

# Tri-Cities Area MPO Plan 2045



Adopted 6/23/22 by the TCAMPO Policy Committee  
Conformity Report Approved by USDOT 6/27/22

Tri-Cities Area  
**MPO**

## Acknowledgement

This report was prepared by the staff of the Crater Planning District Commission on behalf of the Tri-Cities Metropolitan Planning Organization in cooperation with the U.S. Department of Transportation, Federal Highway Administration (FHWA), Federal Transit Administration (FTA), the Virginia Department of Transportation (VDOT) and the Virginia Department of Rail and Public Transportation (VDR&PT).

## Disclaimer

This document reflects the views of the Tri-Cities Area Metropolitan Planning Organization. The staff of the Crater Planning District Commission is responsible for the facts and the accuracy of the data presented. The contents may not reflect the views or policies of the Federal Highway Administration (FHWA), the Virginia Department of Transportation (VDOT), or the Crater Planning District Commission (CPDC). This report is not a standard, specification, or regulation. FHWA or VDOT acceptance of this report is evidence of fulfillment of the objectives of this planning study and is not an endorsement or approval of any recommended improvement approval of their location or design or a commitment to fund any improvements. Additional project level environmental impact assessments and/or studies of alternatives may be necessary.

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The Tri-Cities Metropolitan Planning Organization (MPO) complies with Title VI of the Civil Rights Act of 1964 and related statutes and regulations in all programs and activities. For more information, see <https://craterpdc.org/our-works/transportation/>

## NO DISCRIMINACIÓN

La Organización Tri-Cities Area Metropolitana de Planificación (TCAMPO) Cumple totalmente con el Título VI de la Ley de Derechos Civiles de 1964 y los estatutos y los reglamentos relacionados con toda programas y actividades. El TCAMPO se esforzará para proporcionar ajustes razonables y servicios para personas que requieran asistencia especial para participar en este público oportunidad de participación. Para obtener más información sobre el cumplimiento de la accesibilidad, o para obtener una Formulario de Queja Título VI, ver [http://www.craterpdc.org/transportation/title\\_vi.htm](http://www.craterpdc.org/transportation/title_vi.htm) o llame al Título VI Coordinador en el 804-861-1666.

TCAMPO Policy Committee Adoption Resolution (6/23/22)

**TRI-CITIES AREA METROPOLITAN PLANNING ORGANIZATION RESOLUTION  
ADOPTING PLAN2045, THE METROPOLITAN TRANSPORTATION PLAN  
FOR THE TRI-CITIES PLANNING AREA**

WHEREAS, the U.S. Department of Transportation provides financial assistance to public agencies for transportation technical studies; and

WHEREAS, the U.S. Department of Transportation requires approval of regional transportation plans and programs by the Metropolitan Planning Organization (MPO) in accordance with 23 U.S. C. Part 450; and

WHEREAS, the Tri-Cities Area Transportation Policy Committee is the duly designated Metropolitan Planning Organization for the Tri-Cities Area; and

WHEREAS, the April 2022 *Regional Conformity Assessment the Richmond and Tri-Cities 2045 Long-Range Transportation Plan and FFY 2021-2024 Transportation Improvement Program (April 2022)* was approved by the Policy Committee at its regular meeting on April 14, 2022; and

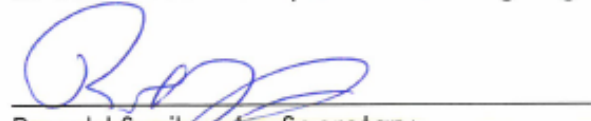
WHEREAS, the Tri-Cities Area Metropolitan Planning Organization, pursuant to its adopted participation process, has considered public comments received on the *Plan2045* transportation plan.

NOW, THEREFORE BE IT RESOLVED, the Policy Committee of the Tri-Cities Area Metropolitan Planning Organization hereby adopts the Tri-Cities Area *Plan2045* transportation plan.

Upon a motion by Mr. Carroll ( <sup>Pres.</sup> Cy ) seconded by Mr. Webb ( <sup>P. Vice</sup> Georg ), and carried by a voice vote a motion was adopted on June 23, 2022, with 5 members voting aye, 0 members voting nay, and 0 members abstaining.



William Chavis, Chair  
Tri-Cities Area Metropolitan Planning Organization



Ronald Svejksky, Secretary  
Tri-Cities Area metropolitan Planning Organization

6/23/22  
Date

USDOT Approval of Conformity Report (6/27/22)



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Region III  
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Richmond, VA 23219  
Phone: 804-775-3320  
804-775-3356 (fax)

Mr. Stephen Brich  
Commissioner  
Virginia Department of Transportation  
1401 East Broad Street  
Richmond, Virginia 23219

**Re: Joint FHWA/FTA Conformity Finding for the 1997 8-hour ozone standard;  
Richmond-Petersburg, Virginia**

Dear Mr. Brich:

The Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) have completed a joint review of the 1997 8-hour ozone National Ambient Air Quality Standard (NAAQS) Conformity Determination for the Fiscal Year (FY) 2021-2024 Transportation Improvement Program (TIP) and the 2045 Long-Range Transportation Plan (LRTP) for the Tri-Cities Metropolitan Planning Organization (TCMPO).

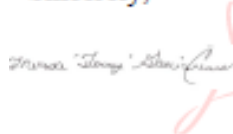
In accordance with the 1990 Clean Air Act Amendments (CAAA), the FHWA and the FTA are required to make a joint air quality conformity finding. Based on our evaluation of the materials submitted, coordination with the U.S. Environmental Protection Agency - Region 3 Office (EPA), and input from TCMPO, the FHWA and FTA therefore find that the Conformity Determination submittal for the FY 2045 LRTP and FY 2021-2024 TIP for the Richmond-Petersburg 1997 8-hour Ozone Area demonstrates conformity as prescribed by EPA's Transportation Conformity Rule (40 CFR Part 93), subsequent amendments, and guidance issued by EPA in November 2018 for areas affected by the February 2018 South Coast court decision. The EPA, by letter dated June 6, 2022, concurred on the overall conformity determination.

This letter represents that joint conformity finding. This conformity finding remains valid for a period of four years provided no regionally significant projects are amended to or removed from the LRTP or TIP and provided no metropolitan transportation planning deadlines come due before then. Based on our transportation planning regulatory requirements (23 USC 134 and 49 USC 5303), our day-to-day involvement with the TCMPO, and extensive review of their fiscal analysis reports, FTA and FHWA find the financial information needed to support our fiscal constraint determination complete.

**Re: Joint FHWA/FTA Conformity Finding for the 1997 8-hour ozone standard; Page 2**  
**Richmond-Petersburg, Virginia**

If you have any questions or need additional information, please contact Ivan Rucker, FHWA-Virginia Division, at (804) 775-3350 or Ryan Long, FTA Region III, at (215) 656-7051.

Sincerely,

 Digitally signed by  
THERESA GARCIA CREWS  
Date: 2022.06.27 15:21:23  
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Terry Garcia Crews  
Regional Administrator  
Federal Transit Administration

**EDWARD S** Digitally signed by  
**SUNDRA** EDWARD S SUNDR  
Date: 2022.06.27  
16:26:30 -04'00'

---

Edward Sundra  
Director of Program Development  
Federal Highway Administration

cc: Ms. Martha Heeter, RRTPO (via email)  
Mr. Alec Brebner, TCMPO (via e-mail)  
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Mr. Gregory Becoat, EPA (via email)  
Mr. Michael Gordon, EPA (via e-mail)

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## Chapter 1 - Introduction – What is a Metropolitan Planning Organization and the Metropolitan Planning Process?

Congress intends that the Metropolitan Transportation Planning Process be:

- Continuous,
- Cooperative,
- Comprehensive
- Performance Based and
- Multimodal (USDOT, 2016).

A Metropolitan Planning Organization (MPO) is the policy board of an organization created and designated to carry out the metropolitan transportation planning process. MPOs are required by federal law to represent localities in all urbanized areas (UZAs) with populations over 50,000, as determined by the U.S. Census. MPOs are designated by agreement between the governor and local governments that together represent at least 75 percent of the affected population (including the largest incorporated city, based on population) or in accordance with procedures established by applicable state or local law. When submitting a transportation improvement program to the state for inclusion in the statewide program, MPOs self-certify that they have met all federal requirements.

the Petersburg Urbanized Area was designated by the U.S. Census Bureau from the 1970 Census. The Tri-Cities Area Metropolitan Planning Organization (TCAMPO) was created on March 21, 1974, under Title 23 of the United States Code, by cooperative agreement between the Crater Planning District Commission and the Virginia Department of Highways. The Cities of Colonial Heights, Hopewell, Petersburg and the Counties of Chesterfield, Dinwiddie and Prince George entered into subsequent agreements in support of a continuing transportation planning process for the metropolitan area. On November 7, 1979, Virginia's Secretary of Transportation designated the Tri-Cities Area Policy Committee as the Metropolitan Planning Organization for the Tri-Cities Area. Figure 1-1 is a map showing the study area and the member jurisdictions.

From the 2000 Census, the Tri-Cities Area Urbanized Area became part of the Richmond Urbanized Area and the Richmond TMA but was able to retain its own MPO status and be a TMA. TCAMPO coordinates with the Richmond Regional TPO (RRTPO) for planning studies and other work activities.

An urbanized area with a population over 200,000, as defined by the Bureau of the Census and designated by the Secretary of the U.S. Department of Transportation (DOT), is called a Transportation Management Area (TMA). As described in 49 U.S.C. 5303(k), and in recognition of the greater complexity of transportation issues in large urban areas,

an MPO in a TMA has a stronger voice in setting priorities for implementing projects listed in the transportation improvement program and are responsible for additional planning products. The planning processes in MPOs in TMAs also must be certified by the Secretary of DOT as being in compliance with federal requirements.

## Tri-Cities Area MPO Organization and Structure

The Tri-Cities Area MPO consists of a Policy Committee and a Technical Committee. The Policy Committee is responsible for transportation planning for the region including:

- the annual Unified Planning Work Program (UPWP);
- the Metropolitan Transportation Plan (MTP), updated every 5 years;
- the Metropolitan Transportation Improvement Program (MTIP), adopted every three years;
- the Congestion Management Process (CMP) updated every 10 years;
- the Stakeholder Participation Plan (approved in 2016);
- the Title VI Compliance Plan (approved in 2015); and
- Ensuring that plans meet federal requirements.

The Tri-Cities Area MPO also selects or recommends projects from these programs:

- Surface Transportation Program Block Grant (STPBG)
- Congestion Mitigation and Air Quality (CMAQ)
- MPO-allocated Transportation Alternatives Program (TAP)

The Tri-Cities Area MPO also applies for SMART SCALE projects (and other programs) and assists its members in their SMART SCALE application processes.

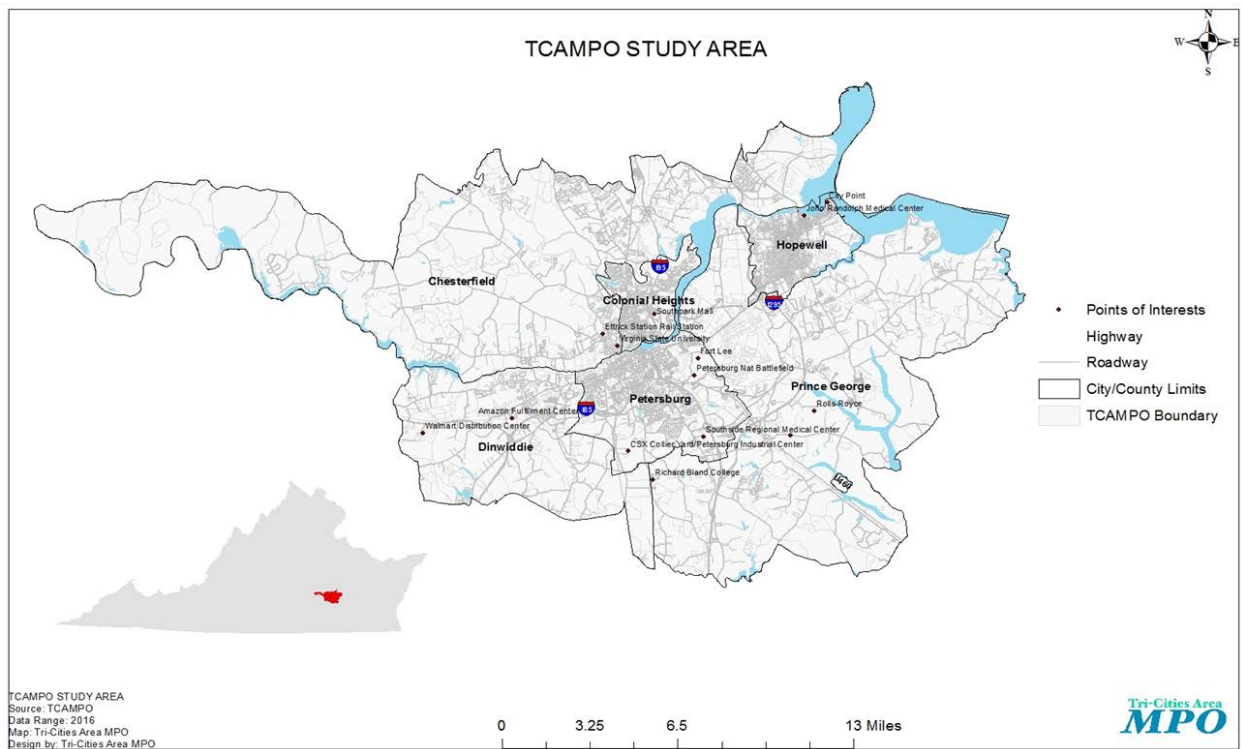
Elected representatives from the six study area jurisdictions, appointed representatives from the Office of the Virginia Secretary of Transportation, the Crater Planning District Commission (CPDC) and Petersburg Area Transit (PAT) are the voting members of the Policy Committee. Representatives from the Federal Transit Administration, the Federal Highway Administration and the Virginia Department of Rail and Public Transportation (DRPT) also participate on the Policy Committee as nonvoting members. Figure 1-2 lists the current members of the MPO's Policy Committee and the agency or jurisdiction that they represent.

The Technical Advisory Committee (TAC) is composed of representatives from public works, engineering, planning, or traffic engineering staffs of the six local jurisdictions, DRPT, VDOT, PAT and the Crater PDC. The TAC acts as an advisory committee to the Policy Committee and gives technical support to the Policy Committee. Representatives of Fort Lee, RideFinders, and the National Park Service at Petersburg National Battlefield serve

on the Technical Committee as advisory (non-voting) members because of their importance to the Tri-Cities area.

Memoranda of Agreement for the planning process in the Tri-Cities Area have been executed between regional and State transportation and air quality planning agencies pursuant to 23 CFR Part 450.310. These agreements define the roles and responsibilities of each participating agency. The agreements and consultation procedures for transportation and air quality planning for RRTPO and TCAMPO have been developed to comply with metropolitan transportation and air quality planning requirements. These planning agreements were updated in 2019 to reflect changes in Federal and State transportation planning regulations since January 2009.

**Figure 1-1: Tri-Cities Area MPO Study Area**



**Figure 1-2: Tri-Cities Area MPO Policy Committee Members**

Jurisdiction	Representative
<p><b>Chesterfield County</b> Mr. Kevin Carroll <b>Voting</b></p>	
<p><b>Colonial Heights</b> Mr. John Wood <b>Voting</b></p>	
<p><b>Crater Planning District Commission</b> Mr. Alec Brebner <b>Voting</b></p>	
<p><b>Dinwiddie County</b> Mr. William Chavis <b>Voting (Chair)</b></p>	
<p><b>City of Hopewell</b> Ms. Patience Bennett <b>Voting (Vice Chair)</b></p>	
<p><b>City of Petersburg</b> Mr. Samuel Parham <b>Voting</b></p>	
<p><b>Petersburg Area Transit</b> Mr. Charles Koonce <b>Voting</b></p>	
<p><b>Prince George County</b> Mr. T. J. Webb <b>Voting</b></p>	
<p><b>For the Secretary of Transportation</b> Mr. Shane Mann, P. E. <b>Voting</b></p>	
<p><b>MPO Secretary – Nonvoting</b> Mr. Ron Svejkovsky</p>	

## What is *Plan2045* (the 2045 TCAMPO Metropolitan Transportation Plan) and What is Required in *Plan2045* Under the FAST-ACT?

Under §450.306 (scope of the metropolitan transportation planning process), the metropolitan transportation planning process shall be continuous, cooperative, and comprehensive, and provide for consideration and implementation of projects, strategies, and services that will address the following ten factors:

- 1) Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency;
- 2) Increase the safety of the transportation system for motorized and non-motorized users;
- 3) Increase the security of the transportation system for motorized and non-motorized users;
- 4) Increase accessibility and mobility of people and freight;
- 5) Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns;
- 6) Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight;
- 7) Promote efficient system management and operation;
- 8) Emphasize the preservation of the existing transportation system;
- 9) Improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation; (new)
- 10) Enhance travel and tourism (new).

*Plan2045* addresses the above factors and meets the federal requirements under §450.324 (Development and Content of the Metropolitan Transportation Plan). The full text of §450.324 is located in Technical Appendix N and O of this document.

The long-range transportation plan is a performance-based federally mandated plan guided by a vision, goals, and objectives. It addresses comprehensive transportation needs of the region over at least the next 20 years, with updates added every five years.

*Plan2045* is the latest five-year update. It is a multimodal plan that makes recommendations for transit, bicycle, pedestrian, air, road, and freight-related projects with identified short-term and long-term strategies. *Plan2045* uses 30 plans, studies, and data sources (Technical Appendix P). Comments and TCAMPO responses to the Draft *Plan2045* document are included in Technical Appendix R.

## What is the Relationship between *Plan2045*, MTIP and Virginia's Six-Year Improvement Program?

A Metropolitan Transportation Plan (MTP) sets the performance-based transportation goals, policies, projects, and programs over the next 20 years or more; *Plan2045* looks from 2017 to 2045. A Metropolitan Transportation Improvement Program (MTIP) is a 4-year federal funds spending plan for the MPO. Federal regulations require that projects in the MTIP are contained in or consistent with the MTP.

In the Commonwealth of Virginia, federal and state funds are allocated in the Six-Year Improvement Program and are listed for each project.

The link to the VDOT SYIP: <http://syip.virginiadot.org/Pages/allProjects.aspx>

The Link to the DRPT SYIP: <http://www.drpt.virginia.gov/media/3456/fy22-syip-sent-6-16-2021-w-page-nos.pdf>

Since the creation and adoption of the TCAMPO's FFY 2021-2024 MTIP, TCAMPO has adopted the policy of transitioning from listing most of its projects individually in the MTP and MTIP to individually listing mainly the Regionally Significant projects in the MTP and MTIP and "TIP grouping" (i.e., simplifying the spending and tracking of expenses) the rest.

## How are VTrans and *Plan2045* related?

Vtrans is the Commonwealth's statewide transportation Plan. It lays out the overarching vision and goals for transportation in the Commonwealth and plans to achieve those goals. The Commonwealth of Virginia's VTrans efforts are based on data gathered by the Commonwealth and are intended to meet the Commonwealth's policies, goals, and objectives. It is not based on MPO, PDC, or local plans. *Plan2045* is developed by the MPO and uses data gathered by the Commonwealth in its VTrans efforts.

## What is New with *Plan2045*?

1. *Plan2045* is data-driven, needs-based, and performance-based:

Along with the usual discussions in MTPs about highway, bicycle, pedestrian, transit, and rail modes, *Plan2045* is a data-driven, needs-based, and performance-based plan, in which:

- Data is analyzed
- Needs are identified
- Goals, objectives, and targets are set

- Policies, programs, and projects are developed and implemented
- Performance reports are made

In the TCAMPO's *Year 2040 Transportation Plan*, TCAMPO began presenting MPO performance targets (with additional performance targets presented in Plan amendments later). TCAMPO was fortunate to be selected by OIPI to receive the technical services of a performance-based planning consultant assist us with *Plan2045* and with the MPO's funding programs and planning efforts. *Plan2045* will also report on the performance of the systems as available.

2. *Plan2045* uses new sources of data:

Since the TCAMPO's *Year 2040 Transportation Plan* was adopted in August 2017, the Commonwealth of Virginia (and private groups) have greatly increased their data gathering and analysis efforts for use in statewide performance-based planning and programming efforts and for the *VTrans* State Transportation Plan. This data is intended to be usable, ongoing, and updated. TCAMPO is taking advantage of that information in *Plan2045* and its goals, measures, and prioritization.

3. *Plan2045* is shorter and web-friendly:

With more persons using the internet to access information and communicate (and the desire of TCAMPO to reach more people), the Crater PDC and TCAMPO created a new [website](#) with webpages that are more user-friendly, informative, time-sensitive, and interactive. *Plan2045* also has its own [webpage](#).

The *Plan2045* document is much shorter than previous MTPs, with a set of Technical Appendices. *Plan2045* also includes numerous links to reports and sources for further reading and information. This also makes it easier to make *Plan2045* more interactive and web friendly.

4. *Plan2045* had a greatly expanded public participation process:

*Plan2045* greatly expanded the TCAMPO's public participation process and public interactions with creative opportunities for all residents to engage in the public participation process, including:

- Online [Vision, Goals, and Objectives survey](#) in January 2021
- Online [Transportation Problems and Needs survey](#) (with the ability to map the problems issue locations) in July/August 2021
- Creating new TCAMPO Facebook and Instagram accounts and joining local issue-based Facebook Groups

- Heavily advertising its surveys and Draft Plan via Facebook, Instagram, and Facebook Groups
- The new Crater PDC newsletter and webpage, *Plan2045* webpage, and MPO member promotion of the *Plan2045* updates, surveys, and Draft Plan
- Where possible, TCAMPO also assessed the public participation process's success in reaching minority, low-income, and disadvantaged/underserved populations; people who are not easily engaged because of their age, ability, language, lack of access to technology, or other reasons.

Technical Appendix A provides more detail in the public participation process.

5. *Plan2045's* Financially Constrained Plan List of Projects focuses primarily on the FFY 2021-24 MTIP and *Plan2045* Regionally Significant Projects:

Beyond the current FY22-27 Six-Year Improvement Program timeframe, the Financially Constrained Plan of Projects portion of *Plan2045* (and future MTPs and MTIPs) will primarily individually list Regionally Significant projects. Technical Appendix B of *Plan2045* ("Examples/Vision List") lists the Regionally Significant Projects not included in the Constrained Plan List of Projects and those projects that are not Regionally Significant but have been identified as needs in various plans, studies, and data analyses. Technical Appendix B also lists needs/projects that may use the various Revenue Forecast funds noted in Section 9.

Regionally Significant projects generally include:

- Add a travel lane both ways to an arterial, freeway, or interstate
- Construct a new arterial
- Construct a new freeway interchange
- Construct a Fixed Guideway or Heavy Rail project

Projects that are federally funded but are not Regionally Significant would be listed in various MTIP Groupings (with the associated STIP Groupings used for the State TIP). In the Tri-Cities Area MPO, the most common MTIP/STIP groupings are:

- Construction: Safety/ITS/Operational Improvements
- Construction: Alternative Transportation
- Construction: Bridge Rehabilitation/Replacement/Reconstruction
- Maintenance: Bridge Preventive Maintenance
- Maintenance: Preventive Maintenance and System Preservation

The Tri-Cities Area MPO is required to ensure that the individually listed projects and the MTIP Groupings are financially constrained in the MTIP and the MTP.

Also, since most transportation construction project funding programs are competitive (ex: SMART SCALE, HSIP, TAP, RAISE; SOGR), any project added under these federal programs would also increase in its financial capacity and therefore result in *Plan2045* (the MTP) or MTIP being considered financially constrained.

6. The CVTA (and its taxes/revenues) was created:

The [Central Virginia Transportation Authority](#) (CVTA) was created in the 2020 Virginia General Assembly session. The jurisdictional area covered (and taxed) by CVTA includes all of Chesterfield County, including the southern portion of Chesterfield County that is in the Tri-Cities Area MPO's Planning Area.

It is expected that a small portion of the sales tax and fuels tax revenues collected by CVTA will be used in southern Chesterfield County during the *Plan2045* period to help meet the needs identified by the County, CVTA, TCAMPO, and the Commonwealth. More discussion can be found in the Revenues section of *Plan2045*.

