

Eastern Frederick County Transportation Study (EFCTS)

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EASTERN FREDERICK COUNTY TRANSPORTATION STUDY

www.FCVA.us/Departments/Planning-Development/Transportation

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Frederick County

including John Bishop, Wyatt Pearson, and Kayla Peloquin;



Virginia Department of Transportation

including Brad Reed;



McCormick Taylor

The lead consultant for the Eastern Frederick County Transportation Study (EFCTS).

Acronyms

| | |
|-----------------|---|
| ACS | American Community Survey |
| ADT | Average Daily Traffic |
| CBD | Central Business District |
| CEI | Construction Engineering and Inspection |
| CLV | Critical Lane Volume |
| CMS | Changeable Message Sign |
| EDA | Economic Development Authority |
| EFCTS | Eastern Frederick County Transportation Study |
| EIS | Environmental Impact Statement |
| EJScreen | Environmental Justice Screen |
| EPA | Environmental Protection Agency |
| ESC | Erosion and Sedimentation Control |
| FI | Fatal/Injury |
| GIS | Geographic Information System |
| I-81 | Interstate 81 |
| iCAP | Interchange Control Assessment Program |
| LOS | Level of Service |
| MP | Milepost |
| MOT | Maintenance of Traffic |
| MPO | Metropolitan Planning Organization |
| NSVRC | Northern Shenandoah Valley Regional Commission |
| NTP | Notice to Proceed |
| PEP | Public Engagement Plan |
| PSI | Potential for Safety Improvement |
| RMSE | Root Mean Square Error |
| ROD | Record of Decision |
| ROW | Right of Way |
| SCALE | Safety, Congestion reduction, Accessibility, Land use, and Economic development and the Environment |

| | |
|----------------|--|
| SS4A | Safe Streets for All |
| SAAA | Shenandoah Area Agency on Aging |
| SMART | System for the Management and Allocation of Resources for Transportation |
| SPF | Safety Performance Function |
| SPM | Signal Performance Measure |
| STARS | Strategically Targeted Affordable Roadway Solutions |
| SWM | Stormwater Management |
| SYIP | Six Year Improvement Plan |
| TAZ | Traffic Analysis Zones |
| TIA | Transportation Impact Analysis |
| UDA | Urban Development Area |
| USACE | United States Army Corps of Engineers |
| USDOT | United States Department of Transportation |
| VADEQ | Virginia Department of Environmental Quality |
| V/C | Volume to Capacity |
| VDOT | Virginia Department of Transportation |
| VHSIP | Virginia Highway Safety Improvement Program |
| VJuST | VDOT's Junction Screening Tool |
| VMT | Vehicle-miles Traveled |
| VPD | Vehicles per Day |
| VWP | Virginia Water Protection |
| WinFred | Winchester/Frederick County |
| WMSA | Washington Metropolitan Statistical Area |
| WRA | Whitman, Requardt and Associates, LLP |

Introduction

Study Overview

Frederick County, Virginia is pursuing this study of transportation needs and possible solutions for the area to the east of the City of Winchester. As shown in **Figure 1**, the study area will include Interstate 81 (I-81) in the west to the Frederick County/Clarke County line in the east; and will extend from Route 761 on the north side of the city to the Tasker Road area east of the I-81 Exit 310.

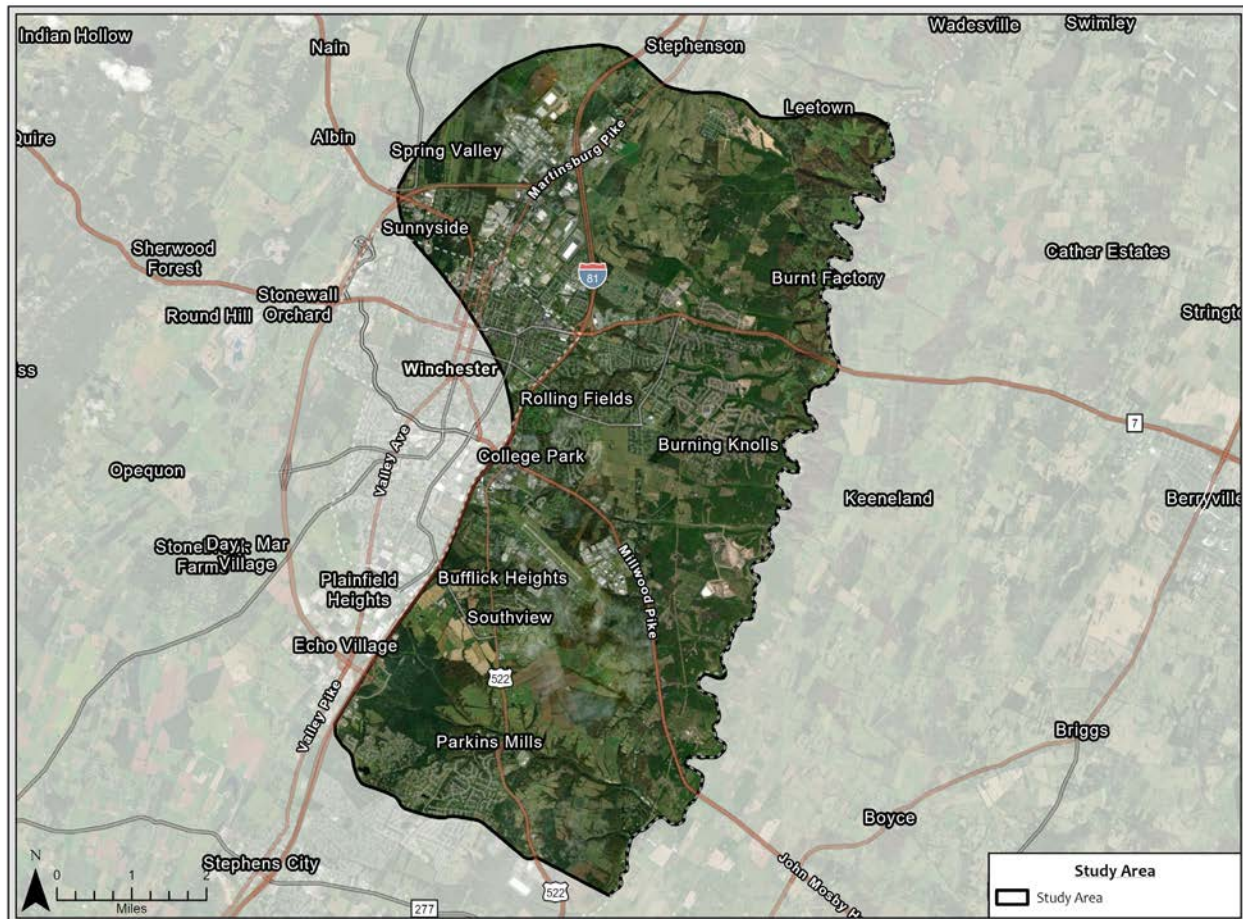


Figure 1: Study Area

The study identified and documented specific transportation needs before developing potential solutions as concepts. The public had opportunities to provide input on both the needs and conceptual solutions. Conceptual solutions were refined for public comment and an implementation plan was developed to include a prioritized list of improvements with estimates of probable costs. This plan will be used by the County for funding transportation improvements in the study area.

