



COMMONWEALTH of VIRGINIA
Office of the
SECRETARY of TRANSPORTATION

I-81 Corridor Improvement Plan

Nick Donohue

Deputy Secretary of Transportation

October 29, 2018



I-81 Corridor Improvement Plan

- **Summary of public feedback**
- **Prioritization of potential improvements**
- **Overview of recommended improvement package**
- **Financing options**
- **On-going items that require additional work**
- **Next steps**

I-81 Corridor Improvement Plan

Public Involvement- Summary

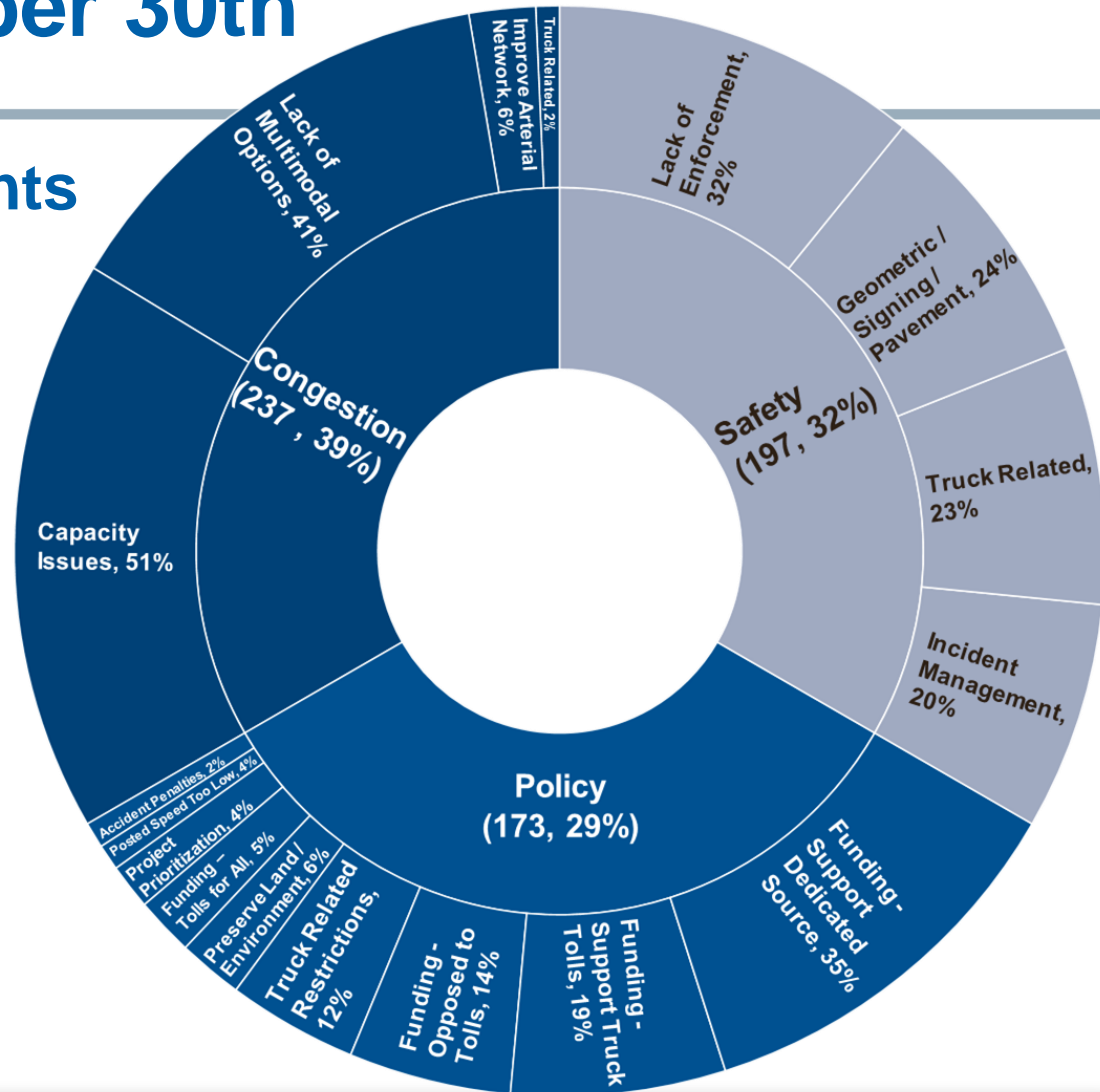
- **Meeting attendance at 8 Public Meetings: 659**
- **Location specific comments: 762**
- **General Comments via forms, email, and phone: 617**
- **Comments focused on safety, congestion issues- also many concerns about enforcement**

