COMMONWEALTH of VIRGINIA

Commonwealth Transportation Board

W. Sheppard Miller, III
Chairperson

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COMMONWEALTH TRANSPORTATION BOARD
WORKSHOP AGENDA

DoubleTree by Hilton
1900 Pavilion Drive
Virginia Beach, VA 23451
October 25, 2022
10:00 a.m.

1. Strategic Resource Evaluation Study
   Bart Thrasher, Virginia Department of Transportation
   Valerie Seidel, President, The Balmoral Group

2. Interstate 81 Corridor
   Improvement Program and Fund Update
   Dave Covington, Virginia Department of Transportation

3. SMARTSCALE Presentation
   Brooke Jackson, Office Intermodal

4. Comprehensive Review Update
   Kevin Gregg, Virginia Department of Transportation

5. I-95 Variable Speed Limit
   Mena Lockwood, P.E., *Virginia Department of Transportation*
   Michael Fontaine, P.E., PhD, Virginia Transportation Research Council

6. Bowers Hill Environmental Impact Statement
   Identification of the Preferred Alternative
   Scott Smizik, Virginia Department of Transportation
   Christopher G. Hall, P.E., Virginia Department of Transportation

7. SMART SCALE Budget Increases
   I-95 Exit 126 Route 1 Southbound onto Southpoint Parkway
   UPC 110914, Fredericksburg District
   Kimberly Pryor, Virginia Department of Transportation

8. Revisions for FY 2023-2024 Budgetary Assumptions
   Laura Farmer, Virginia Department of Transportation
   Kimberly Pryor, Virginia Department of Transportation

9. Revised FY 2023 – 2028 Six-Year Improvement Program
   Kimberly Pryor, Virginia Department of Transportation

10. Authorization for the Commissioner of Highways to Enter into Standard Project Agreements Between VDOT and the Hampton Roads Transportation Accountability Commission Relating to the I-464/I-64 IAR
    Chris Hall, Virginia Department of Transportation

11. Rockland Road (Rte. 658) over Norfolk Southern RR Grade Separation Project UPC 112945
    JoAnne Maxwell, Virginia Department of Transportation

12. Director's Items
    Jennifer DeBruhl, Virginia Department of Rail and Public Transportation

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

14. Secretary's Items
    Shep Miller, Secretary of Transportation

# # #

Strategic Resource Evaluation Study

Virginia Department of Transportation

Virginia Commonwealth Transportation Board Meeting

October 2022

The opinions, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of the Virginia Department of Transportation.

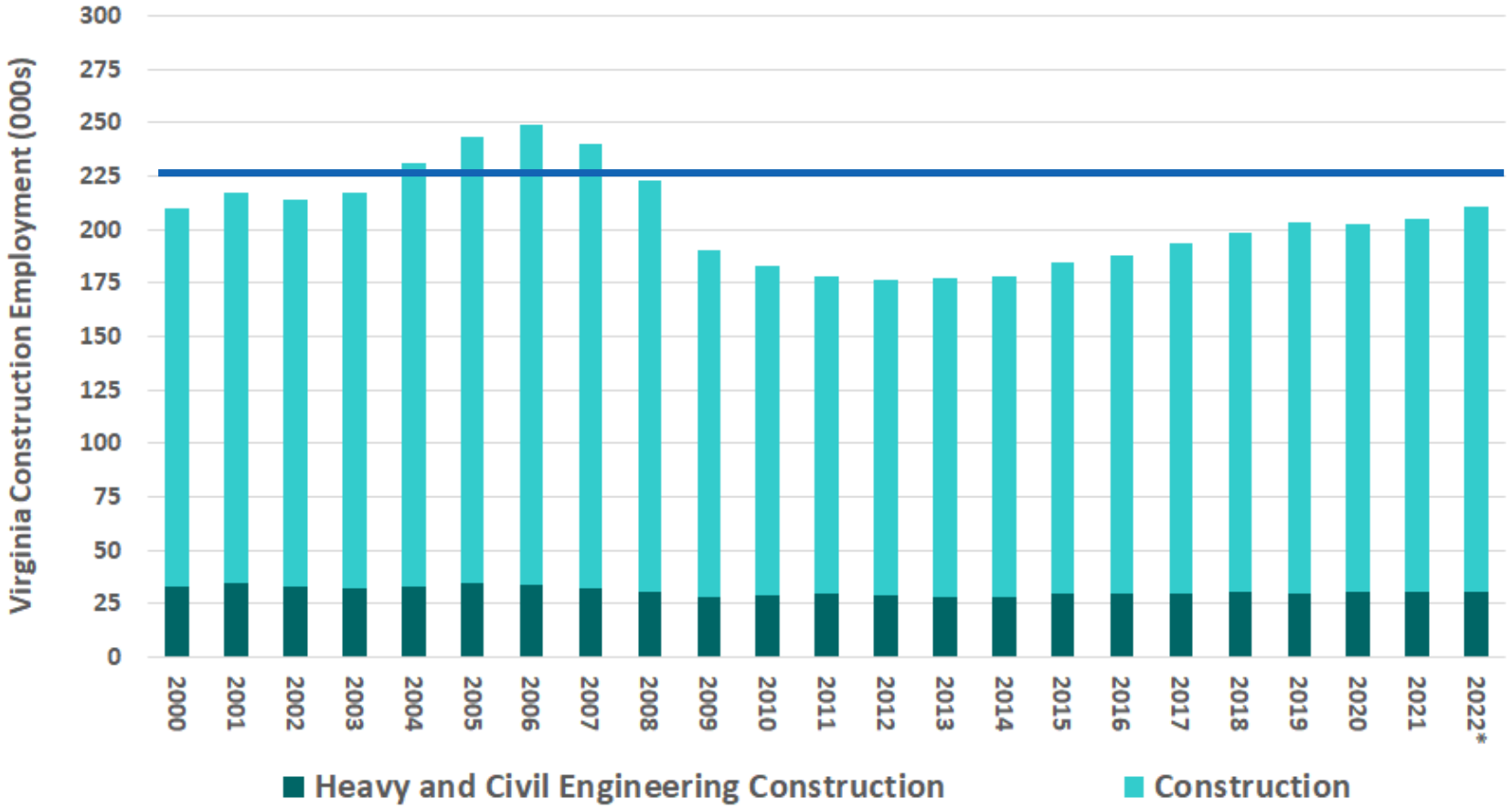
Study Purpose

The Virginia Department of Transportation (VDOT) has faced bid price increases since Spring 2021 due to rapidly changing market conditions.

During the global recovery from the COVID-19 pandemic, a series of supply chain disruptions occurred, labor markets tightened, and Russia invaded Ukraine. Construction costs have increased.

The Department undertook the study to better understand and manage future resource supply and cost issues affecting VDOT's infrastructure construction program.

Tight Labor Market



- Virginia construction employment has grown in recent years, but remains well below 2006 highs
- Overall, total Virginia employment reached exceeded 2006 levels in 2013, and has grown by 8%
- Surveyed contractors report tight labor pool as a constraint on capacity

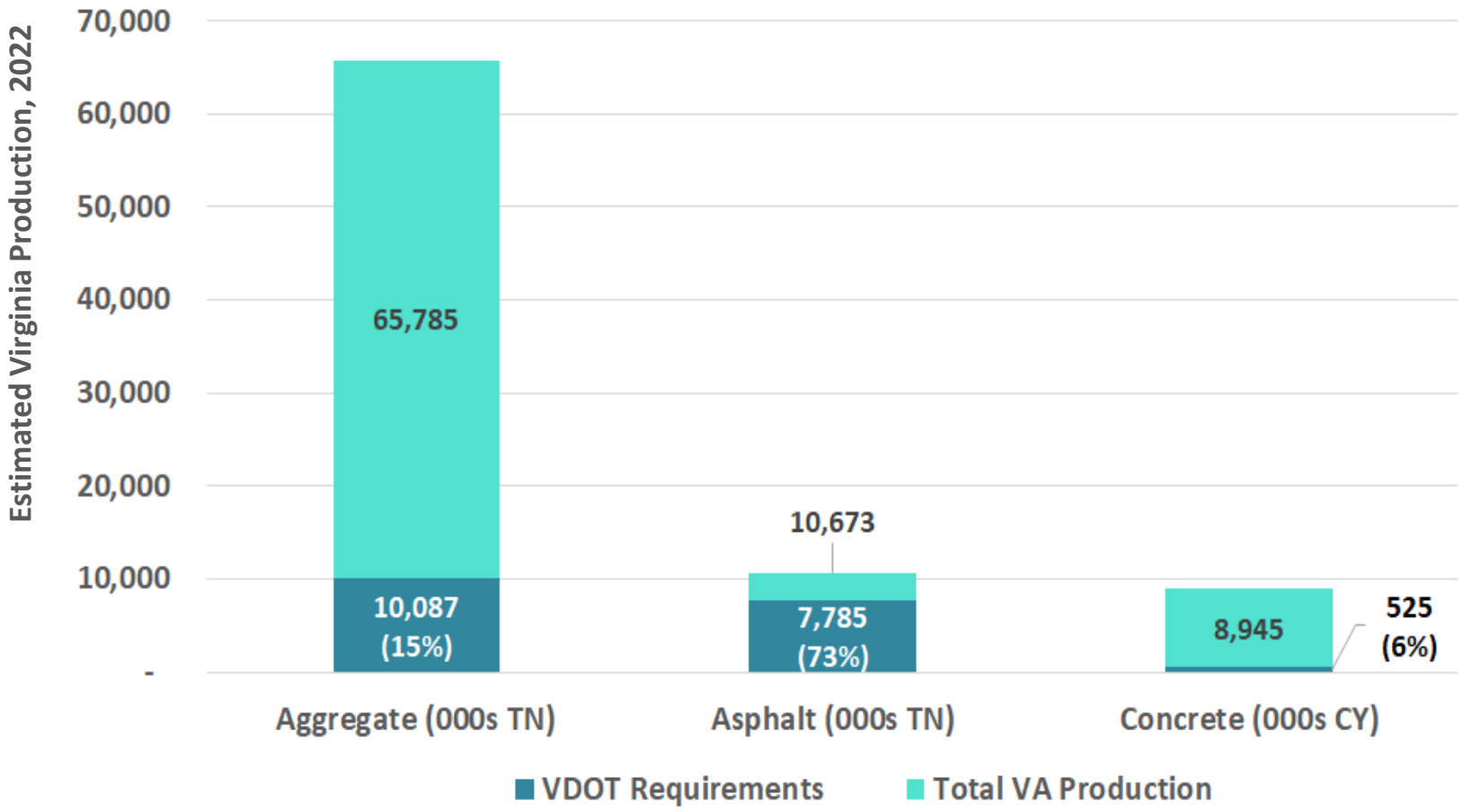
Source: BLS; *VA Works Short-term Projections

VDOT Materials Requirements (Estimated for Forecasting)

	QUANTITIES (000s)				
Fiscal Year (1st fiscal budget year SYIP)	2023	2024	2025	2026	2027
Aggregate (tons)	7,400	8,400	8,400	7,400	7,600
Asphalt (tons)	5,700	6,600	6,800	6,200	6,400
Concrete (CY)	400	400	400	300	300
Reinforced Steel (lb.)	16,200	15,500	12,100	7,400	5,900
Structural Steel (lb.)	57,800	53,300	53,000	31,600	27,700
PVC (LF)	28,600	32,800	34,100	31,000	32,100
Pavement Markings (LF)	271,400	310,700	322,800	293,600	303,900

Source: VDOT Historical Lettings and SYIP Data

Availability – VDOT Share of Total Market



VDOT consumes most of the **asphalt** produced in VA, but a smaller share of **aggregate** and **concrete** – important because this means VDOT is a **price "taker"** for aggregate/ concrete, but a **price "maker"** for asphalt.

Source: VDOT Historical Lettings and SYIP, USGS, Industry Sources

General Market Conditions

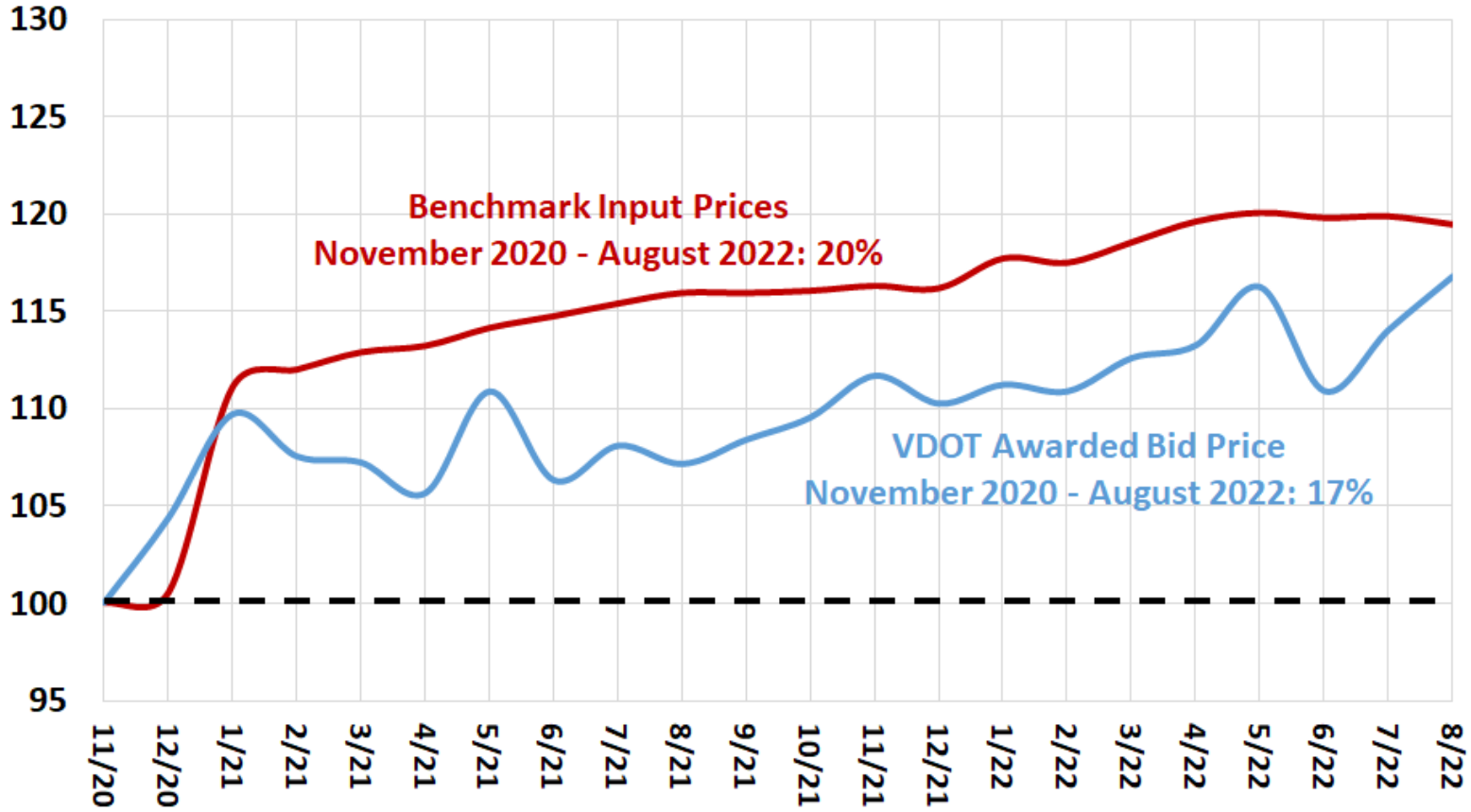
	Raw Materials	Skilled labor	Competition	Trucking	Global Shipping	Geopolitics
Aggregate	=	↑	↓	↑	=	=
Asphalt	↑	↑	=	↑	=	↑
Concrete	↑	↑	=	↑	↑	↑
Steel	↑	↑	=	=	↑	↑
Heavy Equipment	↑	↑	=	=	↑	↑
Labor	=	↑	↑	↑	=	=
Industry Capacity	↑	↑	↑	↑	=	=

Legend

- Exerting negative influence on construction costs
- Exerting positive influence on construction costs
- Neutral or N/A

Benchmark Input Prices vs VDOT Bids

- Uptick in VDOT bid prices reflects input price increases that contractors can no longer absorb
- VDOT bid prices were 17% higher in August compared to the end of 2020
- Benchmark industry input costs were 20% higher over the same period



Source: TBG calculated from VDOT historical bid data and benchmark industry input prices.

Key Market Influences

Supply Chain

- VDOT is likely to see higher prices – around 10% higher for asphalt due to energy costs
- CDL driver shortage may push up the cost of transporting aggregates, 6-10%

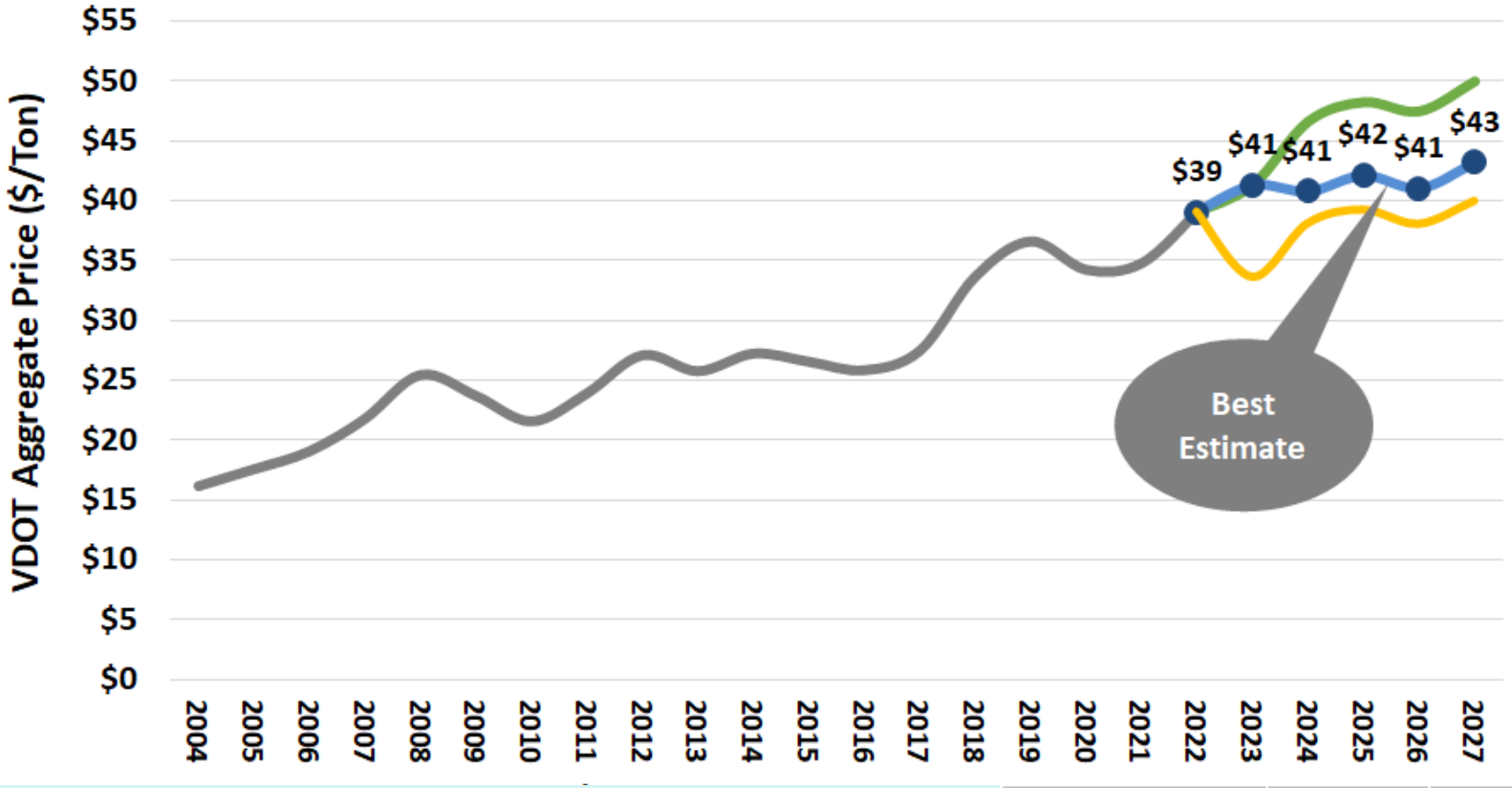
Demand & Inflation

- Globally, greatest commodity price increases since 1970s
- Based on the modeling, every additional $1 billion in infrastructure funding adds about 3% to VDOT's costs

Ukraine War

- VDOT can expect steel and other metals costs to increase up to 12% and remain high through 2023
- Precast concrete will also be affected due to high reinforcing steel costs. Lead times remain long

Aggregate Cost Projections



2022
$39 per ton

2023 – 2027 Forecast

Upper Bound: high crude oil price, spending, non-farm employment

Best Estimate: medium crude oil price, spending, non-farm employment

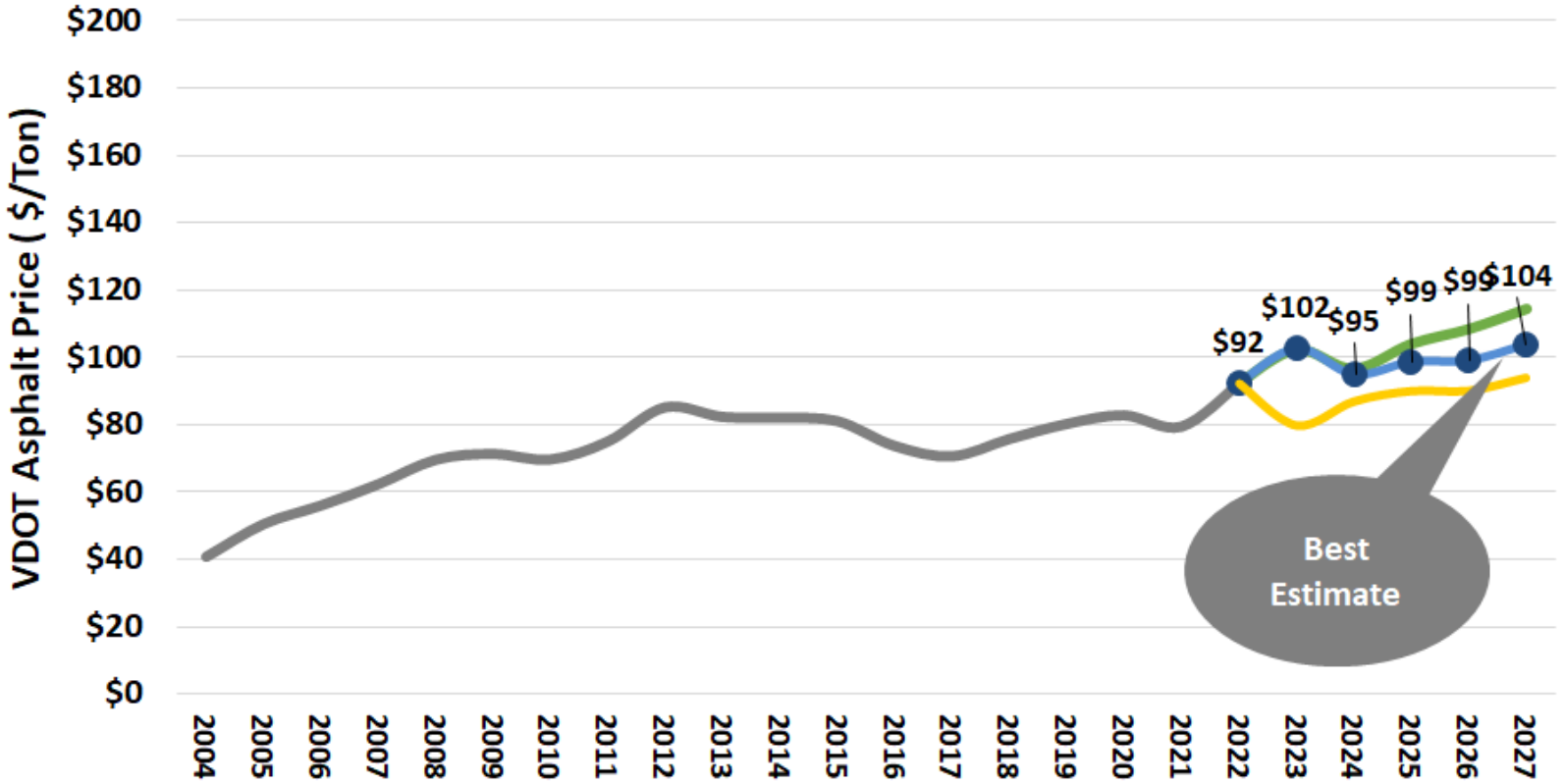
Lower Bound: low crude, spending, non-farm employment

- Crude oil prices (High, Med, Low Scenarios)
- Employment
- Infrastructure spending

FY ($/ton)	2021*	2022*	2023	2024	2025	2026	2027
Upper Bound	$35	$39	$41	$47	$48	$48	$50
Best Estimate	$35	$39	$41	$41	$42	$41	$43
Lower Bound	$35	$39	$34	$38	$39	$38	$40

*Actual Data, Final Weighted Average Price

Asphalt Cost Projections



2022
$92 per ton

2023 – 2027 Forecast

Upper Bound: high crude oil and binder prices

Best Estimate: medium crude oil price, non-farm employment, spending

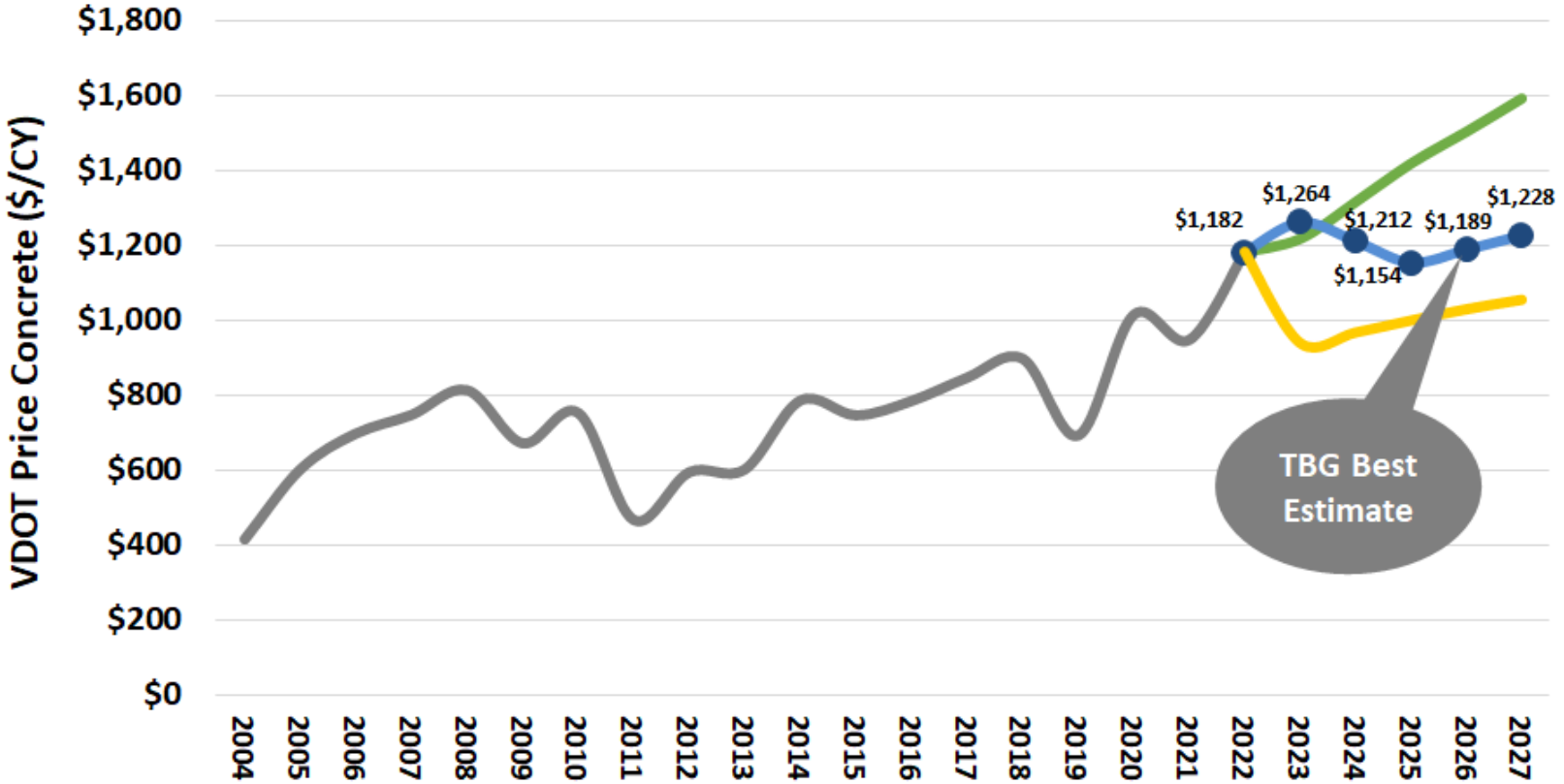
Lower Bound: low crude, non-farm employment, spending

