

Commonwealth Transportation Board

1401 East Broad Street Richmond, Virginia 23219

Shannon Valentine

Chairperson

(804) 786-2701 Fax: (804) 786-2940

Agenda item # 11

RESOLUTION OF THE COMMONWEALTH TRANSPORTATION BOARD

December 11, 2019

MOTION

<u>Made By:</u> Mr. Whitworth, <u>Seconded By:</u> Dr. Smoot <u>Action:</u> Motion Carried, Unanimously

<u>Title: Approval of Interstate 81 Corridor Improvement Program Progress Report</u>

WHEREAS, Chapter 743 of the 2018 Acts of Assembly, the General Assembly directed the Commonwealth Transportation Board (Board), to study financing options for improvements to Interstate I-81 (I-81) with assistance from the Office of Intermodal Planning and Investment (OIPI), Virginia Department of Transportation (VDOT) and Department of Rail and Public Transportation (DRPT), develop and adopt an I-81 Corridor Improvement Plan (Plan); and

WHEREAS, the Board adopted the I-81 Corridor Improvement Plan on December 5, 2018 which identified targeted improvements for potential financing and evaluated such improvements using the statewide prioritization process; and

WHEREAS, Chapters 837 and 846 of the 2019 Acts of Assembly (2019 Acts of Assembly) established Chapter 36 of Title 33.2 of the *Code of Virginia*, creating the I-81 Corridor Improvement Fund, and directing the Board to establish the I-81 Committee, to adopt an I-81 Corridor Improvement Program, to update the Program by July 1st of each year and to report to the General Assembly the status and progress of implementation of the Program (I-81 Corridor Improvement Program Progress Report) by December 15th of each year; and

WHEREAS, pursuant to the 2019 Acts of Assembly, the Board established the I-81 Committee (Committee) on May 15, 2019; and

WHEREAS, pursuant to the 2019 Acts of Assembly, the I-81 Corridor Improvement Program shall, at a minimum:

Resolution of the Board Approval of I-81 Corridor Improvement Program Progress Report December 11, 2019 Page 2 of 2

- 1. Allocate year by year the revenues, if any, from the Fund and bond proceeds, if any, backed by the Fund to projects and strategies identified in the Plan adopted by the Board in 2018 and as may be adopted from time to time;
- 2. Include a financing plan to support such allocation; and
- 3. Include a schedule for all new projects and strategies identified in the Plan adopted by the Board and prior to the adoption of such Program, the Board shall review the recommendations of and consult with the I-81 Committee; and

WHEREAS, pursuant to the 2019 Acts of Assembly, the I-81 Corridor Improvement Program Progress Report must include, at a minimum:

- 1) The safety and performance of the Interstate 81 Corridor, including the number of incidents, the average duration of incidents, the number and average duration of incidents involving lane closures, and the person-hours of delay along the Interstate 81 corridor;
- 2) An assessment of the effectiveness of the operational strategies and capital projects implemented and funded through the Program;
- 3) The status of capital projects funded through the Program; and
- 4) The current and projected balances of the Fund.

WHEREAS, VDOT updated the I-81 Committee on August 13, 2019 and October 1, 2019 on the project development process, schedule, delivery and financing options and the Committee has been provided with the draft I-81 Corridor Improvement Program Progress Report; and

WHEREAS, given that only approximately five months will have transpired between enactment of the I-81 Corridor Improvement Program reporting requirements and the December 2019 due date, insufficient data exists for purposes of completely satisfying the above-referenced requirements set forth in the 2019 Acts of Assembly, which is noted by the 2019 I-81 Corridor Improvement Program Progress Report; and

WHEREAS, based on the foregoing, the purposes of Chapters 837 and 846 relating to development of an I-81 Corridor Improvement Program and update to the Plan have nevertheless been satisfied to the extent feasible.

NOW, THEREFORE, BE IT RESOLVED, the Board approves the first annual I-81 Corridor Improvement Program Progress Report, attached hereto as Attachment A, as required by Chapters 837 and 846 of the 2019 Acts of Assembly.

BE IT FURTHER RESOLVED, the Board supports the schedule and financing plan, included in Attachment A as Appendix E, which includes debt financing.

I-81 Corridor Improvement Program Report







Prepared for:



Prepared by:



Commonwealth Transportation Board

I-81 Corridor Improvement Program Report

Introduction

In April 2019, the Virginia General Assembly enacted legislation that the Governor signed into law establishing the Interstate 81 (I-81) Corridor Improvement Program and Fund, which advances the projects identified by the I-81 Corridor Improvement Plan (the Plan) to 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, including:
 - crash frequency and severity per mile, expressed in equivalent property damage only 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

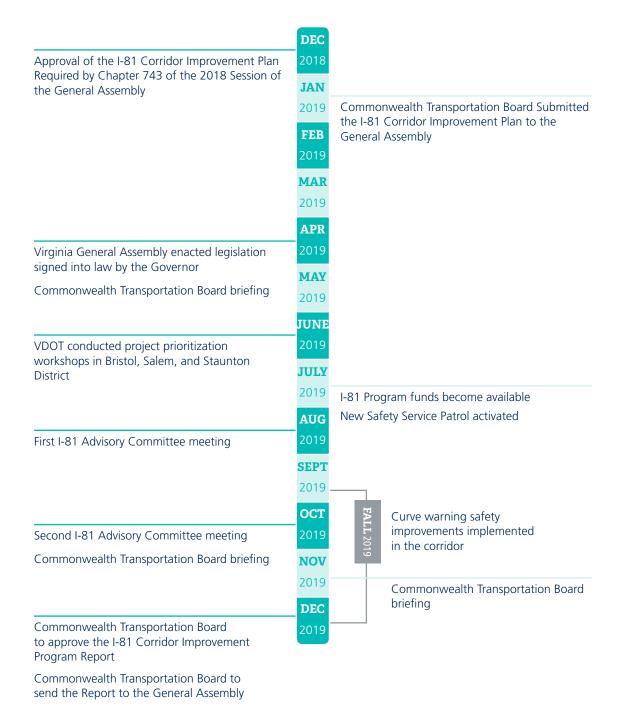
The I-81 Corridor Improvement Program project descriptions, schedules, and summary map are included in **Appendices E** and **F**.

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, establish the I-81 Corridor Improvement Program, Fund, and Committee. Governor Northam announced amendments in March 2019, providing dedicated annual funding to the corridor, estimated initially as \$103 million in fiscal year 2020 and growing to an estimated \$163 million in fiscal year 2025. These funds will support a \$2 billion improvement program. The revenues for the Fund are provided through the creation of a new truck registration fee as well as establishment of an I-81 corridor regional fuels tax, statewide diesel and road taxes.

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."



Timeline of Events



2

Effectiveness of the Projects Funded and Implemented Through the Program

I-81 Program funds became available on July 1, 2019. The initial phase of the Plan-recommended improvements has been implemented since that time—upgraded safety service patrols and LED-flashing curve warning signs. To show the effectiveness of a program or project, the study team will rely on a minimum of one year of data following the implementation of the program or project; therefore, there are no "after" results for 2019. The first set of post-improvement results will be shared as part of the Board's annual report in 2020. The Plan performance measures shared with the public and adopted by the Board in late 2018 were through 2017.

For 2019, the study team prepared graphics in **Figure 1** through **Figure 4** to show how the four performance measures changed between 2017 and 2018. **Figure 1** through **Figure 4** also display the locations of the initial 48 I-81 capital improvement projects that have been included in the Six-Year Improvement Program (SYIP) by the Board as of October 17, 2019. Crash data were compared between 2013-2017 and 2014-2018. A supplementary histogram displaying crash frequency and severity per mile for truck-related crashes is included in the Appendix. Delay data (general and incident-related) were compared between 2016-2017 and 2017-2018. The study team calculated delay data for all three years (2016-2018) using an updated methodology from what was used in the Plan. The resulting delay data generally mimics the trends outlined in the Plan. Trends along the corridor demonstrate that conditions along I-81 have worsened for all four performance measures in 2018. The 2018 data presented will become the baseline against which future improvements to I-81 will be measured.

Commonwealth Transportation Board Activities

Starting in April 2019, the Office of the Secretary of Transportation in cooperation with the Virginia Department of Transportation (VDOT), delivered two I-81 briefings to the Board—one in April and the other in October. According to the legislation, the Board must submit an annual progress report to the General Assembly by December 15.

April 2019 Commonwealth Transportation Board Briefing

The Deputy Secretary of Transportation briefed the Board at its workshop on April 9 on the status of the I-81 Corridor Improvement Program and Fund legislation. The Governor signed both bills (HB2718 and SB1716) into law on April 3. An overview of amendments made to the bills is as follows:

- Both regional and state revenues increased
- → Statewide revenues are distributed based on truck miles traveled on interstates

The Deputy Secretary described the various fees and taxes that will generate revenue to fund the improvements identified in the Plan as described in the bill. The presentation also included information on the development of the Committee and the required annual I-81 Corridor Report. The April presentation delivered to the Board can be found in **Appendix A**.

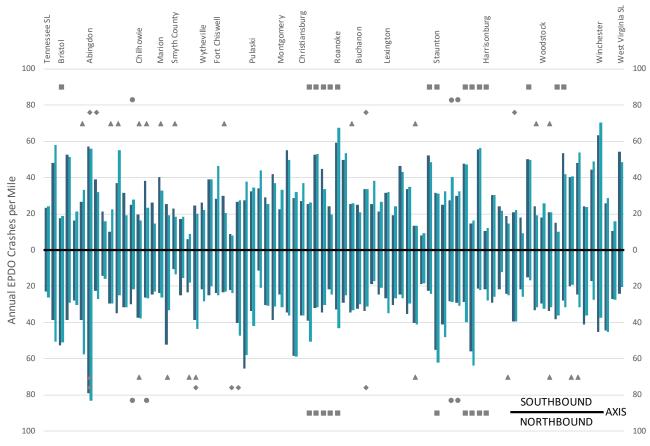
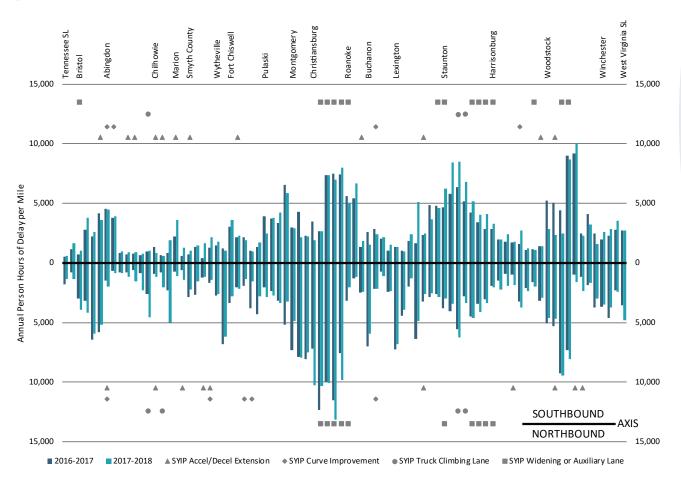


