

Meeting Agenda

- **Welcome**
- **Presentation**
- **Public Comment Period**
- **Open House**

I-81 2025 CORRIDOR IMPROVEMENT PLAN

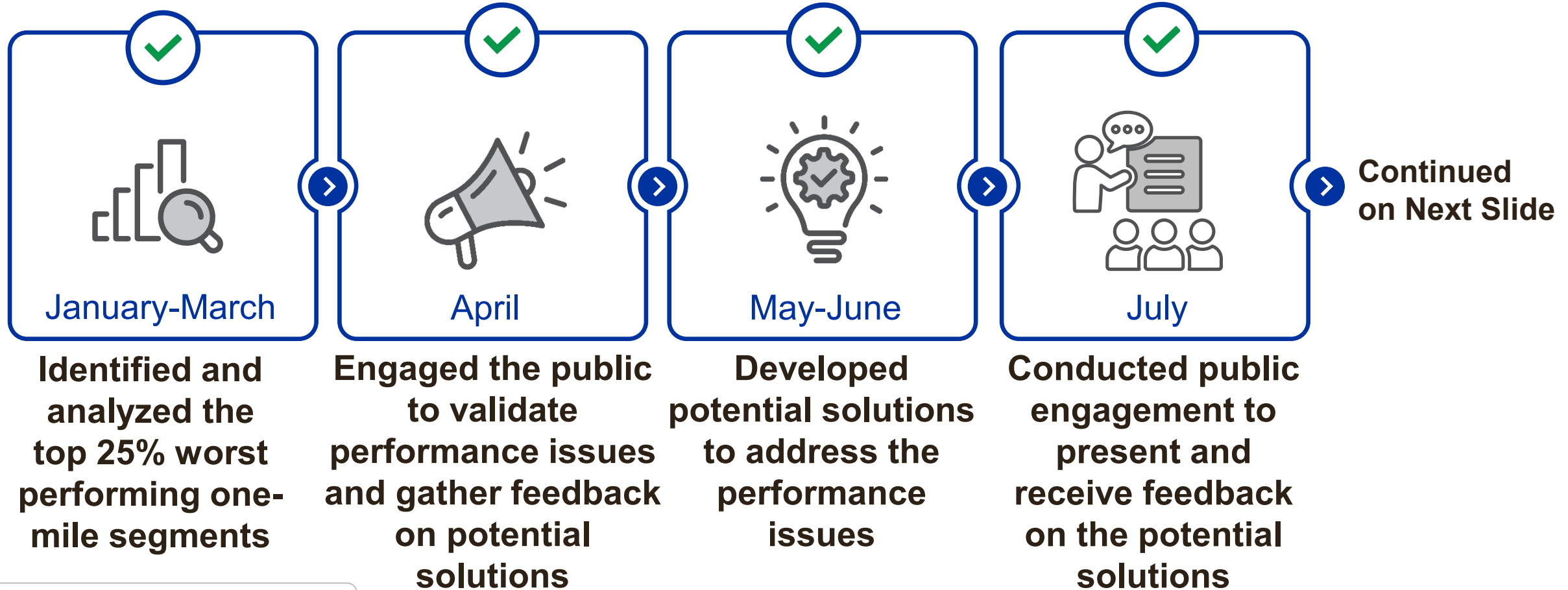
Solutions Prioritization

| Rob Williams, AICP

October 2025

I-81 Corridor Improvement Plan Update Process

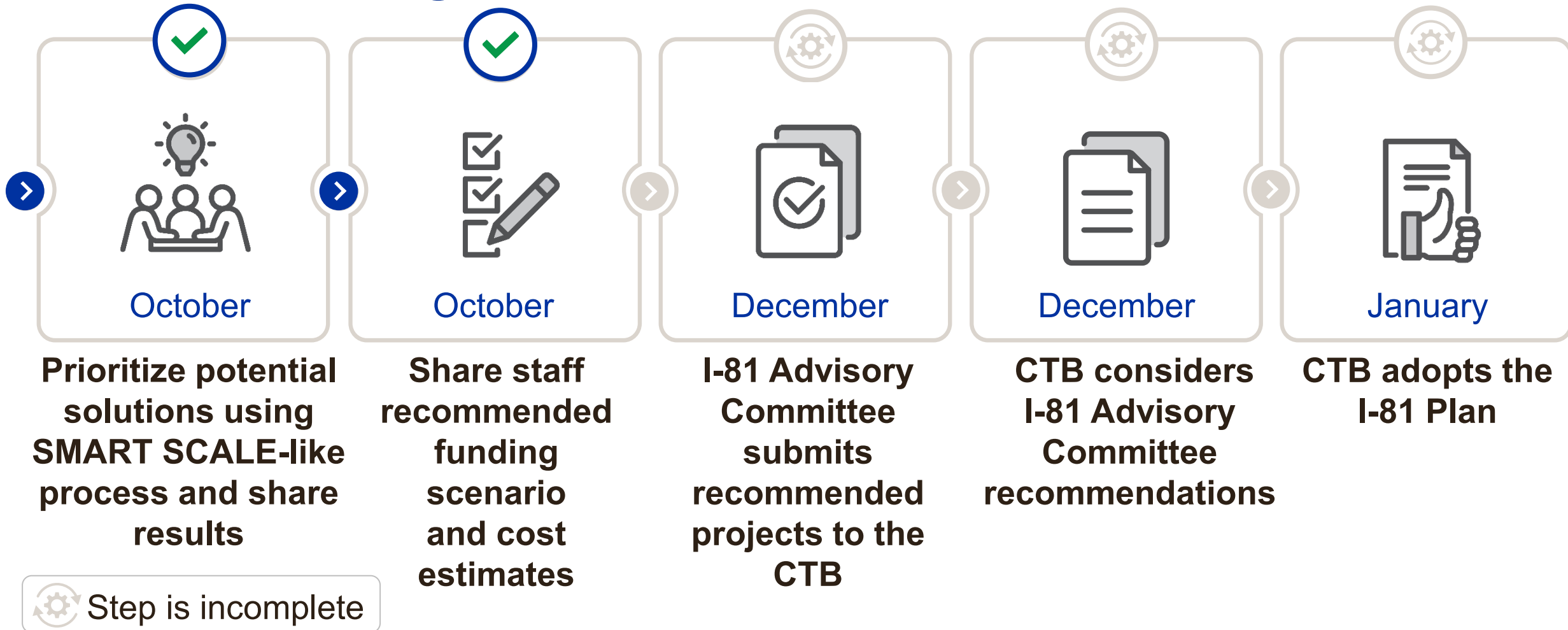
Steps completed for the 2025 I-81 CIP Update



