

# I-81 PROGRAM PROGRESS REPORT

December 2023

Prepared for:



Prepared by:



Commonwealth  
Transportation Board



# INTRODUCTION

In April 2019, the Virginia General Assembly enacted legislation that Governor Ralph Northam signed into law establishing the Interstate 81 (I-81) Corridor Improvement Program and Fund, which advances the projects identified in the I-81 Corridor Improvement Plan (the Plan) for implementation. The Plan was approved by the Commonwealth Transportation Board (the Board) in December 2018 following an evaluation of the corridor. Chapters 837 and 846 of the 2019 Virginia Acts of Assembly specify the roles and responsibilities of the Board and the I-81 Committee (the Committee) to enact the I-81 Corridor Improvement Program (the Program) and Fund (the Fund).

# LEGISLATIVE REQUIREMENTS

Section 33.2-3602 of the legislation requires the Board, in consultation with the Committee, to report to the General Assembly by December 15 of each year “regarding the status and progress of implementation of the Program.” This report is mandated to include:

- The safety and performance of the I-81 corridor using the following performance measures:
  - crash frequency and severity per mile, expressed in equivalent property damage only (EPDO) crashes
  - person-hours of delay per mile
  - frequency of lane-impacting incidents per mile
  - duration of a lane closure
- An assessment of the effectiveness of the operational strategies and capital projects implemented and funded through the Program
- The status of capital projects funded through the Program
- The current and projected balances of the Fund.

House Bill 2718 (Chapter 837) introduced by Delegates Steve Landes and Terry Austin, and Senate Bill 1716 (Chapter 846), introduced by Senators Mark Obenshain and William Carrico, established the I-81 Corridor Improvement Program, Fund, and Committee. Governor Ralph Northam announced amendments in March 2019, providing dedicated annual funding to the corridor, estimated at \$103 million in fiscal year 2020 and growing to an estimated \$163 million in fiscal year 2025. These funds will support the \$2 billion improvement program (estimate as of the 2018 Plan). The revenues for the Fund were provided through the creation of a new truck registration fee as well as the establishment of an I-81 corridor regional fuels tax and statewide diesel and road taxes.

During the 2020 General Assembly, House Bill 1414 (Chapter 1230) and Senate Bill 890 (Chapter 1275) included the following changes to the Program and Fund:

- Authorized the sale and issuance of bonds with an aggregate principal amount of \$1 billion
- Converted the regional fuels tax to a cents per gallon tax with the opportunity for annual growth based on the Consumer Price Index

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- Amended the regional fuels tax to only include localities through which I-81 passes or cities wholly encompassed by a county through which I-81 passes
- Allocated additional funding for the corridor through the Interstate Operations and Enhancement Program. Previously provided statewide revenue sources are committed to the Commonwealth Transportation Fund beginning in fiscal year 2021.

## TIMELINE OF EVENTS

2021 I-81 Corridor Improvement Report submitted to the General Assembly	<b>JAN</b> 2022		2022 I-81 Corridor Improvement Report submitted to the General Assembly	<b>JAN</b> 2023	
	<b>FEB</b> 2022	Construction of the first major widening project in the I-81 Corridor Improvement Program begins		<b>FEB</b> 2023	
	<b>MAR</b> 2022			<b>MAR</b> 2023	
	<b>APR</b> 2022		Construction of Staunton widening project between Exits 221 and 225 begins	<b>APR</b> 2023	
	<b>MAY</b> 2022			<b>MAY</b> 2023	Completion of the first auxiliary lane project in the I-81 Corridor Improvement Program
	<b>JUNE</b> 2022			<b>JUNE</b> 2023	
	<b>JULY</b> 2022		Construction of three truck climbing lanes begins	<b>JULY</b> 2023	Construction of two acceleration and two deceleration lane extension projects in Smyth County completed
	<b>AUG</b> 2022	Preliminary engineering of the Staunton widening project between Exits 221 and 225 completed		<b>AUG</b> 2023	
	<b>SEPT</b> 2022			<b>SEPT</b> 2023	
Construction of two acceleration lane extension projects in Rockbridge County completed	<b>OCT</b> 2022			<b>OCT</b> 2023	
	<b>NOV</b> 2022			<b>NOV</b> 2023	
	<b>DEC</b> 2022	Commonwealth Transportation Board approved the 2021 I-81 Corridor Improvement Program Report and sent to the General Assembly		<b>DEC</b> 2023	Commonwealth Transportation Board to approve the 2023 I-81 Corridor Improvement Program Report and send to the General Assembly

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# CURRENT AND PROJECTED BALANCES OF THE FUND

As of October 2023, the Virginia Department of Transportation (VDOT) documented the current and projected funds available and Program allocations. The current and projected six-year balances of the Fund are summarized in **Table 1**. Current revenue projections and debt assumptions support completing the original I-81 program by 2033. Estimated schedules for capital improvement projects, including completed projects, projects amended to the SYIP, and the capital improvement projects yet to be adopted into the SYIP, are available in **Appendix A** and online at [www.improve81.org](http://www.improve81.org).

