, 2019



Virginia Department of Rail and Public Transportation



2019 Appropriations Act

- It is the intent of the **General Assembly Secretary of Transportation and Commonwealth Transportation Board shall... evaluate**
- **(i) the impact of increase fuel efficiency and increased use of hybrid and electric vehicles on transportation revenues, and**
- **(ii) potential options to provide a sustainable funding stream for transportation infrastructure**

Fuel Tax Collections FY16-FY18

- **Vehicle miles traveled increased 3.2%**
- **Fuel tax collections decreased 0.6%**
- **First time driving increased and fuel tax collections decreased at the same time, without a change in rate**
- **In FY18 fuel tax collections would have been \$60M higher if they had kept pace with driving**

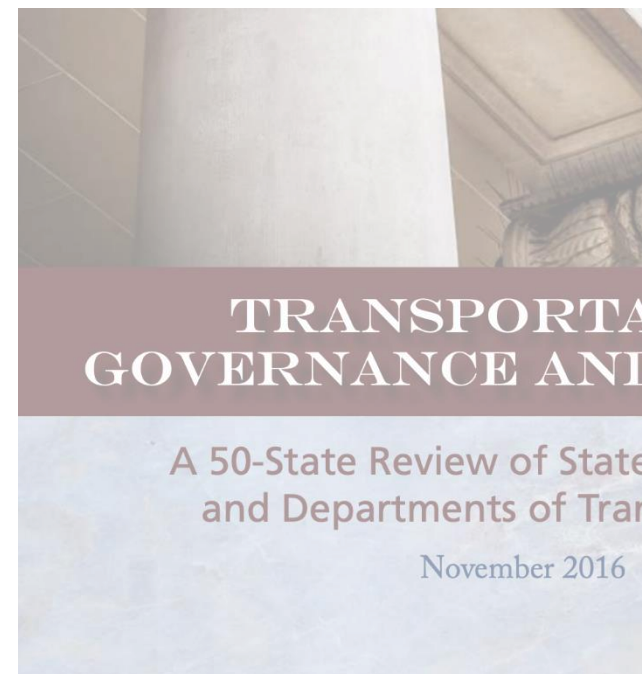
How Transportation Funded in Virginia – FY 2018

CTF Sources	CTF Revenues (in millions)
Gas Tax	\$638.3
Diesel Tax/Road Tax	\$216.9
Registration Fees/IRP	\$328.0
Motor Vehicle Sales Tax	\$943.7
Retail Sales Tax	\$1,043.8
Insurance Premiums	\$168.0
Misc	\$107.6

Retail Sales and Use Tax

According to AASHTO only 5 other states use retail sales and use tax

- Kansas – 1% out of 6.5% rate
- Connecticut – 0.5% out of 6.35% rate
- Nebraska – 0.25% increase until 2033
- Arkansas – 0.5% temporary increase to back bond issuances
- Utah – A portion is dedicated to transportation with amount declining over time



Not All Revenue Sources are Created Equal

Annual growth in CTF revenue sources on a unit basis from 2011 to 2025 (actuals and estimates)

- **Retail sales tax: 2.9%**
- **Motor vehicle sales tax: 2.7%**
- **Fuel tax: 0.7%**
- **Registration fees: 0.7%**

Potential Impact of Growing Revenue Streams

- **If fuel tax collections and registration fees grew at the average rate of retail sales tax starting in FY11**
 - **In FY20 the fuel tax would be expected to generate \$1,042.9M instead of \$866.5M In FY20 registration fees would be expected to generate \$307M instead of \$261.3M**
- **Over the upcoming six-year improvement program the additional revenues would be \$1.92B above current estimates**

Potential Impact of Growing Revenue Streams

Over the SYIP funds would be distributed as follows:

- **\$790.0M for State of Good Repair**
- **\$482.8M for High Priority Projects**
- **\$482.8M for District Grant Program**
- **\$80.9M for Transit Programs**
- **\$60.4M for Priority Transportation Fund**

Who Pays for Transportation In Virginia?

(in millions)

CTF and Federal Sources	Autos/Residents	Trucks
Gas Tax	\$1,383	-
Diesel Tax/Road Tax*	-	\$456.3
Registration Fees/IRP	\$184.0	\$144.0
Motor Vehicle Sales Tax	\$943.7	-
Retail Sales Tax	\$1,043.8	-
Insurance Premiums	\$168.0	-
Misc	\$107.6	\$148.2
TOTAL / Percentage	\$3,836.1 / 83.7%	\$742.5 / 16.3%

* While autos pay a portion of this tax, their share is assumed to be zero for purposes of this analysis

How Does Virginia Compare with Other States?

State	Truck Share of State/Fed \$	% of VMT by Trucks	Ratio of Truck \$ Share to Truck VMT
Virginia	16.3%	6.4%	2.55
Maryland	27%	6%	4.83
Pennsylvania	39%	9%	4.33
New York	33%	7%	4.71
Tennessee	37%	10%	3.70
West Virginia	38%	12%	3.17
Avg paid on 81 (w/o VA)	34.8%	8.8%	3.95

Next Steps

- **Work to better quantify anticipated impacts of increased fuel efficiency and hybrid/electric vehicles on fuel tax revenues**
- **Identify best practices in other states**
- **Evaluate potential options to address revenue sustainability**
 - **Mid-term, including potential ‘bridge’ options**
 - **Long-term, including VMT fees**



COMMONWEALTH of VIRGINIA

Commonwealth Transportation Board

Shannon Valentine
Chairperson

1401 East Broad Street
Richmond, Virginia 23219

(804) 786-2701
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COMMONWEALTH TRANSPORTATION BOARD WORKSHOP AGENDA

Delta Hotels Chesapeake Norfolk
725 Woodlake Drive
Chesapeake, Virginia 23320

March 20, 2019
10:00 a.m.

9. Director's Items
Jennifer Mitchell, Virginia Department of Rail & Public Transportation

This item does not have a presentation associated with it, but rather serves as a time when the Director may provide updates on various items as necessary.

###



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COMMONWEALTH TRANSPORTATION BOARD WORKSHOP AGENDA

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725 Woodlake Drive
Chesapeake, Virginia 23320

March 20, 2019
10:00 a.m.

10. Commissioner's Items
Stephen Brich, Virginia Department of Transportation

This item does not have a presentation associated with it, but rather serves as a time when the Commissioner may provide updates on various items as necessary.



COMMONWEALTH of VIRGINIA

Commonwealth Transportation Board

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COMMONWEALTH TRANSPORTATION BOARD WORKSHOP AGENDA

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Chesapeake, Virginia 23320

March 20, 2019
10:00 a.m.

11. Secretary's Items
Shannon Valentine, Secretary of Transportation

This item does not have a presentation associated with it, but rather serves as a time when the Secretary may provide updates on various items as necessary.