The study team was aware of previous efforts to pursue a Route 37 east bypass around Winchester. A bypass was considered, along with other possible transportation improvements, during the conceptual solution development and analysis process. The goal of the study is to develop a well-defined set of transportation needs to be addressed by a fiscally implementable set of transportation improvements. Additional recommendations, such as land use or access management controls, will also be included in the final plan. Additional alternatives analyses as a part of a Phase II study will be required to further develop alternatives to be viable for grant funding such as SMART SCALE.

Project Purpose

The purpose of this study is to develop and evaluate a range of alternatives to improve mobility and safety for all road users, reduce congestion, and enhance system continuity while meeting the needs of interstate, regional, and local traffic passing through and moving within the study area, including the evaluation of the proposed Route 37 bypass.

Board of Supervisors Vision Statement

“Ensuring the quality of life of all Frederick County Citizens by preserving the past and planning for the future through sound fiscal management.”

Past & Current Studies

Route 37 Bypass- Final EIS and UPC 85972 Study Updates

The Environmental Impact Statement (EIS) for the Route 37 east bypass and existing Record of Decision (ROD) was completed in 2001 and left the County, stakeholders, and the permitting agencies at a crossroads in the course of action to move forward. Several options and traffic forecasts were created as part of this activity and a final alignment with detailed environmental impacts and mitigations was identified for this project. The final solution was a four-lane, limited access alternative with several interchanges with key roadways along the corridor. However, traffic volumes have not met those projections to date and the five-year validity of those forecasts have rendered the EIS and ROD unusable.

From 2010 to 2013, there was a Route 37 Eastern Bypass Study (UPC 85972) which updated the prior ROD. Modifications were made to the prior alignments to upgrade and address geometry concerns. The resulting alignments continued the divided highway concept with interchanges. The work from this study was incorporated into the [Frederick County Comprehensive Plan](#).

Frederick County US 11 to Route 7 Connector Technical Memo

Frederick County requested assistance from VDOT Staunton District Planning in assessing the pros and cons of a more direct connection between US 11 and Route 7 as it compares to existing route options. The analysis looked at existing data to identify needs prior to providing two alternatives. While this memo is a great starting point, there needs to be a more formal study/alternatives analysis completed for any alternatives to be eligible for SMART SCALE funding.

Route 7 STARS Corridor Study

The study of the Route 7 Strategically Targeted Affordable Roadway Solutions (STARS) corridor from Pleasant Valley Road to Greenwood Drive/First Woods Drive was completed by Michael Baker and finalized in September 2021. Several improvements at intersections along this corridor were included in that study, and certain improvements have advanced through other funding means. Traffic problems along this corridor are expected to continue.

I-81 Corridor Improvement Program

The I-81 Corridor Improvement Program consists of innovative, targeted improvements that will have a substantial effect on the safety and reliability of a critical portion of the nation's infrastructure. Within Virginia, I-81 connects 30 colleges and universities, 21 cities and towns, and 13 counties. It parallels the Blue Ridge Parkway, making this program critical to supporting job growth and economic vitality while reducing congestion, enhancing safety and reliability, and improving quality of life for everyone in the region. The 325-mile corridor spans three Virginia Department of Transportation (VDOT) districts and also acts as a critical north-south backbone of the East Coast's freight network. Nearly 50% of the state's value of goods are transported along the corridor, which has the highest per capita truck volume in Virginia¹. This study was used as information only and referenced for problems identified during the course of the Eastern Frederick County Transportation Study (EFCTS) project. The I-81 Corridor Improvement Program is advancing independently and will address several problems identified by the public during the EFCTS project.

Frederick County Comprehensive Plan

The Comprehensive Plan is the guide for the future growth of Frederick County. The latest version was adopted on November 10, 2021, by the Frederick County Board of Supervisors. Information from this Plan was used as input into this study.

1 VDOT, "What is the I-81 Corridor Improvement Program", Improve 81, <https://improve81.vdot.virginia.gov/>

Potential Sites Identified by Other Studies

There are multiple simultaneous efforts and studies occurring within Frederick County as captured in **Table 1**. To gain a complete picture of the areas of concern in the County, the previous studies below were evaluated.

| Serial | Title | Agency & Year of Publication |
|--------|--|------------------------------|
| 1 | Northeast Frederick Land Use Plan-Proposed Lane Divide | Frederick County, 2022 |
| 2 | The 2035 Comprehensive Plan Assessment Need | Frederick County, 2017 |
| 3 | Frederick County Primary & Secondary Road Improvement Plan | Frederick County, 2022 |
| 4 | VDOT Staunton District Planning | VDOT, 2019 |
| 5 | North Winchester Area Safety and Operational Analysis Report | WinFred MPO, 2020 |
| 6 | Route 7 STARS Corridor Study | VDOT, 2021 |
| 7 | US 522 Realignment Study | NSVRC/WinFred MPO, 2022 |
| 8 | 2035 Virginia Surface Transportation Plan | VDOT, 2010 |
| 9 | 2045 Metropolitan Transportation Plan | WinFred MPO, 2022 |
| 11 | Frederick County ArcGIS REST Services | Frederick County |
| 12 | PSI Top 100 Segments and Intersections | VDOT, 2023 |

Table 1: Studies and Other References Reviewed

Table 2 shows the sites in the study area with potential improvement scopes or known transportation issues as reported in prior studies. It also shows whether they were noted by stakeholders, the road classification, and if they were identified as a Potential Safety Improvement (PSI) intersection or segment according to VDOT based on crash data from 2018 to 2022.