*Table 1: Current Versus Projected Funds Available based on the FY 2024-2029 SYIP (in millions of dollars)*

Source	Through FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	Total
I-81 Regional Fuels Tax	\$296.5	\$88.1	\$91.5	\$94.4	\$96.5	\$98.7	\$100.9	\$866.6
I-81 Allocation from IOEP	\$266.0	\$85.8	\$112.5	\$120.0	\$122.4	\$125.6	\$134.0	\$966.3
Other Sources Prior to FY 2021/ Other	\$24.6	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$24.6
Prior Year Revenue Adjustment	\$0.0	(\$1.3)	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	(\$1.3)
Interest Income	\$8.6	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$8.6
<b>Total</b>	<b>\$595.7</b>	<b>\$172.6</b>	<b>\$204.0</b>	<b>\$214.4</b>	<b>\$218.9</b>	<b>\$224.3</b>	<b>\$234.9</b>	<b>\$1,864.8</b>
Planned Debt for Construction	\$203.1	\$237.9	\$0.0	\$272.9	\$251.4	\$0.0	\$0.0	\$965.3
<b>Total</b>	<b>\$798.8</b>	<b>\$410.5</b>	<b>\$204.0</b>	<b>\$487.3</b>	<b>\$470.3</b>	<b>\$224.3</b>	<b>\$234.9</b>	<b>\$2,830.1</b>

*Note: FY = Fiscal Year, IOEP = Interstate Operations and Enhancement Program*

*Sources: Regional Fuels Tax estimate provided by the Virginia Department of Taxation, December 2022*

*Interstate Operations and Enhancement Program, Commonwealth Transportation Fund Six-Year Financial Plan, June 2023*

In 2020, the General Assembly passed legislation that limited the imposition of regional fuels taxes to only those localities through which I-81 passes. This adjustment to the original fuel tax mechanism is not anticipated to impact the financial health of the Fund. Furthermore, as per the 2020 Interstate Operations and Enhancement Program (IOEP) omnibus legislation, I-81 receives an allocation of funds from the IOEP equal to the ratio of vehicle-miles traveled (VMT) on I-81 by Class 6 vehicles or higher to total VMT on all interstates. Beginning in FY 2021, the truck registration fees and road tax revenue from the Program were dedicated to the Commonwealth Transportation Fund. Adoption of the FY 2022-2027 SYIP included a plan for financing the Program and estimated proceeds from I-81 bonds and Transportation Infrastructure Finance and Innovation Act (TIFIA) financing.



## STATUS OF PROJECTS FUNDED THROUGH THE PROGRAM

The FY 2024-2029 SYIP was adopted by the Board on June 21, 2023, and included 30 of the 31 capital improvement projects identified in the Plan. The safety service patrol improvements identified in the Plan were implemented in July 2019. Before the end of 2020, the initial eight acceleration and deceleration lane extension projects, the eight curve improvement projects, and most of the new camera installations were completed. In 2021, the remaining camera and changeable message sign installations were completed along with the construction of three ramp extension projects in the Staunton District. Major progress was made on the extension of acceleration and deceleration lanes from 2022 to 2023 with construction completed on 12 projects during that time. In addition, the auxiliary lane project in Smyth County was completed in 2023, the first completed auxiliary lane project of the I-81 Corridor Improvement Program. A high-friction overlay project was also completed in Smyth County in 2023. **Figure 1** outlines the status of the projects as of October 2023 by project type. A table summarizing the status of individual capital improvement projects can be found in **Appendix B**.

