

## COMMONWEALTH of VIRGINIA Office of the \_\_\_\_\_\_ SECRETARY of TRANSPORTATION

# **SMART SCALE Process Review Update**

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Office of INTERMODAL Planning and Investment







VIRGINIA Space

## Agenda

## SMART SCALE Program History

- Purpose
- Related Virginia Code
- Supporting CTB Policy
- Funding Sources
- Previous Round Summary
- Process Overview

## Potential Issues

- Schedule
- Application Quality

# Why SMART SCALE

- HB 2 of the 2014 General Assembly (SMART SCALE) required the implementation of a formal prioritization process by June 2016
  - Needed to remove the political element and select projects that bring the best value
- It reformed Virginia's transportation programming process by requiring the use of a datadriven, outcome-based prioritization process
- SMART SCALE has improved the transparency and accountability of project selection and improved the stability of the Six-Year Improvement Program
- The process scores projects based on an objective and fair analysis that is applied statewide, helping the CTB select projects that provide the greatest benefits for tax dollars spent

# Virginia Code - Development of Prioritization Process (HB 2)

- Effective July 1, 2014 (as defined in § 33.2-214.1), required the development of a prioritization process that the CTB was to use for project selection by July 2016.
- Benefit-Cost Relationship Required
- Six Factor Areas Required (SCALE) safety, congestion mitigation, accessibility, land use\*, economic development, and environmental quality
- Multi-Modal Project Evaluation must consider highway, transit, rail, roadway, technology operational improvements, and transportation demand management strategies
- Meet a VTrans Need
- Projects must be fully funded when added to the SYIP

\*Note: Land Use is required in populations over 200,000 defined in the 6th enactment clause

## **CTB Policy - SMART SCALE Prioritization Process**

- **1. Six-Year Improvement Program Development Policy** 
  - December 7, 2016
- 2. Policy for Implementation of the SMART SCALE Project Prioritization Process
  - Updated December 8, 2021
- 3. SMART SCALE Cost Overrun Policy
  - October 30, 2018

## **Virginia Code - Transportation Funding Formula**

### The 1986 formula was often referred to as the 40/30/30 formula

- Interstate and Unpaved roads were addressed first, with the balance distributed
  - 40% for the primary system, provided to each district for primary routes using vehicle miles of travel (VMT), primary lane miles, and a needs factor – allocated by the CTB
  - 30% to counties for secondary routes using population and land area controlled by Local Board of Supervisors
  - 30% to cities and towns for urban routes using population controlled by City/Town Council Allocated

The new formula established by HB 1887 distributes the District Grant Program (DGP) funds to the districts in a similar manner as the previous 40/30/30 formula.

## Virginia Code - Transportation Funding Formula (HB 1887, HB 1414)

### § 33.2-358 Allocation of funds to programs

- HB 1887 (Rounds 1 3)
  - Established the State of Good Repair (SGR 45%) High-Priority Projects Program (HPP – 27.5%) and the District Grant Program (DGP – 27.5%)
- HB 1414 (Rounds 4 5)
  - Restructured Virginia's transportation funding model and • updated program shares
  - Enacted changes to statewide revenue sources and regional ٠ funding sources
  - Imposed the regional fuels tax in all areas of the • Commonwealth where it is not imposed to be used in DGP addition to the formula DGP (referred to as the Supplement **District Grant**)



**Program Legend:** 

- IOEP Interstate Operations and Enhancement Program
- HSIP Highway Safety Improvement Program
- SGR State of Good Repair

## Virginia Code - District Grant Program Supported by Regional Gas Tax



## Virginia Code - Example Supplemental Grant (FY 2024)

District	Regional Fuel Tax*	Supplemental DGP	Formula DGP Less Unpaved	Total DGP
Bristol	\$0.0	\$16.6	\$7.7	\$24.3
Culpeper	\$0.0	\$23.2	\$7.6	\$30.8
Fredericksburg	\$0.0	\$17.0	\$11.6	\$28.6
Hampton Roads <sup>1</sup>	\$67.6	\$11.5	\$34.8	\$46.3
Lynchburg	\$0.0	\$21.2	\$8.7	\$29.9
Northern Virginia <sup>2</sup>	\$106.2	\$0.0	\$35.2	\$35.2
Richmond <sup>3</sup>	\$57.6	\$17.5	\$24.4	\$41.9
Salem	\$0.0	\$12.5	\$12.5	\$25.0
Staunton	\$0.0	\$4.4	\$8.8	\$13.2
I-81 Corridor	\$88.1	\$0.0	\$0.0	\$0.0
Grand Total	\$319.5	\$123.8	\$151.4	\$275.2

1 - Regional Fuel Tax in Hampton Roads is directed to HRTAC.

