

SMART SCALE Analysis and Observations for the Roanoke Valley – Alleghany Region

October 24, 2019

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Introduction

At the March 2019 Roanoke Valley Transportation Planning Organization (RVTPO) Policy Board meeting, a request was made of staff to perform an in-depth analysis of the SMART SCALE program and its impacts on transportation in the region. Staff performed the analysis and presented it to RVTPO in May 2019. Staff then broadened the scope of the analysis to the entire Roanoke Valley-Alleghany Regional Commission area with the intent of:

Addressing

- The overall performance of Roanoke Valley-Alleghany Region;
- The reasons for successes and disappointments; and

Answering

- What are the impacts of leveraging funds; and

Exploring

- Differing processes in project selection;
- External forces statewide contributing to success and loss in the region; and

Developing

- Strategies for continued success based on outcomes of the first three rounds of SMART SCALE.

This analysis examines the most recent Round 3 – FY 2020 round of applications, as well as the Round 1 – FY 2017 and Round 2 – FY 2018. It is similar to the previous report prepared for the RVTPO, with differences due to:

- Inclusion of rural localities in the RVARC area but outside of the RVTPO boundaries
- Inclusion of projects applied for by RVARC on behalf of rural localities
- Inclusion of VDOT Staunton district as well as VDOT Salem district, because some RVARC localities are in the Staunton district while all RVTPO localities are in the Salem district
- Final allocations made in June 2019, after the analysis had been prepared
- Allocation of additional High Priority funding that had become available

1. SMART SCALE Report Card for the Roanoke Valley-Alleghany Region

Over the cumulative three-round SMART SCALE period, the region and individual localities and agencies have brought it over \$93 million with a funding rate of 39% of projects submitted. Table 1 measures the success rate of each locality and agency over the course of the all three SMART SCALE rounds. Franklin County, Salem, and Roanoke have had over half of their submitted projects funded.

Table 1. RVARC Success Rounds 1 - 3

Organization	Projects Submitted	Projects Funded	Funding Requested	Funding Allocated	Percent Request Allocated
Alleghany County	0	0			
Botetourt County	8	1	\$88,387,591	\$4,251,000	5%
Clifton Forge	3	1	\$4,812,534	\$843,914	18%
Covington	4	0	\$19,010,995	\$0	0%
Craig County	0	0			
Franklin County	7	6	\$43,442,787	\$33,053,787	76%
Roanoke City	13	4	\$268,145,648	\$21,367,196	8.0%
Roanoke County	13	7	\$71,639,278	\$13,060,423	18%
Rocky Mount	4	1	\$161,069,430	\$5,834,264	4%
RVARC	4	1	\$174,455,530	\$4,926,472	3%
Salem	6	4	\$25,913,823	\$10,038,044	39%
Vinton	2	0	\$9,641,828	\$0	0%
Total	64	25	\$866,519,444	\$93,375,100	10.8%

Tables 2, 3, and 4 show how each locality and agency fared in each SMART SCALE round. The Request to Allocation Ratio is the proportion funded to the amount requested. While statewide SMART SCALE funding has fluctuated, RVARC allocations have been consistently close to \$30 million each round.

Table 2. RVARC Success Round 1 – FY 2017

Organization	Projects Submitted	Projects Funded	Funding Requested	Funding Allocated	Percent Request Allocated
Alleghany County	0				
Botetourt County	1	0	\$35,151,285		0%
Clifton Forge	2	1	\$2,187,828	\$843,914	39%
Covington	0				
Craig County	0				
Franklin County	1	1	\$2,718,576	\$2,718,576	100%
Roanoke City	5	2	\$160,265,213	\$14,996,245	9%
Roanoke County	4	3	\$21,026,380	\$8,079,834	38%
Rocky Mount	1	0	\$3,676,530		0%
RVARC	3	0	\$169,529,058		0%
Salem	2	2	\$3,797,865	\$3,797,865	100%
Vinton	0				
Total	19	9	\$398,352,735	\$30,436,434	8%

Table 3 RVARC Success Round 2 – FY 2018

Organization	Projects Submitted	Projects Funded	Funding Requested	Funding Allocated	Percent Request Allocated
Alleghany County	0				
Botetourt County	3	0	\$21,172,902	\$0	0%
Clifton Forge	0				
Covington	0				
Craig County	0				
Franklin County	2	2	\$7,690,211	\$7,690,211	100%
Roanoke City	4	1	\$88,239,948	\$3,552,247	4%
Roanoke County	5	3	\$19,636,678	\$3,318,369	17%
RVARC	1	1	\$11,506,900	\$5,834,264	51%
Rocky Mount	1	1	\$4,926,472	\$4,926,472	100%
Salem	3	2	\$17,749,958	\$6,240,179	35%
Vinton	1	0	\$2,796,828	\$0	0%
Total	20	10	\$173,719,897	\$31,561,742	18%

