



Roanoke Valley Transportation
PLANNING ORGANIZATION
Staffed by the
REGIONALcommission

Roanoke Valley Transportation Plan

Approved January 26, 2023

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- [Interactive Executive Summary](#)
- Financial Plan
- Transportation Improvement Program
- Funded Projects
- Priority Projects to Pursue
- Priority Regional Transportation Needs
- Future Factors
- System Performance Report
- Acronyms and Definitions
- [Interactive Map](#)
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Acknowledgement

This Plan was prepared in cooperation with the United States Department of Transportation, Federal Highway Administration, Virginia Department of Transportation, and the Virginia Department of Rail and Public Transportation. This report also represents the collective work of the Roanoke Valley Transportation Planning Organization (RVTPO) and its Transportation Technical Committee.

Disclaimer

The contents of this report reflect the views of the Roanoke Valley Transportation Planning Organization. The Roanoke Valley-Alleghany Regional Commission (RVARC) staff is responsible for the facts and the accuracy of the data presented herein. The contents do not necessarily reflect the official views or policies of the Federal Highway Administration, Federal Transit Administration, Virginia Department of Transportation, Virginia Department of Rail and Public Transportation, Valley Metro, RADAR, or the RVARC. This report does not constitute a standard, specification, or regulation. FHWA, FTA, VDOT and DRPT acceptance of this report as evidence of fulfillment of the objectives of this program does not constitute endorsement/approval of the need for any recommended improvements nor does it constitute approval of their location and design or a commitment to fund any such improvements. Additional project level environmental impact assessments and/or studies of alternatives may be necessary.

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The 26th day of January 2023

RESOLUTION

Adoption of the Roanoke Valley Transportation Plan

WHEREAS, federal regulations implemented as a result of the 2021 Infrastructure Investment and Jobs Act require urbanized area metropolitan planning organizations to develop and approve a fiscally constrained metropolitan transportation plan; and,

WHEREAS, the Roanoke Valley Transportation Plan (RVTP) satisfies the federal requirements of the metropolitan transportation plan, considering the future through the year 2045; and,

WHEREAS, the RVTP is the result of a continuing, comprehensive, and cooperative (3-C) performance-based transportation planning and programming (PBPP) process; and,


WHEREAS, in accordance with the Roanoke Valley Transportation Planning Organization's Public Participation Plan from May 27, 2021, public input has been sought in developing the RVTP and such input has been utilized in the documentation of people's transportation needs and prioritization of needs to further analyze and seek solutions; and,

WHEREAS, federal transportation performance measures have been integrated into the PBPP process and are aligned with the region's transportation system goals and objectives; and,

WHEREAS, the RVTPO acknowledges the region's current transportation system performance and considered system performance targets and limitations on anticipated funding availability in the selection of priority projects to pursue.

NOW, THEREFORE BE IT RESOLVED, that the Policy Board of the Roanoke Valley Transportation Planning Organization adopts the Roanoke Valley Transportation Plan,

AND, THEREFORE, BE IT FURTHER RESOLVED, that this Plan shall serve the Commonwealth of Virginia and the federal government as the primary guidance for future transportation related investments in the Roanoke Valley area.


Billy W. Martin, Sr.
Chair

TPO POLICY BOARD: Cities of Roanoke and Salem; Counties of Bedford, Botetourt, Montgomery and Roanoke; Town of Vinton; Greater Roanoke Transit Company (*Valley Metro*); Roanoke-Blacksburg Regional Airport; Virginia Department of Rail & Public Transportation; Virginia Department of Transportation

Roanoke Valley Area Metropolitan Planning Organization

What is the Roanoke Valley Transportation Plan?

Plan purpose

Federal law requires the formation of an “MPO” for any urbanized area with a population of more than 50,000. The Roanoke Valley Transportation Planning Organization (RVTPO), whose official name is the Roanoke Valley Area Metropolitan Planning Organization (MPO), was created in 1974 to plan and budget the use of federal transportation dollars in the Roanoke region. There are currently 14 MPOs in Virginia. The U.S. Department of Transportation (USDOT) recognizes the RVTPO as the entity responsible for transportation-related planning and programming within the Roanoke urbanized area boundary.

Federal requirements

The population of the RVTPO Study Area is approximately 230,000, and covers the Cities of Roanoke and Salem, the Town of Vinton, and the urbanized portions of the Counties of Bedford, Botetourt, Roanoke and Montgomery. The RVTPO study area, also known as the metropolitan planning area, is required to include the Census Urbanized Area (currently based on the 2010 Census) and the area that is expected to be urbanized in the next 20 years (see Figure 1). Note, outcomes from the 2020 Census that may change the current Urbanized Area were initially released in December 2022 and will influence the next update of this plan for plan year 2050.

Federal requirements for metropolitan transportation planning and programming are detailed through the Code of Federal Regulations (CFR) across multiple sections. These requirements shape how RVTPO collaborates with its planning partners and works with the public to develop and implement the Roanoke Valley Transportation Plan (RVTP). They also identify the standards for content within the RVTP and the associated Transportation Improvement Program (TIP). More details on these requirements and how the RVTP meets them is available in the Process’s Federal Requirements Review.

Organization designation and funding support

A Metropolitan Planning Organization (MPO) with an urbanized area boundary population of 200,000 and above is also designated as a Transportation Management Area (TMA) by the Secretary of Transportation. After the 2010 Census, the Roanoke Valley became a TMA. Financial support comes primarily from federal transportation funding, with matching funds provided by the seven member localities, the Virginia Department of Transportation (VDOT), and the Virginia Department of Rail and Public Transportation (DRPT).

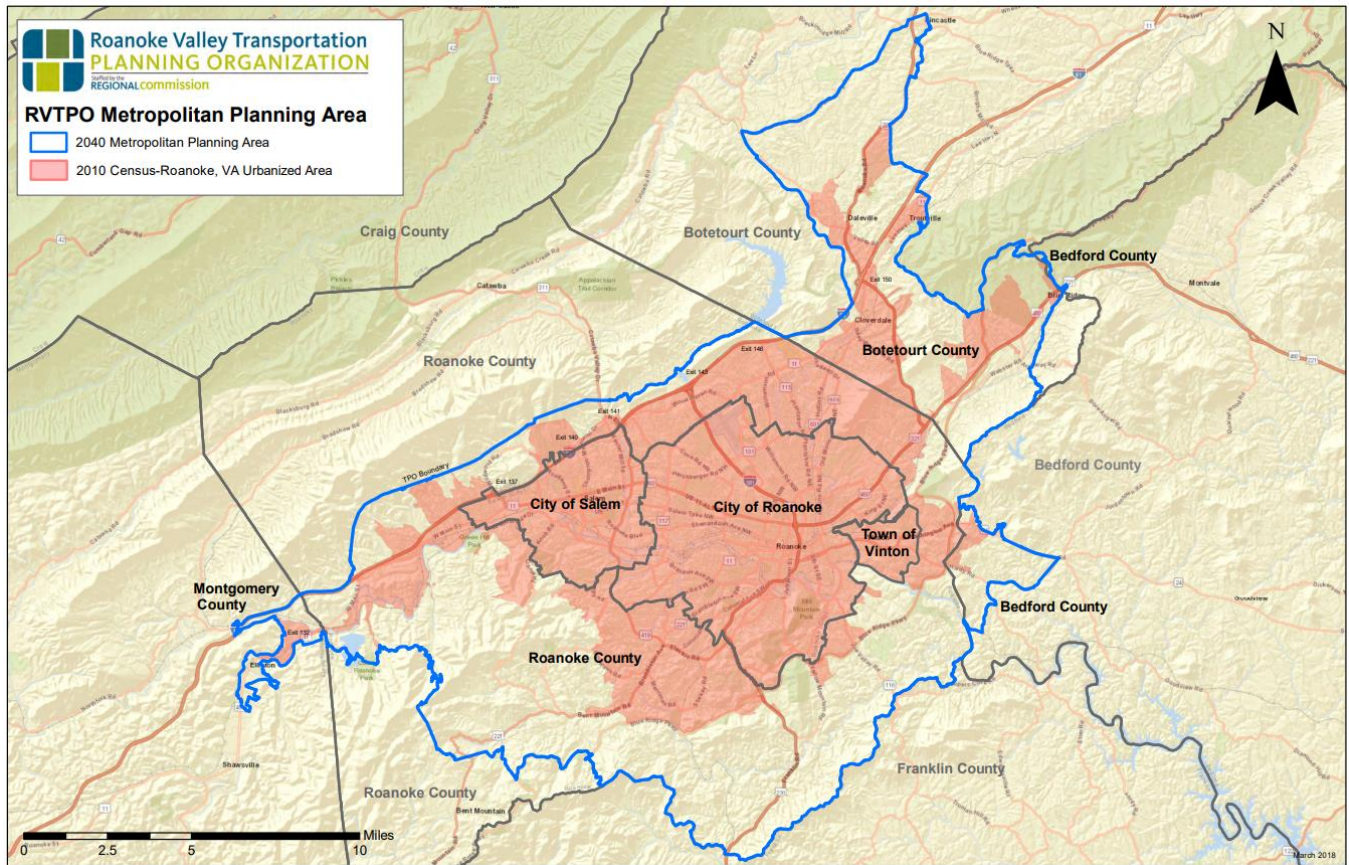
Performance-based planning and programming process

The Roanoke Valley Area Transportation Planning Organization (RVTPO) develops four documents that are the backbone of regional transportation planning and programming—the Metropolitan Transportation Plan (MTP), the Transportation Improvement Program (TIP), the Congestion Management Process, and the Unified Planning Work Program. The RVTP includes both the MTP and the TIP.

Planning partner, stakeholder, and public engagement

The RVTP guides the region in creating a more efficient, responsive, and environmentally sensitive transportation system over the next 20+ years with a plan horizon of 2045. The plan examines transportation trends and issues, and lists projects for addressing the region’s mobility needs. The RVTP is updated every five years with amendments as needed in the years between. A summary of the process for working with partners, stakeholders, and the public to develop and maintain the RVTP is included in the [Public Engagement Summary Attachment](#).

Figure 1 RVTPO Regional Map



Note: 2040 and 2045 study area boundaries are the same.

What is new in this Roanoke Valley Transportation Plan?

Performance-based planning and programming process

The Federal Highway Administration (FHWA) defines performance-based planning and programming (PBPP) as “the application of performance management principles within the planning and programming processes of transportation agencies to achieve desired performance outcomes for the multimodal transportation system.” More simply stated, performance management is a strategic approach that uses system information to inform investment and policy decisions to achieve transportation system performance goals.

The Commonwealth Transportation Board (CTB) established a performance management framework to assess performance of Virginia’s transportation system in December 2015, when it adopted goals, objectives, and guiding principles for VTrans. The Moving Ahead for Progress in the 21st Century Act (MAP-21), signed into law in 2012, included provisions that transformed the Federal surface transportation program to be focused on the achievement of performance outcomes related to goals for the national transportation system. The provisions are administered by agencies within the U.S. Department of Transportation (USDOT), including several under FHWA and FTA. In 2015, the Fixing America’s Surface Transportation (FAST) Act built on the MAP-21 changes and provided funding certainty for surface transportation infrastructure planning and investment.

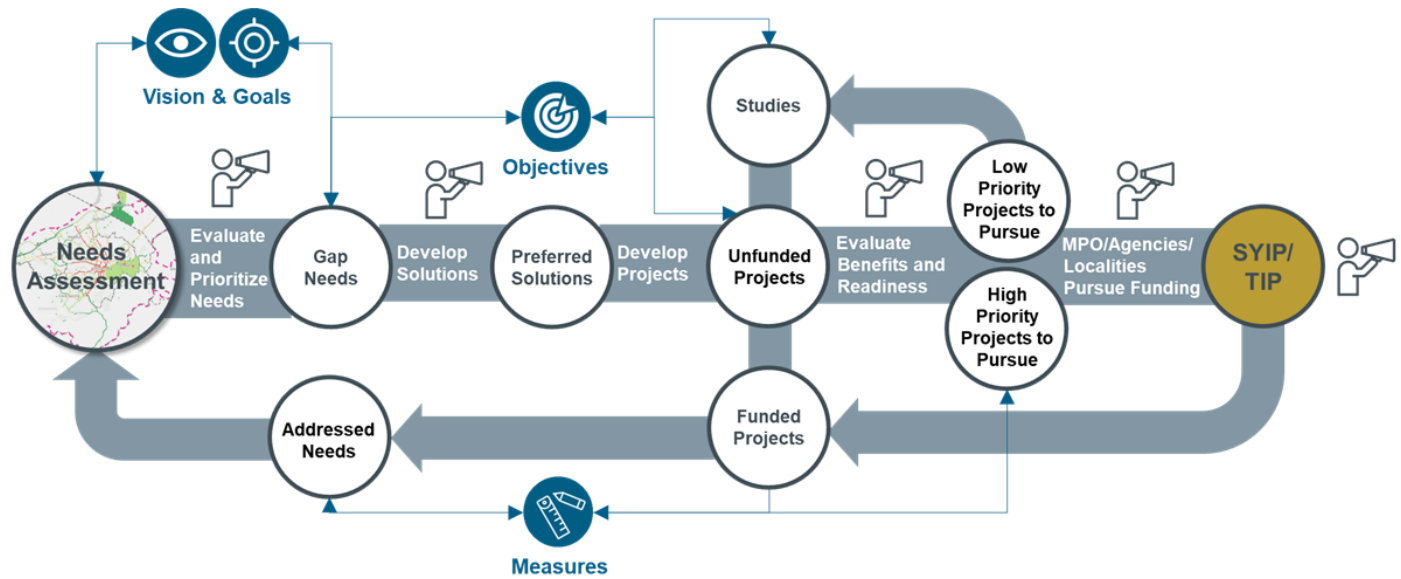
To implement the MAP-21 performance management provisions, USDOT proposed and finalized several regulations that established performance measures that transportation agencies are required to use across three broad areas of responsibility – safety, asset management, and system performance.

- The safety performance measures track roadway, bicycle and pedestrian, and transit fatalities and serious injuries, as well as transit safety incidents such as collisions, derailments and evacuations.
- The asset management performance measures track the physical condition of roadway pavement and bridges, and transit equipment, vehicles, and facilities.
- The system performance measures track how reliable travel times are for people and freight over highways, as well as roadway congestion and emissions in certain areas that currently or recently have experienced poor air quality.

The Roanoke Valley is currently in attainment for air quality standards. The RVTPO collaborates with Virginia planning and programming partners including the Virginia Department of Transportation (VDOT), Department of Rail and Public Transportation (DRPT), the Office of Intermodal Planning and Investment (OIPI), as well as local transit providers like Valley Metro to implement the performance management requirements.

Performance management goes beyond just tracking performance. It is also intended to shape planning and programming activities. Given this recent evolution at both the Federal and State level, the RVTPO secured support through OIPIs Growth and Accessibility Program Technical Assistance (GAP-TA) to develop a unique performance-based planning and programming process for the Roanoke Valley. The general performance-based planning and programming approach developed for the region by the GAP-TA grant is provided in Figure 2. The PBPP process details can be found separately via <https://rvarc.org/transportation/rvtp>.

Figure 2 RVTPO Performance Based Planning and Programming Process



Federal Direction

Sweeping changes to Federal transportation policy and funding over the past few years is impacting how the region will plan, prioritize, and invest in transportation programs and projects over the next decade.