2 - Regional Fuel Tax in Northern Virginia is directed to PRTC and NVTC.

3 - Regional Fuel Tax in Richmond area is directed to CVTA.

## **SMART SCALE Previous Round Summary**

PROJECT APPLICATIONS	FY 2017 ROUND 1	FY 2018 ROUND 2	FY 2020 ROUND 3	FY 2022 ROUND 4	FY 2024 ROUND 5
Submitted	321	436	468	406	413
Scored	287	404	433	397	394
Funded	162	147	134	167	164
Total Funding Requested	\$7.2 B	\$9.7B	\$7.0B	\$6.3B	\$8.3B
Total Funding Allocated	\$1.4 B	\$1.0 B	\$0.9 B	\$1.4 B	\$1.6 B
Value of Projects Supported	\$2.7 B	\$2.4 B	\$5.1 B	\$1.9 B	\$2.3 B

## **SMART SCALE Previous Round Summary Continuous Improvement**

Improvement History	Round 2	Round 3	Round 4	Round 5
Committed to a regular lessons- learned process through engagement with partners and applicants	External review group, surveys, and regional workshops	CTB Retreat, nine regional meetings, and applicant feedback	Fall meetings, public comment, and applicant feedback	Online tools and meetings to work through pandemic disruptions
Committed to research and testing		IMPROVE	MENTS	
Commuted to research and testing				
of best practices Committed to a process of adjustments and feedback, supported by improved tools, training, and guidance for	<ul> <li>Application timing and documentation</li> <li>Common-sense engineering principles</li> <li>Two-year cycle established</li> </ul>	<ul> <li>Application timing extended</li> <li>Project eligibility and readiness bar raised</li> </ul>	<ul> <li>Pre-application limits and schedule modifications</li> <li>Project eligibility restrictions</li> <li>Study requirements refined</li> </ul>	<ul> <li>Cost estimating transparency and consistency</li> </ul>
applicants	<ul> <li>Environmental</li> <li>Considered impact</li> <li>Safety</li> <li>Added crash types with injuries</li> <li>Land Use</li> <li>Added the second measure</li> </ul>	<ul> <li>Began cap limits <u>Economic Dev</u></li> <li>Distinguished the level of readiness for site plans <u>Land Use</u></li> <li>Added non-work accessibility</li> </ul>	<ul> <li><u>Congestion</u></li> <li>Expanded to off-peak</li> <li><u>Safety</u></li> <li>Targeted crash reduction</li> <li>Modified weightings</li> </ul>	<ul> <li>Environmental         <ul> <li>New emissions measures</li> <li>Right-size impact buffer</li> <li>Land Use</li> <li>Expanded to rural localities</li> </ul> </li> </ul>

## **SMART SCALE Prioritization Process**



Adjusting in one area can affect another
 A singular issue identified might be resolved by adjusting multiple components of the process

## **Funding Program Eligibility**

Funding Scenario

HPP Eligibility Eligibility Steps Consensus

#### Defines program eligibility by qualifying entities

Program	VTrans Need Type	Applicant
DGP	Safety or Urban Development Area	Locality
DGP and HPP	Corridor of Statewide Significance or Regional Network	Locality
НРР	Corridor of Statewide Significance or Regional Network	MPO, PDC, or Transit Agency

## **Funding Program Eligibility**



Defines application limits by population

Tier	Localities	MPO, PDC, or Transit Agency	Max Pre- Applications	Max Full Applications
1	< 200,000	< 500,000	5	4
2	>= 200,000	>= 500,000	12	10

## **Application, Screening, and Validation**





## **Area Type and Factor Weighting**





## **Factors and Measures**



#### Measure values are determined by assessing the data and characteristics of the project

Factor	Factor Description	Measure Weight	Measure
Safety	Reduce the number and rate of fatalities and severe injuries	70%	Reduce crash frequency
Congestion	Reduce person-hours of delay and increase person throughput	30%	Reduce crash rate
Accessibility	Increase access to jobs and travel options		
Land Use	Support transportation-efficient land development patterns		
Econ Dev	Support economic development and improve goods movement		
Environment	Improve air quality and avoid impacts to the environment		