Figure 1: Status of Projects Funded Through the Program

	Project Type	Status	Total Projects	Estimated Completion
Capital	Widening	10	10	2033
	Acceleration/ Deceleration Extension	25 10	35	2033
	Auxiliary Lane	1 4	5	2028
	Truck Climbing Lane	5	5	2025
	Shoulder Widening	1	1	2030
	Curve Improvements	8	8	Completed
Operations	Safety Service Patrol Expansion	1	1	Completed
	Towing and Recovery Incentive Program	1	1	Completed
	Camera Installation	42	42	Completed
	Changeable Message Sign Installation	30	30	Completed

Legend: Complete Programmed

Source: Virginia Department of Transportation, 2023

# PERFORMANCE OF THE I-81 CORRIDOR

**Figure 2** through **Figure 5** show how the four performance measures have changed over three multi-year periods. These figures also show the capital improvement projects that have been completed and the ones that are still underway or planned. The performance measures documented in the Plan and adopted by the Board in late 2018 were based on data through 2017. The emergence of the COVID-19 pandemic in 2020 caused a vehicle-miles traveled (VMT) reduction of 15% on I-81, while VMT returned to pre-pandemic levels in 2021 and was sustained in 2022. Therefore, data from 2020 was removed from the multi-year performance measure data periods used in this report since reduced travel on I-81 skewed the data when compared to 2019, 2021, and 2022 data. Crash data were compared between the three five-year periods: 2015-2019, 2016-2021, 2017-2022; the five-year periods of 2016-2021 and 2017-2022 are without 2020 data. A supplementary histogram displaying crash frequency and severity per mile for truck-related crashes is included in **Appendix C**. Delay and incident data were compared for the three two-year periods: 2018-2019, 2019-2021, 2021-2022. The 2019-2021 time period excludes 2020 data.

To show the effectiveness of a program of projects, the study team relied on a minimum of one year of data following the implementation of the program or project. **Table 2** through **Table 5** contain corridor-wide summaries for each two- or five-year period for the four performance measures. The performance measure data has fluctuated on a segment-by-segment and corridor-wide basis in the years since the plan was developed. The number of lane-impacting incidents lasting longer than one hour has steadily decreased as well as the number of hours of lane closure.

This decrease in incidents, lane closures, and hours of lane closures may be attributed to the implementation of the Towing and Recovery Incentive Program (TRIP), which aims to improve the response time to incidents so traffic can move again. The number of lane-impacting incidents decreased similarly between northbound and southbound traffic. However, the 11% decrease in total hours of lane closures was mainly driven by the decrease in total hours of lane closures on northbound I-81.