Table 4 RVARC Success Round 3 - FY 2020

Organization	Projects Submitted	Projects Funded	Funding Requested	Funding Allocated	Percent Request Allocated
Alleghany County	0				
Botetourt County	4	1	\$32,063,404	\$4,251,000	13%
Clifton Forge	1	0	\$2,624,706		0%
Covington	4	0	\$19,010,995		0%
Craig County	0				
Franklin County	4	3	\$33,034,000	\$22,645,000	69%
Roanoke City	4	1	\$19,640,487	\$2,818,704	14%
Roanoke County	4	1	\$30,976,220	\$1,662,220	5%
RVARC	2	0	\$145,886,000		0%
Rocky Mount	0				
Salem	1	0	\$4,366,000		0%
Vinton	1	0	\$6,845,000		0%
Total	25	6	\$294,446,812	\$31,376,924	11%

Is the RVARC service area competitive statewide or within its districts? Tables 5, 6, and 7 show how the RVARC service area¹ compared statewide, to the Salem and Staunton Districts, and the other seven VDOT Districts. In Rounds 1 and 3, multi-hundred-million-dollar projects concentrated a significant portion of total SMART SCALE funding in one or two districts. The RVARC service area garnered a higher percentage (25% compared to 12% in Round 1 and 7% in Round 3) of its requested funding in Round 2 that was not as skewed by large projects funded elsewhere in the state. RVARC-area success was also affected by RVTPO success, which accounted for about half of RVARC-area funding in Rounds 1 and 2 but had zero projects funded in Round 3.

¹ The RVARC service area includes RVARC, member localities, RVTPO, and Valley Metro. Tables 5-7 show the RVARC service area. Tables 1-4, on the other hand, show RVARC and its member localities, but not RVTPO or Valley Metro (neither of which are RVARC members).

Table 5 RVARC vs. State and Districts, Round 1 - FY 2017

		Projects Submitted	Projects Funded	Funding Requested	Funding Allocated	Percent Request Allocated
	RVARC Area	25	13	\$554,236,099	\$65,582,566	12%
	Statewide	287	163	\$7,385,409,505	\$1,416,232,205	19%
VDOT Districts	Salem	37	20	\$709,225,480	\$113,441,188	16%
	Staunton	29	18	\$407,448,406	\$105,772,855	26%
	Bristol	22	10	\$214,816,429	\$71,164,603	33%
	Culpeper	17	11	\$353,476,755	\$80,432,133	23%
	Fredericksburg	22	19	\$371,789,273	\$204,620,173	55%
	Hampton Roads	40	21	\$2,006,965,689	\$332,417,789	17%
	Lynchburg	36	23	\$188,331,256	\$85,765,598	46%
	NOVA	45	18	\$2,527,650,042	\$222,854,393	9%
	Richmond	39	22	\$605,706,175	\$199,763,473	33%

Table 6 RVARC vs. State and Districts, Round 2 - FY 2018

		Projects Submitted	Projects Funded	Funding Requested	Funding Allocated	Percent Request Allocated
	RVARC Area	25	11	\$260,226,744	\$63,729,853	25%
	Statewide	404	147	\$8,566,240,501	\$1,026,812,430	12%
VDOT Districts	Salem	50	18	\$714,423,044	\$70,972,299	10%
	Staunton	42	19	\$562,376,356	\$40,704,620	7%
	Bristol	42	9	\$1,030,904,768	\$24,028,700	2%
	Culpeper	35	11	\$318,707,245	\$56,132,245	18%
	Fredericksburg	25	9	\$494,895,227	\$47,864,525	10%
	Hampton Roads	52	25	\$1,542,645,106	\$230,515,811	15%
	Lynchburg	28	10	\$217,999,726	\$37,184,410	17%
	NOVA	58	21	\$2,612,407,487	\$367,292,726	14%
	Richmond	72	25	\$1,141,901,542	\$152,117,094	13%

Table 7 RVARC vs. State and Districts, Round 3 - FY 2020

		Projects Submitted	Projects Funded	Funding Requested	Funding Allocated	Percent Request Allocated
	RVARC Area	29	6	\$423,079,812	\$31,376,924	7%
	Statewide	433	98	\$7,355,892,214	\$741,756,395	10%
VDOT Districts	Salem	45	6	\$548,939,659	\$31,376,924	6%
	Staunton	70	16	\$485,462,863	\$28,544,355	6%
	Bristol	44	3	\$787,928,936	\$20,061,316	3%
	Culpeper	42	4	\$715,427,347	\$20,809,265	3%
	Fredericksburg	32	10	\$397,476,026	\$39,826,465	10%
	Hampton Roads	54	26	\$821,030,650	\$285,098,978	35%
	Lynchburg	28	8	\$239,704,066	\$52,136,609	22%
	Northern Virginia	39	11	\$2,046,026,993	\$199,826,065	10%
	Richmond	79	14	\$1,313,895,674	\$64,076,418	5%

2. Success is Only as Good as the Last Funded Application

Characteristics of successful projects from RVARC and RVARC members are:

- Identification of crucial Corridor of Statewide Significance, Regional Network, Urban Development Areas, and Safety needs which were captured in VTrans2040 (all funded projects);
- Projects with leverage (Business Park Access Road with ARC support in Clifton Forge, U.S. 220 at International Pkwy Intersection Improvements in Botetourt County, Williamson Rd Sidewalk Improvements in Roanoke County);
- Relatively inexpensive locality projects seeking District Grant Program funding only (Lila Dr./Rte. 115 Intersection Safety Improvements, Rte. 311/419 Intersection Safety & Congestion Improvements).