I-81 Public Involvement Summary

June 1 - September 30th

General Corridor Comments

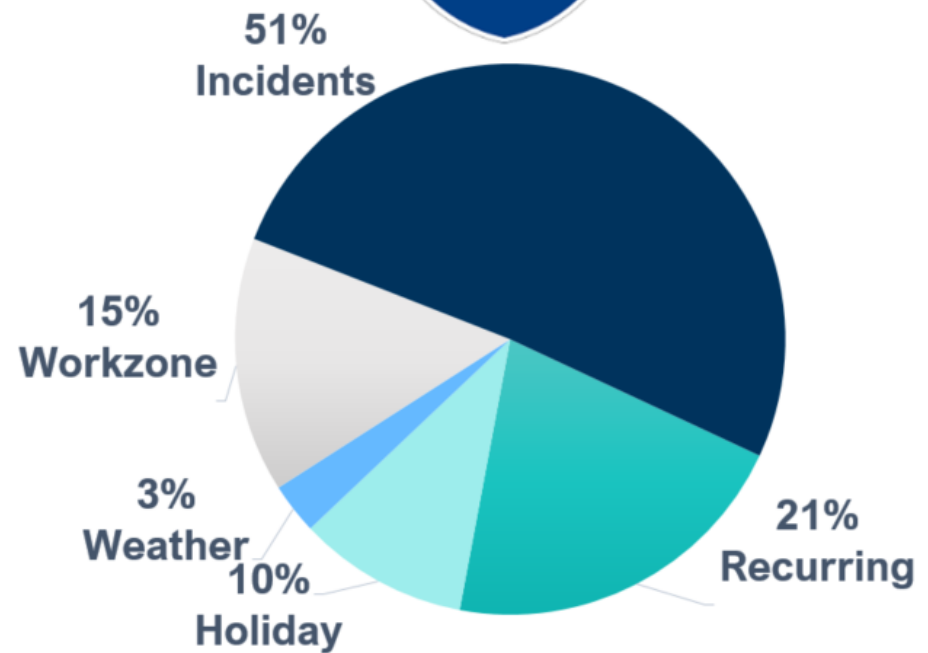
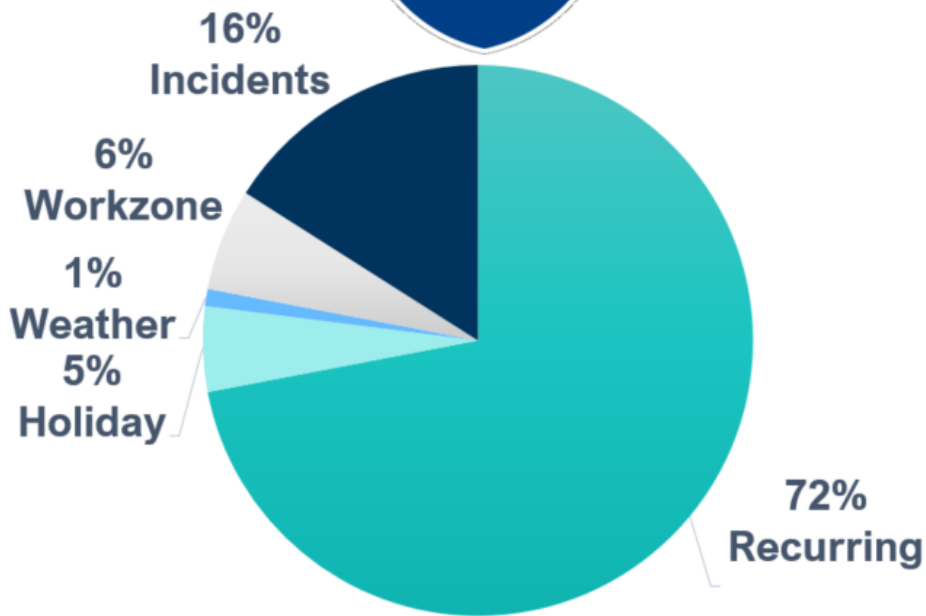
- Congestion (237, 39%)
- Policy (173, 29%)
- Safety (197, 32%)



**I-81 Corridor Plan
Operations Solutions-
Foundation for Corridor-wide
Improvements**

I-81 Corridor

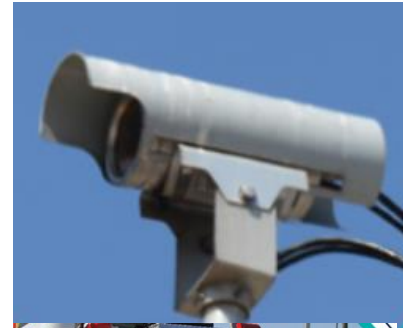
Delay Makes I-81 Unique



Operations Improvements

Key Components

- **Changeable message signs and cameras**
- **Expanded safety service patrols**
- **Contract emergency clearance**
- **Detour routes and improvements to parallel facilities**
- **Operations improvements total \$40M- funded off the top**



On-Going Items

On-Going Items

- **Several key items require extensive coordination with external parties**
 - **Truck parking solutions**
 - **Speed enforcement**
 - **Multimodal and local street improvements**

Truck Parking

Estimated Truck Parking Needs- I-81 In Virginia			
	Current Supply*	Estimated Current Need	Deficit
Northbound	1,550	1,900	350
Southbound	1,900	2,500	600
Totals	3,450	4,400	950