7. The COVID-19 Pandemic affected transportation in the short-term and may impact transportation in the long-term

The amount of travel of people and goods by auto, truck, rail, and transit was reduced dramatically during the early months of the pandemic, and some of the modes rebounded later in the pandemic. The pandemic triggered (and possibly accelerated) discussion and decisions regarding:

- working from home versus commuting to the office (or going hybrid)
- Shopping in stores versus shopping online (with home delivery)
- Travel modes and destinations for business and personal vacations
- The use of online meeting tools such as Zoom, Teams, FaceTime, WebEx, and Google Meets

*Plan2045* in many cases assumes that the volume of traffic and ridership will rebound after the Pandemic subsides (which is already being seen)

8. The TCAMPO has adopted a Vision for *Plan2045*

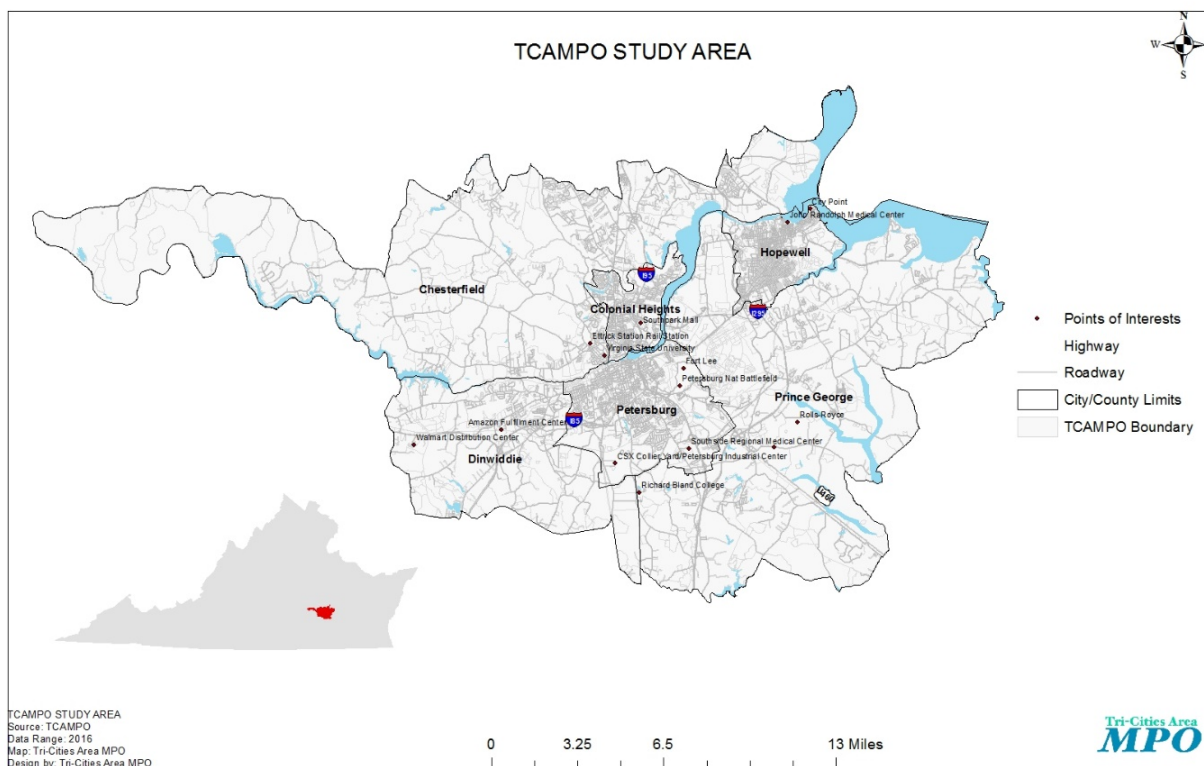
On October 14, 2021, the TCAMPO Policy Committee adopted the following Vision Statement:

*"Encourage a transportation system that equitably improves safety, economic vitality, and quality of life for people living and working in the Tri-Cities area."*

## Chapter 2 – About the Tri-Cities Area

Colonial Heights, Petersburg, Hopewell, and surrounding portions of Chesterfield County, Dinwiddie County, and Prince George County compose the Tri-Cities Metropolitan Planning Organization. The Tri-Cities study area is in south central Virginia along the I-85, I-95, and I-295 corridors. Other arterial routes serving the area are U.S. 1, US 301, U.S. 460, Virginia Route 10, Virginia Route 36, Virginia Route 156, and Virginia Route 144. The Tri-Cities transportation system is multi-modal with air, highway, rail, transit, pedestrian, and bicycle facilities available. Figure 2-1 shows the MPO’s planning boundary and location in Virginia. The Tri-Cities Area was its own urbanized area from 1970 to 2000 and since 2000 is the southern portion of the Richmond, Virginia Urbanized Area. The total 2010 U.S. Census population estimate for the Richmond, Virginia Census Urban Area was 953,556, and 128,730 of that total is within the Tri-Cities Area MPO Planning (Study) Area.

**Figure 2-1: Tri-Cities Area Location and Boundary**



### Our People

The Tri-Cities area is very diverse in income, ethnicity, and other factors. Technical Appendix C is the [Socioeconomic Data Report for 2017-2045](#).

In 2017, the population of the Tri-Cities Planning Area was 189,512 with 65,234 households. In 2045, it is projected that The Tri-Cities Area will have a 204,084 population (7.7% increase) with 76,281 households (16.9% increase). Most of the growth is expected to be in Chesterfield County (with little to no growth in Colonial Heights, Hopewell, and Petersburg).

Technical Appendix D provides demographic details (i.e., Environmental Justice and Title VI) of the Tri-Cities Area. The federally defined Environmental Justice groups consist of 1) minority populations, and 2) low-income (below poverty level) populations:

- The percent of minority residents in 2017 varies from 25.67% in Colonial Heights to 85% in Petersburg.
- The percent of residents living below the poverty level in 2017 varies from 8.05% in Chesterfield County to 27.57 in Petersburg

Other “vulnerable population indicators” include:

- The median household income in the Tri-Cities area varies from \$33,939 in Petersburg to \$75,657 in Chesterfield County.
- Every locality has at least one “Area of Persistent Poverty” census tract
- The percent of residents with disabilities in 2017 varies from 10.71% in Chesterfield County to 20.57% in Petersburg
- The percent of household with zero autos in 2017 varies from 1.43% in Chesterfield County to 16.23% in Petersburg
- The percent of elderly (65 years or older) in 2017 varies from 11.31% in Chesterfield County to 20.26% in Colonial Heights
- The percent of individuals with limited English proficiency (i.e., do not speak English well) in 2017 varies from 0.61% in Prince George County to 1.44% in Hopewell (most with LEP are Spanish speaking, except in Colonial Heights where most of the LEP residents speak Asian)

## 2020 Census Update

On August 12, 2021, the U.S. Census Bureau released the redistricting data to the states and the public. Below is a chart (Table 2-1) comparing 2010 and 2020 populations for TCAMPO member localities:

**Table 2-1: Population by Locality, 2010 and 2020**

Locality	2010	2020	Numeric change	% change
Chesterfield*	316,236	364,548	48,312	15.3%
Colonial Heights	17,411	18,170	759	4.4%
Dinwiddie	28,001	27,947	-54	-0.2%
Hopewell	22,591	23,033	442	2.0%
Petersburg	32,420	33,458	1,038	3.2%
Prince George	35,725	43,010	7,285	20.4%
*Total Chesterfield County population, source ConnectRVA 2045				

## Employment

In 2017 there were 8,306 retail employees and 72,371 non-retail employees in the Tri-Cities Area, for a total of 80,677. Approximately 84,000 employees are expected in 2045, an increase of 4.1%.

The Crater PDC also annually adopts its Comprehensive Economic Development Strategy (CEDS) reports. The [2021 CEDS report](#) is on the Crater PDC website. Transportation projects included in its 2021-22 Project Priority List include:

- I-85/I-95 Interchange Improvements
- Improvements to Existing Rt 460

The Virginia Employment Commission has developed [Community Profiles](#) for each of the localities in the Tri-Cities Area.

Of the 30 largest major employers listed in the Crater PDC 2021 CEDS Report, 27 are in the Tri-Cities Area. The chart from the CEDS Report is below (Table 2-2):

**Table 2-2: Crater District 30 Largest Employers**

**Table 1  
Crater District – 30 Largest Employers**

<b>Employer</b>	<b>Industry</b>
U. S. Department of Defense	Government
Wal-Mart	Distribution/Retail
County of Prince George	Government
Dominion Energy	Utilities
Central State Hospital	Government/Behavioral Health
Boar’s Head Provisions Co.	Food Processing
Integrity Staffing Solutions	Employment/Recruitment
Greensville Correctional Center	Government/Corrections
AdvanSix, Inc.	Manufacturing
City of Petersburg	Government
City of Petersburg School Board	Government
Hopewell City School Board	Government
Dinwiddie County School Board	Government
HCA Virginia Health System	Health Care
Food Lion	Retail and Distribution
Good Neighbor Holdings, LLC	Disability Services & Support
Colonial Heights School Board	Government
Cantu Services Inc	Food Service
Delhaize America Distribution Center	Distribution
US Department of Justice	Government/Corrections
Virginia Department of Transportation	Government
Amazon Fulfillment Service Inc.	Distribution
City of Hopewell	Government
Perdue Products	Food Processing
Bon Secours Southside Regional Medical Ctr.	Health Care
Gerdau	Manufacturing
Greensville County School Board	Government
DuPont Specialty Products USA, LLC	Manufacturing
Amsted Rail Company Inc	Manufacturing
Sussex I Correctional Center	Government/Corrections

Source: Virginia Employment Commission, “Quarterly Census of Employment & Wages”, 2<sup>nd</sup> Quarter (April-June) 2020

**Virginia State University**

Virginia State University (VSU or Virginia State) is a public historically black land-grant university in Ettrick, Virginia. Founded on March 6, 1882, Virginia State developed as the United States’ first fully state-supported four-year institution of higher learning for black Americans. Virginia State University has 4,700 students and 300 academic staff. It is located in the Ettrick portion of Chesterfield and is bordered by the western City Line of the City of Colonial Heights to the east and the Appomattox River and City of Petersburg to the south.

### Regional Logistics Assets/Distribution Centers

Due to its proximity to being at the junction of major shipping routes and I-95 and I-85, the Tri-Cities Area is home to many regional logistical assets/distribution centers, including:

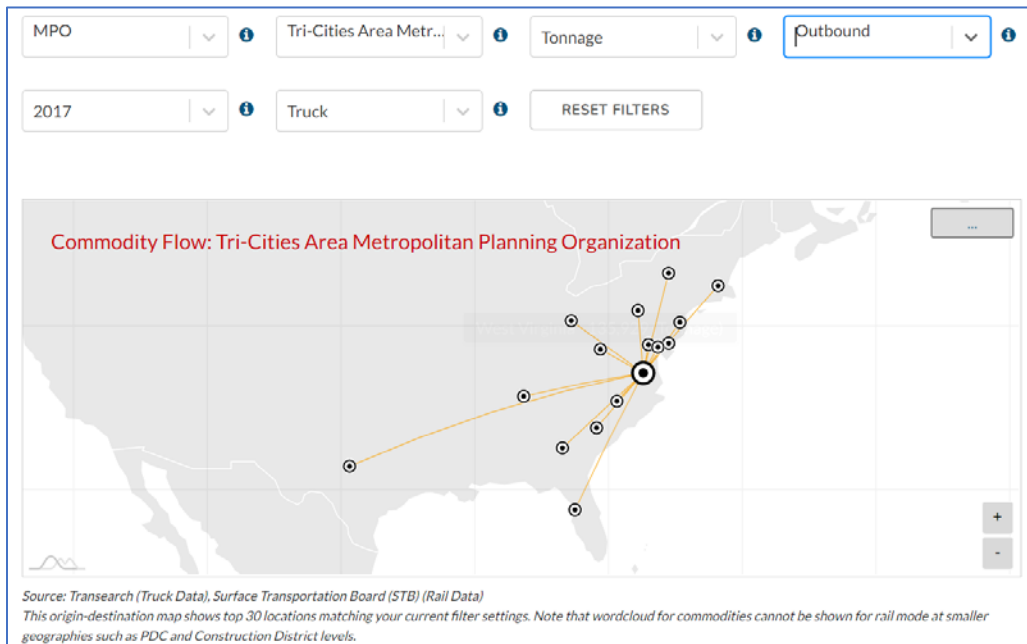
- Aldi
- Amazon Fulfillment Center RIC 1
- Amazon Fulfillment Center RIC 2
- Ashland Chemical
- Boar's Head 1
- Campfrio Food Group America
- Church & Dwight
- Emerson Ecologics
- Food Lion Distribution Center
- Gerdau Ameristeel
- Glaxo SmithKline
- Goya Foods
- Hillphoenix
- Mazda
- Medline
- Moss Motors
- Niagara Bottling, LLC
- Perdue Farms, Inc
- Rolls-Royce
- Sabra Dipping LLC
- Walmart Distribution Center

A map of the regional logistical assets/distribution centers in the entire Richmond Urban Area is in Technical Appendix E.

### **Freight**

[VTrans Freight Element](#) has a wealth of freight data and analyses. For example, below is a chart showing the truck freight tonnage leaving the Tri-Cities area.

Figure 2-2: Outbound Flows



The most common outbound commodities are below:

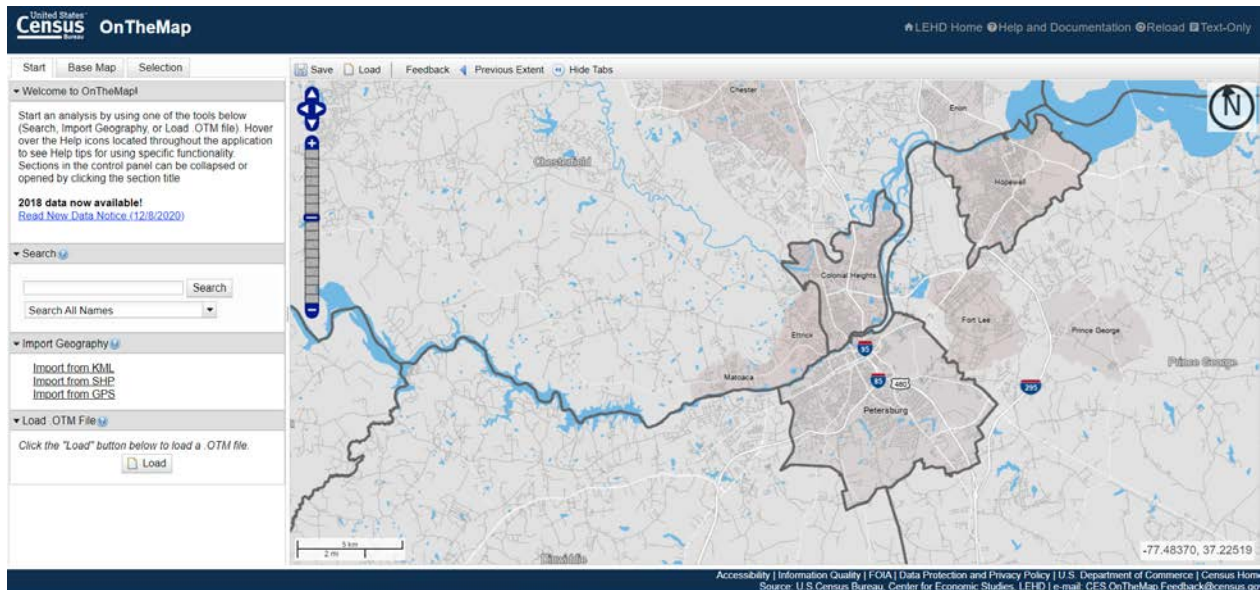
Figure 2-3: Outbound Commodities



## Commuting Patterns

The Census Bureau has a tool called "[OnTheMap](#)". A screenshot is below (Figure 2-4):

Figure 2-4: OnTheMap



OnTheMap allows users to see commuting patterns between localities and census tracts. The Longitudinal Employer-Household Dynamics (LEHD) program is part of the Center for Economic Studies at the U.S. Census Bureau. The LEHD program produces new, cost effective, public-use information combining federal, state and Census Bureau data on employers and employees under the Local Employment Dynamics (LED) Partnership. Under the LED Partnership, states agree to share Unemployment Insurance earnings data and the Quarterly Census of Employment and Wages (QCEW) data with the Census Bureau.

Based on a review of the locality commuting patterns, no one locality appears to have a true “downtown”, that is, no locality in the Tri-Cities Area (except Chesterfield, which is suburban) draws much more workers from itself and other localities than sends workers to other localities. Below is the inflow/outflow chart (Table 2-3) with all of the Tri-Cities Area localities:

**Table 2-3: Commuting Patterns (inflow/outflow)**

Locality	enter from outside	live & work in locality	leave locality
Chesterfield (all)	85,336	54,289	111,930
Colonial Heights	8,589	1,131	7,318
Dinwiddie (all)	5,639	2,133	11,300
Hopewell	6,706	1,372	8,879
Petersburg	10,958	2,345	12,489
Prince George (all)	8,276	2,169	12,085

Technical Appendix M has the inflow/outflow diagrams.

## Tourism

The Tri-Cities MPO serves the southern part of the Richmond Urban Area. Because of its role in American history, natural resources, and location there is significant opportunity for the Transportation System to enhance travel and tourism. Projects intended to enhance Travel and Tourism include:

- Building the Appomattox River Trail along the floodplain of the Appomattox River on both sides of the river (See the Bicycle and Pedestrian Map, Figure 3-6);
- Building the Fall Line Trail and connecting it to the Appomattox River Trails;
- Development of the East Coast Greenway, which connects Maine to Florida;
- Open a visitors center for the Petersburg National Battlefield in downtown Petersburg;
- Providing trolley service to the Petersburg National Battlefield and other historic sites;
- The National Park Service would like to improve bicycle and pedestrian connectivity between the community and historically significant Battlefield sites;
- Improve wayfinding signage in the MPO service area;
- Develop public access to the Museum Enclave at Fort Lee;
- Establish a Bike Share program; and
- Connect the Appomattox River Trail, through Hopewell, to the Virginia Capital Trail. The Lower Appomattox River Trail Study (partially funded by TCAMPO) found that the Benjamin Harrison Bridge is a major barrier to that connection.

Petersburg Area Regional Tourism (PART) is housed in the Crater PDC offices, and coordinates with local governmental and private groups in developing tourism in the area.

## Chapter 3 – The Transportation System

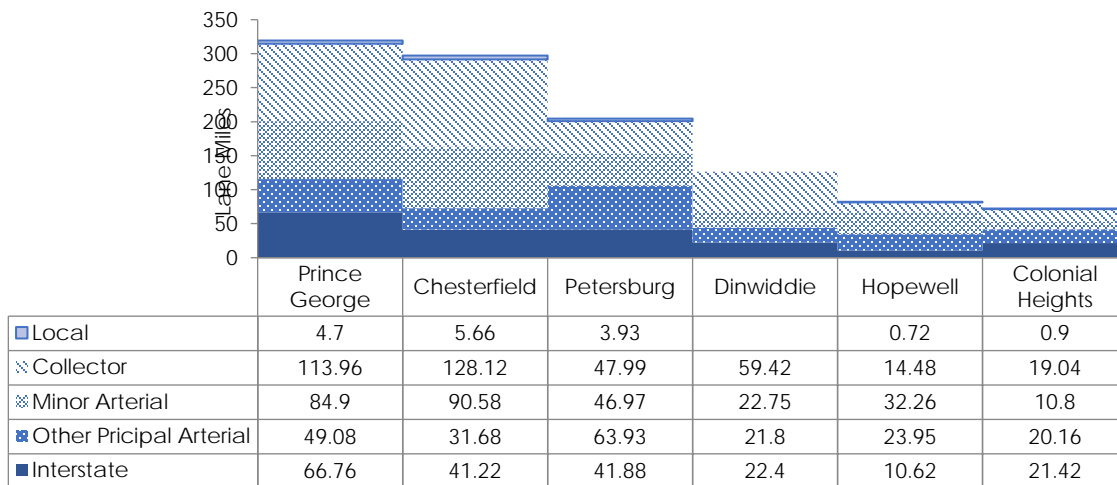
Section 3 describes the transportation system to give context for developing the elements of the transportation plan.

### The Highway System

The Tri-Cities Area MPO highway system includes about 1330 miles of Interstates, Principal Arterials, Minor Arterials, Collectors and Local Roads. The Interstate System is defined by statute and the other systems are defined based upon the tradeoff between mobility and accessibility. Interstates and other freeways provide high mobility by limiting access to adjacent property. Local roads combine poor mobility with excellent access to adjacent property. A completed discussion of roadway functional classification may be found at the [FHWA Functional Classification website](#) and at [VDOT's Functional Classification Guide](#).

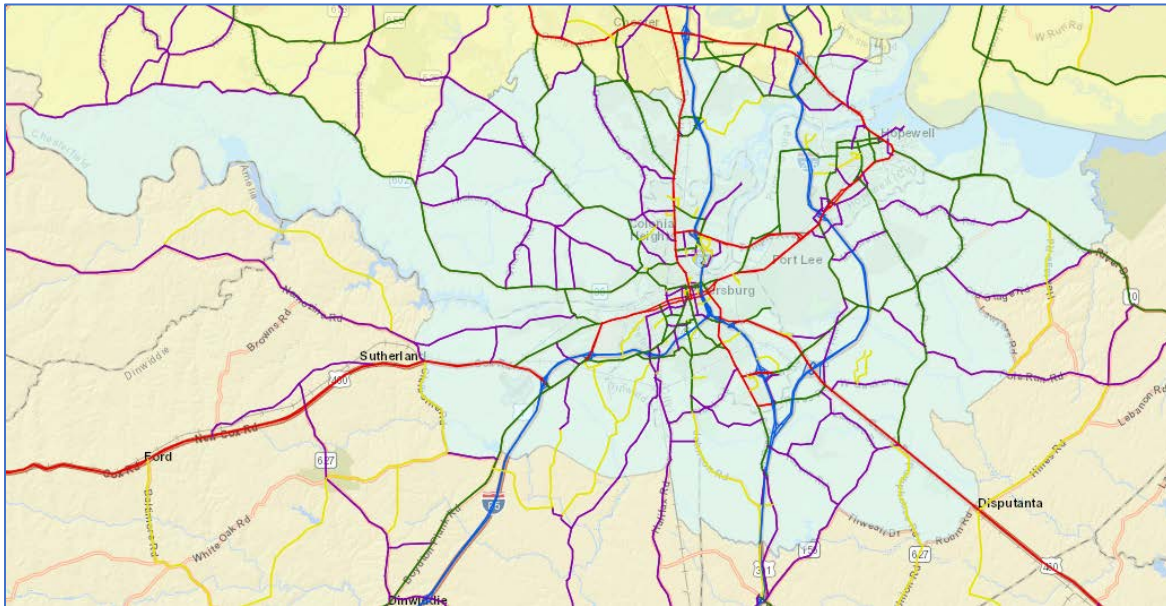
Below is a chart (Figure 3-1) showing the highway system by system by functional classification and by jurisdiction (as of the 2014 update).

**Figure 3-1: Tri-Cities Area Highway System Mileage**

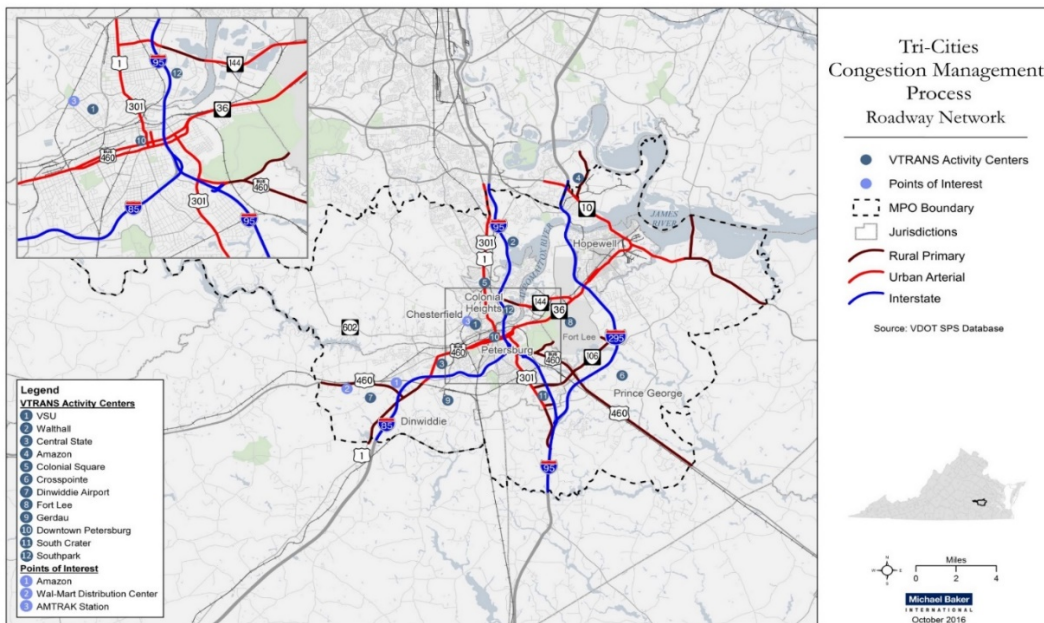


Below is the functional class map (Figure 3-2):

**Figure 3-2: Functional Class**



**Figure 3-3: The Highway System with Points of Interest**



Federal regulations require MPOs to set targets regarding the quality of the pavement, bridges, and system performance. More details are provided in Chapter 6. There are 345 total bridges and 96 major culverts in the Tri-Cities area. Below are the current bridge and culvert conditions in the Tri-Cities Area table (Table 3-1 and map Figure 3-4).