✓ Step is complete

I-81 Corridor Improvement Plan Update Process

Steps remaining for the 2025 I-81 CIP Update



Round 2 Public Outreach - July

Potential Solutions Takeaways

IN-PERSON MEETINGS



4
MEETINGS



~100
PARTICIPANTS

VIRTUAL ENGAGEMENT

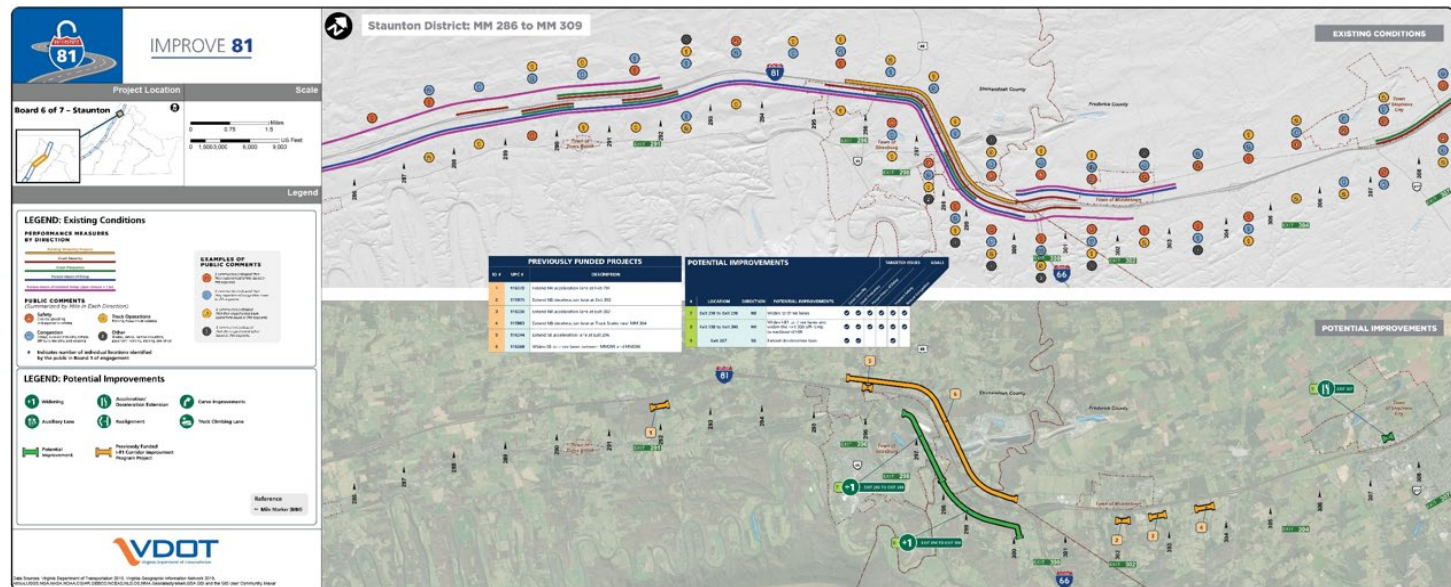


1,136
COMMENTS



1,674
PARTICIPANTS

87% of respondents agreed with the overall list of potential solutions presented



Solutions Development

Potential Improvements



Widening

Adds new lane typically within the existing median

17 improvements



Realignment

Addresses roadway curvature by improving geometrics

1 improvement



Truck Climbing Lane

Adds lane on steep grades for trucks allowing cars to pass

4 improvements



Acceleration/ Deceleration Extension

Extends ramps to allow for more distance to merge or exit

15 improvements



Auxiliary Lane

Connects interchange on- and off-ramps for additional distance to merge or exit

2 improvements



Curve Improvements

Addresses superelevation in curves to reduce the potential for run-off-the-road crashes

2 improvements



Incident Signal Timing Plans

Signals along detour routes are optimized to handle extra traffic during I-81 incidents

219 traffic signals

Financial Constraints

Project Selection Process

**\$2-2.25 Billion
in funding**

anticipated to
be available for
new projects

Preliminary estimate
\$7+ Billion in potential
solutions identified

**2025 CIP
exceeds
anticipated funding**

SMART SCALE-like
prioritization was used to

**Narrow Potential
Solutions List**

- **Projects have been further refined to improve cost estimates and ensure constructability**

Project Prioritization and Funding Process

Safety	Reduce the number and rate of fatalities and severe injuries
Congestion	Reduce person-hours of delay and increase person throughput
Accessibility	Increase access to jobs and travel options



Prioritize projects using a SMART SCALE-like evaluation of improvements using the following weights:

- 40% for person hours of delay reduction
- 40% for reduction in fatal and severe injury crashes
- 20% for accessibility to jobs
- Project cost is factored into the final score

- **SMART SCALE-like process applied to create a prioritization rank**
- **Staff reviewed results for operational considerations**
- **Staff Recommended Funding Scenario created based on prioritization rank and operational considerations, not to exceed \$2.25B**

SMART SCALE-like Prioritization

District	County	NB/SB	From/To Mile Markers	Length (mi)	Project Type	Project Rank
Staunton	Rockingham County	SB	251.1 to 250.7	0.4	Acceleration lane extension	1
Bristol	Washington County	NB	25.1 to 25.7	0.5	Acceleration lane extension	2
Bristol	Washington County	NB	29.5 to 30.1	0.5	Acceleration lane extension	3
Staunton	Shenandoah County	NB	265.2 to 265.5	0.3	Acceleration lane extension	4
Staunton	Frederick County	SB	307.5 to 307.3	0.2	Deceleration lane extension	5
Salem	Botetourt County	SB	162.0 to 160.9	1.1	Acceleration lane extension	6
Bristol	Washington County	NB	4.5 to 5.0	0.4	Auxiliary lane between Exit 3 and Exit 5	7
Staunton	Augusta County	NB	227.8 to 228.1	0.3	Acceleration lane extension	8
Staunton	Shenandoah County	SB	269.3 to 268.2	1.1	Acceleration lane extension	9
Staunton	Augusta County	NB	220.8 to 221.5	0.7	Auxiliary lane between Exit 220 and Exit 222	10
Bristol	Washington County	NB	19.9 to 20.2	0.3	Acceleration lane extension	11
Staunton	Augusta County	SB	221.7 to 216.7	5.0	Widening between Exit 213B and 221	12
Staunton	Rockbridge County	NB	204.8 to 209.9	5.1	Widening between Exit 205 and MM 209	13
		SB	209.9 to 204.8	5.1		
Staunton	Augusta County	NB	209.9 to 212.9	3.0	Widening between MM 209 and Exit 213	14
		SB	212.9 to 209.9	3.0		
Salem	Pulaski County	SB	104.9 to 103.4	1.5	Truck climbing lane between Exit 105 and MM 103	15
Salem	Montgomery County	NB	105.6 to 108.7	3.1	Truck climbing lane between Exit 105 and Exit 109	16