- **Truck Parking Preference Survey Results:**
 - **Long-Term Parking – 76% prefer private rest areas**
 - **Short-Term Parking – 56% prefer public rest areas**



Truck Parking

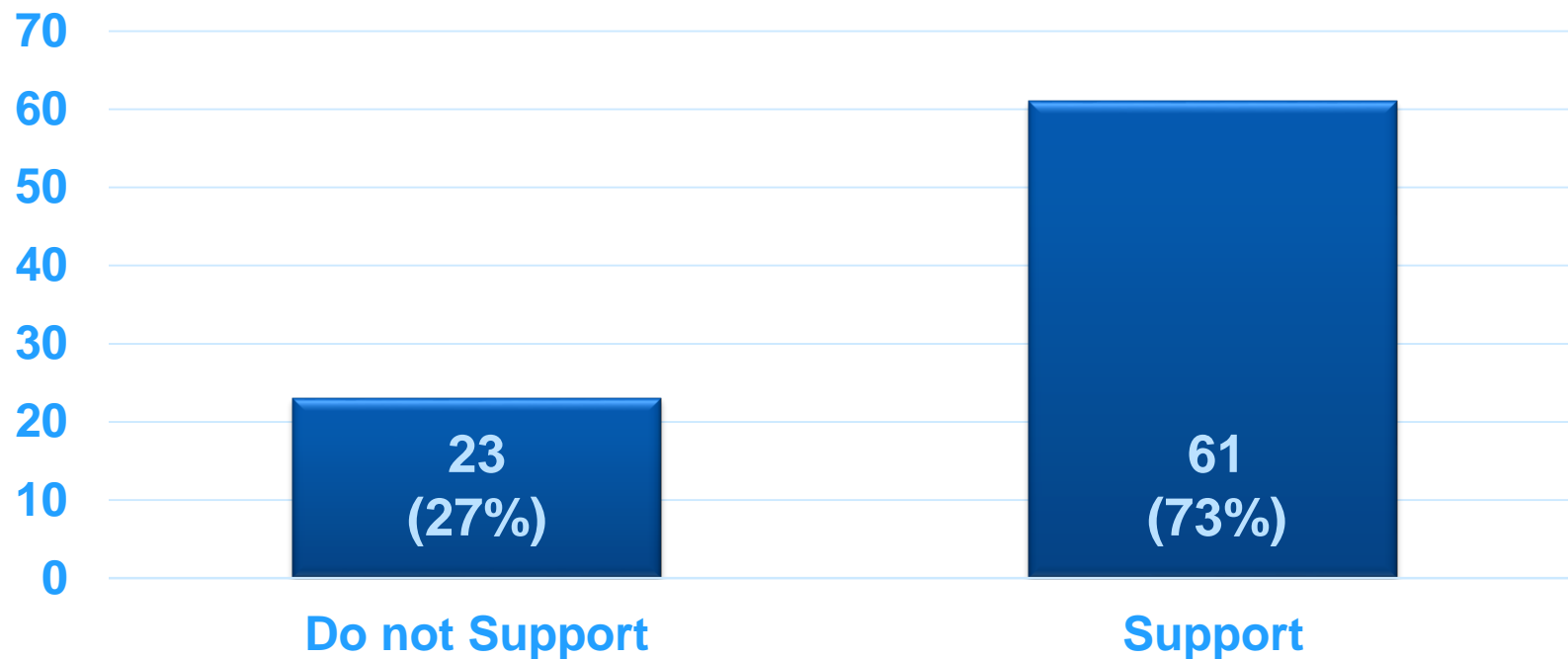
- **Currently a 9:1 ratio of private truck parking spaces to public truck parking spaces along the length of the I-81 corridor in Virginia**
- **Opportunities exist for adding both public and private truck parking spaces**
- **Focus on locations that allow drivers to maximize their driving time**

Truck Parking - Recommendations

- **Establish Truck Parking Solution Task Force**
 - **Coordinate with private truck parking providers**
- **Implementation of mobile technology with widespread participation by private truck parking providers**
 - **Provide truckers with certainty of parking through reservation system**
- **Investigate opportunities to fund expansion of public and private truck parking in targeted locations**