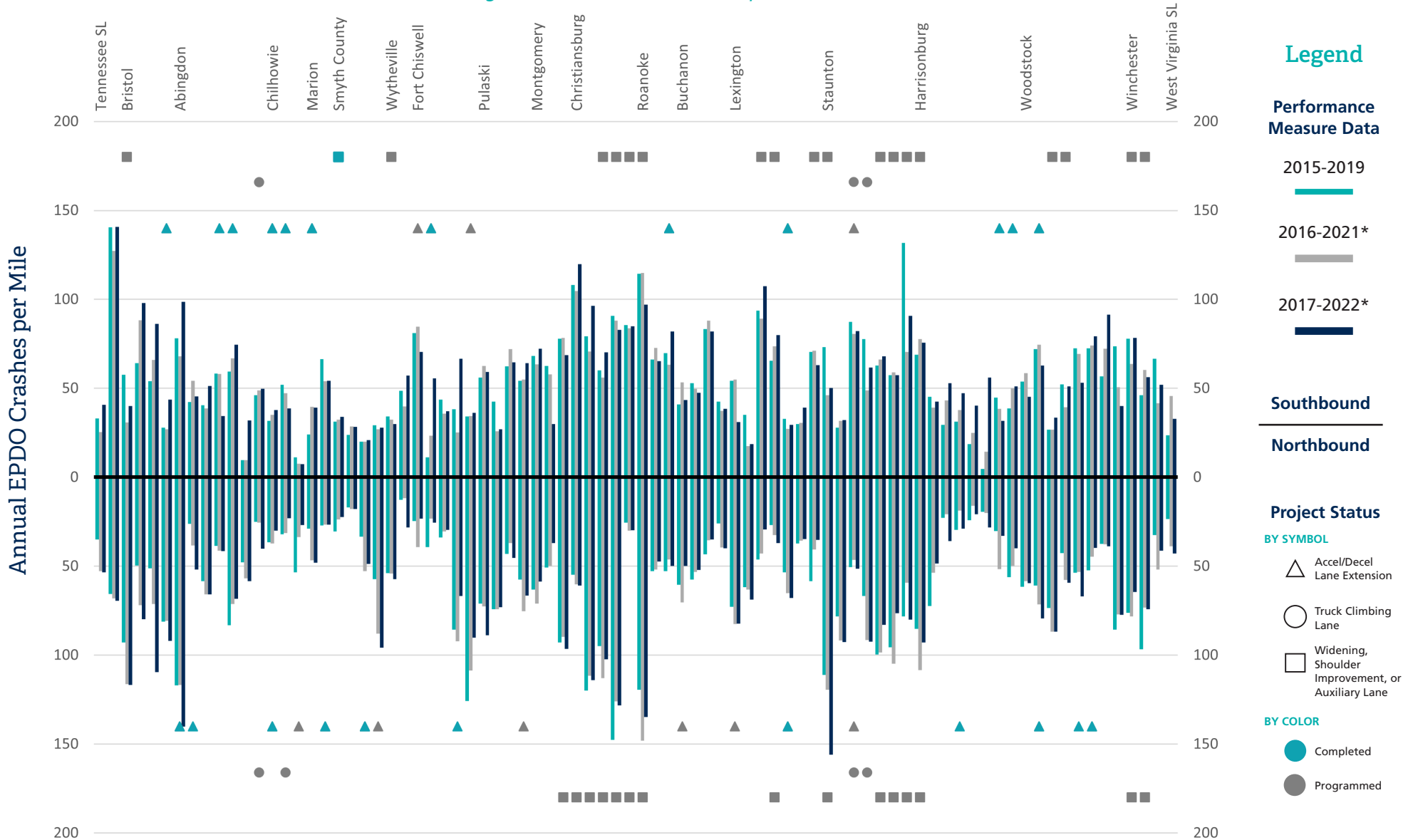
I-81 is experiencing an increase in the other two performance measures: person-hours of delay and equivalent property damage only (EPDO). Total person hours of delay increased by 3.4%, returning to levels experienced from 2018-2019. Total EPDO crashes have also increased by a similar percentage as total person hours of delay. However, most of the increase in EPDO crashes during the latest five-year data period is attributed to southbound I-81. The prevalence of work zones on I-81 has impacted the total EPDO crashes on I-81, where the total number of work zone related crashes has increased by 172% between 2019 and 2022.

In future years, it will continue to be challenging to evaluate the impact of completed construction projects on the performance measures for the following reasons.

- The data has fluctuated in the years since the Plan was developed
- Performance measure impacts of active work zones
- Performance measure data for 2020 are not reflective of a typical year due to COVID-19
- Lack of a sufficient time for projects to be implemented and to develop a performance trend