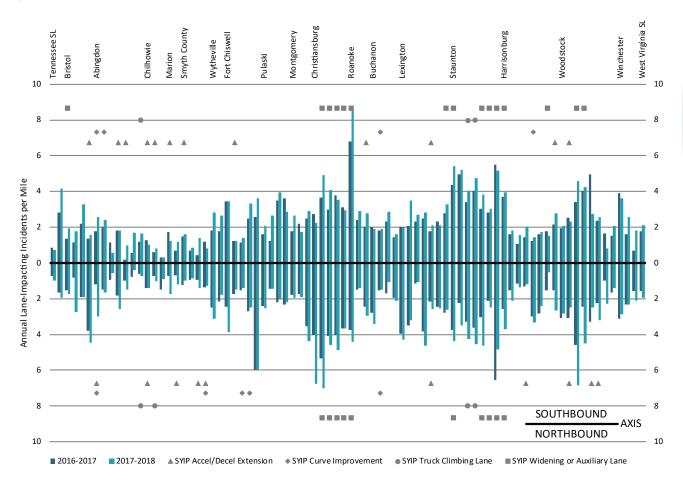
Figure 1. Annual Equivalent Property Damage Only Crashes per Mile

■ 2013-2017 ■ 2014-2018 ▲ SYIP Accel/Decel Extension ♦ SYIP Curve Improvement ● SYIP Truck Climbing Lane ■ SYIP Widening or Auxiliary Lane

Figure 2. Annual Person-Hours of Delay per Mile







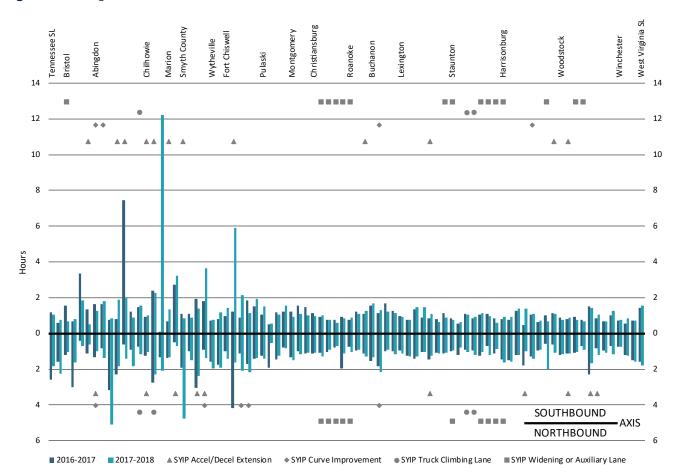


Figure 4. Average Duration of a Lane Closure (Hours)

Status of Capital Projects Funded Through the Program

On July 1, 2019 the FY2020-2025 Six-Year Improvement Program (SYIP) was adopted by the Board. The safety improvements identified in the Plan were implemented this fall and construction is expected to begin on the capital improvements in spring of 2020. A table summarizing these projects be found in **Appendix D**. Table 1 below outlines the status of each project.

Table 1. Project Status Scorecard

Activity	Status	Anticipated Completion
Safety Service Patrol Expansion	Complete	July 2019
Curve Improvements (8)	Complete	Fall 2019
Initial Accel/Decel Lane Extensions (8)	Underway	Spring 2021
Additional Cameras (51)	Underway	Spring 2020
Additional Changeable Message Signs (31)	Underway	Fall 2020
Remaining Capital Projects (48)	TBD	Under Pay-Go Scenario, 75% complete by 2028 Under Bonding Scenario, 94% complete by 2028

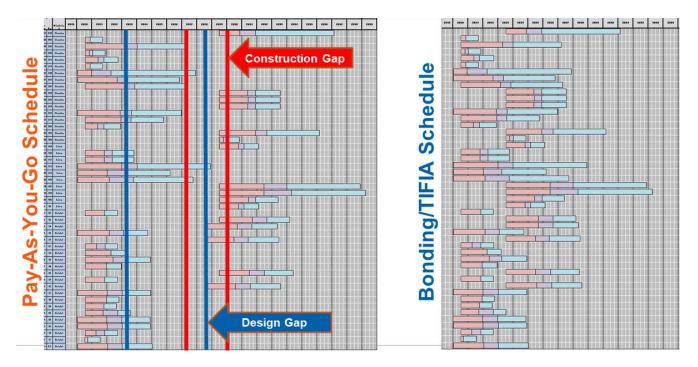
The FY2020-2025 SYIP included the initial 16 safety and capital improvement projects (e.g. flashing chevron signs, acceleration/deceleration lane extensions) worth approximately \$22.4 million and operational improvements (e.g. towing, changeable message signs, cameras) worth approximately \$14.6 million from the Plan. Expanded safety service patrol, primarily focusing on incident management and emergency response, which became effective on July 1, 2019 accounted for an additional \$1.5 million for a total of almost \$38.5 million. The eight curve safety improvements with flashing chevrons were installed during the summer of 2019.

Construction is expected to begin on the first set of eight capital improvements (a series of acceleration lane extensions at interchange on-ramps) in the spring of 2020. The other 31 capital projects added to the SYIP by the Board in October 2019 will be advancing to the preliminary engineering phase of project development.

October 2019 Commonwealth Transportation Board SYIP Amendment

The VDOT Chief Engineer, in cooperation with the I-81 Program Delivery Director, briefed the CTB at its workshop on October 16, 2019 on the I-81 Corridor Improvement Plan Project Scheduling. The Chief Engineer updated the CTB on the status of the initial 16 improvement projects in the corridor—eight curve warning sign systems underway and eight acceleration/deceleration lane extensions under design.

From a project scheduling standpoint, two options were presented—existing revenue stream (pay-go) or bonding/Transportation Infrastructure Finance and Innovation Act (TIFIA) funds. At the October action meeting, the Board amended the SYIP to add 31 additional capital improvement projects expected to start before the end of the fiscal year. These 31 projects are common to both the pay-go and TIFIA/Bonding revenue scenarios. Should the TIFIA/ Bonding scenario be authorized in the future, the remaining 17 project schedules can be advanced in the SYIP. The October presentation delivered to the CTB can be found in **Appendix C**.



Current and Projected Balances of the Fund

As of December 1, 2019, VDOT documented the current and projected balances of the Fund for the 31 projects added to the SYIP. This information is summarized in **Table 2**. The amounts shown in the table reflect the allocation of funding adopted by the Board on October 17, 2019 for the 31 projects amended to the FY2020-2025 SYIP. The full program schedule for all 64 projects is available in **Appendix E**. The full program schedule is in draft form since the remaining 17 projects have not been adopted by the Board into the SYIP. The schedule also assumes a conservative pay-go revenue scenario versus a combination of bonding and TIFIA. Should the General Assembly authorize bonding, VDOT will revise the full program schedule to accelerate the remaining 17 projects and present that information to the Board for consideration and adoption.

Table 2. Current Versus Project Funds Available (in millions \$)

	Current	FY21	FY22	FY23	FY24	FY25	FY26	Total
Total Available	103.5	132.0	162.1	163.4	161.9	163.4	163.4	1,049.7
Total Programmed	103.5	122.1	152.4	153.8	161.7	163.2	0	857.1
Total Remaining	0	9.9	9.7	9.6	0.2	0.2	163.4	192.6

I-81 Committee Activities

Following the April 2019 CTB meeting, the I-81 Committee was established to advise and make recommendations to the Board regarding the development of the I-81 Corridor Improvement Program. The Committee consists of 15 voting members—seven Virginia lawmakers, three Board members representing the VDOT Bristol, Salem, and Staunton construction districts, and the five chairs of the planning district commissions in the corridor. The two ex-officio and non-voting members of the Committee are the VDOT Commissioner and the Virginia Department of Rail and Public Transportation (DRPT) Director. The legislation requires the Committee to hold public meetings at least four times each fiscal year and to consult with interested stakeholders. Since April 2019, the Committee has met in August 2019 and October 2019, and plans to meet two more times before July 2020.

August 2019 Committee Meeting

The committee met at the Hampton Inn in Lexington, VA on August 13, 2019. The Secretary of Transportation provided opening remarks followed by a presentation by the Deputy Secretary of Transportation on the roles and responsibilities of the committee members. Delegate Terry Austin and Senator William Carrico were elected the chair and vice-chair of the committee. Following the voting process, the Deputy Secretary described funding options, such as pay-go and bonding/TIFIA.

The VDOT Chief Engineer then described the project scheduling process considering project and environmental readiness in schedule development. The Chief Engineer described the operational improvements (e.g. safety service patrols, changeable message signs, cameras), as well as the eight safety (e.g. flashing chevron signs) and eight capital improvement projects (e.g. acceleration/deceleration lane extensions), added to the SYIP in June 2019. Lastly, he provided a summary of a few major capital improvements in each VDOT district.

The meeting agenda, presentations, and minutes are available online at the Board website. The August presentations delivered to the Committee can be found in **Appendix B**.

October 2019 Committee Meeting

The Committee met at the Natural Bridge Conference Center in Natural Bridge, VA on October 1. The Committee chair provided opening remarks followed by comments from the Deputy Director of the Office of Intermodal Planning and Investment on old business.

The VDOT Chief Engineer then introduced the newly appointed VDOT I-81 Program Delivery Director. The Chief Engineer provided an update on the project implementation and project scheduling process. This presentation mirrored the aforementioned presentation he delivered to the Board later in the month. The Committee endorsed the scheduling process developed by VDOT and presented by the Chief Engineer.

The meeting agenda, presentations, and minutes in addition to the project improvement summary boards (including a summary of public comments) are available online at the Board website. The October presentation delivered to the committee can be found in **Appendix C**.

Next Steps

The Committee plans to meet two more times prior to June 30, 2020. As more information on each project becomes available, VDOT may decide to implement projects using either a Design-Bid-Build or a Design-Build construction method. In November 2019, VDOT advertised projects to advance to the design phase:

- 1. Widening between mile markers 8 and 10 in Washington County (Bristol District)
- 2. Widening between mile markers 221 and 225 in Augusta County (Staunton District)
- 3. Widening between mile markers 144.2 and 150.5 in Botetourt/Roanoke Counties (Salem District)

Two additional projects with anticipated procurements of February 2020 were recently announced—Widening between Exit 243 to Exit 248 in Harrisonburg (Staunton District) and Widening between Exit 137 to Exit 140 Bridge Design in Salem/Roanoke County (Salem District).

VDOT will be advancing these projects through the consultant procurement phase in spring 2020.