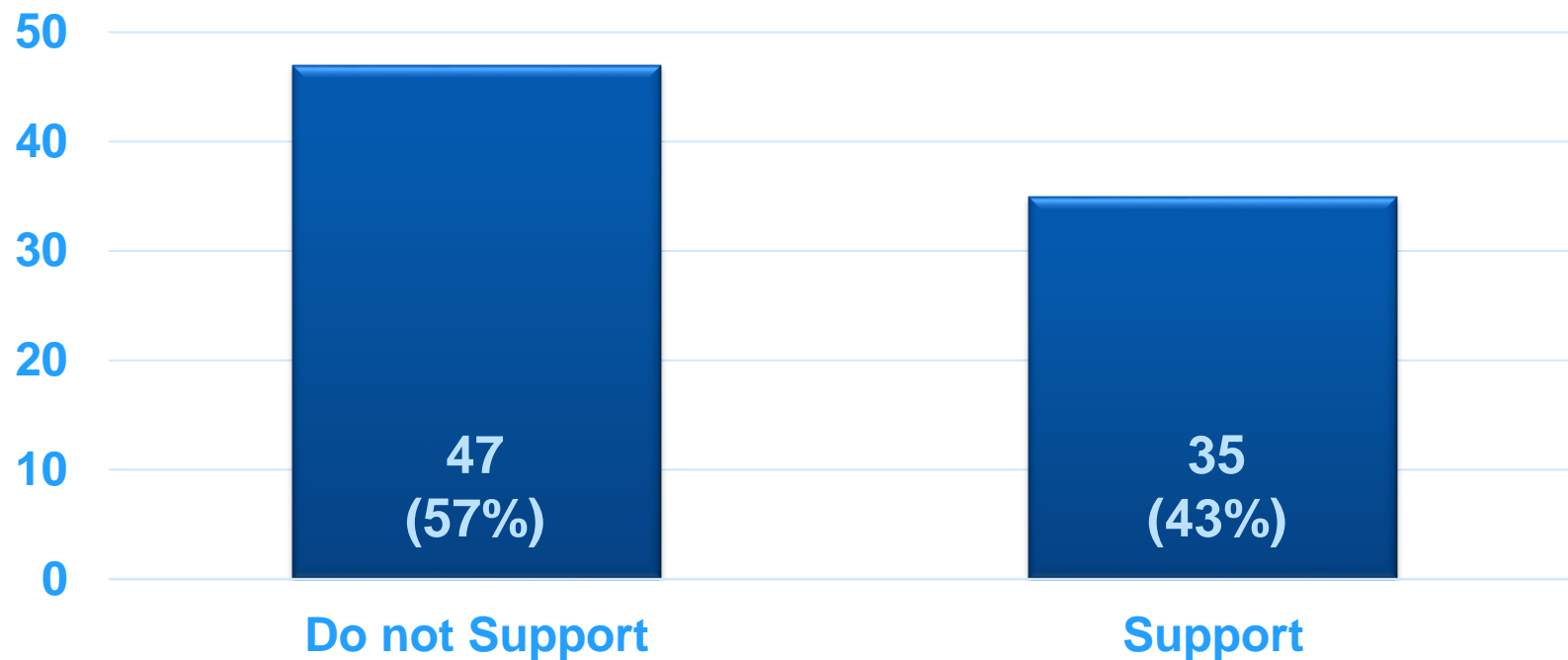
Speed Enforcement – Public Feedback

Would you support additional speed enforcement on the I-81 corridor?



Speed Limit – Public Feedback

Would you support reducing the posted speed limit on the I-81 corridor?