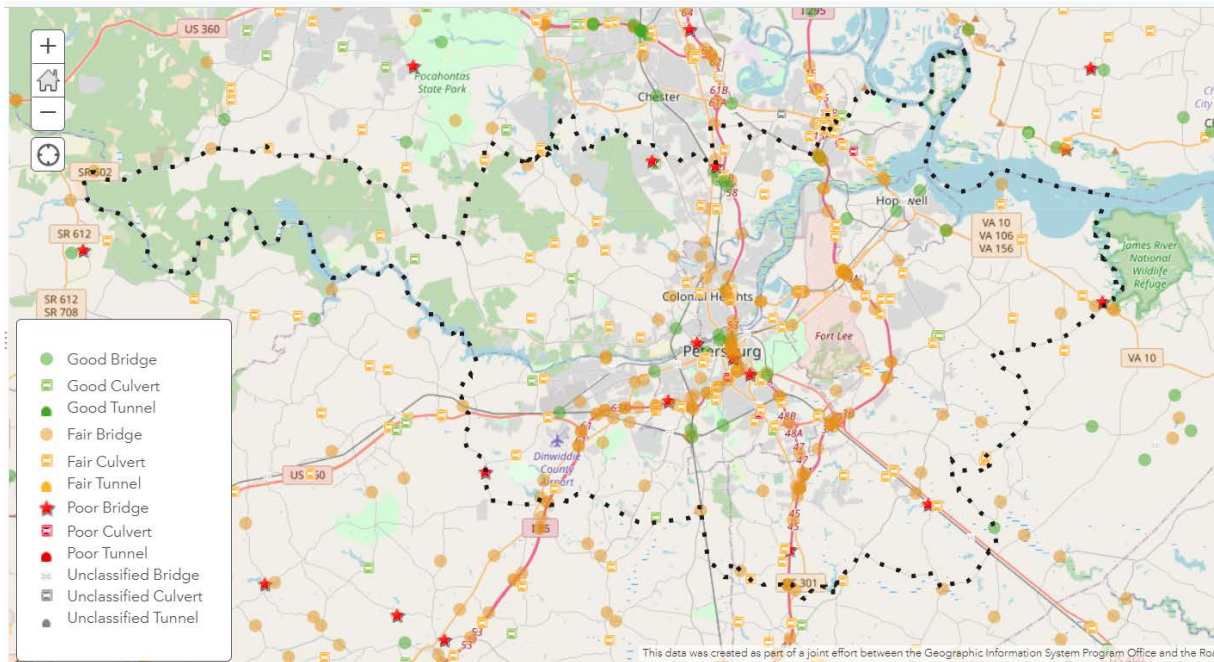
Table 3-1: TCAMPO Bridges and Culverts

TCAMPO Bridges by Locality and Condition (as of 2020)

	Bridges				Culverts		
	Poor	Fair	Good	Unclassified	Poor	Fair	Good
Chesterfield	2	31	17	2	3	26	4
Interstate	0	12	9	0	0	6	0
Other	2	19	8	2	3	20	4
Colonial Heights	0	26	1	2	0	3	0
Interstate	0	16	0	0	0	1	0
City Street	0	10	1	2	0	2	0
Dinwiddie	1	37	1	1	0	4	3
Interstate	0	18	0	0	0	2	0
Other	1	19	1	1	0	2	3
Hopewell	0	14	3	1	0	1	0
City Street	0	14	3	1	0	0	0
Petersburg	4	95	12	8	2	10	2
Interstate	0	66	0	0	0	0	0
City Street	4	29	12	8	2	10	2
Prince George	4	75	2	2	0	27	2
Interstate	2	35	0	0	0	6	0
Other	2	40	2	2	0	21	2

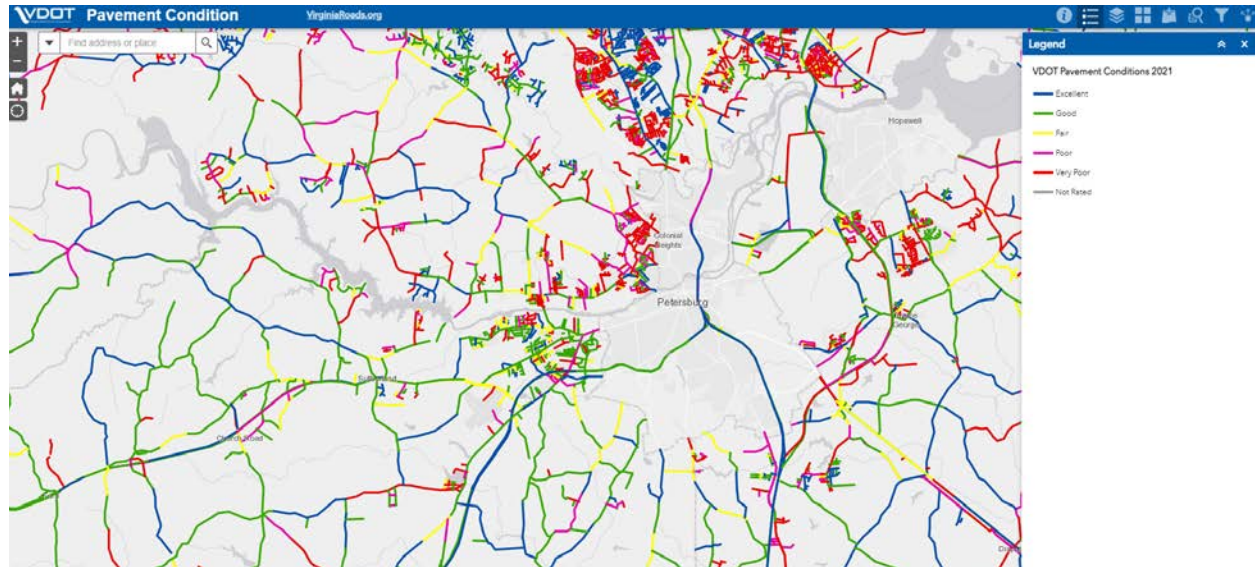
Source: Pathways for Planning; Structures Data

Figure 3-4: Bridges and Culverts by Condition



Below is a map of the current pavement conditions in 2021 in the Tri-Cities Area (Figure 3-5).

**Figure 3-5: Pavement Condition in 2021**



TCAMPO also has adopted a [Congestion Management Process](#) in 2016 (which is updated every 10 years). The most recent congestion data was used for *Plan2045* and our performance-based planning and programming system.

## Bicycle and Pedestrian

Sidewalks and bikeways allow users to travel by a mode other than the automobile, provide recreational opportunities and access to open spaces (Figure 3-6).

Localities in the Tri-Cities Area updated aspects of the 2003 regional bikeway plan:

- The City of Petersburg (with technical assistance by SportsBackers and the Petersburg Bike Walk Coalition (PBWC)) updated their bike/ped network plan in 2021 as part of the [Transportation Plan](#) chapter of their comprehensive plan update.
- The City of Colonial Heights included a [Multi-Purpose Trail Plan](#) in their Comprehensive Plan (adopted 2015).
- The City of Hopewell adopted an [Active Connections](#) bike lanes plan, with [some of the sections underway](#).
- Chesterfield County adopted its [Bikeways & Trails Plan](#) in 2015 as part of its comprehensive plan update with its implementing ordinance in 2016, and has a [Trail System](#) website.

Major Trail developments include:

- The [Appomattox River Trail](#), on both sides of the Appomattox River in Chesterfield, Dinwiddie, Petersburg, Colonial Heights, Prince George, and Hopewell; and along some of its roads. Many sections of this trail have been built, with more under development. [FOLAR](#) has a website devoted to the planning, development, and use of the trail. They recently published a [2020 Ridership Report](#).
- The [Fall Line Trail](#) (formerly known as the Ashland to Petersburg Trail), connecting Petersburg, VSU, Chesterfield County, Colonial Heights, Richmond, Henrico County, Hanover County, and Ashland. Sections of this trail recently began construction. TCAMPO allocated Congestion Mitigation and Air Quality (CMAQ) funds for the sections from River Road to Westover Street and at the Patton Park trailhead, and the TCAMPO secured a \$2 million US Senate earmark and has applied and is securing other fund sources for the sections from Patton Park in Petersburg across the Appomattox River through VSU to River Road then along the old railroad bed to Chester. Sports Backers has a [Fall Line Trail](#) website.
- The *Lower Appomattox River Trail to Capital Trail Study*, which was funded by VDOT and TCAMPO and was completed in 2018. The Plan's [Story Map](#) and [Technical Report](#) are currently on our webpage.

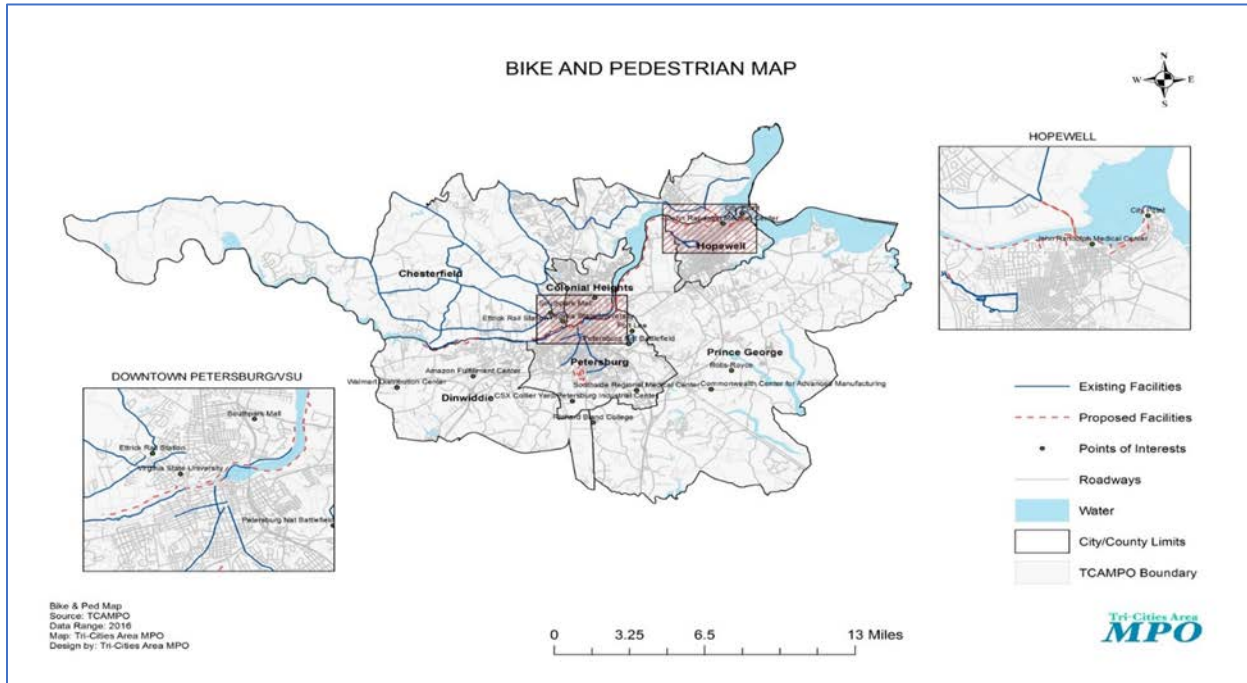
On page 2 of the Technical Report it notes:

- While various alternatives were considered as part of this planning process, this study recommends connecting the two trails using a conventional bus/van shuttle service or a bicycle/pedestrian ferry. These options are recommended because they are financially feasible in the short-term and have the potential to provide a near-immediate benefit for the region.
- In addition, it is strongly recommended that the Benjamin Harrison Bridge, when replaced, include a shared-use path like that found on the Judith Stewart Dresser Memorial Bridge, which carries Route 5 and the Virginia Capital Trail across the Chickahominy River. Stakeholders and members of the public reiterated this need throughout the planning process.

It should also be noted that Prince George County received a SMART SCALE grant for a shuttle to provide a short-term connection, but it has not yet begun service.

In 2021, the MPO applied for a RAISE grant to develop a region-wide plan to integrate bikeway and pedestrian plans with transit. Linking bicycling, transit and walkability improves the quality of life by providing safe, convenient and transportation facilities and recreational alternatives. Since the MPO was not successful in their RAISE application, the MPO plans on starting to conduct this plan in the FY23 Unified Planning Work Program (UPWP).

**Figure 3-6: Proposed Bicycle and Pedestrian Facilities**



Chapter 7 shows the goals, objectives, and policies adopted by the MPO in *Plan2045*. The MPO is continuing to carry out these goals, objectives, and policies.

### Transit

The Petersburg Area Transit Authority provides fixed route and demand response transit service from the Multi-Modal Station at 110 E. Washington Street in Petersburg. This facility is a hub and transfer facility for PAT, Greater Richmond Transit System (GRTC), and Greyhound Intercity Bus Lines.

**Figure 3-7: Petersburg Multi-Modal Station**



According to the National Transit Database (NTD) PAT serves a seven square mile area and 72,422 people. Figure 3-8 shows PAT's fixed routes. Ridership dropped dramatically from the COVID-19 pandemic, but the ridership has been rebounding.

In 2019, PAT operated twelve fixed route buses and six demand response vehicles. In 2019, PAT operated 596,052 Annual Vehicle Revenue Miles (VRM) and 56,662 Annual Vehicle Revenue Hours (VRH). Approximately 70 percent of the operating expenses came from fares and local funding; approximately 85 percent of capital funding came from federal and state sources.

The average age of fixed route vehicles was 6.0 years (this is within FTA guidelines), and the average age of the demand response vehicles was 4.2 years (also with FTA guidelines). PAT uses these vehicles to operate thirteen fixed routes for twelve hours each weekday.

In 2016, PAT purchased three classic trolley buses as part of the Petersburg National Battlefield Trolley Service to support of Travel and Tourism.

The City of Petersburg approved the [Transit Development Plan](#) (TDP) in February 2021 and the Transit Strategic Plan (TSP) in December 2021.

**Figure 3-8: PAT Transit Routes (from 2021 TSP)**

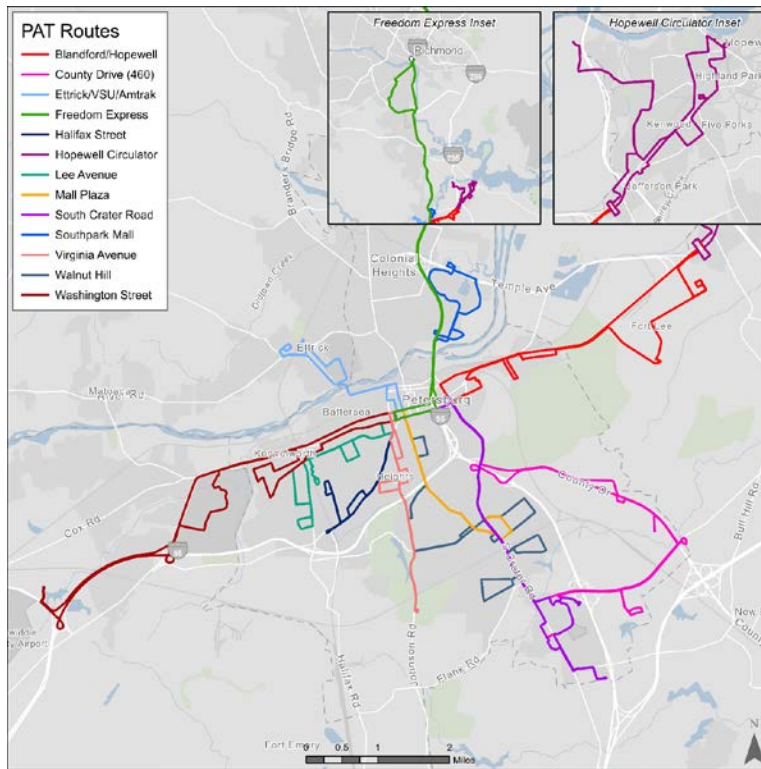


Table 3-2 shows fixed route ridership (unlinked trips) from 2013 to 2019 (the last year of available data in the National Transit Database). Average ridership is about 448,000 riders per year. Ridership has varied from year to year and fell in 2020 from the COVID pandemic.

**Table 3-2: Ridership**

Service	2013	2014	2015	2016	2017	2018	2019	Average
Fixed Route	579,156	416,269	399,117	487,768	521,693	332,310	400,443	448,108
Demand Responsive	6,675	6,266	6,403	7,596	10,311	10,420	9,286	8,137

Source: NTD, 2013-2019

Although the average age of the fixed route fleet is within FTA guidelines, many vehicles are above the preferred mileage levels. Also, nine vehicles are approaching replacement age (Mason, 2017). PAT’s goal is to replace four buses per year. A routine and maintenance schedule will improve PAT’s efficiency. PAT has also identified a significant need for driver training because many drivers have little or no transit experience before coming to PAT (Charles Koonce, 2017).

### PAT Specialized Paratransit (Demand Responsive) Service

Petersburg Area Transit (PAT) offers the following Specialized Paratransit Service Programs:

- **ADA Paratransit Service:** This service is for Senior Citizens, Medicare card holders and Persons with Disabilities (permanent or temporary) living within the city limits of Petersburg, Colonial Heights, or Hopewell, or ¾ mile of the service areas. The paratransit service operates wheelchair equipped vans providing curb to curb (door to door upon request) service for ADA qualified passengers.
- **For 65 Years Old Paratransit Service:** This service is available for persons 65 years old or older living in the City of Petersburg, in the City of Colonial Heights, and the City of Hopewell. Patrons 60 years of age and over may also continue to ride PAT local, fixed route buses for a 1/2 fare (\$.85 cents).

The Cost of Specialized Transit is \$1.75 per one-way trip.

Table 3-2 also shows the PAT demand response ridership from 2013 to 2019. Average ridership is approximately 8,100 riders per year. Ridership is higher overall than in 2013, except with the COVID-19 pandemic.

### GRTC Route 3B

GRTC, in partnership with Chesterfield County and DRPT, began local bus service on Route 1 from Falling Creek to John Tyler Community College in [March 2020](#). This new service is funded through a two-year demonstration grant provided by DRPT (80% of cost) and matched with a local 20% contribution from Chesterfield County. [Route 3B](#) connects



## DRPT Transit Equity and Modernization Study

The Virginia Transit Equity and Modernization Study, led by the Virginia Department of Rail and Public Transportation (DRPT), is aimed at identifying opportunities to forward equitable transit within the Commonwealth. There has been a renewed focus in recent years on the advancement of transit equity, accessibility, and emerging technologies. The study team will explore a wide variety of topics and engage heavily with the public to create a proactive plan for equitable advancement and modernization of transit in the Commonwealth.

For more information about the study, there is a study website: [Transit Equity and Modernization Study](#).

## Intercity Bus

Two providers serve intercity bus passengers. GTRC Route 95x provides four round trips daily from Petersburg to Richmond. Route 95X (Figure 3-10) is an express route that connects downtown Petersburg to downtown Richmond. Greyhound is a private provider serving the continental United States.

**Figure 3-10: GRTC Route 95X to Richmond**



## New Bus Route from Emporia to Petersburg

Petersburg Area Transit was recently successful in securing a TRIPS grant from DRPT to provide service from Emporia to Petersburg.

## Ridesharing Services

The Tri-Cities Area is working with RideFinders to explore alternatives for the providing mobility management services. Mobility management is a strategic approach to transportation and customer service. The mobility manager works with public and private agencies to organize a network of available transportation services and share this information with customers. The customer benefits by from 'one stop shopping' for mobility options, trip prices, and help in choosing the best travel options.

Ridefinders, a not for profit affiliated with the Greater Richmond Transit Company (GTRC), provides ridesharing services in the Tri-Cities MPO. Ridefinders' goal is to make our transportation system more effective by moving more people in fewer vehicles. To accomplish this goal, Ridefinders:

- Helps establish carpools,
- vanpools,
- transit services, and
- Telecommuting programs.

One initiative underway is providing ridesharing service to the Regional Logistics Assets in the Richmond MSA (map in Technical Appendix E).

## For Hire (Taxi) Service

Taxicab and for hire services give more flexibility than is offered by transit services to people who cannot or do not wish to use a personal vehicle. These services charge a premium price for this flexibility. The market for "for hire" vehicles has changed rapidly with the advent of ride hailing services such as Uber and Lyft. Table 3-3, from the 2014 Human Services Mobility Plan lists the available taxicab service in the MPO.

**Table 3-3: Private Transportation Providers**

Location	Company	Telephone
<b>Chester</b>	Chester Taxi	(804) 536-3546
<b>Chesterfield, Hanover, Henrico and Richmond</b>	Napoleon Taxi <i>Offers a 20% discount to disabled, elderly, and vision impaired</i>	(804) 354-8294
<b>Colonial Heights</b>	Boulevard Cab Co	(804)732-3636
<b>Hopewell</b>	Marshall Cab LLC	(804) 458-3325
<b>Petersburg</b>	AAA Taxi Co	(804) 862-8111
	A Rainbow Taxi Co	(804) 862-1108
	Metro Cab Co.	(804) 861-2445
<b>Richmond</b>	At Your Service	(804) 423-9200
	J&M Transportation Services, LLS	(804) 737-2693 or (804) 878-5020

Location	Company	Telephone
	Junnie Ray	(804) 326-6414
	Forward Fleet	(804) 426-4313
	Saleh Medical Transportation, Inc.	(804) 334-9511
	Sam Transportation	(804) 715-9242
	Seasonal Transport, LLC	(804) 303-9591
<b>Richmond</b>	World Star Cab	(804) 393-4432
<b>Richmond, Chesterfield, Chester and Henrico</b>	Big Ben Taxi Cab	(804) 986-6667
<b>Richmond, Henrico, Hanover</b>	Richmond Taxicab <i>Wheelchair Accessible</i>	(804) 300-9900
<b>Western Henrico, Goochland, Powhatan, Louisa, Amelia</b>	West End Cab(804) 393-4432	(804) 833-1234

## Human Service Transportation

Human services transportation planning is covered under FTA’s Section 5310 guidance. The [Richmond-Tri-Cities Coordinated Human Services Mobility Plan](#) (2014) identifies the transportation needs of individuals with disabilities, older adults, and people with low incomes; provides strategies for meeting those needs; and prioritizes services for implementation. There are four plan elements:

1. Assessment of available services;
2. Assessment of the transportation needs of individuals with disabilities and older adults;
3. Strategies,
  - a. activities, and/or projects to address the gaps between services and needs,
  - b. identification of opportunities to more efficiently deliver service; and
4. Implementation Priorities.

The [2014 Coordinated Human Services Mobility Plan](#) is incorporated by the Tri-Cities MPO by reference. The 2014 Coordinated Human Services Transportation Plan is a cooperative effort of The Tri-Cities MPO, the Richmond Transportation Planning Organization and the DRPT. The study was launched in 2013 and the final report was issued in June of 2014 (KFH Group, 2014). The list of Human Services Transportation Providers is included in Technical Appendix F.

The Coordinated Human Services Mobility Plan identified the following strategies for meeting mobility needs:

1. Support and maintain existing coordinated human service/public transportation providers.
2. Increase the availability of demand/response and specialized transportation for seniors, people with disabilities, and people with lower incomes.
3. Find new funding partners to public transit/human service transportation.
4. Expand outreach and information on available transportation options in the region.
5. Improve programs providing travel training to customers, human service agency staff, medical facility personnel, and others.
6. Improve coordination among public transit, private and human service transportation providers.
7. Provide targeted shuttle services to employment opportunities.
8. Use the Veteran's Transportation and Community Living Initiative Program to establish regular trips to the McGuire VAMC.
9. Provide more and more frequent public transportation services.
10. Improve built environment to enable access to available transportation options.
11. Expand access to taxis and private transportation operators.
12. Provide taxicab vouchers, travel training and bus buddies as potential solutions for the transportation dependent.
13. Provide flexible transportation options and more specialized transportation services or one-to-one services using volunteers (KFH Group, 2014).

## Passenger Rail

Amtrak provides passenger service at the Petersburg Station located off Route 36 (Chesterfield Avenue) in the historic Ettrick portion of Chesterfield County. In 2019 ridership at Ettrick was 29,286 boarding's and alightings. The Virginia Department of Rail and Public Transit (DRPT) estimates the Tri-Cities ridership will increase to approximately 98,000 passengers per year by the year 2025 with the addition of planned higher speed (79 to 125 mph) passenger rail services. Ten Amtrak trains stop each day at the Ettrick Station. These trains include service connecting to New York and Florida; Charlotte, NC and New York; and, Boston, MA and Norfolk, VA. Figure 3-11 shows the Petersburg Station<sup>1</sup>.