Bipartisan Infrastructure Law

The Infrastructure Investment and Jobs Act (IIJA), also known as the Bipartisan Infrastructure Law (BIL), was signed into law by President Biden on November 15, 2021. The BIL sets policy and budget authority for USDOT over the next five years, totaling approximately \$567 billion nationally for surface transportation. Overall, the BIL could total a 20 to 30 percent increase in annual formula funding for surface transportation from USDOT, in addition to an increase in opportunities to compete for discretionary federal grants.

The BIL is consistent with Virginia’s and the Roanoke Valley’s multimodal transportation priorities. It will help advance investments in critical infrastructure and promote policy and programming in emerging areas important to the region, like complete streets, safety, and connecting communities. The RVTP provides direction on how RVTPO will work with partners to optimize its approach to maximize Federal opportunities to achieve regional and statewide goals.

The BIL brings an infusion of surface transportation funding through USDOT, but it also highlights critical focus areas and new opportunities that the RVTP should help position the region to leverage. New formula programs like [PROTECT¹](#), [National Electric Vehicle Infrastructure \(NEVI\) Program²](#), the [Carbon Reduction Program³](#) and new discretionary grant programs including [Safe Streets and Roads for All⁴](#) and [Reconnecting Communities⁵](#) represent new opportunities to address needs in emerging topics like infrastructure resilience, EV charging, complete streets, and equitable accessibility. The BIL also enhances the funding amount and scope of existing grants that the Roanoke Valley have traditionally leveraged, like the Surface Transportation Block Grant (STBG) (by adding resilience, natural infrastructure, and EV charging as eligible expenses) and significantly increasing funding for the Transportation Alternatives Program (TAP).

Justice40 Initiative

The [Justice40 Initiative](#)⁶ has made it a priority of the federal government to commit at least 40% of federal funds from [covered federal transportation programs](#)⁷ to disadvantaged communities that are marginalized, underserved, and overburdened with pollution. The categories of investment are climate change, clean energy and energy efficiency, clean transit, affordable and sustainable housing, training and workforce development, remediation and reduction of legacy pollution, and the development of critical clean water and wastewater infrastructure. Covered federal investments include procurement spending, financing, staffing costs, direct spending, or benefits to individuals for a covered program.

MPO Planning Requirements

The BIL also identified changes to MPO planning requirements that will impact future RVTPs (note, these requirements are not specifically applicable to this RVTP update, however they are important for RVTPO and its partners to prepare to implement). Some examples applicable to RVTPO include:

- Housing. MPOs must now consult with housing officials, and housing is added to the scope of factors that are to be considered in the metropolitan planning process.
- Transportation Management Area (TMA) MPOs (>200k) must have a housing coordination process that would address the integration of housing, transportation, and economic development strategies.
- Representatives of affordable housing organizations are added to the list of organizations that shall be provided opportunity to comment on plans and TIPs.
- MPO financial plans. The outer years of a MTP are defined as “beyond the first 4 years” instead of 10 years). Provides more fiscal flexibility.
- Complete Streets. State DOTs and MPOs must develop a Complete Streets plan (and spend at least 2.5% of their planning funds on it).

Statewide initiatives

Statewide initiatives shape how RVTPO develops plans, identifies and prioritizes projects, and utilizes planning funds to support critical regional and local activities. Initiatives important to the region include:

[VTrans](#)⁸ – VTrans is Virginia's statewide transportation plan. It is prepared for the Commonwealth Transportation Board (CTB) by OIPI. VTrans lays out the overarching vision and goals for transportation in the Commonwealth and plans to achieve those goals. VTrans and RVTP have similar goals.

[Project Pipeline](#)⁹ – Project Pipeline is a statewide performance-based planning program to identify cost-effective solutions to multimodal transportation needs. Through this planning process, projects and solutions may be considered for funding through programs, including SMART SCALE, revenue sharing, interstate funding and others. There are project pipeline studies taking place in the Roanoke Valley.

[Transforming Rail in Virginia](#)¹⁰ – Transforming Rail in Virginia is changing the future of rail transportation in Virginia by acquiring railroad right-of-way, increasing rail capacity, and reworking passenger and freight operations to improve reliability and increase rail service in Virginia. To better connect statewide Amtrak service to southwestern Virginia, the Virginia Passenger Rail Authority is working to expand service from Roanoke to the [New River Valley](#).¹¹

[Virginia Highway Safety Improvement Program](#)¹² – The Virginia Highway Safety Improvement Program (VHSIP) is guided by our Strategic Highway Safety Plan and receives federal and state safety funding to implement safety improvements across the roadway network in Virginia.

Where is the Roanoke Valley today?

Accomplishments since 2017

There are many positive changes across the Roanoke Valley’s transportation system since the prior RVTP was adopted in 2017. This includes regional planning efforts and critical transportation investments that provide new, safer, or more reliable mobility for Roanoke Valley residents, employees, and visitors.

Amtrak Service to Roanoke. After nearly 40 years, Amtrak passenger rail returned to the Roanoke Valley. In October of 2017, Amtrak, the Virginia Department of Rail and Public Transportation (DRPT), and the City of Roanoke partnered to bring intercity passenger rail service back to the region. To meet growing passenger demand, in July 2022, Amtrak added a second daily train to and from Roanoke, with morning and afternoon options in both directions between Roanoke, Washington, and the Northeast Corridor.



I-81 Improvement Program. The I-81 Corridor Improvement Program consists of innovative, targeted improvements that will have a substantial effect on the safety and reliability of a critical portion of the nation’s infrastructure. In December 2018, the Commonwealth Transportation Board approved the I-81 Corridor Improvement Plan, and in spring 2019, the General Assembly adopted legislation creating the Interstate 81 Corridor Improvement Fund, supported by a regional fuels tax and Virginia’s Interstate Operations and Enhancement Program. The ongoing I-81 widening project is funded by this program.



Route 460 East. Congestion on Route 460 East has increased as development continues between Roanoke, Bedford and Lynchburg. As a Corridor of Statewide Significance, improving traffic flow has been a priority and funding has been secured to limit turning movements from side streets in order to improve Route 460 east of I-581. The corridor continues to merit improvements with several more projects prioritized for funding pursuit in this plan.



Third Street Station. Until its relocation to Third Street in early 2021, the Roanoke Valley was operating the oldest transit station in the state. With a new regional transit hub under construction, the region will be better able to operate local and regional transit services. The new station allows for more reliable service and better accommodations for multimodal travelers and people with disabilities.



Roanoke River Greenway. The Roanoke River Greenway has been the region’s largest investment to improve the safety of bicyclists and pedestrians. The greenway provides an off-road transportation option along the Roanoke River to destinations including several neighborhoods, parks, and the region’s largest employer-Roanoke Carilion Memorial Hospital. Through a mix of funding sources, including federal, state, and local sources, the region continues to be successful in connecting existing segments.



These investments collectively have helped the region maintain low levels of congestion, high travel time reliability, address safety concerns for all transportation system users, and provide alternatives to vehicle travel. The RVTPO and its partners are continuously conducting studies of critical needs and developing strategies to address them.

2019 Roanoke Valley Regional Transportation Safety Study.¹³ Virginia is a Toward Zero Deaths (TZD) state, meaning even one fatality occurring on the transportation network is too many. The Virginia Department of Transportation (VDOT), in coordination with state and regional partners, implemented the 2017-2021 Strategic Highway Safety Plan (SHSP) through development of regional safety studies. The Roanoke Valley Regional Transportation Safety Plan was a data-driven effort, outlining the primary factors preventing people from arriving safely at their destinations as well as locations where safety improvements could make a difference.



The findings from the study have informed recent project investments through Virginia’s Highway Safety Improvement Program to address crash locations with the potential for safety improvements.

2020 Congestion Management Process (CMP).¹⁴

As noted in the CMP, the primary RVTPO congestion goal is: *The Roanoke Valley does not have much severe traffic congestion and the RVTPO wants to keep it that way!* Within the 2020 CMP, the RVTPO decided to measure traffic congestion using a new measure, planning time index (PTI). Planning Time Index is the trip time of 95 percent of the trips on a roadway segment divided by the amount of time it would take to travel the segment in free-flow conditions. For example, a Planning Time Index of 3 means that for a trip that normally takes 10-minutes, five percent or fewer of those trips take more than 30 minutes.



RVTPO set a goal of an acceptable level of system performance being 97% of the road network operating at PTI less than 3 during peak hours and at PTI less than 2.5 at other times. Between 2013 and 2019, 2.1% or fewer miles of Roanoke Valley roads had PTI greater than 3 during peak times and 2.6% or fewer miles greater than 2.5 during off-peak times, which is well within the RVTPO’s acceptable level of traffic congestion. The CMP identified priority congestion management corridors (including I-81, Orange Ave./Challenger Ave. (US 460), Electric Road (Route 419)/Franklin Road/US 220, Main Street/Wildwood Road (Salem), and Gus Nicks Boulevard/Washington Ave) and corridors of concern for future study and strategy development.

Key funded projects, services, and programs being implemented

During the needs assessment process of this Plan, the RVTPO reviewed ongoing and planned projects to determine where critical regional needs were being addressed. Nearly 60 needs identified through the compilation of insights in the needs assessment were determined to be addressed by recently completed, ongoing and planned projects, many of them within CMP priority corridors. The impact of these projects on system performance are presented in the **[RVTP System Performance Report Attachment](#)**.

More information on current projects, services, and studies within the region are available at the following locations:

- Programmed project information within the current VDOT SYIP: [VDOT Six-Year Improvement Program¹⁵](#)
- Status information for SMART SCALE projects: [VDOT Dashboard: SMART Scale Projects¹⁶](#)
- Ongoing projects and studies within the Salem District: [Salem Projects¹⁷](#)

How these accomplishments and key decisions impact the future

Many of these accomplishments and ongoing projects and studies will position transportation agencies and public transportation providers to enhance major corridors and better serve unique travel markets. Continued service enhancements on Amtrak to Roanoke and ultimately into the New River Valley and ongoing improvements to I-81 will provide improved interregional and interstate connections for the Roanoke Valley, creating opportunities for economic development. Continued pedestrian and bicycle investments and commitments to maintain and enhance transit service through Valley Metro and other on-demand providers will continue to enable more equitable and accessible options for residents.

Transportation system performance trends

RVTPO collaborates regularly with VDOT, DRPT, and transit providers within the region to review performance trends and set performance targets consistent with FHWA and FTA performance management requirements. More details on these requirements, the performance trends, and how the RVTP supports the region in meeting performance goals is available in the [System Performance Report Attachment](#).

Highway Safety

Highway safety measures include fatalities and serious injuries caused by motor vehicle crashes on all public roads in the region, and the rate of those crashes per 100 million vehicle miles traveled. Highway safety measures also include the total bicycle and pedestrian fatalities and serious injuries associated with crashes with motor vehicles on public roads. All of these measures are reported as five-year averages in order to better balance one-year performance anomalies with broader trends.

- Annual fatalities in the Roanoke Valley have remained steady over the last five years, from a high of 25 in 2020 to a low of 16 in 2018. The current five-year average (2017-2021) is 21.6 fatalities per year. Combined with lower VMT in 2020 and 2021 due to the impacts of the pandemic, the result has been an increase in fatality rate (e.g., fatalities per 100 million vehicle miles traveled).
- Annual serious injuries in the Roanoke Valley have fluctuated over the last five years from a low of 158 in 2019 to a high of 238 in 2018. The 2021 total of 231 serious injuries was a substantial increase over 2019 and 2020 outcomes. The current five-year average (2017-2021) is 198.0 serious injuries per year.
- Annual bicycle and pedestrian fatalities and serious injuries have averaged around 20 per year since 2017, except for 2020, where there were 29 total bicycle and pedestrian fatalities and serious injuries. The current five-year average (2017-2021) is 21.4 fatalities and serious injuries per year.

Highway Asset Condition

Highway asset condition measures include the condition of bridges and pavement on the National Highway System (NHS). Bridge condition is based on the percent of bridge deck area in good or poor condition based on annual bridge inspection results. Pavement condition is based on the percent of lane-miles in good or poor condition on Interstates (I-81, I-581) and non-Interstate NHS (US 11, US 220, US 460, etc...) based on annual pavement condition data collection.

- Bridge deck condition in good condition has gradually decreased in the region from 13.6% good in 2017 to 10.6% good in 2021, while at the same time, bridges in poor condition have remained steady around 2.3 to 2.5%.
- Less than 0.1 percent of Interstate and non-Interstate NHS pavement is in poor condition in the region since 2019. Pavement in good condition on Interstates has steadily increased since 2017, from 43.9% good to 53.0% good in 2021. Non-Interstate NHS pavement condition has remained steady around 43% since 2017.

Reliability and Congestion

Reliability measures include the percentage of passenger-miles traveled that are reliable on the Interstate and on the non-Interstate NHS. Reliability also evaluates the truck travel time reliability index on Interstates. These measures are based on speed data from a sample of vehicles within these corridors by time of day and day of the week, averaged across the year.

- Passenger miles traveled that are reliable on the Interstate are at 100% over the last five years and have steadily increased on the non-Interstate NHS since 2017 (from 90.4% in 2019 to 95.2% in 2021).
- Truck travel time reliability on Interstate highways has marginally increased since 2017, from 1.23 to 1.29, in part associated with the impact of work zones on I-81.

Transit Asset Condition

Transit Asset Management is an approach that uses the condition of assets to guide the optimal prioritization of funding to keep transit networks in a state of good repair. Valley Metro and RADAR both work with DRPT to develop a Transit Asset Management (TAM) Plan, including setting performance targets. DRPT's [Draft 2022 TAM Plan](#)¹⁸ includes performance analysis and targets for 33 eligible transit providers in Virginia. Performance measures focus on “useful life benchmark”, or the expected lifecycle of an asset given the transit providers’ operating environment.

- 25 of 53 Valley Metro buses (47%) are at or beyond the useful life benchmark of 14 years.
- 14 of 54 cutaway vehicles for Valley Metro and RADAR (26%) are at or beyond the useful life benchmark of 10 years.

Transit Safety

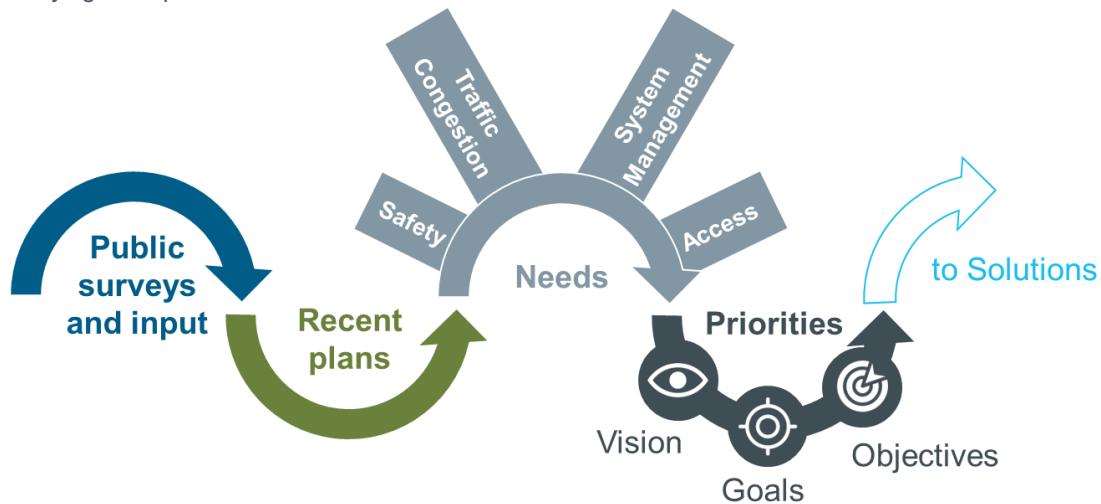
In 2020, DRPT completed the Virginia Statewide Public Transportation Agency Plan (PTASP) for Small Public Transportation Providers. This plan, collaboratively developed by DRPT and eligible transit providers, is a comprehensive plan outlining the Safety Management Systems (SMS) programs at 15 small transit agencies in the Commonwealth, including Valley Metro. More information on the PTASP is available [here](#).¹⁹

- Valley Metro is required to annually track and report to FTA reportable fatalities and injuries, total number of safety events, and distance in miles between major and minor failures for both fixed route service and demand response service.

