



VTrans2040

VTrans Multimodal Transportation Plan 2025 Needs Assessment



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Commonwealth of Virginia

Office of Intermodal Planning and Investment,
Office of the Secretary of Transportation



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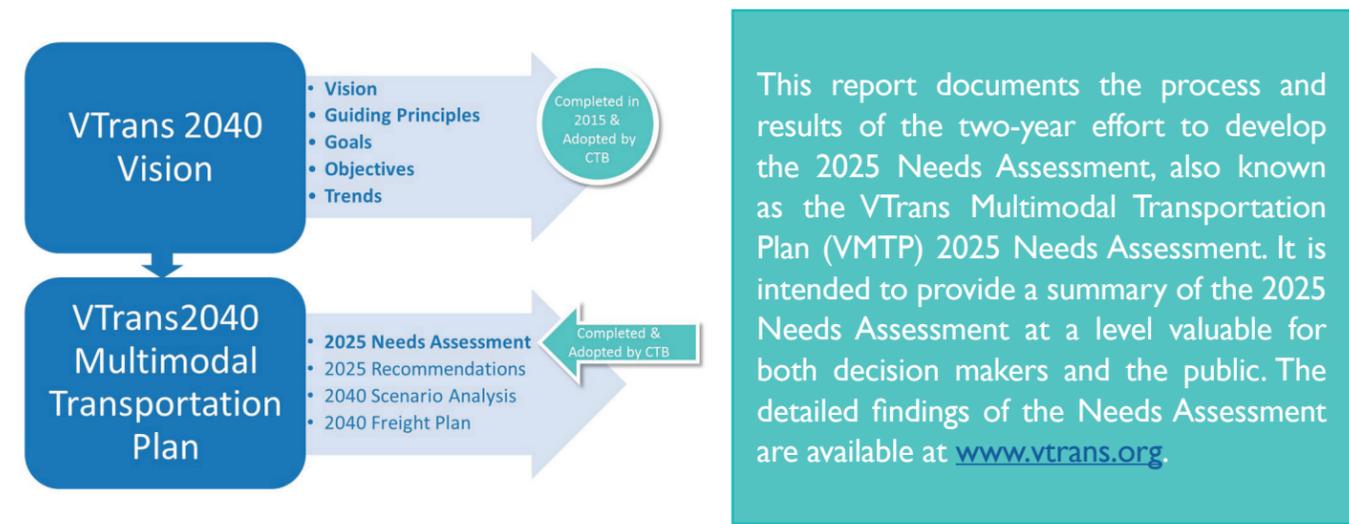
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INTRODUCTION

Virginia’s transportation system is a complex network of highways, sidewalks, trails, rail corridors, transit systems, information systems, airports and runways, shipping ports and docks, intermodal connectors, and even a space port. This variety of travel choices is the essence of a “multimodal” transportation system. The multimodal transportation system serves residents, businesses, tourists, and other visitors, all of whom have different travel needs and preferences. Virginia’s transportation providers are facing ever-increasing challenges to address growing demands for facilities and services with limited public funds. Consequently, it is necessary to identify the most critical needs and cost-effective means to operate, maintain, and improve the Commonwealth’s transportation systems.

The General Assembly of Virginia directs the Commonwealth Transportation Board (CTB), with assistance from the Office of Intermodal Planning and Investment (OIPI), to conduct a comprehensive review of statewide transportation needs in a Statewide Transportation Plan. The Statewide Transportation Plan, also known as VTrans, sets forth an assessment of capacity and operational needs for all corridors of statewide significance, regional networks, and improvements to promote urban development areas established pursuant to § 15.2-2223.1 of the Code of Virginia. This Statewide Transportation Plan must be updated at least once every four years to establish goals, objectives, and priorities that cover at least a 20-year planning horizon.

The development of VTrans2040 was initiated in spring 2014. The approach focused on the production of two companion statewide planning documents: the **VTrans2040 Vision** and the **VTrans2040 Multimodal Transportation Plan (VMTP)**. Each planning document includes multiple components, all interrelated and connected to the VTrans vision, goals, and objectives. The VTrans2040 Vision and the first component of the VTrans2040 Multimodal Transportation Plan, the 2025 Needs Assessment, were adopted by the Commonwealth Transportation Board (CTB) in December 2015.



VTrans2040 is the current long-range, statewide multimodal policy plan that provides the overarching vision and goals for transportation in the Commonwealth of Virginia. It identifies transportation conditions and trends anticipated over the coming years and their potential influence on transportation.

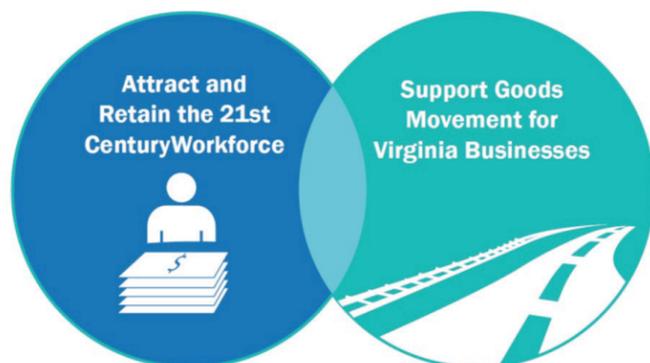
VTrans2040 provides a **vision** for Virginia’s future transportation system and defines **goals, objectives, and guiding principles** to achieve the vision. It provides direction to state and regional transportation agencies on strategies and policies to be incorporated into their plans and programs.

“We should be focused on improving the ability of Virginia businesses to move goods, attract more jobs to the Commonwealth, and improve the quality of life for all Virginians.”

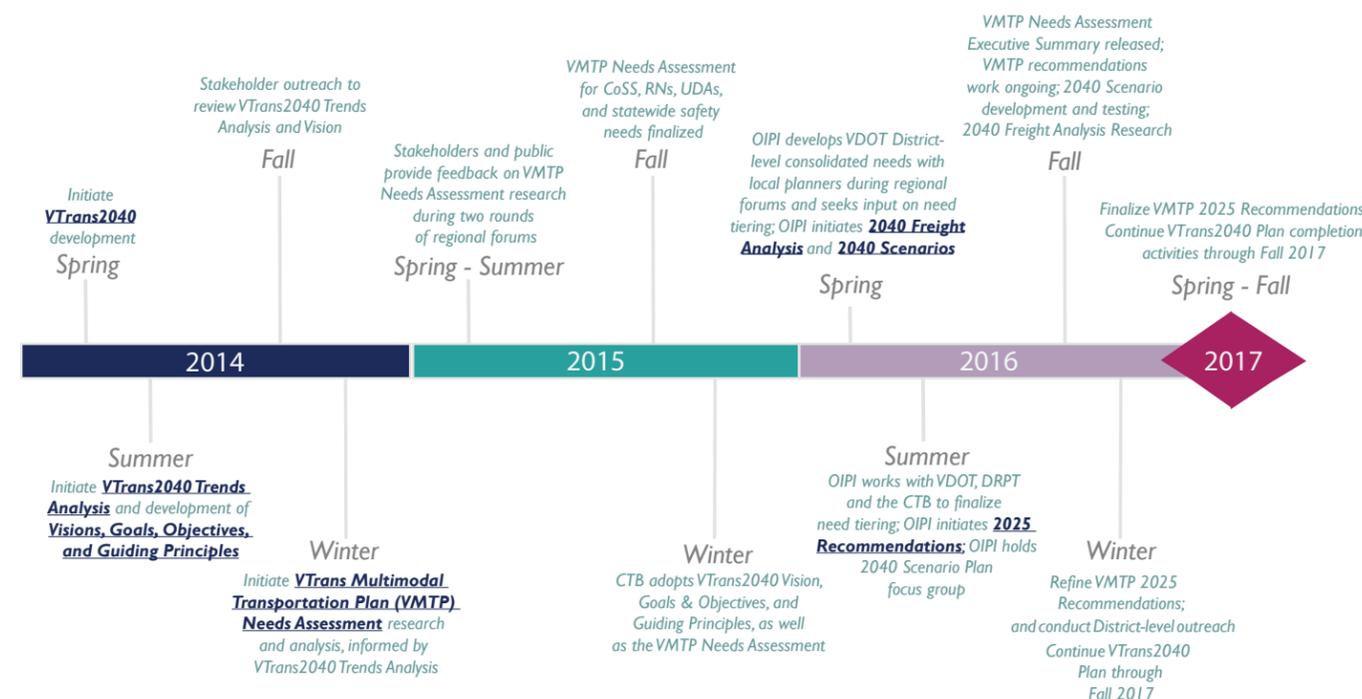
Governor McAuliffe
June 18, 2014

“Demographic and market studies consistently show that workers in the 21st century economy prefer walkable communities that are served by rail and public transit, as well as roads. If we want to cultivate this work force, which we need to do, we need to get ahead of these trends.”

Governor McAuliffe
June 18, 2014



VTrans2040 Development Timeline



VTRANS2040 VISION, GUIDING PRINCIPLES AND GOALS

Vision

The VTrans2040 Vision provides a policy framework to guide Commonwealth transportation agency investment decisions over the next 25 years. The vision, guiding principles, goals, and objectives were developed by detailed, data-driven, trend analyses and stakeholder input regarding transportation-related issues and opportunities. Topics referenced during the trends analysis focused on the potential outcomes brought by changes in factors such as major economic generators, freight movement, generational values, aging of the population, land development patterns, transportation technology, and the natural environment.

What do we want?

Virginia's multimodal transportation plan will be **Good for Business, Good for Communities, and Good to Go**. Virginians will benefit from a sustainable, reliable, transportation system that advances Virginia businesses, attracts a 21st century workforce, and promotes healthy communities where Virginians of all ages and abilities can thrive.

Virginia's multimodal transportation system will be ...

GOOD FOR BUSINESS

GOOD FOR COMMUNITIES

GOOD TO GO

VTrans2040 Guiding Principles

- GP1: Optimize Return on Investment
- GP2: Ensure Safety, Security, and Resiliency
- GP3: Efficiently Deliver Programs
- GP4: Consider Operational Improvements and Demand Management First
- GP5: Ensure Transparency and Accountability and Promote Performance Management
- GP6: Improve Coordination Between Transportation and Land Use
- GP7: Ensure Efficient Intermodal Connections

VTrans2040 Goals

- 
Economic Competitiveness & Prosperity
 Invest in a transportation system that supports a robust, diverse, and competitive economy.
- 
Accessible & Connected Places
 Increase the opportunities for people and businesses to efficiently access jobs, services, activity centers, and distribution hubs
- 
Safety for All Users
 Provide a safe transportation system for passengers and goods on all travel modes.
- 
Proactive System Management
 Maintain the transportation system in good condition and leverage technology to optimize existing and new infrastructure.
- 
Healthy & Sustainable Communities
 Support a variety of community types promoting local economies and healthy lifestyles that provide travel options, while preserving agricultural, natural, historic and cultural resources.

VTrans2040 Objectives

Within each goal is a list of specific, measurable, achievable, and time-constrained descriptions of the actions that will be undertaken to achieve the goals. The objectives are available for review at www.vtrans.org.

How Do We Use the Vision, Guiding Principles, Goals, and Objectives?

The 2025 Needs Assessment - and eventually the development of 2025 Recommendations, 2040 Scenarios, and the 2040 Freight Plan within the VMTP - rely on each aspect of the VTrans2040 Vision to guide research, outreach, and collaboration.

- The guiding principles are a set of cross-cutting standards that apply to all aspects of the transportation planning and decision making process. Inherent in every goal and every objective is the consideration of the guiding principles.
- The goals are statements of the overarching outcomes that must be achieved in order to realize the vision.
- The objectives help inform the approach to address needs and attain the goals.

The identification of needs focused directly on the critical gaps within Virginia's multimodal transportation system constraining Virginia's ability to meet these goals and to:

Attract and Retain the 21st Century Workforce and Support Goods Movement for Virginia Businesses.

The Context for Virginia

To better understand the forces shaping future transportation needs and inform the VTrans2040 Vision, VTrans2040 began with an extensive analysis of trends and implications related to economics, technology, the environment, and demographic/social conditions.

- **Growing and aging population** – Virginia’s population is expected grow by over 2.3 million through 2040, while the only age group that will grow in its share of the population is the 65-and-over group (from 13% currently to 18% by 2040). The aging of the Baby Boomer generation will affect virtually every aspect of governance, from housing and health care to technology and transportation.
- **Focused growth in the “urban crescent”** – Virginia’s growth is not expected to be distributed evenly across the state. The “urban crescent” - encompassing Northern Virginia, Fredericksburg, Richmond, and Hampton Roads - will attract 77% of the state’s added residents between now and 2040. More than three-quarters of all employment growth between now and 2040 is forecast to occur in these four regions.
- **Competitiveness of Virginia’s economy on the national scale** – Forecasts indicate total economic growth of 66% through 2040. While most areas of Virginia are forecast to see net economic growth, Virginia’s share of total US economic output is forecast to decline through 2040. Competition will become more vigorous to attract and retain high-growth and high-wage economic sectors and labor forces, heightening the urgency of providing high-quality transportation infrastructure and services that can help Virginia retain and attract first-class companies, successful entrepreneurs, and sought-after skilled workers.
- **Changes in the way we consume transportation** – Evidence from the past decade and input from recent surveys indicate a shift to a preference for living in activity-rich neighborhoods where every trip does not require a car; more access to and greater reliability of transit service; and lower car ownership and driver’s licensure rates.

The trends analysis findings were synthesized into a series of pivotal “implications” for policy direction in VTrans2040 that shed light on core focus areas of VTrans, such as this administration’s priority of **attracting the 21st century workforce and supporting the goods movement needs of Virginia businesses.**

VTrans Framework to Support These Priorities

The VTrans2040 Vision, Guiding Principles and Goals and the needs and recommendations included in the VTrans Multimodal Transportation Plan focus on how the multimodal and intermodal passenger and freight transportation system can more efficiently and sustainably support these priorities.

Attracting the 21st Century Workforce – Trends indicate that businesses are actively seeking both the millennial and baby boom generations as key labor force demographics.

- Millennials will account for 52% of the workforce by 2030, while Baby Boomers are retiring, often downsizing and creating new small businesses. Both generations are showing an inclination towards living and working in walkable places and mixed-use activity hubs.
- As a result, businesses and future growth industries are increasingly locating in mixed-use activity centers and clustered hubs to be close to their existing workforce and attractive to the preferences of future workers. The process of combining strategic public investments with design strategies to provide good access and travel choices in targeted activity hubs can help Virginia to maximize success in attracting these economic drivers of future growth.



Supporting Goods Movement Needs of Virginia Businesses – Freight transportation demand is driven by business and economic structure, particularly by freight-dependent sectors. The economic future of Virginia and the success of its industries are intertwined with the effectiveness of the freight transportation network.

- Trucking continues to be the dominant mode of freight transportation by weight and value. However, across the US and in Virginia, forecasts of freight growth indicate that other modes such as rail, air, and intermodal freight transportation are quickly growing.
- Forecasts indicate that the Virginia economic output in agriculture, mining and extraction, manufacturing, and retail trade is expected to grow at a higher rate than the national economy. These industries are all high-output industries that are sensitive to transportation and energy costs. The same is true for the key commodities being moved in Virginia. Freight movers seek to be nimble, and the ability to shift modes in response to changing energy costs is important.
- Improvements in freight logistics, technology, and physical intermodal transfer locations could improve the overall efficiency of freight flows and address the competition for limited capacity between passenger and freight travel demand.