Of the top roads in **Table 2**, US 11/Martinsburg Pike has been discussed for both operational and safety improvements via widening and I-81 interchange reconfiguration. The second project has been studied for installing partial median U-turn intersections and US 17/50 widening. Notable plans tested or considered for the remaining roads include Redbud Road realignment, realigning US 522 near US 50 to mitigate congestion, and adding turn lanes at the intersection of Senseny Road and Crestleigh Drive.

| Location | Studies Covered | Noted by Stakeholders | 2050 V/C >1 | Major Collector | Improved Major Collector | Minor Collector | Improved Minor Collector | Minor Arterial | PSI Intersections | PSI Segment |
|--|-----------------|-----------------------|-------------|-----------------|--------------------------|-----------------|--------------------------|----------------|-------------------|-------------|
| US-11/ Martinsburg Pike | 8 | 12 | ✓ | | ✓ | | | | 6 | |
| I-81 Exit 313 Bridge/ Millwood Pike/US 50 | 7 | 10 | ✓ | | | | | ✓ | 3 | ✓ |
| I-81 Exit 317 and Redbud Road | 6 | 13 | | | ✓ | | | | | |
| Route 7/ Berryville Pike | 5 | 12 | ✓ | ✓ | | | | | 9 | ✓ |
| US 522/Front Royal Pike Near US-50 | 5 | 3 | | | | | | | 2 | ✓ |
| Snowden Bridge | 4 | 2 | | | ✓ | | | | | |
| Senseny Road | 4 | 4 | ✓ | | ✓ | | | | 2 | ✓ |
| Warrior Drive | 3 | 3 | | | ✓ | | | | 1 | |
| Parkins Mill Road | 2 | 0 | | | ✓ | | | | | |
| Papermill Road | 2 | 0 | | | ✓ | | | | | |
| Old Charles Town Road | 2 | 1 | ✓ | | ✓ | | | | 1 | |
| Tasker Road | 2 | 1 | ✓ | | ✓ | | | | 1 | ✓ |
| Inverlee Way Extension | 1 | 0 | | | | | | | | |
| Getty Lane | 1 | 0 | | | | | ✓ | | | |
| Valley Mill Road | 1 | 2 | | | ✓ | | | | | |
| Farmington Boulevard | 1 | 0 | | | | | ✓ | | | |
| Highcliffe Drive | 1 | 0 | | | | ✓ | | | | |
| Coverstone Drive | 1 | 0 | | ✓ | | | | | | |
| Prince Frederick Drive | 1 | 0 | | | | | | ✓ | | |
| Crossover Boulevard | 1 | 1 | | ✓ | | | | | | |

Table 2 : Roads That Showed Up in Past Studies | Sources: Frederick County, NSVRC, VDOT, WinFred MPO

| Location | Studies Covered | Noted by Stakeholders | 2050 V/C >1 | Major Collector | Improved Major Collector | Minor Collector | Improved Minor Collector | Minor Arterial | PSI Intersections | PSI Segment |
|----------------------------|-----------------|-----------------------|-------------|-----------------|--------------------------|-----------------|--------------------------|----------------|-------------------|-------------|
| Independence Drive | 1 | 0 | | | ✓ | | | | | |
| Coldwell Lane | 1 | 0 | | | | ✓ | | | | |
| White Oak Road | 1 | 1 | | | ✓ | | | | | |
| Brabant Drive | 1 | 0 | | | | | ✓ | | | |
| Fox Drive | 1 | 0 | | | | | | | | |
| East Tevis Street | 1 | 0 | | | | | | | | |
| Sulphur Spring Road | 1 | 0 | | | | | | | | |
| North Frederick Pike | 1 | 0 | | | | | | | 1 | ✓ |
| North Pleasant Valley Road | 1 | 0 | | | | | | | 2 | ✓ |
| Greenwood Road | 1 | 3 | ✓ | | | | | | 2 | ✓ |
| Martin Drive | 0 | 0 | ✓ | | | | | | | |
| Macedonia Church Road | 0 | 0 | ✓ | | | | | | | |

Table 2 (Continued): Roads That Showed Up in Past Studies | Sources: Frederick County, NSVRC, VDOT, WinFred MPO

Existing Conditions

Environmental Overview

Demographics & Socioeconomics

The study area is primarily located within the Urban Development Area (UDA) of Frederick County. To accommodate anticipated residential growth, this portion of the County has been identified as the area where more intensive forms of residential development will occur. While the UDA currently consists of primarily suburban residential types of development, with some multifamily units, particular areas have been identified to accommodate a more intensive mix of land uses and residential housing opportunities.²

Due to the suburban-style of development within the Study Area, the transportation network is primarily auto-centric. Public transit is currently unavailable within Frederick County; however, the County has recently participated in the Winchester/Frederick County (WinFred) Metropolitan Planning Organization (MPO) Transit Feasibility Study to determine how this can be improved. Dedicated bicycle and pedestrian infrastructure are currently limited within the study area as well; however, are encouraged in the Comprehensive Plan for new development and retrofits where logical. Goal 1 in the Community Benefits Section of the Comprehensive Plan is “to promote the development of new roadways and the redevelopment of existing roadways in a manner that makes them open, available, and safe to all modes of transportation.” Regarding parks access, another goal is “to have every resident of Frederick County’s UDA within walking or biking distance of a recreation area.” These goals illustrate the sincere commitment by the County to increase walking and biking in their community.

According to the Comprehensive Plan, Frederick County has grown significantly in the past two decades in both population and economic development. One of the contributors to the County’s population growth was the migration of people from inside of the Washington Metropolitan Statistical Area (WMSA) to Frederick County for a higher quality of life including lower housing costs and a lower tax rate. Frederick County, because of its location and excellent access to Northern Virginia and Washington, D.C., has become a desirable place to live for those commuters. Frederick County has also become an attractive place to live for retirees. The UDA should allow for housing that will meet the

² Frederick County, “Residential Development: Current Conditions”, Frederick County Comprehensive Plan

needs of first-time buyers, retirees, move-up residents, and seniors.³

While the Comprehensive Plan does not state projected numbers for the total population or jobs in 2035, the WinFred MPO shared combined projections for the City of Winchester and Frederick County in their Transportation Plan 2040 (see **Figure 2**). Growth in population