“You can’t win them all,” but lessons can be learned. Reasons for project funding being denied include:

- Low cost benefit in proportion to its size and scope;
- Low scores in the Accessibility and Economic Development factors which each have the highest factor weighting of 20%;
- No leveraged funding to projects which had scores nearing the cutoff line for funding; and
- No significant change in scope to projects reapplying for SMART SCALE whose initial score was low.

It’s frustrating to pursue funding for an important project that doesn’t get funded, and it can be difficult to understand why funding decisions were made and whether the allocation is fair. The following is an overview of SMART SCALE funding programs and priorities.

The General Assembly adopted legislation in 2015, enacted as Code of Virginia § 33.2-370 and 33.2-371, which funds the High Priority Projects Program and highway construction District Grant Programs. Until July 1, 2020, all state transportation funds not allocated to other highway purposes will be designated for the High Priority and District Grant equally at 50%. After July 1, 2020, remaining funds will be apportioned:

- State of Good Repair (deficient pavement conditions and structurally deficient bridges) – 45%
- High Priority Projects Program – 27.5%
- District Grant Program – 27.5%

Because the SMART SCALE program does not include State of Good Repair, overall state funding of High Priority and District Grants before and after 7/1/2020 will not affect the 50/50 distribution in SMART SCALE.

High Priority Projects are those of regional and statewide significance identified by the Commonwealth Transportation Board (CTB) which seek to, “...reduce congestion, increase safety, create jobs, or increase economic development.” For this region, that refers to the following Corridors of Statewide Significance: Interstate 81, Interstate 581, U.S. 11, U.S. 11 Alternate, U.S. 220, U.S. 220 Alternate, and U.S. 460.

High Priority Projects compete statewide. Localities compete for District Grants within their VDOT district.

The Code of Virginia (§ 33.2-371) outlines the criteria for allocating District Grants among VDOT Construction Districts (Table 8). Population determines 54% of the funding (yellow highlight).

Table 8 Criteria for Determining District Grant Program Funding

Criteria	Percentage of Overall Determination
Ratio of population of cities and towns eligible to receive maintenance payments by District divided by all eligible cities and towns in the Commonwealth	30%
Ratio of vehicle miles traveled (VMT) on primary highways within the District divided by VMT on all primary highways in the Commonwealth.	28%
Ratio of the population of counties in a Construction District divided by the total population of all counties in the Commonwealth.	24%
Ratio of the number of primary lane-miles in the District divided by the total of primary lane-miles in the Commonwealth.	10%
Ratio of the land area of counties in the District divided by the total land area of all counties in the Commonwealth.	6%
A primary need factor which addresses the largest under-allocation to Construction Districts relative to primary needs.	2%

The populations of the VDOT Construction Districts are not evenly distributed. Salem and Staunton district populations are in the middle of the distribution (Table 9). Other criteria, such as vehicle miles traveled and lanes of primary highways, affect the amount of District Grant Program funding each district receives (Table 9). Note that Fredericksburg and Staunton districts change places in the ranking of population to the ranking of District Grant Program, as do Lynchburg and Culpeper districts.

Table 9 2017 VDOT Construction District Populations and FY 2020 District Grant Program Funding

VDOT District	Population		VDOT District	DGP Funding
1 Bristol	348,862		1 Bristol	\$20,061,316
2 Lynchburg	399,270	→	2 Culpeper	\$20,809,265
3 Culpeper	412,685	→	3 Lynchburg	\$21,204,905
4 Fredericksburg	501,541	→	4 Staunton	\$25,335,299
5 Staunton	555,049	→	5 Fredericksburg	\$28,178,826
6 Salem	694,336	→	6 Salem	\$31,376,924
7 Richmond	1,300,765		7 Richmond	\$60,407,418
8 Hampton Roads	1,766,213		8 Hampton Roads	\$83,643,978
9 Northern Virginia	2,491,299		9 Northern Virginia	\$88,204,371

Source: Weldon Cooper Center for Public Service 2010-2017 Intercensal Population Estimates

SMART SCALE allocates 50% to High Priority and 50% to District Grants. For the Round 2 only, there was an additional \$300 million in federal High Priority funds. Table 10 shows the distribution of High Priority funds from all three rounds. The Salem District received 4% (\$66,911,576) and the Staunton District received 3% (\$56,498,437) of the total \$1,854,536,972 in High Priority funds allocated through all three rounds of SMART SCALE.