VMTP NEEDS ASSESSMENT PROCESS

Starting in fall 2014, the Office of Intermodal Planning and Investment (OIPI) led the effort to develop the VMTP 2025 Needs Assessment (referred to in this report as “VMTP Needs Assessment”) process as part of the VTrans Multimodal Transportation Plan (VMTP). The VMTP Needs Assessment organized Virginia’s freight and passenger transportation needs into two categories: (1) Multimodal capacity and operations needs across three travel market scales, and, (2) Statewide highway safety needs.

1. Capacity and Operations Needs: The Need Assessment analyzed multimodal transportation needs for freight and passenger travel across three different geographic and travel market scales.

Corridors of Statewide Significance (CoSS) – The designation and study of these multimodal corridors is a responsibility of the Commonwealth Transportation Board (CTB) in accordance with the Code of Virginia §33.2-353. The official definition of a Corridor of Statewide Significance is “An integrated, multimodal network of transportation facilities that connect major centers of activity within and through the Commonwealth and promote the movement of people and goods essential to the economic prosperity of the state.” Components of the CoSS are facilities and services that comprise the multimodal network, which connects major centers of activity, supports inter-city travel between these centers, and accommodates interstate traffic. CoSS facilities include a primary facility (generally an interstate or US highway) and the multimodal facilities/services that provide multiple modes and parallel routes connecting major centers of activity along the corridor.

Regional Networks (RNs) – Regional Networks refer to multimodal networks that facilitate intra-regional travel within Virginia’s 15 urbanized areas (including the multi-state urbanized areas of Bristol, Kingsport, and Washington D.C.). They fill in a gap between the CoSS, which serve statewide travel and UDAs, which serve local travel. Regional Networks is a new concept introduced in VTrans2040.

Urban Development Areas (UDAs) – A UDA is any area designated by a locality in their comprehensive plan for focused growth that incorporates the principles of Traditional Neighborhood Development, consistent with the Code of Virginia §15.2-22523.1.

2. Statewide Safety Needs: This category of needs within the Needs Assessment highlights the current most critical safety challenges on roadways throughout Virginia. The analysis consists of identifying the top 100 intersections and segments identified based on Potential for Safety Improvement (PSI) within each VDOT district. A PSI score is the number of serious or fatal crashes minus the predicted rate for the type of roadway by total volume. The results of the assessment of statewide safety needs, based on highway safety traffic records through 2014, are available as an interactive map at www.vtrans.org.

Identifying the Needs

The identification of needs came from a variety of sources, including stakeholder and public outreach, review of existing transportation plans and programs, and extensive data analysis and research. The stakeholder and public outreach included:

- Two rounds of regional forums in spring and summer 2015, across five locations for each round. Each round included a stakeholder workshop and public open house to review and comment on the assessment of capacity, operations, and safety needs.
- Regular meetings and coordination with regional planners throughout spring and summer 2015 to discuss the development of needs for each of the 15 Regional Networks.
- A webinar, questionnaire, and regular coordination with localities which had previously designated or were planning to designate Urban Development Areas consistent with the Code of Virginia for inclusion within the Needs Assessment.

Stakeholder and Public Outreach

Stakeholder outreach for the VTrans2040 Multimodal Transportation Plan helped form the basis for the initial needs identification. Regional and local planners and the general public contributed to the needs identification through surveys, regional forums, and individual outreach from OIPI staff.

- In fall 2014, two webinars were held with stakeholders to provide a briefing on the process and objectives of the VTrans2040 Vision and the VMTP Needs Assessment.
- Two cycles of regional forums were held across the Commonwealth in May, June, and July 2015 to review the findings of the data research and analysis and plan and program review as it relates to developing the 2025 needs. These forums, in addition to over 60 meetings with regional stakeholders, were open to both stakeholders (e.g., local and regional government planners and transportation service providers) and the public.
- In May 2016, regional forums were held in 6 locations across the Commonwealth to review with regional and local planners and transportation providers the approach to consolidate and tier the 2025 needs, and seek input on the actual tiering of needs. This outreach included an online survey and a public webinar to ask questions and provide input to OIPI staff.

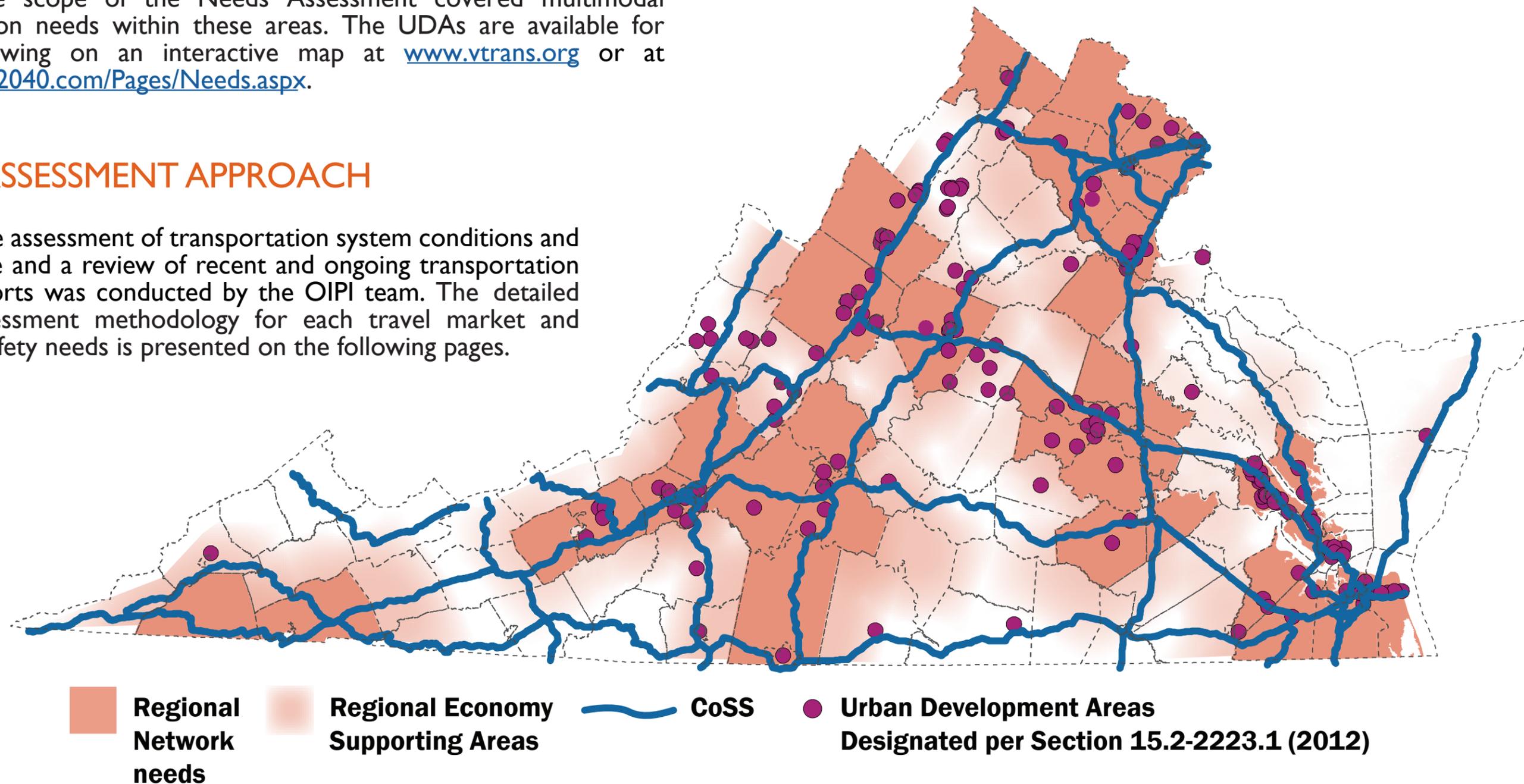
Information shared during webinars and regional forums is available at www.vtrans.org.

VMTP NEEDS ASSESSMENT SUMMARY MAP

This map presents a statewide overview of the 12 Corridors of Statewide Significance (CoSS); 15 Regional Networks (RN) and their associated economic support areas; and 218 Urban Development Areas (UDA). The scope of the Needs Assessment covered multimodal transportation needs within these areas. The UDAs are available for detailed viewing on an interactive map at www.vtrans.org or at www.vtrans2040.com/Pages/Needs.aspx.

NEEDS ASSESSMENT APPROACH

An extensive assessment of transportation system conditions and performance and a review of recent and ongoing transportation planning efforts was conducted by the OIPI team. The detailed Needs Assessment methodology for each travel market and statewide safety needs is presented on the following pages.



NEEDS ASSESSMENT APPROACH

Corridors of Statewide Significance (CoSS)

There are 12 corridors officially designated by the CTB as CoSS. Due to the nature of long distance travel and freight movement within these corridors, the primary considerations for the assessment of needs within CoSS include redundancy and mode choice, congestion and bottlenecks, reliability, and safety.

- Redundancy & Mode Choice
- Congestion & Bottlenecks
- Reliability
- Safety

For analysis purposes, each CoSS is divided into segments, which are identified by points where major transportation facilities enter or exit a corridor; areas affected by similar types of transportation issues; and locations where geometric or socio-economic conditions change substantially. Thirty-nine segments were identified on the 12 CoSS.

The CoSS 2025 needs were developed based on a six-step process that included data-driven analysis and stakeholder feedback to develop quantitative and qualitative performance measures to identify needs on the corridors. Each corridor is outlined in a Needs Assessment Report that includes:

1. A corridor overview, which includes a description and map of all multimodal passenger and freight transportation facilities, including, port, airports, and rail corridors.
2. A corridor socioeconomic profile, which includes population and employment densities and projected growth through 2025 and an assessment of total gross domestic product (GDP) by industry type and sector (freight dependent, local serving, knowledge-based) in 2012 and 2025 by region.
3. A summary of corridor travel patterns, which includes a summary of trip distribution by trip origin and destination (e.g. within the corridor, in to or out of the corridor, or through the corridor), and a summary of total truck freight tonnage and value.
4. Individual segment profiles that provide a snapshot of:
 - Demand and travel patterns for various modes of passenger and freight,
 - Mode choice options for select trip pairs within the corridor,
 - Crash severity and concentration on corridor segments,
 - Congestion in terms of daily person hours of delay for passenger trips and ton hours of delay for freight, and
 - Travel-time reliability during peak periods, average weekdays, and weekends based on observed travel-time data.

These profiles illustrate the connection between regional economics and transportation and provide segment-specific context to the subsequent analysis of needs. This data-driven approach is the primary indicator to develop needs and is supplemented by stakeholder input and review.



Regional Networks (RNs)

Regional Networks (RNs) refer to the major economic regions of the Commonwealth and are based on the designated Metropolitan Planning Organization (MPO) areas in Virginia. MPOs are regions greater than 50,000 in urban area population and are considered the primary centers of Virginia’s regional economies. The 15 MPOs in the Commonwealth are included in the RN Needs Assessment. The initial needs analysis area for each region was defined as the MPO boundary, plus any county partially within the boundary. Furthermore, where there is a clear link that a transportation need supports the regional economy but is outside the analysis area, it is included.

Transportation needs for RNs focus on economic competitiveness in a region and the transportation network needed to support each region’s economic future. For RNs, the need types highlighted in the Needs Assessment include corridor reliability/congestion, network connectivity, transportation demand management, modal choices, walkable and bikeable places, and safety.

The Regional Network 2025 needs were developed based on a six-step process. Throughout the process of developing the Needs Assessment, stakeholders were engaged to provide data, refine the study team’s data sets, and provide insights about each region essential to understanding existing conditions and future needs. For each RN, a separate report highlights the data, insights, and needs through the following details:

1. Current and future regional economic profile summary
2. A profile of transportation conditions in each region which provides an understanding of existing facilities and services and their performance in serving the region’s travel needs. The profile includes:
 - Commuting patterns, average times, and modes, focusing on regional activity centers,
 - Maps and summary statistics for multimodal accessibility to jobs,
 - Freight accessibility, which reviews travel times to highway interchanges, airports, and distribution centers,
 - Highway network reliability and congestion based on observed data for weekday commute and peak weekend times, and
 - Freight network and commodity flow data reviewing key destinations, commodities, and freight mode tonnage.

The synthesis of the economic and transportation profiles into needs was conducted through an iterative process – the data informed insights about transportation needs, stakeholders suggested and/or affirmed transportation needs based on the Regional Network framework, and stakeholder input was validated with the regional profile data.



- Corridor Reliability & Congestion
- Network Connectivity
- Transportation Demand Management
- Modal Choices
- Walkable & Bikeable Places
- Safety

Urban Development Areas (UDAs)

UDAs and other locally designated growth areas (DGAs) represent the community-level multimodal travel market of VTrans2040. Support for Urban Development Areas evolved from a recognition that a continuing trend of dispersed development patterns generate increased vehicle traffic, limit reasonable alternatives to private vehicle use, and increase the financial burden to the Commonwealth and jurisdictions for maintaining the transportation network and other public utilities. The General Assembly in §15.2-2223.1 established UDAs as a mechanism to assist with the coordination of transportation and land use planning and to help reduce public costs by focusing development in areas with existing infrastructure.

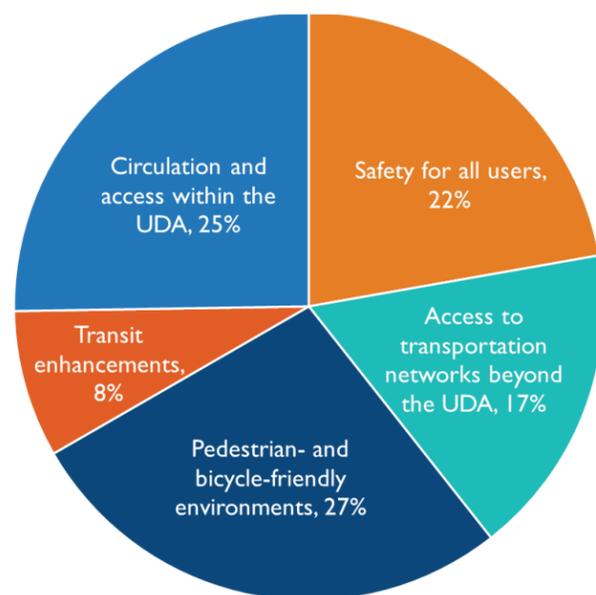
OIPI and VDOT worked with jurisdictions to identify code referenced locations in comprehensive plans and provide guidance on the approach to amend comprehensive plans to be consistent with the Code of Virginia. This outreach initiated through a webinar in February 2015 and continued through October 2015 in coordination with the first round of Smart Scale. The process continued in 2016 as more jurisdictions elected to designate locations to ensure inclusion in the Needs Assessment and eligibility for Smart Scale. As of December 31, 2016, the outreach and research has identified 218 UDAs or other DGAs consistent with the Code of Virginia.

This needs assessment included a combination of socio-economic data analysis and local input from planning officials through an online questionnaire that included questions about multimodal transportation needs required to promote development within these areas.

Each profile includes a map and description of the area, existing socioeconomic data, projected population growth within the jurisdiction, and a listing of multimodal transportation needs. Two types of needs were identified by the localities for each UDA or DGA and documented in each profile:

1. Five categories of general needs were ranked on a one-to-five scale (statewide summary as depicted in the pie chart), and
2. A list of 17 different specific needs were noted as a high, medium, or low need within and outside the UDA or DGA.