What are the Roanoke Valley’s transportation needs?

In response to the federal requirement for performance-based planning and programming, to match the statewide focus on transportation needs, and in response to the RVTPO Policy Board’s direction to base priorities on a comprehensive assessment of the region’s transportation needs, a transportation needs assessment was conducted for the first time for the RVTP. The needs assessment was based on citizen input and characterized by how citizens identify the mobility challenges they experience (Figure 3). The assessment balanced the input with the findings from other planning efforts since 2017.

Figure 3 Identifying Transportation Needs



Because people participate in multiple input opportunities and may voice the same concerns at various opportunities, the input received simply served as a repository of transportation needs and did not weigh input based on the number of times it was identified. Rather, the RVTP vision, goals, and objectives, and transportation data were used to prioritize needs of the same type. This approach acknowledges that transportation needs far outweigh available resources, so strategic decisions must be made on where to focus limited resources. Prioritization of resources is essential to meeting regional performance goals and providing clarity to the public on why some needs are being addressed ahead of others.

Since the assessment was completed, an independent review of the process to generate the Needs Assessment was conducted through the OIPI GAP-TA grant in 2021-2022. The OIPI team offered suggestions on how to improve the needs assessment.

The 2021 **Transportation Needs Assessment** provides more information on the needs assessment process and findings. The consolidated needs by need type are displayed in the RVTP Needs Evaluation and Solutions Tool ([NEST](#)).²⁰ Nine need categories were identified: **Access (Non-Transit, Transit), Safety (Motor Vehicle, Pedestrian, Bicycle, and Transit), Traffic Congestion, and System Management (Non-Transit, Transit)**. Transit safety concerns were not identified by citizens.

Access – Non-transit

Generally, all existing destinations can be accessed by motor vehicle, walking, or bicycling using existing roads. However, a connected and redundant system with more direct or other route options may be desirable in some places to improve efficiency and provide greater flexibility when construction, traffic, unexpected events, or crashes occur. Access to destinations for people with disabilities may be limited if not traveling by motor vehicle or when obstacles are in the right-of-way.

Access – Transit

Transit access is defined by locations that may be reached by bus, paratransit, or demand response transit services. Buses serve the City of Roanoke, Salem, Vinton, and a small portion of Roanoke County. Transit access is lacking for important destinations such as government services, medical facilities, grocery stores, and jobs. Paratransit and on demand response services are inconsistent across the region and some residents have difficulty reaching critical destinations. Transit access may also refer to temporal issues such as limited frequency and short hours of service – if the hours of service for transit to not match an individual’s availability, then that destination is functionally inaccessible.

Safety – Motor Vehicle

Safe travel for people in motor vehicles is the ability to travel on roads without crashes, near-misses, or other sources of injuries and fatalities. The places that have the most severe crashes may not be the places that have a lot of crashes, so the perception of locations as safe or unsafe may not match data.

Safety – Pedestrian

Safe travel for people walking is travelling without crashes, near-misses, or other situations that result in serious injuries or fatalities. Facilities which are high risk or feel risky for pedestrians include those which have high volume, high speed, and little or no pedestrian infrastructure. People with disabilities are particularly vulnerable when pedestrian accommodations are lacking or insufficient. For example, an able-bodied person can walk in the grass on the side of a busy road if there is no sidewalk, but a person in a wheelchair may have to be in the road.



Safety – Bicycle

Safe travel for people bicycling is travelling without crashes, near-misses, or other situations that result in serious injuries or fatalities. Roads which are high risk or feel risky for bicyclists include those which have high volume, high speed, and no bicycling infrastructure. Different types of bicycle riders have different perceptions of safety and tolerance for riding with vehicle traffic.



System Management – Non-transit

Non-transit system management needs are defined as maintenance and operation of the existing roadway, bicycle, and pedestrian network. Examples of System Management needs on the road system include maintenance, wayfinding, and traffic signal coordination. System management needs are often not highly visible or difficult to perceive as needs to typical users.

System Management – Transit

Transit system management needs include maintenance, operation, and accessories to the local transit system. Examples of systemic transit needs include amenities at bus stops, vehicle replacements, real time bus location information, interactive system maps, online or electronic fare collection, and, for paratransit, reservations. The general public may not be familiar with how systems operate and may under-identify system management needs.



Traffic Congestion

Traffic congestion refers to any significant delay in reaching destinations for road users. The Roanoke Valley doesn't have much severe traffic congestion – and wants to keep it that way. Some focal points of traffic congestion have recently been addressed and may still have more traffic congestion than other places but are unlikely to receive further roadway improvements.



Where is the Roanoke Valley going?

The RVTP looks to the future to help understand how the region’s population, economy, travel preferences, and environment might change, and how these changes might impact transportation needs and overall management of the transportation system. Doing so ensures that the Plan creates opportunities for RVTPO and its partners to be resilient to change as it makes decisions impacting the region’s transportation future.

Regional trends and forecasts

Table 1 Regional Trends Summary

Factor	Anticipated Trend
<p>Population</p>	<p>The entire region is forecasted to grow by 14,500 people from 2019 to 2045, with a total population of 254,840 people. Growth is forecasted to occur proportionally across the region, with the most substantive growth occurring in Botetourt and Roanoke Counties.</p> <p>The region has an older population than the median age of the Commonwealth. This share of older residents is expected to continue to grow and lead to a shrinking workforce.</p>
<p>Economy</p>	<p>Median income is increasing in the region as are employment opportunities. The entire region is forecasted to add nearly 10,000 new jobs from 2019 to 2045, with a total of 152,000 jobs. Occupations requiring a bachelor’s or postgraduate degree are expected to grow at a slow pace, but the number of jobs requiring less education than this will decline. Prior to the pandemic, all localities in the Roanoke Valley saw their average annual unemployment rate decrease and their total number of businesses increase.</p>
<p>Industry Sectors</p>	<p>Two industries will grow due to regional drivers: general manufacturing (an existing strong industry for the region) and food and beverage manufacturing (an emerging industry for the region).</p> <p>The industry with the highest relative concentration in the Roanoke Valley is Wood/Paper. Employment in the Wood/Paper cluster is projected to contract in the region about 1.4 percent per year over the next 10 years.</p> <p>The fastest growing sector in the region is expected to be Professional, Scientific, and Technical Services, with a 0.6 percent year-over-year rate of growth. Over the next year, the fastest growing occupation group in the Roanoke Valley is expected to be Healthcare Support Occupations, with a 0.9 percent year-over-year rate of growth.</p>
<p>Transportation</p>	<p>In a test of the impact of connected and automated vehicles through the use of the regional travel demand model, vehicle miles traveled (VMT) could increase modestly, by about 0.4 percent, due to increased capacity and shorter travel times.</p> <p>The region continues to invest in infrastructure projects to improve connectivity between the Roanoke Valley and the New River Valley and Lynchburg regions. The Roanoke region can expect to see an increase in the capacity of several interstates/state routes and the development of new transit options or improvement of existing ones enabling more reliable inter-regional connections.</p>

Future factors

Research into Future Factors establishes perspective on how trends and uncertainty may impact transportation needs and solutions. The focus is on the primary technology, social, economic, sustainability, and funding/finance trends – most of which are outside of the sphere of transportation agency control, that could impact future travel demand and multimodal transportation needs. Additional insights are available in the **Future Factors Attachment**. The future factors are summarized across five themes (Figure 4):

Figure 4 Future Factor Themes



The impacts of the COVID-19 pandemic on how we use transportation for everyday activities, how we commute to work, and how the entire regional economy functions may result in some permanent changes, like more people working from home. Other recent regional, national, and global events have increased our attention on the nexus between transportation policy and programs with issues like equity, climate change, and technology. The factors inform how the RVTP goals, objectives, and solutions can remain flexible over time as these future factors evolve and future needs change with them.



Technological “disruption” has reached the transportation industry in the past decade, and technology is expected to have an increasingly large impact on how residents of the Roanoke Valley travel in the coming decades.

- Automated vehicles (AVs) and connected vehicles (CVs) will change how people and goods travel.
- Vehicle ownership models are changing. This could lead to lower vehicle ownership rates and more use of shared mobility options.
- Mobility options such as ride-hailing and e-scooters can help complete first/last mile trips.
- Mobile and web platforms are becoming a part of daily travel decisions.
- Drones could make package delivery more efficient and can manage traffic and assets, and even move people.
- Since the COVID-19 pandemic, many people have experienced daily activities via virtual platforms and employers are making permanent changes to workforce operations.



The trend towards an older and increasingly diverse society, already well underway in the 21st century, are expected to continue in the coming decades. This will bring the need for expanded and equitable transportation services for older adults, persons with disabilities, and others with limited access to private vehicles.

- Older and more diverse population will require different transportation systems and mobility options.
- Continued shift to virtual daily activities, including working, healthcare, shopping, entertainment.
- Household vehicle ownership preferences changing, particularly as household size decreases.



Economic changes are being driven by the composition of the labor force, technology and the types of labor needed, entrepreneurial programs, and growth in the tourism industry. Slow population growth, an aging population and distant access to larger metropolitan areas, will constrain labor force availability in the region.

- While manufacturing employment in the region has declined, it is still an important sector for the region, with opportunities to attract advanced manufacturing employers to support emerging technologies, like batteries and autonomous technologies.
- Healthcare related services is the largest employment sector in the region and is anticipated to continue to grow particularly through development of the Virginia Tech Carilion School of Medicine and Research Institute.
- Technology start-up firm opportunities and businesses associated with a growing and diversifying tourism-based economy represent strong opportunities to attract new investment in the region.
- Developing and maintaining a skilled workforce within the region will be critical to meet the challenges of a growing high-tech and healthcare focused economy.



Environmental quality and climate change will impact the lives of residents in the Roanoke Valley in the coming decades. The Commonwealth is taking steps to advance the electrification of the transportation system and manage a more resilient system that can reduce emissions and keep the economy moving as events occur.

- More attention placed on electrifying the transportation system within agency fleets (including transit) and providing the infrastructure to ensure reliable use of electric vehicles.
- New design, construction, and maintenance strategies and materials to mitigate environmental impacts of transportation and better protect infrastructure from severe weather events.
- Enhanced priority on the protection of natural lands and farmlands and new technologies to better manage all infrastructure systems collaboratively, including utilities.



Fundamental changes to transportation revenue sources, costs to maintain and operate the system, and travel costs will impact how, and how often, people travel, and the services provided by transportation agencies. These changes, including those in the 2021 Bipartisan Infrastructure Law, will evolve how funding decisions are made.

- Transportation revenue sources will experience a period of significant change over the next few decades, at all levels, including from Federal sources.
- Emerging methods to offset the revenue impacts of EVs are including new ideas like mileage-based fees. These types of changing user fees may change travel behavior.
- Virginia continues to be a national leader in the successful use of public private partnerships. This is anticipated to continue, especially in high value, congested corridors.
- The benefits of regional and corridor-based funding programs, like I-81, will continue to help foster accelerated project development and implementation.
- New design, construction, materials, and project delivery approaches will continue to explore methods to reduce costs and extend asset lifecycles.

The development of population and employment forecasts and the transportation demand and performance outcomes through 2045 are based on past trends, current travel behavior, and projected changes based on what we know today. The future factors show that many of the trends could change in directions that substantially impact transportation needs and, ultimately, solutions.

For example, increases in availability of remote work could result in an increase in regional population, as workers are no longer tied to physical locations and can choose to live where they want. Attracting younger workers could in turn result in an increase in more dense, mixed-use housing development. The introduction of a network of shared, automated, and connected vehicles may lead to lower rates of car ownership and more multi-modal travel, and limit increases in vehicle miles traveled as predicted, or, conversely it could lead to increases in vehicle miles traveled if used as an opportunity to live further from work or take trips via car that they would not otherwise have taken.

As the need to mitigate and limit the impact of climate change becomes ever more urgent, the focus on expanding trips taken by means other than the car may lead to increased pricing to manage demand and ultimately lower vehicle miles traveled by car. Finally, if successful, efforts to create a new “entrepreneurial ecosystem” in Roanoke could attract new residents and young workers and shift employment in the region from the manufacturing sector to other sectors.

Continuing change

Development of the RVTP, initiated in summer 2020 with the needs assessment, and wrapping up with public comment in fall 2022, occurred during unprecedented worldwide events. The COVID-19 pandemic significantly changed social and economic patterns in the Roanoke Valley. Even as emergence from the pandemic continues to occur, some outcomes have remained, such as more remote work and an acceleration toward a virtual economy.

In 2022, a combination of volatile and high energy costs and inflation across many sectors, including housing, food, labor, and construction materials, have led to concerns of a national recession. In the transportation sector, the combination of high energy costs and high construction costs have put pressure on transportation budgets and challenged project delivery. Recent extreme weather events around the world, including catastrophic flooding in southwestern Virginia (Buchanan and Wise counties) in July 2022, continues to elevate attention on strategies to mitigate greenhouse gas emissions and develop more resilient economies and infrastructure.

Because the regional transportation planning process is continuous, RVTPO and its partners will continue to monitor the impact of both short and long-term factors on travel demand patterns and the operation and maintenance of the current and future transportation system in the Roanoke Valley. As these factors evolve, regional goals, objectives, and performance measures will change with them.

How will the RVTPO direct the path forward?

The development of the vision and goals for the RVTP relied on combining the following insights:

- Goals and objectives referenced in relevant regional, state, and federal plans and policy,
- The region’s current vision and goals framework,
- The role of future factors in shaping our goals, and
- Planning partner insights on draft vision and goals framework.

The vision and goals are the foundation of the RVTP’s performance-based planning and programming process. The vision and goals also shape real objectives and performance measures. They can also be used as a consistent benchmark against which to evaluate the results of needs assessments, solution development, and project identification ensuring that the final outcomes of the planning process are true to the original values established for the region. The connections and key questions that goals, objectives, and measures are answering are presented in Figure 5. More insight on development of the RVTP foundation is available in the Vision, Goals, Objectives, and Performance Measures process.