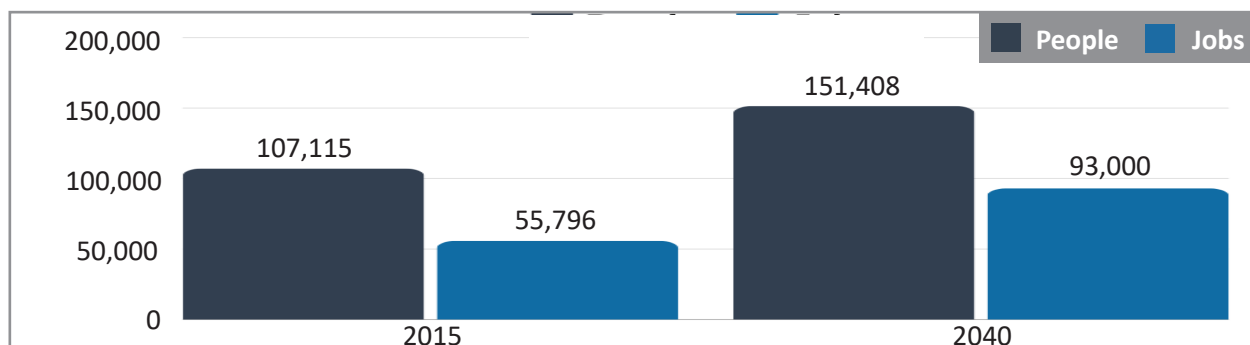


Figure 2: Combined Projected Growth | Source: WinFred MPO Transportation Plan 2040

and employment will continue to place significant demands on the transportation system.

As stated in the Comprehensive Plan, studies performed by the Economic Development Authority (EDA) have shown that Frederick County remains primarily an in-commute location. Frederick County is also home to a large population of residents that commute out of the County for employment. According to the U.S. Census, 89.90% of County workers aged 16 years and over drive to work with an average commute time of 33 minutes, compared to 75% of Virginian workers aged 16 years and over with an average commute time of 25 minutes. See **Table 3** for the means of transportation utilized to travel to work in Frederick County.

³ Frederick County, “Residential Development: Focus for the Future”, Frederick County Comprehensive Plan

| Means of Transportation to Work | Percent |
|---|---------|
| Drove Alone | 81.10% |
| Carpooled | 8.80% |
| Public Transportation (Excluding TaxiCab) | 0.30% |
| Walked | 1.10% |
| Bicycle | 0.10% |
| Taxicab, Motorcycle, or Other Means | 0.80% |
| Worked From Home | 7.80% |

Table 3: Frederick County Journey to Work
Source: American Census Survey 2021

Refer to **Figure 3** for a depiction of where workers who are employed in Frederick County live.

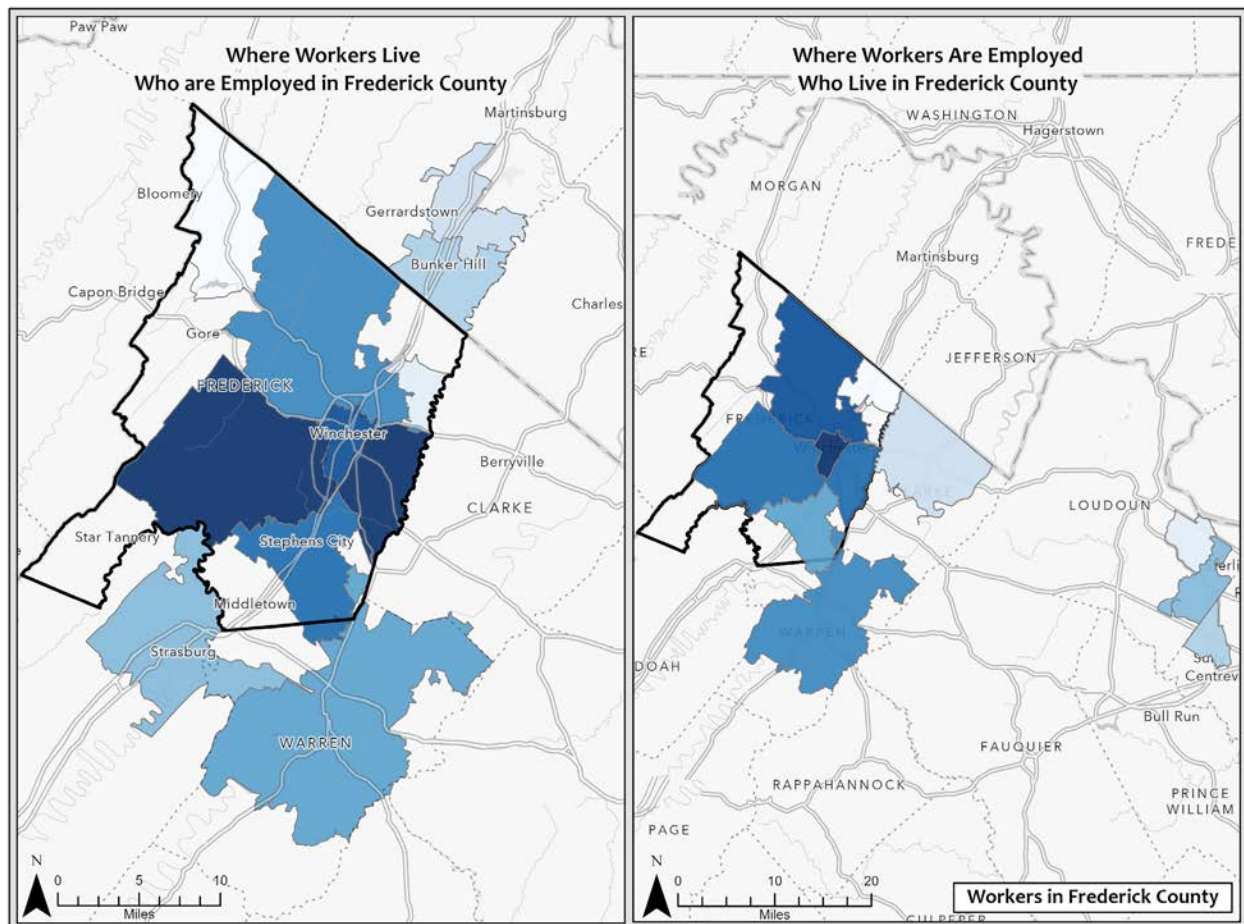


Figure 3: Workers in Frederick County | Source: US Census Bureau, On the Map

According to the U.S. Census Bureau On The Map tool:

- 31,895 people live within Frederick County but are employed outside of the County.
- 18,810 people are employed within Frederick County, but live outside of the County.
- 9,460 people are employed and live within Frederick County.

Using the United States Environmental Protection Agency (USEPA) Environmental Justice Screen (EJScreen), low-income populations (see **Figure 4**) and populations over the age of 64 (see **Figure 5**) were analyzed. EJScreen uses American Community Survey (ACS) 2021 5-year estimate data. The low-income populations and populations over the age of 64 in Frederick County were compared to the state of Virginia. The state percentile signifies what percent of the state population has an equal or lower value, meaning a lower percent low-income or population over age of 64.