APPENDICES

- A. April CTB Presentation
- B. August I-81 Committee Presentation
- C. October I-81 Committee and CTB Presentations
- D. CTB Resolution Amending the Six-Year Improvement Program
- E. Project Scheduling Process Charts
- F. Improvements Summary Map and Table
- G. Project Risk, Readiness, Constructability, Environmental Considerations, and Maintenance of Traffic Meetings
- H. Crash Frequency and Severity per Mile for Truck-Related Crashes

I-81 PROGRAM PROGRESS REPORT | APPENDIX

A. April CTB Presentation





SECRETARY of TRANSPORTATION

Interstate 81 Corridor Improvement Fund and Program

Nick Donohue

Deputy Secretary of Transportation

April 9, 2019













Governor Northam's Amendments

- Recommended 28 line amendments to both HB2718 (Landes and Austin) and SB1716 (Obenshain and Carrico)
 - Increase in statewide truck registration fees
 - Impose a 2.1% regional fuels tax along 81 corridor
 - Increase in statewide diesel and road taxes
 - Technical amendments
 - "Kill switch" provision
 - NVTA Technical amendments

Governor Northam's Amendments

- Approved by House 58-39 and by Senate in two blocks
 - 25-13 for the increase in truck registration fees
 - 22-14 for the remaining amendments
- Governor Northam signed both bills April 3, 2019
- Amendments were supported by multiple organizations
 - Virginia Trucking Association
 - Virginia Chamber of Commerce
 - Virginia FREE
 - Virginia Transportation Construction Alliance

Overview of Amendments

- Raises both statewide and regional revenues
- Statewide revenues are distributed based on of truck miles traveled on Interstate highways
 - 41.0% to Interstate 81 corridor
 - 17.9% to Interstate 95 corridor (outside NOVA)
 - 12.6% to Interstate 64 corridor
 - 9.1% to the Northern Virginia Transportation Authority
 - 19.4% for other improvements to Interstate highway corridors

Revenue Estimates

	FY20	FY21	FY22	FY23	FY24	FY25
Truck Reg Fees	77.0	77.0	77.0	77.0	77.0	77.0
Diesel Tax	-	-	70.8	70.6	70.4	70.7
Road Tax *	23.8	73.4	73.4	73.4	73.4	73.4
Regional Fuels Tax	55.0	60.7	61.3	61.3	61.2	61.3

Figures in millions

^{*} New estimates are being developed based restructuring of tax

Revenue Distribution

	FY20	FY21	FY22	FY23	FY24	FY25
Interstate 81 Corridor Imp Fund	96.4	122.4	152.1	152.0	151.8	152.1
Interstate 95 Corridor	18.0	26.9	39.5	39.5	39.5	39.5
Interstate 64 Corridor	12.7	18.9	27.8	27.8	27.8	27.8
NVTA Fund	9.2	13.7	20.2	20.1	20.1	20.1
Other Imp to Interstates	19.6	29.2	42.9	42.9	42.9	42.9
TOTAL	155.8	211.1	282.5	282.3	282.0	282.4

Truck Registration Fees

(58.1-697.2)

- Increases maintain Virginia's progressive fee structure
- Captures both in-state and interstate trucks through International Registration Plan
- Increases bring Virginia more in-line with other I-81 corridor states
- Fees for farm vehicles remain ½ of the fee for heavy trucks as of January 1, 2019

2.1% Regional Fuels Tax

(58.1-2295.1)

- Applies in Planning District Commissions in which Interstate 81 is located
 - PDCs 3, 4, 5, 6, and 7
- Functions the same as the regional fuels tax in Hampton Roads and Northern Virginia
- 100% of revenues are deposited in Interstate 81
 Corridor Improvement Fund

Road Tax

(58.1-2701)

- Road Tax is a surcharge on diesel fuel paid by trucks through International Fuels Tax Agreement that—
 - Have two axles and weight greater than 26,000 pounds
 - Have three or more axles
 - Are combination vehicles with a weight greater than 26,000 pounds
- Current rate is \$0.035 per gallon

Road Tax

(58.1-2701)

- Starting July 1, 2019 the rate will be \$0.01125 times the average fuel economy for heavy trucks
 - Current average mpg is 6
 - $-6 \times \$0.01125 = \$0.0675 \text{ per gallon}$
 - An increase of \$0.0325 per gallon
- Starting July 1, 2020, rate will be \$0.0225 x average mpg
 - $6 \times \$0.0225 = \0.135 per gallon
 - An increase from current rates of \$0.10 per gallon

Diesel Tax

(58.1-2217.1)

- Amendments impose an additional diesel tax at the wholesale level of 2.03%
 - Results in an \$0.068 increase in diesel tax rate
- Starts July 1, 2021
- Includes the floor from HB2313 (2013)

Interstate 81 Corridor Improvement Fund and Program

(33.2-3601 and 33.2-3602)

 Moneys may only be used for capital, operating and other improvement costs identified in an adopted Interstate 81 Corridor Improvement Plan

- Board must, starting July 1, 2020, annually update and adopt the 81 Corridor Improvement Program
 - Must consult with Interstate 81 Committee and review their recommendations
 - Must report on status and effectiveness of projects

Interstate 81 Corridor Report

(33.2-3602 D)

- Board must report to the General Assembly by December 15 each year on—
 - Safety and performance of Interstate 81
 - Assessment of effectiveness of the operational strategies and capital projects implemented through the Program
 - Status of projects funded through the Program
 - Current and projected balances of the Fund

Interstate 81 Committee

(33.2-3603)

- Board must establish Interstate 81 Committee
- 15 voting members and two ex-officio
 - 5 planning district commission chairs
 - 4 members of the House of Delegates
 - 3 members of the Senate
 - 3 CTB members from Bristol, Salem and Staunton
 - VDOT Commissioner and DRPT Director ex-officio
- Required to hold 4 public meetings each year

Interstate 81 Committee

(33.2-3603)

- Purpose is to provide advice and recommendations to the Board—
 - Development of the Program
 - Updates to the I-81 Corridor Improvement Plan
- Committee shall review the Interstate 81 Corridor Improvement Plan as it relates to project prioritization and funding options
 - Must report to the General Assembly and Governor by December 15, 2019 on recommendations

Interstate 81 Corridor Improvement Plan

(33.2-3604)

- Requires the Board to regularly update the Plan and establishes requirements for such updates—
 - Needs assessment
 - Solutions identification
 - Prioritization of potential solutions
 - Incident management and truck parking
- Moneys in the Fund can only be used for items included in the Plan

Northern Virginia Transportation Authority

(Enactment Clauses 6 and 7)

- Revenues are deposited into the Northern Virginia
 Transportation Authority Fund and distributed
 - 30% to local governments
 - 70% to the Authority for regional projects
- Moneys for purposes of the benefits calculation and distribution to local governments are determined to be generated by locality in the same manner as the retail sales and use tax
- These revenues may not support debt

Interstate Highway Corridors

- ~50% of statewide revenue increases
- Operational improvements and other enhancements to interstate corridors to improve
 - Safety
 - Reliability
 - Travel flow
- Any Interstate with 10%+ of Interstate truck traffic shall receive an amount approximately equal its percentage of Interstate truck traffic over time

Other Provisions

- Revenues raised by the legislation expire December 31 in any year the General Assembly uses the funds for a non-transportation purpose
- If any part of the legislation is found to be unconstitutional the remaining portions shall remain in effect
- Board and VDOT shall continue to undertake all work on I-81 that they undertook as of July 1, 2019

I-81 PROGRAM PROGRESS REPORT | APPENDIX

B. August I-81 Committe Presentation



I-81 CORRIDOR IMPROVEMENT PLAN PROJECT PRIORITIZATION PROCESS

I-81 Committee Briefing

Bart Thrasher, PE VDOT Chief Engineer

Proposed Implementation Plan

Following the adoption of the I-81 Corridor Improvement Plan, VDOT began development of a draft implementation plan based upon:

- Evaluating projects based on project readiness
- Evaluating projects based on environmental readiness
- Scope of Project
- Project Delivery Method



Step 1. Evaluate Project Readiness

Identify and evaluate schedule risk

- Constructibility
- Right-of-way
- Utilities
- Maintenance of traffic
- Soil/rock conditions
- Interchange impacts
- Structures (bridges, walls, etc.)









Step 2. Evaluate Environmental Readiness

Identify and evaluate environmental schedule risk

- Cultural resources
- Water quality (streams, wetlands, permits, etc.)
- Threatened and endangered (T&E) species







Step 3. Internal Discussions

Individual Meetings

- Evaluate project readiness and environmental readiness
- Identify steps for further due diligence with scope, cost, and schedule
- Discuss program delivery effects
 - Length of work zones
 - Efficient widening strategies
 - Timeline of construction
 - Potential delivery methods







Step 4. Develop a Schedule

- Account for readiness and availability of funding
 - Additional factors from Committee
- Develop draft project schedules and spend plan
- Goal is to balance project efforts (PE, RW and Construction) with revenue forecast and develop a spend plan
- Look at options for project delivery

GOAL

Balance project efforts (PE, RW and Construction) with revenue forecast and develop a spend plan



Typical Project Development Timeframes

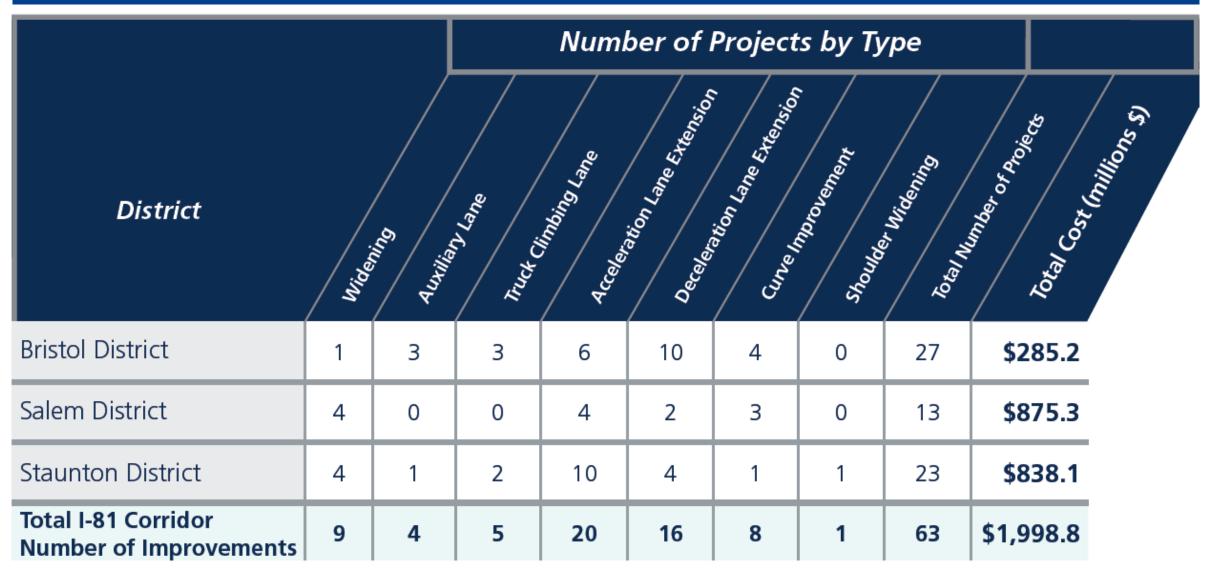
Depending on project scope, project development timeframes can vary significantly:

- Preliminary Engineering/NEPA: 6-24 months
- Right of Way: 0-24 months
- Construction: 6-36 months

Emphasizes need to start design work early on larger projects

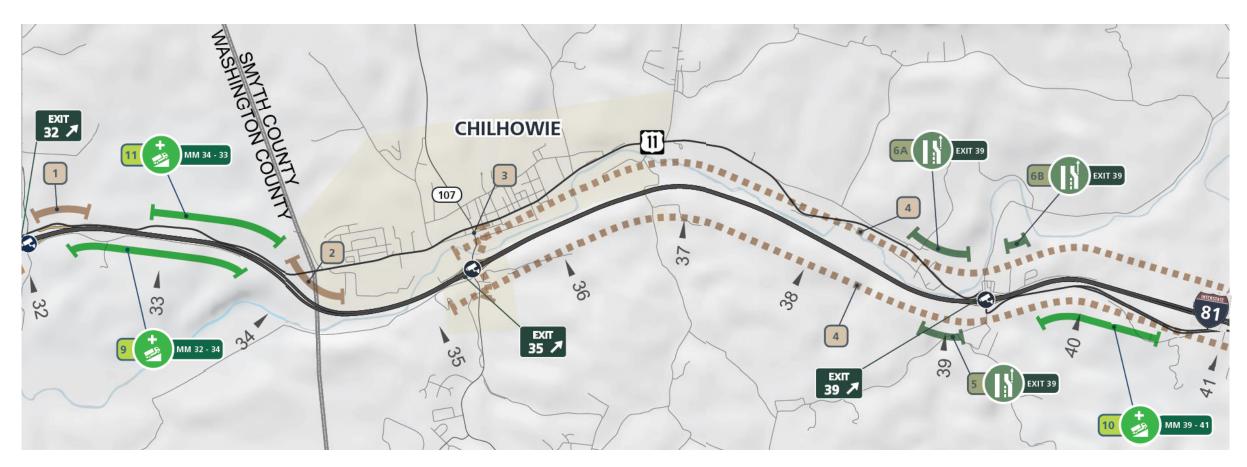


\$2 billion in I-81 Plan Capital Improvements





Bristol District Improvement Locations



Truck Climbing Lanes Near Chilhowie

Proposed improvements represented by solid green lines



Salem District Improvement Locations



MM 119 to 141 northbound widening

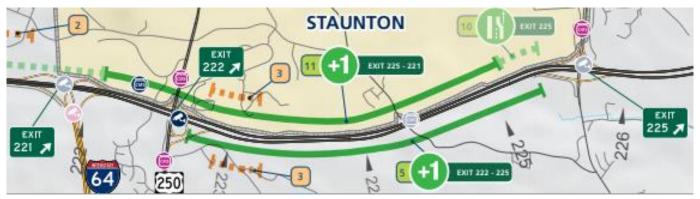
Proposed improvements represented by solid green lines



MM 144 to 150 northbound and southbound widening Exit 141 to Exit 137 southbound widening



Staunton District Improvement Locations - South



Exit 222-225 northbound widening Exit 225-221 southbound widening



Weyers Cave (Exit 235) northbound and southbound truck climbing lanes

Proposed improvements represented by solid green lines



Mainline Safety Capital Improvements Underway

Curve Improvements (Static and/or Flashing Chevrons)

District	Number of Locations	Planned Installation Date
Bristol District	4	Fall 2019
Salem District	3	Fall 2019
Staunton District	1	Fall 2019
Total	8	









I-81 Operational Improvements Plan

Components currently underway include:

- **Expanded Safety Service Patrols in July 2019**
- 30 changeable message signs and 45 camera installations starting in Fall 2019

Components coming as the plan develops

- **Upgrades to detour routes and improvements** to parallel facilities
- **Contract emergency clearance**

Total Estimated Implementation Cost \$46 million



Detect Incidents Faster



Respond to Incidents Faster and Assist Stranded Motorists



Message Signs

Inform Motorists in Real Time and Improve Parallel Routes



Establish Contract **Emergency Clearance**



Bristol District ITS Device Locations

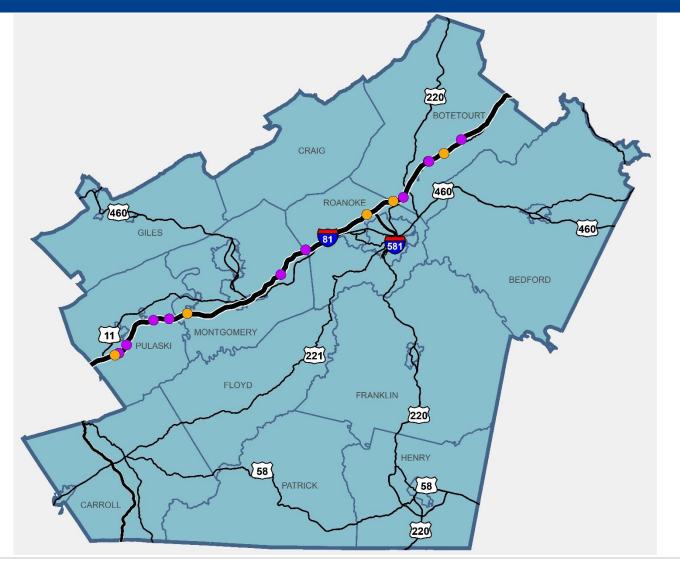




Salem District ITS Device Locations

Legend

- Camera (10)
- Changeable Message Sign (5)

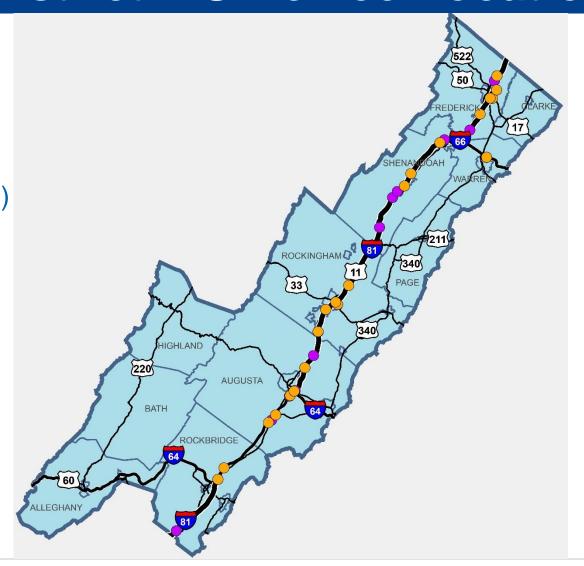




Staunton District ITS Device Locations

Legend

- Camera (13)
- Changeable Message Sign (21)





47 Remaining Capital Improvements

Bristol District

- Add northbound truck climbing lane from Exit 32 and from Exit 39
- Add a southbound truck climbing lane (Chilhowie)
- Improvements at the I-77/I-81 interchange

Salem District

- Widen northbound from Exit 119 to Exit 137
- Widen northbound and southbound from Exit 137 to Exit 141
 - Connects to active widening from Exit 141 to Exit 143
- Widen northbound and southbound from Exit 143 to Exit 150_

Staunton District

- Widen northbound and southbound from Exit 222 to Exit 225 (Staunton)
- Add northbound and southbound truck climbing lanes (Weyers Cave)
- Widen northbound and southbound from Exit 243 to 248 (Harrisonburg)
- Widen northbound and southbound from Exit 313 to Exit 317 (Winchester)



Next Steps

- VDOT will:
 - Develop project development and delivery durations based upon constructability and environmental readiness
 - Use readiness information along with revenue scenarios to develop preliminary project schedule
 - Develop project delivery method options
 - Present results at next Committee meeting
- What does the committee need from VDOT to help develop and deliver a draft schedule?



I-81 PROGRAM PROGRESS REPORT | APPENDIX

C. October I-81 Committee and CTB Presentations



I-81 CORRIDOR IMPROVEMENT PLAN PROJECT SCHEDULING

I-81 Committee Briefing

Bart Thrasher, PE VDOT Chief Engineer

Project Development Process





\$2 billion in I-81 Plan Capital Improvements

	Number of Projects by Type									
District	Wido	Auxilia	muck C.	Aceles	Deceles	Cure, Cane Extension	Shoulds	Total A.	Total Cost	2018 s millions Sy
Bristol District	1	3	3	6	10	4	0	27	\$285.3	
Salem District	5	0	0	4	2	3	0	14	\$875.4	
Staunton District	4	1	2	10	4	1	1	23	\$838.1	
Total I-81 Corridor Number of Improvements	10	4	5	20	16	8	1	64	\$1,998.8	



Mainline Safety Capital Improvements Underway

Curve Improvements (Static and/or Flashing Chevrons)

District	Number of Locations	Planned Installation Date
Bristol District	4	Fall 2019
Salem District	3	Fall 2019
Staunton District	1	Fall 2019
Total	8	













Mainline Capital Improvements Under Design

Acceleration/Deceleration Lane Extensions

District	Number of Locations	Project Status
Bristol District	2	Underway
Salem District	1	Underway
Staunton District	5	Underway
Total	8	

- All of these projects are included in the FY20-25 Six-Year Improvement Program
- Of the 16 initial programmed projects, 8 will be complete, and 5 will be under construction in 2020



48 Remaining Capital Improvement Highlights

Bristol District

- Add northbound truck climbing lane from Exit 32 and from Exit 39
- Add a southbound truck climbing lane (Chilhowie)
- Various improvements at both I-77/I-81 interchanges

Salem District

- Widen northbound from Exit 119 to Exit 137
- Widen northbound and southbound from Exit 137 to Exit 141
 - Connects to active widening from Exit 141 to Exit 143
- Widen northbound and southbound from Exit 143 to Exit 150

Staunton District

- Widen northbound and southbound from Exit 222 to Exit 225 (Staunton)
- Add northbound and southbound truck climbing lanes (Weyers Cave)
- Widen northbound and southbound from Exit 243 to 248 (Harrisonburg)
- Widen northbound and southbound from Exit 313 to Exit 317 (Winchester)



Develop Planning Level Costs and Schedule

- Planning level cost estimates have been reviewed and refined
 - VDOT internal review
 - Independent consultant
- Costs are still at an order of magnitude level and will change as VDOT progresses through scoping and design-

"we don't know what we don't know"

• Draft project schedules, anticipated environmental clearances and spend plans developed



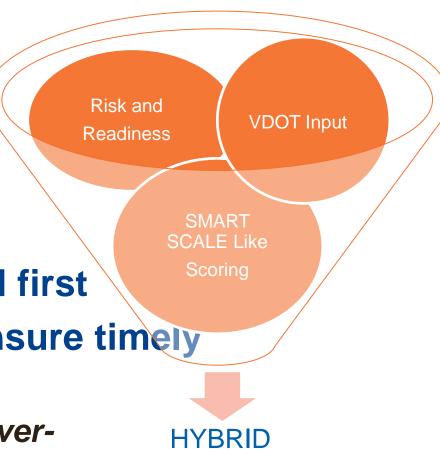
Draft Schedule: Prioritization

"Prioritizing the Priorities" – Hybrid Prioritization

- "SMART SCALE-like" scoring
- Project readiness, constructability, risk
- VDOT Input- MoT, sequencing, SYIP