-  - Denotes a project added by the CTB to the I-81 Corridor Improvement Program (CIP) in January 2025
-  - Denotes 'Cut' line for funding
- * - Denotes constructability or operational concern

SMART SCALE-like Prioritization, continued

District	County	NB/SB	From/To Mile Markers	Length (mi)	Project Type	Project Rank
Staunton	Augusta County	NB	230.4 to 234.4	4.0	Widening between MM 230 and Exit 235*	17
		SB	234.5 to 230.2	4.3		
Staunton	Augusta County	NB	228.7 to 230.5	1.8	Widening between MM 229 and MM 230*	18
		SB	230.4 to 228.7	1.7		
Staunton	Augusta County Rockingham County	NB	237.4 to 242.2	4.8	Widening between MM 238 and MM 242	19
		SB	242.2 to 237.5	4.7		
Bristol	Washington County	SB	24.8 to 24.4	0.4	Acceleration lane extension	20
Staunton	Shenandoah County	NB	296.8 to 298.6	1.8	Widening between Exit 296 to Exit 298*	21
Bristol	Washington County	NB	9.9 to 14.9	5.0	Widening between Exit 8 to Exit 14	22
		SB	14.9 to 9.9	5.0		
Staunton	Rockbridge County	NB	202.2 to 204.8	2.6	Truck climbing lane between MM 202 and MM 205	23
Salem	Botetourt County	NB	157.0 to 163.1	6.1	Widening between Exit 156 and Exit 162	24
		SB	163.1 to 157.0			
Staunton	Rockbridge County	SB	199.6 to 194.9	4.7	Widening between Exit 200 and 195	25
Bristol	Washington County	NB	33.9 to 34.8	0.9	Curve improvements between MM 33 and MM 35	26
Staunton	Augusta County	NB	225.2 to 229	3.8	Widening between Exit 225 to MM 229	27
		SB	229 to 225.4	3.6		


- Denotes a project added by the CTB to the I-81 Corridor Improvement Program (CIP) in January 2025

- Denotes 'Cut' line for funding

* - Denotes constructability or operational concern

SMART SCALE-like Prioritization, continued

District	County	NB/SB	From/To Mile Markers	Length (mi)	Project Type	Project Rank
Bristol	Wythe County	NB	67.0 to 69.0	2.0	Curve improvements between Exit 67 and 69	28
Staunton	Rockbridge County	NB	190.5 to 195.7	5.2	Widening between Exit 188A and Exit 200	29
Staunton	Shenandoah County	NB	298.6 to 300.3	1.7	Widening between Exit 298 and Exit 300 and I-81 NB to I-66 EB Ramp	30
Staunton	Rockbridge County	SB	196.6 to 189.9	6.7	Widening between Exit 195 and Exit 188B	31
Staunton	Rockbridge County	SB	190.0 to 186.9	3.1	Truck climbing lane between MM 190 and Exit 188	32
Salem	Botetourt County	NB	156.6 to 156.9	0.3	Acceleration lane extension	33
Staunton	Frederick County	NB	310.6 to 313.3	2.7	Widening between Exit 310 and Exit 313	34
Salem	Botetourt County	NB	150.4 to 157.2	6.8	Widening between Exit 150 and Exit 156	35
		SB	157.2 to 150.4			
Salem	Pulaski County	NB	94.5 to 94.8	0.3	Acceleration lane extension	36
Salem	Botetourt County	NB	163.0 to 166.9	3.9	Widening between Exit 162 and Exit 167	37
		SB	166.9 to 163.0			
Salem	Botetourt County	NB	166.9 to 169.0	2.1	'S-Curves' realignment	38
		SB	168.9 to 166.9	2.0		
Staunton	Rockbridge County	NB	188.6 to 188.8	0.2	Deceleration lane extension	39
Bristol	Smyth County	NB	35.8 to 36.2	0.4	Acceleration lane extension	40
Staunton	Rockbridge County	SB	175.8 to 175.2	0.6	Acceleration lane extension	41

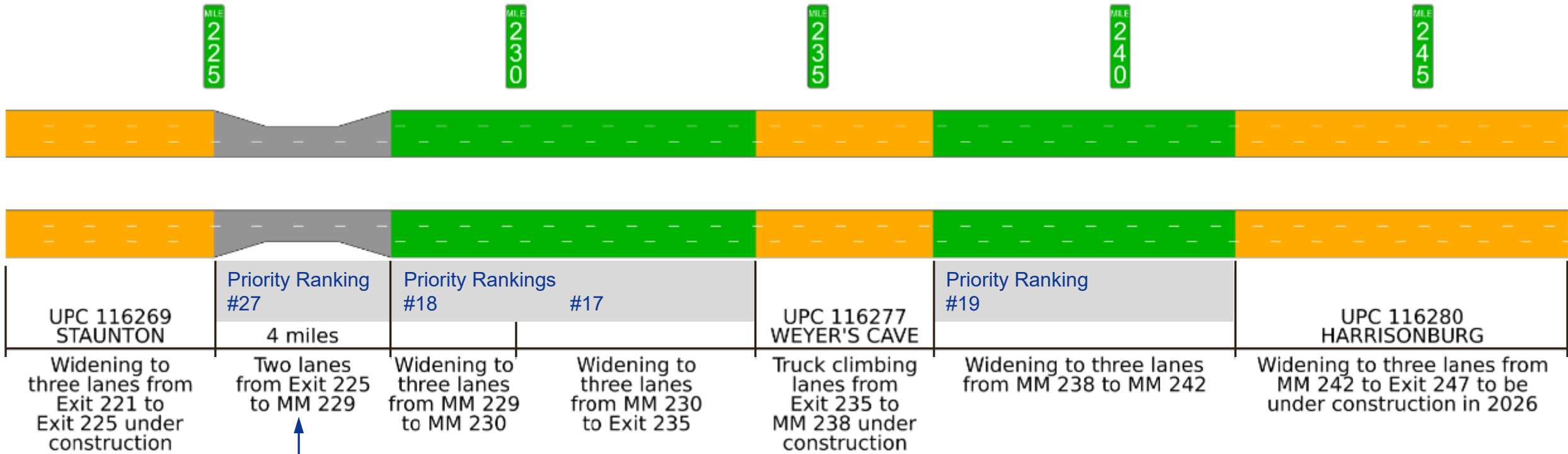
 - Denotes a project added by the CTB to the I-81 Corridor Improvement Program (CIP) in January 2025