Percent of Localities Identifying Each General Need as the Top-Ranked Need

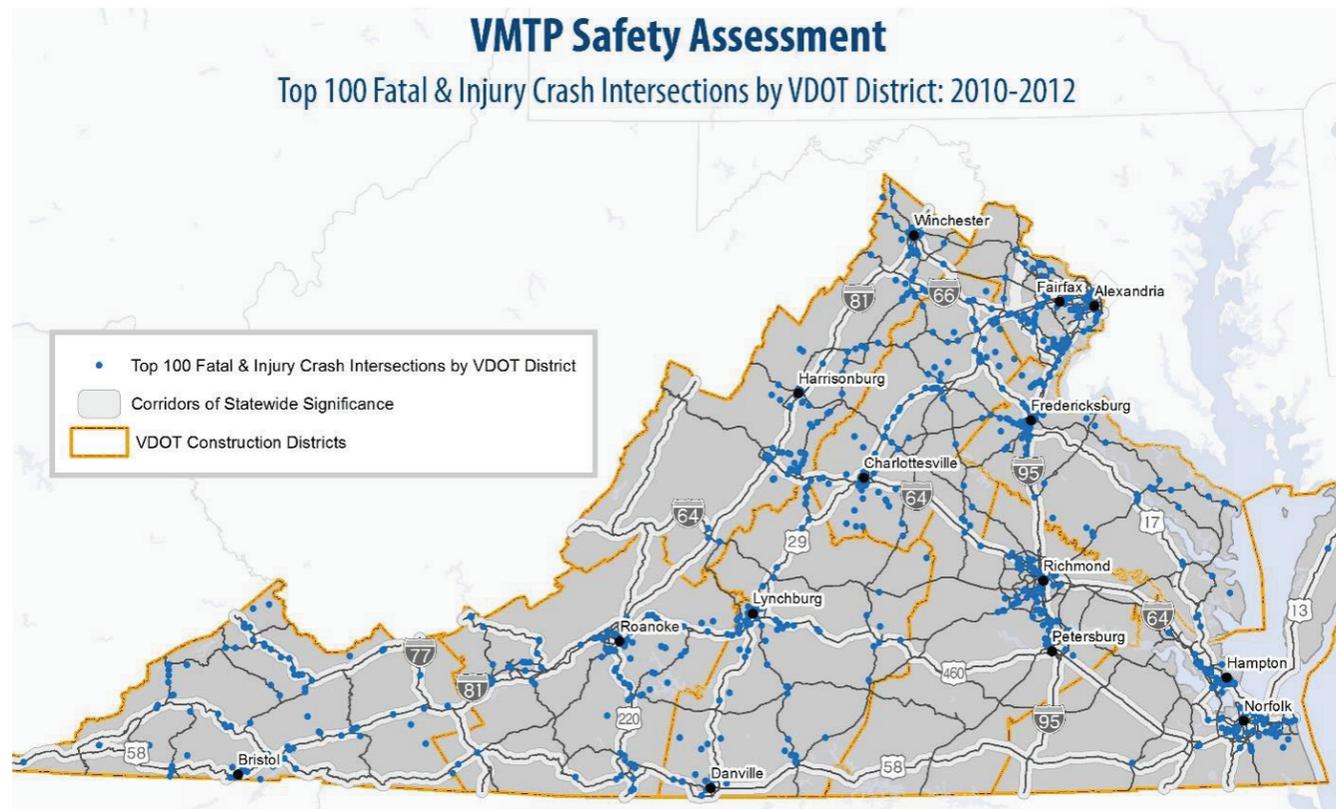


Statewide Safety Needs

The VMTP Needs Assessment expands on the VTrans2040 efforts by identifying some of the Commonwealth's most pressing safety needs. This safety assessment is conducted across the Commonwealth, and while it does not offer specific recommendations, it does highlight crash trends and discusses modal conflicts. The assessment also identifies intersections and segments that have Potential for Safety Improvement (PSI) as defined by VDOT.

The Virginia Highway Safety Office (VAHSO) of the Department of Motor Vehicles manages the state's highway safety traffic records, which include millions of traffic crash records. The data are collected, stored and analyzed in the Traffic Records Electronic Data System (TREDS) by the Traffic Records Management, Reporting and Analysis Division of the DMV. TREDS data are shared with safety partners at Virginia State Police, local police, and VDOT. VDOT uses the Roadway Network System (RNS) geospatial databases to link TREDS crashes, traffic volumes, and roadway inventory attribute information.

The data enables a review of types of crashes and crashes by mode, including commercial motor vehicles, bicycles, pedestrians, motorcycles, and at-grade rail crossing train collisions. Areas with the most frequent occurrence of these modal specific crashes are highlighted along with the review of roadway crashes and a complete table of locations identified through the PSI approach (see statewide summary for intersection on below map). This data is also presented through an online map on www.vtrans.org.

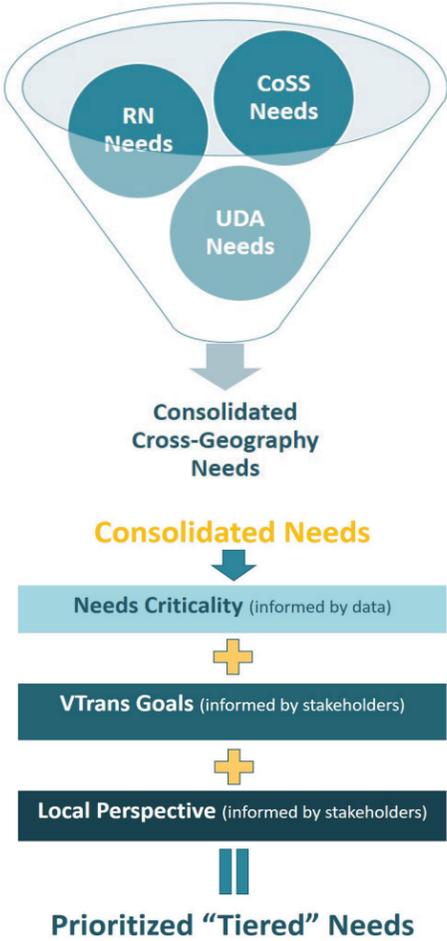


NEEDS SYNTHESIS AND TIERING

To transition from needs to development of the 2025 Recommendations, and to effectively communicate needs and recommendations to stakeholders and the public, the OIPI team developed consolidated needs to synthesize and tier the needs. The process that was used is described in detail below.

- The OIPI team prepared a draft list of **169 consolidated needs** by VDOT District and cross-District, and coordinated with regional and local planners statewide in spring 2016. The consolidation approach identifies the connections and overlaps across needs, including overlaps across District boundaries.
- Through an online survey, regional and local planners reviewed the full list of consolidated needs to ensure each need was justified and reasonable given their professional opinion and local perspective.
- On May 17, 2016, the OIPI team led six **Regional Forums** across the Commonwealth, with VDOT, DRPT, metropolitan planning organization (MPO), planning district commission (PDC), and local planning staff to gather input on the consolidated needs and initiate the discussion of tiering the consolidated needs.

- At the **Regional Forums**, through an interactive exercise, planners were asked to identify which consolidated needs have the strongest relationship to VTrans and local goals, and then through charting the results of each, make decisions on tiering the needs.
- Notes from the Regional Forums were reviewed with stakeholders. Next, a data-driven component was added to the tiering process called **“needs criticality”** to balance the results of the regional forums with an objective needs tiering approach. Needs criticality considered the data in the table (next column) to assess the relative level of importance of a need.



Needs Criticality - Summary of Approach and Data

	Economic Competitiveness & Prosperity: Freight bottle-necks (top in the Commonwealth), poor reliability, significant delay
	Accessible & Connected Places: Auto and transit accessibility scores, connectivity and redundancy need, mode choice or multimodal access need
	Safety for all Users: Identified safety need, top 20 District safety need, top 200 fatal or severe crash location, non-motorized safety need
	Healthy & Sustainable Communities: Support a designated urban development area, reference TDM or mode choice, walkable/bikeable place need, area of air quality concern

Post-Regional Forum Outreach

After the regional forums, and completion of the needs criticality assessment, OIPI held an informational webinar for stakeholders to review the progress on VTrans Needs Synthesis process, next steps including developing recommendations, and as an opportunity for an open question and answer period with the webinar participants. The OIPI team also coordinated directly with CTB, VDOT District staff, and DRPT planners to discuss and review the results of the tiering process.

Tiering Results

The process resulted in **169 total consolidated needs statewide**. The combined result of the needs criticality, VTrans goals, and local perspective input, along with additional coordination with the CTB, VDOT, and DRPT staff, resulted in a refined list of consolidated needs and a consensus on the tiering of needs.

VMTP Consolidated Need Tiering

The Needs Synthesis and Tiering approach does not replace the 2025 VMTP Needs Assessment; projects that address these needs are still eligible for funding, such as SMART Scale, Virginia’s transparent, objective, outcome-based scoring system for transportation projects. Simply stated, this Needs Synthesis and Tiering approach creates a higher-level consolidation of needs and a carefully delivered process of identifying which needs are most critical when looking at VTrans goals and objectives. The 169 total consolidated needs were organized into:

66 Tier 1 needs - 59 Tier 2 needs - 44 Tier 3 needs

VMTP Recommendations

The recommendations highlight feasible capacity and operational approaches for addressing each consolidated need through 2025. Tier 1 need recommendations focus more on project level solutions, while Tier 2 and Tier 3 recommendations focus more on strategies, policies, programmatic changes, and potential for further planning and study.

CONSOLIDATED NEEDS TIERING RESULTS

The below table provides a summary of the total consolidated needs by district by need tier. Generally, OIPI, working with stakeholders and CTB members targeted an even distribution of Tier 1 versus Tier 2 and Tier 3 needs. This process was iterative, and in some cases required needs to be redefined or grouped in order to reach a reasonable balance and overall stakeholder and CTB member consensus.

District	Tier 1	Tier 2	Tier 3	Total	MPO Need	Cross-District Need
Bristol	5	4	4	13	7	4
Culpeper	4	4	2	10	4	1
Fredericksburg	6	5	3	14	6	4
Hampton Roads	8	9	5	22	15	3
Lynchburg	8	6	3	17	10	1
Northern Virginia	9	10	5	24	24*	5
Richmond	6	7	6	19	16	1
Salem	8	6	4	18	8	2
Staunton	12	8	12	32	11	2
Total	66	59	44	169	101	23

*Note: The Northern Virginia District is within the boundaries of the National Capital Region Transportation Planning Board (the MPO for the Washington D.C. area)

MPO Needs include needs that are fully or partially within an MPO boundary.

Cross-District Needs indicate needs where the definition has directly referenced linking Districts and regions, or the need references interregional or interstate travel constraints.

Importance of VDOT Districts and Role of the CTB

VDOT divides the state into nine districts, each of which oversees maintenance and construction on the state-maintained highways, bridges and tunnels in its region. The CTB includes representation from each district, plus five additional members with at least two representing urban areas and two representing rural areas. The CTB coordinates the planning for financing of transportation needs, including needs for highways, railways, seaports, airports, and public transportation within each district and statewide. To allocate funds for these needs, the CTB adopts a Six-Year Improvement Program (SYIP) of anticipated projects and programs consistent with the funding approaches in the Code of Virginia, §§ 33.2-358 and 58.1-638. The SYIP is updated annually and is the means by which the CTB meets its statutory obligation under the Code of Virginia to allocate funds to interstate, primary, secondary and urban highway systems, public transit, ports and airports and other programs for the immediate fiscal year. The CTB updates the SYIP each year as revenue estimates are updated, priorities are revised, and project scopes change.

HOW TO READ NEEDS ASSESSMENT MAPS

The Statewide and District maps on the following pages represent high-level overviews of the VMTP Needs Assessment and regional tiering exercises. The Statewide Summary map (page 12) presents a summary of the number of needs by tier and by District; the Cross-District map (page 13) indicates the generalized location of Cross-District needs.

District maps (pages 14-31) indicate the generalized location of VMTP needs. Icons indicating need type are placed adjacent to Tier 1 needs on each map. However, the need locations on each map are generalized as they are meant to provide a high-level depiction of needs in a region, rather than an exact geographic locations.

Corridor of Statewide Significance & Regional Network Need Categories

-  **Bottlenecks** – Acute areas of congestion within the multimodal network, typically at a bridge, tunnel, or interchange or other constraint.
-  **Congestion** – Recurring inconsistent travel times within a corridor for passengers and freight.
-  **Corridor Reliability** – Corridors where non-recurring events that occur at least 10% of the time result in significant delay to passengers and freight.
-  **Network Connectivity** – Gaps in multimodal network connections among corridors and activity centers.
-  **Redundancy & Modal Choice** – Multimodal system constraints to address diverted trips in critical corridors and limited flexibility and access for alternative travel options.
-  **Transportation Demand Management** – Program limitations regarding incentives and other mechanisms to provide information and opportunity to choose alternative modes or reduce trip making.

Urban Development Area Need Categories

-  **Safety** – Locations in the top 100 PSI (potential for safety improvement) segments and intersections statewide or within the District.
-  **Walkable & Bikeable Places** – Need for a safe and accessible walking and biking environment within activity centers and UDAs.
-  **Circulation and Access Within the UDA** – Barriers to effective access and internal circulation in UDAs.
-  **Access to Transportation Networks Outside the UDA** – Constraints to linking UDAs with regional and interstate multimodal corridors.

Each District map is presented over two pages, with a matrix on the left and a map on the right. The need identifications in the matrix match those on the opposing map. The matrix also includes a need description, icons, and tiering results. The “Total Score” column for each need was determined by summing the Local Priority Score (1-5), the VTrans Goal Score (1-5), and the Need Criticality Score (1-5).

Several of the Districts have needs that are not specific to general locations, so those needs are indicated in a separate “District Wide Needs” section of the map page.

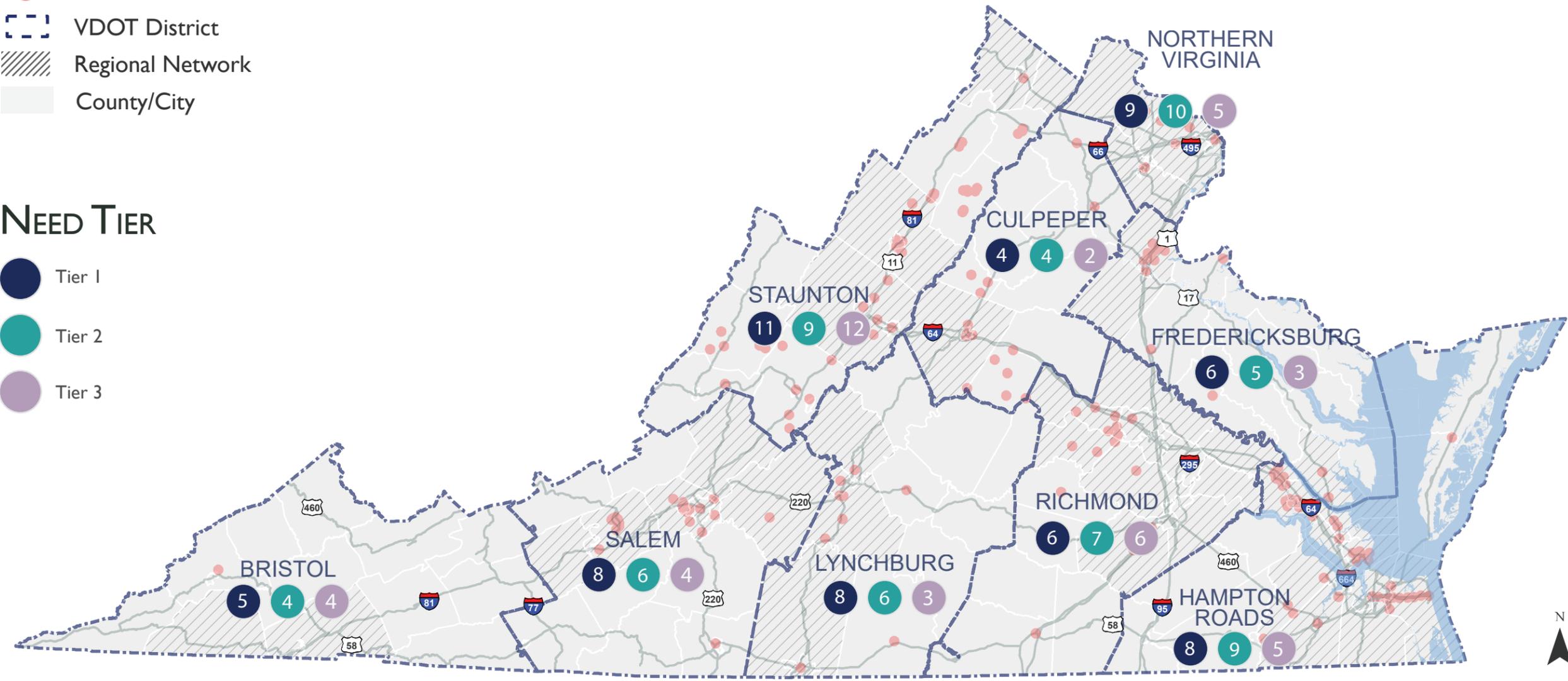
VMTP GENERALIZED MAP OF CONSOLIDATED NEEDS STATEWIDE SUMMARY OF TIERED NEEDS



- Primary CoSS/Corridor Component Road
- UDA/DGA
- VDOT District
- Regional Network
- County/City