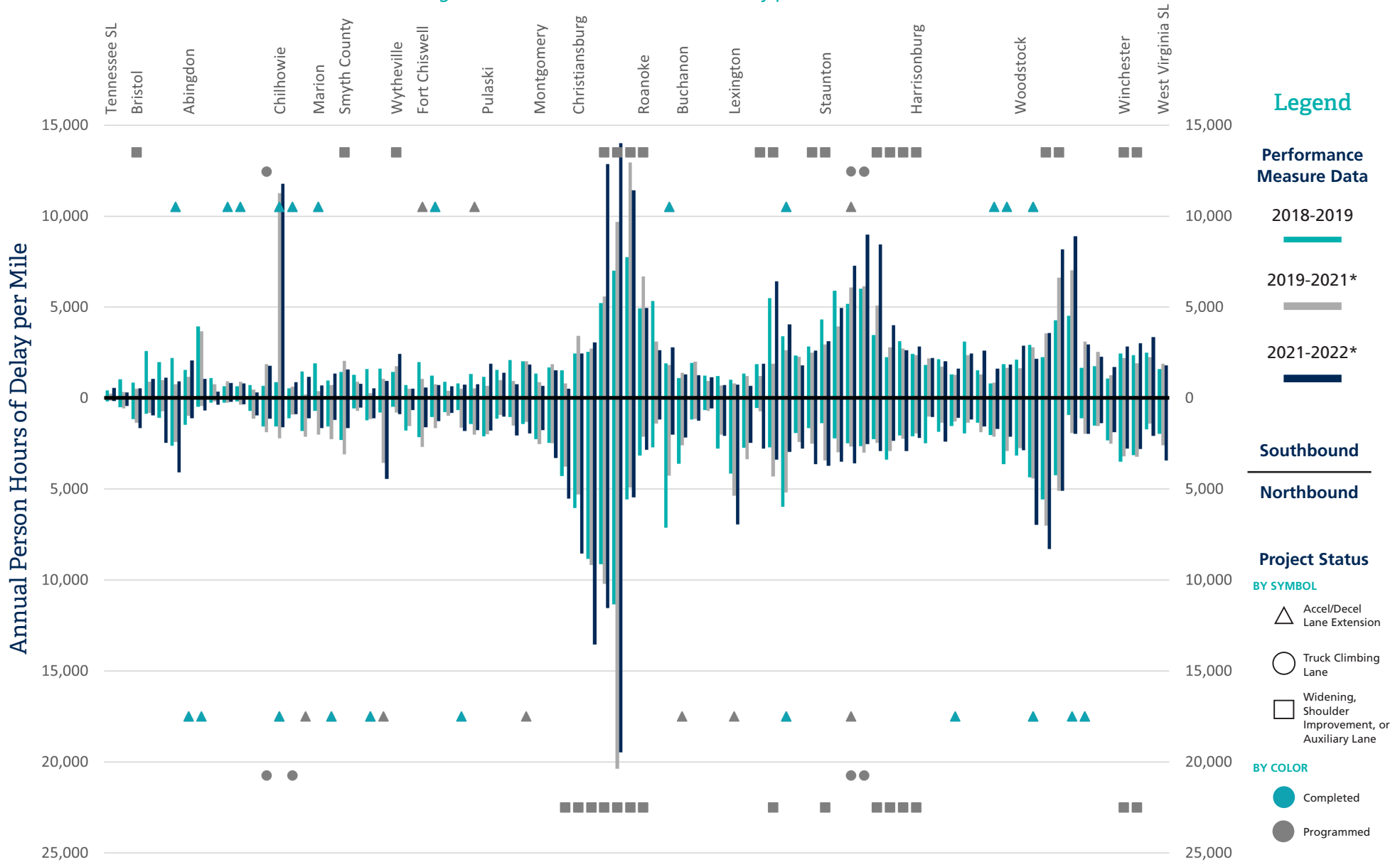
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Figure 2: Annual EPDO Crashes per Mile



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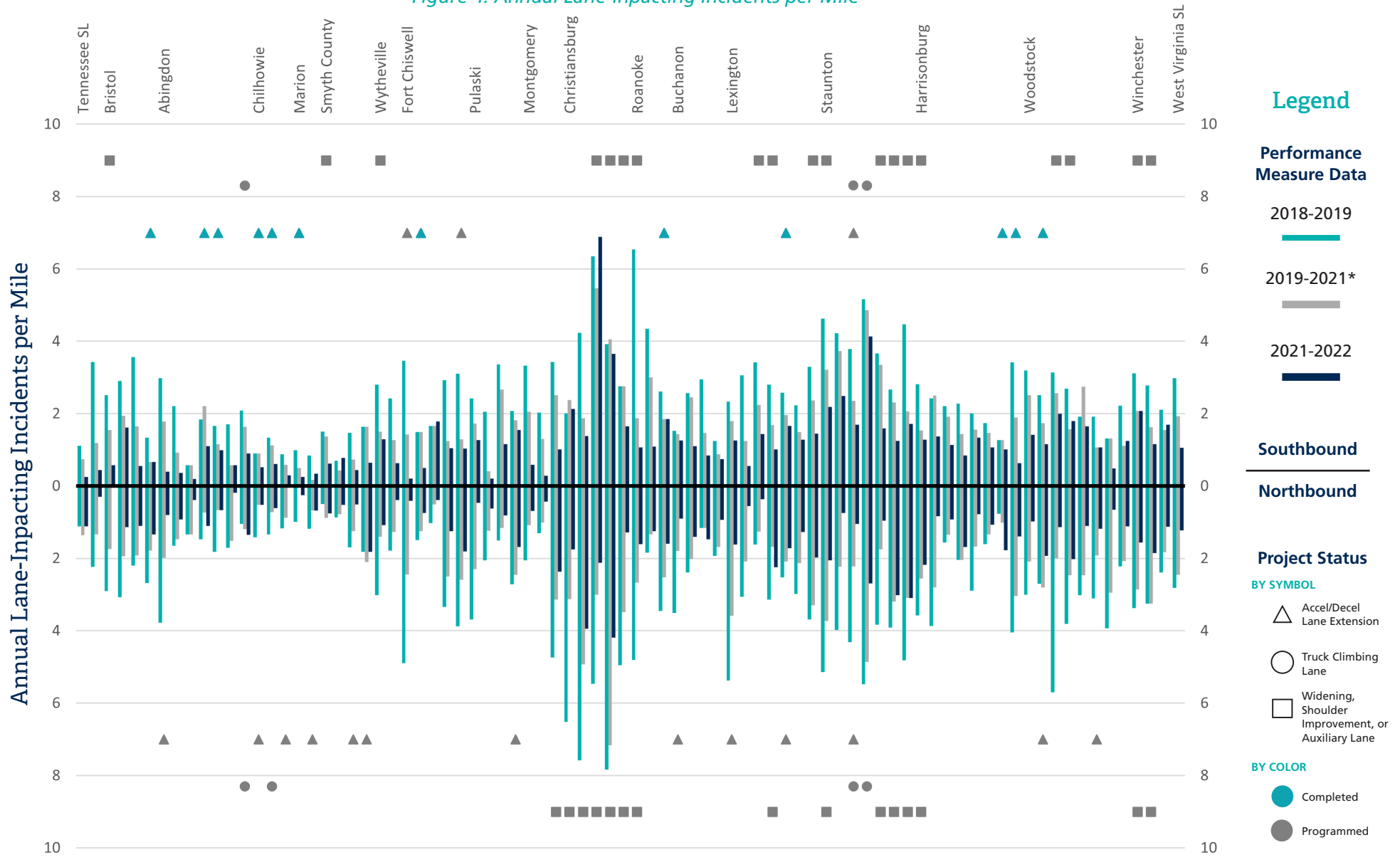
Figure 3: Annual Person Hours of Delay per Mile