 - Denotes 'Cut' line for funding

* - Denotes constructability or operational concern

Staff Recommended Funding Scenario - Capital

Operational Considerations – Project Sequencing



LEGEND

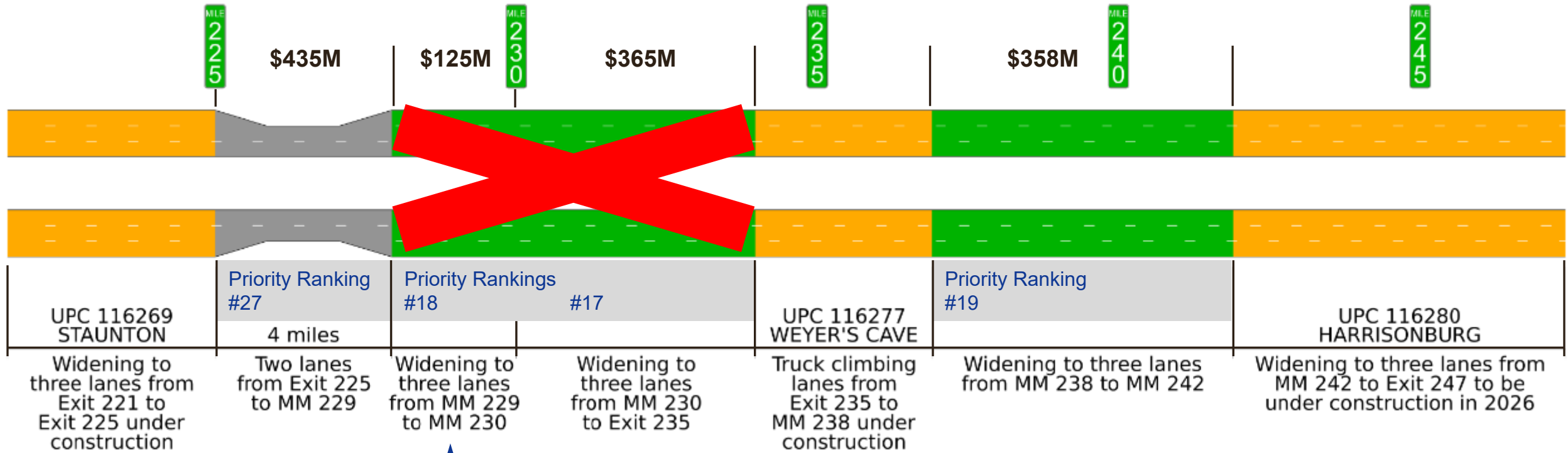
Previously Funded
I-81 Corridor Improvement Program
Widening To Three Lanes Project

Potential Funded
Widening Improvement

Prioritization results create an hour-glass or bottleneck for four miles between Staunton and Weyer's Cave projects

Staff Recommended Funding Scenario - Capital

Operational Considerations – Project Sequencing and Recommendation



LEGEND

Previously Funded
I-81 Corridor Improvement Program
Widening To Three Lanes Project

Potential Funded
Widening Improvement

\$XXX Estimated Rough Order of Magnitude Cost*

Insufficient funding to advance #27
Recommend removing #17 and #18

* Cost estimates are conceptual and subject to refinement as projects are vetted prior to the December I-81 Advisory Committee and CTB presentations.