Figure 5 Connection of Vision, Goals, Objectives, and Measures



Vision and goals

To develop a vision and goals framework, RVTPO conducted research at the federal, state, and regional levels. This framework helped to set better context for developing region-specific goals. Goals and objectives research focused on the following Federal, State, and regional sources:

Federal Planning Factors:

- [23 CFR §450.306²¹](#) - Scope of the metropolitan transportation planning process
- [23 CFR §150²²](#) - National goals and performance management measures

State Planning Factors:

- [VTrans Goals²³](#)

Regional Planning Factors:

- Vision 2040: Roanoke Valley Transportation Plan
- RVAR: Comprehensive Economic Development Strategy
- 2020 RVTP Needs Survey
- Livable Roanoke Valley Plan

Vision statements and goals from these efforts were compared and then connected to current regional perspectives collected through public survey and outreach and discussions with RVTPO planning partners. The resulting vision and goals guide the development and implementation of the RVTP:

Vision:

The Roanoke Valley’s seamless regional multimodal transportation system is safe, cost-effective, environmentally conscious, well-maintained and reliable, accessible for all users, and promotes the economic vitality of the community.

The Vision describes the desired future state for the Roanoke Region’s multimodal transportation system

Goals:

Provide a safe and secure transportation system

Enable reliable mobility

Ensure convenient and affordable access to destinations

Foster environmental sustainability

Maintain and operate an efficient and resilient transportation system

Support economic vitality

Promote equitable transportation investments

Goals describe the priorities which will guide the region toward attaining the Vision

Objectives, performance measures, and performance targets

Objectives describe how the RVTPO will attain the RVTPO vision and goals. They represent specific desired RVTP outcomes. Objectives inform developing solutions that respond to needs, prioritizing projects within the RVTP, and tracking RVTP implementation and overall system performance.

Performance measures are the quantitative link to objectives. Performance measures assess the degree to which investments address transportation needs and meet acceptable thresholds. They enable the RVTPO to assess the degree to which the transportation system is achieving objectives.

Objectives and performance measures work best when they are specific, measurable, agreed-upon, relevant, and time-bound. In a number of topic areas, RVTPO is already working with VDOT and Valley Metro to track performance measures as required by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). In other topic areas, where data is not readily available, the RVTP identifies opportunities for RVTPO to enhance its performance management data and process in coming years. The RVTP objectives are presented in Table 2.

Table 2 RVTP Goals and Objectives

Goal	Objective
1. Provide a safe and secure transportation system	A. Eliminate fatalities and reduce injuries on the multimodal transportation system.
2. Enable reliable mobility	A. Maintain vehicle travel time reliability on priority corridors. B. Improve transit and passenger rail on-time performance.
3. Enable convenient and affordable access to destinations	A. Provide motorized access to inaccessible properties identified for future development. B. Increase accessibility to key destinations by transit. C. Increase transportation connections to markets outside the region, including across Virginia and the U.S. D. Increase transit, bicycle, and pedestrian connections for all users within multimodal centers and districts.
4. Foster environmental sustainability	A. Minimize emissions from motorized on-road transportation. B. Minimize / mitigate new impervious surfaces created by transportation infrastructure.
5. Maintain and operate an efficient and resilient transportation system	A. Maintain state and national standards for infrastructure and asset condition.
6. Support economic vitality	A. Ensure redevelopment and new developments in designated growth areas and multimodal centers/districts are supported by more than one mode of transportation infrastructure. B. Maintain truck travel time reliability. C. Maintain acceptable levels of congestion during peak travel periods on priority corridors.
7. Promote equitable transportation investments	A. Assess planning-level benefits or disproportionate adverse effects of transportation projects included in this plan on Equity Emphasis Areas and identify mitigation strategies. B. Ensure that non-drive alone mobility investments create opportunities in Equity Emphasis Areas. C. Eliminate fatalities and reduce serious injuries in Equity Emphasis Areas. D. Maintain state and national standards for infrastructure condition in Equity Emphasis Areas.

Each objective includes multiple performance measures including those already being tracked and candidate measures for further RVTPO development. The performance measures are highlighted in Table 3 and presented in more detail, along with information on how to access performance information, in the Vision, Goals, Objectives, and Performance Measures process. Performance trends and targets within the region across the federally-required surface transportation measures through FHWA and FTA are presented in the required [System Performance Report Attachment](#).

Table 3 RVTP Performance Measures

Goal	Performance Measure Summary
<p>1. Provide a safe and secure transportation system</p>	<p>There are five highway safety measures tracked by VDOT and three transit safety measures tracked by Valley Metro and DRPT consistent with Federal requirements.</p>
<p>2. Enable reliable mobility</p>	<p>There are two highway travel time reliability measures tracked by VDOT on the Interstate and National Highway System consistent with Federal requirements. Valley Metro also tracks one transit service reliability measure consistent with Federal requirements and maintains information for on-time performance. Amtrak also tracks and reports on-time performance.</p>
<p>3. Enable convenient and affordable access to destinations</p>	<p>Federal performance management rules have not yet addressed the topic of accessibility. VTrans and SMART SCALE incorporate accessibility into statewide planning and programming approaches. RVTPO identified seven candidate accessibility performance measures.</p>
<p>4. Foster environmental sustainability</p>	<p>Federal performance management rules track emissions within areas not meeting Clean Air Act standards. Since the RVTPO region meets air quality standards, RVTPO focused on one performance measure that tracks investments in low-emission vehicles and technologies and two performance measures related to stormwater management.</p>
<p>5. Maintain and operate an efficient and resilient transportation system</p>	<p>There are six total bridge and pavement asset condition measures tracked by VDOT and two transit asset condition measures tracked by Valley Metro that are consistent with Federal requirements. VDOT tracks additional bridge and pavement condition measures on the entire highway system, including locally maintained roads.</p>
<p>6. Support economic vitality</p>	<p>VDOT tracks a truck travel time reliability measure on Interstates consistent with Federal requirements. Through the Congestion Management Process, RVTPO tracks planning time index (a measure of reliability) on priority corridors.</p>
<p>7. Promote equitable transportation investments</p>	<p>Federal performance management rules have not yet addressed equity, however Federal policy has elevated the consideration of equity in all steps of the transportation planning and programming process, including through the Justice40 Initiative.⁶ RVTPO identified six candidate transportation equity measures consistent with the emerging Federal guidance and regional and local priorities.</p>

These goals and objectives, and the associated existing and candidate performance support developing both short and long-term performance targets for the Roanoke Valley transportation system. As noted in the [System Performance Report Attachment](#), RVTPO collaborates with OIPI, VDOT, DRPT, and transit providers to set short-range annual and biennial targets for Federal required performance measures. The current targets adopted by RVTPO for the Federal transportation performance measures, including targets for applicable transit providers operating in the region, are provided in 4. Note within the RVTPO planning area, only Valley Metro is subject to FTAs public transportation agency safety plan (PTASP) requirements. Valley Metro is a participant in [DRPT’s Group PTASP Plan](#).¹⁹

Table 4 RVTPO Federal Transportation Performance Measure Targets

Performance Measure	2021 Performance	2021 Target	2022 Target	2023 Target
Highway Safety (all public roads, five-year rolling average) (Annual Target)				
Number of Fatalities	21.6	18	20	Pending, RVTPO to adopt in Jan. 2023
Rate of Fatalities per 100 Million VMT	1.101	0.924	0.945	
Number of Serious Injuries	198	193	184	
Rate of Serious Injuries per 100 Million VMT	10.092	9.66	8.879	
Number of Non-Motorized Fatalities and Non-Motorized Serious Injuries	21.4	20	18	
Performance Measure	2021 Performance	2021 Target	2023 Target	2025 Target
Pavement on the Interstate System (lane miles) (Biennial Target)				
% in good condition	53.00%	45.00%	Pending, RVTPO to adopt by July 2023	
% in poor condition	0.00%	3.00%		
Pavement on the non-Interstate NHS (lane miles) (Biennial Target)				
% in good condition	39.10%	25.00%	Pending, RVTPO to adopt by July 2023	
% in poor condition	0.30%	5.00%		
Bridges and Culverts on the NHS (deck area) (Biennial Target)				
% in good condition	10.60%	30.50%	Pending, RVTPO to adopt by July 2023	
% in poor condition	2.30%	3.00%		
Highway System Performance and Freight (Biennial Target)				
% reliable Interstate person miles traveled	100.00%	82.00%	Pending, RVTPO to adopt by July 2023	
% reliable non-Interstate NHS person miles traveled	95.20%	82.50%		
Truck Travel Time Reliability Index	1.29	1.56		

Performance Measure	2021* Performance	2022 Target
Transit Assets (Valley Metro, RADAR) (Biennial Target, by Federal Fiscal Year)		
Equipment – % of Vehicles Exceeding their Useful Life (8 years)	83%	25%
Bus – % of Vehicles Exceeding their Useful Life (14 years)	47%	15%
Cutaway – % of Vehicles Exceeding their Useful Life (10 years)	26%	10%
Van – % of Vehicles Exceeding their Useful Life (8 years)	0%	20%
Facilities – % of Facilities with a condition rating below 3.0 (on FTA Transit Economic Requirements Model scale)	0%	10%

Note: 2021 performance is represented by data as of February 2022 reported by DRPT.

Table 4 Continued. RVTPO Federal Transportation Performance Measure Targets

Transit Safety (Valley Metro) (Annual Target, originally established in 2020 PTASP)*								
Transit Mode	Fatalities	Fatality Rate	Injuries	Injury Rate	Safety Events	Safety Events Rate	Distance Between Major Failures	Distance Between Minor Failures
Fixed Route	0	0	9	<0.5 injuries per 100,000 vehicle revenue miles	17	<1 reportable event per 100,000 vehicle revenue miles	10,000 miles	3,200 miles
Demand Response	0	0	3	<0.5 injuries per 100,000 vehicle revenue miles	8	<1 reportable event per 100,000 vehicle revenue miles	10,000 miles	3,200 miles

*Note: Valley Metro annual reviews the PTASP through coordination with DRPT and annual submits safety performance data to FTA through the National Transit Database.

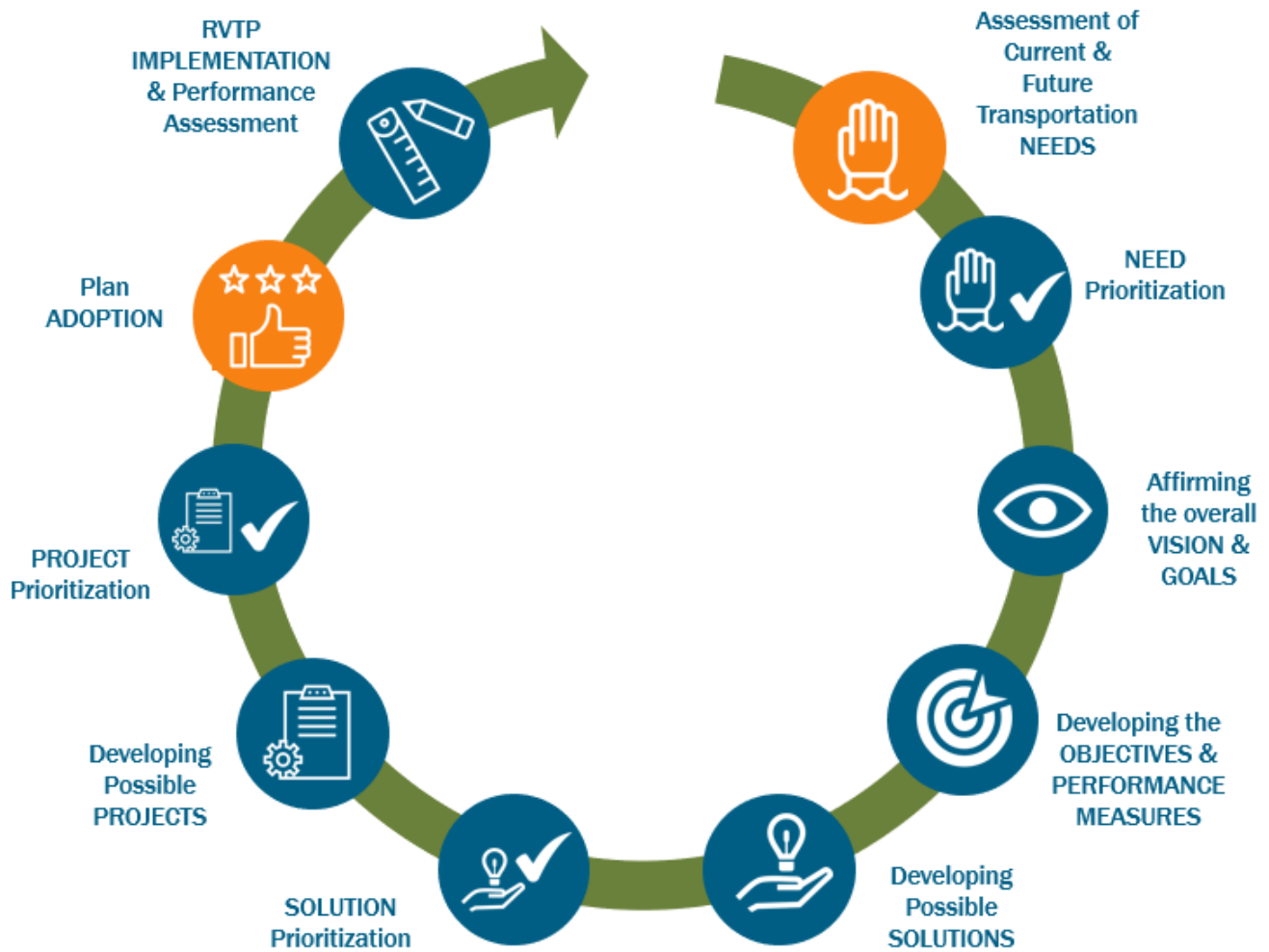
As part of the RVTP, RVTPO established long-range targets in order to create a regionally-specific standard for measuring regional progress against each RVTP goal. Since each objective does not yet include quantifiable performance measures, RVTPO elected to set targets for the most critical existing measures within which RVTPO has more control through its role as the MPO.

- **Safety Target:** Virginia’s Strategic Highway Safety Plan (SHSP) is the guiding five-year plan for road safety efforts. The plan sets forth a vision and mission that links directly to Virginia’s Toward Zero Deaths (TZD) initiative. To make progress towards the plan’s vision and mission, Virginia established a goal of reducing fatalities and serious injuries by 50 percent by 2045. **The RVTPO’s target for 2045 advances this initiative with a goal of zero fatalities by 2045.**
- **Reliability Target:** Maintain 100% reliable passenger miles traveled on the Interstate system and continue to meet the Planning Time Index target established within the region’s CMP for critical corridors.
- **Asset Condition Targets:** Meet or exceed all targets established for VDOT owned and maintained highway bridge and pavement conditions within the Roanoke Valley region. Meet or exceed all asset condition targets established by DRPT in coordination with Valley Metro and RADAR for Virginia’s eligible Tier 2 transit providers.

Informing the performance-based planning and programming process

Performance-based planning and programming (PBPP) refers to the application of performance management principles to achieve desired performance outcomes. The goals, objectives, and measures in the RVTP create the structure for identifying the most critical needs, potential solutions, and candidate projects for inclusion in the plan. This entire process, as displayed in Figure 6, is intended to be continuous. RVTPO’s PBPP process will stay dynamic in the short-term as changes in needs, priorities, and opportunities shift the outcomes of the process, but also over the long-term as the future factors impact the region.

Figure 6 RVTP Performance Based Planning and Programming Process



How are needs prioritized to achieve regional goals and objectives?