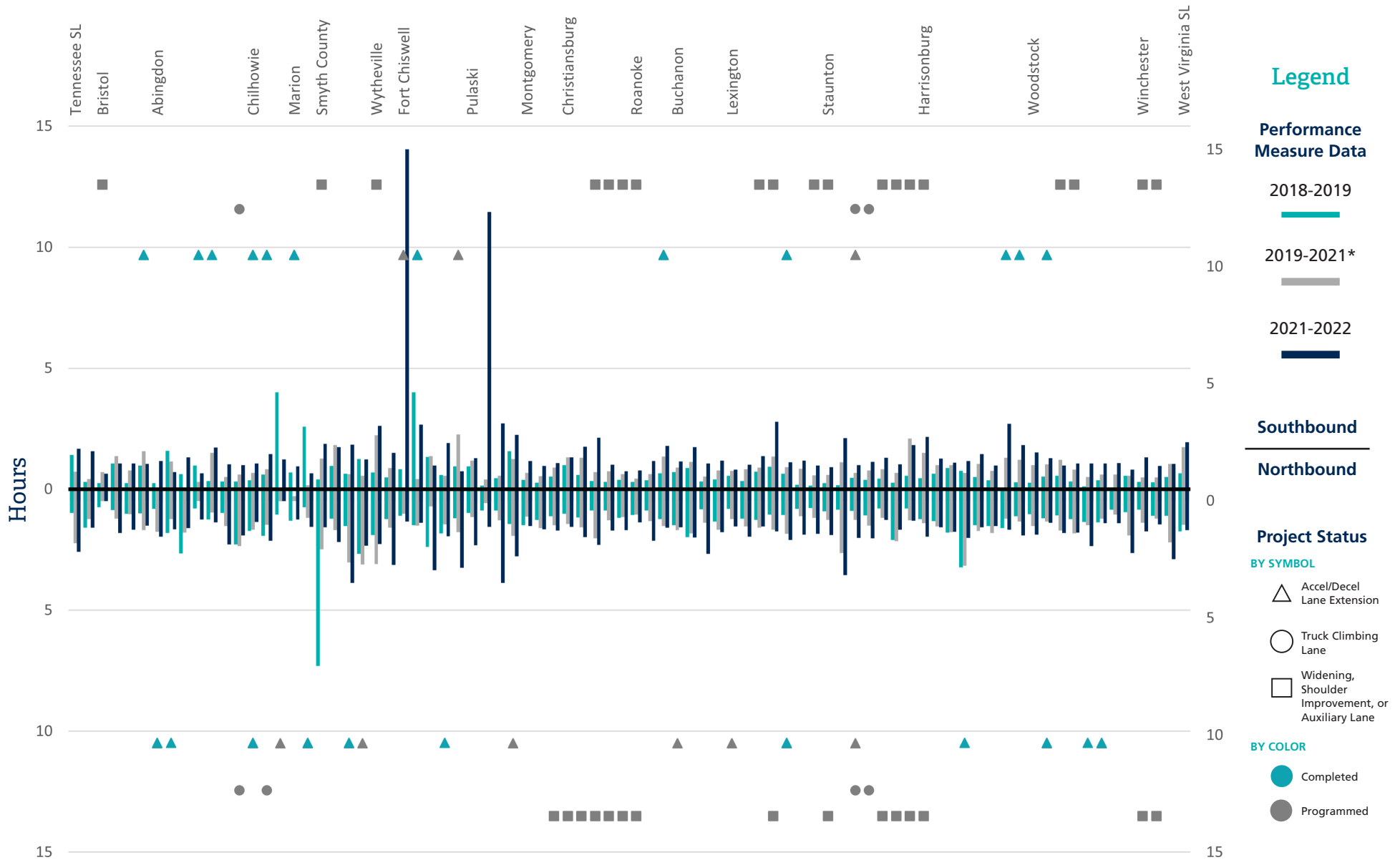
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Figure 4: Annual Lane-Inpacting Incidents per Mile