The MPO is well connected to the northeast corridor and less well connected to the Carolinas and Florida.

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<sup>1</sup> [http://www.railfanguides.us/va/petersburg/map1/index.htm#Map\\_](http://www.railfanguides.us/va/petersburg/map1/index.htm#Map_)

**Figure 3-11: Petersburg Amtrak Station in Ettrick, VA**



Average yearly ridership has been nearly 24,800 per year and has increased as service has increased. The rate of growth has been over 6% per year (NARP, 2016). The COVID-19 pandemic has reduced the demand in 2020, but it is expected to recover in 2021-2022.

The natural increase doubles ridership by 2020. However, ridership increases may depend upon service increases since trains were added to the route in between 2012 and 2013.

The recommended alignment for the Richmond to Raleigh High Speed Rail goes through Chesterfield County, Colonial Heights, Petersburg, and Dinwiddie County as shown in Figures 3-12 and 3-13 reproduced from the Southeast High Speed Rail Richmond, VA, to Raleigh Recommendation Report (NCDOT; VaDRPT, 2012).

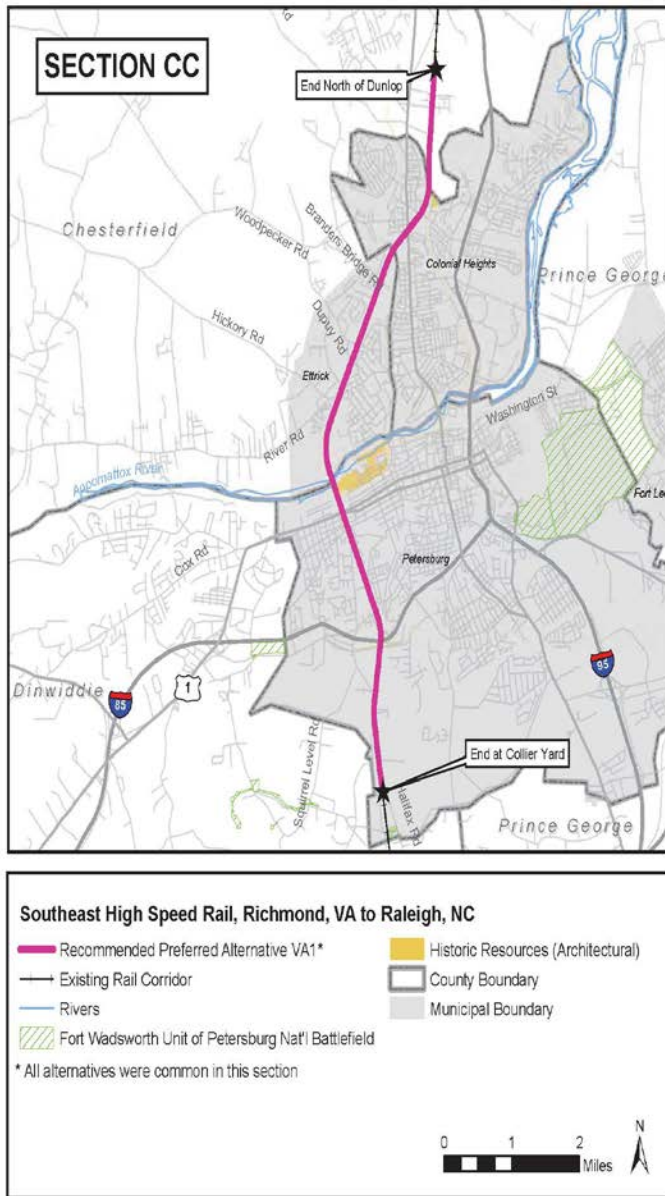
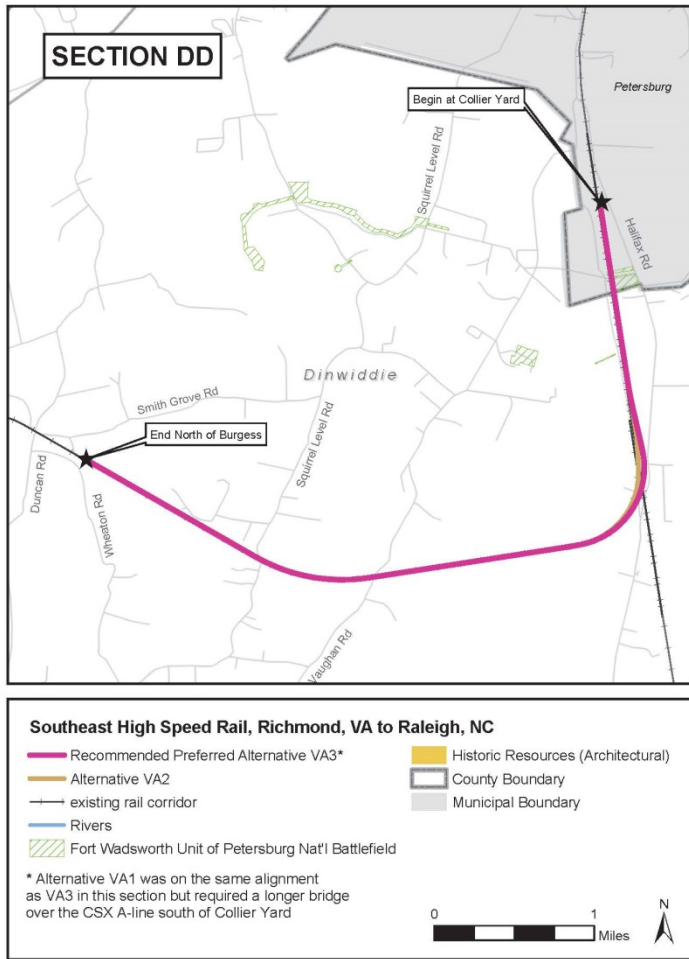


Figure 3-12: Proposed High Speed Rail Alignment in the MPO - North End



**Figure 3-13: Proposed high Speed Rail Alignment in the MPO - South End**

### Passenger Rail Station Environmental Study

In 2014, the MPO Policy Committee started an environmental assessment (NEPA) of sites for a new station to serve the Tri-Cities. The purpose of this study was to:

- identify possible station sites;
- identify environmental impacts of the sites; and
- Select a preferred station location.

The Federal Railroad Administration (FRA) was the lead federal agency and the Crater Planning Development Commission (on behalf of the Tri-Cities MPO), agreed to be a cooperating agency and manage the study (Environmental Assessment, or EA). The DPRT

and VDOT helped fund the study. Work began in August 2014 and a Study Working Group comprised of local, State and Federal agencies was created. The consultant conducted a public meeting in December of 2014 to explain the project purpose and need and the evaluation criteria for station sites. A second public meeting was held in September of 2015 to review preliminary findings regarding candidate station alternatives and to give the public an opportunity for the public to comment on recommendations to send to FRA.

In August 2015, the consultant provided a preliminary draft environmental assessment document to Study Working Group members for review and comment. Comments from agencies, local government and the public were collected, summarized, and included in the draft report. The consultant sent the draft EA report to FRA for review and site selection.

After additional public comments were received (and a TAC subcommittee conducted an extensive review of the Draft EA and public comments), **FRA terminated the environmental process by letter dated April 4, 2019.**

### Air Transportation

Two airports, the Richmond International Airport (RIC) and the Dinwiddie County Airport, serve the Tri-Cities MPO.

RIC (Figure 3-14) is seven miles east of Richmond and provides passenger, freight, and military facilities. In 2016, six passenger and three freight carriers served RIC. RIC also provides aviation facilities in support of U.S Army Reserve and Virginia Army National Guard Aviation Units.

RIC is 167 feet (50.9 m) above sea level and has three runways summarized in Table 3-4.

**Table 3-4: Richmond International Airport Runways**

Runway Direction <sup>2</sup>	Feet/Meters	Surface
16/34	9,003/2,744	Asphalt
2/20	6,607/2,014	Asphalt
7/26	6,326/1,623	Asphalt

In 2015 RIC served approximately 99,000 landings/takeoff operations (LTOs), 3.5 million passengers, 58,500 tons of freight and 945 tons of mail. Alightings dropped significantly during the COVID-19 pandemic, but is rebounding, particularly with leisure travel.

<sup>2</sup> The runway numbers indicate the direction of a landing airplane to the nearest 10 degrees. Thus runway 16 has a heading of 160°



**Figure 3-14: Richmond International Airport**

The Dinwiddie County Airport (Figure 3-15) is a General Aviation airport five miles southwest of Petersburg approximately 192 feet (58.5m) above sea level. It has two asphalt runways summarized in Table 3-5.

**Table 3-5: Dinwiddie County Airport Runways**

Runway Direction <sup>3</sup>	Feet/Meters	Surface
05/23	5,002/1,525	Asphalt
14/32	3,031/933	Asphalt



**Figure 3-15: Dinwiddie County Airport**

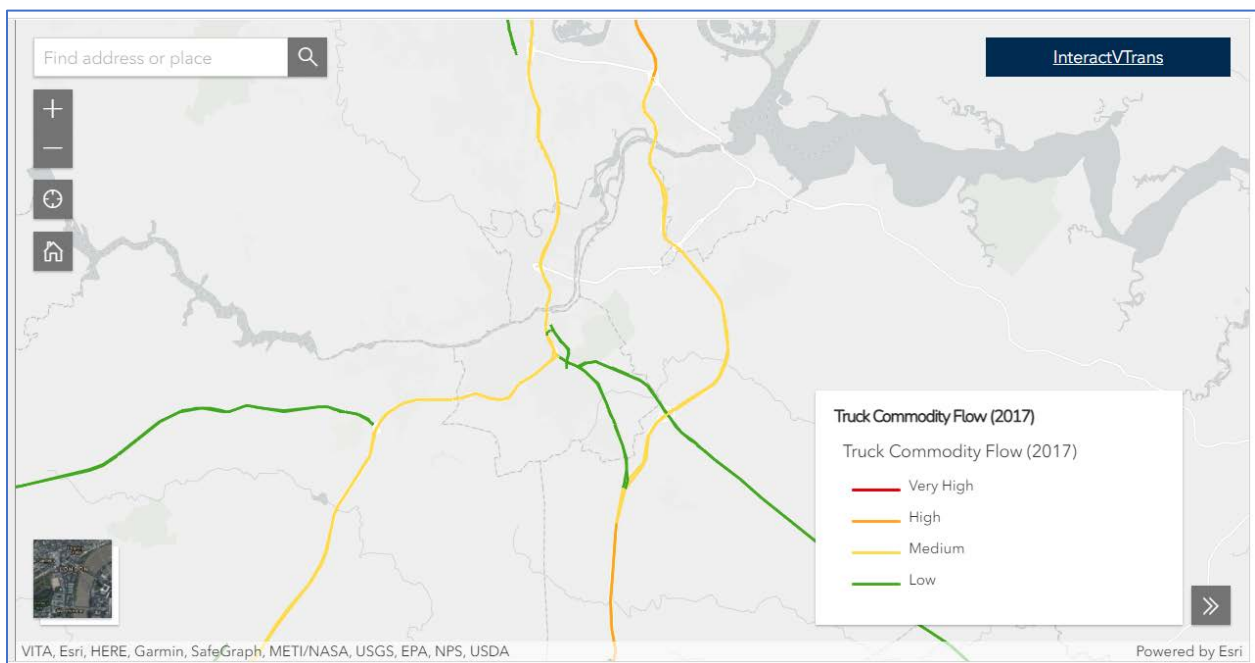
<sup>3</sup> The runway numbers show the direction of a landing airplane to the nearest 10 degrees. Thus runway 05 has a heading of 5°

## Freight

Freight is critical to the economy. Colonial Heights, Petersburg, and Hopewell exist, in part, because of freight movement in the seventeenth and eighteenth centuries.

Figure 3-15 shows heavy truck commodity flows in the Tri-Cities MPO. Figure 3-16 shows that freight is moving on I-85, I-95 and I-295; facilities intended to carry freight. However, around eighteen percent (18%) of vehicles on US 460 east are heavy trucks indicating a strong movement towards Norfolk. Also, about twelve percent (12%) of traffic on the two-lane Benjamin Harrison Bridge is heavy vehicles.

**Figure 3-16: Truck Commodity Flow**



The VTrans 2040 [Virginia Freight Element](#) (2017) presented the challenges facing goods movement in the Commonwealth now and in the future. Among the challenges faced by the freight system are:

- Virginia must find ways to preserve and improve the performance of its highways and railways, through the appropriate combination of additional capacity and utilization of existing capacity to accommodate passenger and freight movement.
- The trucking industry faces challenges associated with driver shortages, difficulty in meeting driver hour of service requirements, and adequate truck parking.
- Making sure that Virginia's freight rail system is modern and has sufficient capacity to meet demand is critical to maintaining a balanced transportation system.

- Maintaining and improving rail connections facilitates the movement of international shipping containers between the marine terminals and inland destinations and are critical to port accessibility.
- Continued investment in rail facilities, including short-line connections and terminals, can expand options for shippers and help shift freight to other modes.
- The Commonwealth must continue to exercise all available programs and leverage public/private partnership opportunities to meet the backlog of needs and growing freight demand.

### **The VTrans Update's Freight Element**

The [VTrans Freight Element](#) is a component of VTrans and serves as the Commonwealth's state freight plan in accordance with [49 U.S.C. 70202 FAST Act State Freight Plans](#). In addition to meeting federal requirements, the VTrans Freight Element serves the following purposes:

- Designation of critical urban and rural freight corridors under the National Highway Freight Program ([23 U.S.C. § 167](#))
- Identification of transportation needs that may directly or indirectly impact the flow of freight within and through the Commonwealth
- Development of a Freight Investment Plan listing the freight-beneficial projects supported by National Highway Freight Program (NHFP) funds
- Identification of policy recommendations to inform the VTrans Long-Term Needs and VTrans Strategic Actions
- Increase awareness of the identified needs so that they can be better reflected or considered as part of metropolitan planning processes
- Provide basis for future modifications to the [Policy for the Identification and Prioritization of the VTrans Mid-Term Needs](#)

The Freight Element includes 12 policy, 10 program, two technology, and 17 infrastructure-related recommendations which encompass actions to bolster coordination, increase funding, and focus priorities.

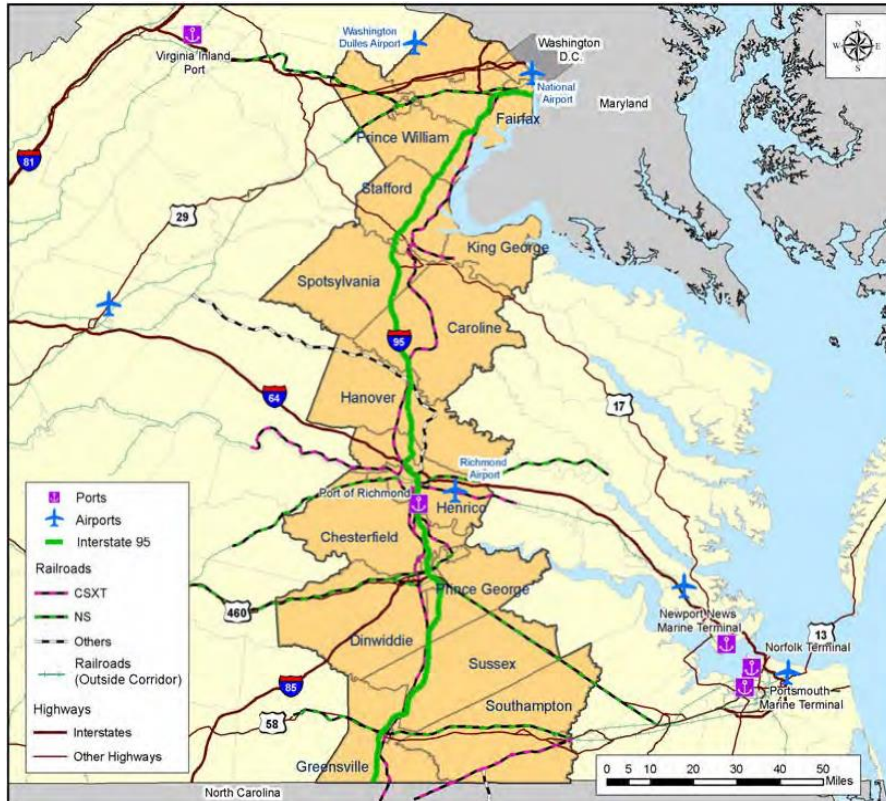
### **Key Freight Corridors (Corridors of Statewide Significance)**

The Washington to North Carolina Corridor and the Heartland Corridor cross one another in the Tri-Cities MPO. This intersection of Corridors gives the Port of Virginia access to the mid-Atlantic, the Southeast, and the Midwest.

#### ***The Washington to North Carolina (I-95) Corridor***

The Washington to North Carolina Corridor (Figure 3-17) is a critical link in the national freight system and connects producers, users, warehouses and ports along the east coast. Because of the diverse economies in the corridor about 54% of the freight in the corridor is passing through (Cambridge Systematics, 2014).

There is a shortage of truck parking along the I-95 and I-295 (Kimley Horn, 2015). The MPO has also identified a potential need for truck parking for oversize and overweight loads near the North Carolina state line because of differing regulations on the hours of movement of oversize/overweight vehicles in the Commonwealth and North Carolina (Edwards, 2017).



**Figure 3-17: Washington to NC Corridor (Cambridge Systematics, 2014)**

The Port of Richmond (Richmond Marine Terminal) is south of the City of Richmond on the James River on Deep Water Terminal Road (Figure 3-18). This facility is owned by the City of Richmond and leased to the Virginia Port Authority (VPA).

In 2009, the Richmond Area Metropolitan Planning Organization used CMAQ money to start barge service between the Port of Richmond and the Port of Virginia. The VPA has expanded it to a three-day per week service) and hopes to go to five days a week.

As volume increases, at the Port of Virginia, the opportunities to shift freight to barge increase. As volumes to the Port of Richmond increase, there should be more nearby jobs in logistics, transportation, and warehousing.



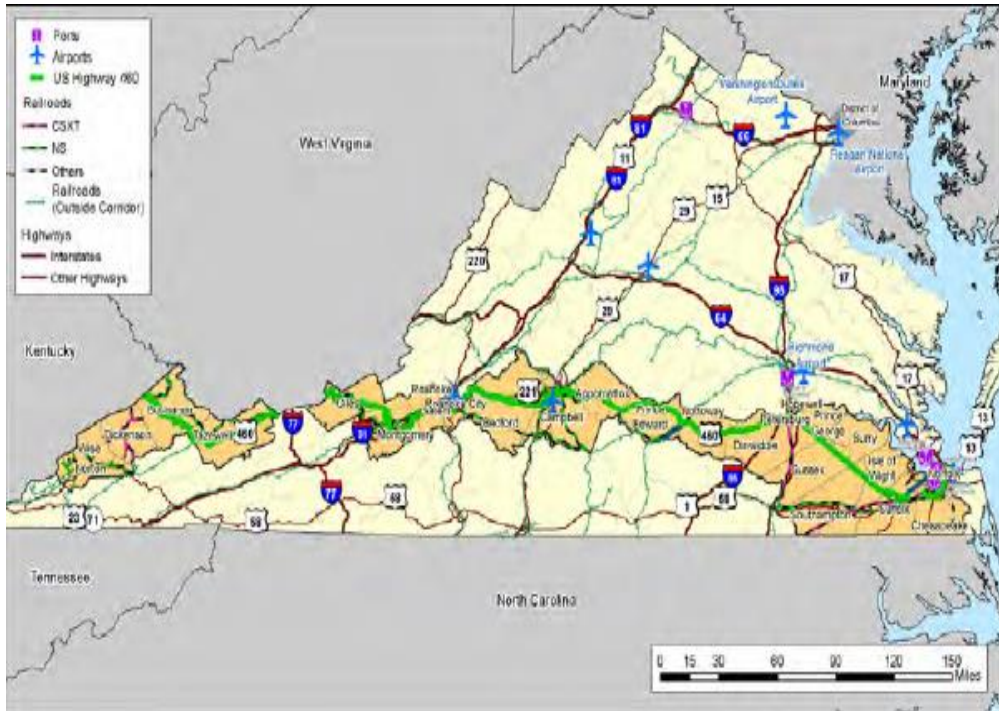
**Figure 3-18: Richmond Marine Terminal**

### ***The Heartland Corridor***

The Heartland (US 460) Corridor, shown in Figure 3-19, runs east to west across the Commonwealth and connects the Port of Virginia to the Midwest. Because the corridor serves as an international gateway about 71% of the freight in the corridor is in transit (passing through). The Heartland corridor crosses the Washington to North Carolina Corridor at Petersburg.

The Port of Virginia is the east end of the Heartland Corridor. The Port of Virginia is a key shipping gateway for the United States and is one in which exports exceed imports (Bureau of Transportation Statistics, 2017/2018).

[VDOT's Truck Parking Study](#) identified gaps along the Heartland corridor where there is no truck parking. There are gaps on US 460, without truck parking just east and west of the Tri-Cities MPO (Kimley Horn, 2015).



**Figure 3-19: Heartland Corridor (Cambridge Systematics, 2014)**

Although trucking dominates freight movement rail a more efficient way to carry long distance freight. Figure 3-20 shows rail travel times from the Port of Virginia to the mid-continent rail yards at Chicago, Kansas City, and Dallas.

In 2021, 63% of cargo at the Port of Virginia moved by truck, 33% by rail and 4% by barge (Port of Virginia, 2021). CSX and Norfolk Southern are improving their tracks to carry double-stack containers. Several yard facilities are in the MPO area as shown in Figures 3-20, 3-21, and 3-22.



Graphic Source: Port of Virginia

**Figure 3-20: Rail Distances from VA (Virginia Advantages: Distribution & Logistics, 2015)**

Figure 3-21 shows the Norfolk Southern Broad Street Yard on Route 36 in Petersburg.



**Figure 3-21: NS Broad Street Yard**

Figure 3-22 shows the Norfolk Southern Automobile Distribution facility off Wagner Road in Petersburg. The 40-acre secure site operates round the clock. It has capacity for sixty (60) rail cars and 1,780 automobile parking spaces (NS Automotive Group, 2008).



**Figure 3-22: NS Automobile Distribution Facility**

Figure 3-23 shows the CSX Collier Yard near I-85 south of Petersburg. The MPO has determined that intermodal freight and economic development can be improved by improving access to from Halifax Road to vacant property at the south end of the Collier

Yard. Additional improvements between I-85 Exit 65 Squirrel Level Road, and Wells Road and Collier Yard are also needed.



**Figure 3-23: CSX Collier Yard**

### **Safety and Security of the transportation system for motorized and non-motorized users**

The MPO has tried to assess security for common risks and in the context of our current sense of concern.

Our biggest security need is for safe secure truck parking in across the Commonwealth of Virginia and the MPO's service area. The need for truck parking was discussed in more detail under Freight.

Because of the events of the last decades, it seems prudent to assess risk of an attack on the transportation system. The Federal Bureau of Investigation defines terrorism as *the unlawful threat of or use of force of violence against people or property with the intention of coercing society or government* (Terrorism). The MPO analyzed terrorist incidents in the United States that occurred between 1982 and 2014 (Global Terrorism Database). The graphs from that analysis are shown in Technical Appendix G.

An attack on the Tri-Cities transportation network appears unlikely. However, Fort Lee is a potential target. Historically the Tri-Cities MPO has cooperated with Fort Lee's security efforts at the Sisisky and Mahone gates. ***The MPO will continue to collaborate with Fort Lee on force protection.***

## Future Technology Trends

This section of the Metropolitan Transportation Plan discusses some technologies that are changing transportation. We hope to identify for decision-makers things that could dramatically change the needs of the MPO during the life of the plan. Since the last update of the Metropolitan Transportation Plan at least four new technologies have begun to show up.

### Alternative Energy/Power Plants

The shift from internal combustion engines to electric powered vehicles is continuing. It began with the introduction of the hybrid vehicle. Historically, electric power plants have not lived up to their potential because battery technology was not viable. Recently several car makers (legacy and new) have begun introducing mass market electric vehicles. These manufacturers have plans to introduce more electrics (Renquist, 2017).

### Autonomous Vehicles

Autonomous vehicles are moving from design to reality. Within the past year auto-piloted personal and commercial vehicles have been successful implementation. Today there are competing opinions of what autonomous vehicles will bring. The only certainty is that autonomous vehicles will change the business model of personal transportation that has been in effect for the last century. In the twentieth century the government provided infrastructure and the user provided the vehicle. In developed countries this meant that one of a family's biggest expenses has been transportation. The automobile also affected every aspect of life from location to housing design to urban design (e.g., vehicle parking).