- Binder prices
- Crude oil prices
- Employment
- Infrastructure spending

FY ($/ton)	2021*	2022*	2023	2024	2025	2026	2027
Upper Bound	$79	$92	$102	$97	$104	$109	$115
Best Estimate	$79	$92	$102	$95	$99	$99	$104
Lower Bound	$79	$92	$80	$87	$90	$90	$94

*Actual Data, Final Weighted Average Price

Concrete Cost Projections



2022
$1,182 per CY

2023 – 2027 Forecast

Upper Bound: GSP (Gross State Product), construction employment

Best Estimate: increasingly scarce fly ash, medium crude oil price

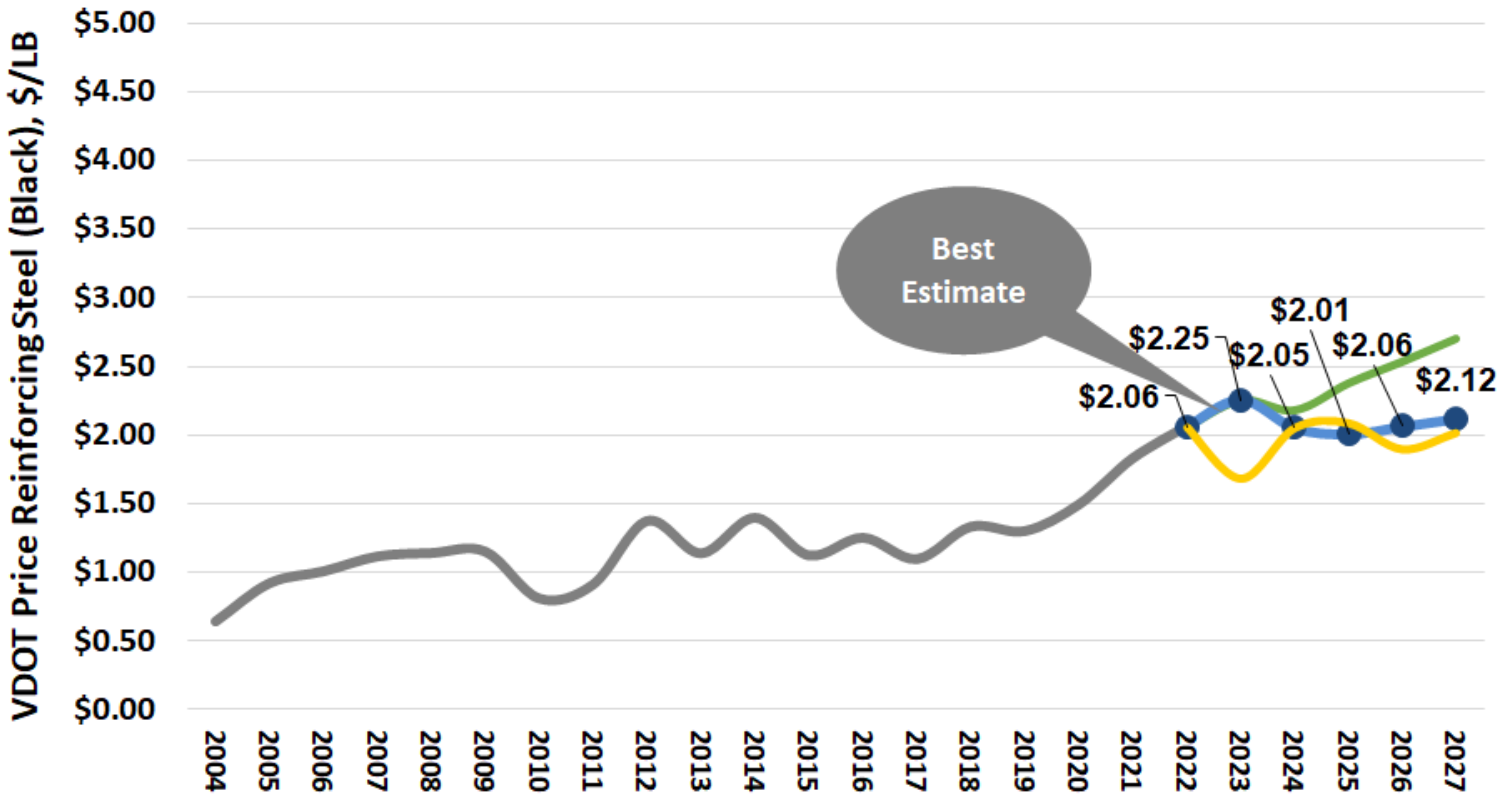
Lower Bound: increasingly scarce fly ash, low crude oil price

- Fly ash production and consumption – increasing scarcity
- Overall economy – GSP, employment
- Crude oil prices

FY ($/CY)	2021*	2022*	2023	2024	2025	2026	2027
Upper Bound	$947	$1,182	$1,216	$1,315	$1,418	$1,503	$1,591
Best Estimate	$947	$1,182	$1,264	$1,212	$1,154	$1,189	$1,228
Lower Bound	$947	$1,182	$938	$966	$998	$1,028	$1,054

*Actual Data, Final Weighted Average Price

Reinforcing Steel (Black) Cost Projections



2022
$2.06 per lb.

2023 – 2027 Forecast

Upper Bound: medium crude oil price, construction employment, GSP

Best Estimate: medium crude oil & iron ore prices, non-farm employment

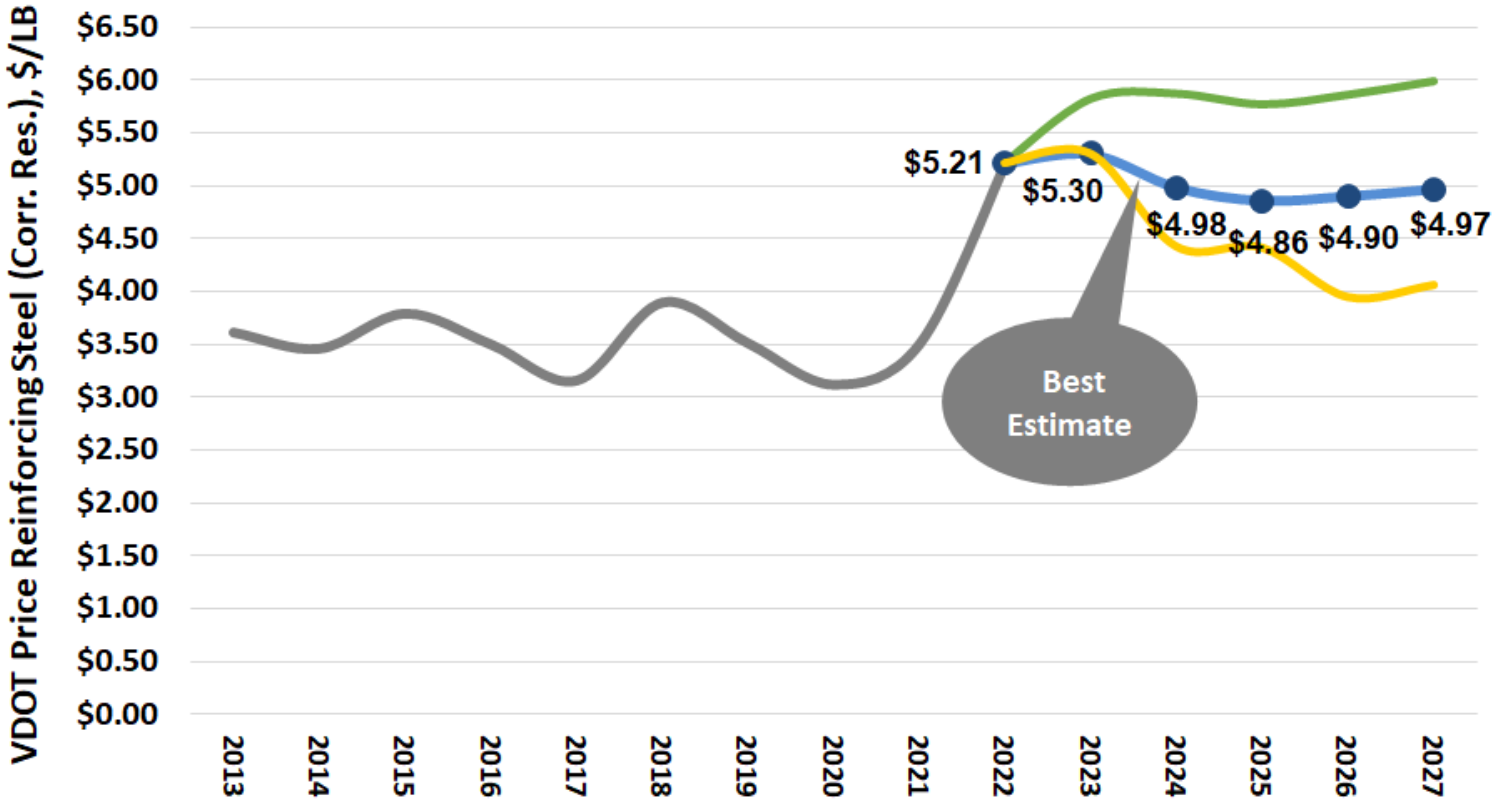
Lower Bound: medium crude oil price, spending, non-farm employment

- Iron ore prices
- Energy prices
- Macroeconomic conditions – Employment
- Infrastructure spending

FY ($/lb.)	2021*	2022*	2023	2024	2025	2026	2027
Upper Bound	$1.83	$2.06	$2.25	$2.18	$2.38	$2.53	$2.70
Best Estimate	$1.83	$2.06	$2.25	$2.05	$2.01	$2.06	$2.12
Lower Bound	$1.83	$2.06	$1.69	$2.05	$2.09	$1.90	$2.02

*Actual Data, Final Weighted Average Price

Reinforcing Steel (Corrosion Resistance) Cost Projections



2022
$5.21 per lb.

2023 – 2027 Forecast

Upper Bound: higher crude oil & iron ore prices, non-farm employment

Best Estimate: medium crude oil & iron ore prices, non-farm employment

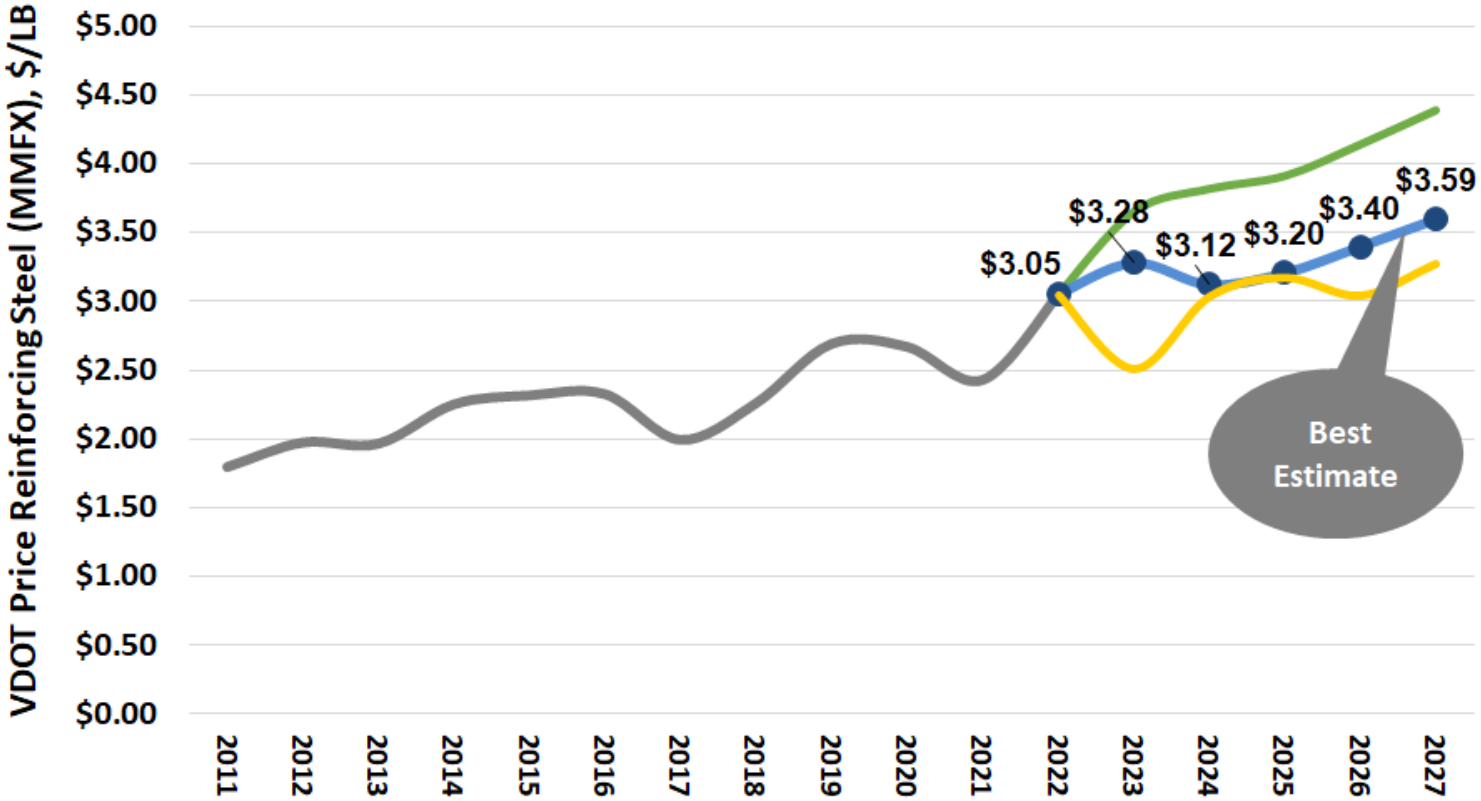
Lower Bound: medium crude oil price, spending, non-farm employment

- Iron ore prices
- Energy prices
- Macroeconomic conditions – Employment
- Infrastructure spending

FY ($/lb.)	2021*	2022*	2023	2024	2025	2026	2027
Upper Bound	$3.50	$5.21	$5.83	$5.88	$5.77	$5.86	$5.99
Best Estimate	$3.50	$5.21	$5.30	$4.98	$4.86	$4.90	$4.97
Lower Bound	$3.50	$5.21	$5.30	$4.43	$4.42	$3.95	$4.06

*Actual Data, Final Weighted Average Price

Reinforcing Steel (MMFX) Cost Projections



2022
$2.06 per lb.

2023 – 2027 Forecast

Upper Bound: medium crude oil price, construction employment, GSP

Best Estimate: medium crude oil & iron ore prices, non-farm employment

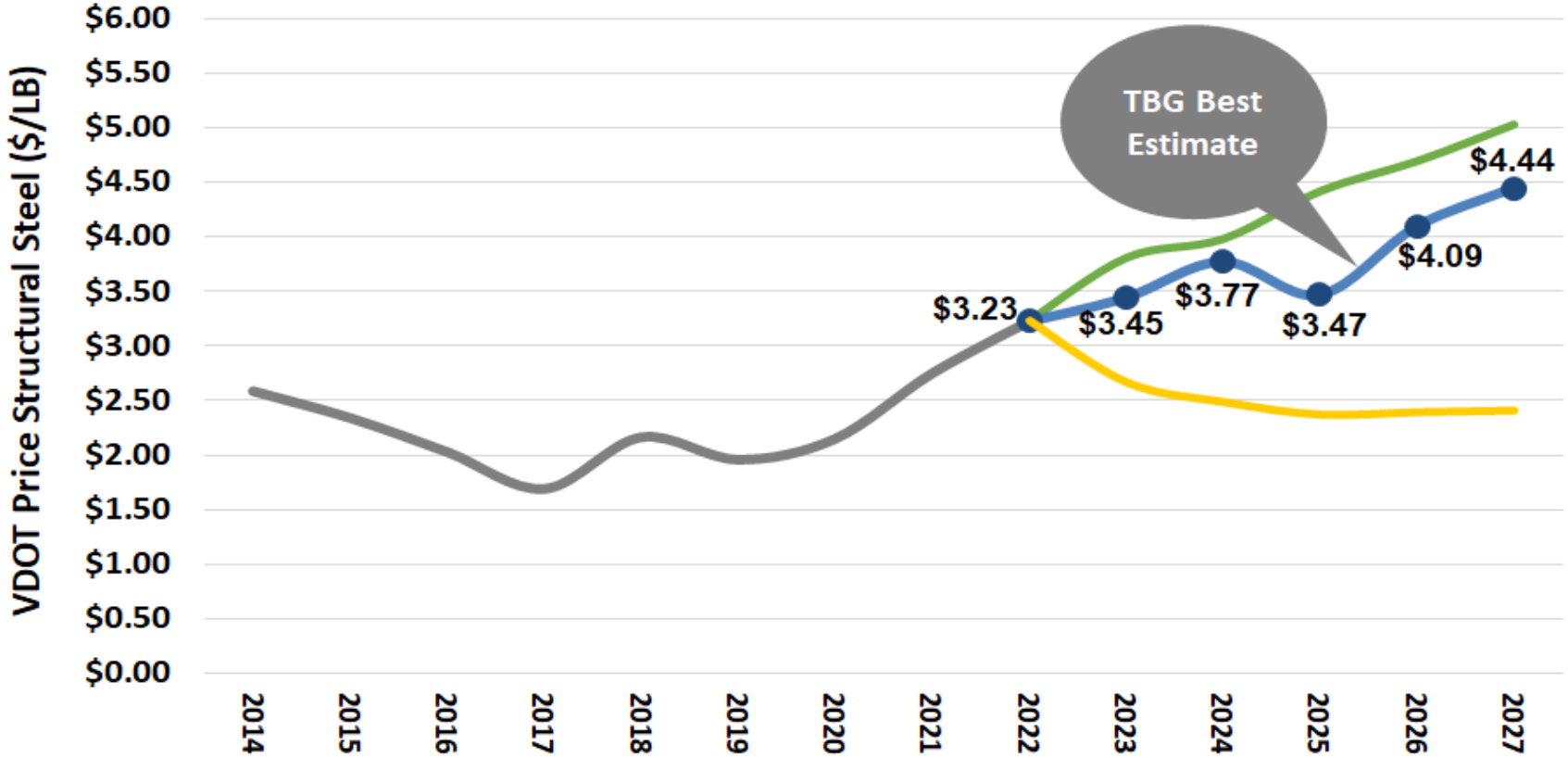
Lower Bound: medium crude oil price, spending, non-farm employment

- Iron ore prices
- Energy prices
- Macroeconomic conditions – Employment
- Infrastructure spending

FY ($/lb.)	2021*	2022*	2023	2024	2025	2026	2027
Upper Bound	$2.43	$3.05	$3.65	$3.82	$3.91	$4.14	$4.39
Best Estimate	$2.43	$3.05	$3.28	$3.12	$3.20	$3.40	$3.59
Lower Bound	$2.43	$3.05	$2.51	$3.04	$3.17	$3.04	$3.27

*Actual Data, Final Weighted Average Price

Structural Steel Cost Projections



2022
$3.23 per lb.

2023 – 2027 Forecast

Upper Bound: high crude oil price, optimistic housing starts, spending

Best Estimate: high crude oil price, slowdown in housing starts, spending

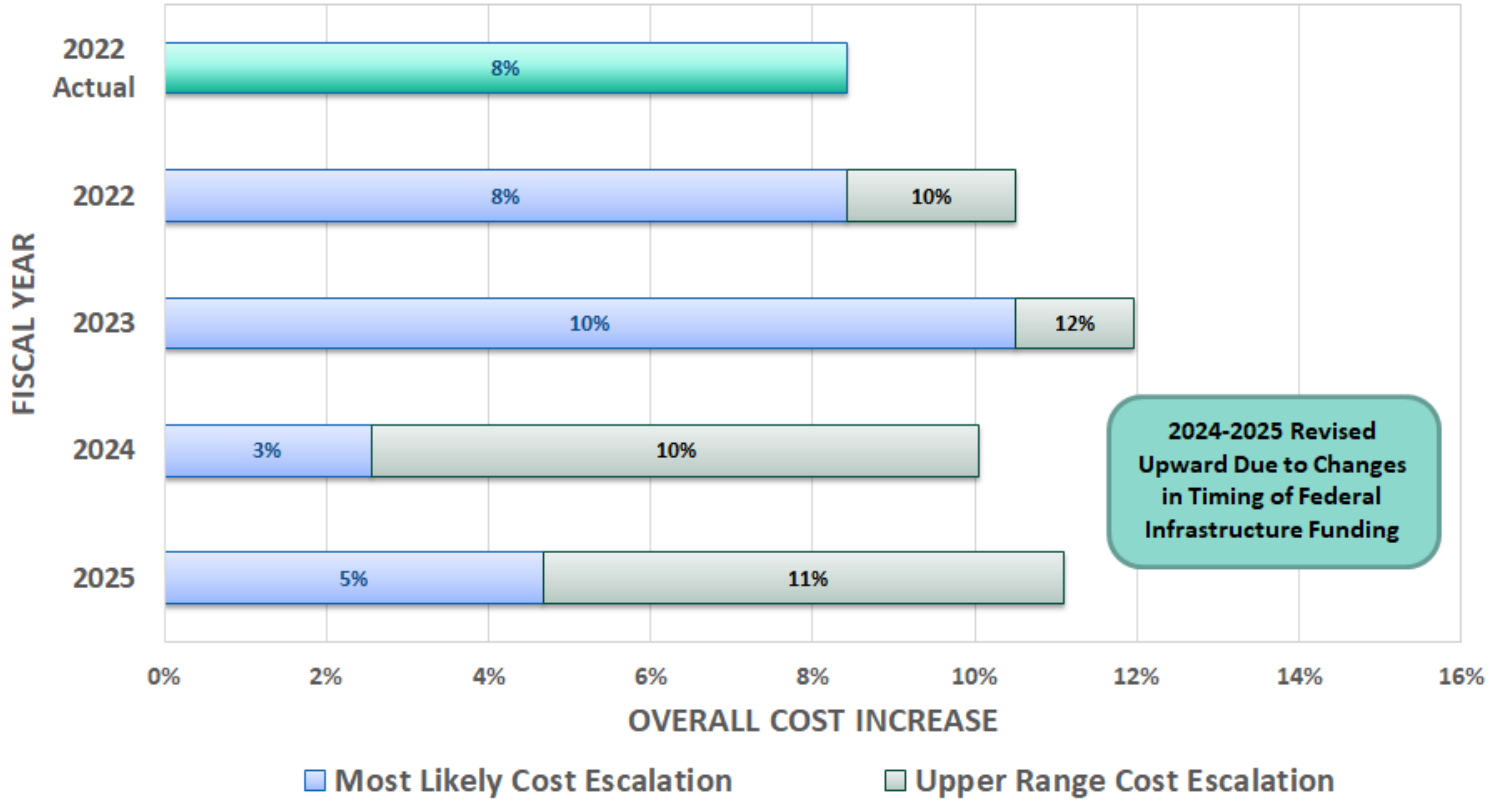
Lower Bound: medium iron ore price, low crude oil price

- Iron ore prices
- Energy prices
- Competition from other sectors/overall economy
- Infrastructure spending

FY ($/lb.)	2021*	2022*	2023	2024	2025	2026	2027
Upper Bound	$2.75	$3.23	$3.81	$3.98	$4.42	$4.70	$5.03
Best Estimate	$2.75	$3.23	$3.45	$3.77	$3.47	$4.09	$4.44
Lower Bound	$2.75	$3.23	$2.67	$2.49	$2.37	$2.39	$2.41

*Actual Data, Final Weighted Average Price

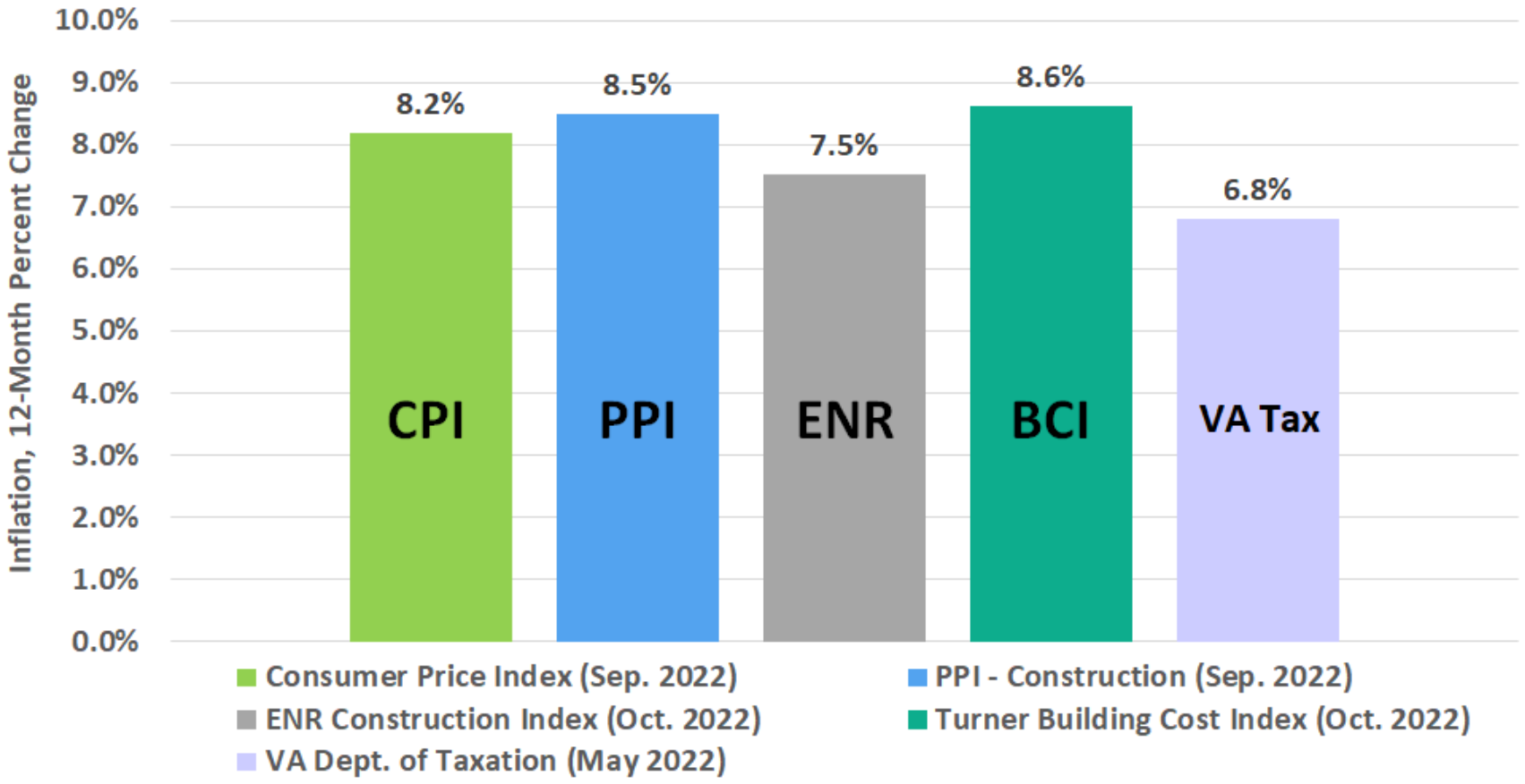
Forecasted Cost Escalation



- No one flips a switch on July 1 – costs continue to escalate through the calendar year
- Recent updates on timing of federal infrastructure funding may extend pressure on construction sector
- For planning purposes, the midpoint of 11% for 2023 is still appropriate