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Figure 5: Average Duration of a Lane Closure (Hours)



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Table 2: EPDO Crashes

End of Five-Year Period	Northbound	Southbound	Total	Percent Change from Previous Period
2019	49,095	50,012	99,001	-
2021*	52,519	47,880	100,399	+1.4%
2022*	52,852	50,639	103,491	+3.1%

\*2016-2021 and 2017-2022 without 2020 data

Table 3: Person-Hours of Delay

End of Two-Year Period	Northbound	Southbound	Total	Percent Change from Previous Period
2019	2,116	1,471	3,587	-
2021*	1,959	1,453	3,412	-4.9%
2022	1,813	1,714	3,527	+3.4%

\*2019-2021 without 2020 data

Table 4: Lane-Impacting Incidents

End of Two-Year Period	Northbound	Southbound	Total	Percent Change from Previous Period
2019	1,894	1,691	3,585	-
2021*	1,341	1,184	2,525	-29.6%
2022	820	784	1,604	-36.5%

\*2019-2021 without 2020 data

Table 5: Hours of Lane Closures

End of Two-Year Period	Northbound	Southbound	Total	Percent Change from Previous Period
2019	2,329	1,812	4,141	-
2021*	1,945	1,542	3,487	-15.8%
2022	1,574	1,530	3,104	-11.0%

\*2019-2021 without 2020 data

# MULTIMODAL IMPROVEMENTS TO THE I-81 CORRIDOR

Along with the capital and operational improvements included in the I-81 Corridor Improvement Plan, several multimodal improvements were planned and implemented to provide bus transit and rail connections throughout the I-81 corridor. The Virginia Breeze bus system consists of four intercity bus routes, two of which run along the I-81 corridor. The Valley Flyer route travels between Blacksburg and Washington, D.C. and the Highlands Rhythm route travels between Bristol and Washington D.C. During FY 2023, the Virginia Breeze's on-time performance for the two I-81 routes was 79% and the percent of costs covered by fares (farebox recovery) was 56%.

The I-81 Multimodal Corridor Improvement Plan also includes for the expansion of passenger and freight rail in the New River Valley. FY 2023 saw record high ridership for Amtrak in Virginia and the I-81 corridor with a 27.2% increase in ridership to Roanoke compared to FY 2022. In June of 2022, negotiations were finalized with Norfolk Southern to improve the rail systems near the I-81 corridor.

The improvements include:

- Adding a second track 7 miles south of Manassas and extending the route between Roanoke and Washington, D.C. to include New River Valley
- Adding a second Amtrak train on the Roanoke Route
- Improving the Roanoke yard including a passenger bypass to improve efficiency
- Purchasing 28 miles of track that extend from Salem to New River Valley.

Construction of these improvements are expected to be complete in 2026, excluding the construction of the new train station at New River Valley. The New River Valley Amtrak station is approaching the completion of 30% engineering. Once the 30% engineering is completed, a precise timeline for the project will be developed.

## COMMONWEALTH TRANSPORTATION BOARD ACTIVITIES

As of October 2023, VDOT has not delivered an I-81 Corridor Improvement Program update to the Commonwealth Transportation Board. According to the legislation, the Board must submit an annual progress report to the General Assembly by December 15.