Table 3-6 shows some speculation about the effect of autonomous vehicles.

**Table 3-6: Possible Effects of Autonomous Vehicles**

	Possible Negative	Possible Benefit
<b>Economy</b>	The fall of Existing Industries	New Companies take their place
<b>Environment</b>	More emissions	Less emissions
<b>Jobs</b>	Fewer trucking and delivery jobs	Opportunities in new industries
<b>Personal Finances</b>	Cars will be more expensive	You be able to share a car with several people
<b>Transportation Finance</b>	Lower revenues from fuel tax. Need for new infrastructure	Phasing out older infrastructure
<b>Safety</b>	In the short term there may be more incidents	In the long-term incidents may decline

	Possible Negative	Possible Benefit
<b>Travel</b>	Short term more delay More vehicle miles of travel	Less delay over time Less vehicle miles of travel
<b>Urban Design</b>	We may need more roads	We may be able to convert parking to other land uses.

**Big Data**

The smartphone has changed the world. One of those ways is the tracking the devices as they move across the planning area. This improves our ability to change the way transportation demand is measured. Apps such as INRIX and Streetlight use smartphone data.

*Ride Hailing Services*

Ride hailing services (e.g., Uber or Lyft) have become popular. These services are Smartphone enabled car sharing services. They seem popular with business travelers and others willing to pay a premium for good service. Ride hailing services compete with taxicabs and line haul transit services. These services are weakly regulated now, and it is unclear how the market for them will change as regulators address public concerns.

*Shale Oil/Gas*

For years the United States has imported the oil needed to fuel its economy. However, US oil production has increased fifty percent (50%) since 2008. Within five years the United States may be energy independent (Yergin, 2013). Energy independence will stabilize energy costs across the economy and may make U.S. manufacturing more competitive (Zeihan, 2016). Like most technologies shale oil/gas has benefits and costs. Utility companies will benefit as they retire older coal fired plants and replace them with gas turbines that have lower maintenance needs, lower emissions and quicker start-up times. Natural gas can be piped directly to the power plant eliminating the need for rail lines, trains and crews.

*Unmanned Vehicles (Drones)*

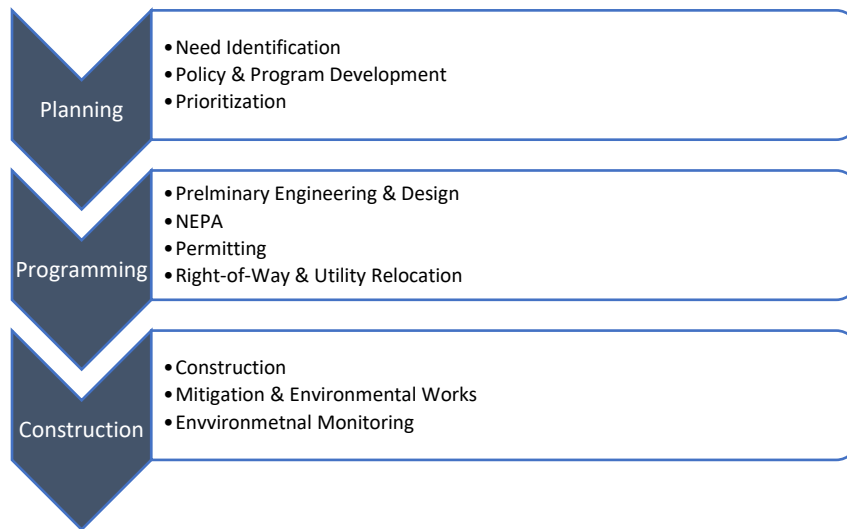
These are remotely controlled vehicles, usually aircraft. They are used for jobs that may not need a pilot, or jobs that require the ability to be onsite for extended periods. In transportation drones will fill four niches. First, they can help monitor and inspect infrastructure. Second, they can improve design and environmental data. Third, they can improve our ability to monitor system performance, and finally they may provide 'last mile service for parcel or freight delivery.

## Chapter 4 – Environmental Quality and Public Health

### Protect and Enhance the Environment

The lifetime of *Plan2045* is 23 years<sup>4</sup>. The recommendations in the plan are preliminary. Including a project in the Metropolitan Transportation Plan means that MPO supports the concept of the project. Environmental analysis is handled under the National Environmental Policy Act (NEPA) after a project is chosen for implementation. Figure 4-1 outlines the project development process.

**Figure 4-1: Project Development**



Aside from air quality, offsetting environmental impacts during the long-range planning is not required<sup>5</sup>. Although environmental analysis of the plan is not required, the MPO has asked the resource agencies to review and comment on the transportation plan. Interagency consultation gives resource agencies the opportunity to compare transportation plans with their resource plans, identify opportunities and, mitigation options, and with potential to restore and maintain environmental resources. The Tri-Cities MPO asked the resource agencies listed in Technical Appendix Q to review the draft Metropolitan Transportation Plan.

In addition to NEPA, Virginia’s State Environmental Review Process directs the project-by-project interagency review, study and identification of environmental concerns. Related requirements that apply at this stage include:

- public hearings,
- environmental permit-processing, and
- NEPA studies.

<sup>4</sup> By law the minimum lifespan is 20 years when the MPO adopts the plan.

<sup>5</sup>This is only required in nonattainment or maintenance areas and is handled using the Transportation Conformity Requirement of 93 CFR.

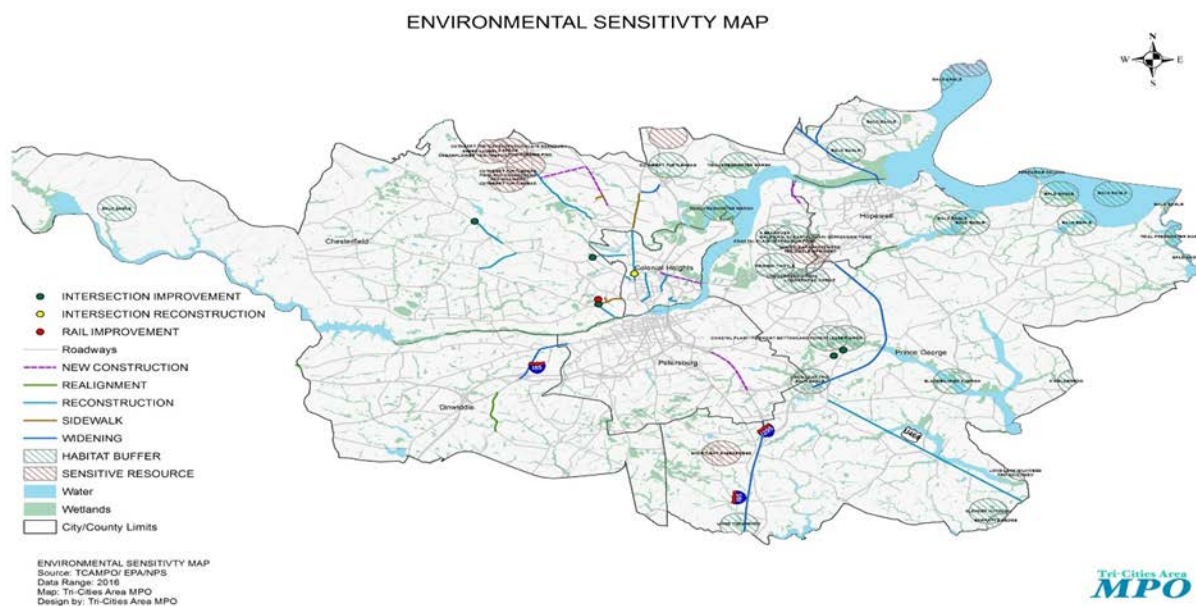
Often, a variety of environmental documentation, permit and mitigation needs are identified as environmental issues are considered and evaluated. Environmental concerns differ by project and location. As environmental studies are conducted and reviewed, mitigation plans are developed and committed to in the project documents. In the end the environmental commitments become part of the project specifications and contracts. Environmental management systems then are used to monitor and ensure compliance with the environmental mitigation commitments.

In order of preference environmental work includes:

1. Avoiding impacts by choosing another project or design;
2. Minimizing the impacts by adjusting the project’s footprint, employing special features or scheduling work to avoid certain timeframes; or
3. Mitigate the impacts by replacement or substitute environmental resources of equivalent or greater value.

Figure 4-2 is an environmental sensitivity map which illustrates each of the natural resources of concern for *Plan2045*. The maps give decision-makers, and residents, a picture of natural resources in the area. Technical Appendix H shows sensitive species and habitats and the VAWIS Search Report in relation to *Plan2045*.

**Figure 4-2: Environmental Sensitivity Map**



Technical Appendix I gives examples of avoidance, minimization and mitigation for each regulation that affects transportation projects. During NEPA each project will be studied to ensure the accuracy and completeness of the information.

## Promote energy conservation

The reasons to conserve energy are simple:

- money used to purchase fuel is not available for other purposes,
- The demand for energy contributes to the need to import energy,
- Wasted Energy Contributes to a large greenhouse gas footprint.

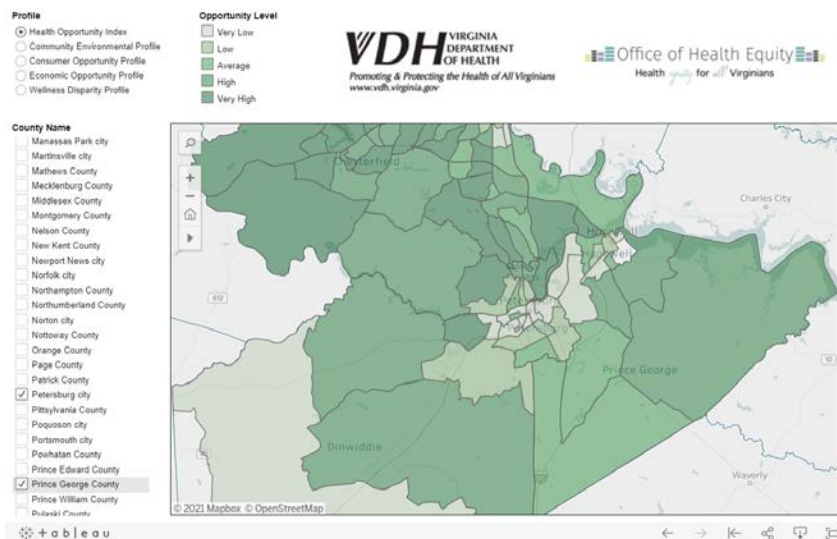
Transportation is the second largest energy user in the United States. Only the Electric Power Sector uses more energy than transportation. Despite advances in battery technology, the transportation sector depends upon liquid fuel. Because most transportation is fossil fuel based this means that transportation is a big oil user and a big contributor to greenhouse gas emissions.

## Transportation and Public Health

Transportation affects the public health, and transportation improvements could improve the health of communities. One measure is the VDH's [Health Opportunity Index](#). Most of the residents in the Tri-Cities Area are in a Very Low or Low Opportunity Level (Figure 4-3).

The Tri-Cities Area MPO/Crater PDC is a participating member of the Petersburg Healthy Options Program (a joint effort by Virginia Tech and the Crater Health District) and serves on the active transportation working group.

**Figure 4-3: Health Opportunity Level**



## Chapter 5 - Resiliency and Reliability

Plan 2045 recommends ways to improve the resiliency and reliability of the transportation system and reduce or mitigate stormwater impacts of surface transportation.

The Crater Planning District Commission has been involved in multi-jurisdictional hazard mitigation planning with PlanRVA for several years. The MPO has used information from this effort to shape its response to resiliency. Figures 5-1, 5-2 and 5-3 show the hazard identification and risk assessment (HIRA) from the Draft 2021 Regional Hazard Mitigation Plan (to be adopted in 2022). The risk assessment considers the likelihood of a hazard, regional mobility impact, and warning time to estimate the rankings in the right-hand column.

**Figure 5-1: Hazard Identification, Risk Assessment (HIRA) and Vulnerability Analysis**

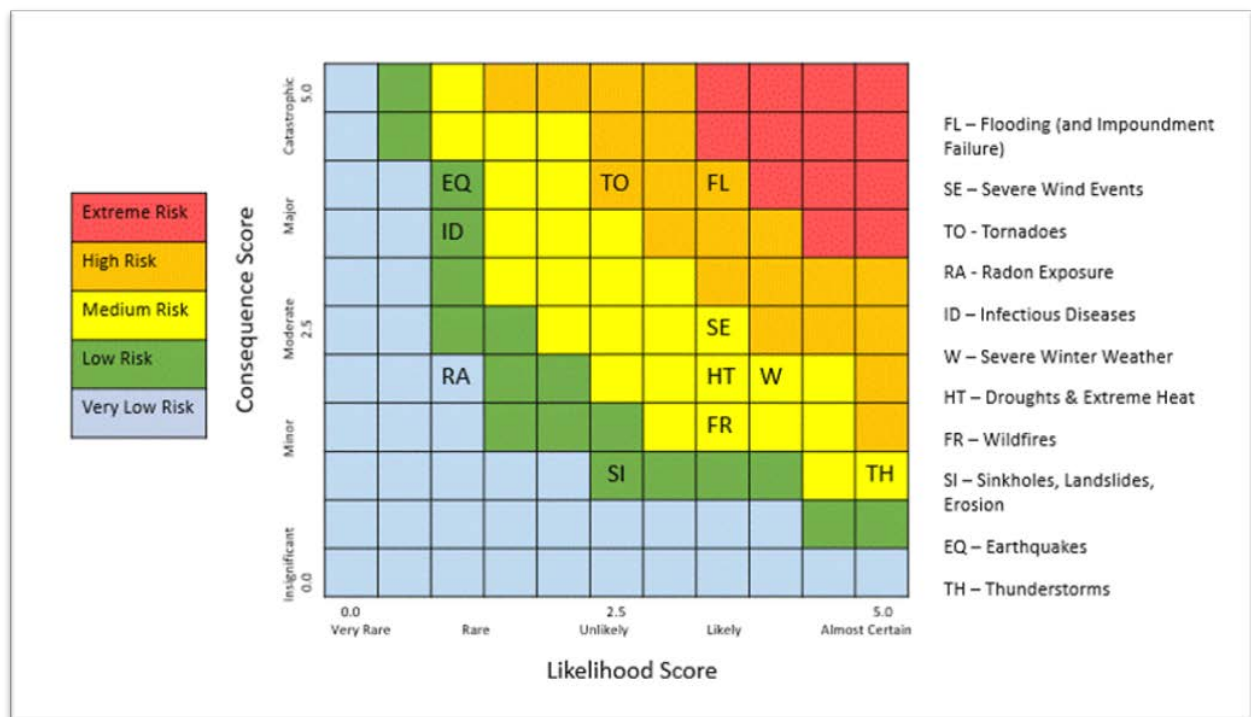


Figure 5-2: Risk Scores for Each Hazard

Table 5.XX: Risk Scores for Each Hazard		
Hazard	Risk Score	Risk Description
Flooding and <u>Flooding</u> due to Impoundment Failure	14	High
Tornadoes	10	High
Severe Wind Events	8.75	Medium
Severe Winter Weather	8	Medium
Droughts and Extreme Heat	7	Medium
Wildfires	5.25	Medium
Thunderstorms	5	Medium
Earthquakes	4	Low
Infectious Diseases	3.5	Low
Sinkholes, Landslides, Erosion	2.5	Low
Radon Exposure	2	Very Low

Figure 5-3: Conclusions on Hazard Risk for Richmond-Crater Region

CRITICAL HAZARD - HIGH RISK	FLOODING SEVERE WIND EVENTS TORNADOES
CRITICAL HAZARD - MODERATE RISK	SEVERE WINTER WEATHER DROUGHTS AND EXTREME HEAT THUNDERSTORMS
NONCRITICAL HAZARD - LOW RISK	WILDFIRES INFECTIOUS DISEASES EARTHQUAKES SHORELINE EROSION
NEGLECTIBLE	FLOODING DUE TO IMPOUNDMENT FAILURE SINKHOLES RADON EXPOSURE LANDSLIDES

Based upon the above Figures, the MPO has chosen to focus on flooding related to inland/riverine flooding, storm surge, and rising waters when developing our resiliency

program. The MPO (and its localities) and VDOT are involved in a project to address severe wind events on I-295; and VDOT and the localities address severe winter weather events, tornadoes, and extreme heat.

Since 1999, at least four hurricanes have caused flooding and damaged transportation infrastructure. It is important to understand geography, geology, and hydrology to plan for these storms. Therefore, a brief, general description of some critical elements of our physical environment follows, as well as the history of and the propensity for future hurricane activity.

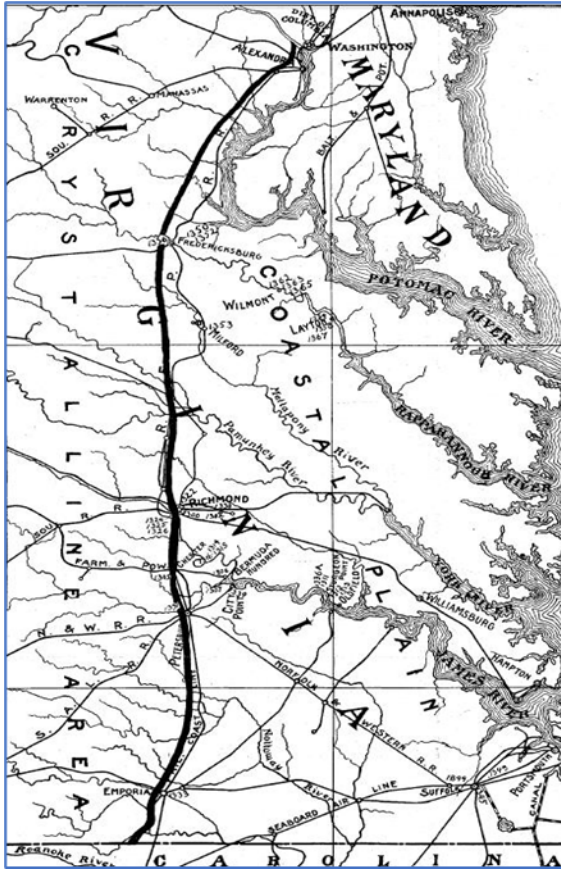
Hurricanes in Virginia are usually weak, but they can bring rainfall that is more devastating than the hurricane winds. Floods account for nearly 70 percent of presidentially declared disasters and are the deadliest form of natural disaster. FEMA lists five factors that determine the scope of local flooding:

1. Watershed size,
2. Development within the watershed affecting storm water runoff,
3. Soil characteristics,
4. Topographic characteristics affecting the flow and direction of floodwaters, and
5. Regional climate (Allison Boyd, J. Barry Hokanson, Laurie A. Johanson, James C. Schwab, Kenneth C. Topping, 2014).

## Topography

Figure 5-4 shows the Fall Line (Ries, 1906), running through the Crater Planning District: dividing the MPO into two provinces, the Piedmont and Coastal Plain. Generally, the Coastal Plain is low-lying land near sea level (< 200 feet) and the Piedmont Province is higher land with elevations between 200 and 350 feet (60 to 100 meters). Chesterfield County and part of Dinwiddie County are in the Piedmont. The other jurisdictions in the MPO lie below the Fall Line. East of the fall line floods may be sharp but last longer duration and may spread broadly across the Coastal Plain. West of the Fall Line flood events will be shorter, sharper, and confined to stream valleys and narrow floodplains.

Figure 5-4: The Fall Line



## Hydrology

The MPO lies in the Appomattox sub-basin of the James River Basin and averages around 46 inches of rain annually.

The land around the James River Basin is flat to moderately rolling with elevations rising to about 200 feet (61 m). The Appomattox sub-basin drains 1,344 square miles (3,480 km<sup>2</sup>). The confluence of the Appomattox River and the James River is just east of Hopewell where it flows toward the Atlantic through wide floodplains around shallow streams.

Hydrology must also consider the soil beneath the streams. Many of the 150 underlying soil types are clays which do not absorb water well.

## Hurricane and Floods

A tropical storm becomes a hurricane when maximum winds reach or exceed 75 miles (~120 kilometers) per hour. According to the U.S. Geological Survey, Louisiana, Florida and North Carolina high risk states, but parts of Virginia also fall into the high or even highest hurricane activity categories.

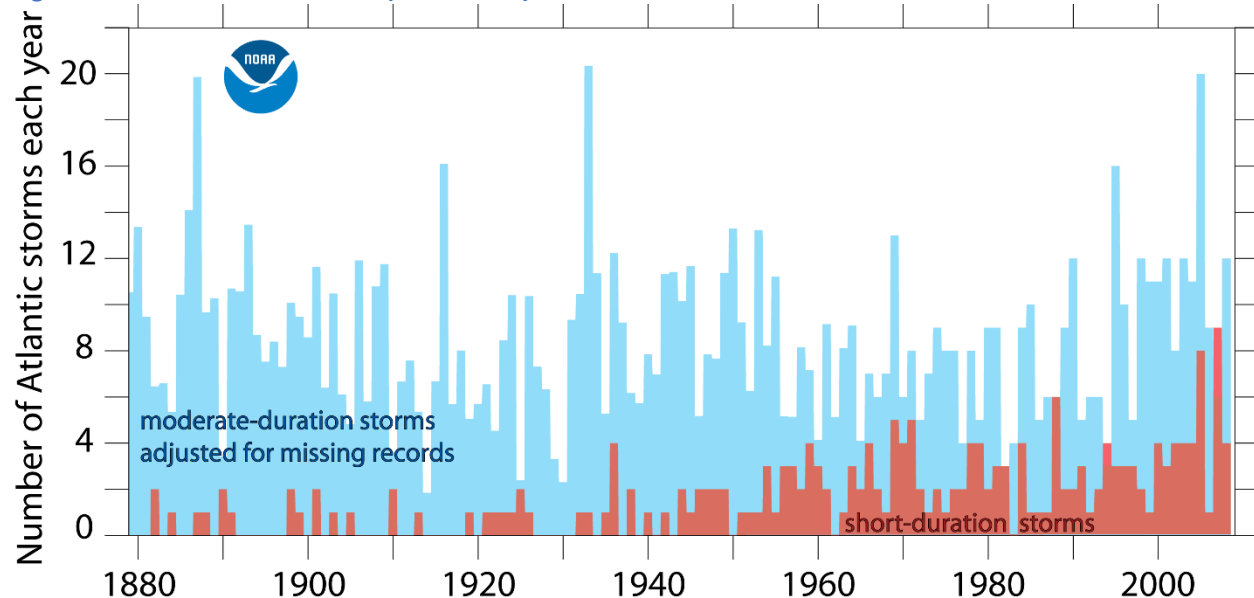
Usually, the storms reaching the Virginia coast have weakened as they have moved,

north, towards colder water. The most likely storm surge would be one to three feet, with a worst-case scenario bringing eight to ten feet, according to the Wakefield Weather Office (2001).

### Hurricane Cycles

Figure 5-5 shows the Atlantic hurricanes since 1880. Global weather, such as the Pacific Ocean El Nino and La Nina influence the number and strength of hurricanes. These cycles last from two to seven years. During El Nino, warm waters flowing through the equatorial region of the Pacific create a rippling effect that causes strong westerly winds in the upper atmosphere to rip apart hurricanes. As a result, hurricanes are fewer and farther between. During the alternate La Nina phase, in the Pacific waters are colder, resulting in more hurricanes. For instance, during the La Nina cycle of 1954-1956, the Eastern Seaboard experienced destruction from hurricanes Hazel, Connie, Diane, and Flossy.