See Appendix (p. 32) for an example scorecard including all measures



## **Normalization**

#### Best project for that measure dictates the score for all other projects

	District	Title	Delay Measure (person hours)	Normalized Delay Score
•	Hampton Roads	Hampton Roads Bridge-Tunnel Widening/I-64 Expansion	6436.4	100.0
	Hampton Roads	Battlefield Blvd/Volvo Pkwy Intersection Improvements	1262.4	19.6
	Culpeper	US 250/Route 20 Intersection Improvement	1112.0	17.3
	Hampton Roads	Jefferson Ave & Oyster Point Rd Intersection Improvements	971.3	15.1
	Northern Virginia	Route 1 at Route 123 Interchange Improvements	737.5	11.5
	Northern Virginia	West End Transitway Corridor Investments	643.9	10.0



# Funding Scenario Steps



#### Staff Recommended Funding Scenario Steps

**Step 1** - Fund top-scoring projects within each district eligible for DGP funds using DGP funds until the remaining funds are insufficient to fund the next highest-scoring project.

**Step 2** – Fund top-scoring projects within each district that would have otherwise been funded with available DGP funds but were not because they are only eligible for HPPP funds, using HPPP funds, as long as their SMART SCALE cost does not exceed the total amount of DGP funds available to be programmed based on their rank.

**Step 3** – Fund projects with a benefit relative to SMART SCALE score greater than an established threshold based on the highest project benefit using HPPP funds until funds are insufficient to fund the next unfunded project with the highest project benefit.

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## **Program Delivery**

#### Delivery performance is critical to the SMART SCALE Process

- SMART SCALE has changed how project development and performance is tracked in the agencies
- Projects can be VDOT Administered or Locally Administered
- Critical to address projects that are not moving forward in the process before adding new projects to the program





## **Project Change Process**





## **Potential Issues Identified**

 Indentified Issue	Detail	СТВ
Application Quality	Staff resources are stretched to dedicate to applicant support and application quality	Мау
Process Biases	Applicants may submit projects that they think will be successful, not necessarily the highest priority	June & July
Forward-Looking Process	Process should be more forward-looking to account for future traffic and future economic development	June
Funding Steps	Steps to apply funding	June
Low Scoring Projects	Some districts may have significantly lower SS scores than in other districts, which is inconsistent with the purpose of a statewide prioritization process	July
Emphasis on Safety Priority	Safety is an increasing problem that warrants a higher priority in the prioritization process	July
One Factor Majority	Land use factor has a significant number of projects funded on only that category	July
Disconnect Between Need and Benefit	Perception that projects are not demonstrating a benefit in the factor area related to the Vtrans need for which they were screened in	September
Flexibility in Project Change Process	SMART SCALE project change / cost over-run process is overly burdensome, creates project delays, and interupts normal project development issues	September
Project Performance	Are the projects performing like we said they would? Is the ultilization matching predictions?	September

## **Potential Issues Schedule**

**MAY** Program History, Issue Identification, Application Quality

**JUN** Process Biases (Part 1), Forward-Looking Process, Funding Steps

	Process Biases (Part 2), Low Scoring Projects, Emphasis on Safety Priority,
JUL	One Factor Majority

- 1. Summarize findings to date and gather feedback
- **JUL** 2. Identify any additional focus areas of analysis
  - 3. Discuss preliminary recommendations

AUG No Workshop



Retreat Summary, Disconnect Between Need and Benefit Flexibility in Project Change Process, Project Performance

## **Application Process**





## **Potential Issue Identified - Application Quality**

### Staff resources are stretched to dedicate to applicant support and application quality

- Source Data, VDOT Staff, OIPI Staff, CTB Members
  - Data 50% bigger SYIP program, same staff
  - Round 5 Data Over 50% of submitted applications are "not ready" for scoring at full app submission (90% at pre-application)
  - Round 5 Data 413 received and 152 recommended for funding (37% recommended for funding)
  - $_{\odot}$  Round 5 Data More applications are not an indicator of success
  - VDOT Staff Survey- Time and effort spent on document preparation that ultimately got screened out

### Improvement Areas - Project Eligibility, Readiness, Consensus, Portal

### **Potential Solutions**

- 1. Project Eligibility Reduce the application cap for all entities
- 2. Readiness & SMART Portal Streamline document approvals before final submission
  - Change "conditional screen in" to "conditional screen out"
- Readiness Allow applicants to use their estimate if they agree to cover any shortfall\* VDOT does not validate the estimate
  - \*Note this creates an unfair advantage in the scoring process
- 4. Delivery Tie consensus funding decisions to performance in delivering projects