Inflation shown is not cumulative and based on current SYIP budgets:
- $100 M in current budget is expected to cost $110 by 2023
- $100 M in current budget is expected to cost $103 by 2024
- In current dollars; i.e. *not* considering discount rates/time value of money

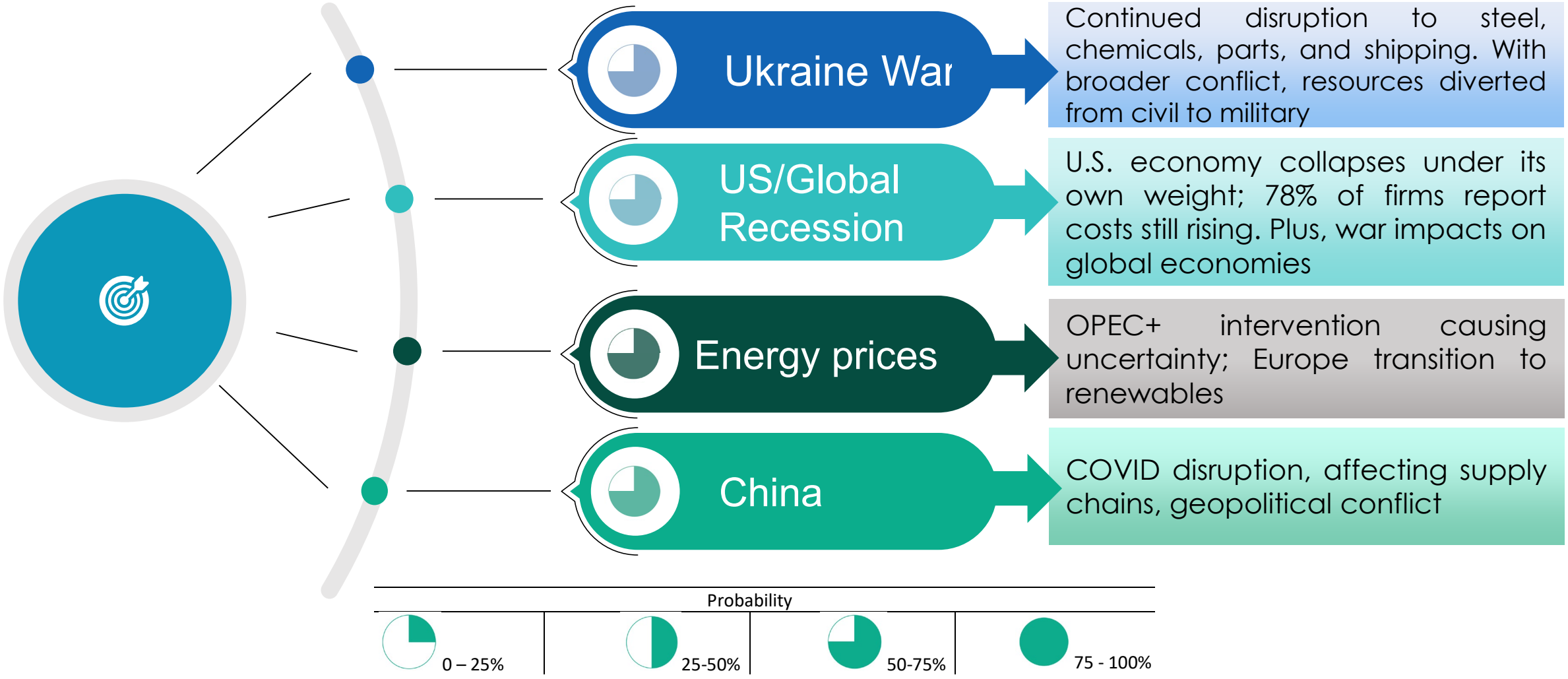
Comparison to Other Measures



Anticipate lag with construction costs:

- Consumer prices more responsive
- Construction contracts longer duration than bread purchases
- Materials disruption due to long-term issues

Things to Watch – Next 24 Months



Managing Inflation

		VDOT Using?
Cost Indexing	• TAMU* estimated 1.5% cost, potential 5-10% savings • Most states offer indices for fuel and asphalt binder • 14 states offer a steel index	√ - but not to extent of some other DOTs
Spec Waivers	• Primarily substitution - e.g. steel strand from multiple sources vs. one source - saves lead time • Parameters vary, project size, community impact, etc.	√ - providing flexibility in specs
Bundling Procurements	• 90% of DOTs saw no increased risk, 5-10% savings • *Not* grouping • Fewer procurements, not fewer projects	√ - grouping for efficiency

*Texas A&M University Transportation Institute

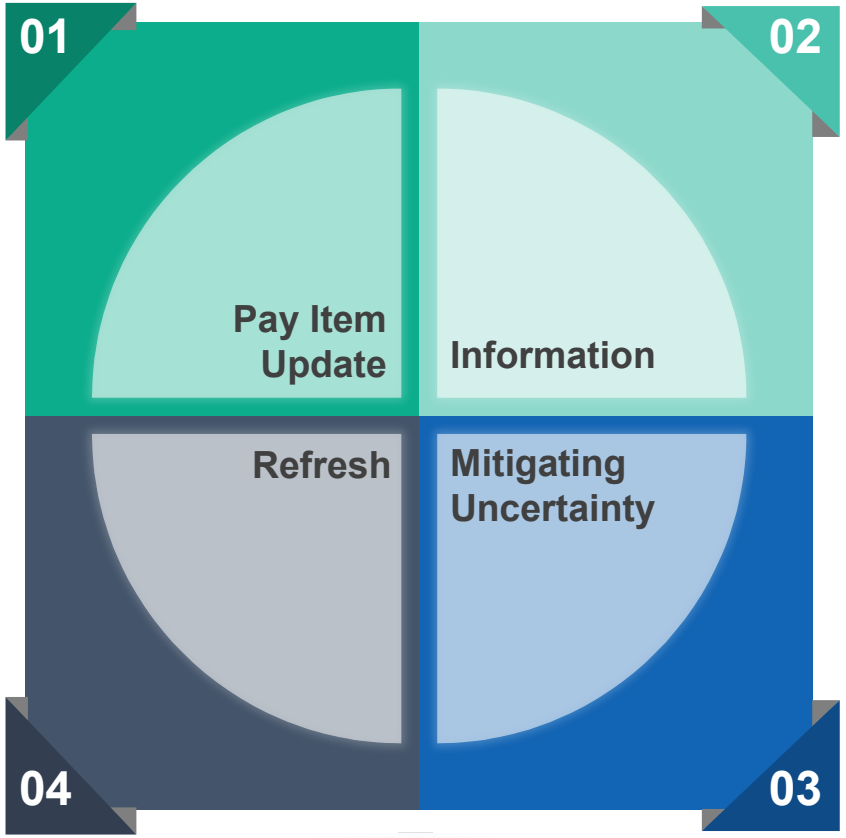
Additional Considerations

Non-standard Items

Updating pay items to reduce the large share of non-standard items will improve VDOT's ability to track cost trends.

Routine Reviews

Scheduling routine reviews of specs and procurement strategy may allow VDOT to respond more quickly to future market conditions and technology changes.



Alternative Bid Data

Consider maintaining materials quantities estimates for non-traditional procurements to increase information about results, quantities and estimates.

Uncertainty Premiums

Against continued potential cost increases, Cost Escalation or Payment Adjustment Clauses may significantly reduce uncertainty premiums from contractors and reduce bid prices.

Questions? Thank you!

COMMONWEALTH of VIRGINIA
Office of the
SECRETARY of TRANSPORTATION

Interstate 81 Corridor Improvement Program and Fund Update

Commonwealth Transportation Board Meeting
October 2022

Agenda

2019 Acts of Assembly

Performance Measures Comparison

Project Development Process

Assessment of Strategies

Annual Program Allocations and Financing Plan

Takeaway Scorecard

2019 Acts of Assembly

- Chapters 837 and 846 – CTB Report Requirements
- Report by December 15 to General Assembly
  - Performance of the I-81 corridor
  - Effectiveness of operational strategies and capital improvements
  - Status of projects
  - Current and projected I-81 Fund balance
- Annual program allocation
- Financing plan
- Schedule of projects and strategies

Performance Measures - Baseline Comparison

Safety and Performance of I-81

- Crash frequency and severity
- Person-hours of delay
- Number of incidents involving lane closures
- Average duration of incidents involving lane closures

Performance Measures - Baseline Comparison Updated

Year	VMT (millions)	Person Hours of Delay (Thousands)			Lane-Impacting Incidents			Hours of Lane Closures		
		Northbound	Southbound	Total	Northbound	Southbound	Total	Northbound	Southbound	Total
2019	15.06	2,116	1,471	3,587	1,894	1,691	3,585	2,329	1,812	4,141
2021	15.21	1,702	1,434	3,136	1,247	1,175	2,422	1,797	1,570	3,367
Percent Change	**+1.0%**	**-19.6%**	**+2.5%**	**-12.6%**	**-34.2%**	**-30.5%**	**-32.4%**	**-22.8%**	**-13.4%**	**-18.7%**

Years	Equivalent Property Damage Only Crashes		
	Northbound	Southbound	Total
2015-2019	50,094	48,907	99,001
2017-2021	51,274	48,169	99,443
Percent Change	**+2.4%**	**+1.5%**	**+0.5%**

Operational Improvement Project Status

Operational Improvement Type	Status
Curve improvements (static and flashing chevrons)	COMPLETE
Safety Service Patrol (SSP) enhancements	COMPLETE
Lift and tow on SSP vehicles	COMPLETE
Towing and Recovery Incentive Program (TRIP)	COMPLETE
Traffic camera installations	COMPLETE
Digital message sign installations	COMPLETE
Arterial Signal Improvements	ONGOING

Arterial Signal Improvement Project Status

Corridor-wide Arterial Improvements

- Parallel route upgrades
  - Minor geometric improvement projects to facilitate access to and from I-81 during incidents are **complete** (3 projects in Rockbridge County)
- Traffic signal upgrades
  - Bristol District – 1 project **complete**, 1 project advertised for construction, 1 project to be advertised in 2023.
  - Salem District – 1 project **complete**, 1 project under construction (Dec. 2023 completion), 1 project to be advertised December 2022.
  - Staunton District – 2 projects to begin construction early 2023, 2 projects to be advertised for construction November 2022.

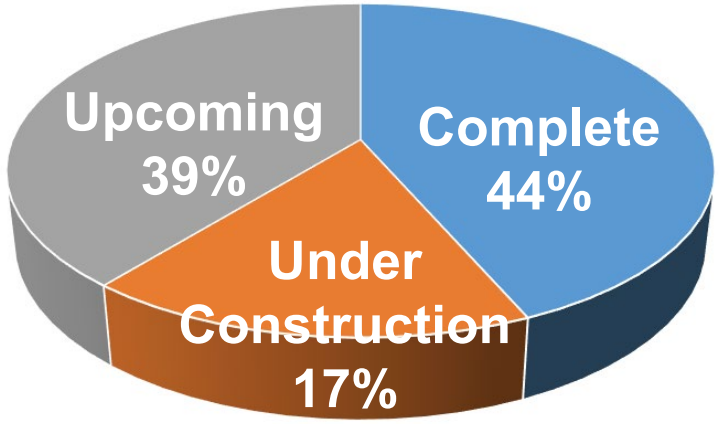
Capital Improvement Project Status

Total of 64 Projects

	PLANNING	PRELIMINARY ENGINEERING (PE) & ENVIRONMENTAL EVALUATION	DESIGN	RIGHT OF WAY & UTILITY COORDINATION	CONSTRUCTION	COMPLETE
2021 Status	13 Projects	3 Projects	19 Projects		13 Projects	16 Projects
2022 Status	**6 Projects**	**5 Projects**	**15 Projects**	**1 Project**	**8 Projects**	**29 Projects**

Capital Improvement Project Status - Bristol District

- **9** upcoming projects
  - $220M
- **4** projects under construction
  - $33M
- **10** projects - construction complete
  - $47.5M



Exit 47
Smyth County

Northbound acceleration lane and ramp extension

Capital Improvement Project Status - Bristol District

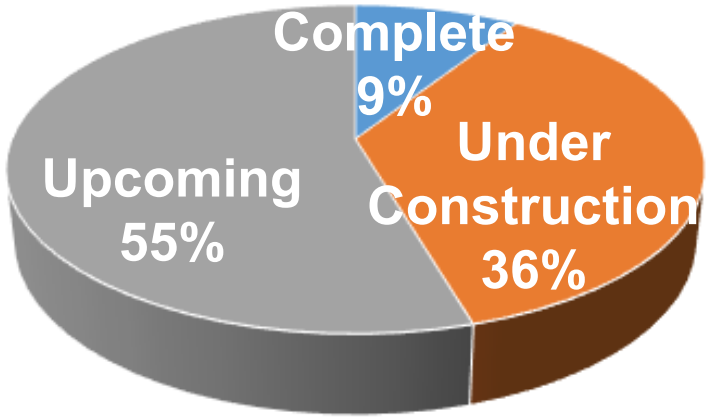
- **Completed Projects:**
  - Exit 19 NB Decel Lane Extension (Abingdon)
  - Exit 26 SB Accel & Decel Lane Extension (Emory)
  - Exit 39 SB Accel & Decel, NB Decel Lane Extension (Seven Mile Ford)
  - Exit 44 SB Accel Lane Extension (Marion)
  - Exit 47 NB Accel Lane Extension (Marion)
  - Exit 67 Decel Lane Extension (South of Wytheville)
  - Exit 84 SB Decel Lane Extension (North of Fort Chiswell)
- **Projects Under Construction:**
  - Exit 17 SB Acceleration Lane Extension (Abingdon)
  - Exit 39 to MM 40.6 NB Truck Climbing Lane (Seven Mile Ford)
  - Exit 47 SB Accel; Exit 54 SB Auxiliary Lane (South of Rural Retreat)

Capital Improvement Project Status - Bristol District

- **Upcoming Projects:**
  - **MM 9.7 to MM 8.1 SB widening to three lanes (Bristol)**
  - **Exit 32 to MM 33.5 NB Truck Climbing Lane (Glade Spring) – Advertise Summer 2023**
  - **MM 34 to MM 33 SB Truck Climbing Lane (Glade Spring) – Advertise Summer 2023**
  - **Exit 45 NB Decel Lane Extension (Marion)**
  - **Exit 72 NB Decel Extension and I-77 Exit 41 to I-81 SB Exit 72 Auxiliary Lane – Design-Build with Request For Qualifications advertisement Spring 2023. (Wytheville)**
  - **I-81 Exit 73 to I-77 Exit 41 SB Decel Lane Extension and Ramp Reconstruction (Wytheville)**
  - **Exit 73 to Exit 72 SB Auxiliary Lane (Wytheville)**
  - **Exit 81 SB Decel Lane Extension (Fort Chiswell)**

Capital Improvement Project Status - Salem District

- **6** upcoming projects - $796M
- **4** projects under construction
  - $300M
- **1** projects - construction complete
  - $4.8M



Exit 137-141
Salem and
Roanoke County

Northbound and southbound widening

Capital Improvement Project Status - Salem District

- **Completed Projects:**
  - Exit 89 NB Acceleration Lane Extension (Pulaski)
  - Troutville Rest Area SB Entrance and Exit Extension (2 projects) - Troutville
- **Projects Under Construction:**
  - Exit 137 to Exit 141 Widening NB and SB (Design Build, 2 projects bundled) - Salem
- **Upcoming Projects:**
  - MM 116 to Exit 128 Widening NB Only – Construction 2027 (Christiansburg to Ironto)
  - Exit 128 to Exit 137 Widening NB Only – Construction 2027 (Ironto to Salem)
  - Exit 143 to Exit 150 Widening NB & SB – Construction 2025 (Roanoke to Troutville)

Capital Improvement Project Status - Salem District

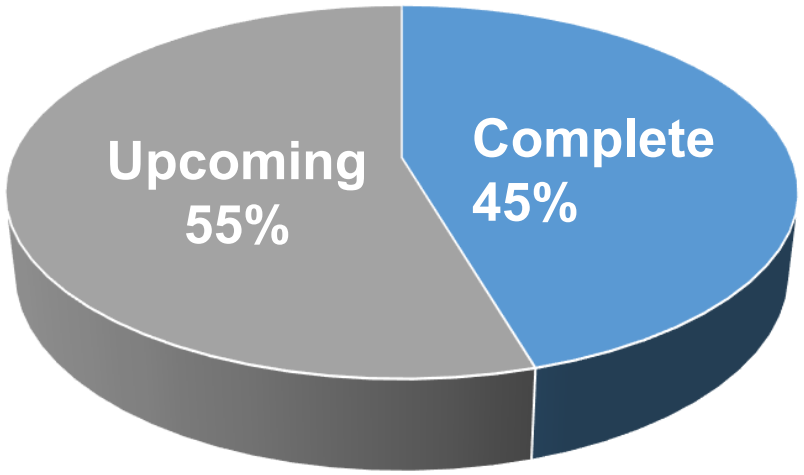
- **Upcoming Projects Continued:**
  - **Exit 162 NB Accel Lane Extension – Construction 2025 (Buchanan)**
  - **Exit 105 NB Accel Lane Extension – Construction 2026 (Radford)**
  - **Exit 94 SB Accel Lane Extension – Construction 2025 (Pulaski)**

Capital Improvement Project Status - Staunton District

- **12** upcoming projects
  - $963M
- **0** project under construction
- **10** projects - construction complete
  - $19.8M

Exit 205
Rockbridge County

Acceleration lane extension, off-ramp widening, and turn lane construction



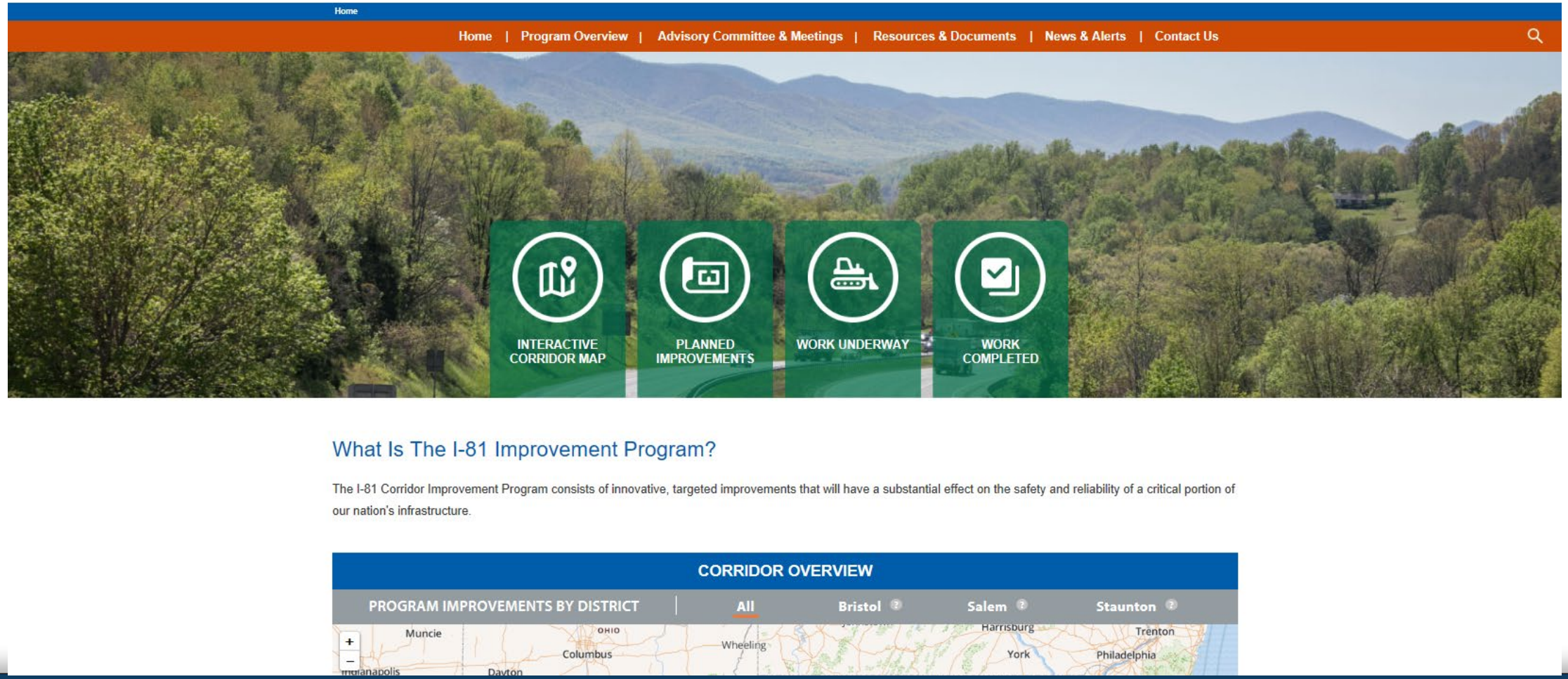
Capital Improvement Project Status - Staunton District

- **Completed Projects:**
  - Exit 302 NB Accel, Exit 302 SB Decel, Exit 283 SB Accel,
  - Exit 269 NB Decel, Exit 279 SB Accel
  - Exit 291 NB Accel, Exit 296 SB Accel, Exit 304 NB Accel
  - Exit 205 SB Accel, Exit 205 NB Accel (Raphine)
- **Projects Under Construction: None**
- **Upcoming Projects:**
  - Exit 221 to Exit 220 SB Auxiliary Lane – Construction Fall/Winter 2023 (South of Staunton)
  - Exit 221 to Exit 225 NB and SB Widening – Construction Summer 2023 (Staunton)
  - Weyers Cave NB and SB Truck Climbing Lanes – Construction Spring 2025
  - Exit 242 to Exit 248 NB and SB Widening – Construction Summer 2025 (Harrisonburg)
  - Exit 299 to Exit 296 SB Widening – Construction Fall/Winter 2024 (Strasburg)

Capital Improvement Project Status - Staunton District

- **Upcoming Projects Continued:**
  - **Exit 313 to Exit 317 NB and SB Widening – Construction 2027 (Winchester)**
  - **Mt. Sidney Rest Area SB Decel Lane Extension – Construction 2026**
  - **Mt. Sidney Rest Area SB Accel Lane Extension – Construction 2026**
  - **Mt. Sidney Rest Area NB Accel Lane Extension – Construction 2026**
  - **Rockbridge County Shoulder Improvements – Construction 2026**
  - **Exit 188 NB Accel Extension – Construction 2025**

Program Website
Improve81.org



Fiscal Year 2023-2028 Performance (in millions)

Interstate I-81 Improvement Funding

Fund	Previous	FY23	FY24	FY25	FY26	FY27	FY28	Total
I-81 Regional Fuels Tax*	$ 217.3	$ 78.8	$ 80.0	$ 80.7	$ 81.4	$ 83.2	$ 85.2	**$ 706.6**
I-81 Bond Proceeds	$ 101.9	$ 0.0	$ 0.0	$ 0.0	$ 0.0	$ 14.8	$ 0.0	**$ 116.7**
I-81 TIFIA Proceeds	$ 97.9	$ 0.0	$ 258.2	$ 0.0	$ 0.0	$ 379.8	$ 0.0	**$ 735.9**
I-81 Allocation from IOEP	$ 162.0	$ 95.9	$ 101.3	$ 110.1	$ 109.2	$ 107.6	$ 107.8	**$ 793.9**
Total	**$ 579.1**	**$ 174.7**	**$ 439.5**	**$ 190.8**	**$ 190.6**	**$ 585.4**	**$ 193.0**	**$ 2,353.1**

Fund balance as of July 31, 2022 $290.4 million

*Fuel Tax Revenue includes funds available for debt service

I-81 Multimodal Improvement Plan: Virginia Breeze

Virginia Breeze: System Overview

VALLEY FLYER

Blacksburg — Washington, D.C.

CAPITAL CONNECTOR

Martinsville — Richmond — Washington, D.C.

PIEDMONT EXPRESS

Danville — Washington, D.C.

HIGHLANDS RHYTHM

Bristol — Washington, D.C.