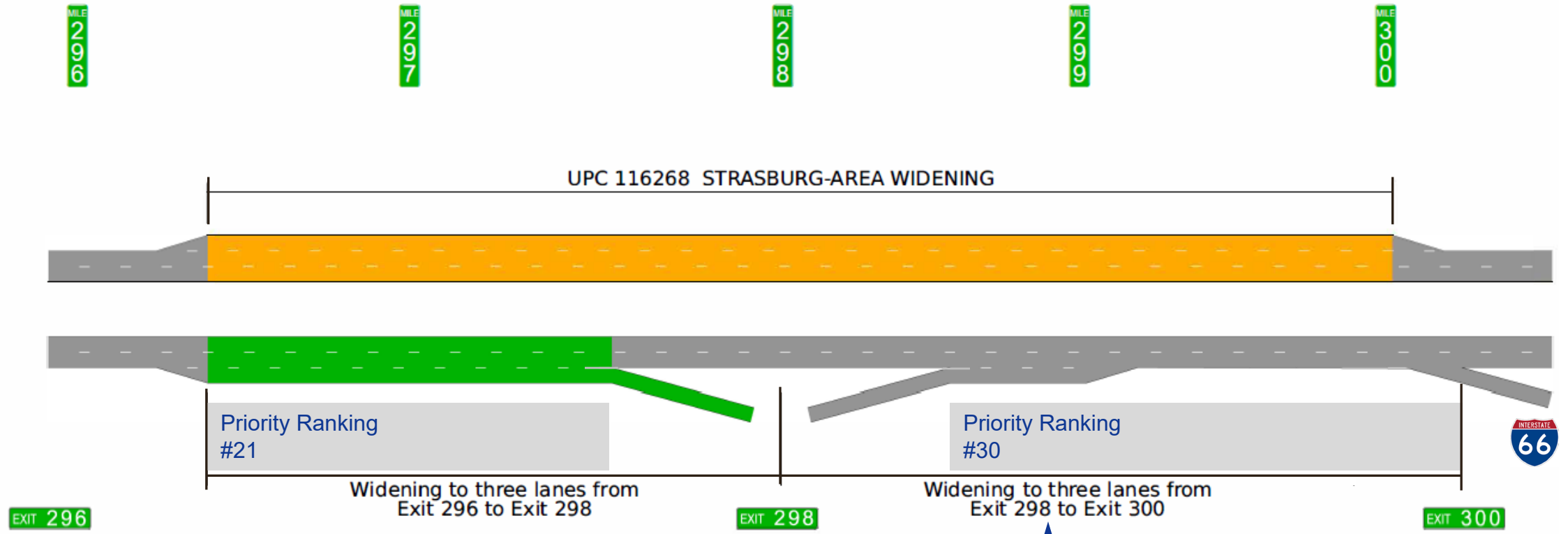
Recommended Change #1

District	County	NB/SB	From/To Mile Markers	Length (mi)	Project Type	Project Rank
Salem	Montgomery County	NB	105.6 to 108.7	3.1	Truck climbing lane between Exit 105 and Exit 109	16
Staunton	Augusta County	NB	230.4 to 234.4	4.0	Widening between MM 230 and Exit 235*	17
		SB	234.5 to 230.2	4.3		
Staunton	Augusta County	NB	228.7 to 230.5	1.8	Widening between MM 229 and MM 230*	18
		SB	230.4 to 228.7	1.7		
Staunton	Augusta County	NB	237.4 to 242.2	4.8	Widening between MM 238 and MM 242	19
	Rockingham County	SB	242.2 to 237.5	4.7		
Bristol	Washington County	SB	24.8 to 24.4	0.4	Acceleration lane extension	20
Staunton	Shenandoah County	NB	296.8 to 298.6	1.8	Widening between Exit 296 to Exit 298*	21
Bristol	Washington County	NB	9.9 to 14.9	5.0	Widening between MM 8 to Exit 14	22
		SB	14.9 to 9.9	5.0		
Staunton	Rockbridge County	NB	202.2 to 204.8	2.6	Truck climbing lane between MM 202 and MM 205	23
Salem	Botetourt County	NB	157.0 to 163.1	6.1	Widening between Exit 156 and Exit 162	24
		SB	163.1 to 157.0			
Staunton	Rockbridge County	SB	199.6 to 194.9	4.7	Widening between Exit 200 and 195	25
Bristol	Washington County	NB	33.9 to 34.8	0.9	Curve improvements between MM 33 and MM 35	26
Staunton	Augusta County	NB	225.2 to 229	3.8	Widening between Exit 225 to MM 229	27
		SB	229.0 to 225.4	3.6		
Bristol	Wythe County	NB	67.0 to 69.0	2.0	Curve improvements between Exit 67 and 69	28
Staunton	Rockbridge County	NB	190.5 to 195.7	5.2	Widening between Exit 188A and Exit 200	29
Staunton	Shenandoah County	NB	298.6 to 300.3	1.7	Widening between Exit 298 and Exit 300 and I-81 NB to I-66 EB ramp	30
Staunton	Rockbridge County	SB	196.6 to 189.9	6.7	Widening between Exit 195 and Exit 188B	31

- Removing #17 and #18 brings #21 and #22 into the funding scenario

Staff Recommended Funding Scenario - Capital

Operational Considerations – Project Sequencing



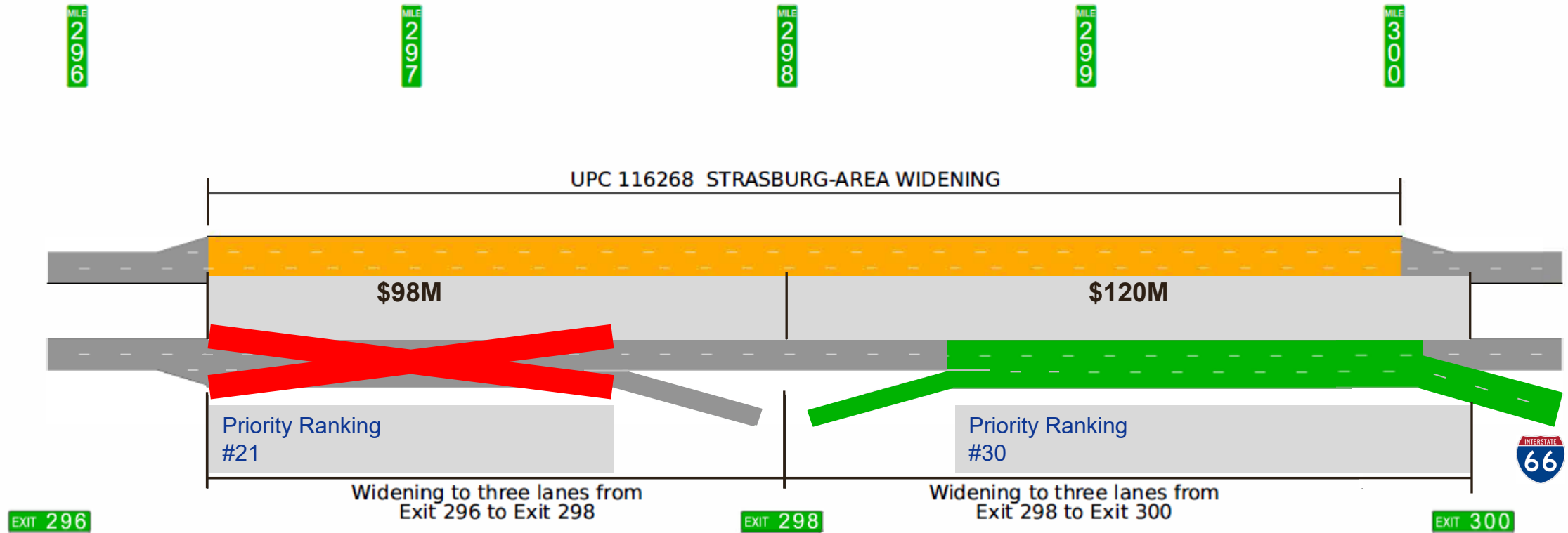
LEGEND

- Previously Funded I-81 Corridor Improvement Program Widening to a Three-Lane Project
- Potential Funded Widening Improvement

Prioritization results create an hour-glass or bottleneck prior to the I-66 interchange at Exit 300

Staff Recommended Funding Scenario - Capital

Operational Considerations – Project Sequencing and Recommendation



LEGEND

- Previously Funded I-81 Corridor Improvement Program Widening to a Three-Lane Project
- Potential Funded Widening Improvement
- \$XXX Estimated Rough Order of Magnitude Cost***

Staff recommend swapping #21 and #30:

- Addresses hour-glass effect
- Benefit score is almost identical, difference in rank is attributed to cost
- #30 contributes to performance issue within #21

* Cost estimates are conceptual and subject to refinement as projects are vetted prior to the December I-81 Advisory Committee and CTB presentations.

Recommended Change #2

District	County	NB/SB	From/To Mile Markers	Length (mi)	Project Type	Project Rank
Staunton	Augusta County	NB	237.4 to 242.2	4.8	Widening between MM 238 and MM 242	19
	Rockingham County	SB	242.2 to 237.5	4.7		
Bristol	Washington County	SB	24.8 to 24.4	0.4	Acceleration lane extension	20
Staunton	Shenandoah County	NB	296.8 to 298.6	1.8	Widening between Exit 296 to Exit 298*	21
Bristol	Washington County	NB	9.9 to 14.9	5.0	Widening between Exit 8 to Exit 14	22
		SB	14.9 to 9.9	5.0		
Staunton	Rockbridge County	NB	202.2 to 204.8	2.6	Truck climbing lane between MM 202 and MM 205	23
Salem	Botetourt County	NB	157.0 to 163.1	6.1	Widening between Exit 156 and Exit 162	24
		SB	163.1 to 157.0			
Staunton	Rockbridge County	SB	199.6 to 194.9	4.7	Widening between Exit 200 and 195	25
Bristol	Washington County	NB	33.9 to 34.8	0.9	Curve improvements between MM 33 and MM 35	26
Staunton	Augusta County	NB	225.2 to 229.0	3.8	Widening between Exit 225 to MM 229	27
		SB	229.0 to 225.4	3.6		
Bristol	Wythe County	NB	67.0 to 69.0	2.0	Curve improvements between Exit 67 and 69	28
Staunton	Rockbridge County	NB	190.5 to 195.7	5.2	Widening between Exit 188A and Exit 200	29
Staunton	Shenandoah County	NB	298.6 to 300.3	1.7	Widening between Exit 298 and Exit 300 and I-81 NB to I-66 EB ramp	30
Staunton	Rockbridge County	SB	196.6 to 189.9	6.7	Widening between Exit 195 and Exit 188B	31