### **Reduction in cap limit options**

	Tier	Localities	MPO, PDC, or Transit Agency	Max Pre- Applications	Max Full Applications
Evicting	1	< 200,000	< 500,000	5	4
Existing	2	>= 200,000	>= 500,000	12	10
			Option 1	4	3
			Option 1	7	6
			Option 2	3	2
			Option 2	6	5

### Reduce application cap limits to 2 and 5 using Round 5 data

This resulted in a reduction of overall apps from 394 to 259 The overall success rate rose from 39% to 53%

#### For Principal Improvement Type

- Bike/Pedestrian applications fell from 97 to 55
- Highway applications fell from 294 to 201
- Bus Transit applications remained at 3

#### For Area Type

- Area Type A applications fell from 78 to 48
- Area Type B applications fell from 113 to 63
- Area Type C applications fell from 75 to 52
- Area Type D applications fell from 128 to 96

The average total cost of funded projects raised from \$15.1M to \$16.9M The average total request of funded projects raised from \$10.1M to \$11.2M

### Workgroup Feedback

- 1. Recommends reducing the application caps for all entities
  - Focus on improving outcomes
  - Higher quality and focused on priorities
- 2. Recommends solution for readiness & SMART Portal Streamline
  - Provides earlier and targeted support to applicants
- 3. Does not support solution to not validate estimates
- 4. Recommends solution to tie consensus funding decisions to performance in delivering projects

## **Next Steps**

### • June

- Process Biases (Part 1)
- Forward-Looking Process
- Funding Steps

## • July

- Process Biases (Part 2)
- Low Scoring Projects
- Emphasis on Safety Priority
- One Factor Majority
- Retreat (Discuss preliminary recommendations)

- August
  - No meeting



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Thank you





VIRGINIA DEPARTMENT OF RAIL AND PUBLIC TRANSPORTATION









VIRGINIA SPACE

## **Sample Scorecard**



VDOT	DRPT	æ,	Office of INTER Planning ar

#### Kempsville Rd and Battlefield Blvd Intersection Improvements

Project Id: 9146

This project proposes to add a channelized westbound right-turn lane on Kempsville Road at Battlefield Boulevard for vehicles accessing the southbound Great Bridge Bypass/Oak Grove Connector (Bypass) on-ramp to reduce congestion at the intersection. Vehicles turning right to proceed northbound on Battlefield Boulevard or the Bypass will still turn right at the existing signal. The southbound Bypass on-ramp acceleration lane length will also be extended to meet current design standards and improve the operations of merging traffic on the Bypass.

7.4	#68 OF 394 STATEWIDE	SMART SCALE Requested Funds Total Project Cost	\$27,310,700 Meas
SMART SCALE SCORE	#16 OF 54 DISTRICTWIDE	Project Benefit Project Benefit / Total Cost	20.2 7.4
Submitting Entity:	Chesapeake City	ALL AND KENNELE	CIER AND B
Preliminary Engine	ering: Not Started		
Right of Way:	Not Started		Meas
Construction:	Not Started		
Eligible Fund Prog	ram: BOTH		
Evacuation Route:	No	TOTAL CONTRACTOR OF THE	Norm Value
Resiliency Commit	ment: Yes		Meas
VTRANS Need:	RN, Safety		(10 éf)
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SMART SCALE Area Type A															
Factor	Congestion Mitigation		Safety		Accessibility			Economic Development			Environment		Land Use		
Measure	Increase in Peak Period Person Throughput	Reduction in Peak Period Delay	Reduction in Fatal and Injury Crashes	Reduction in Fatal and Injury Crash Rate	Increase in Access to Jobs	Increase in Access to Jobs for Disadvantaged Populations	Increase in Access to Multimodal Travel Choloas	Square Feet of Commercial/Industrial Development Supported	Tans of Goods Impacted	Improvement to Travel Time Reliability	Potential to Improve Air Quality	Impact to Natural and Cultural Reasources	Support of Transportation- Efficient Land Development	Support of Transportation- Efficient Land Development	
Measure Value	1,567.7 persons	131.3 person hrs.	26.3 EPDO	641.7 EPDO/ 100M VMT	59.0 jobs per resident	58.2 jobs per resident	0.0 edjusted users	0.0 edjsq.ft.	5,175.3 delly tons	21,031,900.0 adj. buffer time index	0.3 adjusted points	0.7 impected acres	6.9 access * pop/emp density.h	3.6 access * pop/emp density change.	
Normalized Measure Value (0-100)	63.3	12.8	4.8	0.4	10.9	12.6	0.0	0.0	0.1	0.4	0.3	0.2	10.0	5.1	
Measure Weight (% of Factor)	50%	50%	70%	30%	60%	20%	20%	60%	20%	20%	100%	•	50%	50%	
Factor Value	38.1		3.4		9.0			0.1			0.3	7.6			
Factor Weight (% of Project Score)	45%		5%		15%			5%			10%	5 (max point reduction)	20%		
Weighted Factor Value	17.1		0.2		1.4			0.0			0.0	0.0	1.5		
Project Benefit		20.2													
SMART SCALE Cost		\$27,310,700													
SMART SCALE Score (Project Benefit per \$10M SMART SCALE Cost)		7.4													