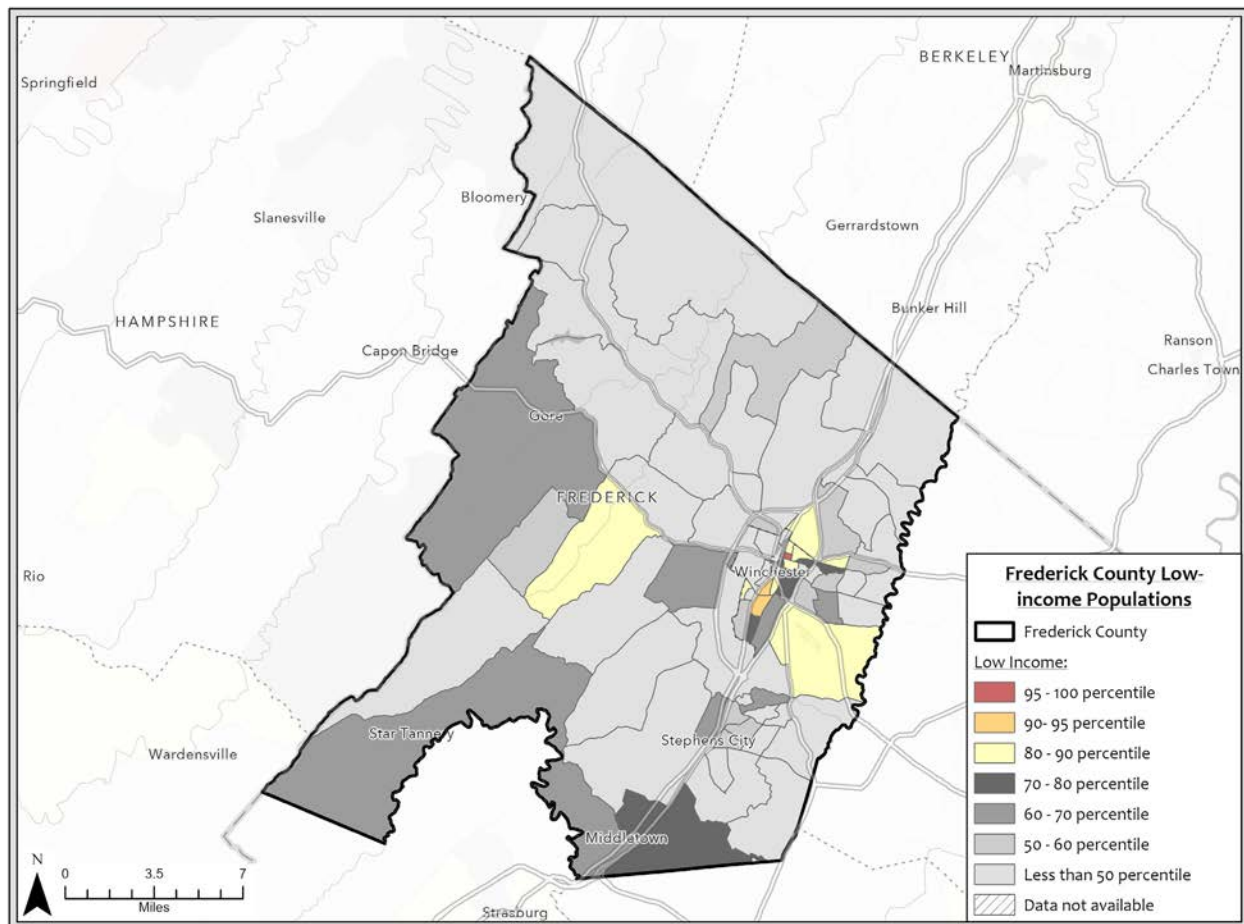


Figure 4: Frederick County Low-Income Populations | Source: US EPA EJScreen

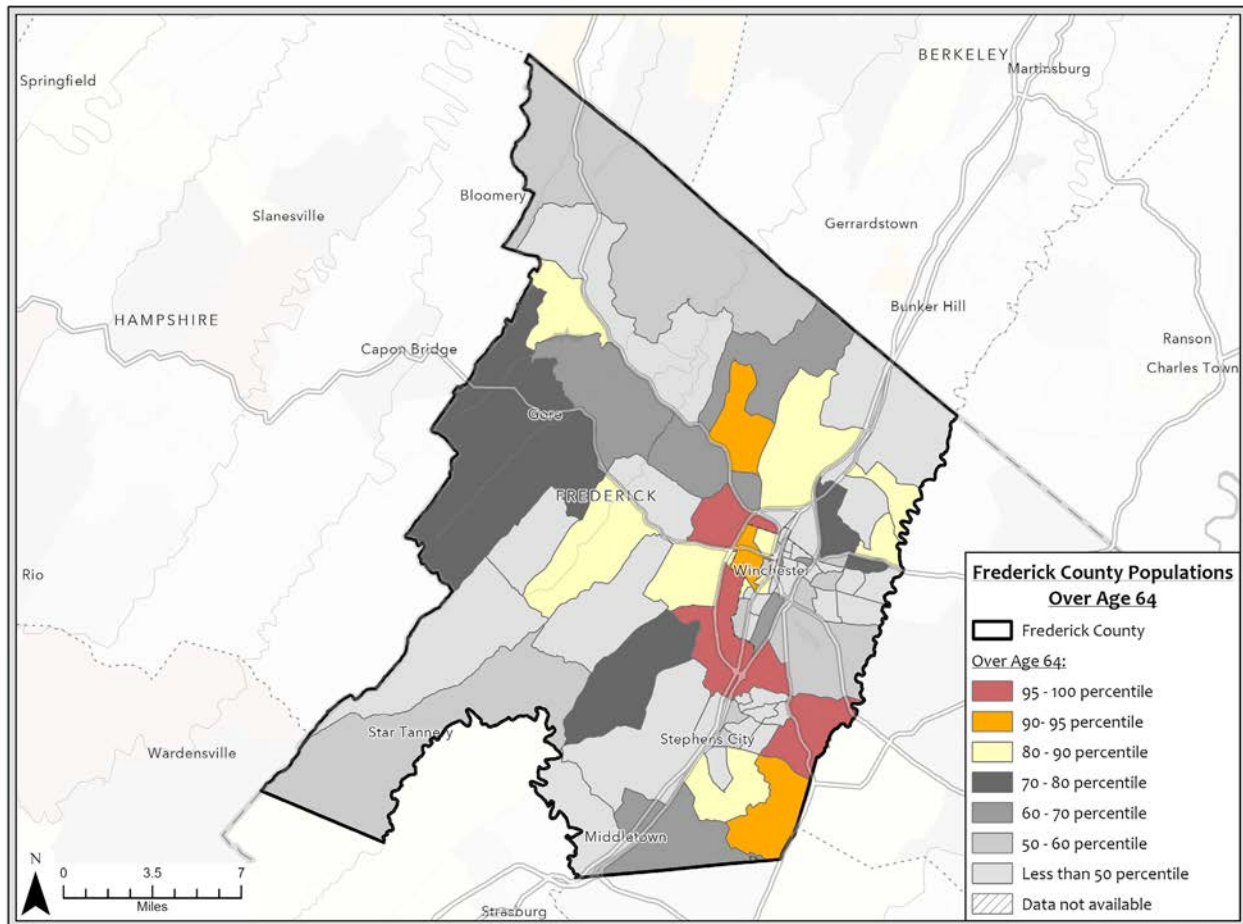


Figure 5: Frederick County Populations Over 64 | Source: US EPA EJScreen

Owning and maintaining a car costs about \$12,000 annually⁴. That means it would make up nearly a third of the household budget for a family of four living right at the poverty line. Populations over the age of 65 include individuals with a wide range of needs and abilities. Many seniors experience physical or financial limitations that prevent them from owning and operating a vehicle while also experiencing an increased need for medical services. Seniors are significant users of human service transportation.

In the Comprehensive Plan, a strategy to increase cost-effective alternatives to vehicles includes coordinating with existing agencies such as the Shenandoah Area Agency on Aging (SAAA) and Access Independence to better accommodate seniors.

Natural Resources

An important component of reviewing transportation alternatives is the analysis of impacted natural resources. This can help guide the alternatives process and identify less

4 American Automobile Association, Your Driving Costs, 2023

impactful solutions.

The United States Army Corps of Engineers (USACE) and the USEPA are the federal agencies which regulate watercourses (streams) as governed by Section 404 of the Clean Water Act. The Virginia Department of Environmental Quality (VADEQ) administers the Virginia Water Protection (VWP) permit program to regulate impacts to surface waters. To protect water quality, VADEQ is also tasked with protecting wetlands and streams to preserve their beneficial uses. The VWP permit program follows Section 62 of the Code of Virginia and federal guidelines under the Clean Water Act Section 401.

The identification of watercourses (streams) identified in the study area are depicted in

| Layer | Source | Metadata or Service URL |
|-----------------------------|---|---|
| 1. Existing County Parks | Frederick County VA GIS | https://fredcogis.fcva.us/maps/rest/services/FC_Planning/Planning_CIP/MapServer/3 |
| 2. Streams | | https://fredcogis.fcva.us/maps/rest/services/FC_GIS/FrederickCountyGIS/MapServer/23 |
| 3. Ponds | | https://fredcogis.fcva.us/maps/rest/services/FC_GIS/FrederickCountyGIS/MapServer/25 |
| 4. Lakes | | https://fredcogis.fcva.us/maps/rest/services/FC_GIS/FrederickCountyGIS/MapServer/24 |
| 5. Floodplains | | https://fredcogis.fcva.us/maps/rest/services/FC_GIS/FrederickCountyGIS/MapServer/20 |