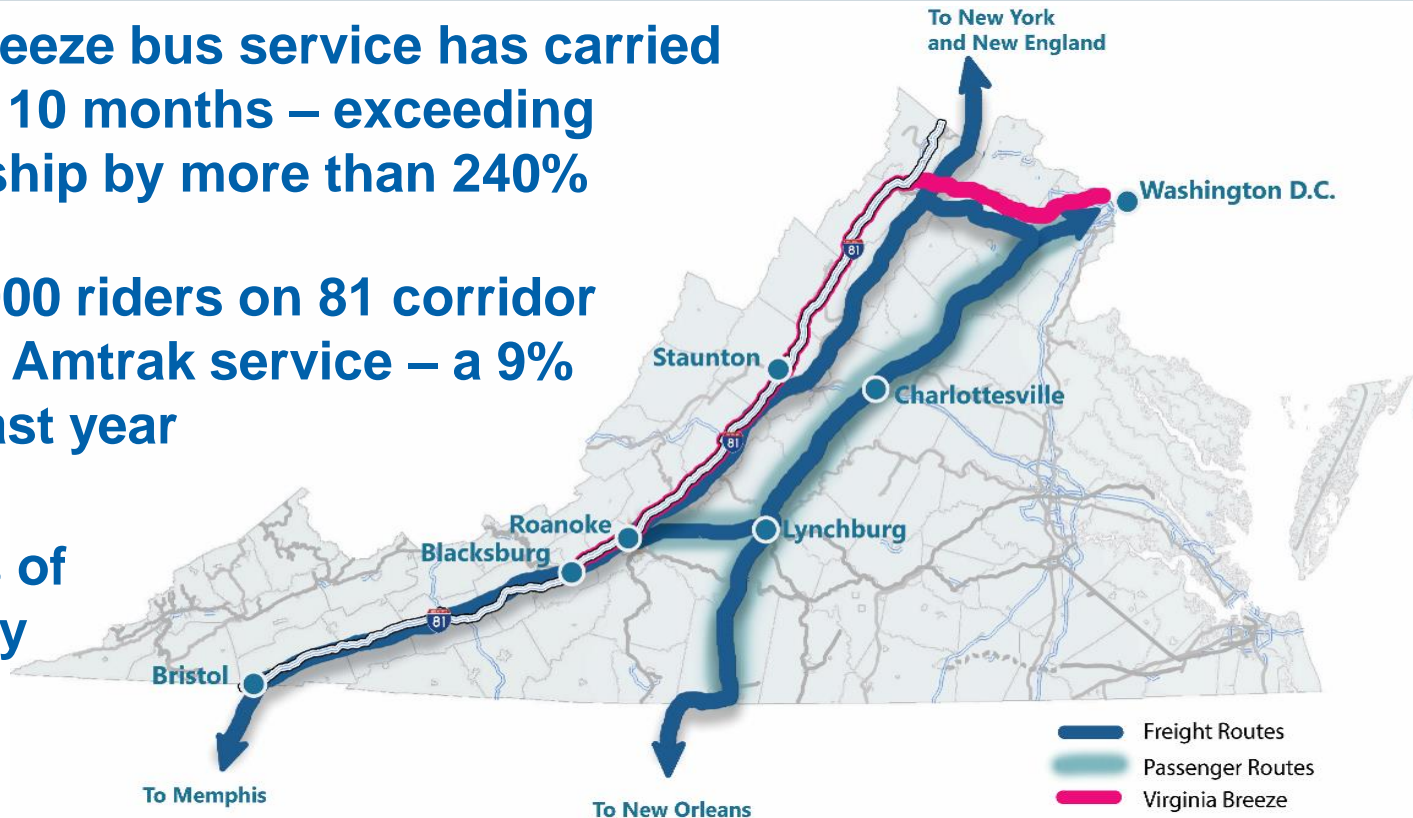
Speed Enforcement - Recommendations

- **Establish 81 Speed Enforcement Task Force**
- **Coordinate with local and state law enforcement to determine strategies**
- **Examine differences in existing enforcement practices throughout the corridor**
- **Evaluate technology solutions to assist with enforcement**



Multimodal Improvements

- New Virginia Breeze bus service has carried 14,000 riders in 10 months – exceeding projected ridership by more than 240%
- More than 200,000 riders on 81 corridor state supported Amtrak service – a 9% increase from last year
- ~70 million tons of freight moved by rail each year



I-81 Corridor Rail Investment



REF - \$70.1 M

- 2nd Mainline Improvements, Tunnel Clearances, and Siding Extension
- Since 2006



RPF - \$9.3 M

- Shenandoah Valley Railroad
- Winchester & Western Railroad
- Since 2006



RIA - \$12.3 M

- 31 Projects
- 15 Years



IPROC - \$100 M

- Extension of Amtrak Service: LYN - Roanoke
- NS Mainline Capacity Improvements
- Signal Upgrades



Amtrak Operating Support - \$3.6M **FY19 – FY24**

- Service between Roanoke and the Northeast

I-81 Corridor Rail Investment: Examples of Spurring Economic Development

- **Houff Corporation – Railside Industries**
 - \$450,000 Rail Industrial Access Grant
 - 17,415 trucks off road during 5-year performance period
 - 28 new full-time jobs
 - Located on Shenandoah Valley Railroad

- **Shenandoah Valley Railroad**
 - \$3.1M Rail Preservation Fund investment since 2006
 - 52,074 trucks off road
 - Preservation Fund investment has aided SVRR in doubling customer base



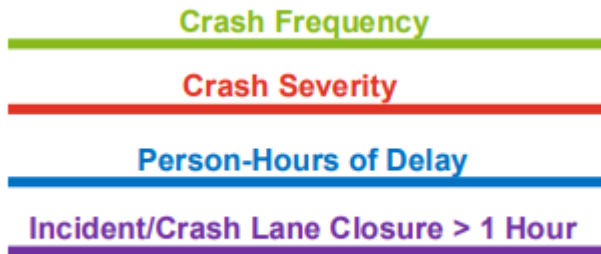
Passenger and Freight Rail

- Engage Norfolk-Southern on potential of 2nd train along the 81 corridor as well as extension of the Roanoke Train to Christiansburg
- Efforts underway with DRPT and Virginia Economic Development Partnership to improve strategies for marketing rail-served sites in the corridor
 - These efforts will remain on-going
- Rail Industrial Access Fund can establish ‘last-mile’ connections for distribution and manufacturing facilities
 - Will coordinate with VEDP to help market program to businesses along the corridor

I-81 Corridor Plan Capital Solutions

August: Potential Capital Improvements

- Reviewed each problem area identified by performance measures



- Determined contributing factors

Contributing Factors



Traffic Volume



Grade



Curve



Ramp Spacing



Merge/Diverge Area



- Developed potential solutions based identified contributing factors

Prioritization of Potential Capital Improvements

- Focused on an improvement package of approximately \$2 billion – approximately ½ of cost of potential improvements
- Evaluated all potential capital improvements using SMART SCALE-like process with benefits determined as follows:
 - 40% based on person hours of delay
 - 40% based on change in crash frequency
 - 20% based on change in access to jobs