Will help inform

- WHAT projects SHOULD be implemented first
- WHEN does a project NEED to start to ensure timely delivery?
 - Large projects need time to develop and deliverwe need to start now



PRIORITIZATION



Draft Schedule: Project Readiness/ Constructability/ Risk

Identify and evaluate schedule risk

- Constructability
- Right-of-way
- Utilities
- Maintenance of traffic
- Soil/rock conditions
- Interchange impacts
- Structures (bridges, walls, etc.)
- Environmental clearances









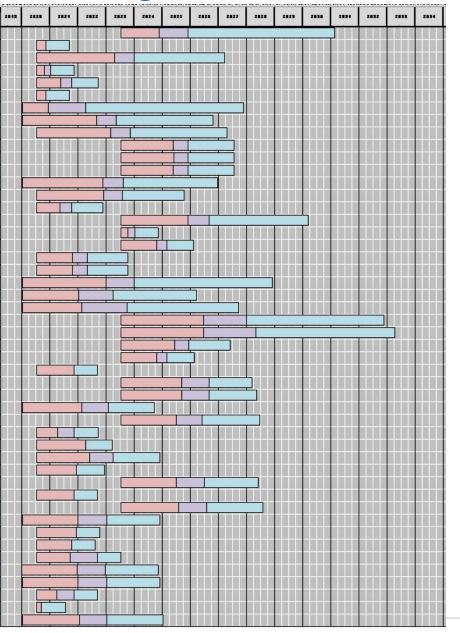
Draft Schedule for Priority Recommendations

- Reflects a hybrid prioritization
- Two scheduling options presented
 - Existing revenue stream (pay-go)
 - Bonding/TIFIA
- Existing revenue stream (pay-go)
 - 48 out of 64 projects completed by 2028
- Bonding/TIFIA option
 - Creates sustainable pipeline of projects
 - Minimizes disruption for drivers and industry along corridor
 - 60 out of 64 projects completed by 2028



Pay-Go Schedule Construction Gap

Bonding/TIFIA Schedule

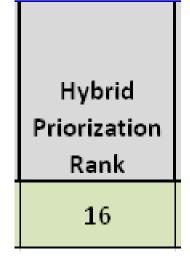


Reading the Draft Schedule

Mile	Marke	r District	Jurisdiction	Study	Direction	Improvement Description	Hybrid	SMART SCALE Benefit/Mile	Risk and	VDOT	SMART SCALE	Proposed Environmental	Proposed	
Fron	n To	District	Jurisdiction	Project ID	Direction	Improvement Description	Priorization Rank		Rank (15%)	Input (60%)	Benefit Rank	Document Type	•	Order of Magnitude Estimate Range
162	163	Salem	Buchanan / Botetourt County	33	NB only	Extend acceleration lane	16	32	4	2	29	PCE	D/B/B	\$5M - \$8M

Hybrid Prioritization Rank:

incorporates SMART SCALE benefit/mile (25% weight); Risk, Readiness Rank and District Input (75% weight)- includes sequencing and coordination with SYIP projects



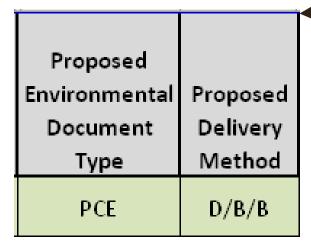
SMART		
SCALE	Risk and	
Benefit/Mile	Readiness	VDOT
Rank	Rank	Input
(25%)	(15%)	(60%)
32	4	2

Hybrid Prioritization Key Factors



Reading the Draft Schedule

									SMART						
N	∕Iile N	1arker			Cal.				SCALE	Risk and		SMART	Proposed		
			District	Jurisdiction	Study	Direction	Improvement Description	Hybrid	Benefit/Mile	Readiness	VDOT	SCALE	Environmental	Proposed	
F	rom	То			Project ID			Priorization	Rank	Rank	Input	Benefit	Document	Delivery	order of Magnitude
								Rank	(25%)	(15%)	(60%)	Rank	Type	Method	Estimate Range
	162	163	Salem	Buchanan / Botetourt County	33	NB only	Extend acceleration lane	16	32	4	2	29	PCE	D/B/B	\$5M - \$8M

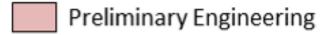


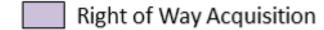
Anticipated level of environmental document required

Proposed delivery method- Design-Bid-Build (D/B/B) or Design-Build (D/B) Order of Magnitude Estimate Range

\$5M - \$8M

Refined order of magnitude level cost estimate range based on additional review





Construction



Project Delivery Options

- VDOT is collaborating with industry on the I-81 project listing and draft schedule
- Industry feedback on delivery timeframes is being incorporated
- Options for project delivery
 - Design-Bid-Build: projects are largely defined
 - Design-Build: opportunities identified for innovation and risk transfer



Takeaway Scorecard

Activity	Status	Anticipated Completion
Safety Service Patrol expansion	Complete	July 2019
Curve improvements (8)	Underway	Fall 2019
Initial accel/decel lane extensions (8)	Underway	Spring 2021
Additional cameras (51)	Underway	Spring 2020
Additional changeable message signs (31)	Underway	Spring 2020
Remaining capital projects (48)	TBD	Under Pay-Go scenario, 75% complete by 2028 Under bonding scenario, 94% complete by 2028



Next Steps

- Receive feedback
- Start preliminary engineering
- Recognize schedules will change based on:
 - Financing options (to be determined)
 - Collaboration with industry
- Introduce I-81 Program Delivery Director
- Schedule next Committee meeting and status update
- I-81 website: www.VA81corridor.org



I-81 PROGRAM PROGRESS REPORT | APPENDIX

D. CTB Resolution Amending the Six-Year Improvement Program



Commonwealth Transportation Board

1401 East Broad Street Richmond, Virginia 23219 (804) 786-2701 Fax: (804) 786-2940

Chairperson

Shannon Valentine

Agenda item # 6

RESOLUTION OF THE COMMONWEALTH TRANSPORTATION BOARD

October 17, 2019

MOTION

Made By: Mr. Brown, Seconded By: Mr. Johnsen Action: Motion Carried, Unanimously

<u>Title: Addition of Projects to the Six-Year Improvement Program for</u> Fiscal Years 2020-2025

WHEREAS, Section 33.2-214(B) of the *Code of Virginia* requires the Commonwealth Transportation Board (Board) to adopt by July 1st of each year a Six-Year Improvement Program (Program) of anticipated projects and programs and that the Program shall be based on the most recent official revenue forecasts and a debt management policy; and

WHEREAS, after due consideration the Board adopted a Final Fiscal Years 2020-2025 Program on June 19, 2019; and

WHEREAS, the Board is required by §§ 33.2-214(B) and 33.2-221(C) of the *Code of Virginia* to administer and allocate funds in the Transportation Trust Fund; and

WHEREAS, § 33.2-214(B) of the *Code of Virginia* provides that the Board is to coordinate the planning for financing of transportation needs, including needs for highways, railways, seaports, airports, and public transportation and is to allocate funds for these needs pursuant to §§ 33.2-358 and 58.1-638 of the *Code of Virginia*, by adopting a Program; and

WHEREAS, § 58.1-638 authorizes allocations to local governing bodies, transportation district commissions, or public service corporations for, among other things, capital project costs for public transportation and ridesharing equipment, facilities, and associated costs; and

Resolution of the Board Addition of Projects to the SYIP October 17, 2019 Page 2 of 2

WHEREAS, the projects shown in Appendix A were not included in the FY 2020-2025 Program adopted by the Board on June 19, 2019; and

WHEREAS, the Board recognizes that the projects are appropriate for the efficient movement of people and freight and, therefore, for the common good of the Commonwealth.

NOW THEREFORE, BE IT RESOLVED, by the Commonwealth Transportation Board, that the projects shown in Appendix A are added to the Six-Year Improvement Program of projects and programs for Fiscal Years 2020 through 2025 and are approved.

####

CTB Decision Brief

Addition of Projects to the Six-Year Improvement Program for Fiscal Years 2020 - 2025

Issue: Each year the Commonwealth Transportation Board (CTB) must adopt a Six-Year Improvement Program (Program) and allocations in accordance with the statutory formula.

Facts: The CTB must adopt a Program of anticipated projects and programs by July 1st of each year in accordance with § 33.2-214(B) of the *Code of Virginia*. On June 19, 2019, after due consideration, the CTB adopted a Final FY 2020-2025 Program. The projects shown in Appendix A were not in the Final FY 2020-2025 Program adopted by the CTB.

Recommendations: The Virginia Department of Transportation (VDOT) recommends the addition of the projects in Appendix A to the Program for FY 2020–2025.

Action Required by CTB: The CTB will be presented with a resolution for a formal vote to add the projects listed in Appendix A to the Program for FY 2020–2025 to meet the CTB's statutory requirements.

Result, if Approved: If the resolution is approved, the projects listed in Appendix A will be added to the Program for FY 2020-2025.

Options: Approve, Deny, or Defer.