Table 10 Statewide Distribution of High Priority Program Funding

VDOT District	Round 1 – FY 2017		Round 2 – FY 2018		Round 3 – FY 2020	
	HPP Funding	Percentage	HPP Funding	Percentage	HPP Funding	Percentage
Bristol	\$8,925,584	1.1%	\$2,817,806	0.4%	\$-	0%
Culpeper	\$25,559,585	3.1%	\$36,670,555	5.6%	\$-	0%
Fredericksburg	\$144,115,767	17.3%	\$23,528,870	3.6%	\$11,647,639	3%
Hampton Roads	\$154,384,282	18.5%	\$150,334,113	22.8%	\$201,455,000	56%
Lynchburg	\$22,668,708	2.7%	\$12,630,159	1.9%	\$30,931,704	9%
NOVA	\$339,798,423	40.8%	\$287,625,771	43.7%	\$111,621,694	31%
Richmond	\$72,351,951	8.7%	\$90,390,348	13.7%	\$3,669,000	1%
Salem	\$28,572,777	3.4%	\$38,338,799	5.8%	\$-	0%
Staunton	\$36,855,128	4.4%	\$16,434,253	2.5%	\$3,209,056	1%
TOTAL	\$833,232,205	100.0%	\$658,770,674	100.0%	\$362,534,093	100%

Not every project is eligible for High Priority funding. High Priority funding is reserved for Corridors of Statewide Significance and projects must show regional support (Table 11).

Table 11 Eligibility to Submit High Priority Program Projects on Corridors of Statewide Significance

Project Type	MPOs and PDCs	Localities	Public Transit Agencies
Corridor of Statewide Significance	Yes	Yes, with a resolution of support from relevant MPO or PDC	Yes, with resolution of support from relevant MPO or PDC

Table 12 shows number of applications submitted versus funded, total and SMART SCALE cost of all applications, and total and SMART SCALE cost of all funded applications.

Table 12 Statewide SMART SCALE Performance

Round	All Applications				Funded Applications	
	Projects Submitted	Projects Funded	Project Cost	Funding Requested	Project Cost	Funding Allocated
Round 1 – FY 2017	321	163	\$13.4 billion	\$7.4 billion	\$3.2 billion	\$1.7 billion
Round 2 – FY 2018	436	137	\$10.9 billion	\$8.6 billion	\$2.3 billion	\$971 million
Round 3 – FY 2020	433	98	\$12.3 billion	\$7.4 billion	\$4.8 billion	\$742 million

Round 3 – FY 2020 had the **same number** of applicants as Round 2 – FY 2018 (433 vs. 436), with

- **double the total cost** funded (\$4.8 billion vs. \$2.3 billion): More expensive projects were funded
- **24% less in total SMART SCALE cost** (\$742 million vs. \$971 million): Applicants contributed leveraging funds
- **28% fewer applications funded** (98 vs. 137)

3. Leverage

When a project isn't funded in SMART SCALE, it is often thought that if there were enough leveraged funds available that a project could have been funded. But is a project worth funding if the applicant must leverage over 75% of the project cost? Northern Virginia and Hampton Roads Districts use leveraged funding as the primary source for large-scale, high cost projects and SMART SCALE funding to complete the *last mile*, because they can. Northern Virginia and Hampton Roads have transportation authorities which can raise funds. Metropolitan planning organizations have access to Surface Transportation Block Grant funds which they can use as leverage. Localities outside of Northern Virginia and Hampton Roads that are not within a metropolitan planning organization have fewer options for leverage, but could set aside capital improvement funds over a period of years in anticipation of a SMART SCALE application for a high-benefit project, whether or not it is also high-cost.

Table 14 shows the hypothetical leverage needed for projects in Round 3 – FY 2020 which were not recommended for funding. One project, Valley View Blvd / Aviation Drive Pedestrian Improvements, leveraging \$87,131 (3%) would have brought its score into a fundable range. Due to its low cost, additional reasonable leverage may have made it successful. Other projects would have needed significant leverage, from \$1 million to \$5 million, 36% to 96% of the total cost. Leverage alone isn't enough. Covington's Jackson Street Improvements had such a low benefit score that the leverage required to bring the score up to a fundable range is almost 100% of the total cost of the project (\$10 million leverage for \$30,000 SMART SCALE funding).