- **Substitute #30 for #21 in the funding scenario**

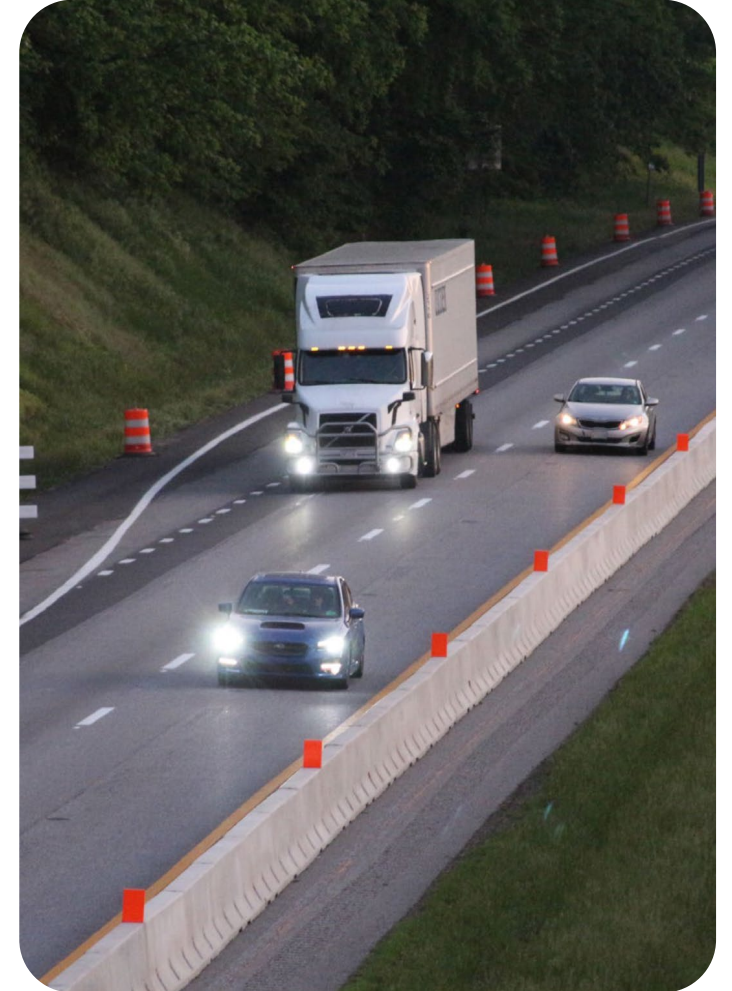
SMART SCALE-like Prioritization

District	County	NB/SB	From/To Mile Markers	Length (mi)	Project Type	Project Rank
Staunton	Rockingham County	SB	251.1 to 250.7	0.4	Acceleration lane extension	1
Bristol	Washington County	NB	25.1 to 25.7	0.5	Acceleration lane extension	2
Bristol	Washington County	NB	29.5 to 30.1	0.5	Acceleration lane extension	3
Staunton	Shenandoah County	NB	265.2 to 265.5	0.3	Acceleration lane extension	4
Staunton	Frederick County	SB	307.5 to 307.3	0.2	Deceleration lane extension	5
Salem	Botetourt County	SB	162.0 to 160.9	1.1	Acceleration lane extension	6
Bristol	Washington County	NB	4.5 to 5.0	0.4	Auxiliary lane between Exit 3 and Exit 5	7
Staunton	Augusta County	NB	227.8 to 228.1	0.3	Acceleration lane extension	8
Staunton	Shenandoah County	SB	269.3 to 268.2	1.1	Acceleration lane extension	9
Staunton	Augusta County	NB	220.8 to 221.5	0.7	Auxiliary lane between Exit 220 and Exit 222	10
Bristol	Washington County	NB	19.9 to 20.2	0.3	Acceleration lane extension	11
Staunton	Augusta County	SB	221.7 to 216.7	5.0	Widening between Exit 213B and 221	12
Staunton	Rockbridge County	NB	204.8 to 209.9	5.1	Widening between Exit 205 and MM 209	13
		SB	209.9 to 204.8	5.1		
Staunton	Augusta County	NB	209.9 to 212.9	3.0	Widening between MM 209 and Exit 213	14
		SB	212.9 to 209.9	3.0		
Salem	Pulaski County	SB	104.9 to 103.4	1.5	Truck climbing lane between Exit 105 and MM 103	15
Salem	Montgomery County	NB	105.6 to 108.7	3.1	Truck climbing lane between Exit 105 and Exit 109	16
Staunton	Augusta County	NB	237.4 to 242.2	4.8	Widening between MM 238 and MM 242	19
	Rockingham County	SB	242.2 to 237.5	4.7		
Bristol	Washington County	SB	24.8 to 24.4	0.4	Acceleration lane extension	20
Bristol	Washington County	NB	9.9 to 14.9	5.0	Widening between MM 8 to Exit 14	22
		SB	14.9 to 9.9	5.0		
Staunton	Shenandoah County	NB	298.6 to 300.3	1.7	Widening between Exit 298 and Exit 300 and I-81 NB to I-66 EB Ramp	30

Staff Recommended Funding Scenario

District Summary

District	Number of Potential Solutions	Funds Allocated (in millions \$)	Number of Recommended Solutions in Staff Scenario
Bristol	9	\$370.3 to \$486.1	6
Salem	9	\$271.3 to \$425.3	3
Staunton	23	\$1,051.8 to \$1,895.2	11
Total	41	\$1,693.4 to \$2,806.6	20



Staff Recommended Funding Scenario

Principal Improvement Type

Principal Improvement Type	Number of Potential Solutions	Funding Required (in millions \$)	Percent of Recommended Solutions
Widening	17	\$1,247.8 to \$2,095.4	30%
Acceleration and Deceleration Lane Extension	15	\$208.7 to \$347.5	50%
Auxiliary Lane	2	\$21.9 to \$28.0	10%
Truck Climbing Lane	4	\$215 to \$335.7	10%
Total (Capital)	41	\$1,693.4 to \$2,806.6	100%
Total (Operations) Traffic Signal Incident Timing	219	\$2.9 to \$3.2	100%

Staff Recommended Funding Scenario - Capital

Bristol District

Project	City/County	Mile Marker From/To	Direction	Corridor Prioritization Rank
Acceleration Lane Extension	Washington	25.1 to 25.7	NB	2
Acceleration Lane Extension	Washington	29.5 to 30.1	NB	3
Auxiliary Lane	Bristol	4.5 to 5.0	NB	7
Acceleration Lane Extension	Washington	19.9 to 20.2	NB	11
Acceleration Lane Extension	Washington	24.8 to 24.4	SB	20
Widening (+1 Lane)	Washington	9.9 to 14.9	NB/SB	22
Grand Total Rough Order of Magnitude Range*	\$370-486M			

* Cost estimates are conceptual and subject to refinement as projects are vetted prior to the December I-81 Advisory Committee and CTB presentations.