NEED TIER

- Tier 1
- Tier 2
- Tier 3



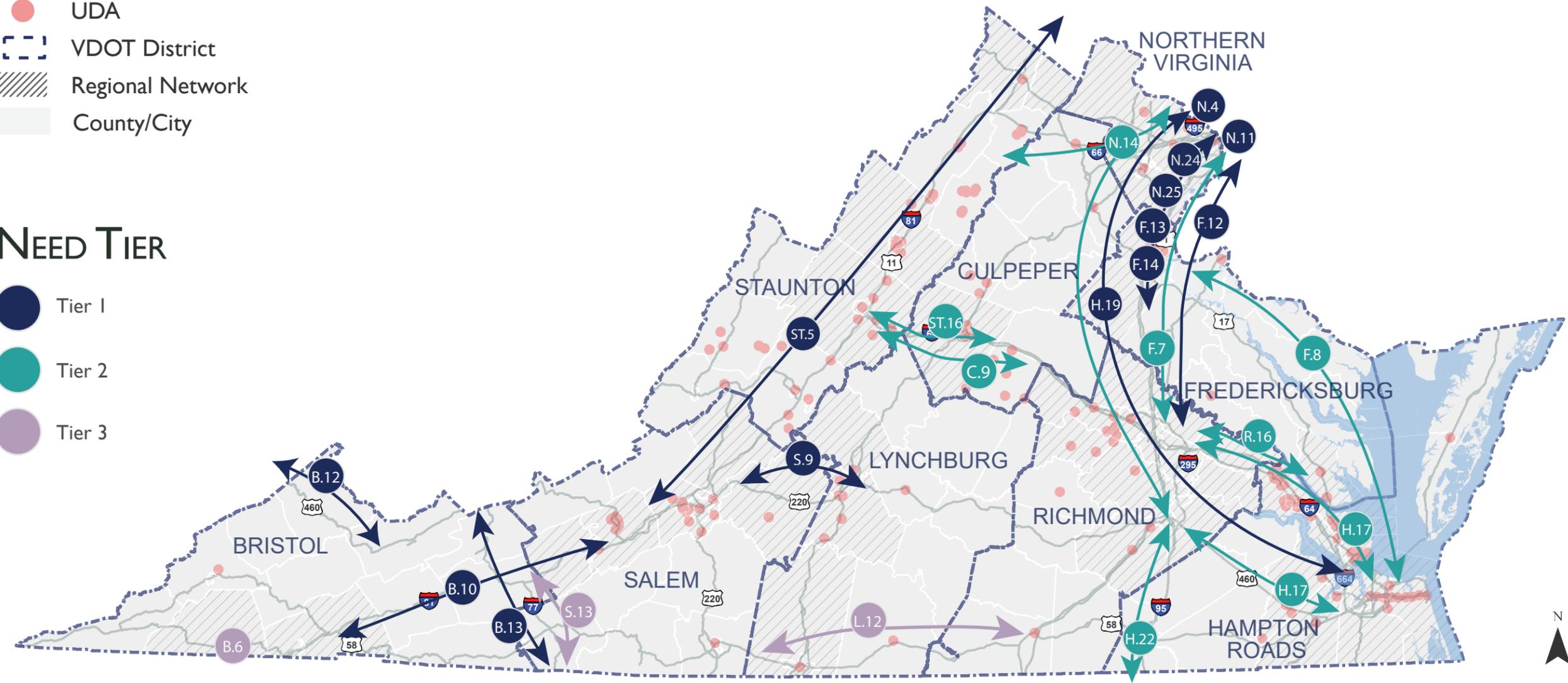
VMTP GENERALIZED MAP OF CONSOLIDATED NEEDS STATEWIDE SUMMARY OF TIERED CROSS-DISTRICT NEEDS



- Primary CoSS/Corridor Component Road
- UDA
- VDOT District
- Regional Network
- County/City

NEED TIER

- Tier 1
- Tier 2
- Tier 3



VMTP TIERED CONSOLIDATED NEEDS - BRISTOL DISTRICT

Need ID	Need Description	Need Icons	Local Priority Score (out of 5)	VTrans Goal Score (out of 5)	Need Criticality Score (out of 10)	Total Score (out of 20)	Final Tiering
B.10	Within the Bristol District, the I-81/US 11 corridor has safety, congestion, reliability, and bottleneck issues, as well as a lack of parallel facilities.		5	4.75	5.5	15	I
B.9	Within the Bristol District, the Wise County UDA has safety, mode choice, local access, and circulation issues within the Town.		4	5	4.5	14	I
B.2	Within the Bristol MPO, the I-81 interchanges in Abingdon have safety issues, particularly at Exits 14, 17, and 19.		5	4.5	2.5	12	I
B.12	Within the Bristol District, the US 460 corridor has safety and congestion issues, with limited connections into Kentucky, and limited intercity transit connections		4	4.25	2.5	11	I
B.13	Within the Bristol District, the I-77 corridor in Bland County has safety and congestion issues, with limited intercity transit connections.		5	4.25	2	11	I
B.5	Within the Kingsport MPO, the US 58/US 23 Corridor has reliability, connectivity, mode choice, bicycle/pedestrian, and safety needs.		4	4.25	2.5	11	2
B.11	Within the Bristol District, the US 58 corridor has safety and reliability issues, and limited intercity transit connections from Bristol.		3	3.5	3	10	2
B.3	Within the Bristol MPO, there are general needs for improvement or creation of new connections between existing transit providers to expand regional access.		3	2	4	9	2
B.7	The Duffield Activity Center has needs for freight connectivity and congestion relief for freight-related industries and employment.		3	3.5	0.5	7	2
B.1	Within the Bristol MPO, the US 11 Corridor needs mode choice and safety improvements.		2	2.75	5	10	3
B.6	Within the Kingsport MPO, there are general needs for mode choice, network connectivity, and TDM needs to address commuter movement in the region, particularly across the State line.		2	3.75	3	9	3
B.4	Within the Bristol MPO, there are general needs for enhanced bicycle and pedestrian access, safety, and connections within the region.		1	3.25	3	7	3
B.8	Within the Kingsport MPO, there are general needs for enhanced bicycle and pedestrian access, safety, and connections within the region.		1	3.5	2	7	3

VMTP GENERALIZED MAP OF CONSOLIDATED NEEDS BRISTOL



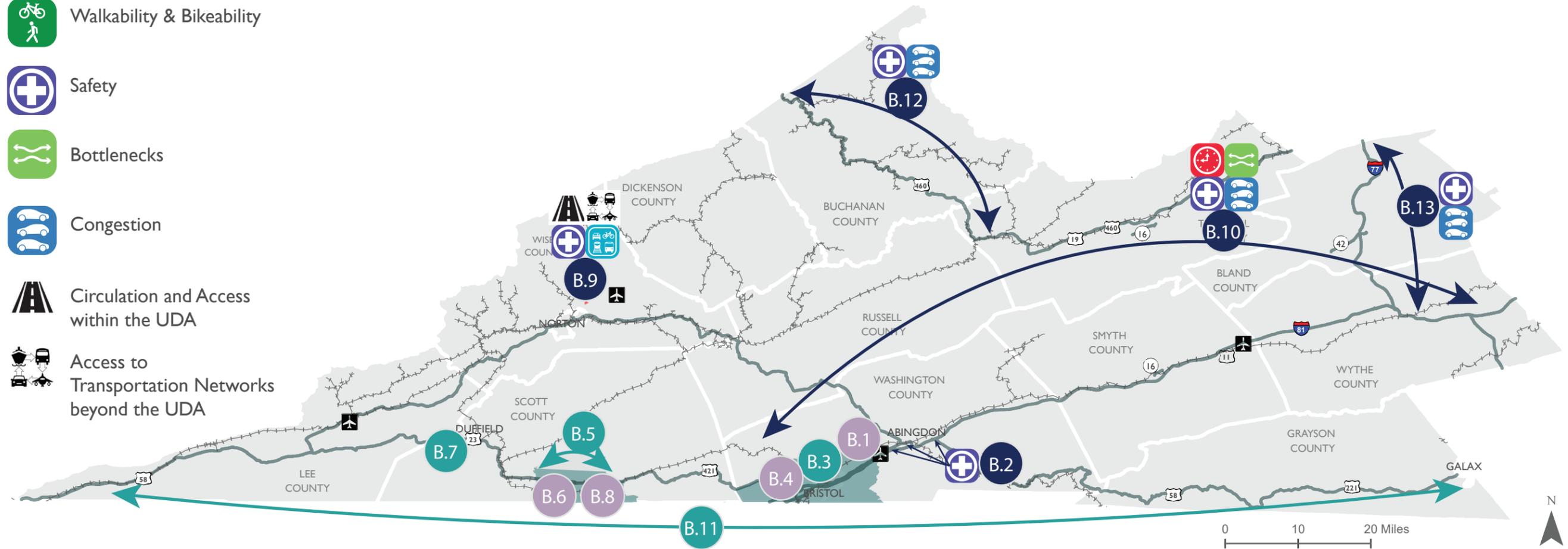
NEED TYPE

-  Corridor Reliability
-  Network Connectivity
-  Transportation Demand Management
-  Redundancy & Mode Choice
-  Walkability & Bikeability
-  Safety
-  Bottlenecks
-  Congestion
-  Circulation and Access within the UDA
-  Access to Transportation Networks beyond the UDA

Need Tier

-  Tier 1
-  Tier 2
-  Tier 3

-  Airport
-  CoSS
-  UDA
-  MPO



VMTP TIERED CONSOLIDATED NEEDS - CULPEPER DISTRICT

Need ID	Need Description	Need Icons	Local Priority Score (out of 5)	VTrans Goal Score (out of 5)	Need Criticality Score (out of 10)	Total Score (out of 20)	Final Tiering
C.2	Within the CA-MPO, regional Urban Development Areas (UDAs) and other high-activity locations have mode choice, safety, connectivity, and bicycle and pedestrian needs.		4	4.5	8	17	I
C.3	Within the CA-MPO, the US 250 (Bypass and Business) and US 29 have safety, reliability, connectivity and congestion needs.		5	4.25	8	17	I
C.5	Within the Culpeper District, US 17 / VA 28 / US 29 (Warrenton) have safety, congestion, reliability and mode choices needs.		3	3.5	7.5	14	I
C.4	Within the Culpeper District, the Amtrak lines through Charlottesville and the Charlottesville Station have service reliability, congestion, access, and mode choice needs, including regional and intercity bus service.		2	3.5	6	12	I
C.9	Within the Culpeper District, I-64 and US 250 for east-west intercity travel from Charlottesville have redundancy and mode choice issues.		3	4.25	5.5	13	2
C.8	Within the Culpeper District, US 29 between Charlottesville and Culpeper has mode choice (mode choice needs now represented by expanded C.4) and safety needs.		5	4.25	7	16	2
C.1	Within the CA-MPO, I-64 interchanges have safety and reliability needs.		4	4.25	3	11	2
C.7	Within the Culpeper District, US 17 north of Warrenton has redundancy, reliability, and mode choices needs.		2	2.75	1.5	6	2
C.6	Within the Culpeper District, I-66 west of Gainesville has safety and redundancy issues.		1	2.75	3.5	7	3
C.10	Within the Culpeper District, Fluvanna County UDAs have safety, network connectivity, and pedestrian/bicycle access issues.		1	2.75	3.5	7	3

VMTP GENERALIZED MAP OF CONSOLIDATED NEEDS CULPEPER DISTRICT



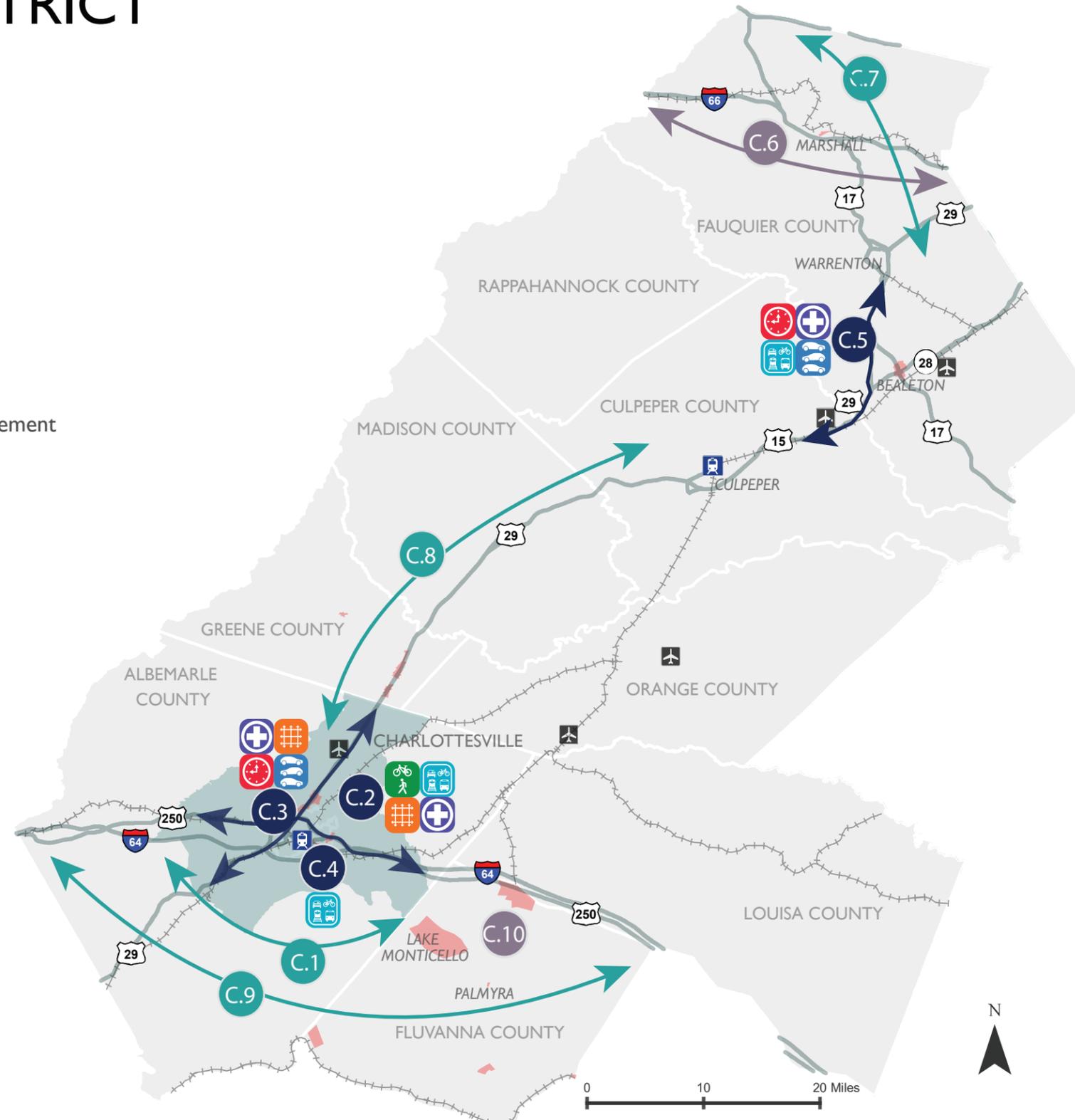
NEED TYPE

-  Corridor Reliability
-  Network Connectivity
-  Transportation Demand Management
-  Redundancy & Mode Choice
-  Walkability & Bikeability
-  Safety
-  Bottlenecks
-  Congestion
-  Circulation and Access within the UDA
-  Access to Transportation Networks beyond the UDA