Figure 5-5: Atlantic Hurricanes (1880-2005)



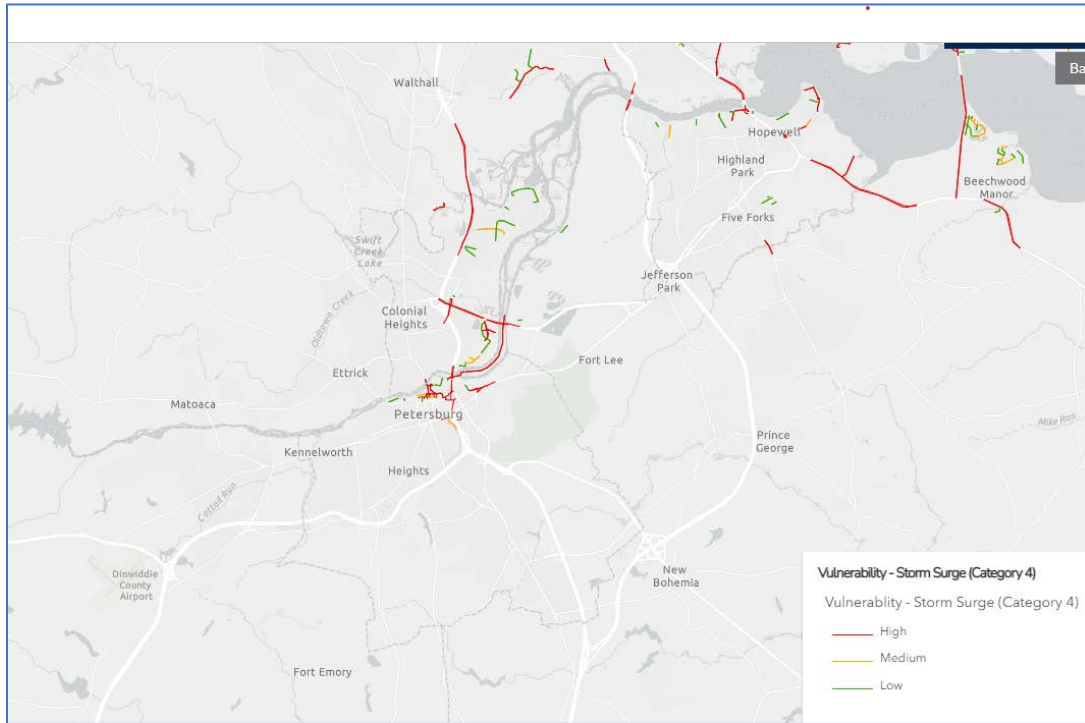
### 1% (100-Year) or 0.2% Annual Chance (500-Year) of Flood for the Tri-Cities MPO

Based upon previous experience (ex; Hurricane Floyd in 1999) the MPO could see closed roads, damaged pavement, and washed-out bridges or culverts from major flooding.

### VTrans

The current VTrans Update includes a resilience component. VTrans (working with VDOT, the CTB, and various State agencies) has developed a [Long Term Risk and Opportunity Register](#). One Register category is [Climate/Flooding](#), with a Data Explorer and maps of at-risk roadways. Below is a map of the intermediate-high scenario of vulnerability to storm surge at-risk roadways in the Tri-Cities area (Figure 5-6).

**Figure 5-6: Storm Surge Vulnerability**

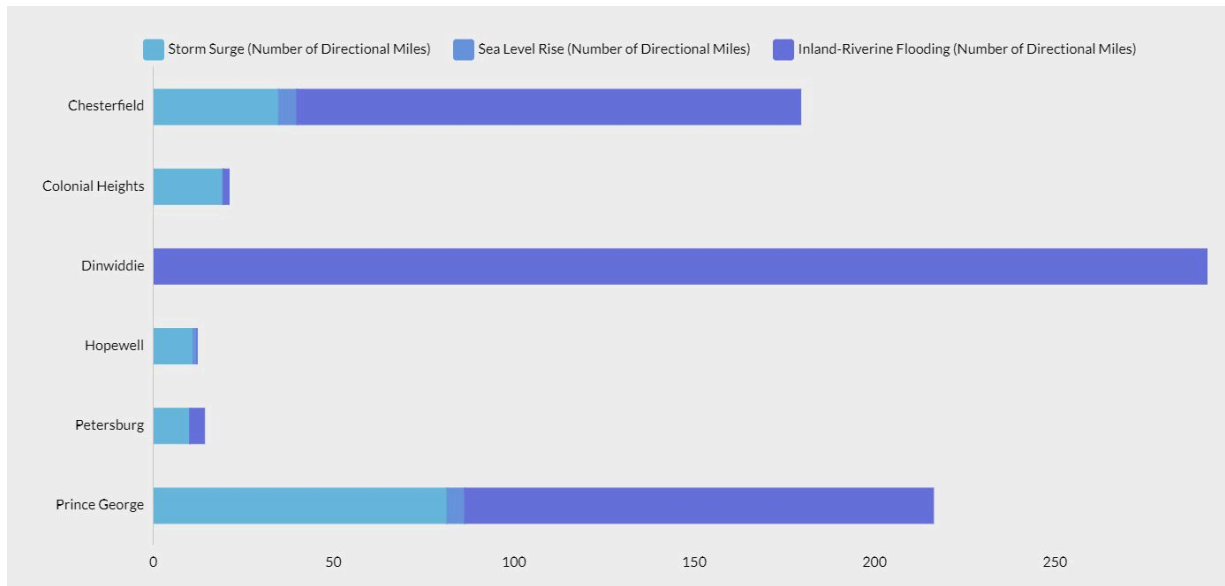


Examples of major roadways at risk by 2045 (intermediate-high scenario) include:

- I-95 over the Appomattox River (sea-level rise and storm surge)
- I-95 from Exit 58 to Colonial Heights (sea-level rise and storm surge)
- Temple Ave over the Appomattox River (sea-level rise and storm surge)
- Route 10 from I-295 to Hopewell (inland/riverine flooding)
- Benjamin Harrison Bridge (sea-level rise and storm surge)

For MPO member localities, the number of miles of each (Figure 5-7):

**Figure 5-7: Mileage at Risk in Intermediate High Scenario**



## Recommendations

Based on earlier work the MPO has five recommendations for improving the resiliency of the transportation system:

1. Keep Current Detailed Emergency Operation Plans,
2. Keep Accurate and Detailed Road Closure Reports,
3. Keep Digital Floodplain Maps Current,
4. Keep Drainage Ditches Cleared,
5. Flood Proof Roads, especially Hurricane Evacuation Routes (Crater Planning District Commission, 2001).
6. Work with other agencies (VDOT, VDEM, VDEQ, etc.) to incorporate resiliency in project selection and funding. The MPO expects to use the intermediate-high scenario (as is being used by other agencies).

Based upon lessons from other disasters the MPO believes that the region needs to do three more things (Littman, 2005):

1. Include an emergency evacuation plan in Petersburg Area Transit's Transit Development Plan,
2. Develop a plan for using AMTRAK to help with evacuation; and
3. Ensure that VDOT has workable plans for temporary lane restrictions and modifications on evacuation routes from the Norfolk, Hampton Roads areas including I-64, I-85, I-95 and US 64.

## Chapter 6 - Performance Measures – How We Are Doing

The Tri-Cities Area MPO adopts performance targets for the following measures:

- Safety (auto and non-motorized)
- Transit Agency Safety Plan
- Asset Management (bridge and pavement)
- System Performance (reliability)
- Transit Asset Management

### Safety

Safety has been the most important transportation performance factor in the Tri-Cities area for many years and was rated the #1 goal in our recent survey.

Since 2017, the MPO has adopted safety measures and targets. Table 6-1 shows the targets and actual results from 2018 to 2020.

**Table 6-1: Safety Targets and Performance**

#### Safety Targets and Performance, 2018-2020

	2018 Target	2018 Actual	2019 Target	2019 Actual	2020 Target	2020 Actual	2021 Target	2021 Actual	2022 Target
<b>Fatalities</b>	14	15	16	16	19	19	15		16
<b>Fatality Rate</b>	0.59	0.74	0.85	0.76	0.90	0.79	0.73		0.79
<b>Serious Injuries</b>	151	159	130	177	153	184	172		175
<b>Serious Injury Rate</b>	6.500	8.044	6.450	8.811	7.367	9.464	8.585		8.705
<b>Non-Motorized Fatalities and Serious Injuries</b>	N/A	14	N/A	15	13	13	14		14

*Note: Actual based on Fatalities and Serious Injury 5-year average*

Also, VDOT's Traffic Engineering Division is assisting MPOs and localities with creating and updating their safety plans (including Vision Zero plans). TCAMPO has asked VDOT to assist us in developing the MPO's safety plan, which will begin in 2022 and once completed will be incorporated into *Plan2045*.

### Crash Statistics

This information allows the MPO staff to:

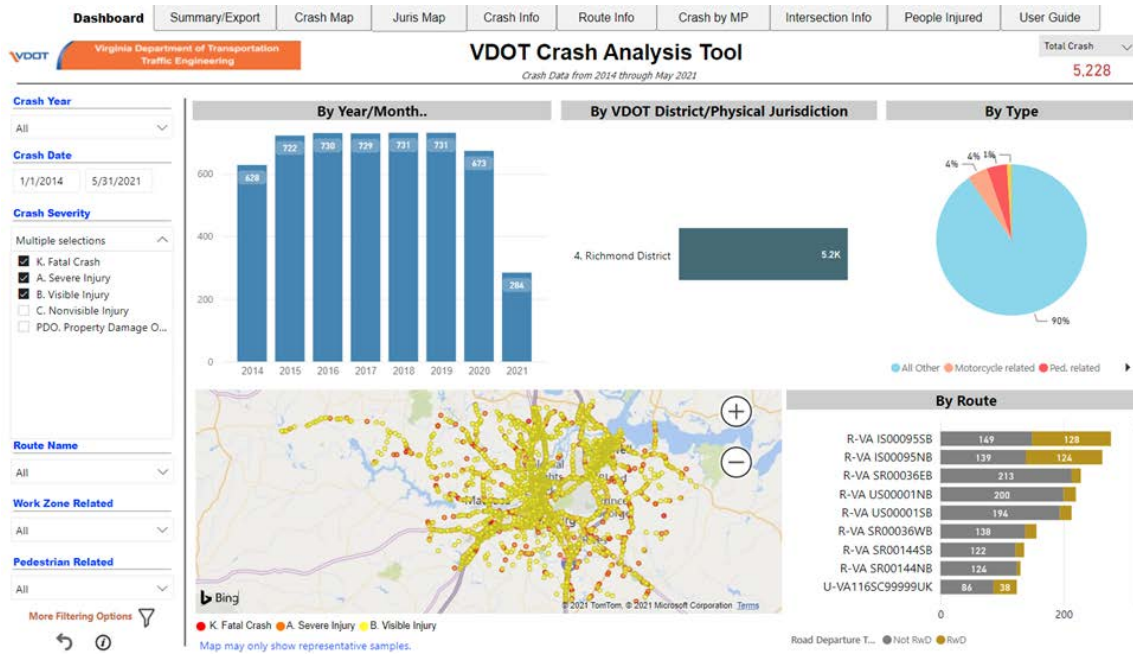
- Identify transportation fatality trends;
- Compare the MPO with Virginia and the United States; and
- Identify factors contributing to traffic fatalities.

The ongoing compiling and analysis of crash data has improved greatly since the *Transportation Plan for 2040* was adopted. For example, VDOT has developed 3

interactive webtools that assist VDOT, localities, and MPOs in assessing crashes in their areas:

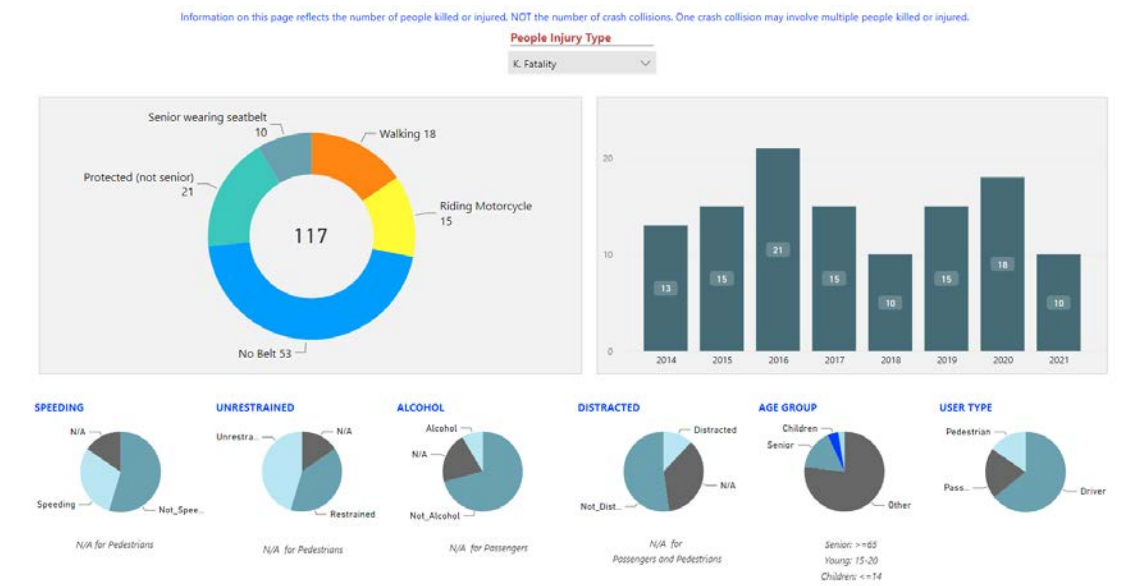
- [PowerBI](#) - below is a screenshot for the Tri-Cities area (Figure 6-1)
- [VDOT Crash Analysis Tool](#)
- [Crashtools8 2 | Tableau Public](#)

Figure 6-1: VDOT Crash Analysis Tool



The chart below shows the fatalities in the Tri-Cities Area (Figure 6-2)

Figure 6-2: Fatalities in the Tri-Cities Area



Tables 6-2 and 6-3 show highway and pedestrian crashes, fatalities, and injuries in the Tri-Cities MPO from 2014 to May 2021; the MPO averaged 20 traffic fatalities per year over the period.

**Table 6-2: Crashes by Year**

Crash Year	Ped. Killed	Ped. Injured	K People	A People	B People	C People	Injured People	Fatal Crash	A Crash	B Crash	C Crash	Injury Crash	Total Crash
2014	1	28	13	151	710	741	1,602	11	121	496	374	991	2,332
2015	1	38	15	164	817	743	1,724	14	140	568	357	1,065	2,514
2016	6	28	21	128	886	853	1,867	21	106	603	401	1,110	2,698
2017	1	54	15	147	854	852	1,853	15	121	593	447	1,161	2,697
2018	2	38	10	208	788	936	1,932	10	171	550	471	1,192	2,861
2019	5	30	15	238	847	1,053	2,138	14	155	562	482	1,199	2,711
2020	1	28	18	199	721	913	1,833	16	158	499	424	1,081	2,559
2021	1	15	10	85	283	320	688	10	69	205	137	411	1,062
<b>Grand Total</b>	<b>18</b>	<b>259</b>	<b>117</b>	<b>1,320</b>	<b>5,906</b>	<b>6,411</b>	<b>13,637</b>	<b>111</b>	<b>1,041</b>	<b>4,076</b>	<b>3,093</b>	<b>8,210</b>	<b>19,434</b>

**Table 6-3: Crashes by Jurisdiction**

Physical Jurisdiction	Fatal Crash	Injury Crash	PDO Crash	Killed People	Injured People	Total Crash
018. Charles City County	0	2		0	2	2
020. Chesterfield County	35	1,252	3,174	36	1,990	4,461
026. Dinwiddie County	13	482	962	13	798	1,457
074. Prince George County	25	1,030	1,500	28	1,794	2,555
106. City of Colonial Heig...	8	852	1,732	8	1,378	2,592
116. City of Hopewell	5	2,096	811	6	3,844	2,912
123. City of Petersburg	25	2,496	2,934	26	3,831	5,455

The number of crashes and fatalities also appear to be higher in EJ Census Tracts (i.e., in census tracts with higher than area average percentages minority or low-income) than overall in the Tri-Cities Area.

### Vision Zero

According to the [Vision Zero Network](#), Vision Zero is a multidisciplinary global strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all. First implemented in Sweden in the 1990s, Vision Zero has proved successful across Europe and it's gaining momentum in major American cities.

The initiative aims to change the long-held belief and mindset that traffic fatalities and serious injuries are inevitable. Vision Zero espouses the belief that traffic related deaths and serious injuries are preventable.

Other MPOs and localities in Virginia are working on or have adopted Vision Zero Plans, including:

- City of Richmond: [Vision Zero | Richmond \(rva.gov\)](#)
- City of Alexandria: [Vision Zero | City of Alexandria, VA \(alexandriava.gov\)](#)
- Arlington County: [Vision Zero in Arlington - Transportation \(arlingtonva.us\)](#)

- City of Norfolk: [Vision Zero | City of Norfolk, Virginia - Official Website](#)
- RRTPO Vision Zero Work Group

**The Commonwealth’s 2017-2021 Strategic Highway Safety Plan – “Arrive Alive Virginia” (currently being updated)**

The [Virginia 2017-2021 Strategic Highway Safety Plan “Arrive Alive”](#) identifies effective strategies and actions to reach zero deaths and serious injuries on Virginia’s roads and highways. Arrive Alive identifies these emphasis areas:

**Behavior**

- Impaired Driving (*Alcohol, Drugs, Distracted Driving, and Drowsy Driving*)
- Speeding
- Occupant Protection

**Crash Type/Location**

- Roadway Departure
- Intersection

**User Groups**

- Young Drivers
- Bicycles
- Pedestrians

The Draft 2022-27 SHSP uses the [Safe System](#) approach and includes:

- Engineering
- Education
- Enforcement
- Emergency Response and medical service
- Everyone

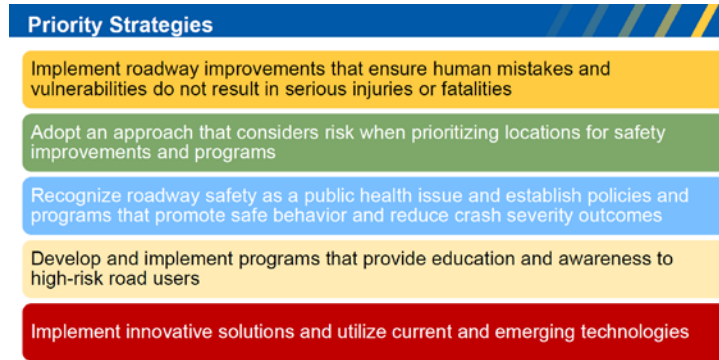
***VDOT proposes to reduce the fatalities and serious injuries by 50% by 2045.***

According to crash statistics, the top crash types with fatalities and serious injuries in the Central Virginia Region are:

- Roadway Departure
- Impaired Drivers
- Speed
- Intersections
- Occupant protection (no seatbelt or child seat)

Priority Strategies are listed below (Figure 6-3)

Figure 6-3: Priority Strategies



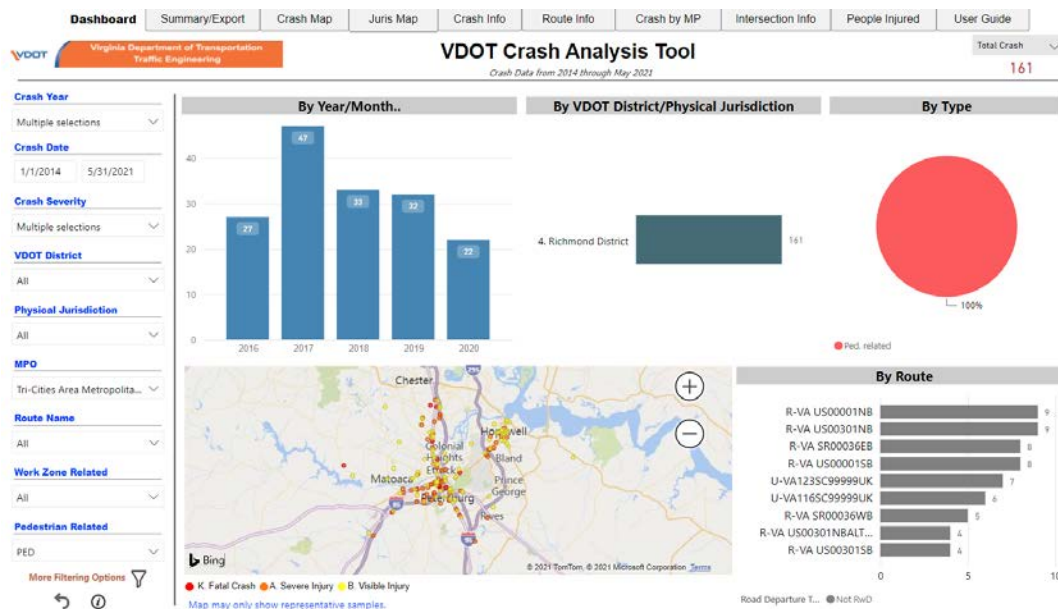
In FY23, (as part of the TCAMPO’s Unified Planning Work Program), VDOT will be working the TCAMPO and its members in developing a TCAMPO Comprehensive Safety Action Plan, which is expected to adopt strategies to reduce crashes, fatalities, likely toward *Vision Zero*.

### Pedestrian Safety

Walking is a small percentage of transportation, but it is overrepresented in transportation related fatalities. Of the one hundred seventeen (117) fatalities in the Tri-Cities Area between 2014 and May 2021, 15% are pedestrians. The table below (Table 6-5) shows the number of pedestrian crashes, fatalities, and injuries by locality in the Tri-Cities MPO.

The [PowerBI](#) map (Figure 6-4) shows that there were 22 pedestrian-related crashes in 2020 in the Tri-Cities Area (and appears to be reversing a trend that had peaked in 2017).

Figure 6-4: Pedestrian Crashes



Many of these pedestrian injuries are along Crater Road, Boulevard, Washington/Wythe, and Route 36. The number of pedestrian crashes and fatalities also appear to be higher in EJ Census Tracts (i.e., in census tracts with higher than area average percentages of minority or low-income populations) than overall in the Tri-Cities Area.

Below are the number of pedestrian crashes, fatalities, and injuries by locality in the Tri-Cities Area (Table 6-4).

**Table 6-4: Pedestrian Crashes**

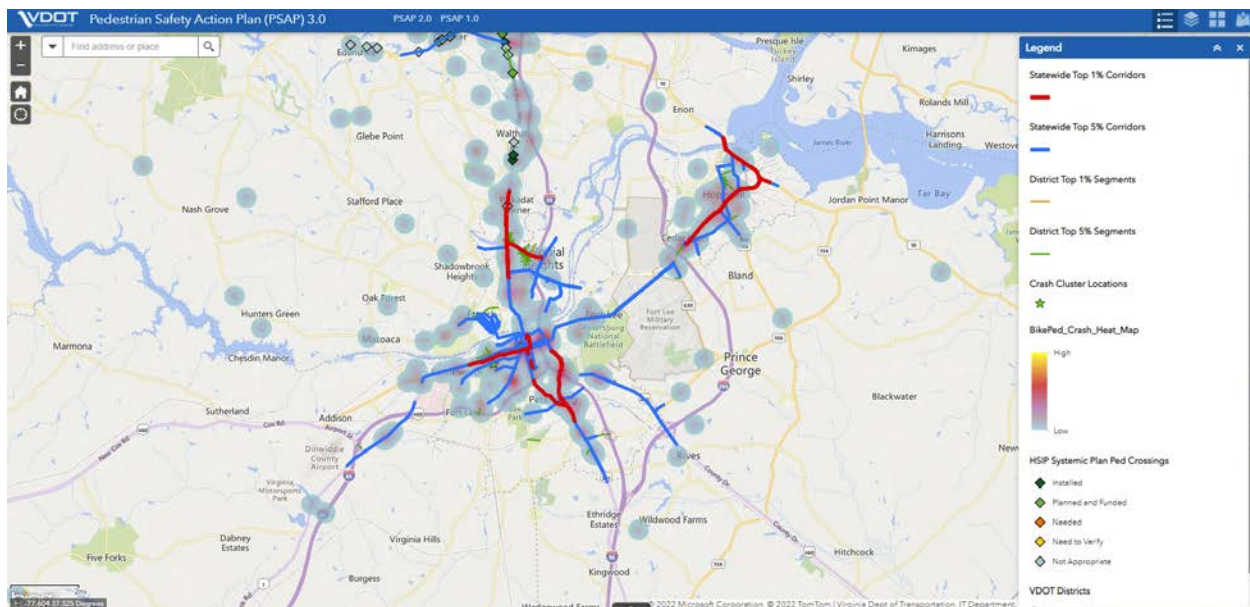
Physical Jurisdiction	Fatal Crash	Injury Crash	PDO Crash	Killed People	Injured People	Total Crash
020. Chesterfield County	3	39		3	53	42
026. Dinwiddie County	1	7		1	9	8
074. Prince George County	1	14		1	17	15
106. City of Colonial Heig...	3	19		3	22	22
116. City of Hopewell	0	61		0	86	61
123. City of Petersburg	10	106		10	130	116

TCAMPO plans on beginning its multimodal system-wide plan (pedestrian, bicycling, transit) in the FY23 UPWP period.

VDOT completed its [Pedestrian Safety Action Plan \(PSAP\)](#) in 2018. The *PSAP Plan* also includes an [interactive map viewer](#).

For example, in the Tri-Cities area, Route 1 in Chesterfield County (Priority 1) and Route 36 in Hopewell (Priority 2) were identified as PSAP 1.0 Priority Corridors (Figure 6-5).

**Figure 6-5: PSAP Priority Corridors (PSAP 1.0 and PSAP 2.0)**



The Petersburg Healthy Options Partnerships committee (led by Virginia Tech) is finding ways to improve active transportation and healthier lifestyles in Petersburg.