Prioritization of Potential Capital Improvements

- **Bristol - \$252M**
 - **26/26 potential solutions recommended for funding**
 - Proposed 77/81 interchange solution was re-scoped to provide 50% of benefits for 12% of the original scope's cost
- **Salem - \$882M**
 - **22/33 potential solutions recommended for funding**
- **Staunton - \$886M**
 - **24/46 potential solutions recommended for funding**

Summary Benefit Results from Prioritized Potential Solutions

- **By deploying \$2 billion of capital improvements along the I-81 corridor*:**
 - **Annual vehicle hours of delay will be reduced, on average, by more than 6 million**
 - Trucks will capture more than 3.6 million vehicle hours of annual delay reductions
 - Reductions related to construction of capital improvements responsible for more than 90% of these results; operational improvements and reductions due to fewer accidents account for remaining share
 - **Annual statistical crashes are anticipated to be reduced, on average, by almost 450 across the entire corridor**
 - Approximately 29% of the reduction in annual statistical crashes (representing almost 130 crashes) involve an injury

* Estimated based on the share of vehicle delays generated by projects included in list of \$2 B improvements compared to total vehicle delays generated by all improvements considered in the corridor. Estimate includes benefits related to Operational Improvements

I-81 Financing Options

I-81 Financing Options

- **Legislation provided direction on the financing options to be considered**
 - Evaluate feasibility of using toll financing
 - Do not consider tolls on commuters
 - May consider tolls on heavy commercial vehicles
 - May consider High Occupancy Toll Lanes
 - Evaluate other financing means
- **Financing options should be sufficient to fund recommended package of capital improvements and incident management strategies**

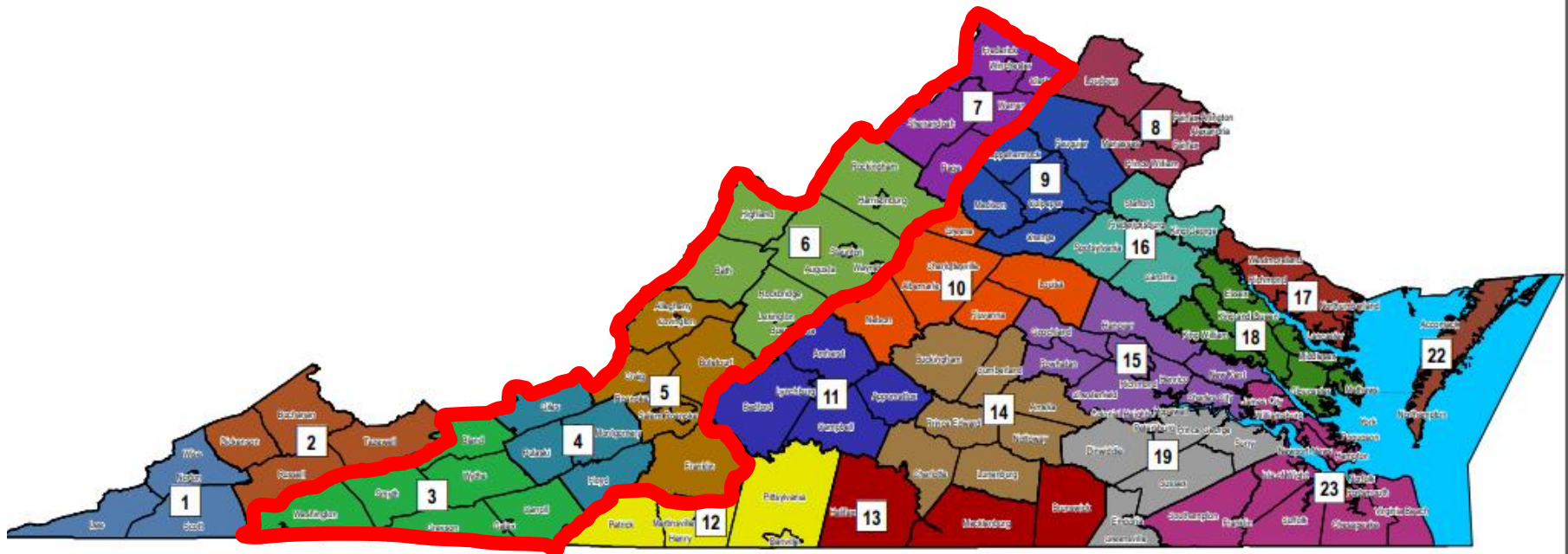
Key Financial Plan Assumptions

- **Use official Department of Taxation forecasts for revenue and inflation growth**
 - **Steady 2.6% CPI applied to proposed capital solutions**
 - **Steady 2.0% regional sales tax growth from 2017 Official Revenue Estimate and Constrained Long Range Plan (CLRP)**
 - **Varying 1.02%, 0.46%, 0.47% regional motor fuels tax growth from Official Estimate and CLRP with 1.02% growth in early years**
- **New operational improvements are paid annually out of dedicated revenue stream**
- **Apply historical trends for traffic growth**
 - **1.7% for trucks**
 - **0.7% for autos**