#### HOW TO READ A SCORECARD

A project scorecard is prepared for each project that is evaluated and scored. The scorecard is a snapshot of project information and scoring. The following provides a brief overview of the information contained in the scorecard.



 Project Overview: Includes the project name, a short description of the project, and the application ID.

2 Score Summary: Provides the SMART SCALE score, rank, project cost, and benefit.

3 Project Information: Provides information about the project, applicant, delivery status, requested funding, and project need.

Evacuation Route and Resiliency Commitment: Per Virginia Code § 33.2-214.2 B. (ii), it is identified for the applicant whether such projects are located on a primary evacuation route. Per Virginia Code § 33.2-214.2 B. (iii), the applicant self-identifies, whether a project has been designed to be or the project sponsor has committed that the design will be resilient.

5 How to calculate the SMART SCALE Score using the Scoring Table:

- The Measure Value is determined by assessing the data and characteristics of the project and is then normalized as a percentage of the highest Measure Value in that year's cohort of projects.
- 2. The Normalized Measure Value is then multiplied by the Measure Weight.
- 3. Normalized Measure Values are then summed to equal the Factor Value.
- 4. The Factor Value is then multiplied by the appropriate Factor Weight for the area type of the project.
- 5. Project Benefit is then calculated from the sum of the Weighted Factor Values.
- The SMART SCALE Score is calculated by taking the Project Benefit and dividing by the SMART SCALE Cost (in tens of millions).





#### **Explanations of Measures Values:**

- Congestion Mitigation
  - Person throughput is the projected increase in persons moving through the project limits during the peak period for current year.
  - Delay is the projected reduction in cumulative time for all persons to move through the project limits for current year.
- Safety
  - Reduction of fatal and injury crashes and crash rate is calculated using the Equivalent Property Damage Only (EPDO) methodology used by FHWA. This equates all crash severities on the same scale by assigning a higher weight to fatal and injury crashes than those that are property damage only.
  - Crash rate reduction is determined by the number of crashes per 100 Million Vehicle Miles Traveled (VMT). This measure also uses the EPDO methodology stated in the first safety measure.
- Accessibility
  - Access to jobs is the number of jobs to which each person has access within 45 minutes (60 minutes for transit projects). The total number of jobs divided by the population equates to jobs per person.
  - Access to jobs for disadvantaged populations is calculated in the same manner as the first Accessibility measure, only for a particular subset of the population.
  - Increase to multimodal travel choices is determined by how the project supports travel choices and the connections between modes. Points are assigned based on project characteristics, and are then multiplied by the number of non-single occupancy vehicle users.
- Economic Development
  - Square Feet of Commercial and Industrial development supported uses either 50% or 100% of each development's square footage based on the proximity of the development to the project. A point value is then determined based on how the project fits with local and regional economic plans and policy, and is multiplied by the adjusted square feet of development.
  - Tons of goods impacted determines the amount of daily freight tons impacted by the project and multiplies the tonnage by a point value based on certain criteria.
  - Improvement to travel time reliability uses weather event frequency and impact as well as incident frequency and impact along with a buffer index to evaluate the improvement in travel time reliability. This value is multiplied by corridor Vehicle Miles Traveled (VMT) to scale the results.
- Environment
  - Potential to improve air quality based on project benefits to non-single occupancy vehicle (SOV) users and reduced delay for freight movement.
  - Evaluates potential natural and cultural acreage impacted using a tiered buffer around the project limits, and is a subtractive measure based on the total potential sensitive acreage impacted.
- Land Use
  - Future Transportation Efficient Land Use measure reports a project's non-work accessibility scaled by the surrounding area's 2030 population and employment density.
  - Increase in Transportation Efficient Land Use measure reports a project's non-work accessibility scaled by the surrounding area's 2010 to 2030 increase in population and employment density.