Public Comments/Reactions: None

Appendix A Amendments to the FY2020-2025 SYIP

Row	UPC	District	Jurisdiction	Route	Project Description	Total Cost	Total Allocation	Balance	Major Fund Source	Fully Funded
NA	116155	Bristol	Abingdon	81	I-81 Corridor (ID 2) NB MM 19.2 Decel Lane	\$ 2,546,030	\$ 2,546,030	\$0	Interstate Corridor Funds	Yes
NA	116156	Bristol	Washington County	81	I-81 Corridor (ID # 3) NB MM32.4 Truck Climbing Lane	\$ 23,916,180	\$ 23,916,180	\$0	Interstate Corridor Funds	Yes
NA	116157	Bristol	Smyth County	81	I-81 Corridor (ID #4) NB MM 39.5 Add Truck Climbing Lane	\$ 21,618,865	\$ 21,618,865		Interstate Corridor Funds	Yes
NA	116159	Bristol	Smyth County	81	I-81 Corridor (ID #5) NB MM 38.9 Extend Decel Lane	\$ 2,071,030	\$ 2,071,030		Interstate Corridor Funds	Yes
NA	116161		Smyth County	81	I-81 Corridor (ID # 7) NB MM 48.1 Extend Accel lane	\$ 19,303,220	\$ 19,303,220	\$0	Interstate Corridor Funds	Yes
NA	116162	Bristol	Wytheville	81	I-81 Corridor (ID # 8) NB MM 67.3 Extend Accel lane	\$ 3,647,420	\$ 3,647,420	\$0	Interstate Corridor Funds	Yes
NA	116164	Bristol	Wytheville	81	I-81 Corridor (ID # 11) NB MM 73.0 Decel and Loop	22,118,865	\$ 22,118,865	\$0	Interstate Corridor Funds	Yes
NA	116165	Bristol	Wythe County	81	I-81 Corridor (ID # 12) SB MM 84.3 Extend Decel Lane	3,156,921	\$ 3,156,921	\$0	Interstate Corridor Funds	Yes
NA	116169	Bristol	Smyth County	81	I-81 Corridor (ID # 15) SB MM 54.1 Extend Ramp to Rest Area	\$ 5,794,536	\$ 5,794,536	\$0	Interstate Corridor Funds	Yes
NA	116158	Bristol	Smyth County	81	I-81 Corridor (ID16) SB MM 47.4 Extend Accel Lane	\$ 4,470,563	\$ 4,470,563	\$0	Interstate Corridor Funds	Yes
NA	116167	Bristol	Smyth County	81	I-81 Corridor (ID 17) SB MM 42.8 Extend Accel Lane	\$ 4,189,720	\$ 4,189,720	\$0	Interstate Corridor Funds	Yes
NA	116174	Bristol	Smyth County	81	I-81 Corridor (ID # 19) MM 39.4 Extend Decel Lane	\$ 1,617,036	\$ 1,617,036	\$0	Interstate Corridor Funds	Yes
NA	116173	Bristol	Smyth County	81	I-81 Corridor (ID # 20) SB MM 38.7 Extend Accel Lane	\$ 6,106,170	\$ 6,106,170	\$0	Interstate Corridor Funds	Yes
NA	116172	Bristol	Washington County	81	I-81 Corridor (ID # 21) SB MM 34.0 Truck Climbing Lane	\$ 18,938,545	\$ 18,938,545	\$0	Interstate Corridor Funds	Yes
NA	116171	Bristol	Abingdon	81	I-81 Corridor (ID # 26) SB MM 16.6 Extend Accel Lane	\$ 3,704,108	\$ 3,704,107	\$0	Interstate Corridor Funds	Yes
NA	116170	Bristol	Washington County	81	I-81 Corridor (ID # 27) SB MM 8.1 Widen to three lanes	\$ 37,116,200	\$ 37,116,200	\$0	Interstate Corridor Funds	No
NA	115730	Hampton Roads	Chesapeake	664	I-664 NB & SB Western Branch Signing	\$ 12,392	\$ 12,392	\$0	Local Accounts Receivable	Yes
NA	TBD	Richmond	Districtwide	NA	Ashland to Petersburg Trail	\$ 4,000,000	\$ 4,000,000	\$0	Intoxicated Driver Penalty	Yes
NA	116201	Salem	Roanoke County	81	#I-81 CIP - MM 144 to Exit 150 adding NB and SB lanes	\$ 322,157,080	\$ 61,753,790	\$260,403,290		No
NA	116202	Salem	Botetourt County	81	#I-81 CIP - Extend lanes at Troutville Safety Rest Area	\$ 10,042,040	\$ 10,042,040	\$0	Interstate Corridor Funds	Yes
NA	116203	Salem	Roanoke County	81	#I-81 - MM136 to MM139 adding lane in each direction	\$ 174,608,365	\$ 82,569,556	\$92,038,809		No

October 2019

Appendix A Amendments to the FY2020-2025 SYIP

Row	UPC	District	Jurisdiction	Route	Project Description	Total Cost	Total Allocation	Balance	Major Fund Source	Fully Funded
NA	115937	Salem	Roanoke County	81	#I-81 CIP MM139 to MM141 adding lane in each direction	\$ 117,871,895	\$ 97,871,895	\$20,000,000	Interstate Corridor Funds	No
NA	116277	Staunton	Augusta County	81	NB I-81 MM 233 to 237, WEYERS CAVE TCL (Study ID #44)	\$ 100,798,170	\$ 95,798,170	\$5,000,000	Interstate Corridor Funds	No
NA	116270	Staunton	Shenandoah County	81	NB I-81 Exit 291 Extend ACCELERATION LANE (Study ID #46)	\$ 3,392,569	\$ 3,392,569		Interstate Corridor Funds	Yes
NA	116236	Staunton	Frederick County	81	I-81 NB EXIT 302 EXTEND ACCELERATION LANE (Study ID #47)	\$ 2,418,000	\$ 2,418,000	·	Interstate Corridor Funds	Yes
NA		Staunton	Shenandoah County	81	SB I-81 MM 296 to 299, 3-LANE WIDENING (Study ID #50)	\$ 117,561,402		\$20,000,000	Interstate Corridor Funds	No
NA	116244	Staunton	Shenandoah County	81	I-81 SB EXIT 296 EXTEND ACCELERATION LANE (Study ID #51)	\$ 1,647,718	\$ 1,647,718	· ·	Interstate Corridor Funds	Yes
NA	116243	Staunton	Shenandoah County	81	I-81 SB EXIT 279 EXTEND ACCELERATION LANE (Study ID #53)	\$ 2,248,000	\$ 2,248,000	· ·	Interstate Corridor Funds	Yes
NA	116278	Staunton	Augusta County	81	SB I-81 MM 234 to 236, WEYERS CAVE TCL (Study ID #55)	\$ 29,581,960	\$ 10,765,797	\$18,816,163	Interstate Corridor Funds	No
NA	116279	Staunton	Augusta County	81	SB I-81 MM 221 to 220, AUXILIARY LANE (Study ID #58)	\$ 14,326,755	\$ 14,326,755	T -	Interstate Corridor Funds	Yes
NA	116245	Staunton	Rockbridge County	81	I-81 SB EXIT 205 EXTEND ACCELERATION LANE (Study ID #59)	\$ 3,483,323	\$ 3,483,323		Interstate Corridor Funds	Yes
NA	116269	Staunton	Augusta County	81	NB & SB I-81 MM 221 to 225, 3- LANE WIDENING (Study ID #61)	\$ 140,209,650	\$ 122,060,585	\$18,149,065	Interstate Corridor Funds	No
NA	116280	Staunton	Harrisonburg	81	NB & SB I-81 MM 242 to 248, 3- LANE WIDENING (Study ID #62)	\$ 272,074,995	\$ 155,574,995	\$116,500,000	Interstate Corridor Funds	No
NA	T-23458	Staunton	Clarke County	7	ROUTE 7 WEST BOUND RAMP WIDENING TO ROUTE 340 NORTH	\$ 50,000	\$ 50,000	\$0	STP <5K	Yes
NA	T-23459	Staunton	Clarke County	7	ROUTE 7 DYNAMIC FLASHERS AT ROUTE 601 INTERSECTION	\$ 100,000	\$ 100,000	\$0	STP <5K	Yes
NA	T-23460	Staunton	Clarke County	9999	Enhanced Law Enforcement Route 9 Closure	\$ 21,472	\$ 21,472	\$0	STP <5K	Yes

October 2019

2

I-81 PROGRAM PROGRESS REPORT | APPENDIX

E. Project Scheduling Process Charts

I-81 Study Project Prioritization Capital Projects in the Program Order of Projects is North to South

Mile Marker		District	Jurisdiction	UPC	Study Project ID	Improvement Description	Proposed Environmental	Proposed Delivery	Direction	Program Allocation	Estimated Project Development and Delivery Timeline (using D/B/B as schedule)					
From	То				T Toject ID		Document Type	Method		Allocation	2019	20	020	2021	2022	2023
303.7	303.9	Staunton	Frederick County	115803	49	Truck Scales NB Accel Extension ¹	PCE	D/B/B	NB only	\$1,980,000						
302.1	302.2	Staunton	Frederick County	115870	48	Exit 302 NB Decel Extension ¹	PCE	D/B/B	NB only	\$1,047,000						
283.3	282.9	Staunton	Shenandoah County	115804	52	Exit 283 SB Accel Extension ¹	PCE	D/B/B	SB only	\$2,354,000						
272.3	272.3	Staunton	Shenandoah County	115848	54	SB Flashing Chevron	PCE	D/B/B	SB only	\$163,000						
268.8	268.9	Staunton	Shenandoah County	115802	45	Exit 269 NB Decel Extension ¹	PCE	D/B/B	NB only	\$1,000,000						
205.3	205.7	Staunton	Rockbridge County	115801	42	Exit 205 NB Accel Extension ²	PCE	D/B/B	NB only	\$2,354,000						
175.3	171.4	Salem	Botetourt County	115794	35	MM 176-172 curve improvements (flashing chevron) ¹	PCE	D/B/B	SB only	\$163,000						
171.7	175.6	Salem	Botetourt County	115794	34	MM 172-176 curve improvements (flashing chevron) ¹	PCE	D/B/B	NB only	\$163,000						
90.2	90.7	Salem	Pulaski County	115795	29	Extend acceleration lane (Exit 89)	PCE	D/B/B	NB only	\$4,784,500						
88	88	Salem	Pulaski County	115794	28	MM 88 curve improvements (flashing chevron) ¹	PCE	D/B/B	NB only	\$163,000						
67.6	67.6	Bristol	Wytheville	115600	9	MM 68 curve improvements (flashing chevron)	PCE	D/B/B	NB only	\$163,000						
26.7	26.8	Bristol	Washington County	115345	22	Extend deceleration lane	PCE	D/B/B	SB only	\$5,528,000						
25.9	26.1	Bristol	Washington County	115346	23	Extend acceleration lane	tend acceleration lane PCE D/B/B SB only \$2,005,000									
21.5	21.5	Bristol	Washington County	115395	24	AIM 22 curve improvement (chevrons) PCE D/B/B SB only \$163,000										
17.9	17.9	Bristol	Abingdon	115393	1	MM 18 curve improvement (flashing chevron)	PCE	D/B/B	NB only	\$163,000						
17.6	17.6	Bristol	Abingdon	115394	25	MM 18 curve improvement (flashing chevron)	PCE	D/B/B	SB only	\$163,000						
	Total Allocations in the Program \$22,356,500															