Hypothetical Analysis

Table 13 FY 2020 SMART SCALE Project Leverage Calculations

Applicant	Project Title	Project Benefit Score	Total Cost	SMART SCALE Request	Original Leverage	Percent Leverage	SMART SCALE Score	Additional Leverage	Additional Percent Leverage	Maximum SMART SCALE Request Necessary for Funding	Total Leverage Amount Required for SMART SCALE Funding	Total Percent Leverage
Botetourt	Route 220 Superstreet Improvement	1.48	\$6,361,000	\$6,361,000	\$-	0%	2.33	\$2,493,527	39%	\$6,361,000	\$2,493,527	39%
Botetourt	Glebe Road Alignment and Bike/Pedestrian Improvements	0.28	\$2,823,000	\$2,060,404	\$762,596	27%	1.34	\$1,337,587	47%	\$2,823,000	\$2,100,183	74%
Clifton Forge	Ridgeway Street/U.S. 60 Bicycle/Pedestrian Improvements	0.32	\$2,624,706	\$2,624,706	\$-	0%	1.23	\$1,780,957	68%	\$2,624,705	\$1,780,957	68%
Covington	Paper Trail Pedestrian Bridge	0.04	\$2,577,006	\$2,577,006	\$-	0%	1.23	\$2,467,588	96%	\$2,577,005	\$2,467,588	96%
Covington	Jackson Street Improvements	0.01	\$10,254,306	\$10,254,306	\$-	0%	0.01	\$10,224,170	100%	\$10,254,305	\$10,224,170	100%
Covington	Edgemont Drive Improvements	0.36	\$3,742,156	\$3,742,156	\$-	0%	0.97	\$2,794,253	75%	\$3,742,155	\$2,794,253	75%
Covington	East Madison Sidewalk Improvements	0.35	\$2,437,527	\$2,437,527	\$-	0%	1.43	\$1,529,316	63%	\$2,437,526	\$1,529,316	63%
Franklin	Roadway Improvements on Routes 220/613 (Naff Road)	2.54	\$10,389,000	\$10,389,000	\$-	0%	2.44	\$3,765,235	36%	\$10,389,000	\$3,765,235	36%
Roanoke City	Valley View Blvd / Aviation Drive Pedestrian Improvements	1.12	\$3,022,859	\$3,022,859	\$-	0%	3.72	\$87,131	3%	\$3,022,859	\$87,131	3%
Roanoke City	Main Street (Rte 221) Corridor Improvements	1.12	\$30,696,924	\$6,696,924	\$24,000,000	78%	1.67	\$3,780,545	12%	\$30,696,924	\$27,780,545	90%
Roanoke County	Old Cave Spring Road Improvements	0.54	\$2,561,000	\$2,561,000	\$-	0%	2.11	\$1,153,339	45%	\$2,561,000	\$1,153,339	45%
Roanoke County	McVitty Road Improvements	0.70	\$9,998,000	\$9,998,000	\$-	0%	0.70	\$8,178,439	82%	\$9,997,999	\$8,178,439	82%
Salem	Downtown Salem - College Avenue Improvements	0.77	\$4,366,000	\$4,366,000	\$-	0%	1.75	\$2,367,217	54%	\$4,365,999	\$2,367,217	54%
Vinton	Walnut Avenue Corridor Improvements Phase 2 Project	0.75	\$6,845,000	\$6,845,000	\$-	0%	1.10	\$4,883,368	71%	\$6,844,999	\$4,883,368	71%

4. Change is Good?

This section will explore the:

- The number of applications submitted from localities, MPOs, PDCs, and transit agencies in each Round; and
- SMART SCALE scoring process.

Round 3 Application Limits

Following Round 2, a limit was placed on the number of applications allowed per applicant. This is a two-tiered system based on population thresholds (Table 14).

Table 14 Round 3 Application Limits

Tier	Localities	MPOs/PDCs/Transit Agencies	Maximum Number of Applications
1	Population less than 200,000	Population less than 500,000	4
2	Population greater than 200,000	Population greater than 500,000	10

Notes: 1) Population determined by 2010 Census, and 2) Population used for a PDC is reduced by the MPO population within the PDC boundary.

Based on the new application limits for Round 3 – FY 2020, all localities and agencies in the RVARC area were limited to four applications. The application limits resulted in minimal changes statewide regarding how many projects were applied for by individual locality or agency. Some of the same localities such as Chesterfield County, who applied for 31 projects in Round 2, used their new maximum limit of 10 in Round 3. Some rural localities that had not submitted any applications in Rounds 1 or 2 applied for the maximum of four projects in Round 3.

SMART SCALE Scoring Process

SMART SCALE scoring calculations have remained constant throughout three rounds of the process. Figure 1 shows the SMART SCALE process for project evaluation and scoring.

A project is successfully screened in if it has needs identified in at least one or more of the VTrans2040 Needs Assessment categories for:

- Corridors of Statewide Significance
- Regional Networks
- Urban Development Areas
- Safety

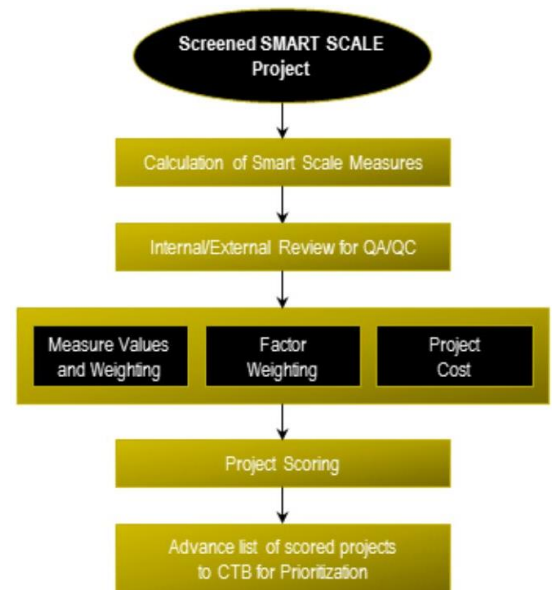


Figure 1 SMART SCALE project evaluation and scoring

All projects are evaluated on Safety, Congestion Mitigation, Accessibility, Economic Development, and Environmental Quality factors. For metropolitan planning organizations (MPO) with populations over 200,000, a sixth factor of Land Use Coordination is evaluated. However, different areas have a different emphasis on these factors: rural areas are less concerned about congestion mitigation, for example. To account for this, SMART

SCALE applies weighting to the factors depending on the typology of the region (Figure 2). The RVARC weighting typology is Category D and the RVTPO is Category B. Table 22 gives the weightings for each typology (Table 15).