### Bicycling Safety

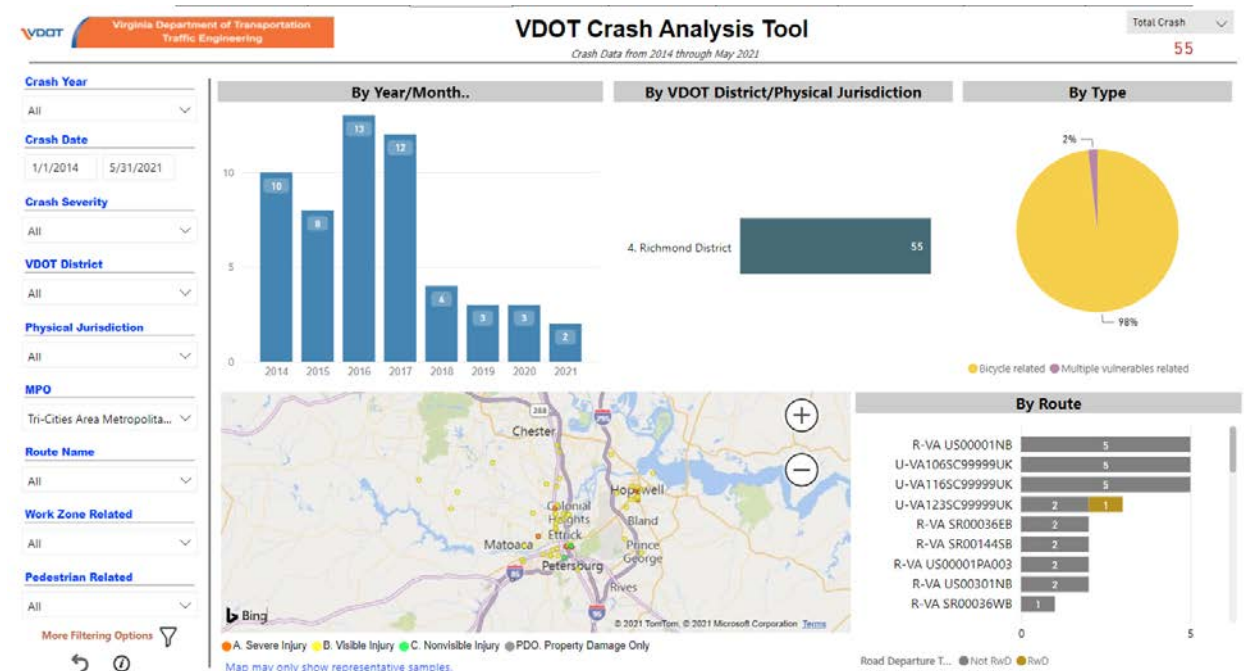
According to VDOT's [PowerBI](#) tool, there were 52 bicyclist-involved crashes with 0 fatalities, 6 severe injuries, and 46 visible injuries from 2014 to May 2021 in the Tri-Cities Area (Figure 6-6). The bicycle/pedestrian strategies in Technical Appendix J will work to lower this number.

The number of bicyclist crashes and injuries also appear to be higher in EJ Census Tracts (i.e., in census tracts with higher than area average percentages minority or low-income) than overall in the Tri-Cities Area (Table 6-5).

**Table 6-5: Bicycle Crashes by Jurisdiction**

Physical Jurisdiction	Fatal Crash	Injury Crash	PDO Crash	Killed People	Injured People	Total Crash
020. Chesterfield County	0	13		0	13	13
026. Dinwiddie County	0	2	1	0	2	3
074. Prince George County	0	2		0	2	2
106. City of Colonial Heig...	0	13		0	14	13
116. City of Hopewell	0	12		0	17	12
123. City of Petersburg	0	12		0	12	12

**Figure 6-6: Bicycle Crashes**



## Transit Agency Safety Plan

The City of Petersburg, PAT, and TCAMPO adopted the [Tier II Transit Agency Safety Plan](#) for the PAT.

The Department of Rail and Public Transportation (DRPT) was the sponsor for the Statewide Tier II Group PTASP Plan. The TCAMPO programs federal transportation funds for Petersburg Area Transit (PAT). Petersburg Area Transit is a Tier II agency participating in the DRPT sponsored group PTASP Plan. The MPO has adopted the [Tier II PTASP](#) into its TIP by reference and integrated the goals measures and targets described in the 2020 Commonwealth of Virginia Tier II Group Transit Asset Management Plan, August 11, 2020 into the MPO's planning and programming process. Specific targets for the Tier II Group PTASP Plan are included in the table below.

**Table 6-6: Tier II Transit Agency PTASP Performance Targets by Mode**

Performance Measures	Targets by Mode	
	Fixed Route	Paratransit/ Demand Response
Fatalities (total number of reportable fatalities per year)	0	0
Fatalities (rate per total vehicle revenue miles by mode)	0	0
Injuries (total number of reportable injuries per year)	3	0
Injuries (rate per total vehicle revenue miles by mode)	Less than .5 injuries per 100,000 vehicle revenue miles	Less than .5 injuries per 100,000 vehicle revenue miles
Safety events (total number of safety events per year)	6	1
Safety events (rate per total vehicle revenue miles by mode)	Less than 1 reportable event per 100,000 vehicle revenue miles	Less than 1 reportable event per 100,000 vehicle revenue miles
Distance between Major Failures	10,000 miles	10,000 miles
Distance between Minor Failures	3,200 miles	3,200 miles

It is too early to measure the performance of the TASP or set *Plan2045* targets, but it will be updated in *Plan2050*.

## Asset Management (Pavement, Bridges, and System Performance)

In November 2018, TCAMPO adopted VDOT's 4-year targets for pavement, bridges, and system performance on National Highway System (NHS) roadways.

Recently, the Joint Legislative Audit and Review Commission in their [Report on Transportation Infrastructure and Funding](#) reviewed the:

- Infrastructure condition
- Funding sources
- Challenges facing transportation system
- Trends affecting transportation
- State's preparedness to adapt to changes in transportation needs

Overall, they found that the State is appears to be able to maintain its roads and bridges, but the localities are struggling to maintain theirs.

Major recommendations include:

1. VDOT expand the State of Good Repair program for pavements and bridges, and
2. The General Assembly amend the Code of Virginia to reduce long-term costs and further improve bridge safety by allowing the State of Good Repair program to fund repair and reconstruction projects for bridges very close to being structurally deficient and by raising or eliminating the restriction on the amount of program funding a region can receive.
3. Amend the Code of Virginia to change how road maintenance payments are distributed to cities and towns to better align payments with maintenance needs.
4. Add funding for the Commonwealth Mass Transit Capital Fund

Taking these statewide assessments by JLARC and applying them to the TCAMPO area, it appears that the VDOT-maintained roads and bridges will be able to meet the performance targets over the *Plan2045* period, and cities will have a difficult time maintaining their pavements and bridges to the performance targets unless funding increases and SOGR funding expands what conditions these funds are eligible for.

### Pavement

Below are the 4-year targets for NHS pavement with the actual 2017-2020 performance results (Table 6-7):

**Table 6-7: Pavement Performance**

Selected Performance Target	4-year Target	2017 Actual	2018 Actual	2019 Actual	2020 Actual	Meets Target?
Percentage of Pavement in Good Condition (Interstate)	45%	47.7%	55.5%	58.8%	62.9%	YES
Percentage of Pavement in Poor Condition (Interstate)	<3%	0.7%	0.4%	0.7%	0.6%	YES
Percentage of Pavement in Good Condition (Non-Interstate NHS)	25%	13.6%	16.7%	16.7%	16.3%	NO
Percentage of Pavement in Poor Condition (Non-Interstate NHS)	<5%	3.1%	3.2%	2.3%	2.7%	YES

### Bridges

Below are the 4-year targets for bridges with the actual 2016-2020 performance results (Table 6-8):

**Table 6-8: Bridge Deck Performance**

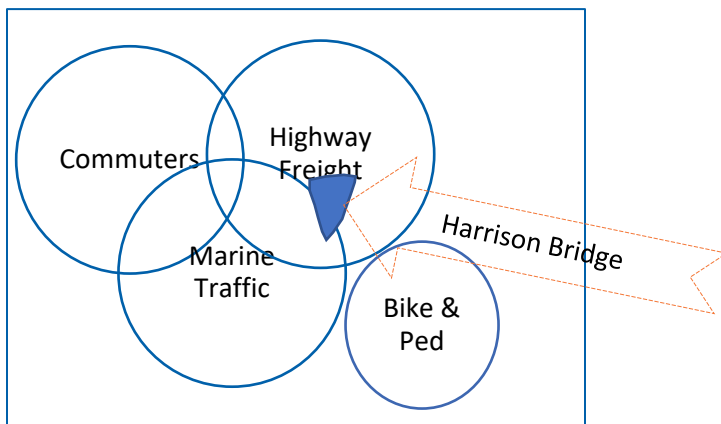
Selected Performance Target	4-year Target	2016 Actual	2017 Actual	2018 Actual	2019 Actual	2020 Actual	Meets Target?
Percentage of Deck Area of Bridges in Good Condition (NBI on NHS)	30.5%	10.8%	10.6%	10.4%	9.4%	9.1%	NO
Percentage of Deck Area of Bridges in Poor Condition (NBI on NHS)	<3%	4.3%	4.1%	0.8%	0.8%	0.8%	YES

### The Benjamin Harrison Bridge

The Benjamin Harrison Bridge may need special attention. The over fifty-year-old bridge does not meet current design standards. As shown in Figure 6-7, it is also a bottleneck and single point of failure for:

- Commuters;
- Highway freight; and
- Marine traffic.

**Figure 6-7: Modal Interactions at the Benjamin Harrison Bridge**



Because it is functionally obsolete it has no provision for bicycles or pedestrians and is a barrier for recreational bicycling or walking between Hopewell and Charles City County.

The Benjamin Harrison Bridge is also a notable instance of environmental preservation, or restoration. The bridge towers host nesting boxes for Peregrine Falcons and have resulted in a number of hatchlings (called eyases) since 2003 (Wikipedia).

VDOT has programmed major rehabilitation improvements in the [FY22-27 SYIP](#).



**Figure 6-8: The Benjamin Harrison Bridge**

### System Performance

Below are the 4-year targets for system performance with the actual 2017-2020 performance results (Table 6-9):

**Table 6-9: System Performance**

Selected Performance Target	4-year Target	2016 Actual	2017 Actual	2018 Actual	2019 Actual	2020 Actual	Meets Target?
Percentage of Person-Miles Traveled that are Reliable (Interstate)	82.0%		100%	99.9%	100%	100%	YES
Percentage of Person-Miles Traveled that are Reliable (Non-Interstate NHS)	82.5%		77.2%	80.8%	85.6%	89.1%	YES
Truck Travel Time Reliability Index	1.56	1.12	1.14	1.12	1.13	1.1	YES

### Transit Asset Management (Tier II Group Plan):

The City of Petersburg, PAT, and TCAMPO adopted the TAM Plan in October 2020.

The Department of Rail and Public Transportation (DRPT) is the sponsor for the Statewide Tier II Group Plan. The TCAMPO programs federal transportation funds for Petersburg Area Transit (PAT). PAT is a Tier II agency participating in the DRPT sponsored group TAM Plan. The TCAMPO has integrated the goals measures and targets described in the [Federal Fiscal Year 2018 Group Transit Asset Management Plan and 2020 plan Addendum](#) into the MPO's planning and programming process specific targets for the Tier II Group TAM Plan are included in Table 6-10 below:

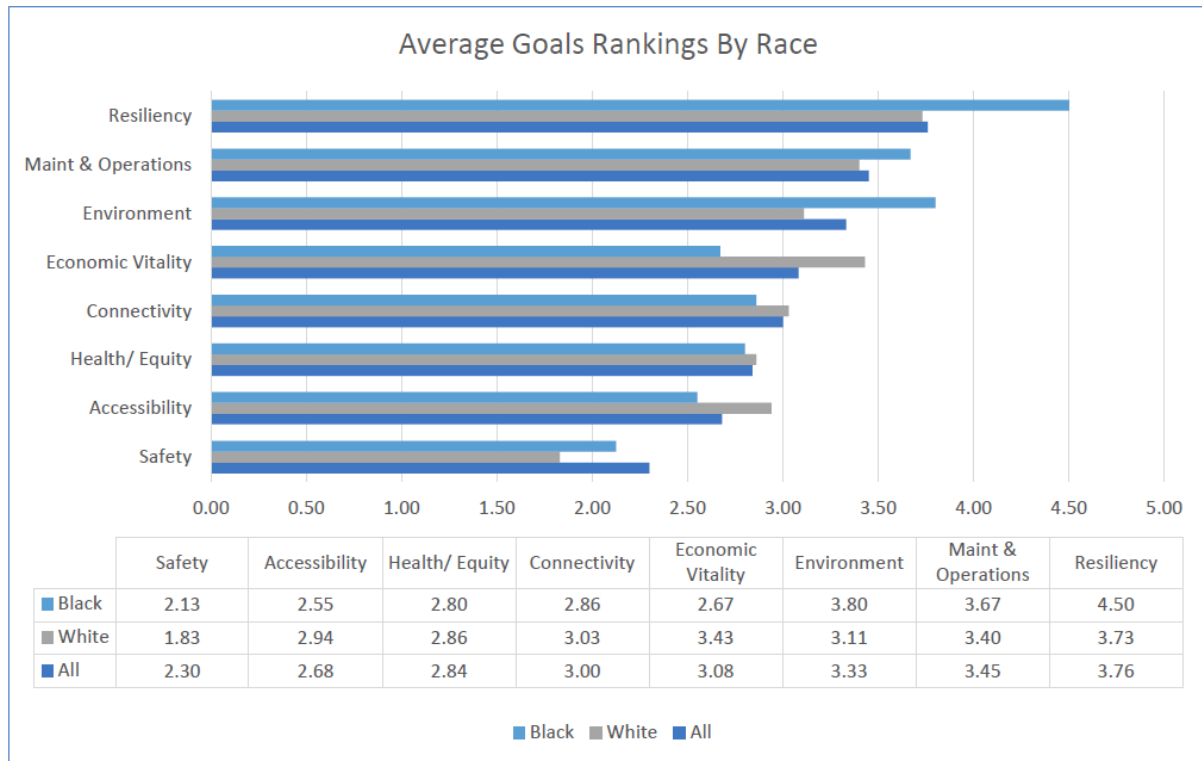
**Table 6-10: TAM Targets**

Asset Category - Performance Measure	Asset Class	2020 Target*
<b>Revenue Vehicles</b>		
Age - % of revenue vehicles within a particular asset class that have met or exceeded their Useful Life Benchmark (ULB)	AB - Articulated Bus	15%
	BU - Bus	10%
	CU - Cutaway	10%
	MB - Minibus	20%
	BR - Over-the-Road Bus	15%
	TB - Trolley Bus	10%
	VN - Van	25%
<b>Equipment</b>		
Age - % of vehicles that have met or exceeded their Useful Life Benchmark (ULB)	Non-Revenue/Service Automobile	25%
	Trucks and other Rubber Tire Vehicles	25%
<b>Facilities</b>		
Condition - % of facilities with a condition rating below 3.0 on the FTA TERM Scale	Administrative and Maintenance Facility	10%
	Administrative Office	10%
	Maintenance Facility	10%
	Passenger Facilities	10%

## Chapter 7 - Plan2045 Goals and Objectives

TCAMPO conducted public on-line surveys from January to August 2021 to gain an understanding of the public opinions on the of transportation goals and priorities in the region. The chart below (Figure 7-1) displays the survey results (the lower the number, the higher the rank).

**Figure 7-1: Average Goals Rankings By Race**



Guided by the survey inputs and Plan2045 Committee recommendations, TCAMPO adopted the following goals and objectives:

### **A. Safety**

***Improve the safety of the transportation system for all people.***

A1. Enhance safety and comforts of bicycle and pedestrian facilities.

A2. Work to eliminate all serious injuries and fatalities resulting from vehicular accidents.

### **B. Environment/Land Use**

***Reduce the negative impact the transportation system has on the natural and built environment.***

B1. Address roadways prone to flooding and consider climate impacts in transportation planning prioritization and funding decisions.

B2. Reduce transportation related pollutants.

B3. Increase number and share of trips taken by shared and active transportation modes.

B4. Assist and support localities as they perform land use planning regarding transportation investments that encourage walkable and transit-oriented communities.

B5. Minimize impacts of transportation system on natural resources and communities with a particular emphasis on Environmental Justice (EJ) populations

### **C. Equity/Accessibility**

***Improve equitable access through greater availability of mode choices that are affordable and efficient***

C1. Reduce trip lengths for all people with a focus on Environmental Justice (EJ) populations.

C2. Increase access to jobs and community services via transit, walking, and biking for all people with a focus on EJ populations.

### **D. Economic Development**

***Improve connectivity and mobility for strong economic vitality***

D1. Reduce peak period travel times.

D2. Increase transportation investment which focuses on economic vitality.

D3. Improve reliability and accessibility of travel to and within the regional activity centers.

D4. Reduce freight bottlenecks.

D5. Increase multimodal access to tourist destinations.

### ***E. Mobility***

***Increase travel efficiency and mode choices by maintaining the transportation system in a state of good repair***

E1. Increase the percent of complete streets across the highway network to maximize use of available capacity.

E2. Increase system efficiency through operational, transportation demand management (TDM), and technology-based solutions.

E3. Improve system reliability across all modes.

## Chapter 8 – *Plan2045* Performance-Based Project Prioritization Methodology

Based on the adopted vision, goals, and objectives (and with the assistance from the GAP consultant), the *Plan2045* Committee and TCAMPO Policy Committee adopted these prioritization factors with subfactors and measures (Figure 8-1)

More details regarding the methodology can be found in Technical Appendix K.

Figure 8-1: Plan2045 Scoring Factors

Figure 8-1: PLAN2045 SCORING FACTORS														
FACTOR WEIGHT	SUBFACTOR WEIGHT	SAFETY	MOBILITY/CONGESTION			EQUITY/ACCESSIBILITY (SS Land Use)/MULTIMODAL			ENVIRONMENT		ECONOMIC DEVELOPMENT			
			12.5%	12.5%	10.0%	15%	5.0%	5.0%	5.0%	5.0%	5.0%	15.0%	5.0%	25%
PERFORMANCE MEASURE	CRASH FREQUENCY	CRASH RATE	PERSON THROUGHPUT	PERSON HOURS OF DELAY	ACCESS TO JOBS	ACCESS TO JOBS	ACCESS TO NON-WORK DESTINATIONS	EJ ACCESS TO NON-WORK DESTINATIONS	INCREASE ACCESS TO MULTIMODAL	AIR QUALITY IMPACT	SENSITIVE FEATURES	JOB GROWTH	FREIGHT	ACTIVITY CENTERS
How calculated	VDOT PowerBI or map; calc to EPDO times CMF; divide by CMF	VDOT PowerBI or map; calc to EPDO times CMF; divide by VMT	Project no-build and build 2045 speed during peak period	Project no-build and build 2045 hours of delay in peak period	number of jobs within a radius of project	number of jobs within EJ areas within radius of project	Points for various destinations times # persons and jobs in EJ area	Points for various non-work destinations times # persons and jobs in EJ area	Points for adding multimodal component or connection	Measure NOX and VOC; CMAQ Tool for most project types, MOVES tables (from RRTPO) for widenings	Acres of sensitive features within 1/4 mile of project	increase in jobs within a radius of project from 2017-2045	Number of freight jobs within 1 mile of project	Number of Activity Centers within 1 mile of project
SOURCE OF INFORMATION	VDOT PowerBI or map; EPDO CMF table; VDOT VDOT traffic counts	VDOT PowerBI or map; EPDO CMF table; VDOT VDOT traffic counts	FDOT LOSPLAN, SPS ENTRADA, or from a study	FDOT LOSPLAN, SPS ENTRADA, or from a study	RRTPO/TCAMPO SE 2045 data (by TAZ)	RRTPO/TCAMPO SE 2045 data (by TAZ)	SE 2045 TAZ data; map with non-work destinations in 1-mile radius (like SS)	SE 2045 TAZ data; map with non-work destinations in 1-mile radius (like SS)	Map/aerial showing sidewalks, bike facilities, transit routes	RRTPO's MOVES tables; basic CMAQ Tool project info	DCR GIS map of sensitive features; SMART SCALE Table 9.3	RRTP/TCAMPO SE employment data 2017 and 2045	Uses GAP consultant Freight employment data 2017	Vtrans Activity Center map; SE Data 2017
Note			No Model used, but tries to be performance based. Note: SMART SCALE does not count any benefit if no-build V/C is <1.0 What year to use? SMART SCALE used 2025, RRTPO used 2045	No Model used, but tries to be performance based. Note: SMART SCALE does not count any benefit if no-build V/C is <1.0 What year to use? SMART SCALE used 2025, RRTPO used 2045	Each mode needs its own buffer - suggest 10 miles for highway, 1 mile for ped, and 3 miles for bike; GIS Based	Each mode needs its own buffer - suggest 10 miles for highway, 1 mile for ped, and 3 miles for bike; GIS Based	School, grocery, pharmacy, park, government center, library; project must improve walking to destinations; GIS based	School, grocery, pharmacy, park, government center, library; project must improve walking to destinations; GIS based	Suggest using FAMPO method which assigns points by multimodal element; SS takes points and multiplies by new non-SOV users (mode choice); Points Based	Already do CMAQ. Tools method, but will need to use RRTPO's MOVES2014a tables for widenings; Calc based	SMART SCALE proposes to reduce the radius by type of project; GIS based	Trying to account for jobs from 2017-2045; each mode needs its own buffer - suggest 10 miles for highway, 1 mile for ped, and 3 miles for bike; GIS Based	Either option gives a freight score based on the project's nearness to freight; GIS based	Suggest doing like FAMPO's VEDP site; project's nearness to more Activity Centers gets a higher score; suggest FAMPO method; GIS based
Take best for each subfactor and give 100 score, relatively score the rest														
Total benefit points divided by the Cost														

## Chapter 9 - Plan2045 Revenues

Metropolitan Transportation Plans (MTPs) must be financially constrained, with a reasonable expectation of the financial resources for the projects listed in the MTP. TCAMPO is using revenue forecasts provided by VDOT's Financial Planning Group and DRPT as the primary sources of revenue projections from now to 2045.

### *Highway Funding*

VDOT provided TCAMPO with revenue forecasts for various purposes and funding sources for use in Plan2045. DRPT also provided revenue forecasts (which track more with current revenue patterns).

### *Maintenance Funds (Pavement, Bridges, etc.):*

**SOGR (state-owned facilities):** VDOT estimates that **\$843.3M** of SOGR funds will be available to address state-owned facility needs. VDOT is assessing if this plus local funds will be sufficient in the long-term.

**SOGR (locally owned facilities):** VDOT estimates that **\$158.6M** of SOGR funds will be available to address locality-owned facility needs. VDOT is assessing if this plus local funds will be sufficient in the long-term.

### *Construction Funds:*

**TCAMPO-Directed:** TCAMPO is fortunate to not only plan for projects but actually fund some projects. MPO-selected projects are in these three programs:

**STPBG (formerly RSTP):** Since TCAMPO is in a portion of the Richmond Urban Area (with a population over 200,000), TCAMPO receives an allocation according to its share of census urban area population (currently 13.5%). Presently, TCAMPO receives approximately \$3.2 million per year from FHWA, and VDOT projects that TCAMPO will receive **\$111.9M** between now and 2045.

**CMAQ:** Since the Richmond Urban Area has been determined to be non-attainment in the past, TCAMPO receives an allocation according to its share of census urban area population (currently 13.5%). Presently, TCAMPO receives approximately \$1.2 million per year from the CTB, and VDOT projects that TCAMPO will receive **\$47.1M** between now and 2045.

**TAP:** Since TCAMPO is in a portion of the Richmond Urban Area (with a population over 200,000), TCAMPO receives an allocation according to its share of census urban area population (currently 13.5%). Presently, TCAMPO received approximately

\$165,000 per year from FHWA, and VDOT projects that TCAMPO will receive **\$5.8M** between now and 2045.

### **State-Managed Programs:**

**SMART SCALE:** Under House Bill 2 of 2014, localities, MPOs, PDCs, and transit agencies apply for either Statewide (High Priority) or District Grant (divided by formula to each Construction District). This is a competitive program, based upon its benefit score (divided by cost to the Commonwealth) for safety, mobility, accessibility, environment, and economic development (and land use in some areas). VDOT projects that TCAMPO will receive **\$184M** between now and 2045.

**Other Discretionary Construction:** covers other programs in FY21-25 (the current SYIP) and are not assumed in *Plan2045*. VDOT lists **\$2,225,795**. This includes CTB-administered TAP, HSIP, and Revenue Sharing.