Key Financial Plan Assumptions

Regional Taxes

- Regions impacted by a potential motor fuels or retail sales and use tax for I-81 Corridor



Key Financial Plan Assumptions

Traffic and Tolls



































- **Collect per mile tolls without using a toll booth via:**
 - Transponder (E-ZPass)
 - Video (image-based)
 - I-81 Commuter Annual Pass
- **Toll Gantry Locations – Six along corridor**
 - Between urbanized areas
 - Parsing of ~50-60 miles



Key Definitions

Heavy commercial vehicle

- **Heavy Commercial Vehicle or “Trucks”**
 - No uniform definition of term
 - Study assumed FHWA Classes 6 – 13
 - Surrounding states define similarly but lower axles (Class 5)

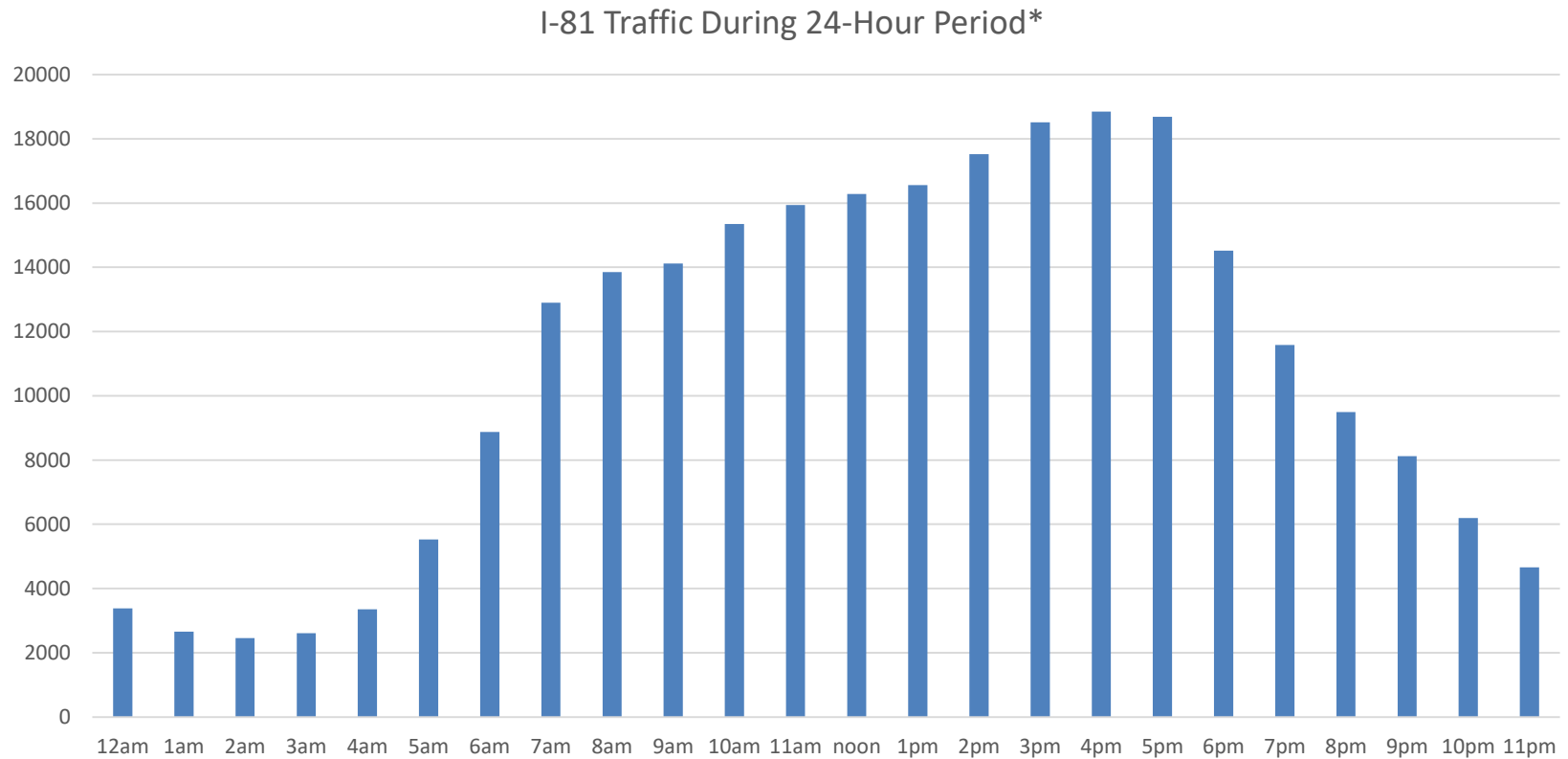
Class 1 Motorcycles		Class 7 Four or more axle, single unit	
Class 2 Passenger cars		Class 8 Four or less axle, single trailer	
			