- **State-sponsored intercity bus service that runs 7 days a week, 365 days per year**
- **Four (4) Virginia Breeze routes, each providing connections to rural communities**
  - ***Two (2) routes - Valley Flyer and Highlands Rhythm - service I-81***
- **Ticket prices range from $21 to $60**

I-81 Virginia Breeze Service

September 2013

- *Virginia Statewide Intercity Bus Study* identifies high-level needs for service

December 2017

- The first Virginia Breeze route is put into service, connecting Blacksburg to Washington D.C. via I-81

March 2020

- *Virginia Breeze I-81 Service Expansion Study* identifies unmet needs and service alternatives for connecting Bristol to Washington D.C. via I-81

November 2021

- The 4th Virginia Breeze route – the Highlands Rhythm – is put into service

Virginia Breeze: Highlands Rhythm

Northbound	Southbound
Departure: 11:00 AM (Bristol)	Departure: 12:50 PM (Washington D.C.)
Arrival: 6:55 PM (Washington D.C.)	Arrival: 8:30 PM (Bristol)

Top Performing Stops

1) Harrisonburg
2) Dulles Airport
3) Washington D.C.
4) West Falls Church
5) Radford

Virginia Breeze: Valley Flyer

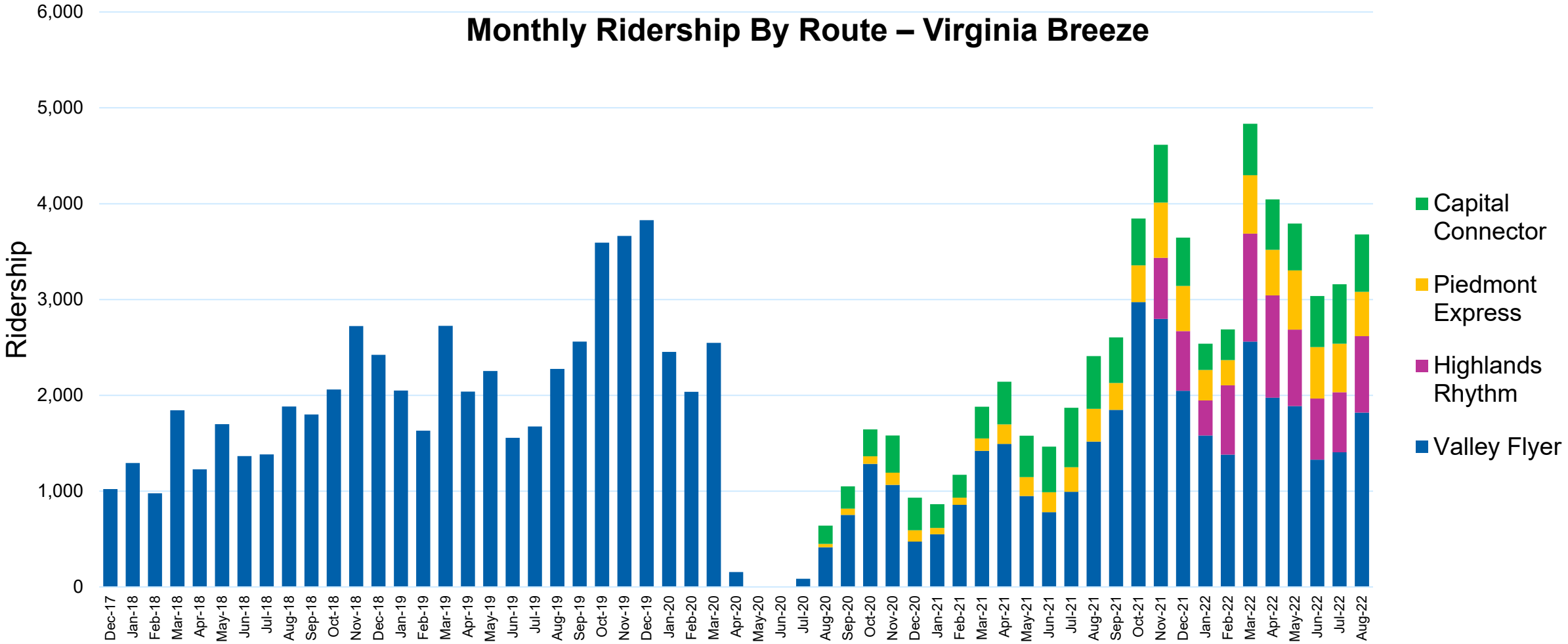
Northbound	Southbound
Departure: 8:00 AM (Blacksburg)	Departure: 9:35 AM (Washington D.C.)
Arrival: 2:05 PM (Washington D.C.)	Arrival: 3:40 PM (Blacksburg)

Top Performing Stops

1) Blacksburg
2) Dulles Airport
3) Harrisonburg
4) Washington D.C.
5) West Falls Church

VIRGINIA BREEZE BUS LINES

Virginia Breeze Performance



Virginia Breeze Performance

- FY22 on-time performance (calculated by stop): 85%
- FY22 farebox recovery rate (% of costs covered by fares): 52%
- More than 110,000 rides provided on these routes since December 2017
- Pre-booked tickets allow DRPT to accommodate increased ridership demand
  - December 1, 2019: Added 12 additional Valley Flyer buses to address demand

I-81 Multimodal Funding: Transit

I-81 Multimodal Financial Plan (Transit)		
Description	**Capital***	**O&M (Annual)**
Virginia Breeze Service Extension to Bristol**	-	$243,000
Virginia Breeze Extension Stops	$60,000	-
Improvements to Existing Stops	$40,000	-

Notes

*** Pending review of ridership levels**

****Includes 15% contingency, 3-years of operating funds per CTB IOEP policy (does not include farebox revenue or federal revenue)**

FY22 Operating Revenues

FY22 Operating Revenues (I-81 VA Breeze Service)		
Source	**Amount**	**Percent (%)**
I-81 Multimodal Transit Funding (IOEP) Bristol Ext	$243,000	10%
FTA Funding (5311(f) and CARES)*	$920,672	38%
Farebox Revenues	$1,275,209	52%
Total Operating Cost	**$2,438,881**	**100%**

Notes

*** FTA CARES funds are one-time stimulus funds. Once these funds are expended, FTA 5311(f) funding will be utilized.**

COMMONWEALTH of VIRGINIA
Office of the
SECRETARY of TRANSPORTATION

SMART SCALE Update

Brooke Jackson, P.E. – SMART SCALE Program Manager
Office of Intermodal Planning and Investment
October 2022

SMART SCALE Background

- Chapter 726 of the 2014 Virginia Acts of Assembly required a prioritization process for projects funded by the Commonwealth Transportation Board be developed and implemented

- Purpose was to improve the efficiency and effectiveness of the
  - state's transportation system,
  - transportation safety,
  - transportation accessibility for people and freight,
  - environmental quality, and
  - economic development in the Commonwealth

SMART SCALE Background

- SMART SCALE is the decision support tool that was developed to provide the required prioritization process
- Projects submitted for consideration are screened and scored to determine the value of the investment sought from the CTB
- The CTB considers the computed scores in determining which projects to fund

SMART SCALE Background

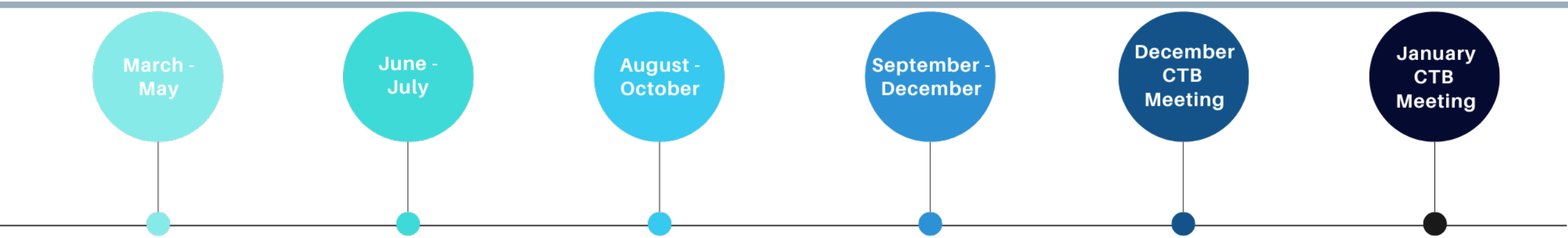
APPLICANTS
MPOs/PDCs, Transit Agencies, Cities, Towns, Counties, and CTB (up to two per CTB Policy)
Applicants can bring $0 or leverage any amount (impacts SMART SCALE score)

MULTI-MODAL PROJECTS
Highway, Bike & Ped, Transit, Rail, TDM (examples Park and Ride and Vanpooling) are scored together
Capital Improvement Program – Not a Maintenance Program

FULLY FUND PROJECTS
Two-Year Cycle, first funds are available in the fifth year of SYIP

APPLICANT SUPPORT
OIPI, VDOT, and DRPT support the applicants through the process
Planning programs like Project Pipeline and STARS target need and readiness

Fiscal Year 2024 Program Cycle Timeline



Pre-Application

Pre-screening to verify VTrans and Eligibility.

486
Pre-Applications Submitted

Full Application

Applicant finalizes scope, studies, and estimates.

480
Pre-Applications Conditionally Screened-In

Final Screening

State validates VTrans, Eligibility, and Readiness.

411
Full Applications Submitted

Benefit Scoring

State calculates measures for each of the six factor areas.

TBD
Applications Screened-In

Selection of CTB Application(s)

Not later than December, up to two CTB projects can be submitted for scoring.

TBD
Applications Scored

Staff Recommended Funding Scenario

CTB begins consideration of projects for SYIP inclusion.

TBD
Projects Recommended for Funding

Screening Decisions

- Application Withdrawn
- Does Not Meet VTrans Need
- Project Readiness – Insufficient project development
- Project Eligibility – Examples below are not eligible
  - Stand-alone study
  - "In-kind" repair or replacement
  - Not contiguous, proximate, or of the same improvement type
  - Fully funded projects
  - An entity must wait for two rounds following construction before submitting a new project application meeting the same VTrans Need as the previously funded project

Pre-Application Screening and Validation

District	Number of Pre-Applications	Vtrans Need Not Met
Bristol	23	
Culpeper	41	
Fredericksburg	55	
Hampton Roads	71	1
Lynchburg	32	
Northern Virginia	46	1
Richmond	104	2
Salem	58	2
Staunton	56	
Grand Total	486	6

Fiscal Year 2024 Cycle

Out of the 480 Pre-Applications pre-screened in, 411 Applications Submitted

- **$7.67 billion in funding was requested**
- **$1.72 billion in other funding leveraged**
- **$18.6 million average request**
- **Does not include up to two potential CTB applications**

*Data as of August 2, 2022
**Does Not Include Potential (up to two) CTB Applications

Summary of Full Applications

District	Number of Applications	Request (Millions)*	Total Cost (Millions)*
Bristol	22	$515	$515
Culpeper	38	$495	$495
Fredericksburg	46	$485	$580
Hampton Roads	59	$1,020	$1,460
Lynchburg	30	$470	$470
Northern Virginia	38	$1,820	$2,620
Richmond	88	$1,780	$2,100
Salem	48	$745	$770
Staunton	42	$335	$375
Grand Total	411	$7,665	$9,385

*Data as of August 2, 2022 – Rounded to nearest $5M
**Does Not Include Potential (up to two) CTB Applications

Summary of Principal Improvement Type

Principal Improvement Type	Number of Applications	Request (Millions)*	Total Cost (Millions)*
Highway	300	$6,525	$7,760
Bike/Pedestrian	106	$1,075	$1,185
Rail Transit	1	$40	$400
Bus Transit	4	$25	$40
Rail Freight	0	$0	$0
Grand Total	411	$7,665	$9,385

*Data as of August 2, 2022 – Rounded to nearest $5M
**Does Not Include Potential (up to two) CTB Applications

SMART SCALE Summary

PROJECT APPLICATIONS	FY 2017 ROUND 1	FY 2018 ROUND 2	FY 2020 ROUND 3	FY 2022 ROUND 4	FY 2024 ROUND 5 (AUGUST 2022)
Submitted	321	436	468	406	411
Scored	287	404	433	397	TBD
Funded	162	147	134	167	TBD
Total Funding Requested	$7.2 B	$9.7B	$7B	$6.3B	$7.7B
Total Funding Allocated	$1.42B	$1.03B	$0.86B	$1.39B	TBD
Value of Projects Supported	$2.65B	$2.35B	$5.08B	$1.92B	TBD

Next Steps

- Now through January – Complete scoring
- November – Complete screening of applications and notify applicants on screened-out projects
- December CTB Meeting
  - Screened-out decisions
  - Action on up to two CTB projects to evaluate, if applicable
- January CTB Meeting – Provide Project Scorecards and Staff Recommended Funding Scenario released

COMMONWEALTH *of* VIRGINIA

Office of the

SECRETARY *of* TRANSPORTATION

Thank you.

DMV Now
Virginia Department of Motor Vehicles

Virginia Department of Aviation

DRPT
Virginia Department of Rail and Public Transportation

Office of INTERMODAL Planning and Investment

MVDB
Motor Vehicle Dealer Board
COMMONWEALTH OF VIRGINIA

THE PORT OF VIRGINIA®

VDOT
Virginia Department of Transportation

VIRGINIA SPACE


VDOT
Virginia Department of Transportation

MAINTENANCE AND OPERATIONS COMPREHENSIVE REVIEW BRIEFING

Kevin Gregg, Chief of Maintenance and Operations

October 25, 2022

Maintenance and Operations Comprehensive Review Update

- Pavements
- Structures
- Routine Maintenance
- Special Structures

Pavements

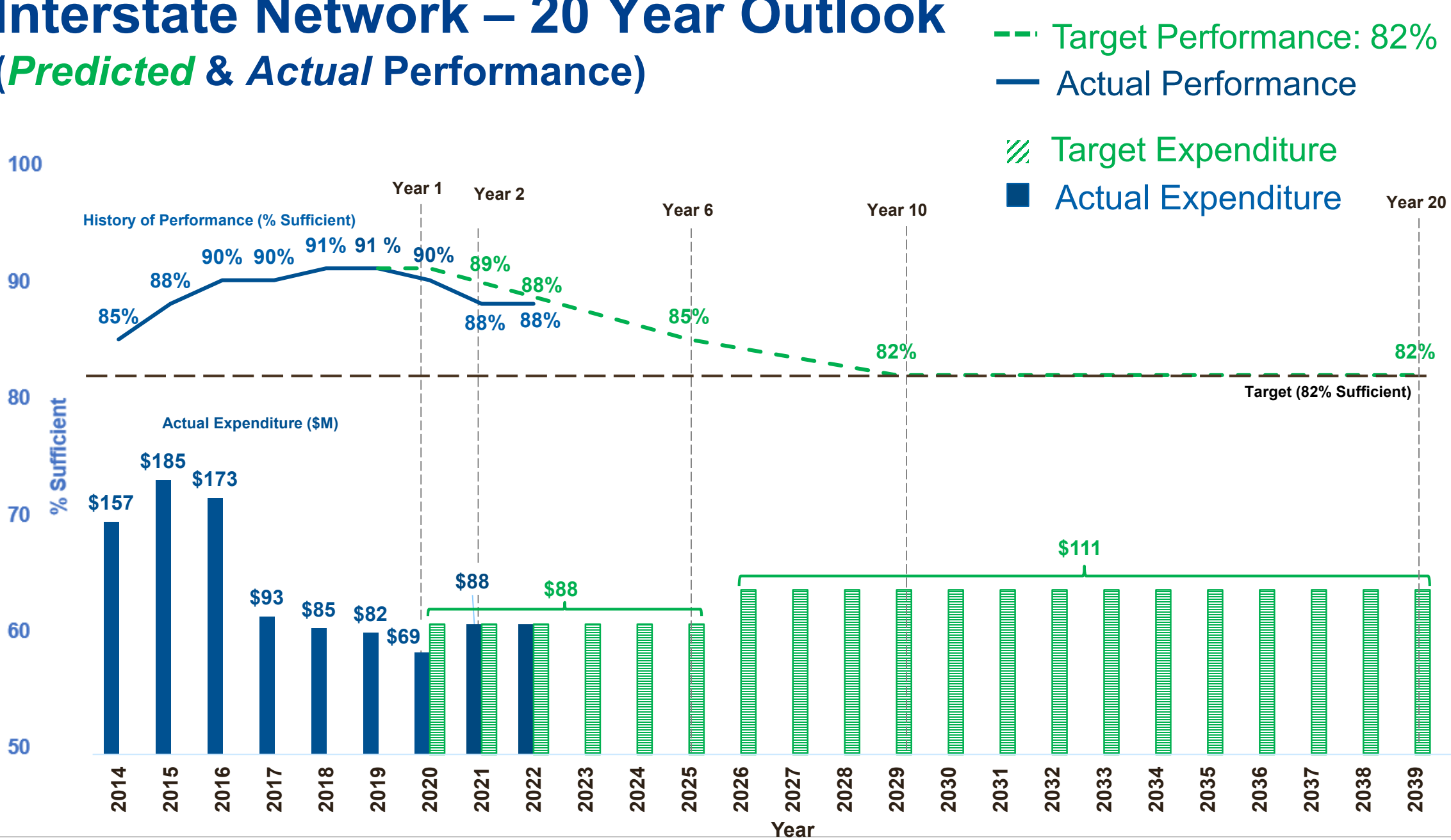
Pavements - Performance Measures

Performance Measure	Current Policy (CTB Approved December 2019) % Sufficiency
Interstate	82% No Section Critical Condition Index less than 35
Primary	82% for ≥ AADT* 3,500 75% for < AADT 3,500
Secondary	82% for ≥ AADT 3,500 60% for < AADT 3,500

*Annual Average Daily Traffic - AADT

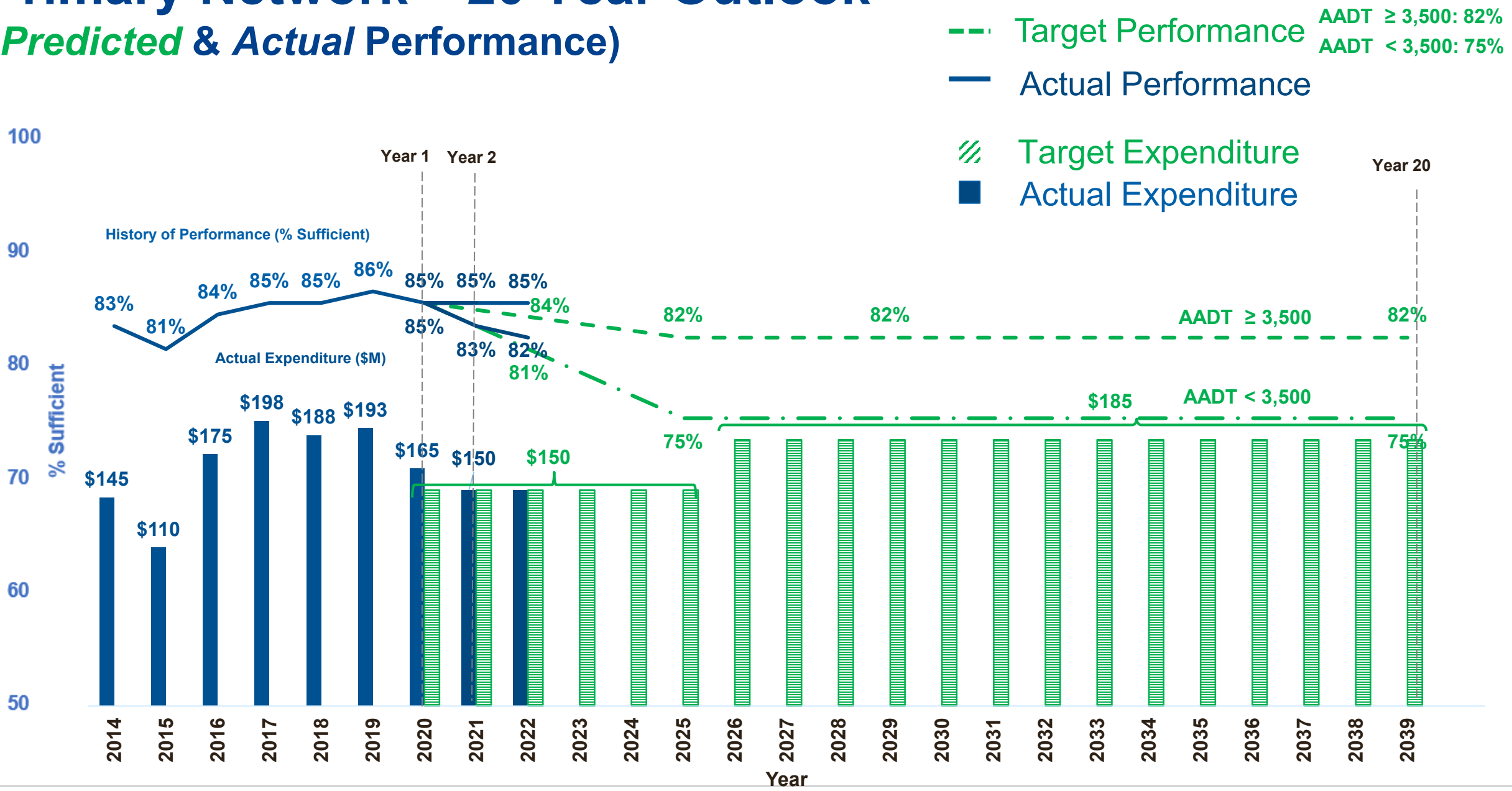
Interstate Network – 20 Year Outlook

(*Predicted* & *Actual* Performance)

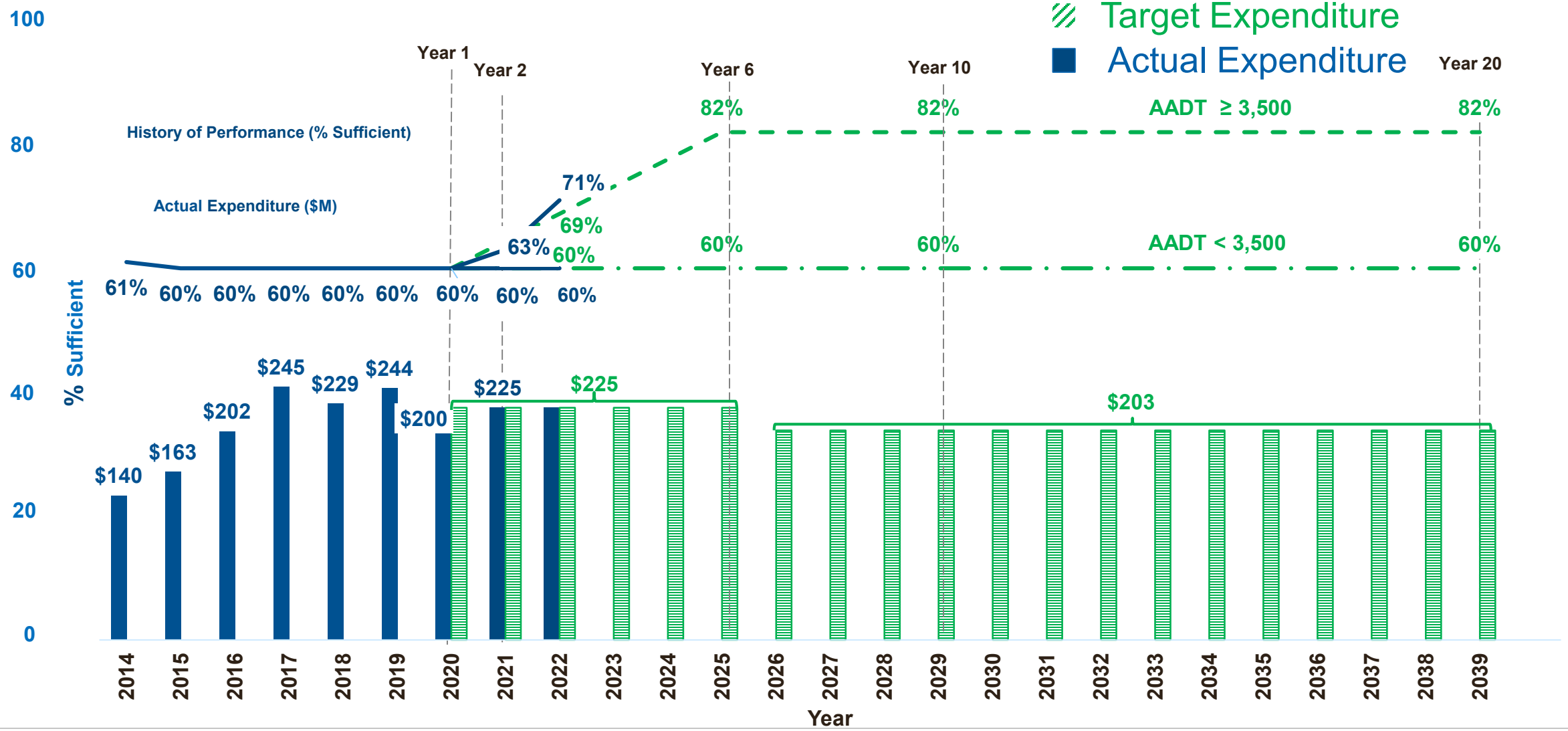


Primary Network – 20 Year Outlook

(*Predicted* & *Actual* Performance)



Secondary Network – 20 Year Outlook
(*Predicted* & *Actual* Performance)



Pavements – Annual Contract Values

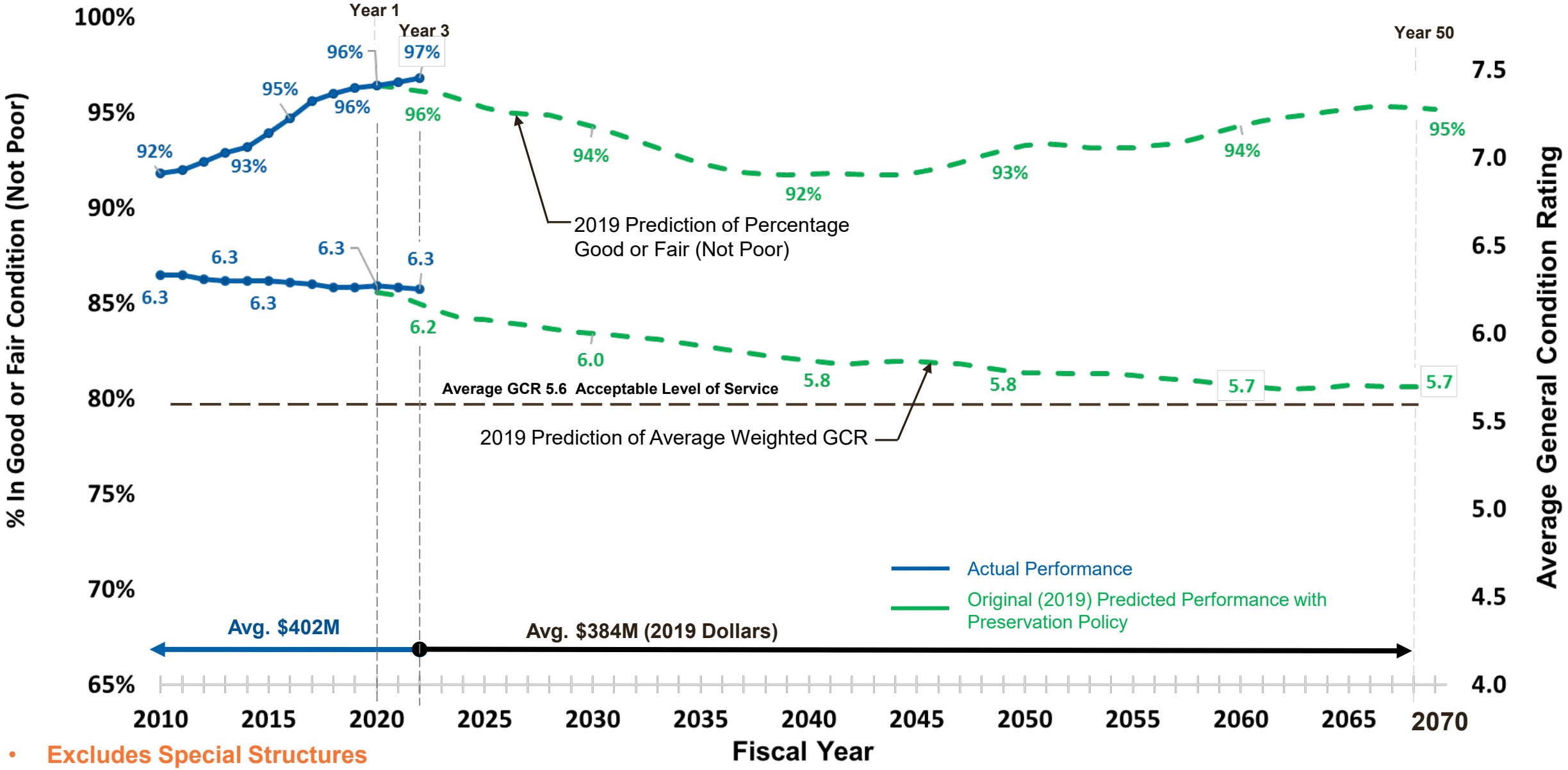
Year	Amounts ($ in Millions)
2020	$435
2021	$463
2022	Base contract value - $463 Tracking fuel and asphalt adjustments
2023	Estimated contract value - $537