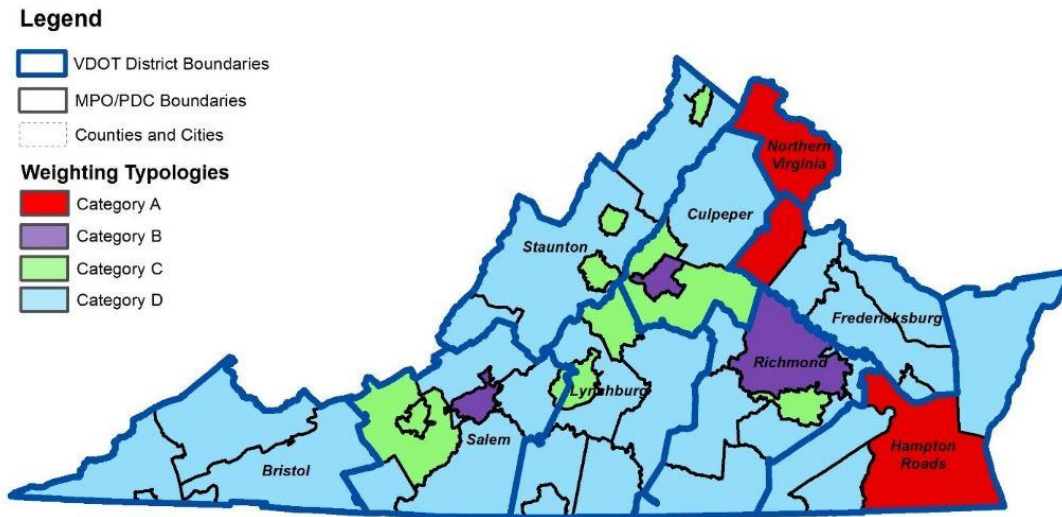


Figure 2 Statewide PDC-MPO Factor Weighting Typology Map

Table 15 SMART SCALE Factor Weights by Typology

Typology	Congestion Mitigation	Economic Development	Accessibility	Safety	Environmental Quality	Land Use
Category A	45%	5%	15%	5%	10%	20%
Category B	15%	20%	25%	20%	10%	10%
Category C	15%	25%	25%	25%	10%	-
Category D	10%	35%	15%	30%	10%	-

PROJECT SCORECARD

For more information on how to read a scorecard, click here.

Roadway Improvements on Rtes 220/619(Pleasant Hill/Sontag)

Project Id: 3597

RCUT at intersection for Rtes 220/619 (Pleasant Hill) add SBLT; RT lane on Rte 619 (Sontag Road)

Submitting Entity: Franklin County
Preliminary Engineering: Not Started
Right of Way: Not Started
Construction: Not Started
Eligible Fund Program: Both
VTRANS Need: CoSS
(click here for details)



9.1
SMART SCALE SCORE

#43 OF 433 STATEWIDE

#2 OF 45 DISTRICTWIDE

SMART SCALE Requested Funds..... **\$5,928,000**
Total Project Cost..... **\$5,928,000**
Project Benefit..... **5.4**
Project Benefit / Total Cost..... **9.1**

SMART SCALE Area Type D														
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 Choices	Square Feet of Commercial/Industrial Development Supported	Tons of Goods Impacted	Improvement to Travel Time Reliability	Potential to Improve Air Quality	Other Factor Values Scaled by Potential Acreage Impacted	Transportation Efficient Land Use	Increase in Transportation Efficient Land Use
Measure Value	0.0 persons	1.0 person hrs.	53.3 EPDO	6,362.7 EPDO / 100M VMI	0.0 jobs per resident	0.0 jobs per resident	0.0 adjusted users	92,710.0 thousand adj sq. ft.	102,032.8 thousand adj daily tons	1,004,285.5 adj. buffer time index	654.0 adjusted points	4.5 scaled points	access * pop/emp density.h	access * pop/emp density change.
Normalized Measure Value (0-100)	0.0	0.0	15.3	13.1	0.0	0.0	0.0	0.5	2.2	0.0	4.6	13.6		
Measure Weight (% of Factor)	50%	50%	50%	50%	60%	20%	20%	60%	20%	20%	50%	50%	N/A	N/A
Factor Value	0.0		14.2		0.0			0.7			9.1			
Factor Weight (% of Project Score)	10%		30%		15%			35%			10%		N/A	
Weighted Factor Value	0.0		4.3		0.0			0.3			0.9			
Project Benefit	5.4													
SMART SCALE Cost	\$5,928,000													
SMART SCALE Score (Project Benefit per \$10M SMART SCALE Cost)	9.1													

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Figure 3 Project Scorecard for Roadway Improvements on Rtes 220/619(Pleasant Hill/Sontag)

Each of the six factors is composed of two or three performance measures, which are also weighted.