			
			
Class 3 Four tire, single unit		Class 9 5-Axle tractor semitrailer	
			
			
Class 4 Buses		Class 10 Six or more axle, single trailer	
			
		Class 11 Five or less axle, multi trailer	
Class 5 Two axle, six tire, single unit		Class 12 Six axle, multi-trailer	
			
		Class 13 Seven or more axle, multi-trailer	
			
			
			

Key Assumptions

Toll Rates

- **Plan examining various approaches to tolling**
- **Toll rates will vary between trucks and autos**
 - Trucks – less than \$0.17 per mile
 - Autos (non-commuters) – 1/3 to 2/3s of truck toll rate
 - Must be paid using transponder, sticker or by video
- **Time of Day Tolling**
 - Tolls would be variable with higher during ‘day-time’ – roughly 6:00am to 9:00pm and lower from 9:00pm to 6:00am
 - Goal is to encourage more efficient use of the corridor

I-81 Traffic by Time of Day



*Time of Day studies at key locations throughout the corridor

Key Assumptions

Toll Rates

- **I-81 Commuter Annual Pass**

- Explored in the financial analysis
- Allows "autos" ability to pay an annual fee for unlimited use of the facility
- Fee would not exceed cost of round-trip "auto" toll on I-81
- Fee could be collected through DMV
- Pass would be offered to auto commuters and other auto corridor users

- **Users of the corridor without I-81 Commuter Annual Pass would pay full auto toll rate**

Debt Financing Assumptions

- Debt financing cannot impact Commonwealth's debt capacity
- To assure bondholders that assets are kept in state of good repair O&M costs must be clearly defined; assumption is that dedicated I-81 revenue will pay for on-going operational and revenue collection costs only (operational improvements and tolling O&M)
- Term of debt will be 30 years or more based on useful life of assets being constructed; interest rates range between 3.5 & 4.5%
- Toll-supported debt – Assume Bond ratings are Aaa/AAA/AAA for toll revenue (9c) bonds issued by the Commonwealth and/or federal TIFIA Loan Program

Debt Financing Assumptions

- **Tax-supported debt - Assume Bond ratings of Aa2/AA/AA for special tax bonds supported by tax revenues directed to and issued by a regional authority**
 - **Hampton Roads Transportation Accountability Commission has issued \$500 million with plans for \$1.2 billion by 2020**
 - **Northern Virginia Transportation Authority has issued \$60 million in debt and \$1.2 billion in pay-as-you go projects**

Financing Options to Support Recommend \$2B Program of Projects

Regional Tax Option	Rate	Revenue Generated
Retail Sales and Use Tax	0.7%	\$105
Regional Fuels Tax	2.1%	\$60

Tolling Option	Rate	Revenue Generated
Time of Day Tolling with I-81 Commuter Annual Pass	Variable	\$135-\$155

* Figures in millions

Economic Impact Analysis

Economic Impact Analysis

- **Analyzed economic impacts of investment in improvements to the I-81 corridor and their impacts at the state level**
- **Analyzed the impact of heavy commercial vehicle tolls on Virginia agriculture, manufacturing, and logistics sectors**

Economic Impact Analysis- Preliminary

State Level Economic Impact

- **If all 105 projects (\$4.1 billion) are funded by 2060, \$7.2 billion in additional economic output will be generated in Virginia**
- **The \$2 billion recommend program (72 projects) will generate almost \$3.5 billion in additional economic output in Virginia**
 - **Direct result of the expenditures related to the construction of the capital improvements**
 - **19,800+ job/years, \$1.2 billion in labor income**

Economic Impact Analysis- Preliminary

Economic Impact of Tolling Heavy Commercial Vehicles

- Investments generate improved traffic conditions in the corridor that reduce the cost of doing business for trucking companies
- Between 2020-2060, these reduced costs (\$4.6 billion) for companies serving Virginia-based industries is higher than the payment of the toll for those companies to use I-81 (\$3.2 billion)
 - Reduced costs include: travel time savings, operational costs savings via less fuel spent, less overtime payments to drivers and less out-of-pocket costs related to crashes
- Net reduction in trucking costs at the state level of up to \$1.4 billion over a 40-year period
- Positive economic impacts to manufacturing (up to \$422 million); agriculture (up to \$26.1 million); and logistics (up to \$18.4 million) over a 40-year period*

* trucking cost reductions applied to individual industries based on their share of Statewide trucking expenditures

Next Steps

- **Feedback from Commonwealth Transportation Board**
- **Revise draft report, as appropriate, based on feedback**
- **Board to consider final report at December meeting**
- **Final report to be submitted to General Assembly by the first day of the 2019 session**

...VA81Corridor.org



Interstate 81 Corridor Improvement Plan

Project website: <http://www.VA81Corridor.org>

Project e-mail address: VA81CorridorPlan@OIPI.Virginia.gov



COMMONWEALTH of VIRGINIA
Office of the
SECRETARY of TRANSPORTATION