Structures

Structures - Performance Measures

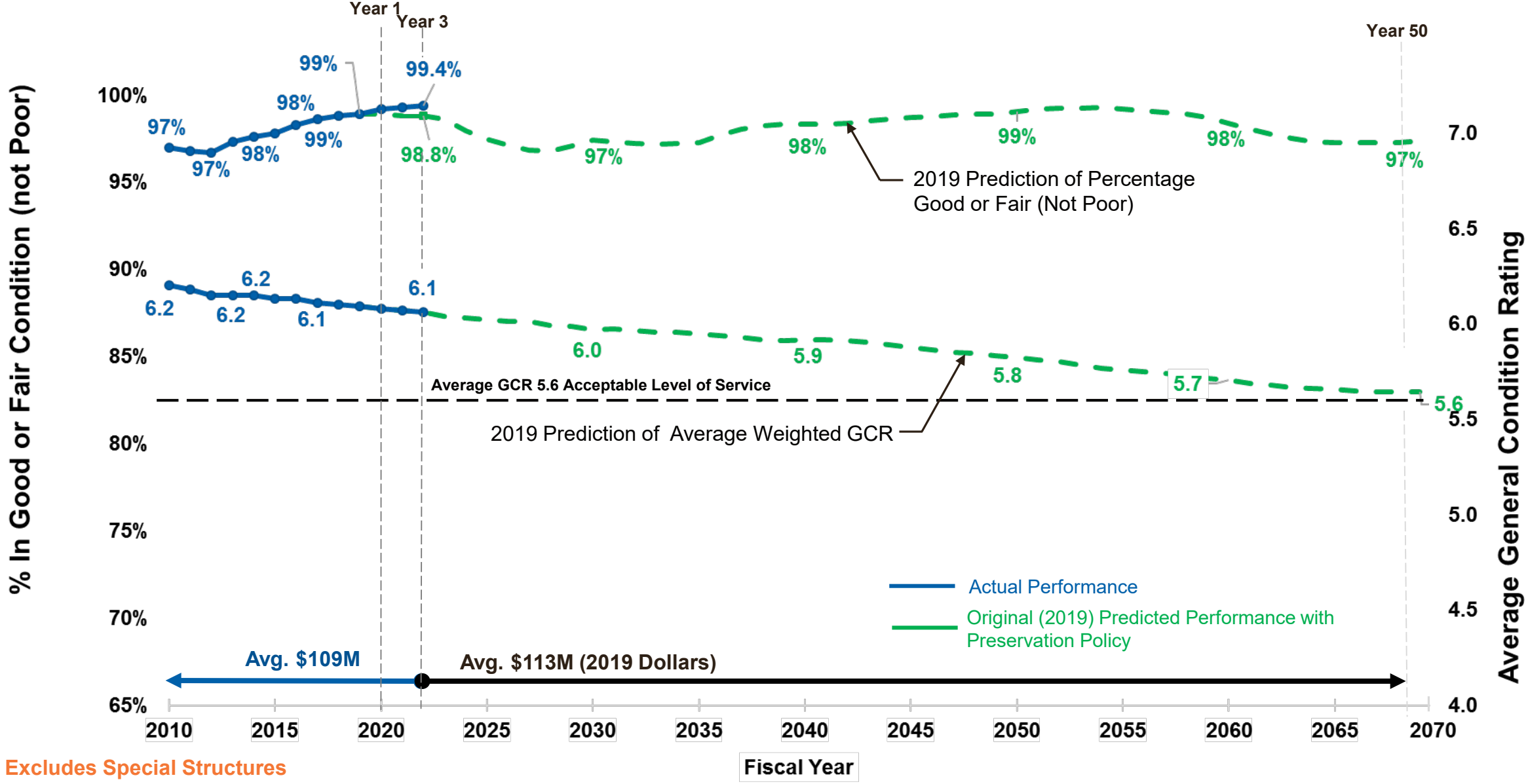
Performance Measure Description	Current Policy Preservation (CTB Approved December 2019)	
	Average General Condition Rating (GCR)	% Not Poor (SD)
All Systems	≥ 5.6	N/A
Interstate		97% No Postings
Primary		93%
Secondary		90%

All Networks Combined – 50 Year Outlook



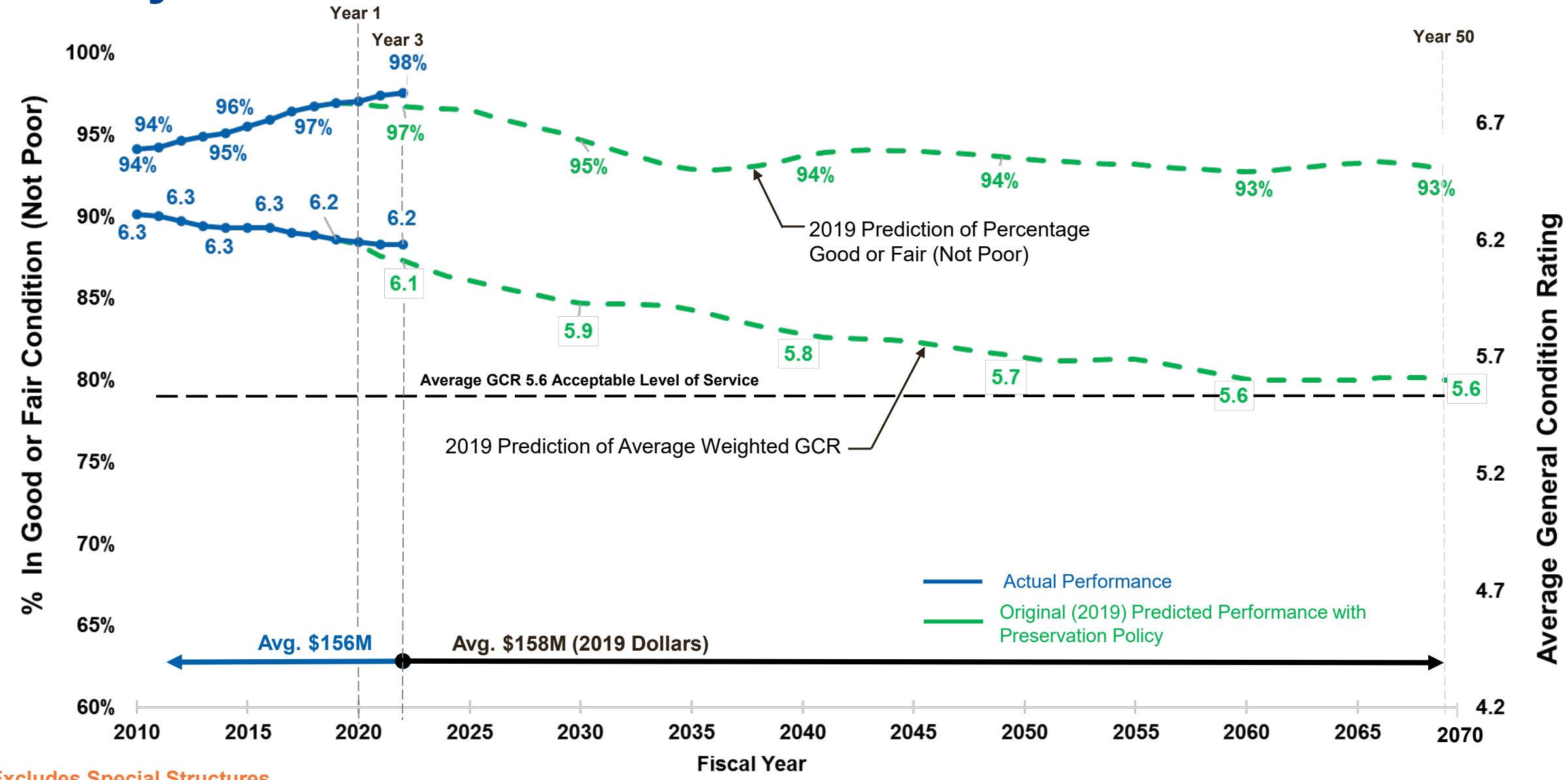
- **Excludes Special Structures**

Interstate Network – 50 Year Outlook



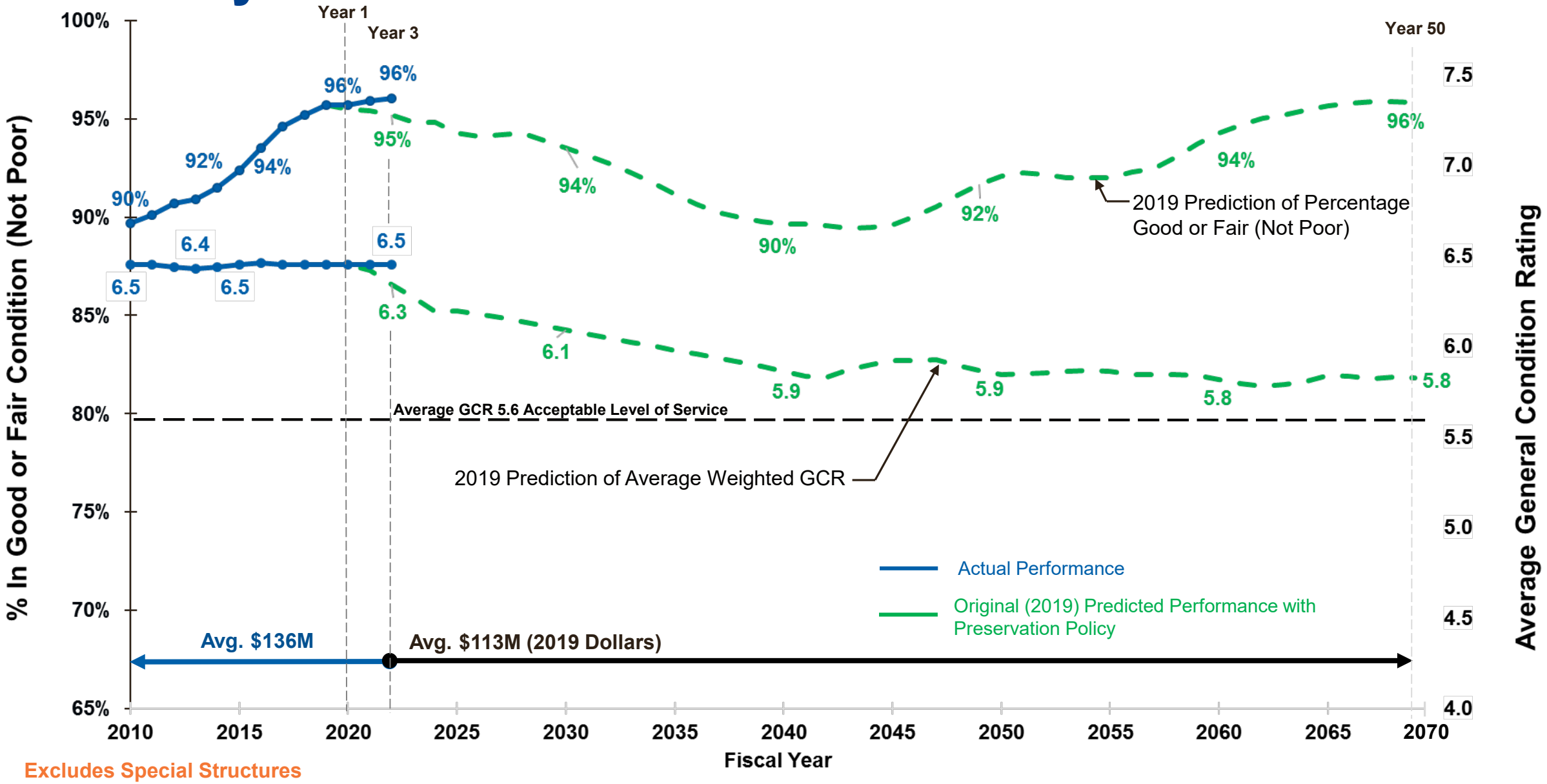
- **Excludes Special Structures**

Primary Network – 50 Year Outlook



- **Excludes Special Structures**

Secondary Network – 50 Year Outlook



- Excludes Special Structures

Routine Maintenance

Routine Maintenance – Performance Metrics

Asset	Best Practice Frequency	2019 Target			FY 2021 Frequency Avg. / yr	FY 2022 Frequency Avg. / yr	Trend
		Frequency	Quantity				
Turf (Mowing)	3 times / yr	IS: 3 times / yr PR: 3 times / yr SC: 2 times/ yr	340,600	acres	IS: 2 times / yr PR: 3 times / yr SC: 2 times/ yr	IS: 2 times / yr PR: 3 times / yr SC: 2 times/ yr	→
Trees	10% of inventory	6% of inventory	8,200	shoulder miles	12%	14%	↑
Pipes	20% of inventory	10% of inventory	33,900	each	5%	7%	↑
SWM Facilities	2 times / yr	2 times / yr	4,400	each	3 times / yr	3 times / yr	→
Ditches	20% of inventory	5% of inventory	4,400	ditch miles	2%	3%	↑
Unpaved Roads	4 times / yr	4 times / yr	25,500	center line miles	7 times / year	6 times / year	↓
Unpaved Shoulders	20% of inventory	20% of inventory	14,800	shoulder miles	40%	14%	↓
Signs	7% of inventory	5% of inventory	47,300	each	4%	4%	→
Signals	20% of inventory	20% of inventory	630	each	13%	33%	↑
Pavement Marking	Material dependent	70% of inventory	50,800	miles	70%	60%	↓

Special Structures

Special Structures – Health Index

- **Unique Health Index Developed for Each Category**
  - **Tunnels (introduced in 2021)**
  - **Movable Bridges (introduced in 2021)**
  - **Complex Structures (being introduced today)**
- **Current Briefing**
  - **1 Year progress on movable bridge health index**
  - **1 Year progress on tunnel health index**
  - **Introduction to complex structures health index**
    - Current status
    - 10 year projection

Movable Bridge Health Index Changes 2021 - 2022

Health Index for Movable Bridges (2021)					
Bridge	Electrical	House	Mechanical	Structural	Overall HI/Bridge
Benjamin Harrison					
Berkley Eastbound (EBL)					
Berkley Westbound (WBL)					
Chincoteague					
Coleman					
Eltham					
Gwynn's Island					
High Rise					
James River					

2021: Percentage & Number of Systems in Each Condition Category	
Good	19% (7)
Fair	47% (17)
Poor	31% (11)
Severe	3% (1)

Health Index for Movable Bridges (2022)					
Bridge	Electrical	House	Mechanical	Structural	Overall HI/Bridge
Benjamin Harrison					
Berkley Eastbound (EBL)	↑				
Berkley Westbound (WBL)					
Chincoteague					
Coleman					
Eltham					
Gwynn's Island					
High Rise					
James River					

2022: Percentage & Number of Systems in Each Condition Category	
Good	19% (7)
Fair	50% (18)
Poor	28% (10)
Severe	3% (1)

Improvement
Poor to Fair (1)
- **Electrical: Berkley EBL** ↑

Notable Elements of 10 Year Plan
- Work is underway on:
  - Gwynn's Island
  - Eltham
  - Berkley EBL and Berkley WBL
  - Benjamin Harrison
  - James River Bridge
  - Coleman

Health index values expected to improve as work is completed

Tunnels Health Index Changes 2021 - 2022

Summary of Health Index for Each System on Each Tunnel (2021)						
Tunnel	**Civil**	**Electrical**	**Fire/Life Safety/Security**	**Mechanical**	**Structural**	**Overall per Tunnel**
Big Walker						
East River						
Hampton Roads Eastbound						
Hampton Roads Westbound						
Monitor Merrimac						
Rosslyn						

2021: Percentage & Number of Systems in Each Condition Category	
Good	37% (11)
Fair	50% (15)
Poor	13% (4)
Severe	0% (0)

Summary of Health Index for Each System on Each Tunnel (2022)						
Tunnel	**Civil**	**Electrical**	**Fire/Life Safety/Security**	**Mechanical**	**Structural**	**Overall per Tunnel**
Big Walker			↓			
East River		↑	↑			
Hampton Roads Eastbound	↓					
Hampton Roads Westbound	↓					
Monitor Merrimac	↓					
Rosslyn					↑	

Current (2022) Percentage & Number of Systems in Each Condition Category	
Good	27% (8)
Fair	63% (19)
Poor	10% (3)
Severe	0% (0)

Improvements

Poor to Fair (2)
- **East River Mountain Tunnel**
  - Electrical
  - Fire/Life Safety: Fan repair and replacement

Fair to Good (1)
- **Rosslyn**
  - Structural: Repair of girders & ceiling panels

Deterioration

Good to Fair (3)
- **Hampton Roads EB, WB, Monitor-Merrimac**
  - Civil: Rails, barriers and sign deterioration

Fair to Poor (1)
- **Big Walker Mountain Tunnel**
  - Fire/Life Safety: Ventilation system deterioration

Notable Elements of 10 Year Plan
- Work is underway on:
  - Big Walker
  - East River (On Virginia side only)
  - Rosslyn

Health index values expected to improve as work is completed

Special Structures - Complex Bridges Health Index

Varina-Enon Complex Bridge Example - 3 Components

Components

Elements

Deck

- Precast Concrete Deck
- Precast Concrete Top Flange
- Joint Assembly w/o Seal
- Bridge Railing
- Wearing Surface
- Concrete Reinforcement Protection
- Deck Drains
- Joint Effectiveness
- Reinforced Concrete Approach Slab

Superstructure

- Precast Closed Box Girder
- Steel Main Cables
- Elastomeric Bearing
- Fixed Bearing
- Disc Bearing
- Steel Protective Coating
- Concrete Protective Coating
- Beam/Girder Ends

Substructure

- Precast Concrete Column
- Reinforced Concrete Abutment
- Reinforced Concrete Pile Cap/Footing
- Precast Concrete Pier cap
- Reinforced Concrete Wing wall
- Protected Slope – Riprap
- Channel

Same methodology used for conventional bridges. Used to estimate remaining life and asset value

Complex Bridge Health Index: Current & 10 Year Projection

Health Index for Each Component of Each Complex Bridge (2022)				
Bridge Name	**Deck**	**Superstructure**	**Substructure**	**Overall**
460 Connector Bridges				
High Rise EBL Approaches				
HRBT* Approaches				
James River Bridge				
MMMBT** Approaches				
Norris Bridge				
Smart Road Bridge				
Varina Enon Bridge				
Willoughby Bay Bridges				

Current (2022) Percentage & Number of Systems in Each Condition Category	
Good	63% (17)
Fair	30% (8)
Poor	7% (2)
Severe	0% (0)

Health Index for Each Component of Each Complex Bridge (10 Year Prediction)				
Bridge Name	**Deck**	**Superstructure**	**Substructure**	**Overall**
460 Connector Bridges				
High Rise EBL Approaches				
HRBT* Approaches				
James River Bridge				
MMMBT** Approaches				
Norris Bridge				
Smart Road Bridge				
Varina Enon Bridge				
Willoughby Bay Bridges				

Predicted in 10 Years: Percentage & Number of Systems in Each Condition Category	
Good	59% (16)
Fair	41% (11)
Poor	0% (0)
Severe	0% (0)

Notable Elements of 10 Year Plan

- HRBT Approaches and Willoughby Bay Bridges will be complete
- Norris construction starts after the 10 year window
- Preservation work selected as best value for:
  - Varina-Enon
  - James River Approaches
  - MMMBT Approaches
- Preservation sustains service life for decades of but does not always improve condition category
- The first 10 years of the program is focused more on movable bridges and tunnels than complex bridges due to need

*Hampton Roads Bridge-Tunnel
**Monitor-Merrimac Memorial Bridge-Tunnel

Next Steps

I-95

Variable Speed Limit System

Commonwealth Transportation Board Meeting

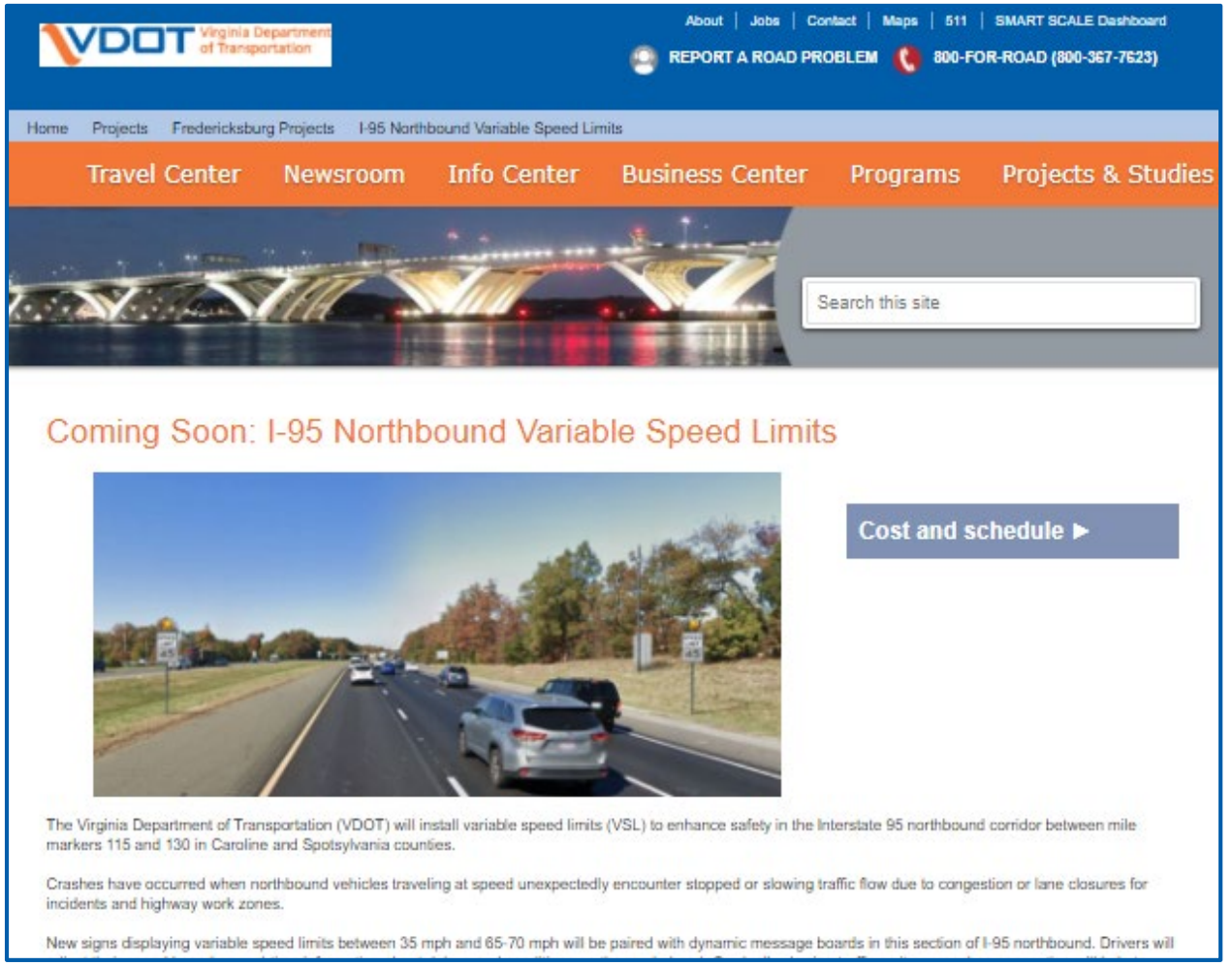
Mena Lockwood, P.E., VDOT
Michael Fontaine, P.E., PhD, VTRC
October 26, 2022

Kimley»Horn | VDOT Virginia Department of Transportation

I-95 VSL Project Presentation Overview

- Overview of Project
  - Corridor Selection
  - Project Approach & Expected Benefits
  - How the System Works
- Project Evaluation
  - Considerations
  - Driver Behavior
  - Safety
- Conclusions

JUNE 22, 2022 FULLY OPERATIONAL!!



VSL Pilot Project Corridor

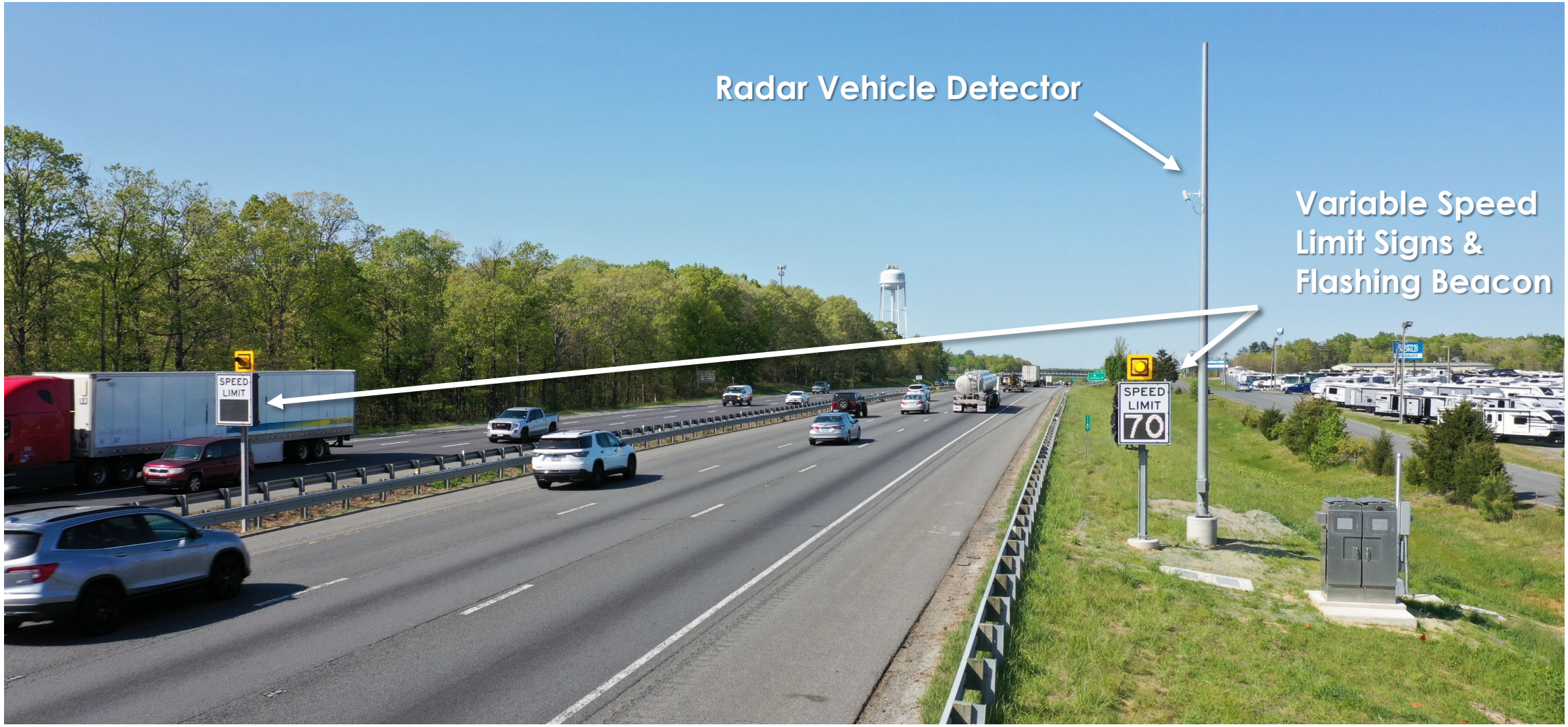
Corridor Selection

- Regular and incident-related congestion
- Hot spots with stop-and-go conditions
- High crash rates & incident delay