### **CVTA**

As noted in Section 1, the Central Virginia Transportation Authority was created in 2020 and collects a sales tax supplement and fuels tax for transportation projects. These taxes are collected in the entirety of the PlanRVA localities (including all of Chesterfield County). The southern portion of Chesterfield County is part of the TCAMPO Planning Area; therefore, CVTA revenue is available to fund projects to address the needs of the TCAMPO portion of Chesterfield County (Technical Appendix L).

*Plan2045* assumes that **\$140M** would be reasonably expected to be used in the TCAMPO portion of Chesterfield County between now and 2045 (\$90M assumed to be used for the East-West Freeway project). The “funds division by population” methodology used by *Plan2045* for CVTA revenue is similar to the process used by VDOT for estimating STPBG, CMAQ, TAP and SMART SCALE revenues for *ConnectRVA 2045* and *Plan2045*.

### **Transit Revenues (beyond farebox and City revenues)**

DRPT estimates that \$22,287,268 Operating revenues are reasonably expected for PAT from 2021 to 2045.

DRPT estimates that \$6,045,726 Capital revenues are reasonably expected for PAT from 2021 to 2045.

## Chapter 10 - The Financially Constrained Long-Range Plan

As noted in Section 1, beyond the current FFY 2021-2024 MTIP timeframe, the Financially Constrained Plan of Projects portion of *Plan2045* (and future MTPs and MTIPs) will primarily individually list *Regionally Significant Projects*. Technical Appendix B of *Plan2045* ("Examples/Vision List") lists the Regionally Significant Projects not included in the Constrained Plan of Projects and those projects that are not Regionally Significant but have been identified as needs in various plans, studies, and data analyses. Technical Appendix B also lists needs/projects that may use the various Revenue Forecast funds noted in Section 9.

Regionally Significant projects generally include:

- Add a travel lane both ways to an arterial, freeway, or interstate
- Construct a new arterial
- Construct a new freeway interchange
- Construct a Fixed Guideway or Heavy Rail project

***Projects that are federally funded but are not Regionally Significant would be listed in various MTIP Groupings (with the associated STIP groupings for the State TIP) and are consistent with Plan2045.*** In the Tri-Cities Area MPO, the most common MTIP/STIP groupings are:

- Construction: Safety/ITS/Operational Improvements
- Construction: Alternative Transportation
- Construction: Bridge Rehabilitation/Replacement/Reconstruction
- Maintenance: Bridge Preventive Maintenance
- Maintenance: Preventive Maintenance and System Preservation

The Tri-Cities Area MPO is required to ensure that the individually listed projects and the MTIP Groupings are financially constrained in the MTIP and the MTP.

Also, since most transportation construction project funding programs are competitive (ex: SMART SCALE, HSIP, TAP, RAISE; not Bridge) with new money, any project added under these federal programs would also increase in its financial capacity and therefore if the funding in the MTIP Grouping in the MTIP needs to be enlarged by MTIP amendment, the MTP or MTIP will continue to be financially constrained and are consistent with *Plan2045*.

Table 10-1 lists the project types and funding sources:

**Table 10-1: Project Types and Possible Funding Sources**

Project Type	SMART SCALE (HPP and DGP) \$183M	RSTP \$112M	CMAQ \$47M	TAP \$6M	FTA	CVTA* \$243M	Regionally Significant
Major Widening	X	X				X	YES
New Interchange	X	X				X	YES
New Arterial	X	X				X	YES
Intersection	X	X	X			X	NO
Signal		X	X				NO
Active Transportation	X	X	X	X	X	X	NO
Transit Vehicle					X		NO
Transit Streetscape	X	X			X		NO

\* CVTA only eligible in Chesterfield County in TCAMPO Planning Area

*Note: some fund sources are nationwide or statewide and are not included, such as HSIP, Revenue Sharing, RAISE*

As noted earlier, *Plan2045* instituted a performance-based planning and programming system (with the assistance from OIPI’s on-call consultant). The TCAMPO expects to use this system for not only the Regionally Significant (i.e., individually listed) projects, but for other MPO-funded programs (STPG, CMAQ, TAP) and for other initiatives and plans.

On December 9, 2021, the TCAMPO Policy Committee approved the following Factors for *Plan2045*:

- Safety (25%)
- Mobility/Congestion (15%)
- Accessibility/Equity/Multimodal (25%)
- Environment (10%)
- Economic Development (25%)

Technical Appendix K describes in more detail the process and methodologies used for scoring the Regionally Significant projects for *Pla2045*.

### The Financially Constrained List of Capital Projects

The TCAMPO assumed \$56 million is available for the Regionally Significant projects in the *Plan2045* period; inflation was assumed. Table 10-2 shows the expected projects for funding (FFY 2021-2024 MTIP plus CLRP Regionally Significant projects). The other

Regionally Significant projects not included in the CLRP list (and other projects identified in other plans and studies) are included in Technical Appendix B as “Examples/Vision” Projects. It should be noted that over time the needs/problems will change.

**Table 10-2: Financially Constrained List of Projects for Plan2045**

HIGHWAY PROJECTS - FFY 2021-2024 MTIP						
Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Total Cost/ Estimate
Chesterfield	14760	RTE 95 - INTERCHANGE IMPROVEMENTS			Interchange Improvements	\$35,716,617
Chesterfield	101028	RTE 600 - ROUNDABOUT	0.066 MI S RTE 628 (Hickory Road)	0.076 MI N RTE 628 (Hickory Road) (0.1400 MI)	Intersection Improvements	\$3,430,727
Chesterfield	104083	Rt. 1107 E. River Rd.	INT. ROUTE 36 (CHESTERFIELD AVENUE)	INT. ROUTE 1106 (DUPUY ROAD) (0.7400 MI)	Widen 2L to 4L	\$12,073,700
Chesterfield	104661	RTE 1 - ADD TRAFFIC SIGNAL AND TURN LANES	Happy Hill Rd	Tipton St	Intersection Improvements	\$8,342,437
Colonial Heights	3945	RTE 1 - IMPROVE INT AT DUPUY AVE			Intersection Improvements	\$6,764,414
Colonial Heights	85623	I95/TEMPLE AVE - INTERCHANGE IMPR (FED ID 20145, 20146)			Interchange Improvement	\$22,112,525
Colonial Heights	90374	RTE 1 - ADD CENTER TURN LANE	WINDSOR AVE	PICKWICK AVE (0.0800 MI)	Add Center Turn lane	\$1,826,562
Colonial Heights	101287	DUPUY AVE - MINOR WIDENING	WCL COLONIAL HTS	0.10 MI W RTE 1 (BOULEVARD) (0.3800 MI)	Add Center Turn lane	\$5,307,604
Dinwiddie	73268	RT 1 - IMPROVE INTERSECTION AT RTE 226			Intersection Improvements	\$3,279,337
Dinwiddie	80993	Rte 600 ROUNDABOUT At Rte 226			Intersection Improvements	\$3,279,337
Hopewell	1436	Cedar Level Rd. (PE and RW)	North Avenue	Cobblestone Parkway	Widen 2L to 4L	\$6,320,995
Hopewell	90018	Cedar Level Rd. (PE and CN)	Cobblestone Parkway	Miles Avenue	Widen 2L to 4L	\$13,500,000
Petersburg	101289	PUDDLEDOCK RD - IMPROVE INTERSECTION			Intersection Improvements	\$2,120,000
Petersburg	104036	City of Petersburg, Southside Depot Restoration			Enhancement	\$943,603
Petersburg	117838	US ARMY PROJ FT PICKETT/DSCR/FT LEE	COUNTY DRIVE	FT LEE	Widen 2L to 3L	\$127,000
Petersburg	T204	Tri-Cities MPO Air Quality Maintenance Area			Budget	\$17,000,000
Prince George	87941	RTE 630 - ROUNDABOUT AT AVENUE A - FT LEE (0.2000 KM)			Intersection Improvements	\$115,571
Prince George	100499	RTE 460 - ADD LEFT TURN LANE WESTBOUND AT RTE 657			Intersection Improvements	\$2,488,523
Prince George	105110	RTE 106 - ADD RIGHT TURN LANE			Intersection Improvements	\$1,060,905
Prince George	105131	RTE 645 & RTE 144 - INTERSECTION IMPROVEMENT			Intersection Improvements	\$1,283,741

Jurisdiction	UPC	Description/Facility/Location	From	To	Improvement Type	Total Cost/ Estimate
MPO-wide	115085	SUPPLEMENTAL MPO PLANNING STAFF FUNDING FOR CRATER PDC FY19			Planning	\$31,178
MPO-wide	115897	SUPPLEMENTAL MPO PLANNING STAFF FUNDING FOR CRATER PDC FY20			Planning	\$22,000
MPO-wide	115898	SUPPLEMENTAL MPO PLANNING STAFF FUNDING FOR CRATER PDC FY21			Planning	\$85,000
MPO-wide	117864	SUPPLEMENTAL MPO PLANNING STAFF FUNDING FOR CRATER PDC FY22			Planning	\$85,000
MPO-wide	115900	SUPPLEMENTAL MPO PLANNING STAFF FUNDING FOR CRATER PDC FY23			Planning	\$85,000
MPO-wide	115902	SUPPLEMENTAL MPO PLANNING STAFF FUNDING FOR CRATER PDC FY24			Planning	\$85,000
MPO-wide	72904	SUPPLEMENTAL MPO PLANNING STAFF FUNDING FOR CRATER PDC			Planning	\$1,159,610
Statewide	100432, 103754	Project Oversight and PPTA Debt Service (Rt 460 Corridor Improvement Project)			Budget	\$147,584,203
Statewide	T20741	Vehicle Fuel Conversion Program Marketing			Budget	\$360,000
Statewide	T11802	Vehicle Fuel Conversion Program			Budget	\$8,640,000
Statewide	115852	ITTF FY20 Micro Transit			Traffic Management/ Engineering	\$500,000
Statewide	116651	# I-95 CIP CCTV Program UPC - Funding Source Only	Various		Safety	\$15,605,683
Statewide	116652	# I-95 CIP Changeable Message Sign Program	Various		Safety	\$3,240,000
Statewide	116653	# I-95 CIP Safety Service Patrols Program	Various		Safety	\$1,516,666
Statewide	116654	# I-95 CIP TRIP Towing Program	Various		Safety	\$2,200,000
Statewide	116655	# I-95 CIP Towing Program	Various		Safety	\$1,200,000
Statewide	116656	# I-95 CIP Variable Speed Limits	Various		Safety	\$15,144,615
Statewide	116657	# I-95 CIP Ramp Metering Program	Various		Safety	\$5,700,000
Statewide	116658	# I-95 CIP Geofenced Emergency Notice	Various		Safety	\$200,000
Statewide	116659	# I-95 Advanced Work Zone Tech Program	Various		Safety	\$1,000,000
Statewide	116660	# I-95 Regional Multimodal Mobility Program	Various		Safety	\$5,400,000
Statewide	116661	# I-95 Corridor Technology Improvement Program	Various		Safety	\$4,300,000

**PLAN2045 FUTURE YEAR REGIONALLY SIGNIFICANT PROJECTS\***

Chesterfield	112660	N ENON CHURCH ROAD WIDENING	Route 10	MPO Line	Widen 2L to 4L	\$14,300,000
Chesterfield		EAST-WEST FREEWAY (2 LANES: Public/Private)	ROUTE 1	(WEST OF BRANDERS BRIDGE ROAD (2.3 miles)	New Road	\$90,000,000
Chesterfield		WOODS EDGE RD WIDENING	ROUTE 1	EAST OF RR TRACKS	Widen 2L to 4L	\$5,800,000
Colonial Heights		TEMPLE AVE - CONDUIT TO ECL WIDENING	CONDUIT RD	ECL COLONIAL HTS	Widen 4L to 6L	\$14,500,000
Hopewell		CEDAR LEVEL ROAD SOUTHERN SEGMENT	North Avenue	Woodlawn St.	Widen 2L to 4L	\$10,000,000

**TRANSIT PROJECTS - FFY 2021-2024 MTIP**

<b>Jurisdiction</b>	<b>UPC</b>	<b>Description/Facility/Location</b>	<b>From</b>	<b>To</b>	<b>Improvement Type</b>	<b>Total Cost/ Estimate</b>
PAT (Petersburg Area Transit)	PAT0001	PAT OPERATING ASSISTANCE			Public Transportation	\$10,136,000
PAT (Petersburg Area Transit)	PAT0009	PAT PURCHASE SIGN EQUIPMENT			Public Transportation	\$140,000
PAT (Petersburg Area Transit)	PAT0013	PAT PURCHASE REPLACEMENT BUSES			Public Transportation	\$870,000
PAT (Petersburg Area Transit)	PAT0017	PAT PURCHASE BUS STOP AMENITIES (BENCHES)			Public Transportation	\$77,000
PAT (Petersburg Area Transit)	PAT0018	PAT PURCHASE RADIOS			Public Transportation	\$21,000
PAT (Petersburg Area Transit)	PAT0019	PAT PURCHASE SUPPORT VEHICLES			Public Transportation	\$125,000
PAT (Petersburg Area Transit)	PAT0020	PAT ADP HARDWARE			Public Transportation	\$29,000
PAT (Petersburg Area Transit)	PAT0021	PAT REHAB/RENOV ADMIN BLDG			Public Transportation	\$100,000
PAT (Petersburg Area Transit)	PAT0022	PAT FEASIBILITY STUDY MTC FACILITY			Public Transportation	\$40,000
PAT (Petersburg Area Transit)	PAT0023	PAT DESIGN & ENGR MTC FACILITY			Public Transportation	\$500,000
PAT (Petersburg Area Transit)	PAT0025	PAT PURCHASE SURVEILLANCE/ SECURITY EQUIP			Public Transportation	\$11,000
PAT (Petersburg Area Transit)	PAT0026	PAT PURCHASE BUS STOP AMENITIES (BUS STOP SIGNS)			Public Transportation	\$32,000
PAT (Petersburg Area Transit)	PAT0035	PAT PREVENTATIVE MAINTENANCE			Public Transportation	\$3,806,000
PAT (Petersburg Area Transit)	PAT0043	PAT PASSENGER SHELTERS			Public Transportation	\$50,000
CDA	CDA001	PAT Purchase Paratransit Vehicles			Public Transportation	\$180,000

## Chapter 11 Environmental Justice Analysis of *Plan2045*

Sources Used:

- [2015 Environmental Justice Reference Guide \(April 2015\)](#)
- [FTA Circular 4703.1 - FTA Environmental Justice Policy Guidance for Federal Transit Administration Recipients](#)
- [EPA's Toolkit for Assessing Potential Allegations of Environmental Injustice](#)

Environmental Justice (EJ) at the Federal Highway Administration means identifying and addressing disproportionately high and adverse effects of the agency's programs, policies, and activities on minority populations and low-income populations to achieve an equitable distribution of benefits and burdens. This includes the full, fair, and meaningful participation by all potentially affected communities through all phases of transportation decision-making.

According to FTA Circular 4703.1:

"The guiding EJ principles followed by DOT and FTA are briefly summarized as follows:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations.
- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations."

According to page 7 of the FHWA's Environmental Justice Reference Guide:

FHWA considers EJ in all phases of project development including planning, environmental review, design, right-of-way, construction, and maintenance and operations. FHWA also considers EJ in all other programs and activities, such as public involvement, freight planning, safety measures, tribal consultation, and the Title VI Civil Rights Program.

This chapter of *Plan2045* identifies and addresses disproportionately high and adverse effects on the MPO's programs, policies, and activities identified in *Plan2045*:

- I. Regionally Significant Candidate Projects
- II. STBG, CMAQ, and TA programs selected by the MPO
- III. Our other Performance-Based Planning and Programming System for programs, policies, and activities

On page 27 of the *Federal Highway Administration Environmental Justice Reference Guide (April 2015)*, these are noted as the “Responsibilities for Recipients of Federal Funds:”

“Agencies that receive Federal funding – such as MPOs, State DOTs, and public transit operators – are responsible for involving traditionally underserved and underrepresented populations in transportation planning and complying with relevant Federal agency guidance.

- 7 For multimodal transportation projects, State and MPOs refer to FHWA guidance as well as the FTA EJ Circular 4703.1. Federal funding recipients can incorporate EJ into their planning activities through a variety of ways, but some common methods include:
  - Developing EJ procedures, goals, and performance measures relating to the agency’s mission.
  - Enhancing public involvement activities to ensure the meaningful participation of minority and low-income populations.
  - Analyzing and documenting how policies, processes, and planning products impact minority and low-income populations.

The remainder of this section discusses EJ considerations for specific planning documents.

Statewide Long-range Transportation Plan/Metropolitan Transportation Plan:

Each State DOT and MPO must develop a long-range plan that describes the development and implementation of the multimodal transportation system for the State (SLRTP) and metropolitan area (MTP), respectively, and forecasts out a minimum of 20-years from the time of adoption.

- 8 FHWA is responsible for reviewing (but not approving) SLRTPs and MTPs. The MPO shall review and update the MTP at least every 4 years in air quality nonattainment and maintenance areas, and at least every 5 years in attainment areas.
- 9 The SLRTPs and MTPs shall include both long-range and short-range strategies that lead to the development of an integrated multimodal transportation system, facilitate the safe and efficient movement of people and goods, and address current and future transportation demand. This includes identifying minority and low-income communities and evaluating potential system-level social and environmental impacts that may affect minority or low-income populations.”

8 23 CFR 450.214 and 23 CFR 450.322

9 23 U.S.C. 134 and 23 CFR 450.322

According to page 16 of the EPA's [Toolkit for Assessing Potential Allegations of Environmental Injustice](#):

“Adverse effect or impact: Adverse effect or impact is a term used to describe the entire compendium of “significant” (as defined under the National Environmental Policy Act) individual or cumulative human health or environmental effects or impacts which may result from a proposed project or action. Examples of adverse effects or impacts include but are not limited to:

- Bodily impairment, infirmity, illness, or death;
- Air, noise, soil, and water pollution or contamination;
- Destruction or disruption of man-made or natural resources;
- Destruction or disruption of aesthetic values;
- Destruction or disruption of community cohesion or a community’s economic vitality;
- Destruction or disruption of the availability of public and private facilities and services;
- Vibration;
- Adverse employment effects;
- Displacement of persons, businesses, farms, or nonprofit organizations; and
- Increased traffic congestion, isolation, exclusion, or separation of individuals within a community or from a broader community.

Disproportionately high and adverse effects or impacts: Means an adverse effect or impact that: (1) is predominately borne by any segment of the population, including, for example, a minority population and/or a low-income population; or (2) will be suffered by a minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect or impact that will be suffered by a non-minority population and/or non-low-income population.”

### Plan2045 Regionally Significant Candidate Projects

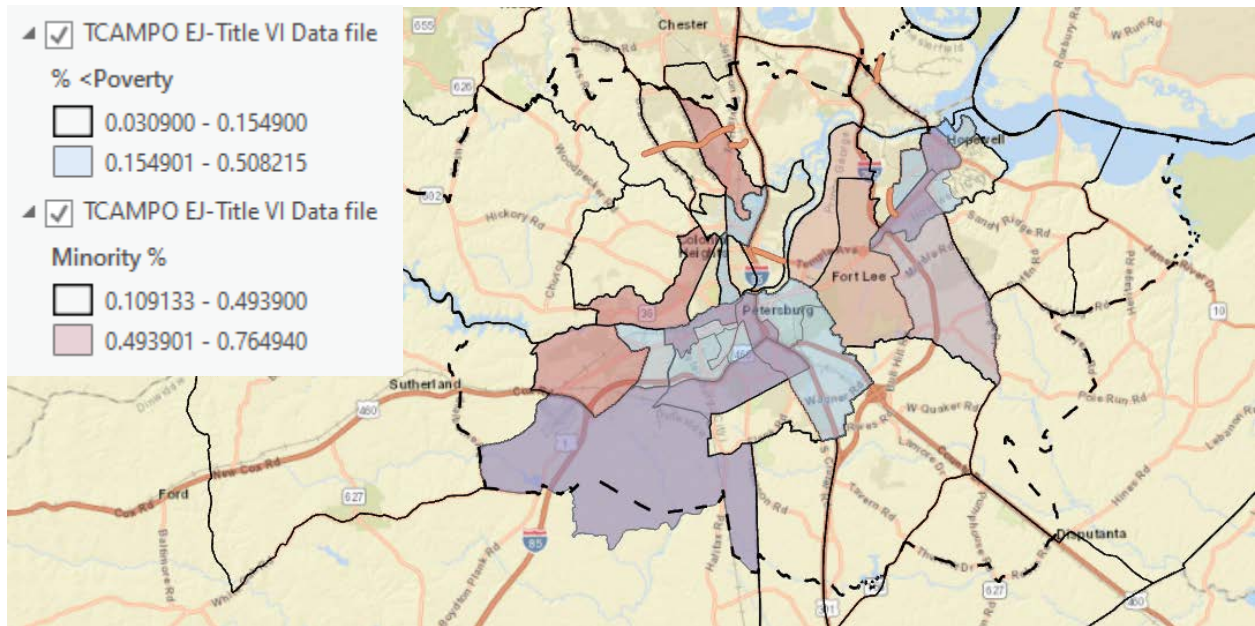
These projects were selected starting with the identification of major projects identified in the RTC Model, TCAMPO’s Congestion Management Process (2016). One factor of the MPO’s Multimodal Performance-Based Planning and Programming System (PBPPS) is its benefit on environmental justice populations (low-income, minority, and LEP).

The five Regionally Significant Projects in the CLRP List of *Plan2045* (Figure 11-1) are:

1. Widen N. Enon Church Rd from Meadowville Tech Parkway to Route 10 (from 2 to 4 lanes) - *note: finishes 4-lane cross section*

2. East-West freeway (new 2-lane facility) from west of Branders Bridge Rd to Route1 (public/private)
3. Widen Woods Edge Rd from Route 1 to just east of the railroad tracks (from 2 lanes to 4 lanes) - *note: finishes 4-lane cross section*
4. Widen Temple Avenue (widen in the median) from Conduit Rd. to East City Line (from 4 lanes to 6 lanes) – *addresses current and future congestion*
5. Widen Cedar Level Road (from 2 to 4 lanes) – *note: finishes 4-lane cross section*

**Figure 11-1: Environmental Justice Census Tracts**



Each project was reviewed for impact on the natural and cultural environment in the Project Scoring, using GIS and Census Tracts in 2017 with higher-than-average low-income percentage populations and higher-than-average minority percent populations.

*Note: The Plan2045 Project Prioritization system scored using 1) higher- than- average low-income percentage populations, 2) higher- than- average minority percent populations, and 3) higher- than- average percentage LEP populations.*

Two projects had slight cultural environmental impacts (N. Enon Church Road and Cedar Level Road).

Each project was also reviewed for impact (positive or negative) on EJ population Census Tracts (see Table 11-1)

There are minimal impacts on natural resources and impacts on the EJ populations. The only right-of-way acquisition involved in a project in an EJ area (Cedar Level Road) was

already acquired many years ago. It should also be noted that the Cedar Level Road project will improve access to non-work destinations in EJ populations.

**Table 11-1: Environmental Justice Negative Impacts Review**

Adverse Impact Type to EJ Areas	N. Enon Church Rd Widening	East-West Freeway	Woods Edge Rd Widening	Temple Ave - Conduit to ECL	Cedar Level Rd
Bodily impairment, infirmity, illness, or death;	No	No	No	No	No
Air, noise, soil, and water pollution or contamination;	No	No	No	No	No
Destruction or disruption of man-made or natural resources;	No	No	No	No	No
Destruction or disruption of aesthetic values;	No	No	No	No	No
Destruction or disruption of community cohesion or a community's economic vitality;	No	No	No	No	No
Destruction or disruption of the availability of public and private facilities and services;	No	No	No	No	No
Vibration;	No	No	No	No	No
Adverse employment effects;	No	No	No	No	No
Displacement of persons, businesses, farms, or nonprofit organizations; and	No	No	No	No	No
Increased traffic congestion, isolation, exclusion, or separation of individuals within a community or from a broader community.	No	No	No	No	No

### TCAMPO's STBG and CMAQ Processes:

As noted in previous Sections of Plan2045 (particularly Section 8: Plan2045 Performance-based Project Prioritization Methodology), the TCAMPO has developed a project prioritization process to evaluate projects for the Plan and for projects in the various programs (especially STBG and CMAQ). The scoring method includes benefits to EJ populations. STBG, CMAQ and other programs' projects are by nature smaller and are not expected to adversely impact EJ populations and communities. TCAMPO is working with the GAP consultant to better score projects in meeting the priorities of the MPO (including EJ impacts).

As noted throughout the *Plan2045* document, there are EJ populations in all 6 of the member localities, and our vision is to "encourage a transportation system that equitably improves safety, economic vitality, and quality of life for people living and working in the Tri-Cities area." This vision means the TCAMPO will do all it can to fulfill this vision both now and in the future.