| 6. Community Park | | https://fredcogis.fcva.us/maps/rest/services/FC_Planning/Planning_CIP/MapServer/4 |
| 7. Park Trails | | https://fredcogis.fcva.us/maps/rest/services/FC_Planning/Planning_CIP/MapServer/6 |
| 8. Conservation Easement | | https://fredcogis.fcva.us/maps/rest/services/FC_GIS/FrederickCountyGIS/MapServer/34 |
| 9. Wetlands | US Fish & Wildlife Web Mapping Services | https://fwspublicservices.wim.usgs.gov/wet-landsmapservice/rest/services/Wetlands/Map-Server/0 |
| 10. Human Geography Basemap | ESRI | https://www.arcgis.com/home/item.html?id=3582b744bba84668b52a16b0b6942544 |

Table 4: Natural Resources Native Source Data

Table 4. These layers were imported into a custom webmap that was created for this project to provide many of the graphics in this report.

Streams in the study area include Opequon Creek, Lick Run, Ash Hollow Run, Redbud Run, Abrams Creek, Hoge Run, Buffalo Lick Run, Sulphur Spring Run, Wrights Run, and their tributaries. Many of these streams would be impacted by the construction of the Route 37 bypass or the alternatives included in this report. To avoid impacts to streams

and floodplains, almost one mile of bridges would be required for the proposed projects (5,736 linear feet). Most of the impacts from bridges are on the northern and southern sections of the Route 37 bypass alignment. Measures can be researched during the preliminary engineering phase of these projects to mitigate these effects. Examples of best management practices are retaining walls, using box or pipe culverts where possible, steepening of bank slopes, and usage of wingwalls or abutments to decrease the footprint.

Due to the quantity of streams in the study area, wetland impacts would also be anticipated. Using the existing Geographic Information System (GIS) layers available, a minimum of about 5 acres of wetland impacts are anticipated. Wetland delineation occurs as part of the preliminary engineering process for each project. If temporary wetland impacts occur, they would be restored to pre-construction conditions, succeeding construction, to the maximum extent possible. This would include re-seeding, soil segregation, wetland mapping, and use of sediment/silt rocks. If permanent impacts are unavoidable, mitigation will include the replacement of the wetland within the applicable watershed.

Additional natural resources were considered during our analysis as shown in **Table 4** on the previous page and in **Figure 6** on this page.