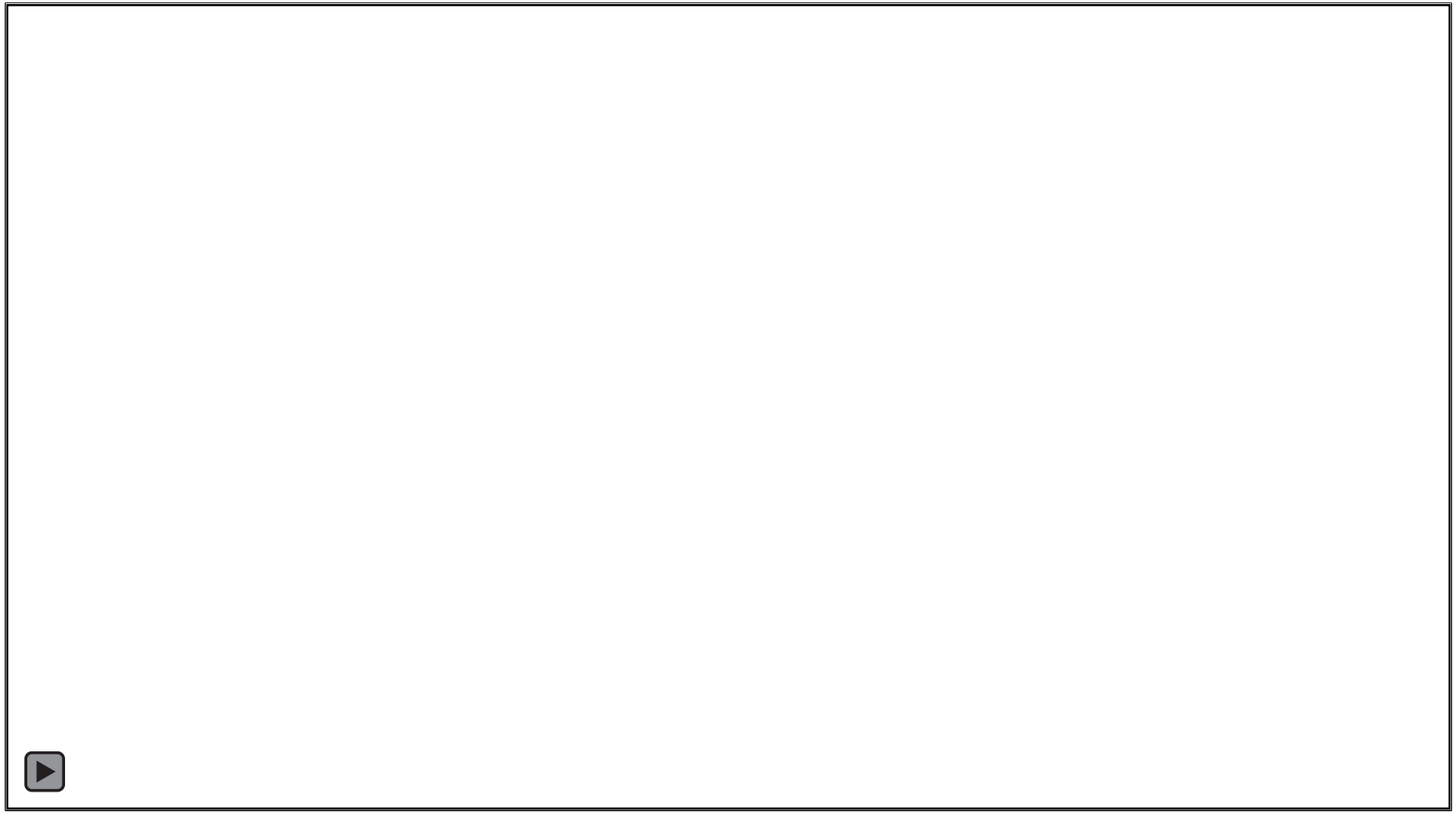
Project approach is to use VSL to harmonize traffic flow resulting in:

- Reduced crashes
- Reduced stop-and-go conditions
- Improved travel time & reliability

I-95 VSL Field Elements



Corridor Video



Public Outreach

Signs

- Safety rest area signs, indoor and outdoor
- I-95 northbound billboard at mile marker 98 (Doswell)

Social Media

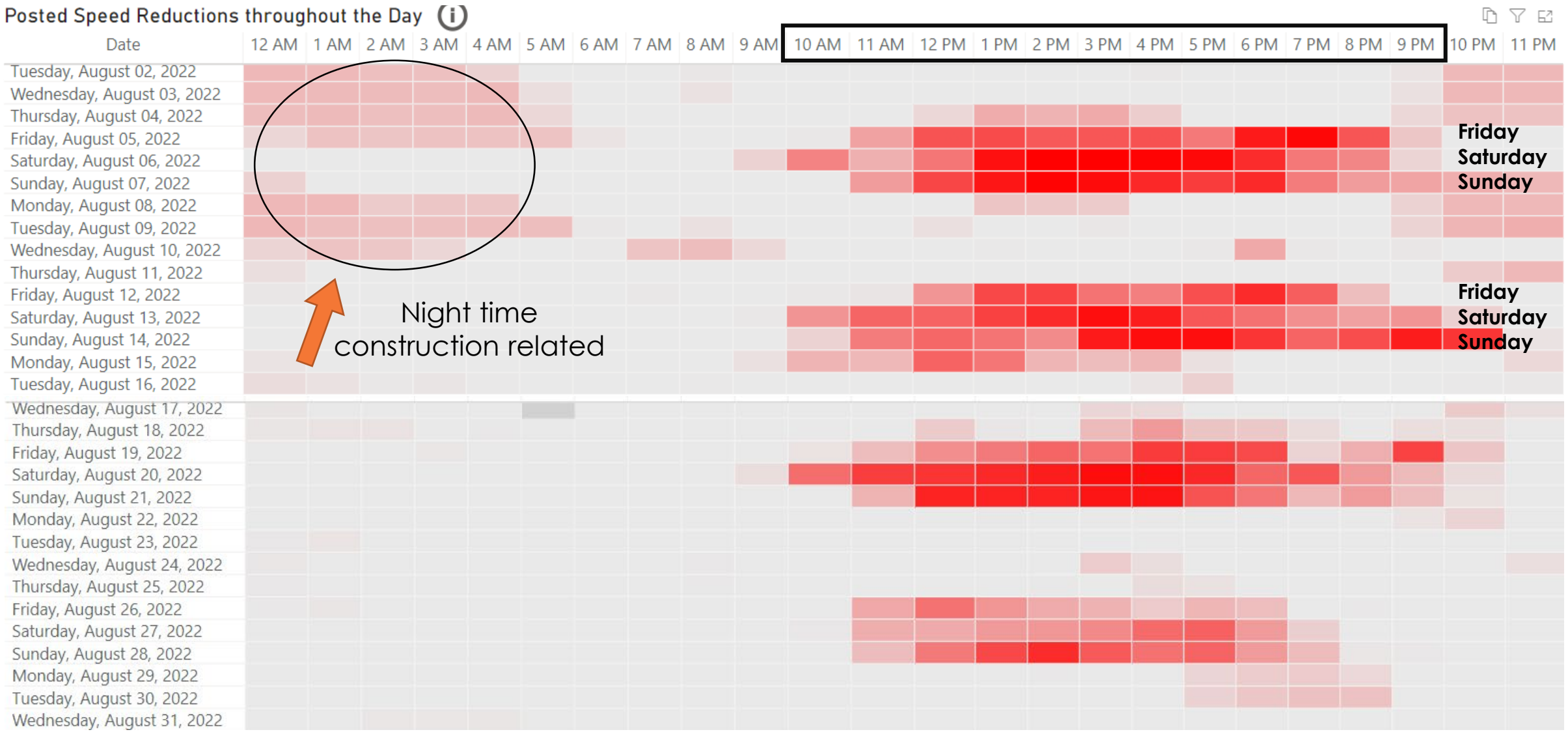
- Waze & Facebook ads
- Digital, geofenced display ads
- *900,000+ impressions (June 15-July 15)*

Website

- virginiadot.org/variablespeedlimits

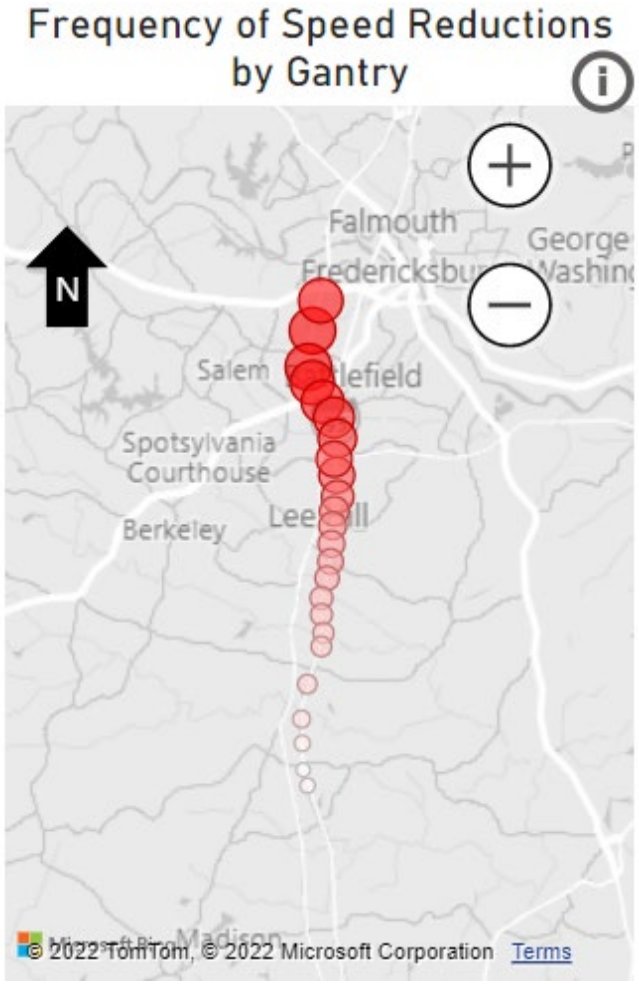
August System Activation Patterns

Intensity of RED corresponds to a lower speed limit displayed for a longer time

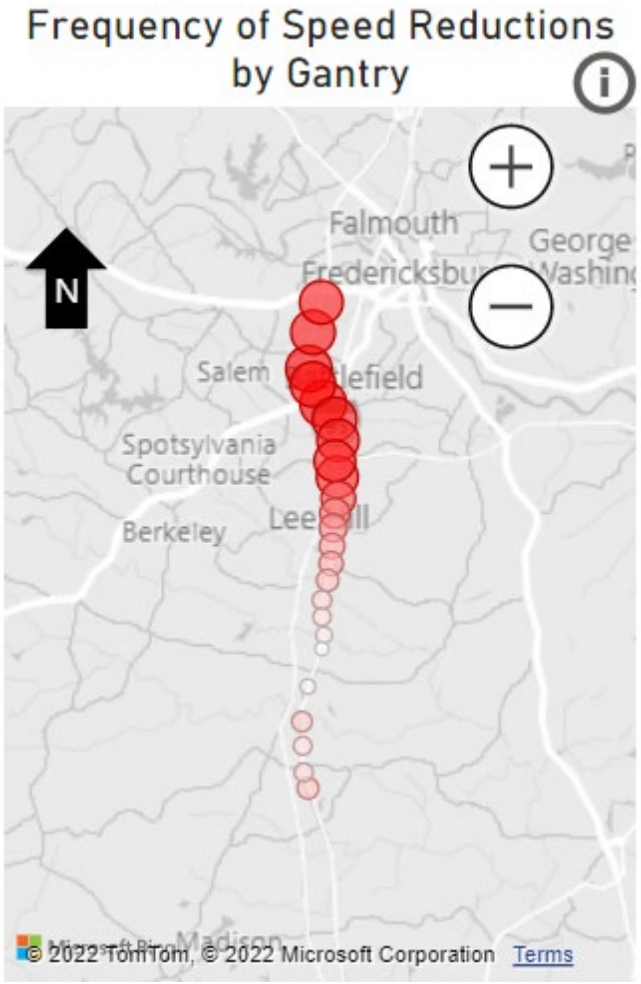


System Activation by Location

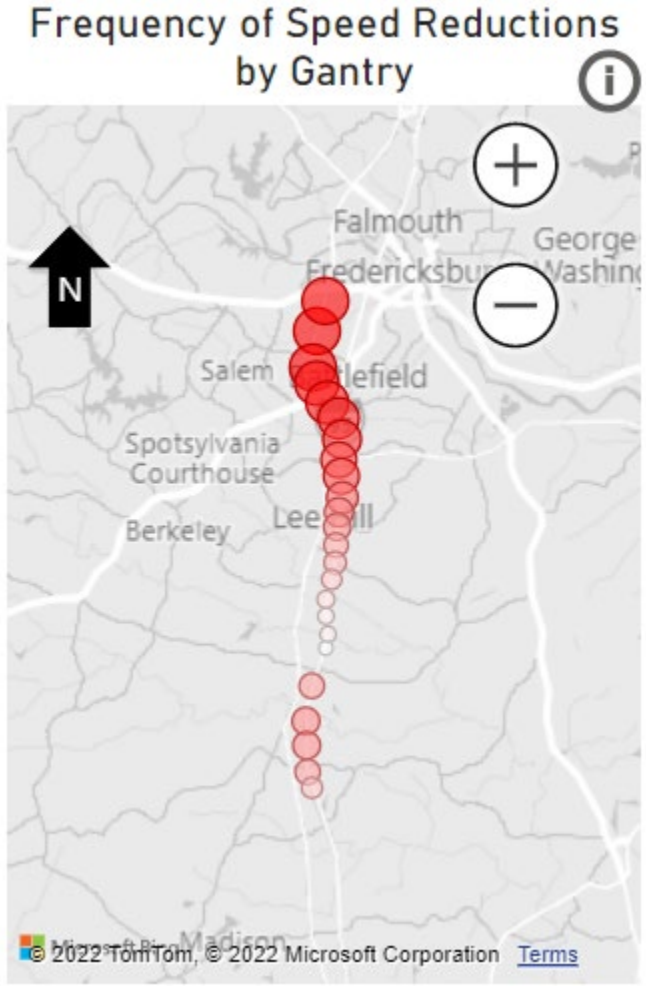
June 2022



July 2022



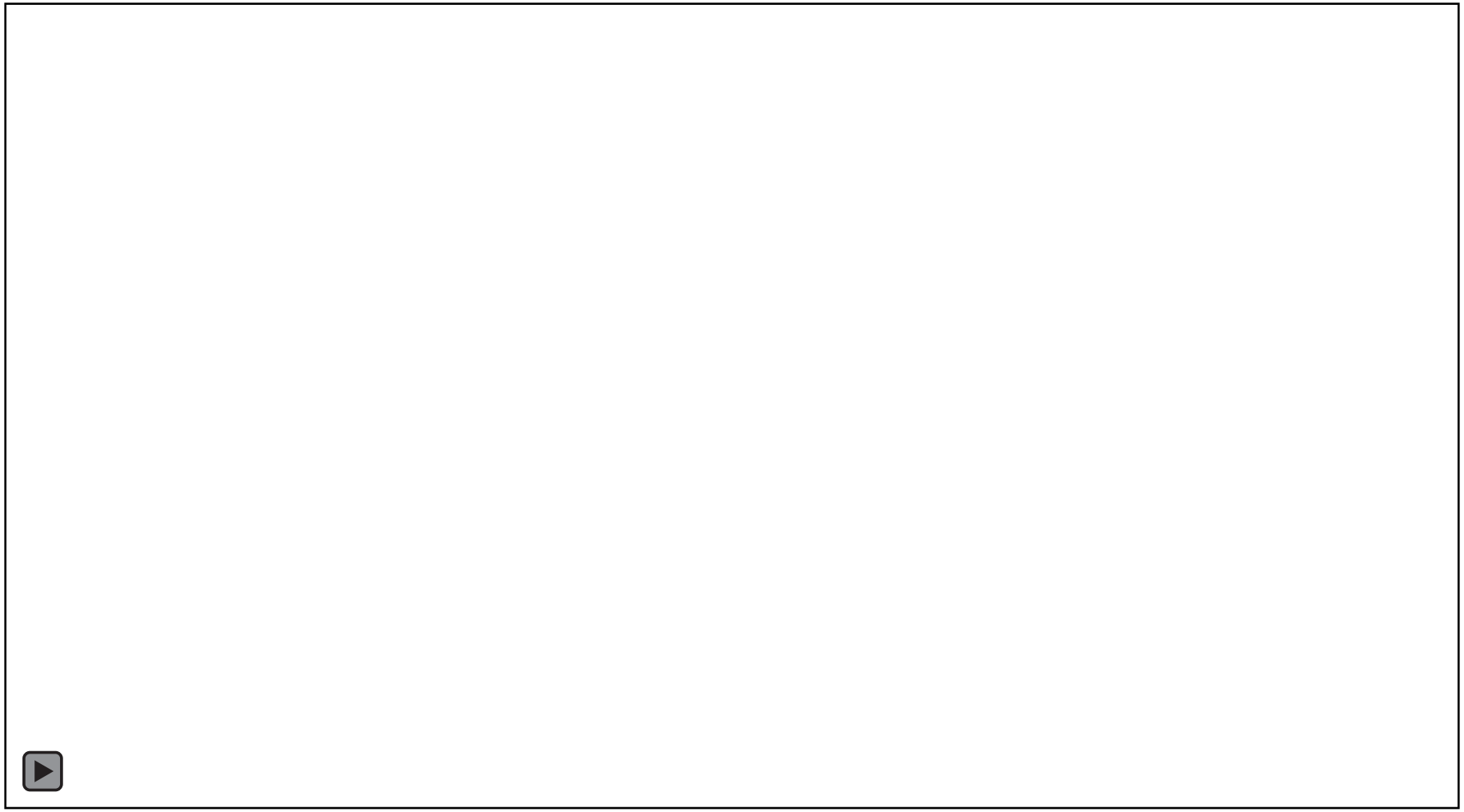
August 2022



Intensity of RED corresponds to a lower speed limit; size of circle corresponds to more frequent activation

System Management

- Detailed Algorithm Performance Review



System Management

- Real-time System Monitoring at TOC
  - Monitoring hardware and communication status
  - Monitoring active congestion and algorithm speed recommendations

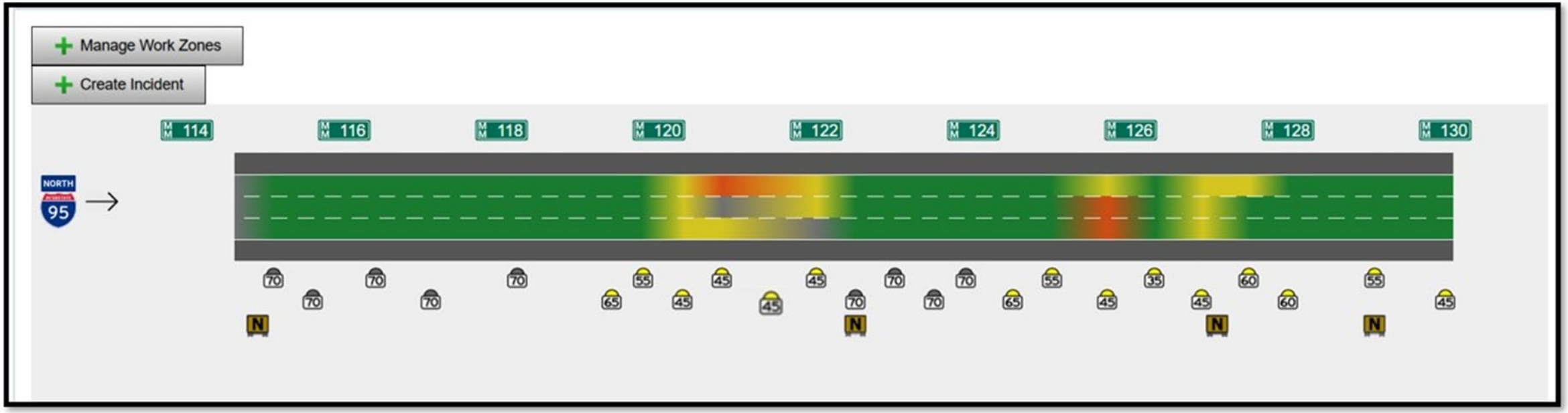
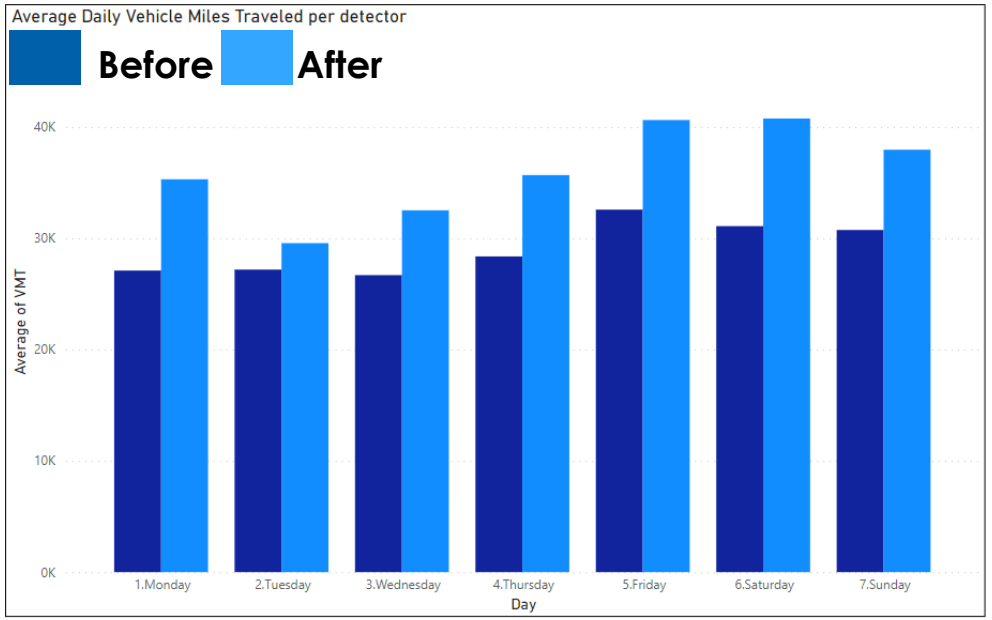


Image captured on June 9, 2022 prior to go-live

System Evaluation Considerations

- A before/after evaluation was conducted in the corridor.
  Before: 1/1/22 – 3/26/22 **After**: 6/22/22 – 8/31/22
- Volume and event types changed significantly between the periods.
- The analysis attempts to address this to the extent possible.

Traffic Volume
(Daily Vehicle Miles of Travel by Day of Week)



Event Types
(Traffic Impacting Events)

Event Type	Average Hours/Day	
	Before	After
Crash	0.65	0.26
Weather	0.72	0.07
Work Zone	0.18	2.51
Disabled Vehicle	0.04	0.09

System Evaluation - Driver Behavior

- Drivers are responding to new posted speed limits.
- Speeds were 3-4 mph slower during transitional periods (55 or 45 mph speed limits).
- Pre-activation data was processed using the VSL algorithm to determine what would have been posted in the "before" period if the system had been active.

VSL Algorithm Recommended Speed (mph)	Before (Static Speed Signs, Algorithm On)			After (VSLs Active)		
	% of Posted Speeds	Avg. Speed (mph)	Difference from VSL (mph)	% of Posted Speeds	Avg. Speed (mph)	Difference from VSL (mph)
65, 70	96.5%	72	+7	89.7%	71	+6
60	0.0%	63	+3	0.1%	62	+2
55	**0.8%**	**62**	**+7**	**1.5%**	**59**	**+4**
45	**0.6%**	**52**	**+7**	**1.4%**	**48**	**+3**
35	2.1%	28	-7	7.3%	29	-6

Transitional Speeds

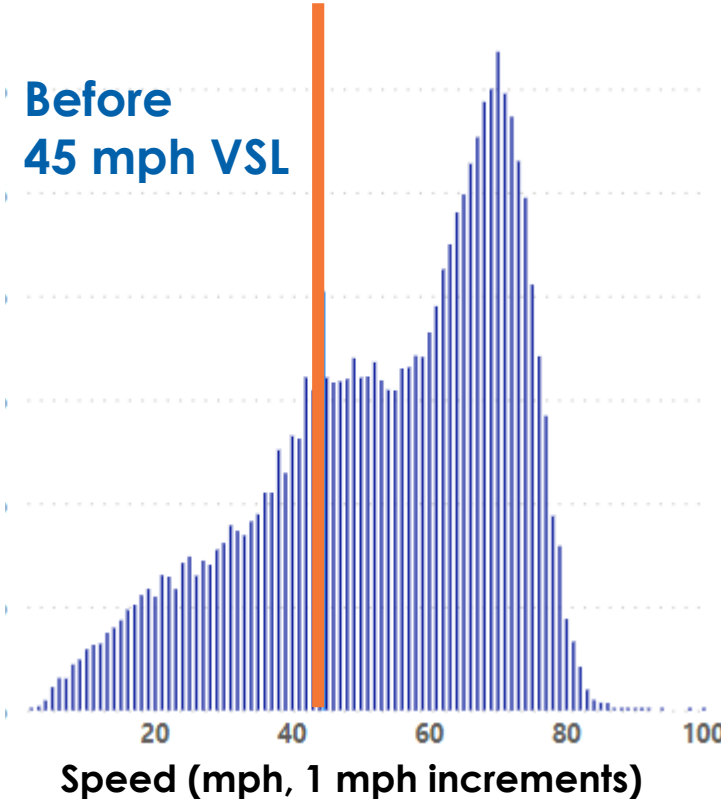
System Evaluation – Driver Behavior

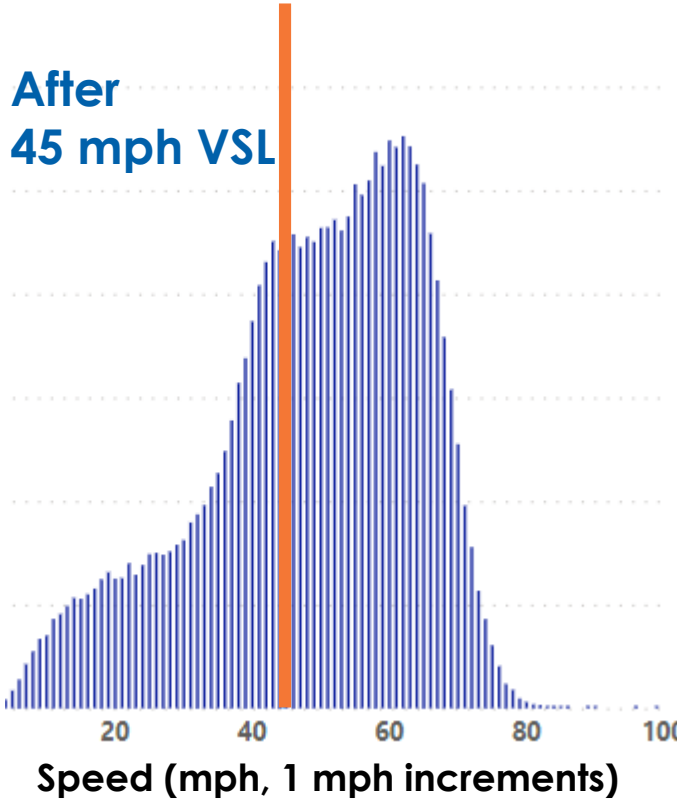
- Drivers did respond to the VSLs during transitional flow, indicating that the VSL was providing benefits in smoothing flow into congestion.
- Further improvements in driver compliance with VSLs could be beneficial.