Staff Recommended Funding Scenario - Capital

Bristol District Highlight – Widening Between Exit 7 and Exit 14

Washington County

#22 *Ranked Improvement on Corridor*

UPC 116170 Bristol Widening
Currently under Construction



5 miles SB



6 Miles NB

Construct northbound and southbound widening between Exit 10 and Exit 14 to improve congestion and improve safety for merging and exiting traffic between exits.

Staff Recommended Funding Scenario - Capital

Salem District

Project	County	Mile Marker From/To	Direction	Corridor Prioritization Rank
Acceleration Lane Extension	Botetourt	162.1 to 160.9	SB	6
Truck Climbing Lane	Pulaski	104.9 to 103.4	SB	15
Truck Climbing Lane	Montgomery	105.6 to 108.7	NB	16
Grand Total Rough Order of Magnitude Range*	\$271-425M			

* Cost estimates are conceptual and subject to refinement as projects are vetted prior to the December I-81 Advisory Committee and CTB presentations.

Staff Recommended Funding Scenario - Capital

Salem District Highlight – Ramp Modification and Truck Climbing Lane

Botetourt County

#6

*Ranked Improvement
on Corridor*



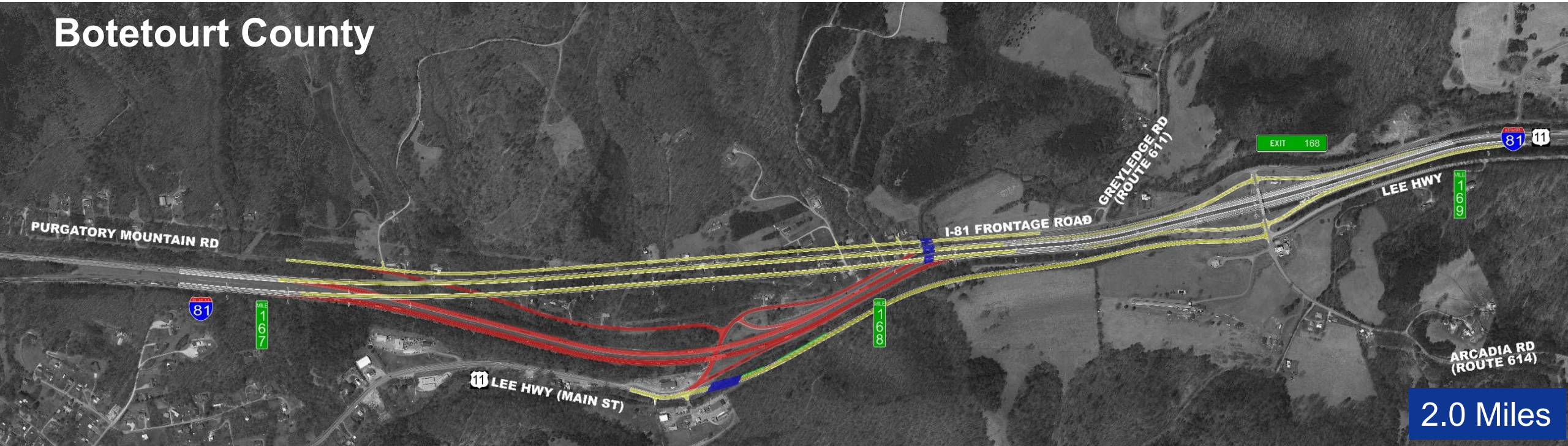
Construct Exit 162 southbound on-ramp modification and extend acceleration lane to improve operations and safety for vehicles traveling on the steep southbound uphill grade.

Considered for Priority Funding by CTB

Salem District Highlight – 'S-Curves' Realignment

CTB to act in November 2025 on a funding allocation

Botetourt County



Realign approximately two miles of I-81 NB and SB between MM 167 and MM 169 to improve safety on and resiliency for I-81 near Buchanan. Removes partial interchange at Exit 167.

Staff Recommended Funding Scenario - Capital

Staunton District (1 of 2)

Project	County	Mile Marker From/To	Direction	Corridor Prioritization Rank
Acceleration Lane Extension	Rockingham	251.1 to 250.7	SB	1
Acceleration Lane Extension	Shenandoah	265.2 to 265.5	NB	4
Deceleration Lane Extension	Frederick	307.5 to 307.3	SB	5
Acceleration Lane Extension	Augusta	227.8 to 228.1	NB	8
Acceleration Lane Extension	Shenandoah	269.3 to 268.2	SB	9
Auxiliary Lane	Augusta	220.8 to 221.5	NB	10
Widening (+1 Lane)	Augusta	221.7 to 216.7	SB	12
Widening (+1 Lane)	Rockbridge	204.8 to 209.9	NB/SB	13

* Cost estimates are conceptual and subject to refinement as projects are vetted prior to the December I-81 Advisory Committee and CTB presentations.

Staff Recommended Funding Scenario - Capital

Staunton District (2 of 2)

Project	County	Mile Marker From/To	Direction	Corridor Prioritization Rank
Widening (+1 Lane)	Augusta	209.9 to 212.9	NB/SB	14
Widening (+1 Lane)	Augusta/Rockingham	237.4 to 242.2	NB/SB	19
Widening (+1 Lane)	Shenandoah	298.6 to 300.3	NB	30
Grand Total Rough Order of Magnitude Range*	\$1.0-1.9B			

* Cost estimates are conceptual and subject to refinement as projects are vetted prior to the December I-81 Advisory Committee and CTB presentations.