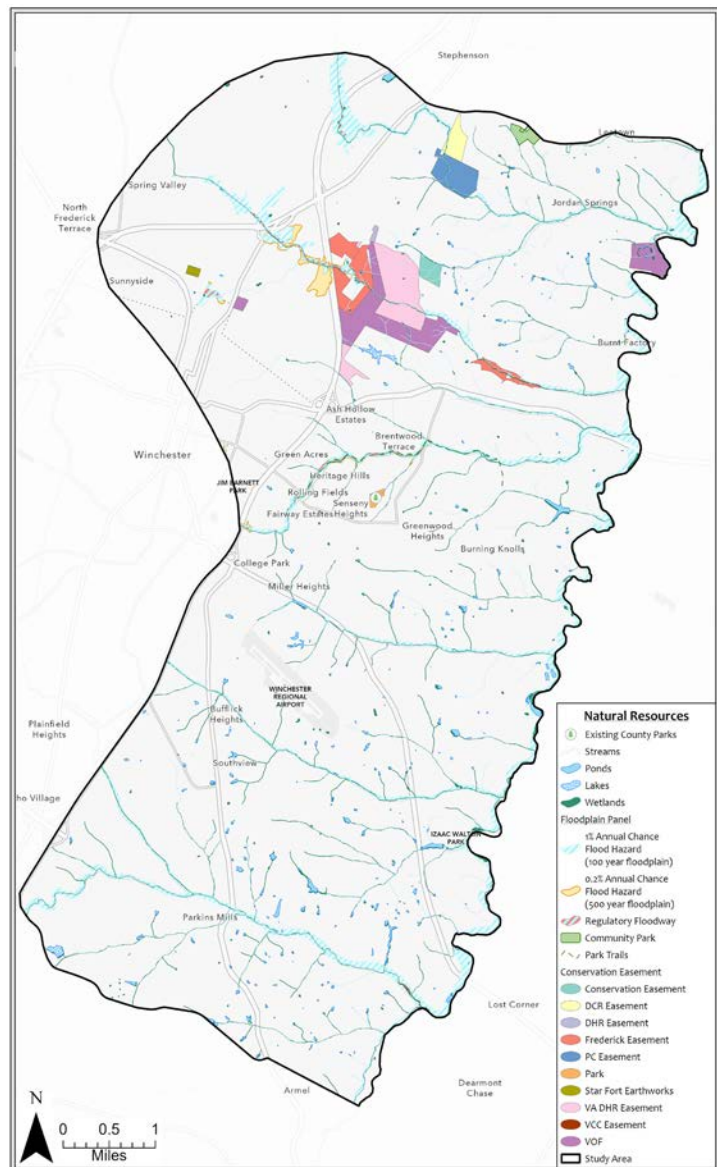


Figure 6: Natural Resources | Source: Frederick County, Virginia Open Source Data

Land Use and Planning

The study utilized the WinFred current travel demand model (2015 base year) and updated demographic forecasts for the ongoing VDOT model update (2020 base year) to get the most accurate information available for the timeframe of the study. The network and traffic analysis zones (TAZs) structure was also modified to include roadway improvements through 2019. In addition, updated future year demographics were used to create a 2050 future year for this analysis. All results should be validated once the travel demand model update is complete from VDOT.

Traffic Analyses

Data collection and analysis efforts focused on using existing available traffic data, including current and future projections (generally a 20-year horizon). No additional traffic counts were completed as part of the study. Traffic generated by new and pending development within, or that influence the transportation network in the study area, was included in the updated demographic forecasts used in the model.

The traffic model used 2019 as the base year and forecasted traffic volumes in 2050. Overall growth in vehicle-miles traveled (VMT) between 2019 and 2050 is 1.7% using a linear growth rate. This growth aligns with that in households (1.2% per year) and external traffic (1.8% per year).

The study area was broken up into TAZs and an analysis was completed to determine what the existing and future traffic patterns look like between these zones. Details of this analysis are included in the report. Another aspect of the analysis was to look at volume to capacity (V/C) ratios. V/C ratios provide a measurement of how well a facility can accommodate traffic. For instance, a ratio of 0 indicates free flow traffic and a ratio of 1 or greater indicates severe congestion. Level of service (LOS) is another metric used to describe traffic flow and the quality of traffic services. It is used to examine highways by categorizing traffic flow and allocating quality levels based on performances like speed, density, delay and many more. The key to an effective LOS is the ability of a transportation system to provide safe and reliable service for its users. LOS ranges from A (best quality of traffic/free flow of traffic) to F (worst quality of traffic/breakdown of traffic flow). Frederick County ordinance requires a minimum LOS C for transportation impact analyses (TIAs) for new development.

Existing Traffic

Existing problem areas and challenges were evaluated based on V/C ratios from the calibrated 2019 travel demand model and updated with anecdotal information and information from VDOT and Streetlight validation. Streetlight uses big data analytics to estimate travel patterns between geometric zones.

Future Traffic Projections

Updating 2015 Model

The regional travel demand model, as provided by VDOT for this study, was modified to include a 2019 and 2050 set of model years. The newest demographic data (updated by the County in 2019) was used with the existing VDOT model so that results were as accurate as possible. VDOT is undertaking a more robust update of the entire model, but it

was not yet available for this study. Results from this study can be validated against that update in the future. The zonal data based on new zone splits the MPO has developed is shown in **Table 5**. The new zonal splits are shown in **Figure 7** on the following page. The external station volumes for 2019 were set to be equal to available count data from VDOT. 2050 external station forecasts were developed by applying the 2015 to 2040 MPO annual growth rates to the 2019 count data.

| Variable | 2019 | 2050 |
|--------------------------------|---------|---------|
| Population | 119,846 | 167,159 |
| Households | 48,485 | 67,063 |
| Workers | 64,562 | 87,110 |
| Vehicles | 97,955 | 131,849 |
| High Traffic Retail Employment | 7,152 | 9,487 |
| Industrial Employment | 16,560 | 25,265 |
| Office Employment | 5,422 | 6,786 |
| Retail Employment | 6,062 | 8,151 |
| Service Employment | 19,734 | 26,849 |
| Employment | 54,930 | 83,410 |

Table 5: Zonal Demographic Totals | Source: MPO

The EFCTS Traffic Study area encompasses the eastern half of the WinFred Regional Travel Demand Model. The model zones that are part of the study area are shown in **Figure 7**. The 2015 roadway network was used to create the 2019 network. The primary change included updating the network to reflect recent projects that have been completed in the region. The only new roadway connection (completed between 2015 and 2019) added was Crossover Boulevard.

Validating 2019 Model

To make sure the model was performing as expected, the 2019 model results were

evaluated against 2019 counts from VDOT's database. The percentage error by roadway type and percent root mean square error (RMSE) by volume group were calculated and compared against the documented 2015 model validation results. **Table 6** reports the percent error by roadway type. The target or criterion is based on the VDOT Travel Model Policy Guidelines. **Table 7** reports the percent RMSE calculated by volume group with the assigned target or criterion as established by VDOT.