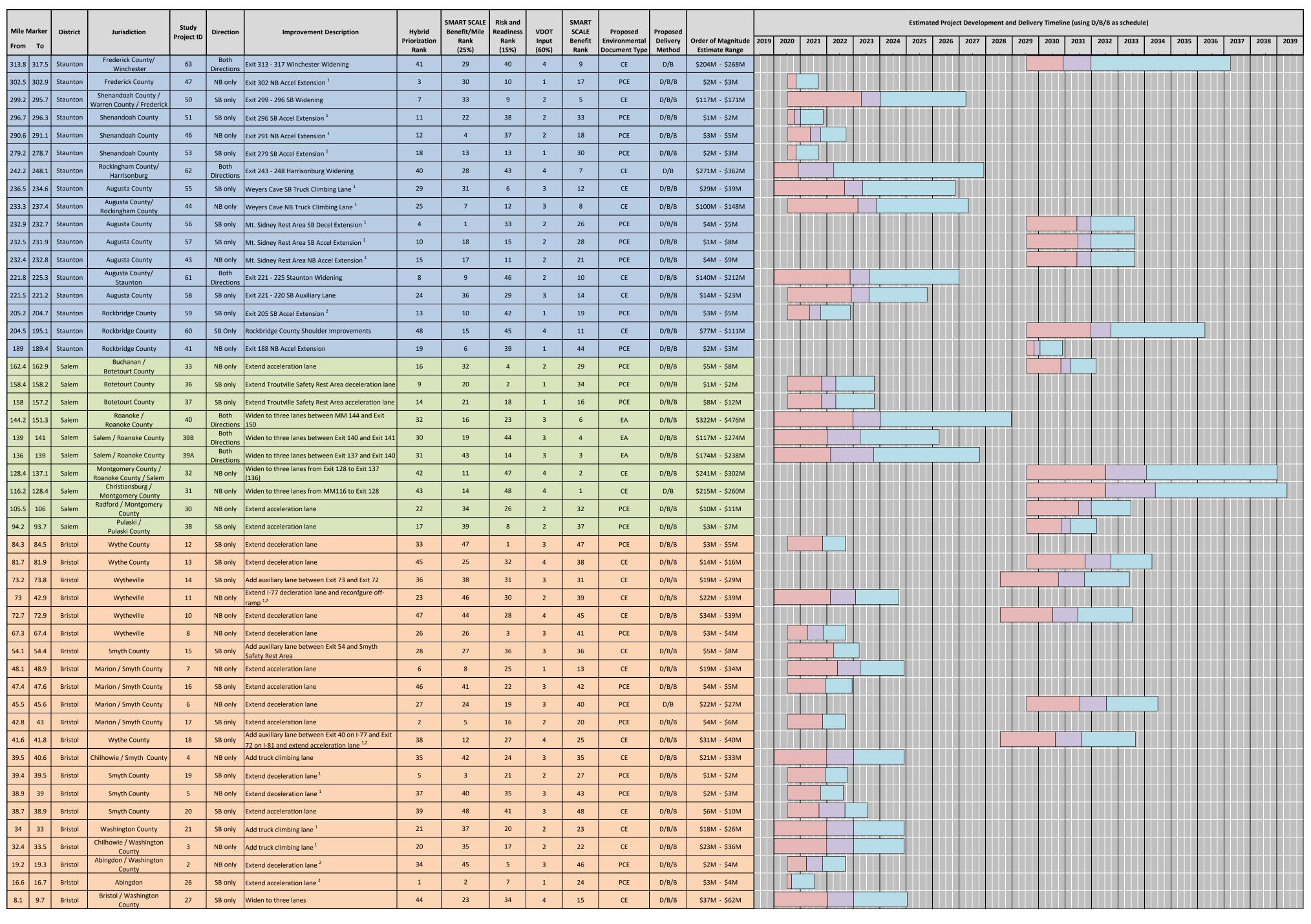
Preliminary Engineering Right of Way Acquisition Construction

¹ Opportunity to Bundle with other I-81 Study Projects

² Coordinate/ Opportunity to Bundle with other projects in the SYIP

Preliminary I-81 Study Project Prioritization PayGo Scenario

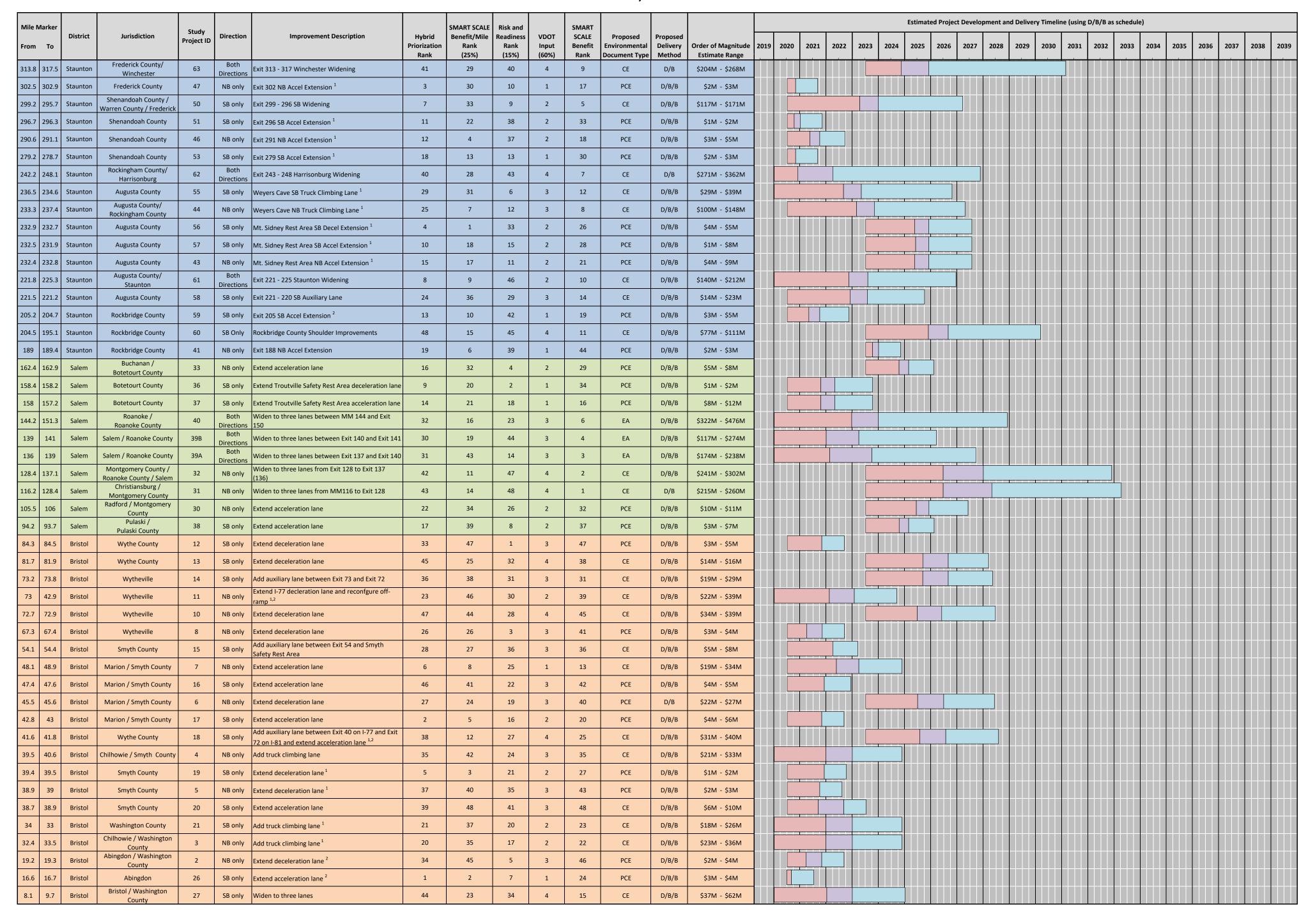
Order of Projects is North to South



¹ Opportunity to Bundle with other I-81 Study Projects

² Coordinate/ Opportunity to Bundle with other projects in the SYIP

Preliminary I-81 Study Project Prioritization Bonded Scenario Order of Projects is North to South