Need Tier

-  Tier 1
-  Tier 2
-  Tier 3

-  Amtrak Station
-  Airport
-  CoSS
-  UDA
-  MPO



NEED LOCATIONS ARE GENERALIZED BY REGION; THIS IS NOT INTENDED TO BE EXACT GEOGRAPHIC REPRESENTATION

VMTP TIERED CONSOLIDATED NEEDS - FREDERICKSBURG DISTRICT

Need ID	Need Description	Need Icons	Local Priority Score (out of 5)	VTrans Goal Score (out of 5)	Need Criticality Score (out of 10)	Total Score (out of 20)	Final Tiering
F.6	Within FAMPO, I-95/US 1 corridor in Fredericksburg has congestion, reliability, and safety needs.		4	4	7.5	16	1
F.12	Across the Fredericksburg District and cross-District, there are needs for passenger/freight rail congestion and reliability between Richmond, Fredericksburg, and Northern Virginia.		5	4.25	5.5	15	1
F.13	Across the Fredericksburg District and cross-District, the I-95/US 1 corridor has congestion, reliability, and safety needs from Fredericksburg to Northern Virginia.		5	4	5.5	15	1
F.14	Across the Fredericksburg District and cross-District, there are needs for improved multimodal accessibility and increased transit capacity between Fredericksburg and Northern Virginia.		5	4	6	15	1
F.4	Within FAMPO, the US 17 corridor has mode choice, safety, reliability, and network connectivity needs through Stafford, Fredericksburg, and Spotsylvania.		3	3.5	5.5	12	1
F.3	Within FAMPO, the Route 3 corridor has network connectivity needs west of I-95 and within Fredericksburg.		4	3.75	3.5	11	1
F.5	Across the Fredericksburg District, there are general needs for walkable and bikeable places within many UDAs and activity centers in the region.		3	4.5	6.5	14	2
F.1	Within FAMPO, in the I-95 corridor there are connectivity, mode choice, and bicycle/ pedestrian needs for accessing VRE service.		2	3.75	7	13	2
F.2	Within FAMPO, the US 1 corridor has reliability and connectivity needs within the City of Fredericksburg and Spotsylvania County.		1	4	7.5	13	2
F.7	Across the Fredericksburg District and cross-District, the I-95 corridor has a VRE/Amtrak service reliability need.		3	3.5	5.5	12	2
F.8	Across the Fredericksburg District and cross-District, the US 17 corridor has multimodal accessibility needs (between Hampton Roads and Fredericksburg) and safety needs (at US 17 intersections in Tappahannock).		4	3.75	4.5	12	2
F.10	Within Gloucester County, US 17 and US 17-Business has bicycle/pedestrian access needs within the UDAs.		2	3.5	2.5	8	3
F.9	Within Gloucester County, US 17 and US 17-Business has congestion and reliability needs south of Gloucester Courthouse.		2	3.5	1	7	3
F.11	Within Bowling Green/King George County, US 301 has congestion and reliability needs.		1	1.25	1.5	4	3

VMTP GENERALIZED MAP OF CONSOLIDATED NEEDS FREDERICKSBURG DISTRICT

DISTRICT-WIDE NEEDS

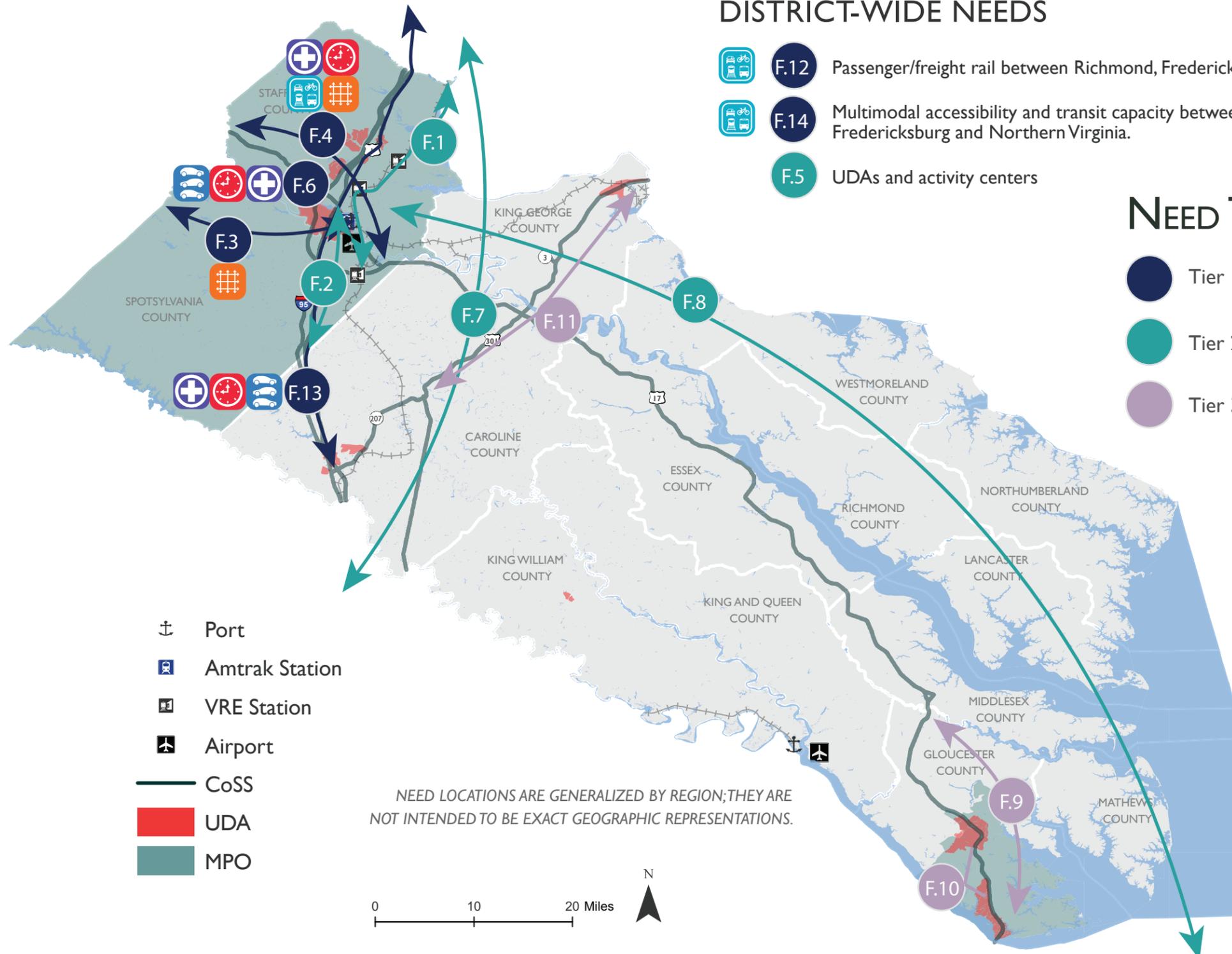
- F.12** Passenger/freight rail between Richmond, Fredericksburg, and Northern Virginia
- F.14** Multimodal accessibility and transit capacity between Fredericksburg and Northern Virginia.
- F.5** UDAs and activity centers

NEED TIER

- Tier 1
- Tier 2
- Tier 3

NEED TYPE

- Corridor Reliability
- Network Connectivity
- Transportation Demand Management
- Redundancy & Mode Choice
- Walkability & Bikeability
- Safety
- Bottlenecks
- Congestion
- Circulation and Access within the UDA
- Access to Transportation Networks beyond the UDA



VMTP TIERED CONSOLIDATED NEEDS - HAMPTON ROADS DISTRICT

Need ID	Need Description	Need Icons	Local Priority Score (out of 5)	VTrans Goal Score (out of 5)	Need Criticality Score (out of 10)	Total Score (out of 20)	Final Tiering
H.2	Within HRTPO, the I-264/US 58 corridor has mode choice, network connectivity, transportation demand management (TDM), congestion, and reliability needs.		5	4.5	9.5	19	I
H.7	Within HRTPO, the I-64 Peninsula corridor and parallel routes have congestion and reliability needs, and a need for greater network connectivity and TDM options.		5	4.5	9.5	19	I
H.6	Within HRTPO, the I-64/I-664 Southside corridor has congestion, reliability, and safety needs, particularly at interchanges.		4	4	8.5	17	I
H.9	Within HRTPO/Hampton Roads District, the US 13, US 17, US 58, US 460, I-64, I-264, and I-664 corridors have congestion and reliability issues adversely affecting freight and passenger movement.		5	4	7.5	17	I
H.11	Within HRTPO, the Peninsula, Newport News, Poquoson, and Hampton activity centers and Urban Development Areas (UDAs) have transit access and mode choice needs.		5	4	7	16	I
H.5	Within HRTPO, the I-64/I-664 corridors have reliability issues and limited transit options, exacerbated by the network connectivity limited by the region's water bodies.		5	4.5	5.5	15	I
H.19	Across the Hampton Roads District and cross-District, there are needs for intercity passenger rail and transit options from Hampton Roads northward to other major metropolitan areas, including Fredericksburg and Northern Virginia.		4	3.5	7	15	I
H.10	Within HRTPO, the freight terminals have congestion relief needs, mitigating impacts to surrounding areas.		4	4	5	13	I
H.4	Within HRTPO, the southside US 13/US 17/US 58/US 60/US 460 and I-64 corridors have safety needs.		3	4	7.5	15	2
H.15	Within HRTPO, several freight gateways (I-64, US 17, US 13, US 58, US 258, US 460, VA 168) have corridor reliability needs.		3	4	6	13	2
H.14	Within HRTPO, several activity centers and UDAs (Virginia Beach, Norfolk, Suffolk, and Hampton) have bicycle/pedestrian needs.		3	3.5	5	12	2
H.1	Within HRTPO, the US 13/60 Burton Station/Little Creek corridor has mode choice, safety, and reliability needs to serve major employment centers, tourist attractions, local residents, and the Chesapeake Bay Bridge Tunnel.		3	3	4.5	11	2
H.13	Within HRTPO, government centers throughout the region have bicycle/pedestrian and transit access needs.		3	3.5	2	9	2
H.17	Across the Hampton Roads District and cross-District, there are needs for intercity bus and passenger rail service from Hampton Roads westward to other metropolitan areas.		3	3	2.5	9	2
H.22	Across the Hampton Roads District and cross-District, I-95 South and US 58 through Emporia have mode choice and network connectivity issues.		3	3.5	1.5	8	2
H.8	Within HRTPO, the US 17/Kings Highway Bridge corridors crossing the Nansemond River need additional capacity to restore/retain/enhance connectivity and relieve trip circuitry from bridge closure.		3	3	2.5	9	2
H.16	Within Northampton and Accomack Counties, US 13 has safety, congestion, and reliability needs, particularly in Melfa, Exmore, and south of Cheriton.		3	2.5	1	7	2
H.3	Within HRTPO, the US 60/US 17/Route 612 corridors on the peninsula have safety needs.		2	2	6.5	11	3
H.12	Within HRTPO, the I-464/Chesapeake area has mode choice and TDM needs.		2	3	6	11	3
H.21	Within the Hampton Roads District, there is lack of alternative routes for US 460 and US 17.		2	3	2	7	3
H.18	Within the Eastern Shore, there are needs for increased bus service and paratransit.		2	2	1	5	3
H.20	Within Emporia, the US 58/I-95 interchange has a congestion issue.		2	2	0	4	3

VMTP GENERALIZED MAP OF CONSOLIDATED NEEDS HAMPTON ROADS DISTRICT



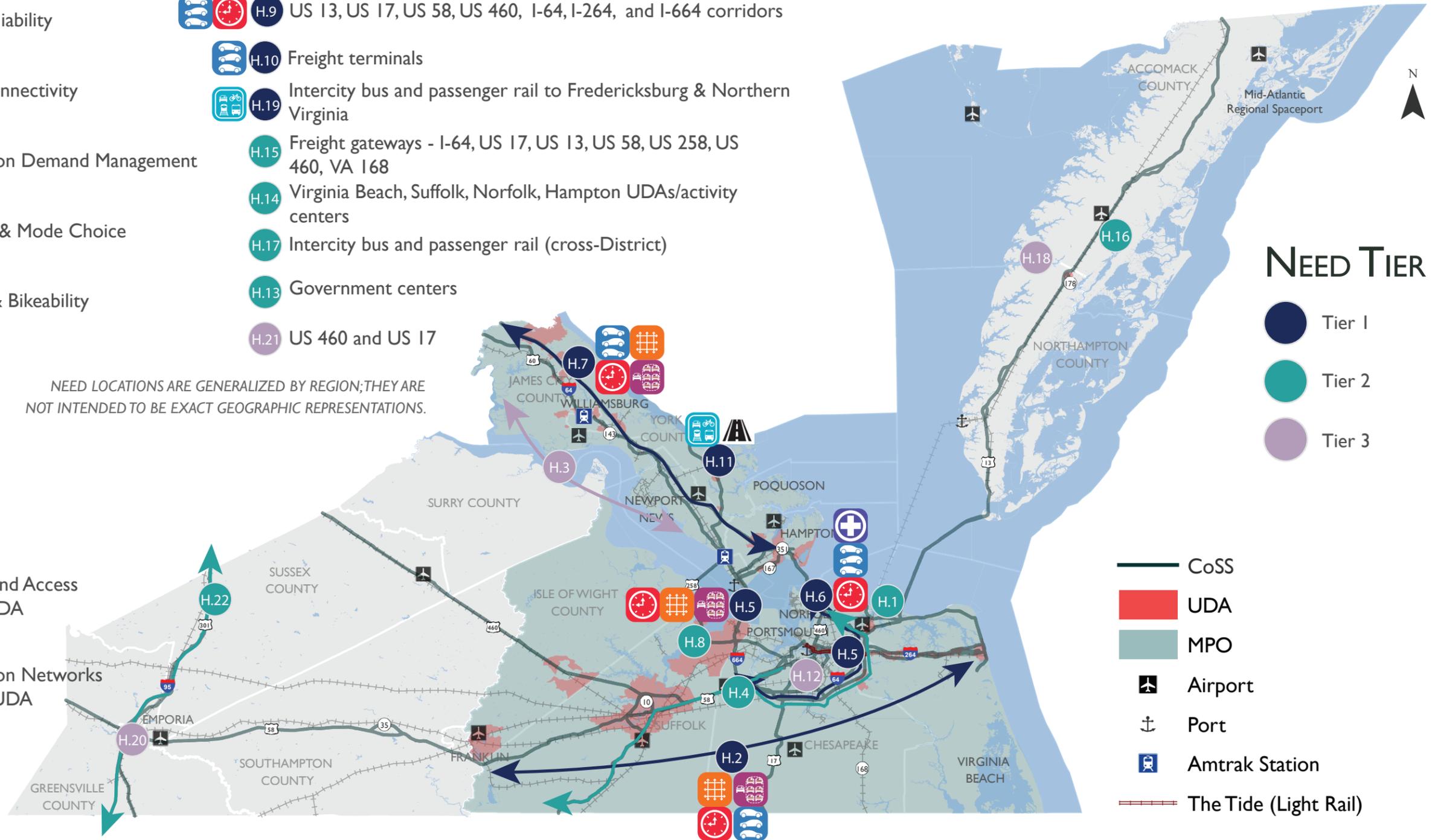
NEED TYPE

- Corridor Reliability
- Network Connectivity
- Transportation Demand Management
- Redundancy & Mode Choice
- Walkability & Bikeability
- Safety
- Bottlenecks
- Congestion
- Circulation and Access within the UDA
- Access to Transportation Networks beyond the UDA

District-Wide/Regional Needs

- H.9 US 13, US 17, US 58, US 460, I-64, I-264, and I-664 corridors
- H.10 Freight terminals
- H.19 Intercity bus and passenger rail to Fredericksburg & Northern Virginia
- H.15 Freight gateways - I-64, US 17, US 13, US 58, US 258, US 460, VA 168
- H.14 Virginia Beach, Suffolk, Norfolk, Hampton UDAs/activity centers
- H.17 Intercity bus and passenger rail (cross-District)
- H.13 Government centers
- H.21 US 460 and US 17

NEED LOCATIONS ARE GENERALIZED BY REGION; THEY ARE NOT INTENDED TO BE EXACT GEOGRAPHIC REPRESENTATIONS.