- Once the highest score in each of the measures is determined, a value of 100 is assigned and the normalized weighting of measures for all other projects is a percentage of that project to the highest.
- The normalized values are multiplied by their weighting and added to all other measures to yield a factor value.
- The factor value is multiplied by the typology weight.
- The Project Benefit Score is the sum of all the weighted factors.
- The SMART SCALE Score is the Project Benefit Score divided by the SMART SCALE project cost in \$10 millions.

The SMART SCALE Score is the value of benefit for every dollar invested. The Roadway Improvements on Rtes 220/619(Pleasant Hill/Sontag) project has a Project Benefit Score of 5.4 and requested \$5,928,000, the total cost of the project (Figure 3). The SMART SCALE Score is 9.1 ($5.4/0.59 = 9.1$). The high score (5.4) and the low cost (\$5.9 million) resulted in this project being funded, even without any additional leveraged funding.

5. That's Perfectly Normal...ized

Since Round 1, staff have observed a variety of contributing factors to the approval and denial of some SMART SCALE applications in the RVARC service area:

Reasons for Approval

- In some rounds, the highest normalized score for a factor is not as strong compared to other factors. This can be an advantage for projects which may have an overall benefit score on the borderline;
- Smaller cost projects with high benefit;
- Substantial future development and development potential of property surrounding the proposed project area, which results in the capitalization of points from the Economic Development factor, whose measures are weighted at 20% of the total score;
- Projects that successfully provide access to more jobs in a 45-minute (highway) and 60-minute (transit) travel time from each block group to every other block group, provide access to more jobs in a 45- and 60-minute travel time for disadvantaged populations, and increase access to multimodal choices score well on the Accessibility factor whose measures are weighted at 25% of the total score;
- Although not as great as the largest metropolitan regions in the Commonwealth, those projects in the region which have successfully leveraged funds have an advantage over more rural localities which may have little to no ability to leverage;
- Projects featuring VDOT-promoted Innovative Intersections, such as Roadway Improvements on Rtes 220/629(Pleasant Hill/Sontag) with a Restricted Crossing U-Turn (RCUT), because they tend to have high benefit for lower cost; and
- Leveraging of significant funding on projects with the realized potential for a high cost benefit.

Reasons for Denial

- HPP "congestion" projects are competing against those in Northern Virginia, Hampton Roads, or the Fredericksburg Area MPO where the congestion factor carries a weighting of 45% (most weighting given to any single factor in any typology statewide). Projects in those regions that alleviate congestion are the highest scoring in each round;
- Projects that lack in the provision of access to: more jobs in a 45-minute (highway) and 60-minute (transit) travel time between block groups, and more jobs in a 45 and 60-minute travel time for disadvantaged populations;
- Large, high-cost projects with low cost-benefit scores
- No leveraged funding to increase the project score;

- Disproportionately leveraged funding, which is either due to low cost benefit potential, or limitations on the amount of leverage available to allocate to a project; and
- Expensive applications competing for HPP funding against localities in Northern Virginia and Hampton Roads face enormous fund-leveraging ability and larger populations which yield the potential for higher project cost benefits for those reasons.

There has been much discussion regarding the 45 percent weighting that the Congestion factor receives on all projects in the Northern Virginia, Hampton Roads Districts and the Fredericksburg Area MPO. It is true that when *congestion* projects are scored, projects from those districts are typically found to be the highest in the category. What should be considered is that this high weighting can be a blessing and a curse. In Round 3, Hampton Roads has 26 projects recommended for funding—the most statewide. Twenty-three of those projects have a SMART SCALE cost of less than \$10 million (Table 16).

When reviewing these projects, it becomes apparent that the 45% Congestion Mitigation factor weighting is only beneficial for funding it: 1) it scores well in Congestion Mitigation, and 2) if the project ALSO scores relatively well in several of the other factors. Nine of the projects (highlighted in Table 16) feature widening and intersection improvements (countermeasures for congestion mitigation) but received 0 points for congestion – they scored well in other factors. Not all projects are congestion projects, therefore the 45% weighting cannot be relied upon to score well, rather it must do so in the other factors.

The Salem and Staunton Districts have similar issues with scoring well in several categories. Economic Development and Safety are the important factors for Salem and Staunton districts. The Hampton Roads District only has a category weighting of 5% for each of these categories, unlike the RVARC service area which has weightings of 20% for the same. Having a high factor weighting with little to no points scored in it is not helpful in any District.