## I-81 ADVISORY COMMITTEE MEETING, OCTOBER 2023

### October 2023 Advisory Committee Meeting

The I-81 Advisory Committee met in-person on October 2, 2023. The I-81 Program Director presented an overview of the I 81 Corridor Improvement Program and the status of operational and capital projects. The DRPT Chief of Public Transportation briefed the Committee on the operation of the Virginia Breeze

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Intercity Bus. The VDOT Chief Financial Officer (CFO) presented the financial status of the I-81 Corridor Improvement Program and outlined the project costs and funding approach of the Program. Two consultants from KPMG and IMG presented the findings and analysis from the public-private partnership market soundings. The October 2023 presentation delivered to the Committee is in **Appendix D**.

### I-81 Improvements Update

The I-81 Program Delivery Director presented the status of the operational, and capital improvement projects throughout the corridor. The I-81 Program Delivery Director highlighted the following conclusions:

- Operational improvements, including curve improvements, traffic cameras, digital message signs, and safety service patrol upgrades are complete
- The remaining operational projects are arterial and signal upgrades which are set to be complete in 2025
- 23 of the 27 Bristol District capital projects are either complete (17) or under construction (6)
- 8 of the 14 Salem District capital projects are either complete (6) or under construction (2)
- 13 of the 23 Staunton District capital projects are either complete (11) or under construction (2)

### I-81 Multimodal Improvements Update

The Virginia Department of Rail and Public Transportation (DRPT) Chief of Public Transportation presented the status of the Virginia Breeze, the publicly funded intercity bus service which serves the I-81 corridor, including the following takeaways:

- The Virginia Breeze Intercity Bus service from Bristol to Washington, D.C., the Highlands Rhythm, began service on November 15, 2021
- Blacksburg, Harrisonburg, and Dulles Airport are the top performing stops for the Valley Flyer and Highlands Rhythm routes
- Ridership on Virginia Breeze Intercity Bus services has grown year-over-year since the reduced ridership in 2020 and 2021. FY 2023 recorded the highest ridership along the I-81 corridor since the conception of Virginia Breeze, in part to the addition of new routes such as the Highlands Rhythm and its extension of intercity service south to Bristol. DRPT estimates Virginia Breeze ridership to grow continuously in the upcoming years, 2024-2025.

The Virginia Breeze October 2023 presentation delivered to the committee is in **Appendix D**.

### I-81 Corridor Financial Update

During the October 2023 advisory committee, VDOT's Chief Financial Officer presented a financial update on the I-81 corridor that included updated project estimates, refined project scoping, and debt assumption. I-81 Corridor Improvement Program's revenues and funding allocations remain at healthy levels to complete project delivery, and financial capacity to support additional projects will be available starting in the 2030s. The October 2023 presentation delivered to the committee is in **Appendix D**.



### NEXT STEPS

Most of the capital improvement projects are either under construction or in the design phase, by VDOT staff, an on-call consultant, or a project-specific consultant. The following projects will begin construction in 2024.

- Bristol District
  - Extend deceleration lane at Exit 72 (northbound only)
  - Add auxiliary lane between I-77 Exit 40 and I-81 Exit 72 and extend acceleration lane (southbound only)
  - Extend deceleration lane at Exit 81 (southbound only)
- Salem District
  - Widen to three lanes between Exit 143 and Exit 150 (both directions)
- Staunton District
  - Widen to three lanes between MM299 and MM296 (southbound only)
  - Construct truck climbing lanes at Weyers Cave (both directions)

In addition, construction of the following projects will continue in 2024:

- Bristol District
  - Construct Smyth County truck climbing lane (northbound only)
  - Construct Washington County truck climbing lanes (both directions)
  - Widen to three lanes between Exit 10 and Exit 7 (southbound only)
  - Construct auxiliary lane between Exit 73 and Exit 72 (southbound only)
- Salem District
  - Widen to three lanes between Exit 137 and Exit 140 (both directions)
  - Widen to three lanes between Exit 140 and Exit 141 (both directions)
- Staunton District
  - Construct auxiliary lane between Exit 221 and Exit 220 (southbound only)
  - Construct auxiliary lane between Exit 221 and Exit 225 (both directions)

# APPENDICES



**Appendix A:** Preliminary Capital Improvement Project Schedule

**Appendix B:** Improvements Summary Table

**Appendix C:** Crash Frequency and Severity Per Mile for Truck-Related Crashes

**Appendix D:** October 2023 I-81 Advisory Committee Meeting PowerPoint Presentation