NEED TIER

- Tier 1
- Tier 2
- Tier 3

- CoSS
- UDA
- MPO
- Airport
- Port
- Amtrak Station
- The Tide (Light Rail)

VMTP TIERED CONSOLIDATED NEEDS - LYNCHBURG DISTRICT

Need ID	Need Description	Need Icons	Local Priority Score (out of 5)	VTrans Goal Score (out of 5)	Need Criticality Score (out of 10)	Total Score (out of 20)	Final Tiering
L.7	Within the Lynchburg District and regional networks, the activity centers have walkability and placemaking needs to support the emerging workforce.		5	4.5	6	16	1
L.6	Within the Central Virginia MPO, the Lakeside Drive / Lynchburg Expressway area has safety, congestion and mode choice needs to support the knowledge sector.		5	4.25	5.5	15	1
L.9	Within the Central Virginia MPO, the Wards Road area has reliability needs to help connect local activity centers.		5	4	5	14	1
L.4	Within the Danville MPO and throughout Pittsylvania County, US 58 has reliability and safety needs for commute, through and freight traffic.		5	4	4.5	14	1
L.17	Within the Lynchburg District, the US 460 corridor between Bedford and Farmville has redundancy, mode choice, safety and reliability needs.		4	4.5	5	14	1
L.2	Within the Danville MPO and throughout Pittsylvania County, US 29 has congestion and safety needs to address freight and commuter traffic, especially during peak periods.		4	4.25	2.5	11	1
L.5	Within the Central Virginia MPO and through Amherst and Campbell Counties, the US 29 corridor has reliability and mode choice needs for passengers and freight.		3	4.25	6	13	1
L.11	Within the Central Virginia MPO and in Campbell County, the US 501 corridor has travel time reliability needs in order to support the knowledge and local economic sectors for workforce travel.		3	3.25	3.5	10	1
L.10	Within the Central Virginia MPO and in Bedford County, the US 221/US 460 corridor has travel time reliability and mode choice needs to better serve inter and intra-regional centers.		3	3	7	13	2
L.3	Within the Danville MPO, there are safety needs due to minimal active transportation infrastructure.		3	4.25	5	12	2
L.15	Within the Lynchburg District, the US 29 corridor between Danville and Lynchburg has mode choice and travel demand management (TDM) needs associated with intercity travel.		4	2.75	5	12	2
L.16	Within Central Virginia MPO, there are additional air service needs from the Lynchburg Regional Airport.		4	4	1.5	10	2
L.8	Within the Lynchburg District and through Bedford County, the rural areas have paratransit needs to connect the rural workforce to activity centers.		3	3.5	2.5	9	2
L.1	Within the Danville MPO and throughout Pittsylvania County, the US 29 corridor has mode choice and travel demand management needs.		2	3.25	3.5	9	2
L.13	Within the Lynchburg District, the Town of South Boston has safety needs.		2	2.75	3.5	8	3
L.12	Within the Lynchburg District and cross-District, US 58 has mode choice needs to support intercity travel from Danville and Hampton Roads.		2	2.5	2.5	7	3
L.14	Within the Lynchburg District, US 58 East in Halifax County has reliability issues.		2	3	0	5	3

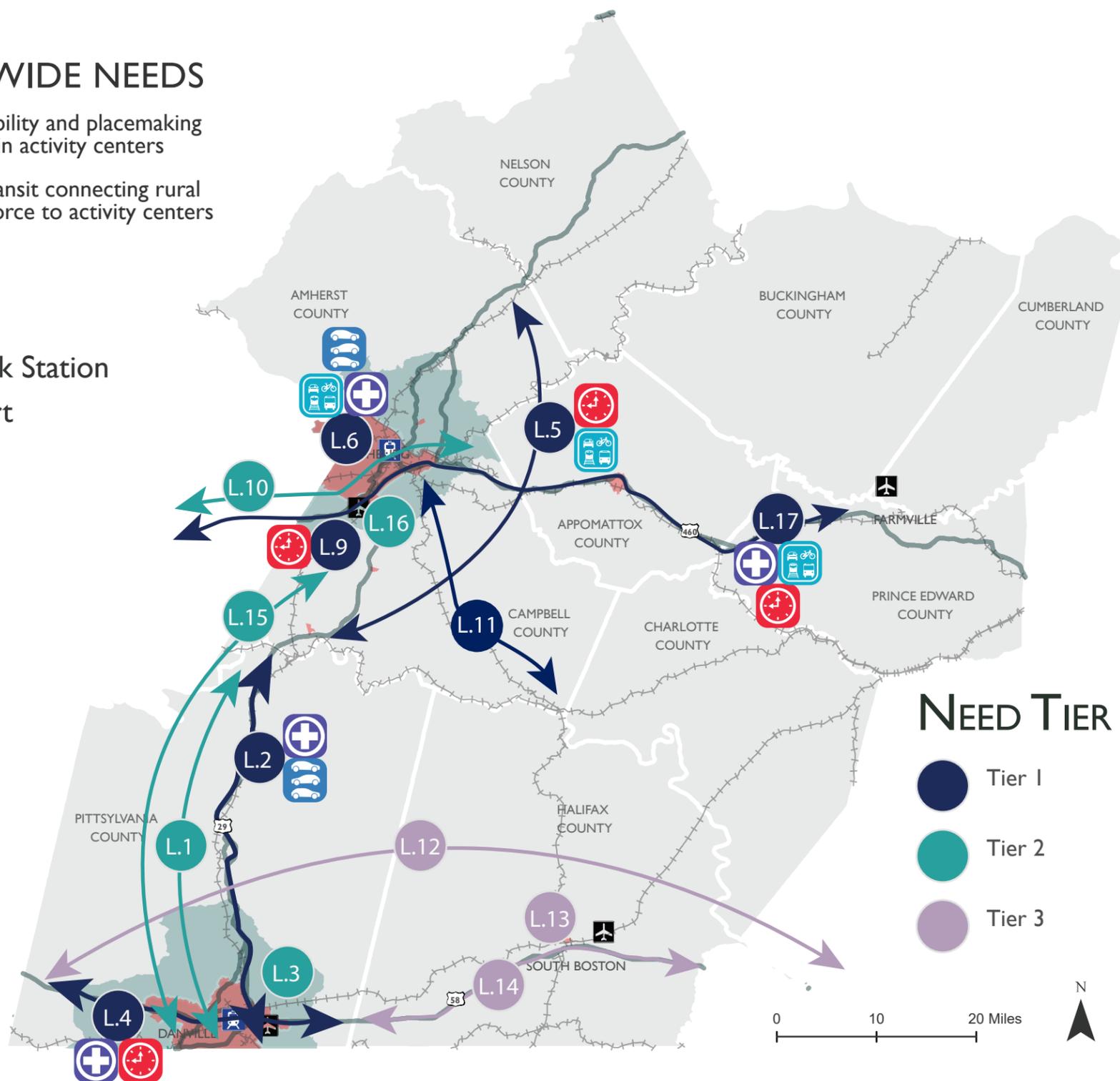
VMTP GENERALIZED MAP OF CONSOLIDATED NEEDS LYNCHBURG DISTRICT



DISTRICT-WIDE NEEDS

- L.7 Walkability and placemaking needs in activity centers
- L.8 Paratransit connecting rural workforce to activity centers

- Amtrak Station
- Airport
- CoSS
- UDA
- MPO



NEED TYPE

- Corridor Reliability
- Network Connectivity
- Transportation Demand Management
- Redundancy & Mode Choice
- Walkability & Bikeability
- Safety
- Bottlenecks
- Congestion
- Circulation and Access within the UDA
- Access to Transportation Networks beyond the UDA

NEED TIER

- Tier 1
- Tier 2
- Tier 3

NEED LOCATIONS ARE GENERALIZED BY REGION; THEY ARE NOT INTENDED TO BE EXACT GEOGRAPHIC REPRESENTATIONS.

VMTP TIERED CONSOLIDATED NEEDS - NORTHERN VIRGINIA DISTRICT

Need ID	Need Description	Need Icons	Local Priority Score (out of 5)	VTrans Goal Score (out of 5)	Need Criticality Score (out of 10)	Total Score (out of 20)	Final Tiering
N.5	Within the NVTA Region, the I-95, I-395 and US 1 corridors have passenger and freight congestion, mode choice and connectivity needs.		5	3.1	9.5	18	I
N.11	Within the NVTA Region, the Metro Orange, Blue, and Silver lines and the Rosslyn Tunnel all have congestion, reliability, station accessibility, transit connectivity and bicycle and pedestrian needs as well as severe train throughput and passenger carrying capacity constraints.		5	4.6	8	18	I
N.21	Within the NVTA Region, transit stations (rail stations and bus hubs) have multimodal access needs (bicycle access, walking, driving/ carpooling/ parking, and/or shuttle services).		5	3.8	9	18	I
N.17	Within the NVTA Region, the US 29, US 50, VA 28, and I-66 corridors have safety, congestion, reliability, mode choice, bicycle and pedestrian needs.		4	3.7	8	16	I
N.1	Within the NVTA Region, the VA 28, VA 234, and VA-659 regional corridors have congestion, mode choice, safety, connectivity and bicycle and pedestrian needs, and constrained access to Dulles Airport.		5	3.7	6	15	I
N.3	Within the NVTA Region, the US 29, US 50, and I-66 regional corridor (Prince William, Fairfax, and Arlington) have congestion and mode choice needs.		5	3.7	6.5	15	I
N.24	Within the District and cross-District, I-95/I-395 and US 1 from Stafford County to Washington D.C., has congestion, reliability and safety needs.		3	3.1	8.5	15	I
N.23	Within the NVTA Region, there are bicycle and pedestrian infrastructure needs, missing links in the network, and safety needs for those modes.		2	3.7	8	14	I
N.22	Within the NVTA Region, there are equity-related multimodal access needs for all demographic groups.		4	3.5	N/A	8	I
N.2	Within the NVTA Region, the VA 234 and US 15 regional corridors have reliability, safety, mode choice, congestion, and connectivity needs.		4	3.2	5.5	13	2
N.10	Within the NVTA Region, the Long Bridge has bottleneck, mode choice and reliability needs.		4	3.1	5.5	13	2
N.7	Within the NVTA Region, the US 29, US 50 and I-66 have reliability and mode choice needs.		2	3.2	8	13	2
N.13	Within the NVTA Region, VRE stations have passenger and parking capacity, transit connectivity, bicycle and pedestrian access needs.		3	3.2	6.5	13	2
N.14	Within the District and cross-District, regional rail lines have passenger and freight rail congestion and reliability needs.		2	2.9	8	13	2
N.4	Within the NVTA Region, I-495 has congestion needs, particularly adjacent to interchanges and from Tysons Corner to the American Legion Bridge.		3	3.4	6	12	2
N.8	Within the NVTA Region, the I-66 and US 29 have reliability needs.		2	3.1	5.5	11	2
N.15	Within the NVTA Region, the VA 234 corridor has mode choice and network connectivity needs.		3	3	5.5	11	2
N.20	Within the NVTA Region, the VA 234 and VA 28 corridors have safety, reliability, congestion, and bicycle and pedestrian needs.		3	3.5	4.5	11	2
N.6	Within the NVTA Region, the US 29, VA 7, and I-66 interchanges /intersections with VA 28 and VA 234, have congestion, reliability, safety, mode choice, bicycle and pedestrian access and connectivity needs.		2	3.3	4.5	10	2
N.9	Within the NVTA Region, I-95 and US-1 have reliability needs.		1	2.8	6.5	10	3
N.16	Within the NVTA Region, the VA 234 corridor has network connectivity, mode choice and safety needs.		1	3.4	4.5	9	3
N.18	Within the NVTA Region, the I-95 and US 1 have safety needs for all users.		1	2.8	5.5	9	3
N.19	Within the NVTA Region, the US 15 and VA 28 have safety, reliability, congestion, and connectivity needs.		1	3	5	9	3
N.12	Within the NVTA Region, park-and-ride lots in Arlington, Fairfax, Loudoun and Prince William counties all have capacity, transit connectivity, bicycle and pedestrian access and travel demand management (TDM) related needs.		1	3.3	2.5	7	3

VMTP GENERALIZED MAP OF CONSOLIDATED NEEDS NORTHERN VIRGINIA DISTRICT

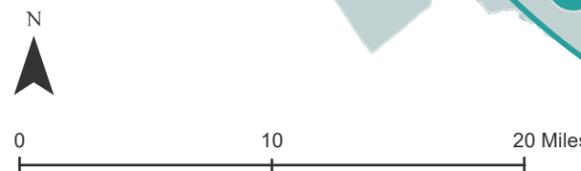


NEED TYPE

- Corridor Reliability
- Network Connectivity
- Transportation Demand Management
- Redundancy & Mode Choice
- Walkability & Bikeability
- Safety
- Bottlenecks
- Congestion
- Circulation and Access within the UDA
- Access to Transportation Networks beyond the UDA