Staff Recommended Funding Scenario - Capital

Staunton District Highlight - Widening between MM 237 and Exit 243

Rockingham County and City of Harrisonburg

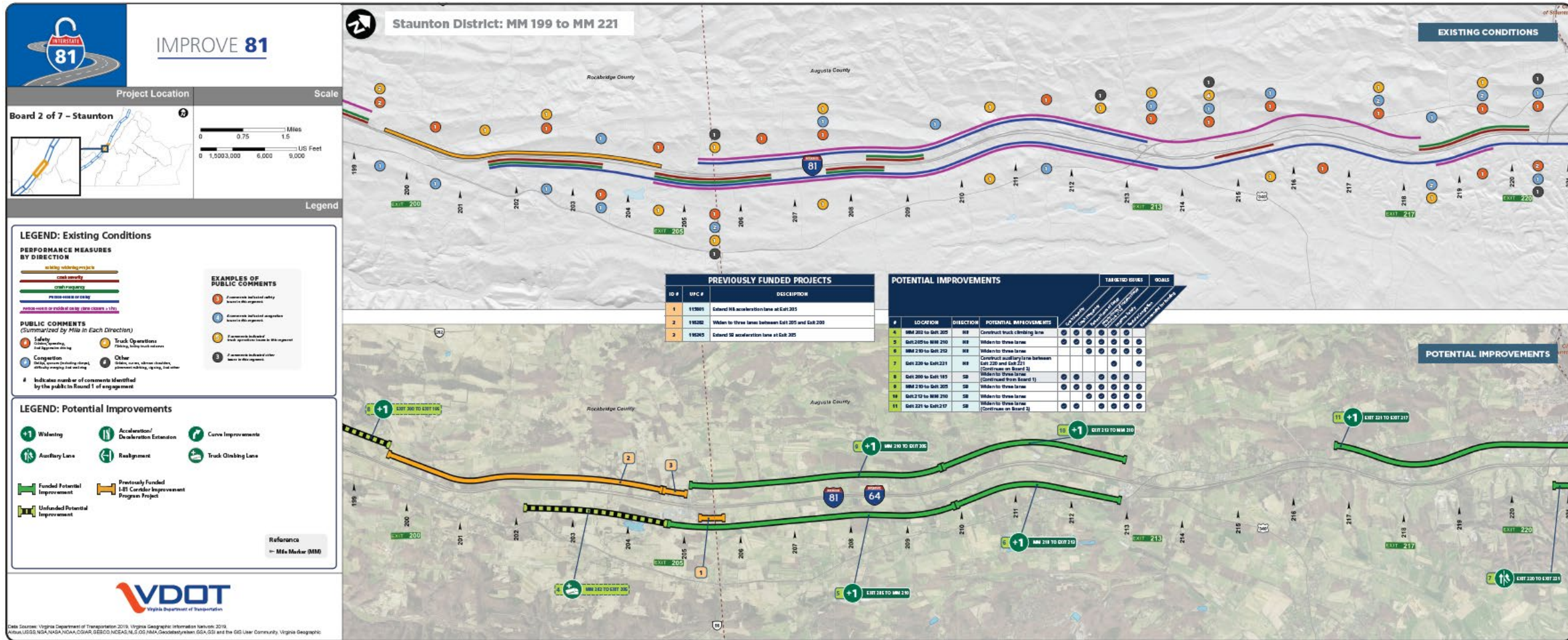
UPC 116277 Weyer's Cave
Truck Climbing Lanes
Under construction

#19 Ranked Improvement
on Corridor

UPC 116280 Harrisonburg Widening
Under construction in 2026

Widen in NB and SB directions by one lane between the Weyer's Cave truck climbing lanes (under construction) and the Harrisonburg widening (construction starts in 2026) to provide 5 miles of six lanes between Weyer's Cave and northern corporate limits of Harrisonburg.

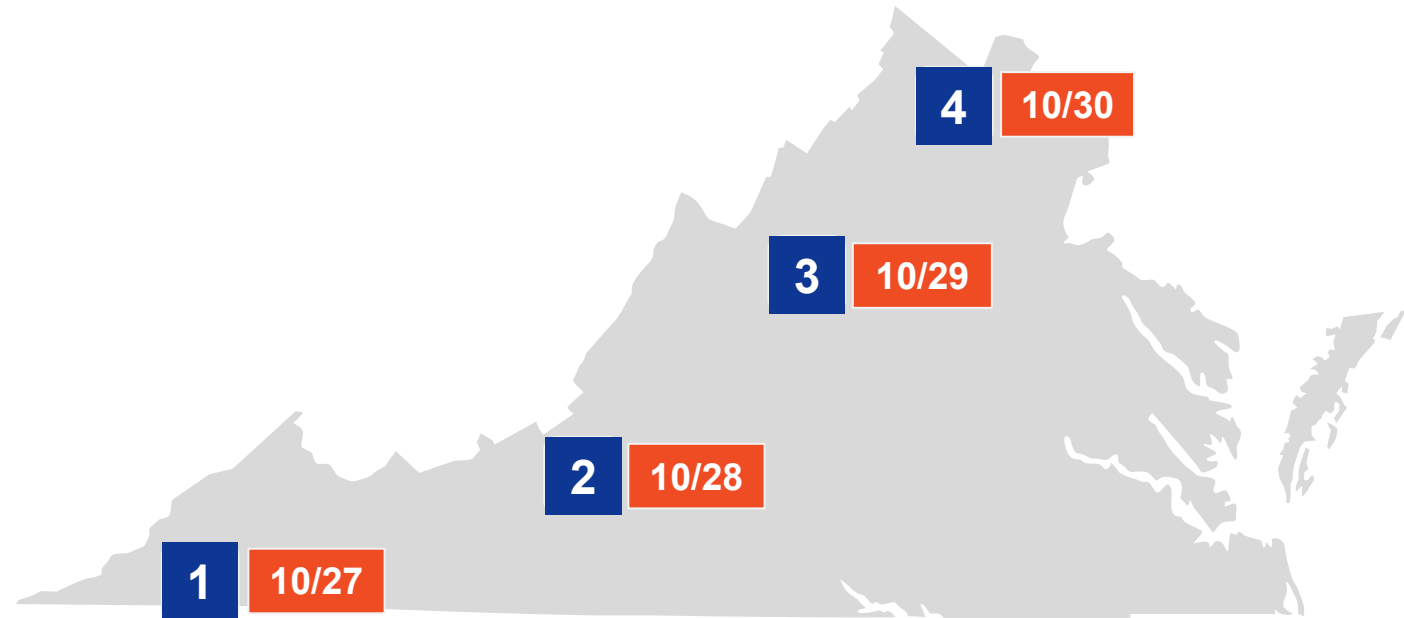
I-81 CIP Public Meeting Board - Sample



Next Steps - Round 3 Public Outreach

Prioritized Solutions

- **Four in-person meetings to be held week of October 27**
- **Maps displayed with prioritized solutions and cost estimates**
- **Virtual survey to gather public comment on prioritization**
- **All materials shared on the project website**



1	Bristol District	SWVA Higher Education Center
2	Salem District	Salem Civic Center
3	Staunton District (South)	Blue Ridge Community College
4	Staunton District (North)	Shenandoah University

All meetings 5-7 pm

Next Steps - I-81 CIP Update

November 2025 to January 2026

- **Share Round 3 public feedback and staff funding scenario with I-81 Advisory Committee**
- **Receive I-81 Advisory Committee recommendation on funding scenario**
- **CTB considers funding scenario**
- **CTB adopts final funding scenario and update to the I-81 CIP**

Questions



Survey Link

Study Manager: Rob Williams, AICP



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804-371-4868



www.Improve81.org