VSL Algorithm Recommended Speed (mph)	Before (Static Speed Signs, Algorithm On)			After (VSLs Active)		
	> VSL Speed	> VSL Speed +5 mph	> VSL Speed +10 mph	> VSL Speed	> VSL Speed +5 mph	> VSL Speed +10 mph
65,70	65%	29%	5%	60%	24%	4%
60	74%	52%	25%	66%	35%	8%
55	**81%**	**74%**	**62%**	**78%**	**65%**	**44%**
45	**69%**	**61%**	**53%**	**62%**	**51%**	**39%**
35	29%	21%	14%	32%	21%	12%

System Evaluation – Driver Behavior

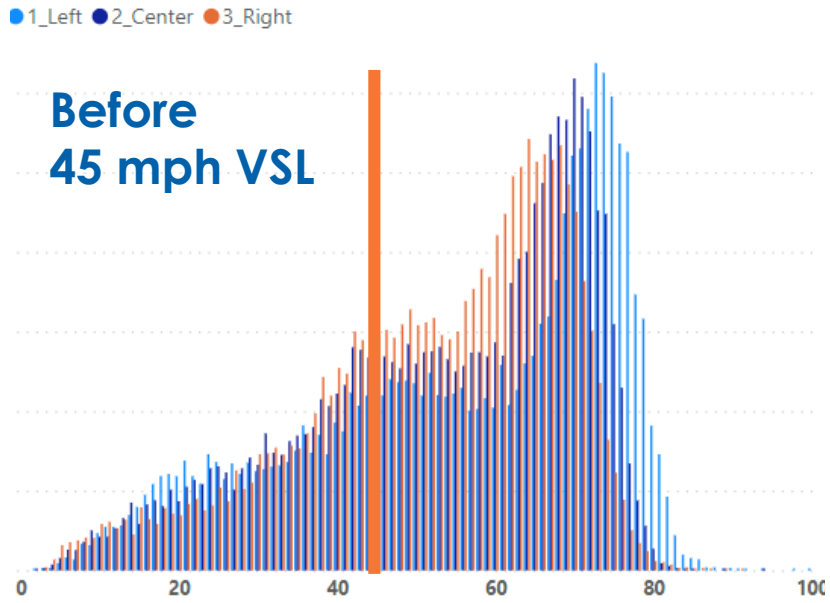
- Drivers reacted to VSLs by traveling closer to the recommended speed

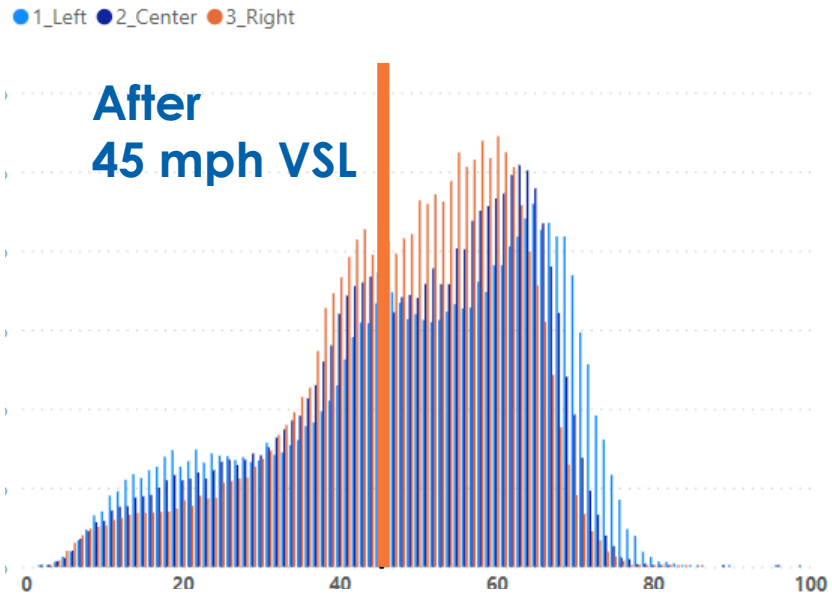




Speed Harmonization Improvement

- Speed differentials between lanes have decreased since VSL activation





Period	Speed Differential (mph)	
	Left-Center	Center-Right
Before	2.4	1.4
After	**1.0**	**0.3**

System Evaluation – Safety

- Crashes were compared between milepost 115 and 130 from system activation through July 31 (most recent finalized data).
- **Crashes are rare and random events. Trends from 5 weeks of VSL activation data are a small sample and should be viewed with caution.**

Year	Crash Counts			
	January 1 - June 21	% Change from Previous Year	June 22 - July 31	% Change from Previous Year
2019	78	-21%	34	-29%
2020	Omitted due to pandemic effects on traffic			
2021	99	+27%	42	+24%
2022	**137**	**+38%**	**35**	**-17%**

Conclusions

- Based on initial results, the system is working as designed.
- Drivers are reacting to the VSLs.
  - Average speeds have decreased 3-4 mph when the transitional 45 and 55 mph speed limits are posted.
  - Speed differentials have declined between lanes. Speed harmonization is occurring.
  - Early crash results show positive trends.
- Safety and operational results will continue to be monitored. Updated results will be reported to the Board at a future meeting.

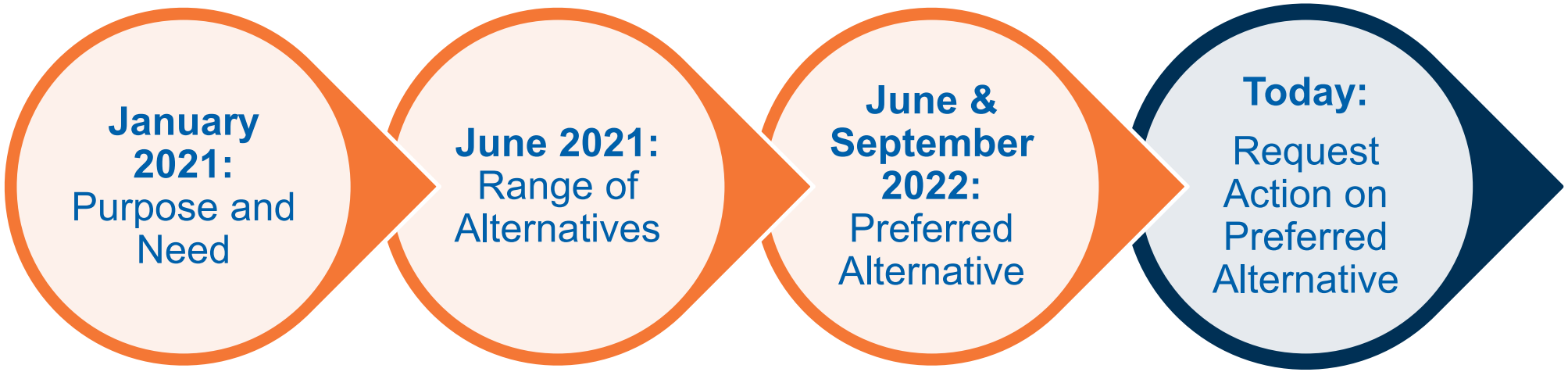
BOWERS HILL ENVIRONMENTAL IMPACT STATEMENT

IDENTIFICATION OF THE PREFERRED ALTERNATIVE

Scott Smizik, Assistant Environmental Division Director
Christopher G. Hall, P.E., VDOT Hampton Roads District Engineer

October 25, 2022

Presentations to CTB on the Bowers Hill EIS*



- Study History
- Geographic Scope
- Purpose and Need
  - Public comment
  - VTrans
- Study Schedule

- Study Progress
- Public Involvement
  - Updates
- Purpose and Need
  - Summary
- Range of Alternatives

- Agency / Public involvement
  - Summary
- Purpose and Need
  - Review
- Range of Alternatives
  - Review
- Impact Summaries
- Recommendation of a Preferred Alternative
- Study Schedule

- Purpose and Need
  - Review
- Range of Alternatives
  - Review
- Impact Summaries
- Recommendation of a Preferred Alternative
- Study Schedule

Hampton Roads Express Lanes Network

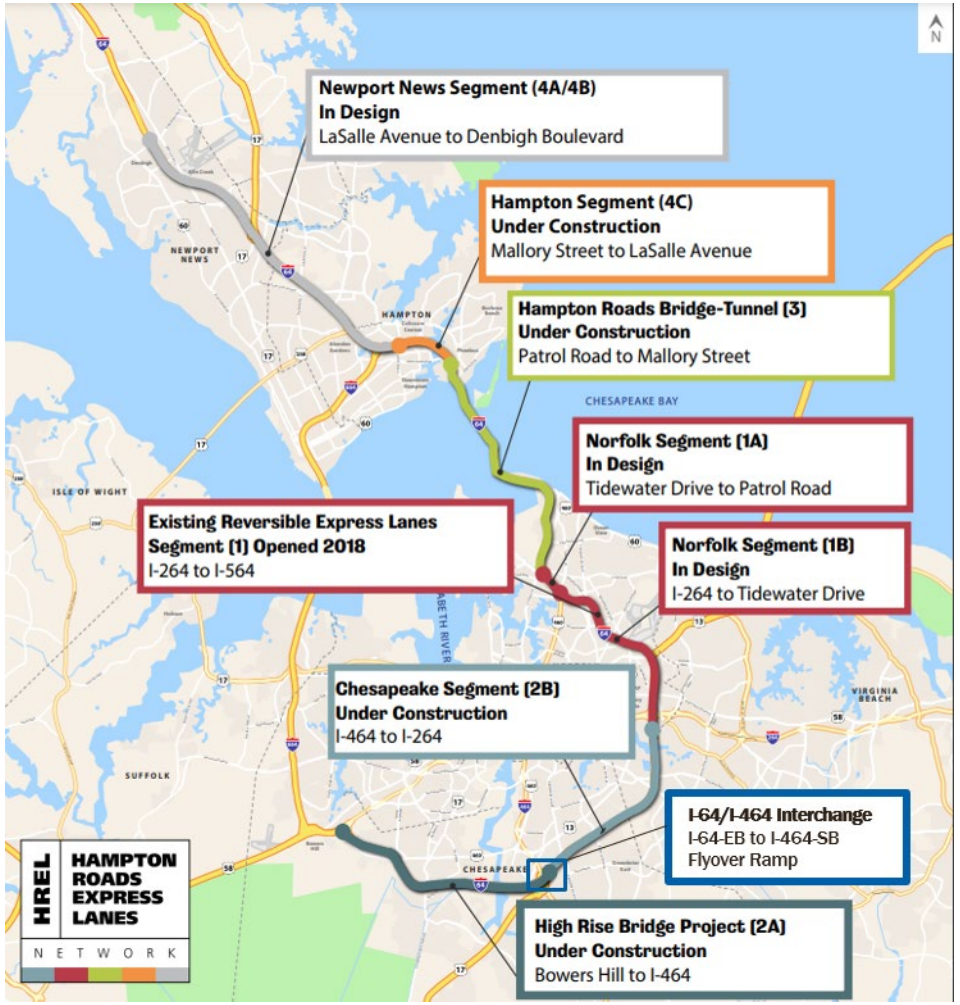
Comprised of 4 segments, the HRELN is a continuous network of Express Lanes in each traffic direction on I-64 from the Jefferson Avenue interchange in Newport News to the I-64/I-264/I-664 Bowers Hill interchange in Chesapeake.

(Under Construction)

- **Segments 2A and 2B** - under construction; one Express Lane in each direction; completion and operational spring 2023
- **Segment 3 (HRBT Expansion Project)** - additional capacity with the construction of new tunnels; completion and operational by end of 2026
- **Segment 4C**
  - Project Award - August 2022
  - Complete Construction - December 2026

(In Design)
Operational by the end of 2026

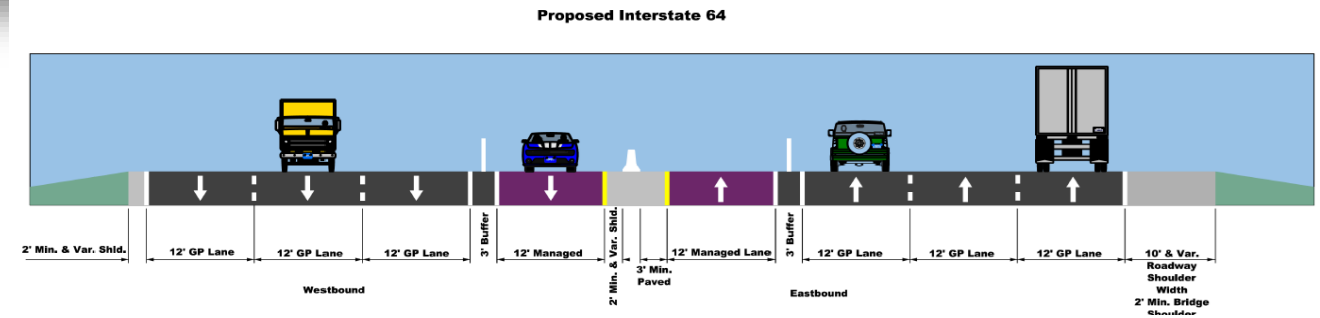
- **Segment 1A**
  - Project Award - November 2022
  - Complete Construction - December 2025
- **Segment 1B**
  - Project Award - TBD
  - Complete Construction - TBD
- **Segment 4A/4B**
  - Project Award - September 2024
  - Complete Construction – December 2026

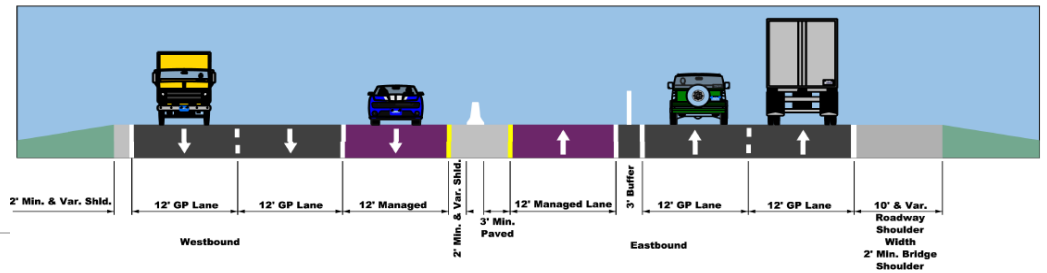


Hampton Roads Express Lanes 4A/4B – Currently in Design

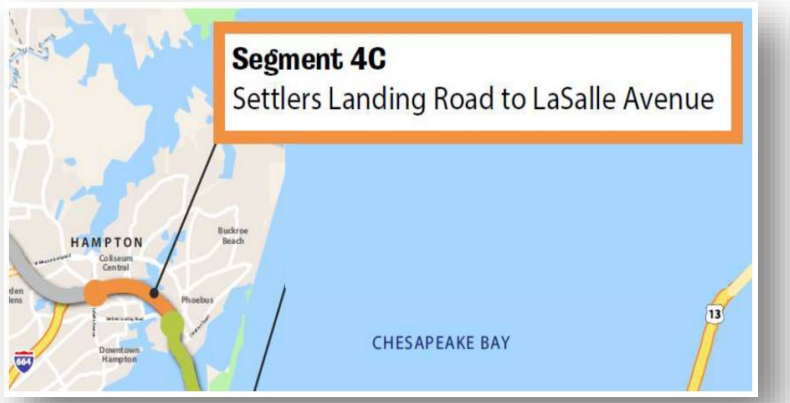
Description 4A: From I-664 to Jefferson Avenue, converting 10.5 miles of existing HOV lane into an Express Lane in each direction

Description 4B: From LaSalle Avenue to I-664, converting 1 mile of GP lane into an Express Lane, and widening in EB direction to create a buffer

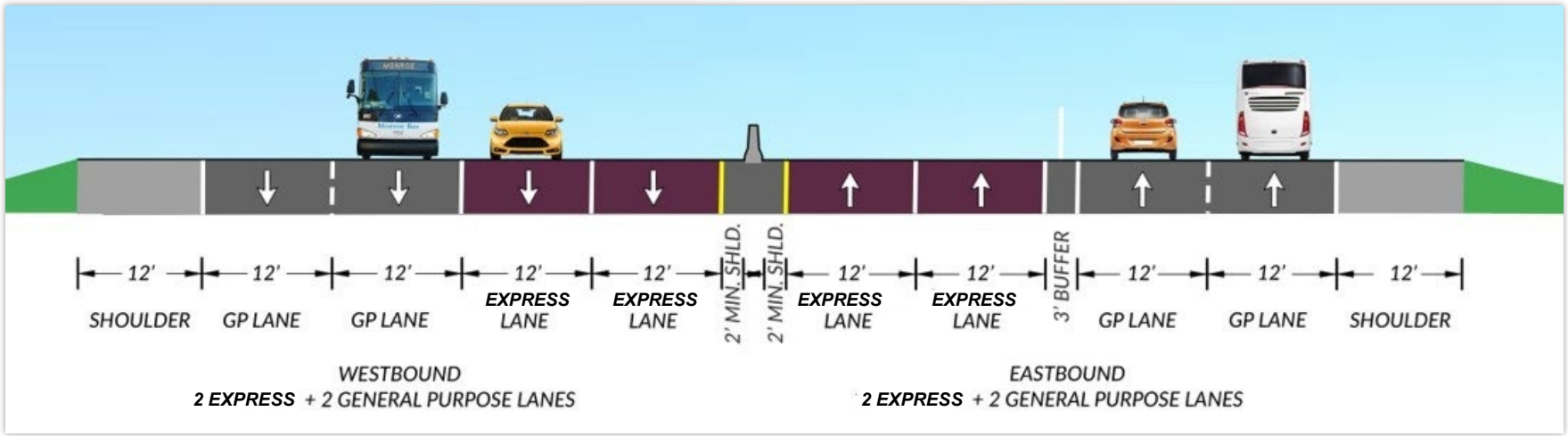




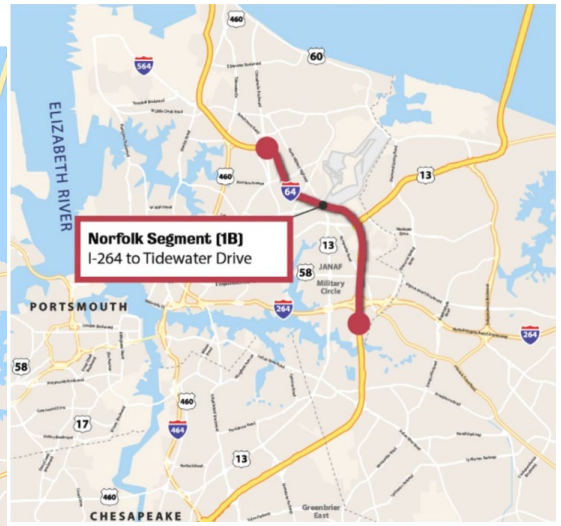
Hampton Roads Express Lanes 4C – Under Construction



Description: Constructing an Express Lane and converting a GP Lane into an Express Lane in each direction for 2.5 miles from LaSalle Avenue to Settlers Landing Road

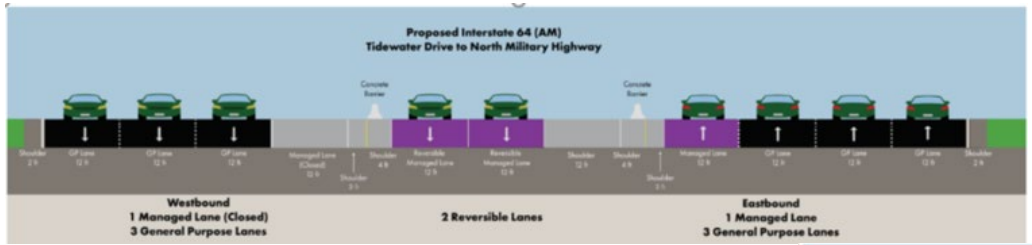


Hampton Roads Express Lanes 1A/1B – Currently in Design

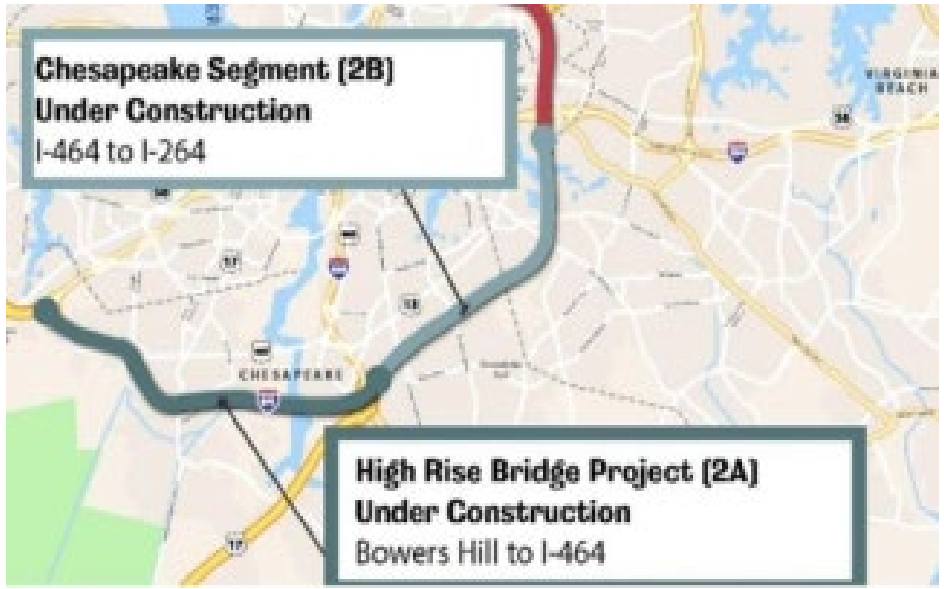


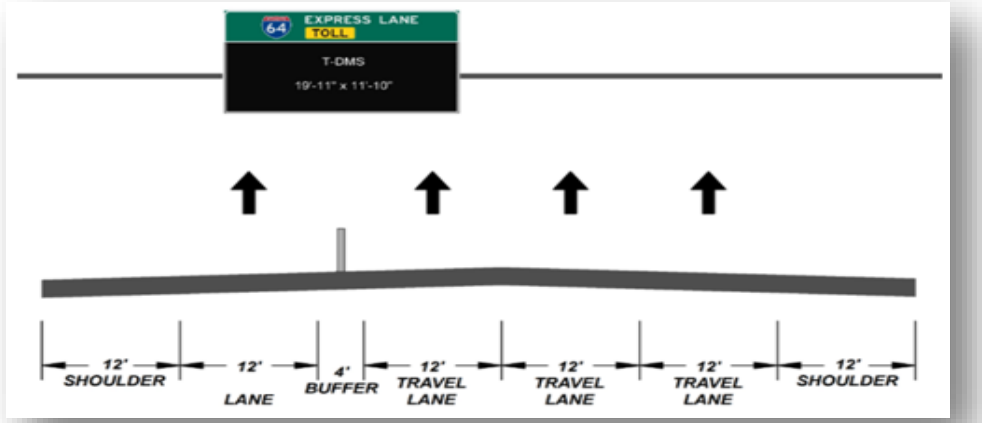
Description 1A: From Tidewater Drive to Patrol Road, converting 2.2 miles of existing General Purpose shoulder into a Part Time Shoulder Express Lane in each in each direction

Description 1B: From I-264 to Tidewater Drive, converting 7 miles of existing General Purpose shoulder into a Part Time Shoulder Express Lane in each direction



Hampton Roads Express Lanes 2 – Under Construction





Description Segment 2B (Greenbrier): Converting 7.65 miles of existing HOV lane into Express Lane in each direction from I-64/464 interchange to I-64/264 interchange

Description I-64 Southside Widening and High Rise Bridge: From approximately the I-64/264/664 Interchange at Bowers Hill and extending to the I-64/464 Interchange in Chesapeake

- Widening from 4 to 6 lanes
- Constructing a new High Rise Bridge parallel to and to the South of the existing High Rise Bridge

Hampton Roads Express Lanes – Overview Video

https://vimeo.com/551945830/a3e76bf552

Concepts Considered but Not Advanced as Standalone Alternatives

- 1 General Purpose Lane in Each Direction
- 2 General Purpose Lanes in Each Direction
- Collector Distributor Lanes at Interchanges
- Transit Only Improvements
- Transportation System Management/Transportation Demand Management (TSM/TDM)

Alternatives Retained for Detailed Study in the EIS

- No Build Alternative
- Add One Managed Lane and a Part-time Driveable Shoulder (PTDS) in Each Direction, including improvements to the Bowers Hill Interchange
- Add Two Managed Lanes in Each Direction, Including Improvements to the Bowers Hill Interchange

Bowers Hill EIS: Estimated Impacts

Potential Impact Resource	Alternative C One Managed Lane and a Part-time Drivable Shoulder	Alternative D Two Managed Lanes
Potential Residential Acquisitions	21	23
Potential Commercial Acquisitions	0	0
Acreage of Partial Acquisitions	60	65
Estimated Stream Impacts (linear feet)	11,356	11,674
Estimated Wetland Impacts (acres)	103	107
Floodplains (acres)	19	21

Impacts shown are a worst-case scenario and will be refined during final design and permitting, which is when avoidance and minimization is appropriately considered and documented. The U.S. Army Corps of Engineers (USACE) can only permit the least impactful alternative.

Bowers Hill EIS: NEPA Cost Estimate

Build Alternative	NEPA Cost Estimate (2030 dollars)
Alternative C: One Managed Lane and a Part-time Drivable Shoulder in the Managed Lane System	$2.9 billion
Alternative D: Two Managed Lanes	$3.1 billion

Cost estimates assume full reconstruction of the Bowers Hill Interchange, improvements to other interchanges along the study area, and adherence to all design standards. These assumptions are not NEPA commitments and could change as the project advances to detailed design.

Recommended Preferred Alternative

Alternative C: Addition of One Managed Lane and a Part-time Drivable Shoulder with Improvements to the Interchanges

- Best meets the Purpose and Need while balancing costs and impacts
- Consistency and continuity with improvements underway for the HRELN
- Meets daily and peak demands through Managed Lane and PTDS
- Federal agencies have approved thereby concurring on Alt C's permittability
- Hampton Roads Transportation Planning Organization endorsed the preferred alternative on May 19, 2022

Bowers Hill EIS – Proposed Next Steps

Activity	Timeframe
CTB Action to Identify a Preferred Alternative	October 2022
FHWA/VDOT Issue Draft EIS	Winter 2022/2023
Final EIS and Record of Decision (ROD)	Spring 2023

Final EIS and ROD is the final step in the NEPA process. The project can advance to more detailed designs, traffic analyses, and permitting activities following the ROD.