NEED TIER

- Tier 1
- Tier 2
- Tier 3

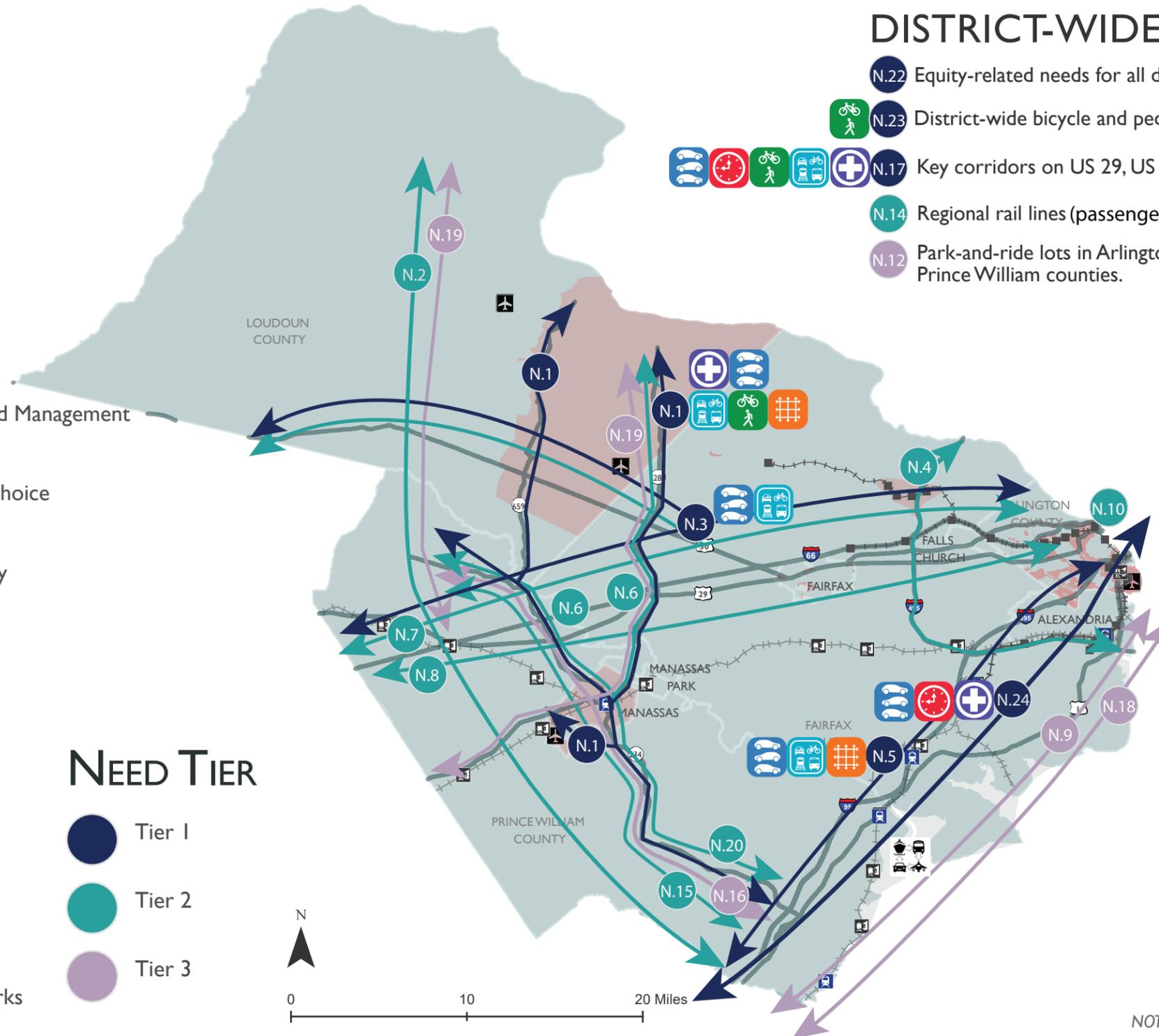


DISTRICT-WIDE NEEDS

- N.22 Equity-related needs for all demographic groups
- N.23 District-wide bicycle and pedestrian infrastructure needs
- N.17 Key corridors on US 29, US 50, VA 28, and I-66
- N.14 Regional rail lines (passenger and freight)
- N.12 Park-and-ride lots in Arlington, Fairfax, Loudoun, and Prince William counties.

DISTRICT-WIDE NEEDS (METRO & VRE SPECIFIC)

- N.11 Orange Line, Blue Line, Silver Line, Rosslyn Tunnel
- N.21 Transit Stations
- N.13 VRE stations
- Amtrak Station
- VRE Station
- Metro Stations (Virginia)
- Airport
- CoSS
- UDA
- MPO



NEED LOCATIONS ARE GENERALIZED BY REGION; THEY ARE NOT INTENDED TO BE EXACT GEOGRAPHIC REPRESENTATIONS.

VMTP TIERED CONSOLIDATED NEEDS - RICHMOND DISTRICT

Need ID	Need Description	Need Icons	Local Priority Score (out of 5)	VTrans Goal Score (out of 5)	Need Criticality Score (out of 10)	Total Score (out of 20)	Final Tiering
R.8	Within the RRTPO, the I-95/I-64 corridors in and south of Richmond have mode choice, accessibility, safety, congestion and network connectivity needs.		5	3.5	10	19	1
R.9	Within the RRTPO, the US 1, US 60/360, US 250 and I-64 corridors in Richmond have mode choice and network connectivity needs.		5	3.4	9.5	18	1
R.13	Within the RRTPO, all activity centers and Urban Development Areas (UDAs) have travel demand management (TDM), network connectivity, and mode choice, access, and circulation needs.		5	3.4	6.5	15	1
R.2	Within the Tri-Cities MPO, several activity centers (Petersburg, Fort Lee, Hopewell, and Cross Pointe) and north/south corridors in Downtown Petersburg, Southpark Mall, and South Crater need greater mode choice.		4	3.4	6.5	14	1
R.11	Within the RRTPO, there are general needs for mode choice and network connectivity for regional and local transit service and passenger rail (Amtrak).		2	3.1	9	14	1
R.1	Within the Tri-Cities MPO, I-95/I-85 and US 1 have reliability, connectivity, and safety needs.		5	4.4	3.5	13	1
R.10	Within the RRTPO, the VA 288 corridor southwest of Richmond has corridor reliability and TDM needs.		4	3.3	5	12	2
R.12	Within the RRTPO, Goochland, Henrico, and Chesterfield County UDAs and activity centers have pedestrian and bicycle needs.		3	3.6	4	11	2
R.3	Within the Tri-Cities MPO, there is a general need for more walkable/bikeable places, particularly in the Hopewell activity center.		3	3.3	3.5	10	2
R.4	Within the Tri-Cities MPO, there is a need for greater mode choice to and from Prince George and Dinwiddie Counties.		3	3.6	3.5	10	2
R.14	Within the RRTPO, Meadowville has I-95/I-295 network connectivity and access needs.		3	3.2	3.5	10	2
R.15	Within the Tri-Cities MPO and RRTPO, the I-95/US 1 corridor from Tri-Cities to I-295 has mode choice, reliability, congestion, and safety needs.		2	3.1	5	10	2
R.16	Across the Richmond District and cross-District, I-64 east of I-295 has reliability, safety, and congestion needs.		4	3.6	2	10	2
R.18	Within the RRTPO, Staples Mill Amtrak Station has transit connectivity needs.		2	2.6	4	9	3
R.7	Within the Tri-Cities MPO, the US 460 corridor has reliability, network redundancy, and walkability/ bikeability needs.		2	2.4	4	8	3
R.17	Within the RRTPO, the Richmond International Airport has transit access needs.		2	2.6	3.5	8	3
R.5	Within Richmond District, the US 58 corridor in Brunswick County and west of Clarksville has reliability, safety, and access needs.		1	2.9	3	7	3
R.19	Within the Richmond District, Amelia Courthouse, South Hill, and Dinwiddie County UDAs have connectivity, access, and circulation needs.		1	2	2	5	3
R.6	Within the Tri-Cities MPO, the I-85 corridor in Dinwiddie County has safety and access needs.		N/A	N/A	3.5	4	3

VMTP GENERALIZED MAP OF CONSOLIDATED NEEDS RICHMOND DISTRICT

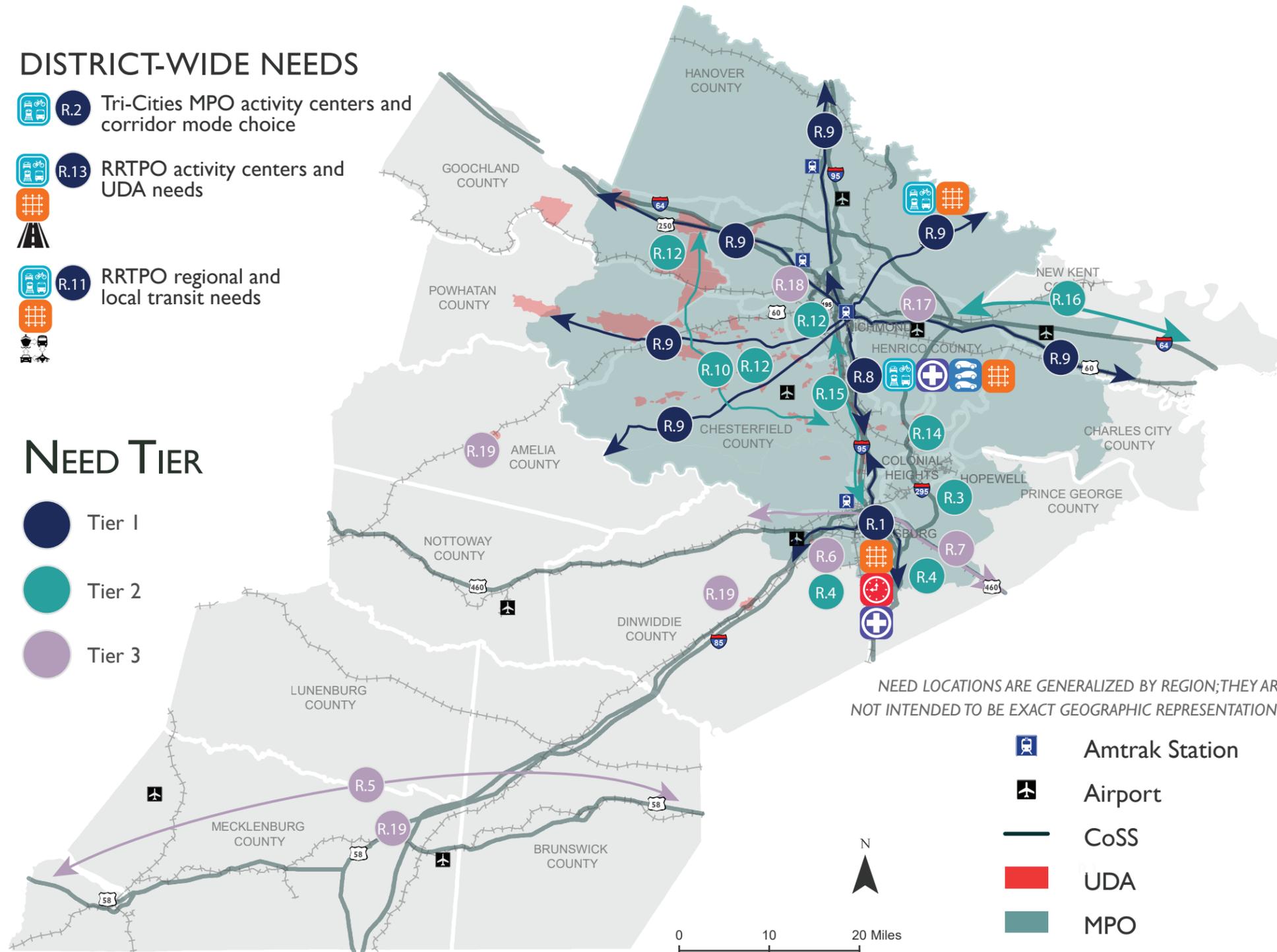


DISTRICT-WIDE NEEDS

- R.2 Tri-Cities MPO activity centers and corridor mode choice
- R.13 RRTPO activity centers and UDA needs
- R.11 RRTPO regional and local transit needs

NEED TIER

- Tier 1
- Tier 2
- Tier 3



NEED LOCATIONS ARE GENERALIZED BY REGION; THEY ARE NOT INTENDED TO BE EXACT GEOGRAPHIC REPRESENTATIONS.

- Amtrak Station
- Airport
- CoSS
- UDA
- MPO

NEED TYPE

- Corridor Reliability
- Network Connectivity
- Transportation Demand Management
- Redundancy & Mode Choice
- Walkability & Bikeability
- Safety
- Bottlenecks
- Congestion
- Circulation and Access within the UDA
- Access to Transportation Networks beyond the UDA

VMTP TIERED CONSOLIDATED NEEDS - SALEM DISTRICT

Need ID	Need Description	Need Icons	Local Priority Score (out of 5)	VTrans Goal Score (out of 5)	Need Criticality Score (out of 10)	Total Score (out of 20)	Final Tiering
S.1	Within RVTPO, I-81, I-581, US 11, US 220, US 460 have congestion, reliability, and safety needs for regional freight and passenger movement.		5	5	6.5	17	1
S.3	Within RVTPO, regional activity centers and Urban Development Areas (UDAs) have bicycle and pedestrian needs.		5	5	6.5	17	1
S.4	Within NRVMPPO, US 11 and I-81 have TDM, safety and parallel redundancy needs.		5	4	6	15	1
S.11	Within the Salem District, I-81 (north of RVTPO), US 460, and US 11 have reliability, congestion, redundancy, mode choice and safety needs.		4	4	6.5	15	1
S.12	Within the Salem District, US 220 and US 58 between Martinsville, Ridgeway, and Rocky Mount have safety, congestion, and reliability needs. The Rocky Mount UDA and UDAs within this corridor have circulation, safety and access needs.		4	5	5	14	1
S.17	Within the Salem District, the Greenway and Regional Trail system have network connectivity and mode choice needs.		4	5	5	14	1
S.9	Within the Salem District, the US 460 and US 220 corridors in Bedford County between Roanoke, New River Valley and Lynchburg have intercity transit, interregional connectivity, reliability, congestion, airport access, and safety needs.		5	5	4	14	1
S.7	Within NRVMPPO, Pepper's Ferry Rd has connectivity, congestion, safety, and TDM needs.		5	5	3.5	14	1
S.2	Within RVTPO, there are intercity and intracity transit accessibility needs as well as travel demand management (TDM) needs.		4	4	7	15	2
S.6	Within NRVMPPO, US 460/Main St. has safety, congestion and TDM needs to serve economic connections in around towns.		1	3	6.5	11	2
S.8	Within NRVMPPO, regional trails, activity centers, and UDAs have pedestrian and bicycle access needs.		3	4	5	12	2
S.5	Within NRVMPPO, the I-81 corridor has a need for more regional mode choice to access activity centers that serve key economic linkages for workforce access.		3	3	5	11	2
S.14	Within the Salem District, US 58 near Martinsville has safety and reliability issues.		3	5	1	9	2
S.16	Within the Salem District, VA 8, VA 57, VA 100, VA 220, VA 221, and VA 311 in Giles and Madison County have reliability and mode choice needs for commuters traveling to regional activity centers		3	3	1.5	8	2
S.10	Within the Salem District, the VA 122 corridor and the Moneta UDA have bicycle needs, pedestrian needs, and multimodal access needs.		1	5	2.5	9	3
S.13	Within the Salem District, I-77 in Carroll County has safety and congestion issues.		2	4	1	7	3
S.18	In the Martinsville UDA, there are circulation, access and multimodal needs.		1	3	3	7	3
S.15	Within the Salem District, US 460 in Giles County between Pearisburg and Narrows has safety and access needs.		2	3	0.5	6	3