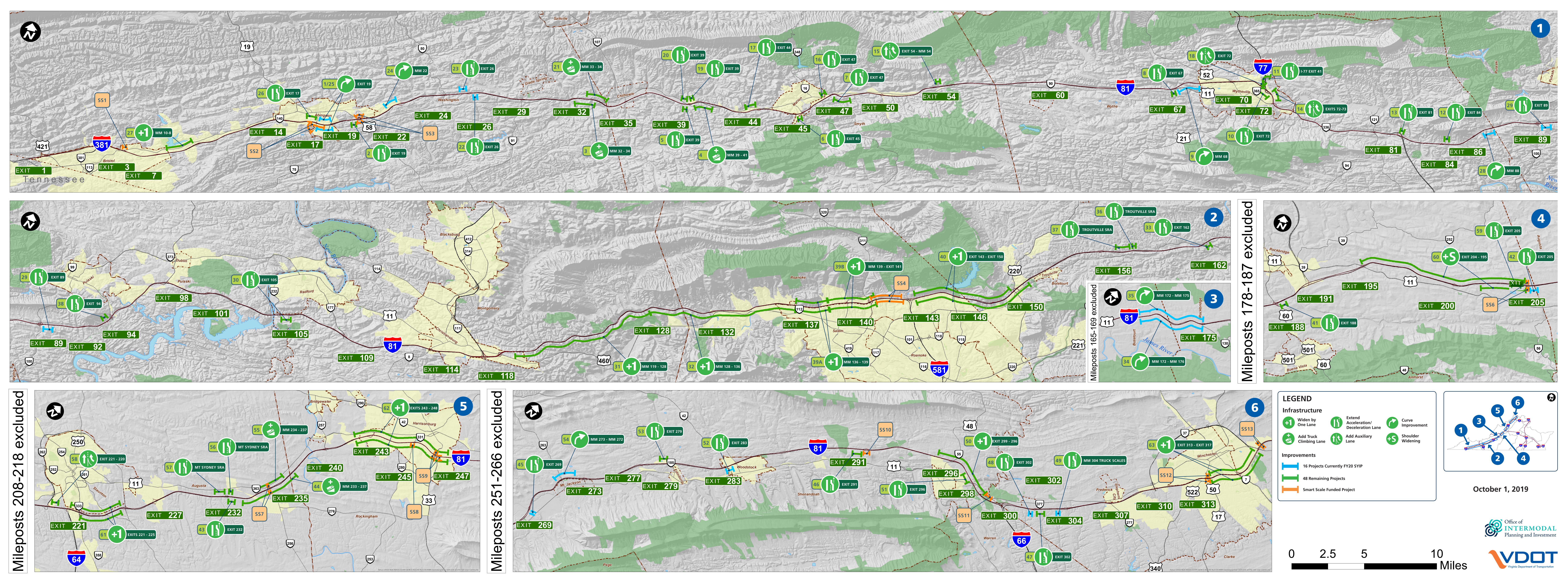


¹ Opportunity to Bundle with other I-81 Study Projects

² Coordinate/ Opportunity to Bundle with other projects in the SYIP

I-81 PROGRAM PROGRESS REPORT | APPENDIX

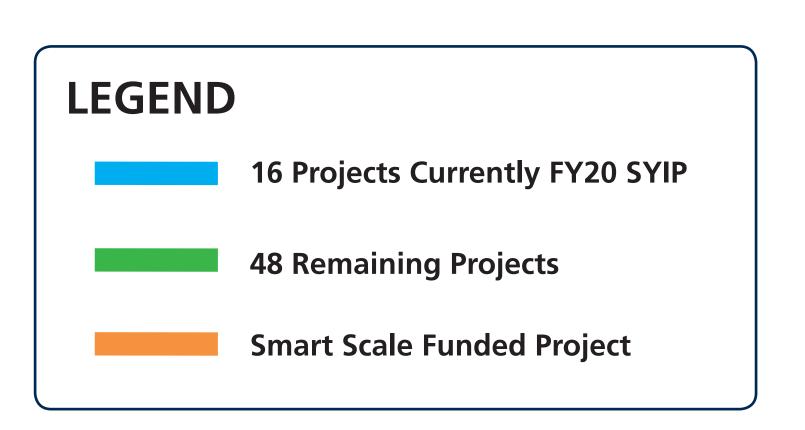
F. Improvements Summary Map and Table



I-81 CORRIDOR IMPROVEMENTS PLAN

RECOMMENDED IMPROVEMENTS										
Study	LIDG	D :			M	ile Marke	er			
Project ID	UPC	District	Jurisdiction(s)	Jurisdiction(s) Direction From to		То	Improvement Description			
1	115393	Bristol	Abingdon	NB only	17.9	to	17.9	Curve improvement (flashing chevron)		
2	116155	Bristol	Abingdon / Washington County	NB only	19.2	to	19.3	Exit 19 deceleration lane extension		
3	116156	Bristol	Chilhowie / Washington County	NB only	32.4	to	33.5	Add truck climbing lane		
4	116157	Bristol	Chilhowie / Smyth County	NB only	39.5	to	40.6	Add truck climbing lane		
6	116159 116160	Bristol Bristol	Smyth County Marion / Smyth County	NB only NB only	38.9 45.5	to	45.6	Exit 39 deceleration lane extension Exit 45 deceleration lane extension		
7	116161	Bristol	Marion / Smyth County	NB only	48.1	to	48.9	Exit 47 acceleration lane extension		
8	116162	Bristol	Wytheville	NB only	67.3	to	67.4	Exit 67 deceleration lane extension		
9	115600	Bristol	Wytheville	NB only	67.6	to	67.6	Curve improvements (flashing chevron)		
10	116163	Bristol	Wytheville	NB only	72.7	to	72.9	Exit 72 deceleration lane extension		
11	116164	Bristol	Wytheville	NB only	73.0	to	42.9	I-77 deceleration lane extension and reconfigure off-ramp		
12 13	116165 116166	Bristol Bristol	Wythe County Wythe County	SB only SB only	84.3 81.7	to	84.5 81.9	Exit 84 deceleration lane extension Exit 81 deceleration lane extension		
14	116168	Bristol	Wytheville	SB only	73.2	to	73.8	Add auxiliary lane between Exit 73 and Exit 72		
15	116169	Bristol	Smyth County	SB only	54.1	to	54.4	Add auxiliary lane between Exit 54 and Smyth Safety Rest Area		
16	116158	Bristol	Marion / Smyth County	SB only	47.4	to	47.6	Exit 47 acceleration lane extension		
17	116167	Bristol	Marion / Smyth County	SB only	42.8	to	43	Exit 44 acceleration lane extension		
18	116175	Bristol	Wythe County	SB only	41.6	to	41.8	Add auxiliary lane between Exit 40 on I-77 and Exit 72 on I-81 and extend acceleration lane from I-77 SB to I-81 SB		
19	116174	Bristol	Smyth County	SB only	39.4	to	39.5	Exit 39 deceleration lane extension		
20	116173	Bristol	Smyth County	SB only	38.7	to	38.9	Exit 39 acceleration lane extension		
21	116172	Bristol	Washington County	SB only	34	to	33	Add truck climbing lane		
22	115345	Bristol	Washington County	SB only	26.7	to	26.8	Exit 26 deceleration lane extension		
23	115346	Bristol	Washington County	SB only	25.9	to	26.1	Exit 26 acceleration lane extension		
24	115395	Bristol	Washington County	SB only	21.5	to	21.5	Curve improvement (chevrons)		
25	115394	Bristol	Abingdon	SB only	17.6	to	17.6	Curve improvement (flashing chevron)		
26 27	116171 116170	Bristol Bristol	Abingdon Bristol / Washington County	SB only SB only	16.6 8.1	to	9.7	Exit 17 acceleration lane extension Widen to three lanes		
28	115794	Salem	Pulaski County	NB only	88	to	88	Curve improvements (flashing chevron)		
29	115795	Salem	Pulaski County	NB only	90.2	to	90.7	Exit 89 acceleration lane extension		
30	116198	Salem	Radford / Montgomery County	NB only	105.5	to	106	Exit 105 acceleration lane extension		
31	116196	Salem	Christiansburg / Montgomery County	NB only	119	to	128.4	Widen to three lanes from MM 116 to Exit 128		
32	116197	Salem	Montgomery County / Roanoke County / Salem	NB only	128.4	to	136	Widen to three lanes from Exit 128 to MM 136		
33	116199	Salem	Buchanan / Botetourt County	NB only	162.4	to	162.9	Exit 162 acceleration lane extension		
34 35	115794 115794	Salem Salem	Botetourt County Botetourt County	NB only SB only	171.7 175.3	to	175.6 171.4	Curve improvements (flashing chevron) Curve improvements (flashing chevron)		
36	116202	Salem	Botetourt County Botetourt County	SB only	158.4	to	158.2	Troutville Safety Rest Area deceleration lane extension		
37	116202	Salem	Botetourt County	SB only	158	to	157.2	Troutville Safety Rest Area acceleration lane extension		
38	116200	Salem	Pulaski / Pulaski County	SB only	94.2	to	93.7	Exit 94 acceleration lane extension		
39A	116203	Salem	Salem / Roanoke County	Both Directions	136	to	139	Widen to three lanes between MM 136 to MM 139		
39B	115937	Salem	Salem / Roanoke County	Both Directions	139	to	141	Widen to three lanes between MM 139 and Exit 141		
40	116201	Salem	Roanoke / Roanoke County	Both Directions	144.2	to	151.3	Widen to three lanes between Exit 143 and Exit 150		
41	116246	Staunton	Rockbridge County	NB only	189	to	189.4	Exit 188 acceleration lane extension Exit 205 acceleration lane extension		
42	115801 116271	Staunton Staunton	Rockbridge County Augusta County	NB only NB only	205.3 232.4	to	205.7	Exit 205 acceleration lane extension Mt. Sidney Rest Area acceleration lane extension		
44	116277	Staunton	Augusta County Augusta County / Rockingham County	NB only	233.3	to	237.4	Weyers Cave truck climbing lane		
45	115802	Staunton	Shenandoah County	NB only	268.8	to	268.9	Exit 269 deceleration lane extension		
46	116270	Staunton	Shenandoah County	NB only	290.6	to	291.1	Exit 291 acceleration lane extension		
47	116236	Staunton	Frederick County	NB only	302.5	to	302.9	Exit 302 acceleration lane extension		
48	115870	Staunton	Frederick County	NB only	302.1	to	302.2	Exit 302 deceleration lane extension		
49	115803	Staunton	Shapandagh County / Warren County / Frederick County	NB only	303.7	to	303.9	Truck Scales acceleration lane extension Widen to three lanes between Evit 200 and Evit 206		
50 51	116268	Staunton	Shenandoah County Shenandoah County	SB only	299.2	to	295.7 296.3	Widen to three lanes between Exit 299 and Exit 296 Exit 296 acceleration lane extension		
51 52	116244 115804	Staunton Staunton	Shenandoah County Shenandoah County	SB only SB only	296.7 283.3	to	282.9	Exit 296 acceleration lane extension Exit 283 acceleration lane extension		
53	116243	Staunton	Shenandoah County	SB only	279.2	to	278.7	Exit 279 acceleration lane extension		
54	115848	Staunton	Shenandoah County	SB only	272.3	to	272.3	Curve improvements (flashing chevron)		
55	116278	Staunton	Augusta County	SB only	236.5	to	234.6	Weyers Cave truck climbing lane		
56	116275	Staunton	Augusta County	SB only	232.9	to	232.7	Mt. Sidney Rest Area deceleration lane extension		
57	116276	Staunton	Augusta County	SB only	232.5	to	231.9	Mt. Sidney Rest Area acceleration lane extension		
58	116279	Staunton	Augusta County De alabatidas County	SB only	221.5	to	221.2	Add auxiliary lane between Exit 220 and Exit 221		
59	116245	Staunton	Rockbridge County	SB only	205.2	to	204.7	Exit 205 acceleration lane extension Pockbridge County shoulder improvements		
60 61	116282 116269	Staunton Staunton	Rockbridge County Augusta County / Staunton	SB Only Both Directions	204.5 221.8	to	195.1 225.3	Rockbridge County shoulder improvements Widen to three lanes between Exit 221 and Exit 225		
62	116289	Staunton	Rockingham County / Harrisonburg	Both Directions	242.2	to	248.1	Widen to three lanes between Exit 221 and Exit 225 Widen to three lanes between Exit 243 and Exit 248		
63	116281	Staunton	Frederick County / Winchester	Both Directions	313.8	to	317.5	Widen to three lanes between Exit 313 and Exit 317		
				1						

SMA	SMARTSCALE									
ID	UPC	District	Direction	Location	Description (Year Construction Starts)					
SS1	105309	Bristol	SB	Exit 5	Exit 5 - widen Route 11 (Lee Highway) & widen I-81 off-ramps (2021)					
SS2	109419	Bristol	NB	Exit 17	Exit 17 interchange improvements (2021)					
SS3	109440	Bristol	Both	Exit 19	Exit 19 interchange improvements (2020)					
SS4	108906, 111373	Salem	Both	Exit 141 to 143	Add auxiliary lanes between Exit 141 and Exit 143 (2019)					
SS5*	111359	Salem	SB	MM 167.4 to MM 169.5	Safety improvements between MM 167.4 to MM 169.5 (2020)					
SS6	109370	Staunton	Both	Exit 205	Exit 205 ramp terminal intersection improvements (2021)					
SS7	111055	Staunton	Both	Exit 235	Exit 235 access improvements (2021)					
SS8	108809	Staunton	NB	Exit 245	Exit 245 interchange improvements (2019)					
SS9	111230	Staunton	Both	Exit 247	Exit 247 interchange improvements (2022)					
SS10	115129	Staunton	NB	Exit 291	Exit 291 northbound ramp widening (2028)					
SS11	111054	Staunton	SB	Exit 300	Exit 300 acceleration Lane extension (2021)					
SS12	115717	Staunton	Both	Exit 313	Exit 313 bridge capacity improvement (2028)					
SS13	115181	Staunton	Both	Exit 317	Exit 317 acceleration and deceleration lane extensions (2028)					



October 1, 2019





I-81 PROGRAM PROGRESS REPORT | APPENDIX

G. Project Risk, Readiness, Constructability, Environmental Considerations, and Maintenance of Traffic Meetings

Under the I-81 Corridor Improvement Plan, 64 projects were advanced to the implementation phase. To prepare these projects for implementation, the study team developed a scheduling matrix identifying key risk and readiness factors. Readiness was separated into project and environmental readiness scores. Project readiness consisted of factors such as constructability, right-of-way impacts, maintenance of traffic, and soil and rock conditions. Environmental readiness consisted of the following risk factors: anticipated level of environmental document, cultural resources, water quality, and threatened and endangered species. These scheduling factors were individually discussed with the three VDOT districts to determine whether each factor should be considered a low, medium, or high risk.

Following the development and refinement of the draft project scheduling matrix, the study team met individually with all three districts in the spring of 2019 to discuss the preliminary evaluation. The study team adjusted the draft schedule.

H. Crash Frequency and Severity per Mile for Truck-Related Crashes