The translation of needs to potential solutions to opportunities for investment through transportation projects or services is a critical step with the new RVTP performance-based planning and programming process.

Citizens identified many transportation needs in the Roanoke Valley; and, there are investments already fully funded to address some of them. The needs which are not going to be fully addressed by the programmed investment were prioritized in order to better understand which needs may merit attention and investment before other needs. The criteria used to prioritize needs encompasses many elements that are important considerations for the region and its goals.

Needs Prioritization Criteria

The technical details on the methodology for using these criteria to prioritize needs is included in the Needs Prioritization Methodology. Highlights of the criteria are presented in the descriptions and figures on the following pages.

Current (2019) and Future (2045) Activity Density

This criteria places importance on needs that address population and employment centers within the region today and in the future. Activity density is the combination of population and employment density based on existing data and forecasted data developed cooperatively by Roanoke Valley jurisdictions for use in the RVTP.

Throughput: Priority Corridor and VMT Change

This criteria places importance on needs within congested corridors identified in the Congestion Management Process and high travel-growth corridors. High-growth VMT corridors are those that are within the 75th percentile of VMT growth as forecasted by the regional travel demand model from 2019 to 2045.

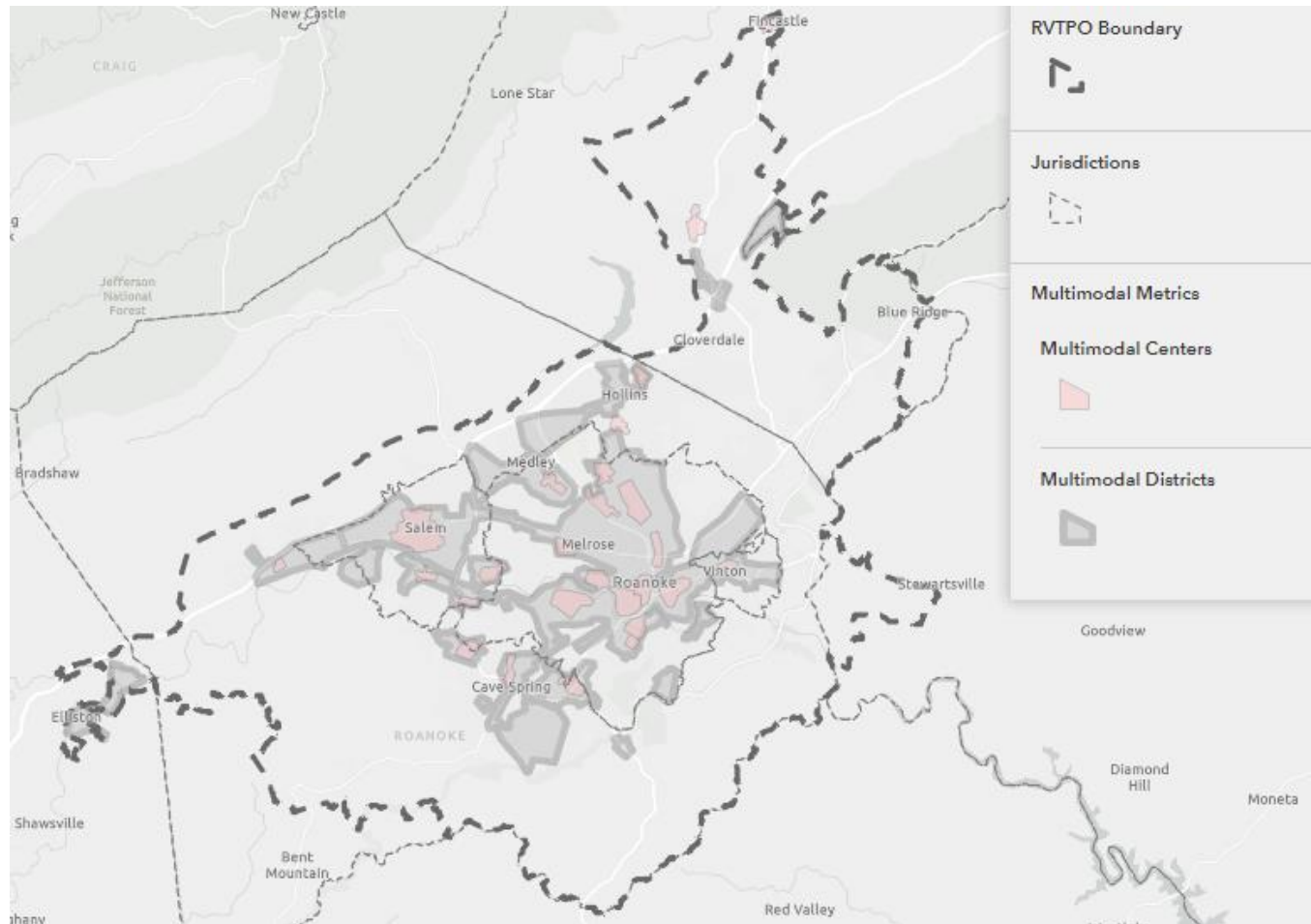
Safety: VTrans Needs (PSI) and PSAP

This criteria places importance on needs in areas with observed high crash frequency and severity for both vehicles and non-motorized users. Potential for safety improvement (PSI) and the Pedestrian Safety Action Plan (PSAP) are datasets developed by OIPI and VDOT to support VTrans and safety strategy development and deployment to address non-motorized safety issues.

Multimodal Centers and Districts

This criteria places importance on needs that support access and mobility in designated multimodal areas within the region. The RVTPO Policy Board adopted the multimodal centers and districts presented in Figure 7 in 2015. Multimodal districts include land use characteristics that support multimodal travel, such as higher densities and mixed uses, and where it is relatively easy to make trips without needing a car as gauged by the number of bus routes available, and safe walking or biking paths – either currently or proposed in the future. Multimodal centers are small areas of high multimodal connectivity and intense activity, roughly equivalent to a 10-minute walk area.

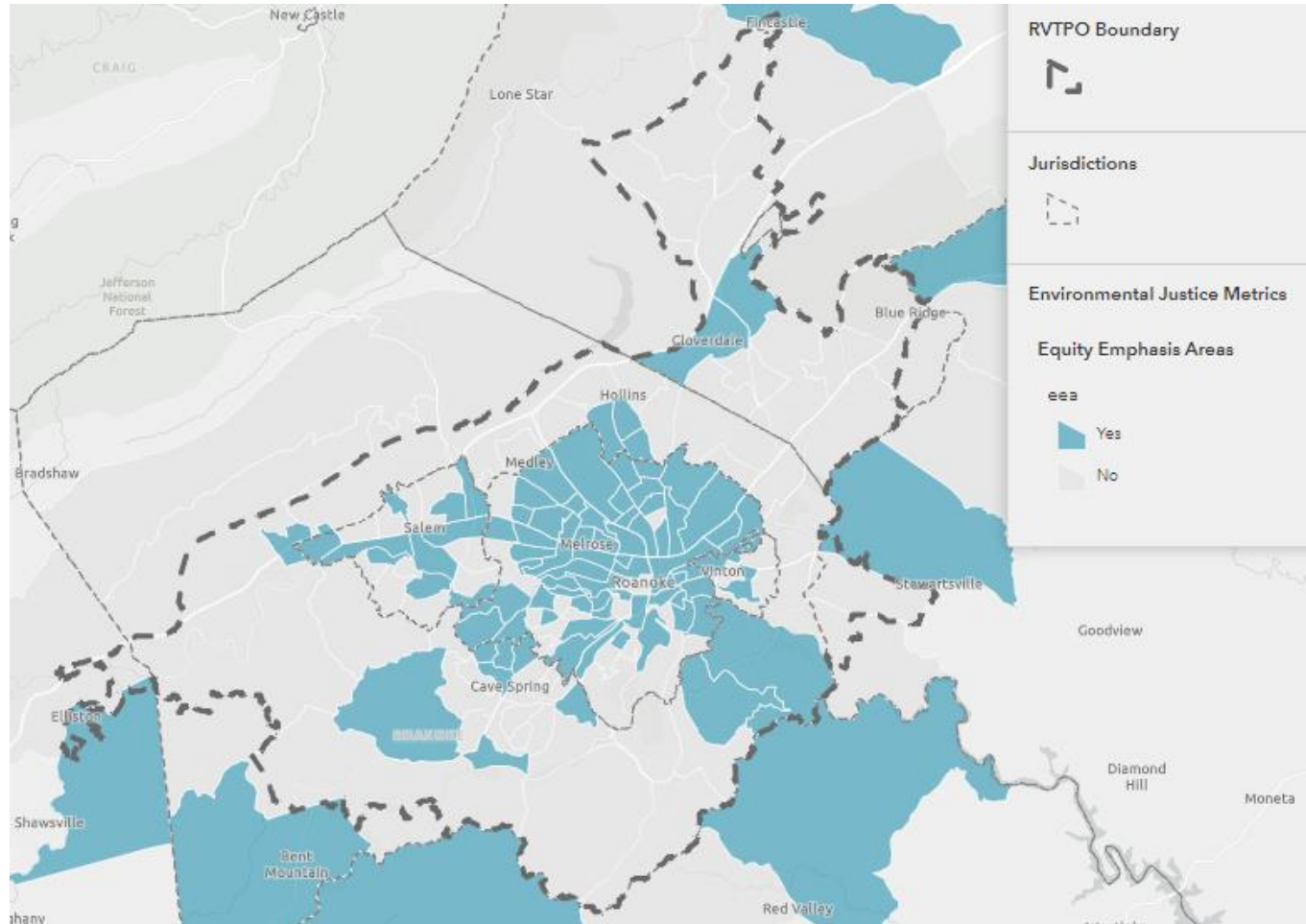
Figure 7 Multimodal Centers and Districts



Environmental Justice: Equity Emphasis Areas

This criterion places importance on needs supporting communities in designated equity emphasis areas. Equity emphasis areas are defined by OIPI for the purposes of the VTrans mid-term needs identification and prioritization process and include areas identified based on resident’s income, age, race and ethnicity, English proficiency, and disability. Figure 8 presents a map of these areas.

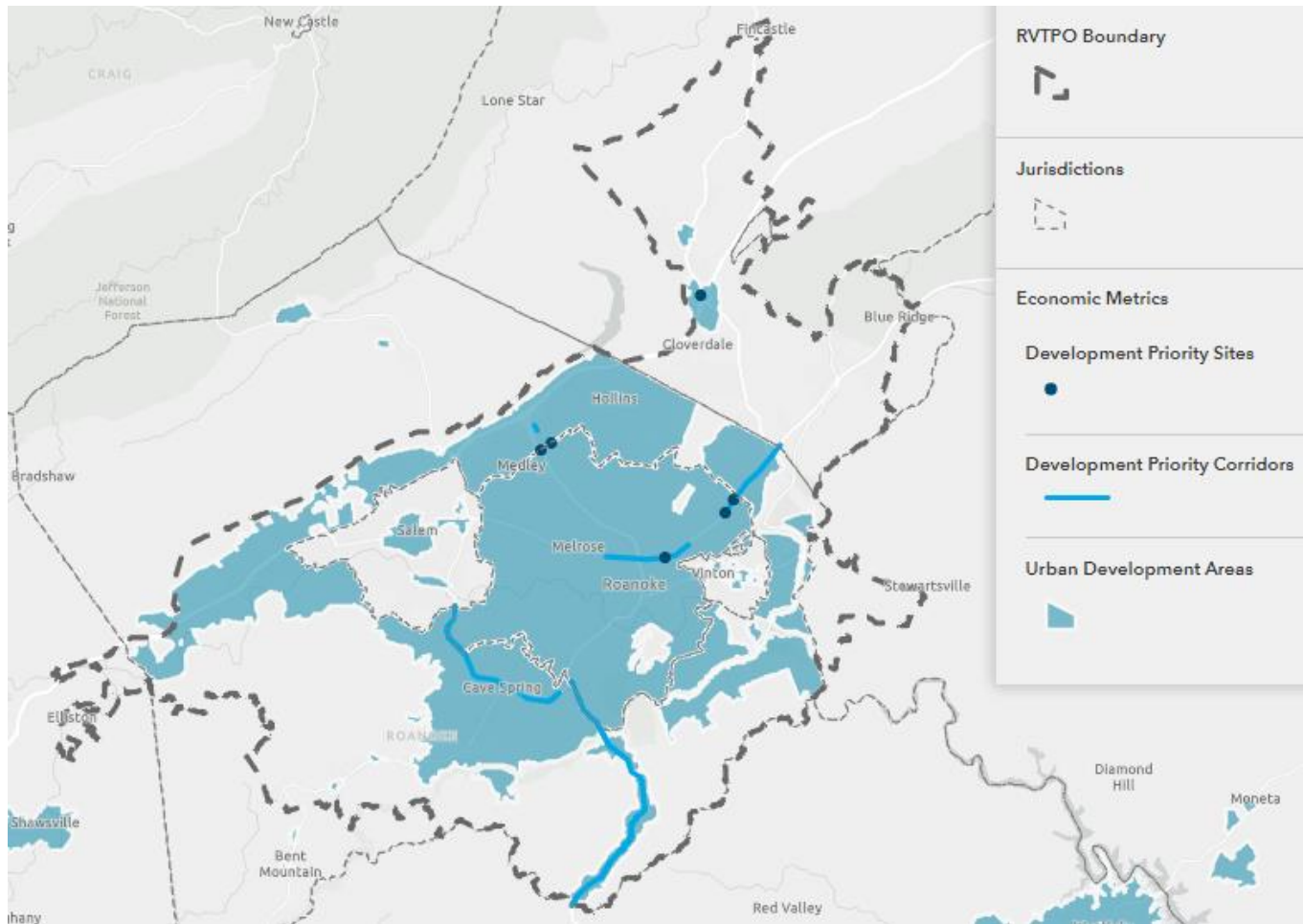
Figure 8 Equity Emphasis Areas



Economics: Development Priority Locations and Urban Development Areas

This criteria places importance on needs adjacent to economic development priority locations and serving designated urban development areas. The future development priority locations were identified through the 2021 Regional Study on Transportation Project Prioritization for and Economic Development and Growth and the Urban Development Areas are defined through OIPI for the purposes of VTrans. Figure 9 presents a map of these areas.

Figure 9 Economic Development Priority Locations and Urban Development Areas



Needs Status

Nearly 1,000 unique transportation needs were reviewed relative to existing programmed transportation projects and services as well as the needs prioritization methodology which resulted in the following status of needs:

Addressed needs

Addressed needs are needs that are met by existing funded projects and services (see the **Funded Projects Attachment**). This includes projects and services that have recently been implemented and projects programmed for implementation within the next six years consistent with VDOT and DRPT projects within the six-year improvement program.