Table 16 Round 3 – FY 2020 Congestion Factor Values of Hampton Roads District Projects Recommended for Funding

Project Title	Congestion Factor Value	Project Benefit Score	Total Project Cost	SMART SCALE Cost	Leverage (%)	SMART SCALE Score
Hampton Roads Bridge-Tunnel Widening/I-64 Expansion	100	74.16	\$3,662,372,004	\$200,000,000	95	3.71
Battlefield Blvd/Volvo Pkwy Intersection Improvements	5.4	9.09	\$1,475,129	\$1,447,129	2	62.83
Jefferson Ave & Oyster Point Rd Intersection Improvements	4.8	7.25	\$10,856,521	\$10,856,521	0	6.68
Ballentine Blvd Lane Improvements	0	5.52	\$1,067,388	\$1,067,388	0	51.75
Virginia Beach Blvd Widening – George St to Newtown Rd	0	3.71	\$15,701,021	\$15,701,021	0	2.37
Terminal Blvd/Diven St Intersection Improvements	0	3.32	\$1,732,600	\$1,732,600	0	19.19
Shoulder Widening Rte. 13	0	3.04	\$2,923,357	\$2,923,357	0	10.41
Portsmouth Railroad Crossing Message Signs	0	2.72	\$753,699	\$570,000	24	47.68
N Armistead Ave Reconstruction, Ped, & Drainage Impr.	0	1.85	\$5,298,528	\$4,818,528	9	3.83
Route 31 Bicycle Accommodations	0	1.72	\$9,600,000	\$9,600,000	0	1.79
Warwick Blvd & Oyster Point Rd Intersection Improvements	0.2	1.64	\$5,445,737	\$5,445,737	0	3.01
Hampton Roads Center Pkwy Bike & Pedestrian Access	0	1.39	\$2,163,325	\$2,158,325	0	6.42
J. Clyde Morris Blvd Intersection Improvements	0.1	1.34	\$1,768,528	\$1,768,528	0	7.58
Monticello Ave-Richmond Rd-Lafayette St Roundabout	0	1.20	\$6,381,090	\$6,381,090	0	1.88
Richmond Rd. Signal Coordination & Pedestrian Impr.	0	1.17	\$203,500	\$203,500	0	57.28
Lafayette Street Widening	0	0.84	\$5,870,000	\$4,329,000	26	1.94
Longhill Road Shared Use Path	0	0.81	\$4,400,000	\$4,400,000	0	1.83
General Booth Blvd/Oceana Blvd Intersection Improvements	0	0.80	\$4,100,277	\$3,600,000	12	2.21
Rte. 171 capacity enhancements between Rtes. 134 & 1740	0	0.73	\$3,630,000	\$2,420,000	33	3.03
Wakefield 460 Eastbound Turn Lane	0	0.61	\$994,846	\$981,290	1	6.21
Lafayette Street Signal & Pedestrian Improvements	0	0.60	\$91,000	\$91,000	0	65.74
Bicycle Lane on US Business 13	0	0.56	\$2,360,061	\$2,360,061	0	2.37
HWY 301S Sidewalk Greensville Project	0	0.55	\$576,903	\$576,903	0	9.54
Carrollton Boulevard (Route 17) Crosswalks	0	0.08	\$212,000	\$212,000	0	3.82
WATA Bus Stop Pull-Offs	0.2	0.60	\$255,000	\$255,000	0	22.20
Newport News Shipyard - Gloucester MAX Service	0.1	0.90	\$1,200,000	\$1,200,000	0	7.50

6. What do We Get from All of This?

Innovative Intersections are often a better cost-benefit solution to traditional interchanges and signalized and unsignalized intersections. Although Innovative Intersections are being used as alternatives to traditional highway improvements, it is important to note that proper analysis should be performed by the applicant, in conjunction with VDOT, to determine the feasibility and appropriateness of applying for a project that features an Innovative Intersection. If an alternative is determined to provide a higher benefit and lower cost than the traditional solution, such would be preferable.

The average total project cost for all highway applications and the average total cost for all funded highway applications has decreased sharply since 2017, showing that applicants are aware of the impact of cost on the SMART SCALE Score (Table 17). In Round 3, there were 51 Innovative Intersection project applications statewide. Due to an average cost range of \$15-\$20 million specifically covering the Innovative Intersection improvement, this aids in lowering the average highway application cost of funded and unfunded projects.

Table 17 Average of Total Project Cost Statewide for Highway Improvement Projects

Round	Average of Total Project Cost (Applied Highway Projects)	Average of Total Project Cost (Funded Highway Projects)
FY 2017	\$45,094,641	\$11,144,390
FY 2018	\$27,083,081	\$9,645,688
FY 2020	\$19,773,007	\$8,206,671

In conclusion, the following takeaways may lead to more successful projects:

- Innovative intersection projects have higher cost benefit and lower cost.
- Don't put your eggs in one basket – projects which will score well in several factor categories compete better.
- Be mindful of the amount of business and people that will benefit from a project. If that is out of balance, consider other locations, or improvements, and certainly other funding sources.
- The better the benefit score, the more that proportional leveraging will improve the score. Having said that, there is an amount of guesswork involved in determining a *proper* amount of leverage. If your leverage *guess* is wrong...
- If a project is resubmitted with no improvement in score and leveraging funds has had no real effect or is not possible, consider changing the scope and innovative intersections (if that is not already part of the project).