SMART SCALE BUDGET INCREASE REQUEST

I-95 EXIT 126 ROUTE 1 SOUTHBOUND ONTO SOUTHPOINT PARKWAY (UPC 110914) – FREDERICKSBURG DISTRICT

Commonwealth Transportation Board

Kimberly Pryor – Director, Infrastructure Investment Division

October 25, 2022

SMART SCALE Policy

SMART SCALE Policy on Scope Changes and/or Budget Increases, December 2021

- Significant changes to the scope or cost of a SMART SCALE project require a reevaluation
- Board action is required to approve a SMART SCALE budget increase:
  - i. Total Cost Estimate <$5 million: 20% increase in funding requested
  - ii. Total Cost Estimate $5 million to $10 million: $1 million or greater increase in funding requested
  - iii. Total Cost Estimate > $10 million: 10% increase in funding requested; $5 million maximum increase in funding requested

Project Information

I-95 Exit 126 Route 1 Southbound onto Southpoint Parkway (UPC 110914)

- Submitted by Spotsylvania County in Round 2 of SMART SCALE
  - Total Original Project Cost: $14,495,000
  - Total SMART SCALE Request: $12,745,000
  - Request funded with DGP funds
- Original scope included:
  - I-95 Exit 126 and Route 1 widening, including turn lanes onto Southpoint Parkway and widening of Southpoint Parkway
  - Pedestrian accommodations
- Project is VDOT administered and has been advertised

Project Budget Increase

- Project was originally let in April 2022 and was subsequently re-advertised
- VDOT received bids in September and has determined that price proposals are responsive and represent good competition
- Factors contributing to the shortfall for award
  - Updated unit costs and inflation
  - Increased bridge cost, addition of retaining walls, extensive earthwork for ramp construction, and large number of utilities
  - Market saturation along the I-95 corridor
  - Time of day restrictions

Project Budget Increase

- **Estimated budget increase required for award is $2,328,850**
  - **Represents an increase of 18% over the current SMART SCALE budget and an overall cost increase of 16%**
- **Sufficient deallocated DGP funds are available to cover the increase**

	Original Application	Current
Total $	$14.5M	$16.9M
SMART SCALE $	$12.7M (DGP) $1.8M (local)	$15.1M (DGP) - Increase of $2.3M $1.8M (local)
Score	7.20	6.09
Funding Scenario	6/9	6/9
Expenditures as of 10/4/22		$2.1M

Recommendation for Action

- **Approve budget increase request in October**
  - Fund increase from surplus DGP balances
  - Award contract

HPP Deallocated Funds	Amount
Available	$11,419,991
Less Proposed Budget Increase for UPC 110914	$2,328,850
Total Remaining	**$9,091,141**


VDOT
Virginia Department of Transportation

Revisions for FY 2023-2024 Budgetary Assumptions

Laura Farmer, Chief Financial Officer

October 25, 2022

Revenue and Allocation Updates

- **Commonwealth Transportation Fund (CTF)**
  - FY 2022 Actual Performance
  - Updates for FY 2023
- **General Fund Investments in Transportation**
- **Allocation items for VDOT**
  - Results of Appropriation Act items

Commonwealth Transportation Fund
FY 2023 Updates (in millions)

Revenue Updates	FY 2023
FY 2022 Revision based on Actuals (Compared to February 2022 Mid-session update)	($92.7)
July Updates based on FY 2022 Performance	
Retail Sales and Use Tax	55.3
Insurance Premiums	6.5
Grocery Tax Elimination Assumption – January 2023 start rather than July 2022 ($1.4 million in FY 2024)	65.3
TOTAL	**$34.4**

CTF Distribution	FY 2023
HMOF	$17.5
Construction	8.9
Mass Transit	3.9
Rail	1.3
Ports	0.4
Airports	0.3
Space Flight	0.2
PTF	1.8
DMV	0.2
TOTAL	**$34.4**

General Fund Commitments to Transportation (Chapters 1 and 2; 2022 Special Session I) – Recommended Allocation by CTB

($ in millions)	FY 2022 Budget (January 2022)	Reclassification of FY 2022 based on Final Recommendations/ Readiness	FY 2023	FY 2024	TOTAL
Mid-Atlantic Regional Spaceport	$30.0	$ -	$ -	$ -	**$30.0**
Regional Multi-Use Trails	25.8	(25.8)	79.0		**79.0**
Air Terminal Interchange	20.0	(20.0)			**-**
I-64 Gap	20.0	65.8	274.2	110.0	**470.0**
TPOF Restoration	10.0	(10.0)			**-**
Wildlife Habitat	10.0	(10.0)			**-**
Transit Ridership Incentive Program			5.0		**5.0**
Nimmo Parkway			10.0		**10.0**
Special Structures – PE for Norris Bridge			5.0		**5.0**
TOTAL	**$115.8**	**-**	**$373.2**	**$110.0**	**$599.0**

$150 million for I-64 Gap in FY 2023 Allocation is from FY 2022 GF Surplus; This will need to be appropriated in 2023 Session

Other Budget Updates

- **Requires the set-aside of $7 million annually in FY 2023 and FY 2024 from Transportation Alternatives Program (TAP) funding for Regional Multiuse Trails**

  Priority shall be given by the Board to new regional trails, projects to improve connectivity of existing trail networks, and geographic diversity in the use of such funds. Funds may be awarded through a competitive solicitation conducted by the Board

- **Additional funds for Financial Assistance to Cities - $30 million over biennium from HMOF**
- **Establish funding for $1,000 Employee Bonuses planned for December 1, 2022**

Impact to VDOT – HMOF and Construction Fund Distribution

Revenue Change by Fund (in millions)	FY 2023	FY 2024	TOTAL
HMOF	$17.5	$0.7	**$18.2**
Construction	8.9	0.4	**9.3**
TOTAL	**$26.4**	**$1.1**	**$27.5**

Allocation Change (in millions)	FY 2023	FY 2024	TOTAL
City Street Maintenance Payments	$15.0	$15.0	**$30.0**
Employee Bonus	7.9	-	**7.9**
Available for Construction Distribution	3.6	(13.9)	**(10.3)**
TOTAL	**$26.4**	**$1.1**	**$27.5**

Budget Updates

Change to Construction Distribution *(in millions)*	FY 2023	FY 2024	TOTAL*
State of Good Repair	$1.1	($4.1)	**($3.0)**
High Priority Projects	0.7	(2.8)	**(2.1)**
District Grant Program	0.7	(2.8)	**(2.1)**
Interstate Operations and Enhancement Program	0.6	(2.6)	**(1.9)**
NVTA Share of Interstate Distribution	0.0	(0.2)	**(0.2)**
Virginia Highway Safety Program	0.3	(1.4)	**(1.0)**
TOTAL*	**$3.6**	**($13.9)**	**($10.3)**

**Rounded total*

- Proposed revision for FY 2023 Budgets
- Incorporates Updates to CTF and additional General Fund Transportation Initiatives
- Revised SYIP
  - Incorporates updates to program funding
  - Latest updates to project funding for those projects advancing in FY 2023

REVISED FY 2023 – 2028
SIX-YEAR IMPROVEMENT PROGRAM

Kimberly Pryor, Infrastructure Investment Director

October 25, 2022

Revised FY2023-2028 Six-Year Improvement Program

- **Highlights**
  - Partial update to FY 2023 and 2024
  - Update to Commonwealth Transportation Fund (CTF) assumptions
  - Addition of general fund allocations to specified uses
  - Actions to address unanticipated inflationary impacts

Impact to Formula Programs

Program	Net Change (millions)
State of Good Repair Program (SGR)	-$3.0M
Interstate Operations and Enhancement Program (IOEP)	-$1.9M
Virginia Highway Safety Improvement Program (VHSIP)	-$1.0M
Construction District Grant (DGP) – including Supplemental Fuel Tax Revenue	-$2.1M
High Priority Projects (HPP)	-$2.1M
TOTAL	**-$10.1**

Allocations Directed to Specified Uses

Specified Uses	Amount (millions)
TAP set-aside for regional multi-use trails	$14.0M
Regional multi-use trails	$79.0M
I-64 improvements between Exit 205 and Exit 234	$470.0M
Nimmo Parkway in Virginia Beach	$10.0M
Preliminary engineering for the Norris Bridge in Middlesex County	$5.0M
TOTAL	**$578.0M**

Updates to Projects Advancing in FY 2023

Reviewed projects scheduled for advertisement in FY 2023 to address impacts of updated unit costs and ongoing inflation

Funding Program	# Projects	Amount
Legacy formula	2	$1.0M
IOEP	4	$8.4M
Safety	19	$3.0M
SGR	24	$3.2M
SMART SCALE	16	$8.3M
Special Structures	7	$2.5
TOTAL	**72**	**$26.3M**

Updates to Projects Advancing in FY 2023 (continued)

- **Board action is required to approve a SMART SCALE budget increase:**
  - Total Cost Estimate <$5 million: 20% increase in funding requested
  - Total Cost Estimate $5 million to $10 million: $1 million or greater increase in funding requested
  - Total Cost Estimate > $10 million: 10% increase in funding requested; $5 million maximum increase in funding requested

- **16 SMART SCALE project budgets were increased**
  - 12 projects were within the threshold and require no CTB action
  - 4 projects exceed the threshold and require CTB action
  - Budget increases were funded from surplus balances

Updates to SMART SCALE Projects Advancing in FY 2023 Within Threshold Increases – No CTB Action Required

Funding Program	# Projects	Amount (millions)
District Grant		
Bristol	2	$0.11
Culpeper	1	$0.03
Hampton Roads	1	$0.84
NOVA	2	$0.34
Salem	2	$0.53
Staunton	1	$0.22
Sub-Total District Grant	**9**	**$2.08**
High Priority Projects		
Fredericksburg	1	$0.05
NOVA	1	$1.45
Salem	1	$0.37
Subtotal High Priority Projects	**3**	**$1.87**
TOTAL SMART SCALE	**12**	**$3.95**

Updates to SMART SCALE Projects Advancing in FY 2023 Increases Exceed Threshold – CTB Action Required

UPC	District - Jurisdiction	Description	Round - Rank	Increase (millions)	Revised SMART SCALE Budget (millions) – Revised Rank
111716	Richmond – Henrico County	RICHMOND-HENRICO TURNPIKE -- SOUTH SGMT	2 24/25	$2.8	$14.4 25/25
115489	Lynchburg – City of Lynchburg	RIVERMONT AND BEDFORD AVE INTERSECTION IMPROVEMENT	3 1/8	$0.2	$0.7 1/8
110764	Lynchburg – City of Danville	ARNETT BLVD - SIDEWALKS, BIKE LANES, CROSSWALKS	2 1/10	$0.2	$0.7 1/10
110767	Lynchburg – Charlotte County	RTE 15 - CONSTRUCT ROUNDABOUT AT RTE 360	2 5/10	$1.2	$6.5 5/10

- All increases were funded with Construction District Grant funds
- Budget increases have been staged in the Revised FY2023-2028 SYIP
- CTB approval of the budget increases will be included in the resolution adopting the Revised FY2023-2028 SYIP for action in October


VDOT
Virginia Department of Transportation

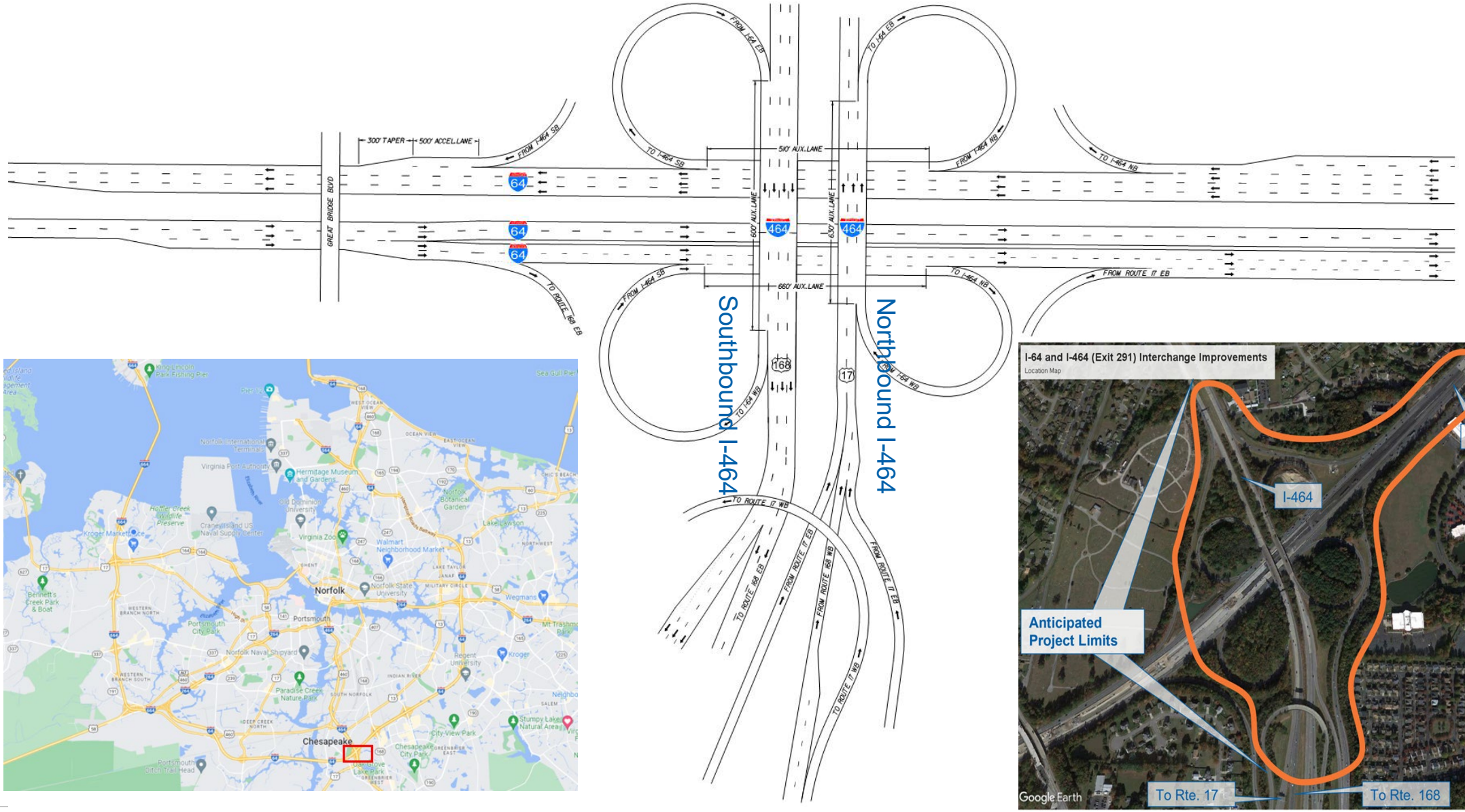
I-464/I-64 INTERCHANGE ACCESS REPORT (IAR)

Authorization for the Commissioner of Highways to Enter into Standard Project Agreements Between VDOT and the Hampton Roads Transportation Accountability Commission Relating to the I-464/I-64 IAR

Chris Hall, P.E. – Hampton Roads District Engineer

October 25, 2022

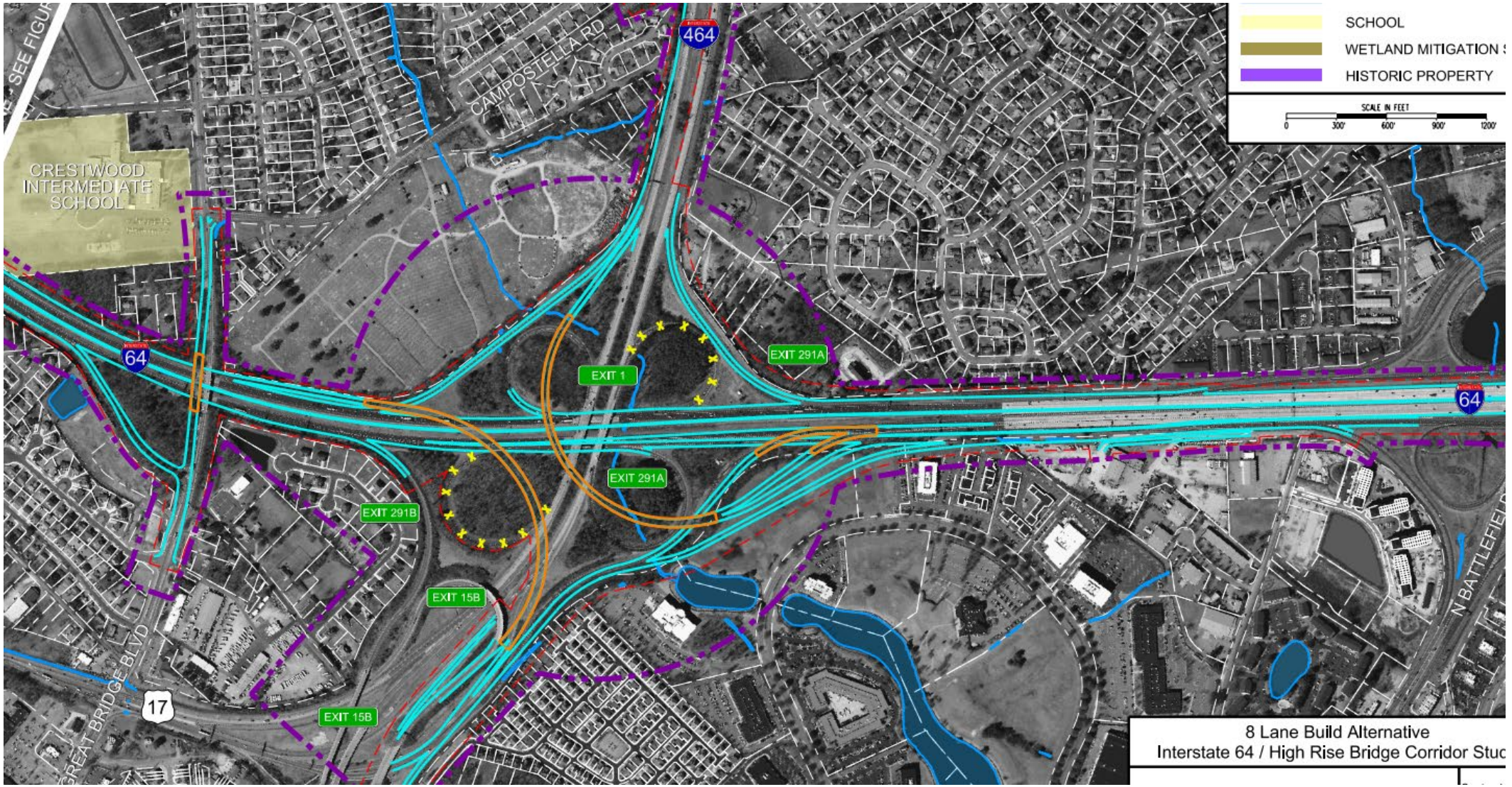
I-64 at I-464 Interchange (Exit 291) Existing Lane Configuration



I-464/I-64 INTERCHANGE (EXIT 291) RAMP IMPROVEMENTS (IOEP Funded)

UPC 120375 - SCOPING EXHIBITS

I-464/I-64 Interchange (IAR Study Area)



HREL Standard Project Agreement – I-464/I-64 IAR

- In September 2021, the CTB allocated $140M of Interstate Operations & Enhancement Program (IOEP) Funds to;
  - install a flyover ramp from I-64 eastbound to I-464 southbound and
  - perform improvements to separate I-464 southbound traffic en route to Route 17 to Route 168 north of the interchange
- These improvements are in addition to the loop ramp replacements to this interchange that are included in the Region's 2045 Long Range Transportation Plan and HRTAC's 2045 Long Range Plan of Finance
- Prior to moving forward with the loop ramp replacements, VDOT is recommending that an Interstate Access Report (IAR) be funded by HRTAC to evaluate the full build of the I-464/I-64 Interchange and Route 168 ramp configuration

Anticipated CTB Action

- HRTAC has approved funding in the amount of $2.5M for the development of the Interchange Access Report (IAR) at the I-464/I-64 Interchange and has authorized the HRTAC Chair to enter into a SPA with VDOT for this work
- VDOT will be requesting that the Board authorize the Commissioner to:
  - enter into a SPA with HRTAC for the I-464/I-64 Interchange Improvements – Full Interchange Access Report (IAR) Development; and
  - enter into any future SPAs with HRTAC necessary for funding and administration of the Interchange and any associated activities.

I-464/I-64 INTERCHANGE ACCESS REPORT (IAR)

Authorization for the Commissioner of Highways to Enter into Standard Project Agreements Between VDOT and the Hampton Roads Transportation Accountability Commission Relating to the I-464/I-64 IAR

Chris Hall, P.E. – Hampton Roads District Engineer

October 25, 2022

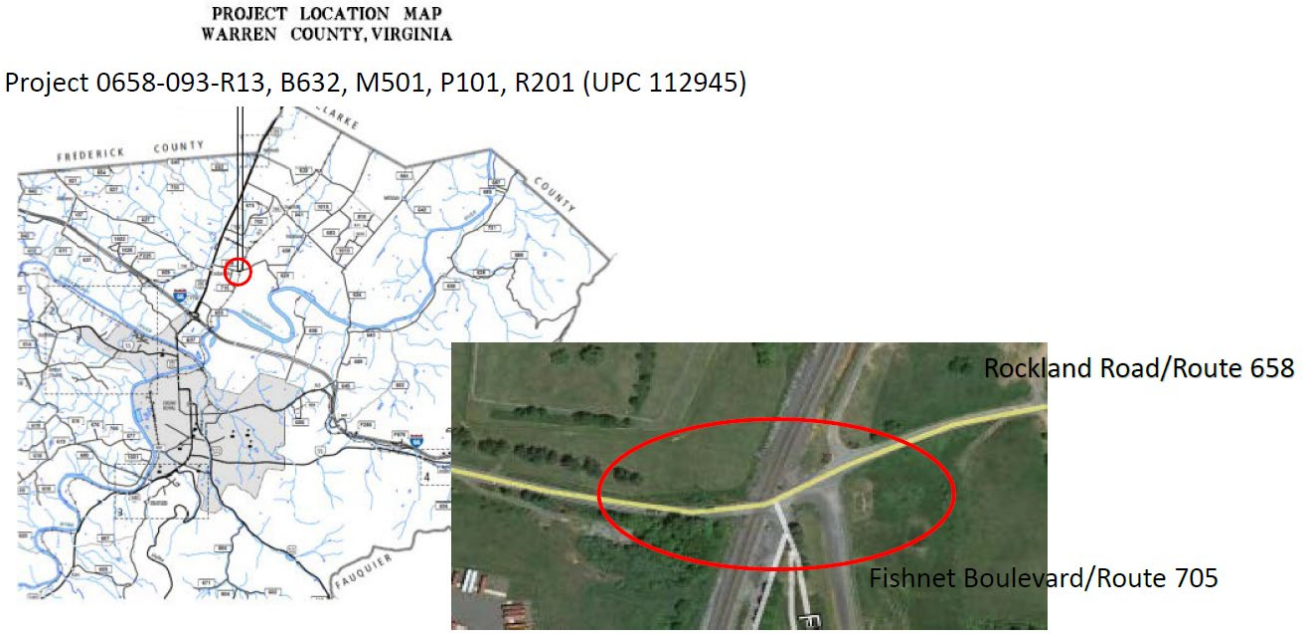
Rockland Road (Rte. 658) over Norfolk Southern RR Grade Separation Project – UPC 112945

Approval of and Authorization for the Commissioner of Highways to Execute an Interagency Agreement between the Virginia Department of Transportation (VDOT) and the Virginia Port Authority (VPA)

Randy S. Kiser, P.E.
District Administrator – Staunton District

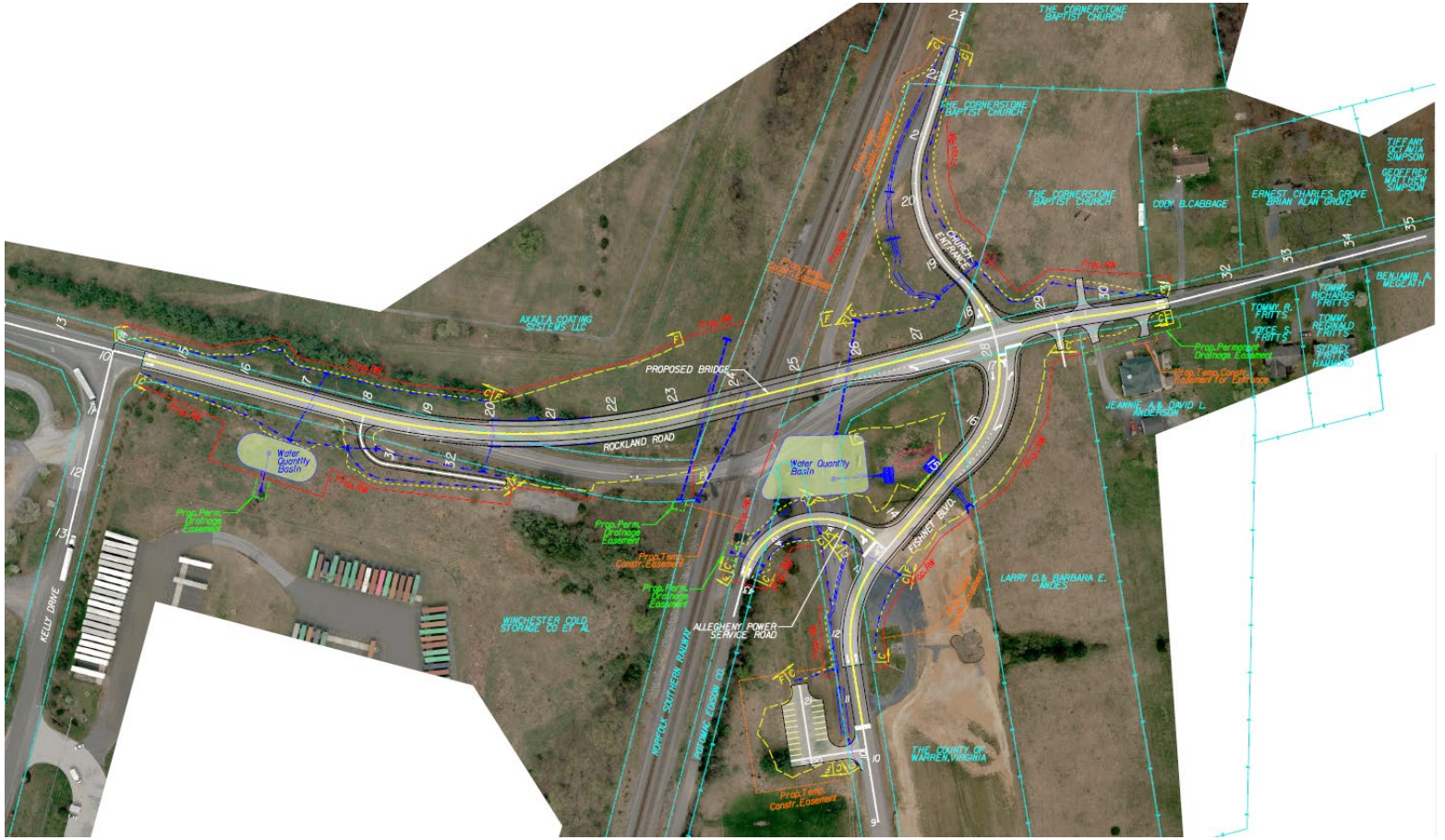
Rockland Road Grade Separation Project – Background

- Provides grade separation at Route 658 (Rockland Road) and the Norfolk Southern Railroad tracks near the Virginia Inland Port, in Front Royal.
- Consists of a bridge 220’ long and 42’ wide, with (2) 12’ travel lanes and (2) 8’ paved shoulders.
- Improvements are also planned for the roadway approaches on Route 658, as well as Route 705 (Fishnet Boulevard) and nearby entrances.
- In the existing condition, vehicles are stopped here multiple times per day for indefinite periods of time.



Location and Current Condition

Rockland Road Grade Separation Project – UPC 112945



Recommended Project

Rockland Road Grade Separation Project – UPC 112945

Agreement with the VPA

- The VPA has been awarded a BUILD Grant by the Maritime Administration, funds from which will be used to fund the Project
- VPA has requested that VDOT administer the Project: VDOT and the VPA must enter into an agreement for administration of the Project to enable use of Grant funds for the Project.

Current Schedule

Public Hearing and Design Approval for the Project have been completed. Project is currently progressing towards RW phase.

Right of Way NTP	10/28/2022
Project Advertisement	08/08/2023
Project Award	02/13/2024
Project CN Complete	01/09/2026

Rockland Road Grade Separation Project – UPC 112945

Delegation of Authority

- Pursuant to § 33.2-214(C) of the *Code of Virginia* the CTB has the authority to enter into agreements with local districts, commissions, agencies and other entities created for transportation purposes.

- The CTB has been provided with a draft copy of the Interagency Agreement between VDOT and VPA which addresses funding and VDOT administration of the Project.

- VDOT requests that the CTB authorize the Commissioner to sign the agreement with the VPA which will, among other things, enable the VPA to use MARAD grant funds to reimburse Project costs.

QUESTIONS

Randy S. Kiser, P.E.
District Administrator – Staunton District