Priority gap needs to address

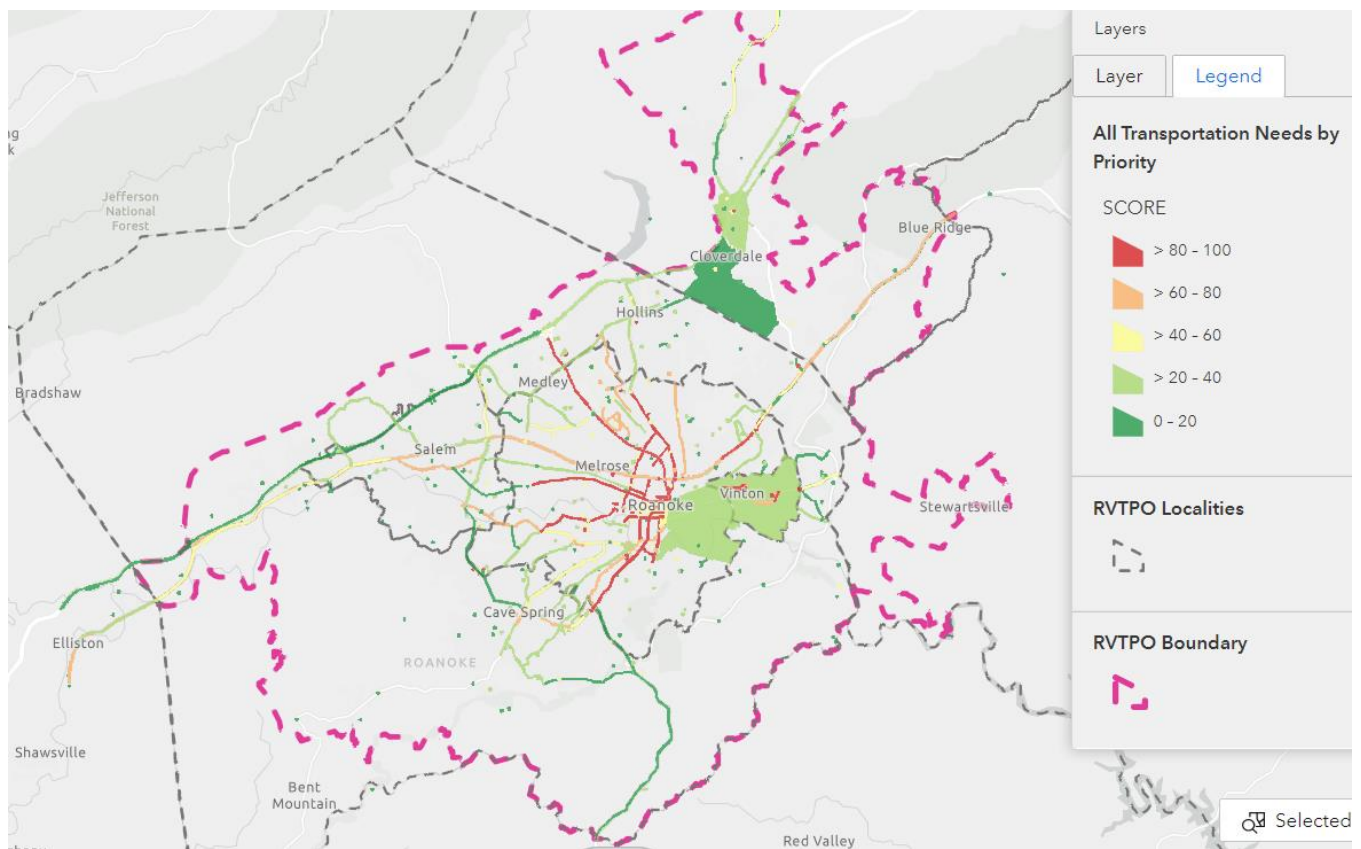
For regional transportation needs that are not already being addressed by funded projects, approximately 160 were identified as priority gap needs. If a need scored low in the needs prioritization process, a rationale is provided for why it is included as a regional priority gap need to address. These priority gap needs span a broad geography and need types. See the **Priority Regional Transportation Needs Attachment** for more information.

Other transportation needs to review in the future

For the remaining transportation needs determined to be a lower priority by the scoring methodology or have yet to be reviewed by the RVTPO Policy Board Transportation Technical Committee to qualify it as a priority gap need, the RVTPO will continue to work with members to evaluate and track these needs which are documented as part of the ongoing PBPP process. As opportunities occur and resources are available, these needs may advance to priority gap needs to advance toward solutions.

Figure 10 presents a summary map of the priority transportation needs, with red needs the highest and green needs the lowest based on implementation of the prioritization methodology.

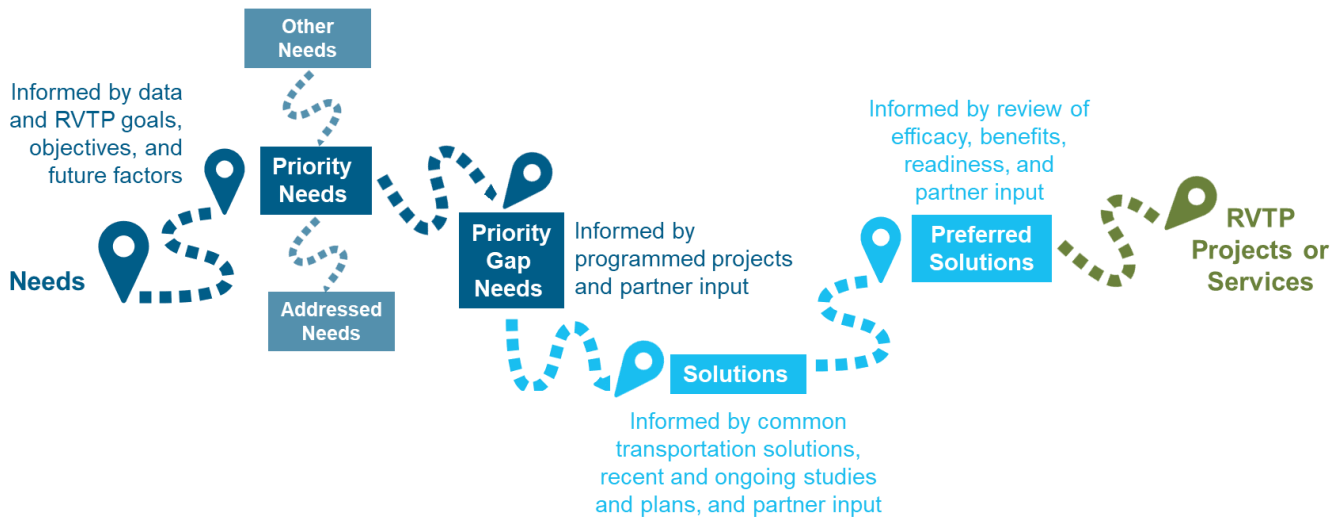
Figure 10 Priority Needs



How will priority gap transportation needs be addressed?

The translation of needs to potential solutions to opportunities for investment through transportation projects or services is a critical step with the new RVTP performance-based planning and programming process. The general process is presented in Figure 11.

Figure 11 Process from Needs to Projects, Services, and Studies



A list of 50 common and unique transportation solutions were developed to help organize the approach to develop potential solutions to address the priority gap needs. These solutions are multimodal and feature common solutions and unique solutions that represent emerging best practices. Figure 12 presents the overarching definitions for how needs and priority needs are translated into solutions.

Figure 12 Needs Translation to Solutions



Possible solutions and preferred solutions for priority gap needs

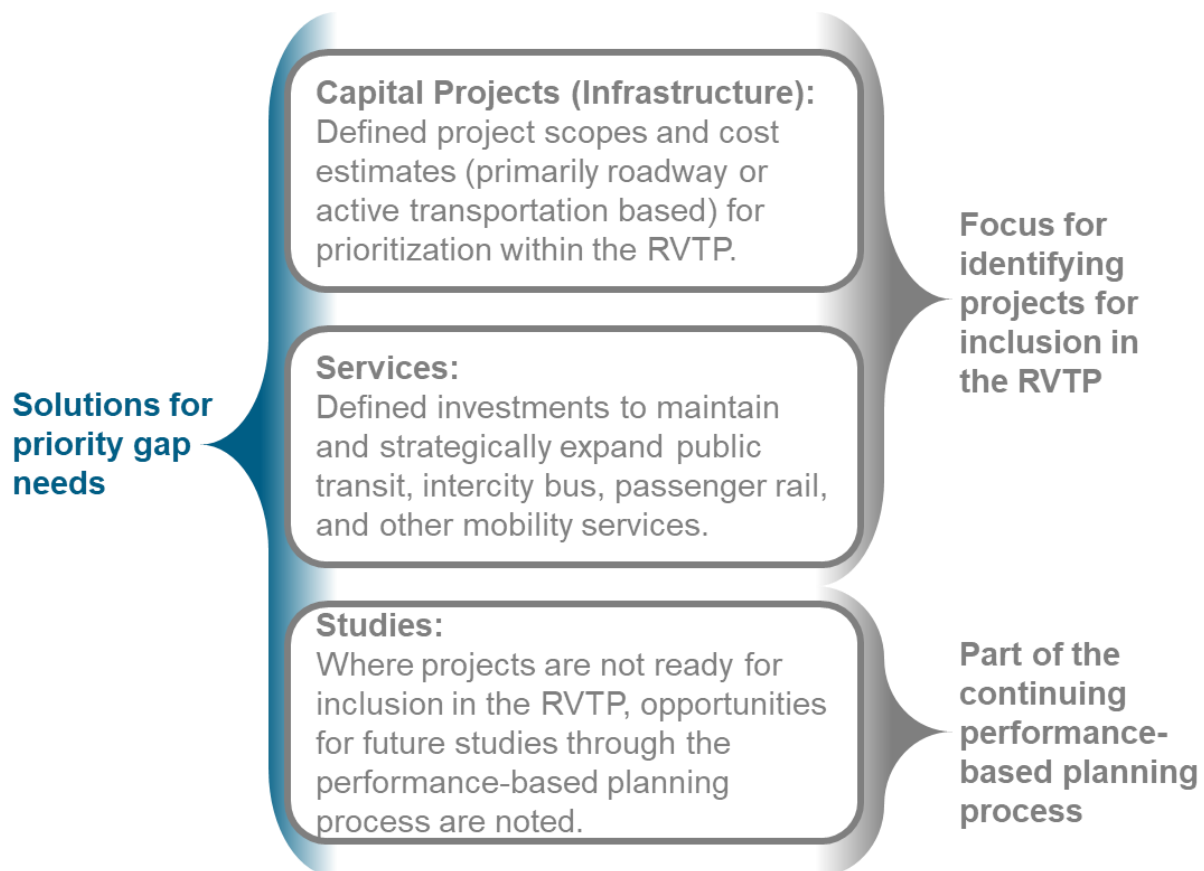
The solutions process considered programmed projects/services, recommended projects/services (from the 2040 Transportation Plan and other past plans/studies), and ongoing plans/studies such as VDOT STARS or Project Pipeline. Completed plans/studies are available in the Needs Evaluation and Solutions Tool (NEST) interactive map, enabling a comparison of priority gap needs to these efforts to help identify where possible solutions may be found.

Previously funded projects were paired with the needs they will address. If there was no recent investment addressing priority gap needs, common transportation solutions were assigned in order to develop a set of options to address the need. Relevant past studies that may provide recommendations on how to address the need were noted as references. Where there is no obvious preferred solution, the RVTP identifies these needs as opportunities for future studies.

Creating projects, services, and studies

Preferred solutions for the priority gap needs may be paired geographically with other needs and are developed into projects, services, and studies as described in Figure 13. Some of these projects and services will proceed into the adopted RVTP Financial Plan (see the [Financial Plan Attachment](#) for more detail) as funded or unfunded fiscally constrained projects, while others will remain as preferred solutions, targeted for additional study and future consideration for inclusion in the adopted plan.

Figure 13 Projects, Services, and Studies

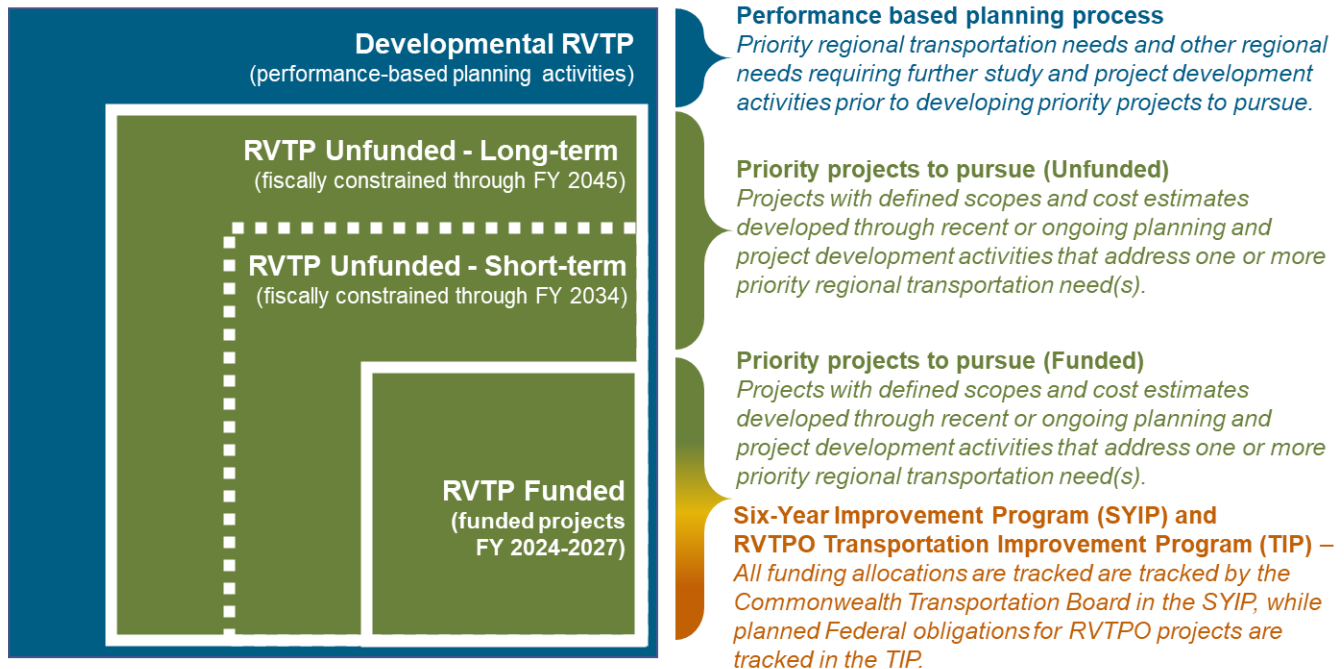


What projects, services, and studies will help meet the region’s needs?

The performance-based planning process supports development of a unified fiscally constrained RVTP that includes previously funded projects to be implemented over the coming years as well as priority projects to pursue in the short-term over the next five years or long-term.

Figure 14 presents the structure of projects and services within the RVTP, including the relationship to projects in VDOT and DRPTs Six-Year Improvement Program (SYIP).

Figure 14 RVTP Organization



Funded Projects refer to those federally eligible projects and services included in the RVTP’s **Funded Projects Attachment**. The RVTPO’s **Transportation Improvement Program Attachment** includes planned federal obligations for these projects. All funded RVTPO projects and services have been approved for project allocations by the Commonwealth Transportation Board in the SYIP. The four-year fiscal constraint represented by the RVTPO’s TIP is included in the RVTP’s **Financial Plan Attachment**. Funded projects may be at various stages including construction being complete and awaiting financial closure to not yet having started preliminary engineering. The status of funded projects, project details, and relevant financial information will be reflected at a point in time on the project sheets included in the **Funded Projects Attachment**.