VMTP GENERALIZED MAP OF CONSOLIDATED NEEDS SALEM DISTRICT

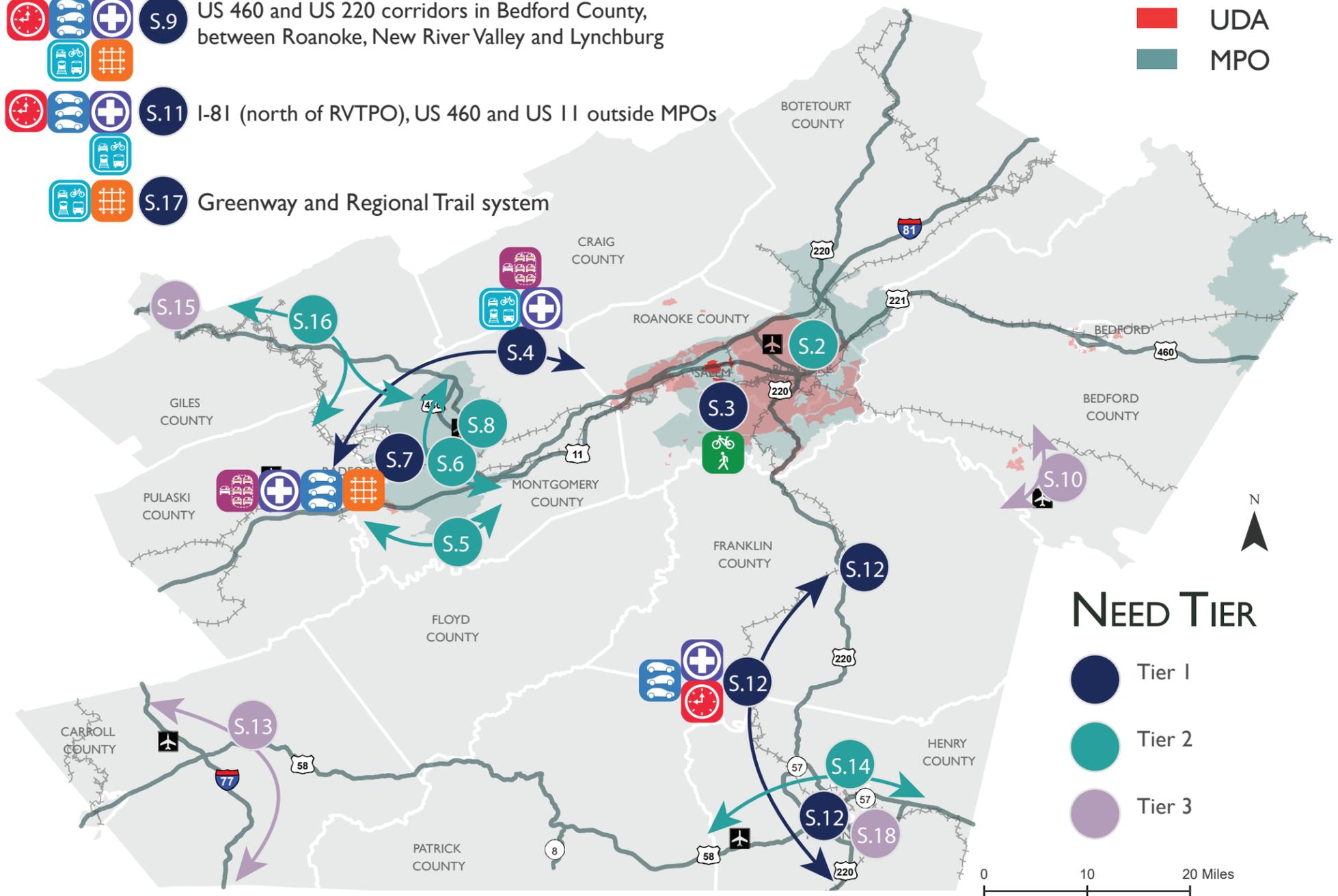


NEED TYPE

-  Corridor Reliability
-  Network Connectivity
-  Transportation Demand Management
-  Redundancy & Mode Choice
-  Walkability & Bikeability
-  Safety
-  Bottlenecks
-  Congestion
-  Circulation and Access within the UDA
-  Access to Transportation Networks beyond the UDA

DISTRICT-WIDE NEEDS

-  S.1 Within RVTPO: I-81, I-581, US 11, US 220, US 460
-  S.9 US 460 and US 220 corridors in Bedford County, between Roanoke, New River Valley and Lynchburg
-  S.11 I-81 (north of RVTPO), US 460 and US 11 outside MPOs
-  S.17 Greenway and Regional Trail system

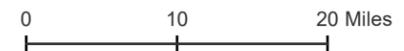


-  Airport
-  CoSS
-  UDA
-  MPO

NEED TIER

-  Tier 1
-  Tier 2
-  Tier 3

NEED LOCATIONS ARE GENERALIZED BY REGION; THEY ARE NOT INTENDED TO BE EXACT GEOGRAPHIC REPRESENTATIONS.



VMTP TIERED CONSOLIDATED NEEDS - STAUNTON DISTRICT

Need ID	Need Description	Need Icons	Local Priority Score (out of 5)	VTrans Goal Score (out of 5)	Need Criticality Score (out of 10)	Total Score (out of 20)	Final Tiering
ST.1	Within SAWMPO, the I-64/US 250 corridors have mode choice, congestion, safety, connectivity, and travel demand management needs.		5	4.25	8	17	I
ST.2	Within Harrisonburg and Rockingham County, Downtown Harrisonburg and other Rockingham County activity centers including James Madison University have mode choice, congestion, connectivity, travel demand management, and walkable/bikeable place needs.		5	5	6.5	17	I
ST.3	Within Harrisonburg and Rockingham County, the VA 253 corridor has mode choice, congestion, walkable/bikeable places, travel demand management, and connectivity needs.		5	5	6	16	I
ST.4	Within WinFred MPO, the I-81 and US 11 corridors have safety, congestion, redundancy, mode choice, connectivity, and travel demand management needs.		5	5	6	15	I
ST.5	Across the Staunton District and neighboring Districts, the I-81/US 11 corridors have safety, congestion, redundancy and reliability needs.		5	5	6	15	I
ST.6	Within Harrisonburg and Rockingham County, the I-81/US 11 interchanges have mode choice, congestion, redundancy, connectivity, and travel demand management needs.		5	3.5	6.5	15	I
ST.7	Within Harrisonburg and Rockingham County, the US 33 corridor has mode choice, congestion, connectivity, and travel demand management needs.		4	4.5	6.5	15	I
ST.8	Within WinFred MPO, the US 50/US 17/VA 7 corridors have regional corridor congestion, mode choice, and travel demand management needs.		4	3.75	7	15	I
ST.9	Within the Staunton District, the Inland Port/US 522/US 340 corridors have rail access and roadway reliability needs.		3	3.75	6	13	I
ST.10	Within WinFred MPO, the VA 37 Extension and VA 277 have corridor congestion, connectivity, and mode choice needs.		4	3	4.5	12	I
ST.11	Within Warren County, commuters have park-and-ride, mode choice and travel demand management needs to/from the County.		4	3.5	2.5	10	I
ST.12	Within SAWMPO, several activity centers and Urban Development Area/Designated Growth Areas (including Augusta County and Waynesboro) have mode choice, congestion, connectivity, travel demand management, and walkable/ bikeable place needs.		5	4.75	6	16	I
ST.13	Within Harrisonburg and Rockingham County, the VA 42 corridor has mode choice, congestion, and connectivity needs.		4	4.5	6	15	2
ST.14	Within SAWMPO, the I-81/US 11 corridor has interchange safety and capacity needs, and mode choice, congestion, and travel demand management needs.		4	4.25	5.5	14	2
ST.15	Within the Staunton District, the US 11/I-81 corridor has mode choice and travel demand management needs for inter-city commuters traveling between Harrisonburg, Staunton, and Waynesboro.		4	3.5	6	14	2
ST.16	Within the Staunton District, the I-64/US 250 corridors have congestion, safety, and redundancy needs between Staunton and Charlottesville.		4	4.75	4	13	2
ST.17	Within SAWMPO, the VA 340/Delphine freight-dependent activity centers have congestion and connectivity needs.		4	3.75	4.5	12	2
ST.18	Within Rockingham County, the VA 257 corridor has mode choice, congestion, and connectivity needs.		3	4.5	2.5	10	2
ST.19	Within Rockingham County, the VA 259 corridor has congestion and connectivity needs.		3	3.5	1.5	8	2
ST.20	Within the Staunton District, US 55 corridor has capacity and safety needs.		3	3.75	1	8	2
ST.21	Within SAWMPO, the US 340 corridors have mode choice, congestion, connectivity, and travel demand management needs.		3	4.5	5	13	3
ST.22	Within WinFred MPO, several activity centers and Urban Development Area/Designated Growth Areas have mode choice, congestion, travel demand management, connectivity, and walkable/bikeable places needs.		3	3.75	5.5	12	3
ST.23	Within SAWMPO, the Stuarts Draft activity center has freight bottleneck, congestion, and connectivity needs.		1	4.25	4.5	10	3
ST.24	Within SAWMPO, the VA 262 corridor has congestion needs.		3	4	2.5	10	3
ST.25	Within the Staunton District, the US 17/US 50 corridor has mode choice and travel demand management needs for inter-city commuters to/from Winchester.		3	3.5	2.5	9	3
ST.26	Within the Staunton District, there is a general need for intercity transit/rail for communities.		2	3.5	3.5	9	3
ST.27	Within Waterloo, the US 17 corridor has reliability needs.		3	3.75	0	7	3
ST.28	Within Rockingham County, the US 340 corridor has congestion, travel demand management, and connectivity needs.		1	2.75	2.5	6	3
ST.29	Within Rockingham and Shenandoah Counties, the VA 211 corridor has congestion and connectivity needs.		1	2.25	1.5	5	3
ST.30	Within the Staunton District, the I-81/US 11 corridor has safety issues south of the SAWMPO.		0	0	3	3	3
ST.31	Within Clifton Forge, there is a general need for intercity transit services.		N/A	N/A	3	3	3
ST.32	Within Covington and Alleghany Counties, the US 60/US 220 corridors have safety issues.		N/A	N/A	2	2	3

VMTP GENERALIZED MAP OF CONSOLIDATED NEEDS STAUNTON DISTRICT

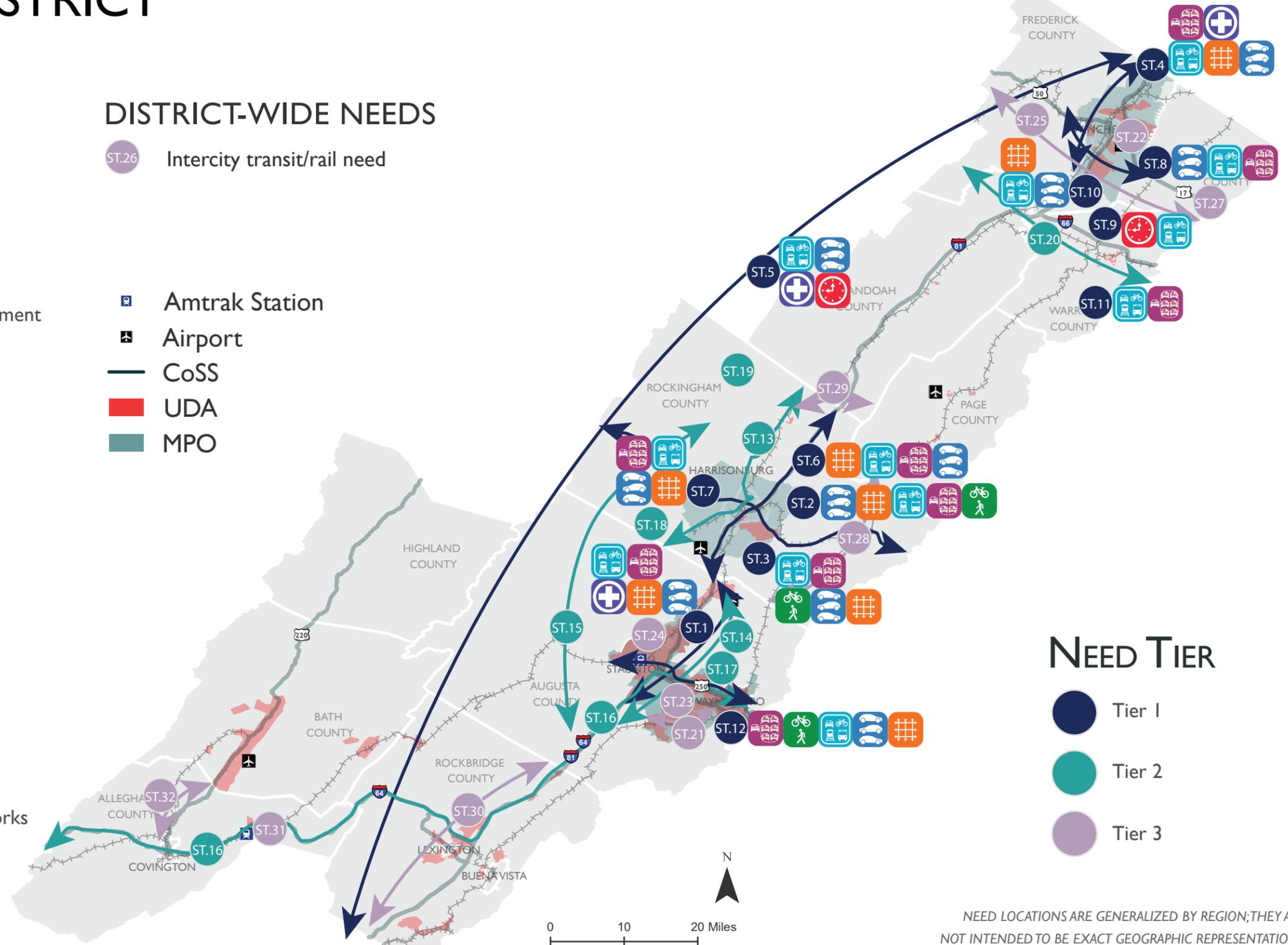


NEED TYPE

-  Corridor Reliability
-  Network Connectivity
-  Transportation Demand Management
-  Redundancy & Mode Choice
-  Walkability & Bikeability
-  Safety
-  Bottlenecks
-  Congestion
-  Circulation and Access within the UDA
-  Access to Transportation Networks beyond the UDA

DISTRICT-WIDE NEEDS

-  ST.26 Intercity transit/rail need
-  Amtrak Station
-  Airport
-  CoSS
-  UDA
-  MPO



NEED TIER

-  Tier 1
-  Tier 2
-  Tier 3

NEED LOCATIONS ARE GENERALIZED BY REGION; THEY ARE NOT INTENDED TO BE EXACT GEOGRAPHIC REPRESENTATIONS.

REFERENCES

VTrans2040 Vision

<http://www.vtrans.org/vtrans2040.asp>

Includes links to the VTrans2040 Vision and associated trend documents and content from all VTrans2040 Vision related outreach in 2014. Also includes a link to the new, under development, interactive VTrans2040 website, <http://www.vtrans2040.com>, which provides access to additional, interactive VTrans2040 content, including an on-line map of the VMTP Needs Assessment.

For a broader overview and history of VTrans, refer to: <http://www.vtrans.org/plans.asp>.

VTrans Multimodal Transportation Plan (VMTP) 2025 Needs Assessment

http://vtrans.org/vtrans_multimodal_transportation_plan_2025_needs_assessment.asp

Includes links to detailed needs assessments finalized in December 2015 for the Corridors of Statewide Significance, Regional Networks, Urban Development Areas, and Statewide Safety Needs.

VTrans Multimodal Transportation Plan (VMTP) Needs Synthesis and Recommendations Development

<http://www.vtrans.org/vtrans2040.asp>

Initial content is available on the VTrans2040 homepage describing the recommendations development process, including webinar presentations from March and June 2016. Refer back to this site, and the www.vtrans2040.com page for further information on this process through the winter 2017.

SMART Scale

<http://vasmartyscale.org/>

All relevant information related to the development and application of SMART Scale is provided through this page.

Commonwealth Transportation Board

<http://www.ctb.virginia.gov/>

Appointed by the governor, the 17-member Commonwealth Transportation Board (CTB) establishes the administrative policies for Virginia's transportation system. The CTB allocates highway funding to specific projects, locates routes and provides funding for airports, seaports and public transportation. Information on CTB membership, meeting schedules, agenda, and content are all available on this site.



November 2017