RVTP Unfunded Projects include projects outside of the TIP that are fiscally constrained consistent with requirements for the MTP. These projects may be current candidate projects for inclusion in the next SYIP (FY 2024 – FY 2029) or be other projects with defined scopes and costs that address priority regional transportation needs. These projects are priorities for the region to pursue and include defined scopes and cost estimates developed through recent or ongoing planning and project development activities. These projects are included in the **Priority Projects to Pursue Attachment**.

These unfunded projects address priority regional transportation needs and fall into two buckets:

- Short Term – Desired project allocations through FY34 (priority projects meeting regional goals and objectives for future grant cycles within the next 10 years)
- Long-Term – Desired project allocations FY35 to FY45 (projects for long-term funding cycles including higher-risk, higher-cost projects requiring further project development)

The Developmental RVTP includes project concepts or solutions without complete scopes or cost estimates and potential and preferred solutions that will require further study and project development activities prior to developing priority projects to pursue (the fiscally constrained list). Concepts within the developmental RVTP are not included within the RVTP adopted MTP, rather, the ongoing RVTP's PBPP process. RVTP will work with regional partners and stakeholders to study these concepts in the coming years as planning and project development opportunities are possible.

Future studies and project development activities identified in the RVTP will require further scoping and agreement among RVTP, VDOT, DRPT, and local partners, and may be funded through the state's Project Pipeline Studies or included in future Unified Planning Work Program (UPWP) update cycles. Long-term studies identified for 2029 and beyond will be revisited during the next update to the RVTP, planned for 2028. The RVTP has a plan amendment/adjustment process that will be used for changes required in the years between; these will be included in the [Amendments/Adjustments Summary Attachment](#).

An overarching purpose of this structure within both the **RVTP Unfunded Projects** and the **Developmental RVTP** is to position the Roanoke Valley to be prepared and opportunistic in advance of grant cycles, such as SMART SCALE and STBG, but also new formula and discretionary grant opportunities through the Bipartisan Infrastructure Law.

What are the Funded Projects and Services in the Plan?

In Virginia, roadway/bicycle/pedestrian projects compete for funding and are allocated funding over a six-year time horizon called the Six-Year Improvement Program approved by the Commonwealth Transportation Board (CTB). Transit projects compete annually for funds which are allocated one year at a time and are also approved by the CTB in the SYIP. The RVTP's Transportation Improvement Program authorizes federal funds for projects/services within a four-year time period for investments which have been allocated federal funds and federal obligations are planned. The federal funds programmed in the TIP may be used towards the funded projects/services/studies listed in the RVTP.

How does the RVTP prioritize investments?

The RVTP has the ability to prioritize at multiple levels including which needs to focus attention addressing, the preferred solution to address a need, and to which projects/services federal funding may be programmed. The RVTP has direct decision-making authority over two funding programs: the Roanoke Valley apportionments of the Surface Transportation Block Grant (STBG) and Transportation Alternatives (TA). The RVTP prioritizes STBG investments as described in the **STBG Project Development and Selection Procedures**. VDOT is responsible for the prioritization of investments in the TA program and provides the scores to the RVTP for final decision by the Policy Board. DRPT is the designated recipient of Roanoke Valley FTA 5310 apportionment and administers the prioritization of investments with those funds which are approved by the CTB in the SYIP and the RVTP in the TIP before funds can be expended.

Many other grant programs exist at the State and Federal level. Each grant program has different criteria that determine whether or not a proposed project or investment is prioritized for funding. The RVTPO controls which federally eligible projects to pursue and approves the use of federal funding for projects within the plan. The RVTPO does not have control over whether or not the project is selected for funding. The RVTPO's primary role within prioritization is in choosing which need to address, the preferred solution for that need, and the opportunities to follow to position projects for future funding.

Where does funding come from and what are the requirements?

Funding for projects may come from federal, state, or local resources. The available amounts for formula funding programs such as STBG, TA and FTA 5307, 5310, and 5339 funds are associated with the region's population in proportion to other metropolitan areas in Virginia. Other funds are discretionary, competitive programs including SMART SCALE, Virginia's project prioritization system for state and federal highway-oriented funding sources. Dedicated funding sources through state taxes also exist to fund improvements related to I-81. Many new funding opportunities are also coming out of the BIL.

As such, many of the region's transportation funding opportunities come from grant programs administered by agencies outside of the region requiring eligible applicants (localities, transit agencies, or the regional body) to request funding through the many unique grant selection processes. Each process has unique requirements and eligibilities; developing a grant application that can compete well to achieve funding can often be challenging.

Which projects and services are funded and moving forward?

Projects and services that have received funding allocations by the RVTPO Policy Board or by the Commonwealth Transportation Board are included in the first financial timeframe of the RVTP's Financial Plan and are listed in the **Funded Projects Attachment**. Several of these projects may have started in previous years or be complete but are not closed in the state's financial reporting system so they are still listed. The **Transportation Improvement Program Attachment** demonstrates the federal planned obligations for funded, federally eligible projects, listed in the RVTP. Other funded projects may constitute future Transportation Improvement Programs as their planned federal obligations will occur beyond the current four-year TIP timeframe.

What are the anticipated benefits of these funded projects?

Each funded project in the RVTPO area was reviewed based on its alignment with the RVTP goals and objectives and the potential support of Federal performance measures applicable within the region. Figure 15 presents the summary of the alignment, indicating that multiple projects within the TIP support every goal. Both in terms of number of projects and total planned investment, for the safety goal, 88 total projects include improvements that should improve safety; 72 total projects are associated with supporting Roanoke Valley's equity emphasis areas.

Figure 15 Funded Projects Alignment with RVTPO Vision and Goals

Vision	The Roanoke Valley's seamless regional multimodal transportation system is safe, cost-effective, environmentally conscious, well-maintained and reliable, accessible for all users, and promotes the economic vitality of the community.							
	Goals	Provide a safe and secure transportation system	Enable reliable mobility	Ensure convenient and affordable access to destinations	Foster environmental sustainability	Maintain and operate an efficient and resilient transportation system	Support economic vitality	Promote equitable transportation investments
Funded Projects		88	40	71	48	75	42	72
		\$1,307,479,240	\$1,192,099,043	\$1,283,799,462	\$166,006,409	\$1,250,935,364	\$1,202,214,696	\$321,977,815
		92%	84%	90%	12%	88%	84%	23%

Note: Funded project totals (millions) represent the sum of all projects considered to support each goal, not the cost component of each project supporting a particular goal. For example, the total cost of a single roadway widening project could be included in the safety goal, the reliable mobility goal, and the economic vitality goal. The results of this comparison are intended to show the balance of funded projects in addressing the RVTP goals.

The review of benefits also considered the potential for each project to support RVTP objectives, which are the primary link to supporting improved transportation system performance. Table 5 presents the total number of projects, the total TIP investment to those projects, and the share of total TIP investment. Similar to the results for the alignment with goals, TIP projects support all 17 of the RVTP objectives, and in every case, multiple projects across multiple jurisdictions support each objective.

The RVTP does not quantify the anticipated performance outcomes of each investment. Instead, the RVTP connects each investment with the Federal performance measures it is targeted to support. These connections are presented at the regional scale and for key corridors and locations within the **System Performance Report Attachment**. The objectives of interest related to the Federal performance measures include:

- **Eliminate fatalities and reduce injuries on the multimodal transportation system and increase transit, bicycle, and pedestrian connections for all users within multimodal centers and districts** – connects to FHWA highway safety measures (including bicycles and pedestrians) and FTA transit safety measures
- **Maintain vehicle travel time reliability on priority corridors and maintain acceptable levels of congestion during peak travel periods on priority corridors** – connects to FHWA system performance measures including percent person miles traveled in reliable conditions
- **Maintain truck travel time reliability** – connects to the FHWA freight reliability (truck travel time index) measure on the Interstate system
- **Maintain state and national standards for infrastructure and asset condition** – connects to FHWA bridge and pavement condition measures and FTA transit asset management measures

Table 5 Funded Projects Alignment with Objectives and Performance Measures

Goal	Objective	Projects	Cost	Share of Funded Projects Total
Safety	Eliminate fatalities and reduce injuries on the multimodal transportation system.	88	\$1,307,479,240	92%
Mobility	Maintain vehicle travel time reliability on priority corridors.	30	\$1,142,037,103	80%
	Improve transit and passenger rail on-time performance.	11	\$63,904,153	4%
Accessibility	Provide motorized access to inaccessible properties identified for future development.	9	\$98,785,702	7%
	Increase accessibility to key destinations by transit.	15	\$77,255,193	5%
	Increase transportation connections to markets outside the region, including across Virginia and the U.S.	15	\$1,047,450,852	73%
	Increase transit, bicycle, and pedestrian connections for all users within multimodal centers and districts.	49	\$225,843,393	16%
Sustainability	Minimize emissions from motorized on-road transportation.	48	\$166,006,409	12%
	Minimize / mitigate new impervious surfaces created by transportation infrastructure.	31	\$86,699,585	6%
Efficient & Resilient	Maintain state and national standards for infrastructure and asset condition.	75	\$1,250,935,364	88%
Economic Vitality	Ensure redevelopment and new developments in designated growth areas and multimodal centers/districts are supported by more than one mode of transportation infrastructure.	8	\$75,364,741	5%
	Maintain truck travel time reliability.	33	\$1,155,498,268	81%
	Maintain acceptable levels of congestion during peak travel periods on priority corridors.	34	\$1,153,248,103	81%
Equity	Assess planning-level benefits or disproportionate adverse effects of transportation projects included in this plan on Equity Emphasis Areas and identify mitigation strategies.	49	\$277,871,408	19%
	Ensure that non-drive alone mobility investments create opportunities in Equity Emphasis Areas.	54	\$232,352,549	16%
	Eliminate fatalities and reduce serious injuries in Equity Emphasis Areas.	53	\$227,054,078	16%
	Maintain state and national standards for infrastructure condition in Equity Emphasis Areas.	44	\$184,194,656	13%

How Much Money is Expected to be Available for Transportation from Now until 2045?

The Virginia Department of Transportation provided financial forecasts for the RVTPO through the year 2045 which are provided in Table 6. Funded projects with planned allocations through Fiscal Year (FY) 2027 constitute the first timeframe of the RVTP’s Financial Plan. Unfunded priority projects to address priority gap transportation needs fill the remaining anticipated allocations for FY 2028 - 2045.

Table 6 RVTP Financial Forecasts

NON-TRANSIT			
Non-Transit Fiscal Constraint by Funding Program	Funded Project Allocations (through FY27)	Short-Term Anticipated Allocations (FY28-FY34)	Long-Term Anticipated Allocations (FY35-FY45)
SMART SCALE District Grant	Tracked by funding source - see Financial Plan Attachment for details.	\$ 67,311,621	\$ 129,859,743
SMART SCALE High Priority Grant		\$ 43,559,338	\$ 92,534,726
STBG		\$ 42,400,068	\$ 78,734,695
TA		\$ 2,223,689	\$ 4,070,307
Other		\$ -	\$ -
Maintenance (Localities + VDOT)		\$ 647,065,525	\$ 1,235,455,592
State of Good Repair		\$ 65,339,006	\$ 138,802,089
TOTAL for Non-Transit New Construction and Maintenance		\$ 1,481,127,600	\$ 867,899,247

TRANSIT			
Transit Fiscal Constraint by Funding Program	Planned Obligations for Funded Projects through FY27	Short Term Anticipated Allocations (FY28-FY34)	Long Term Anticipated Allocations (FY35-FY45)
Planning			
FTA 5303	\$ 723,073	\$ 1,401,804	\$ 2,565,905
Capital/Operating			
FTA 5307	\$ 19,050,089	\$ 29,936,248	\$ 54,796,229
FTA 5310	\$ 1,472,000	\$ 2,635,871	\$ 4,824,779
FTA 5311	\$ 1,416,000	\$ -	\$ -
FTA 5339	\$ 472,800	\$ 2,528,135	\$ 4,627,576
STBG	\$ 4,768,121	\$ -	\$ -
Flexible STP	\$ -	\$ -	\$ -
State & Local	\$ 28,344,291	\$ 29,769,600	\$ 54,491,192
Revenue	\$ 9,256,000	\$ 17,337,720	\$ 31,735,497
TOTAL	\$ 65,502,374	\$ 82,207,575	\$ 150,475,273

More information about fiscal constraint and the assumptions behind the amounts can be found in the [Financial Plan Attachment](#).

How Are Decisions Made on the Priority Projects to Pursue Through 2045?

RVTPO’s PBPP process created a framework to support project decision making. The framework focused on four fundamental concepts:

- **Partner review and input** – RVTPO staff routinely coordinated with local, regional, and statewide partners to review, refine, and reach decisions on the status of priority projects to pursue. This review highlighted the most critical project needs, project development activities and status, and identified concepts requiring further study prior to seeking funding.
- **Public comment** – The RVTP public comment period sought direct input from survey respondents on the relative importance of each draft priority project to pursue. Insight gathered from the survey was considered during the decision-making process.
- **Project benefits analysis** – RVTPO staff conducted a benefits analysis for each candidate priority project to pursue across a set of qualitative and quantitative criteria. The criteria included:
 - Priority needs score developed through the priority needs methodology
 - Number of RVTP objectives addressed by the project
 - Description of anticipated benefits and potential burdens based on each project’s scope and location
 - Quantified safety benefits analysis that assesses the potential of the project to reduce fatal, serious injury, and minor injury crashes
 - Qualitative benefits review based on the project ability to improve asset condition, improve travel time reliability, and reduce congestion
- **Project viability review** – RVTPO staff reviewed funding eligibility and likelihood of receiving funding by key funding source for each priority project to pursue based on scope, cost, and funding history, rating projects as “eligible likely”, “eligible unlikely”, or “ineligible”.

Which Project and Services are Ready to Seek Funding in the Next Ten Years?

Projects and services ready to seek funding soon have undergone extensive study and project development activities over the last 5 or more years. They each address priority regional transportation needs and are supported by Roanoke Valley’s jurisdictions for inclusion in the fiscally constrained element of the plan. These investments collectively represent the regional pipeline of future multimodal transportation projects to seek funding through grant cycles over the next five years in order to obtain funding over the next ten years. They have been elevated as immediate priorities due to the criticality of the need, stakeholder and public support, and level of readiness for pursuing funding through future grant applications. Short-term projects for pursuit are presented in **Priority Projects to Pursue Attachment** with fiscal constraint details in the **Financial Plan Attachment**.

Priority projects to pursue include 19 projects submitted by regional partners for SMART SCALE Round 5 in 2022, totaling \$327 million in potential investment. This amount requested well exceeds the projected nearly \$111 million in high-priority project program (HPPP) and district grant program (DGP) funding for the region over the FY28-34 timeframe. However, because these projects are ready to seek funding and address regional priority needs and given the competitive nature of SMART SCALE which could result in more funding being awarded than anticipated, they are all included as short-term projects. Pending the results of SMART SCALE Round 5 in 2023, projects that remain unfunded will continue to be refined and seek funding through future SMART SCALE or other discretionary grant cycles.

Which Projects Are Priorities to Pursue Beyond Ten Years?

Projects and services that are priorities to pursue for funding later have also undergone extensive study and project development activities and address priority regional transportation needs. They are supported by RVTPO members for inclusion in the fiscally constrained element of the plan and collectively represent the regional pipeline of future multimodal transportation projects to seek funding for through grant cycles beyond the next five years for funding allocations ten years or more into the future.

As resources are constrained, these priorities have been placed in the second ten-year period of the plan (starting in FY 2035) due to lower criticality of the need, more uncertainty in stakeholder and public support, and probable project delivery challenges (including environmental clearances, right-of-way acquisition needs, or other design and delivery constraints) that will negatively impact the level of readiness for pursuing funding through future grant applications in the coming years. Long-term projects for pursuit are also highlighted in the **Priority Projects to Pursue Attachment** with fiscal constraint details in the **Financial Plan Attachment**.

Where will funding come from and what are the requirements?

Funding for projects will continue to come from federal, state, or local resources. The majority of funding programs exist at the federal and state level and are fully administered by the state. As noted in the discussion of the funded projects, the RVTPO Policy Board has direct access to two funding pots: Surface Transportation Block Grant (STBG) and Transportation Alternatives (TA) urban apportionment. However, these amounts are generally limited to smaller projects (less than \$12 million) and could only cover a small proportion of the total unfunded project costs.

As such, most of the region’s transportation funding will continue to come from grant programs administered by agencies outside of the region requiring eligible applicants (localities, transit agencies, or the regional body) to request funding through the many unique grant selection processes. Each process has unique requirements and eligibilities and developing a grant application that can compete well to achieve funding can often be challenging.

There are dozens of funding programs that may fit the collection of RVTP unfunded projects, including both Federal and State sources. Information about funding programs can be found in the **Acronyms/Definitions Attachment**.

RVTP unfunded projects large and small could move toward implementation with competitive grant funding from the Bipartisan Infrastructure Law (BIL). The BIL authorizes \$140 billion in new grant funding for which Roanoke Valley surface transportation projects can compete. Of this, roughly \$100 billion is guaranteed, with the rest dependent on allocations from future federal spending bills. The USDOT will distribute funds over five years through more than two dozen targeted competitive grant programs.

Many of these grant programs reflect the RVTP goals and objectives. Competition for these limited funds will be fierce, requiring regional coordination and cooperation to position successfully. Some examples that might be most relevant to the RVTP unfunded projects include:

- **Safety, Equity, Resilience, and Other Local Priority Projects**
 - [RAISE²⁴](#) – local and regional surface transportation priorities
 - [Safe Streets and Roads for All⁴](#) – Vision Zero safety planning and implementation
 - [PROTECT Resilience Grants²⁵](#) – transportation resilience planning and project implementation

- [Reconnecting Communities⁵](#) – planning or implementation to remove or retrofit highways to restore community connectivity
- **Transit and Intercity Rail Expansion and Modernization**
 - [Railroad Crossing Elimination Program²⁶](#) – railroad grade separation projects
 - [Low and Zero Emission Bus Program²⁷](#) – low-no emission bus fleets and infrastructure
 - [All Stations Accessibility Program²⁸](#) – Americans with Disabilities Act (ADA) rail station improvements
- **Nationally Significant Mobility and Goods Movement**
 - [INFRA²⁹](#) – highway freight and rail grade separation projects
- **Bridge and Highway**
 - [Charging and Fueling Infrastructure Grants³⁰](#) – electric vehicle charging infrastructure and other alternative fueling infrastructure along designated alternative fuel corridors
 - [Bridge Investment Program³¹](#) – bridge replacement, rehabilitation, preservation and protection

What are the anticipated benefits of these unfunded priority projects to pursue?

Each RVTP unfunded project was reviewed based on its alignment with the RVTP goals and objectives and the potential support of Federal performance measures applicable within the region. Figure 16 presents the summary of the alignment, indicating that multiple RVTP unfunded projects support every goal.

Figure 16 RVTP Unfunded Project Alignment with RVTP Vision and Goals

Vision	The Roanoke Valley's seamless regional multimodal transportation system is safe, cost-effective, environmentally conscious, well-maintained and reliable, accessible for all users, and promotes the economic vitality of the community.						
	Goals	Provide a safe and secure transportation system	Enable reliable mobility	Ensure convenient and affordable access to destinations	Foster environmental sustainability	Maintain and operate an efficient and resilient transportation system	Support economic vitality
Unfunded Projects	27	13	27	18	18	18	22
	\$487,670,645	\$315,916,632	\$440,775,809	\$324,262,793	\$217,195,632	\$374,102,852	\$367,743,715
	96%	62%	87%	64%	43%	74%	72%

Note: Unfunded project totals (millions) represent the sum of all projects considered to support each goal, not the cost component of each project supporting a particular goal. For example, the total cost of a single roadway widening project could be included in the safety goal, the reliable mobility goal, and the economic vitality goal. The results of this comparison are intended to show the balance of unfunded projects in addressing the RVTP goals.

The review of benefits also considered the potential for each project to support RVTP objectives, which are the primary link to supporting improved transportation system performance. Table 7 presents the total number of projects, the total unfunded project investment, and the share of total fiscally constrained RVTP investment. Similar to the results for the alignment with goals, RVTP unfunded projects support all 17 of the RVTP objectives, and in every case, multiple projects across multiple jurisdictions support each objective.

The RVTP does not quantify the anticipated performance outcomes of each unfunded project. Instead, the RVTP connects each investment with the Federal performance measures it is targeted to support.

These connections are presented at the regional scale and for key corridors and locations within the **System Performance Report Attachment**.

Table 7 RVTP Unfunded Project Alignment with Objectives and Performance Measures

Goal	Objective	Projects	Cost	Share of Unfunded Projects Total
Safety	Eliminate fatalities and reduce injuries on the multimodal transportation system.	27	\$487,670,645	96%
Mobility	Maintain vehicle travel time reliability on priority corridors.	10	\$250,696,172	49%
	Improve transit and passenger rail on-time performance.	3	\$65,220,460	13%
Accessibility	Provide motorized access to inaccessible properties identified for future development.	5	\$99,337,002	20%
	Increase accessibility to key destinations by transit.	7	\$111,724,435	22%
	Increase transportation connections to markets outside the region, including across Virginia and the U.S.	3	\$83,041,063	16%
	Increase transit, bicycle, and pedestrian connections for all users within multimodal centers and districts.	20	\$344,568,790	68%
Sustainability	Minimize emissions from motorized on-road transportation.	16	\$301,531,163	59%
	Minimize / mitigate new impervious surfaces created by transportation infrastructure.	9	\$104,763,909	21%
Efficient & Resilient	Maintain state and national standards for infrastructure and asset condition.	18	\$217,195,632	43%
Economic Vitality	Ensure redevelopment and new developments in designated growth areas and multimodal centers/districts are supported by more than one mode of transportation infrastructure.	6	\$108,248,455	21%
	Maintain truck travel time reliability.	9	\$233,573,144	46%
	Maintain acceptable levels of congestion during peak travel periods on priority corridors.	12	\$265,854,397	52%
Equity	Assess planning-level benefits or disproportionate adverse effects of transportation projects included in this plan on Equity Emphasis Areas and identify mitigation strategies.	25	\$428,034,016	84%
	Ensure that non-drive alone mobility investments create opportunities in Equity Emphasis Areas.	15	\$285,526,628	56%
	Eliminate fatalities and reduce serious injuries in Equity Emphasis Areas.	21	\$347,743,715	68%
	Maintain state and national standards for infrastructure condition in Equity Emphasis Areas.	4	\$38,679,647	8%

What is the Developmental RVTP?

The Developmental RVTP includes the continuous vetting of other documented transportation needs, project concepts or solutions without complete scopes or cost estimates and potential and preferred solutions that will require further study and project development activities prior to developing priority projects. The purpose of this ongoing work enables RVTP and its partners to prioritize resources for future studies and project development activities consistent with regional needs, goals, and objectives. This is a new PBPP process for the RVTP and will continue to be refined by RVTP over the next five years (prior to the next RVTP update).

There are a variety of types of concepts and solutions addressing both regional priority needs and other regional needs within the Developmental RVTP.

- **Project concept or preferred solution to address a priority regional transportation need** – In some cases, project concepts have already been developed through prior planning studies; however, specific scope details and project costs are not available. Through coordination among RVTP, VDOT, DRPT, transit agencies, and the localities, these concepts and preferred solutions that address a priority regional transportation need represent the priority for project development activities over the next ten years. Ultimately the goal is to move these concepts into the RVTP unfunded priority project list once scopes and costs are finalized and an opportunity exists within the MTP fiscal constraint requirements.
- **Study opportunity to address a priority regional transportation need** – These are priority regional transportation needs where there is no recent planning or project development activities, and no readily apparent preferred solution to address the need. In this case, RVTP may coordinate with VDOT, OIPI, DRPT, transit agencies, or the localities to scope and implement a planning study to better understand the need and develop recommended solutions to proceed into project development.
- **Project concept, preferred solution, or study to address another regional transportation need** – For other regional transportation needs that are not considered priorities within this RVTP, there may be prior planning studies or project development activities that has developed a concept or preferred solution. Or, there may be a need to conduct a study to better understand the need. RVTP will continue to track these needs and the associated concepts, however as part of the RVTP the intent will be to not proceed with moving these outcomes into the RVTP unfunded project list.

How will the RVTP Implement the RVTP?

The RVTP is intended to be a dynamic transportation planning and programming process for the Roanoke Valley. While the plan is required to be updated at least every five-years per FHWA requirements, RVTP is prepared to routinely update the plan to address changing performance trends, multimodal transportation needs, priorities, solutions, and changing project programming and implementation realities. This includes the RVTP amendment and adjustment processes to address changes in the funded and unfunded projects to ensure the RVTP meets fiscal constraint requirements.

How will RVTP Monitor Transportation Needs?

The PBPP process developed and implemented for this RVTP evaluated multimodal transportation needs and developed priority regional needs. Many of these needs were validated through a combination of public input and recent planning and project development activities and were able to proceed in the adopted RVTP as unfunded priority projects or as potential concepts and solutions within the

Developmental RVTP. However, many of these needs still require further validation and study to confirm understanding of the needs, their potential as priority needs, and the opportunities for developing solutions or concepts that could proceed toward defined projects. RVTPO will work with the Roanoke Valley localities, VDOT, DRPT, and transit providers to review these needs and confirm their inclusion in the RVTP. Other needs identified through this process, but not included at this time as a priority regional transportation need, may be found on rvtpo.org for consideration as part of the ongoing PBPP process.

What are our Performance Measures?

As highlighted in the RVTP, there is an existing combination of Federal performance measures focusing on safety, asset management, reliability, and freight movement. Most of these measures focus on Interstate highways and the National Highway System within the Roanoke Valley. These measures are limited in communicating the benefits of investments within the RVTP. RVTPO will continue to work with VDOT, DRPT, and OIPI to leverage state performance measures that cover more of the multimodal transportation system, while also exploring opportunities to develop, test, and implement new candidate measures that address RVTP goals and objectives.

What Tools will RVTP use to Facilitate the PBPP Process?

The NEST interactive map will be used to represent to planning partners and the public the relationship between needs, priority needs, funded, and unfunded projects within the Roanoke Valley. As potential solutions and concepts are refined for priority regional needs, the NEST will be updated to depict progress. As need definitions are refined or needs are removed from consideration within the RVTP, the NEST will be updated. The NEST is connected to a new database developed by RVTPO to track all needs, projects, and solutions and concepts within the RVTP. RVTPO will actively manage this database to ensure an accurate and timely representation of planning process and needs status.

How will we Track Progress?

RVTPO will provide recurring updates to the RVTPO TTC and Policy Board regarding RVTPO implementation activities, including status and opportunities for unfunded projects to receive funding in upcoming grant cycles, and progress made through planning studies and partner coordination to refine needs and further develop solutions into projects.

How will the Plan Change Over Time?

Funded project costs and schedules may change and the RVTPO will be involved as amendments/adjustments are required per the RVTPO's PBPP process. Future grant cycles will enable successful project applications within the region to proceed from the RVTP's unfunded projects list into the Funded Projects list, SYIP and TIP. Changes in funding availability through Federal and state regulation or policy change may impact fiscal constraint determinations. Changes in Federal or state goals, objectives, or planning factors may reshape the priorities for continued development of the RVTP. RVTPO will regularly monitor these potential changes and communicate with the Policy Board and other interested stakeholders the impact of these change on the RVTP as well as the roles and responsibilities of RVTPO.

Full documentation on the process that was used to create this RVTP and will be used to facilitate the ongoing PBPP process, including development of the concepts and solutions in the Developmental RVTP, may be found on the RVTPO's website at <https://rvarc.org/transportation/rvtp>.

Endnotes and Links

- ¹ <https://highways.dot.gov/newsroom/biden-administration-announces-new-protect-formula-program-73-billion-bipartisan>
- ² <https://driveelectric.gov/>
- ³ <https://highways.dot.gov/newsroom/president-biden-usdot-announce-new-guidance-and-64-billion-help-states-reduce-carbon>
- ⁴ <https://www.transportation.gov/grants/SS4A>
- ⁵ <https://www.transportation.gov/grants/reconnecting-communities>
- ⁶ <https://www.whitehouse.gov/environmentaljustice/justice40/>
- ⁷ <https://www.transportation.gov/equity-Justice40>
- ⁸ <https://vtrans.org/>
- ⁹ <https://vapipeline.org/>
- ¹⁰ <https://transformingrailva.com/programs/transforming-rail-in-virginia/>
- ¹¹ <https://transformingrailva.com/programs/transforming-rail-in-virginia/new-river-valley-station/>
- ¹² http://vdot.virginia.gov/business/ted_app_pro.asp
- ¹³ <https://rvarc.org/wp-content/uploads/2020/04/Roanoke-Valley-Regional-Transportation-Safety-Study.pdf>
- ¹⁴ <https://rvarc.org/wp-content/uploads/2020/10/Traffic-Congestion-Management-Process-2020.pdf>
- ¹⁵ <http://syip.virginiadot.org/Pages/mpoProjects.aspx>
- ¹⁶ <https://dashboard.virginiadot.org/pages/projects/smartscaleprojects.aspx>
- ¹⁷ <https://www.vdot.virginia.gov/projects/salem/default.asp>
- ¹⁸ <https://drpt.virginia.gov/guidelines-and-requirements/transit-asset-management-plan/>
- ¹⁹ <https://drpt.virginia.gov/guidelines-and-requirements/public-transportation-agency-safety-plan-ptasp/>
- ²⁰ <https://experience.arcgis.com/experience/7c2b2fb55b1b42c58954799c2156b922/>
- ²¹ https://www.govregs.com/regulations/title23_chapterI_part450_subpartC_section450.306
- ²² <https://www.law.cornell.edu/uscode/text/23/150>
- ²³ <https://vtrans.org/vision/our-vision>
- ²⁴ <https://www.transportation.gov/RAISEgrants>
- ²⁵ https://www.fhwa.dot.gov/bipartisan-infrastructure-law/protect_fact_sheet.cfm
- ²⁶ <https://railroads.dot.gov/elibrary/railroad-crossing-elimination-grant-program-fact-sheet>
- ²⁷ <https://www.transit.dot.gov/lowno>
- ²⁸ <https://www.transit.dot.gov/ASAP>
- ²⁹ <https://www.transportation.gov/buildamerica/financing/infra-grants/infrastructure-rebuilding-america>
- ³⁰ <https://www.transportation.gov/rural/ev/toolkit/ev-infrastructure-funding-and-financing/>
- ³¹ <https://highways.dot.gov/newsroom/dot-announces-historic-bridge-investment-under-bipartisan-infrastructure-law>