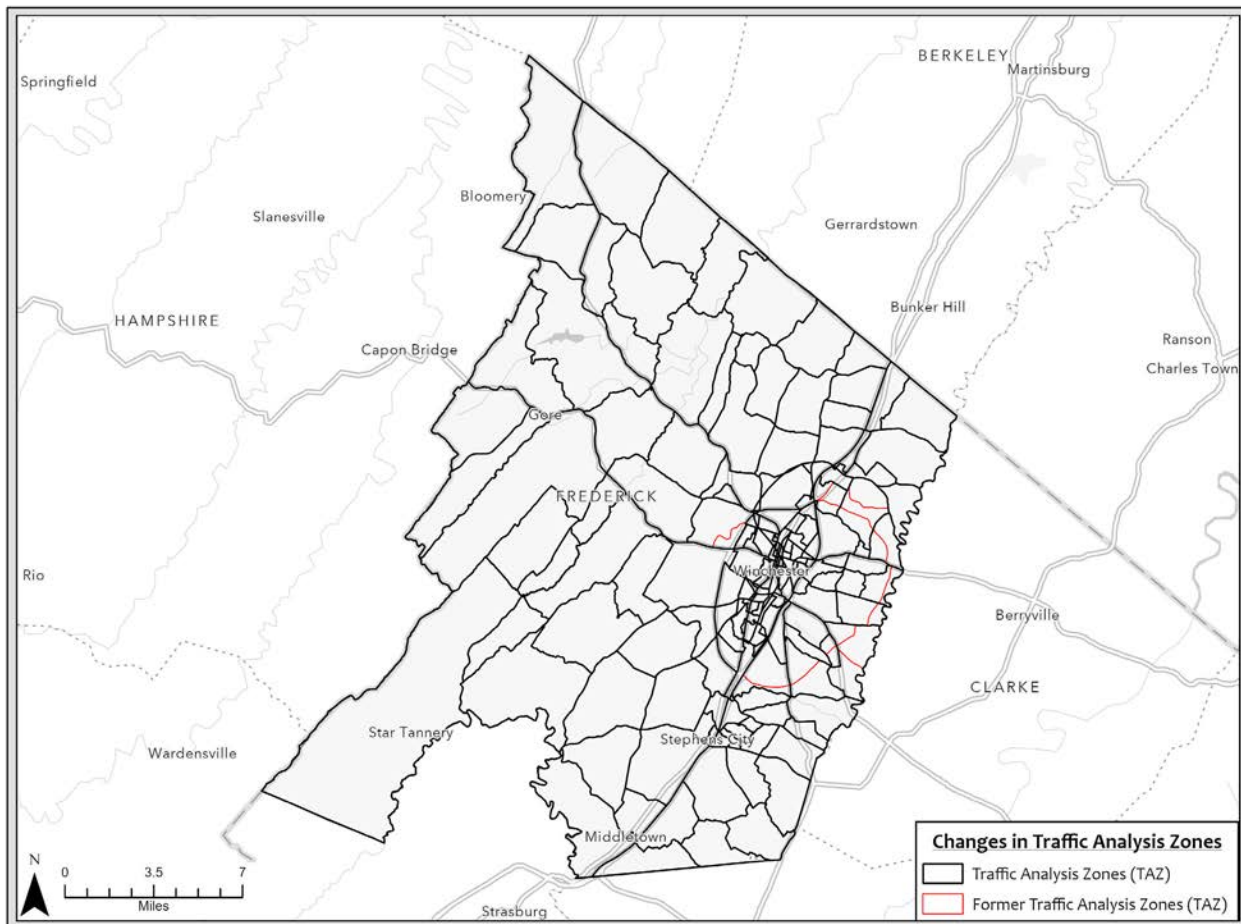


Figure 7: Changes in Traffic Analysis Zones (TAZs) | Source: Whitman, Requardt and Associates, LLP (WRA)

| Roadway Type | Percent Error | | |
|-------------------|---------------|------|--------|
| | 2015 | 2019 | Target |
| Freeway | 3 | 3.6 | +/- 7 |
| Major Arterial | -2.1 | 8.8 | +/- 10 |
| Minor Arterial | -4.7 | 18.9 | +/- 15 |
| Collector & Local | 2.7 | 22.5 | +/- 20 |
| Total | 2 | 6.34 | +/- 5 |

Table 6: Percent Error by Roadway Type
Source: VDOT

| Volume Group | Percent RMSE | | |
|---------------|--------------|------|--------|
| | 2015 | 2019 | Target |
| 0 - 5000 | 29.09 | 38.2 | 100 |
| 5000 - 10000 | 25.36 | 38.2 | 45 |
| 10000 - 20000 | 19.64 | 17.2 | 35 |
| 20000 - 50000 | 6.81 | 11.8 | 27 |
| Total | 19.12 | 18.4 | 40 |

Table 7: Percent RMSE by Volume Group
Source: VDOT

The 2019 model meets the validation targets by volume group and percent error by roadway type for freeways and major arterials. Because the 2019 zonal data has changed significantly from the past model inputs, a change in validation results is anticipated. Given the ability to meet several of the criteria as established by VDOT for the region and on higher level facilities, the model is considered suitable for the evaluation included in this study.

Model Results

Overall growth in VMT between 2019 and 2050 is 1.7% using a linear growth rate. This growth aligns with that in households (1.2% per year) and external traffic (1.8% per year).

Table 8 provides a summary of the VMT by facility type for the two model years.

| Facility Type | | 2019 | 2050 |
|--------------------|----|-----------|-----------|
| Interstate | 1 | 1,438,063 | 2,233,955 |
| Minor Freeway | 2 | 244,691 | 413,828 |
| Primary Arterial | 4 | 936,733 | 1,410,431 |
| Major Arterial | 5 | 541,897 | 800,128 |
| Minor Arterial | 6 | 697,129 | 1,133,993 |
| Major Collector | 7 | 130,600 | 197,644 |
| Minor Collector | 8 | 249,523 | 395,627 |
| Ramp | 10 | 91,349 | 122,719 |
| Centroid Connector | 11 | 419,922 | 581,949 |
| External | 12 | 210,209 | 348,358 |
| TOTAL | | 4,960,116 | 7,638,632 |

Table 8: VMT by Facility Type | Source: WRA

On the following page, **Figure 8** shows the district map used for the traffic analyses and estimates the origin-destination matrix within and bordering Frederick County. Districts 15 through 19 are the five external districts.

Tables 9 through 12 on the following pages show the district-to-district trip volumes and the ranking of the origin-destination pairs for 2022 and 2050. The highest zone to zone totals were used to establish needs within the study area.

Table 9 displays the model outcomes for origin-destination trip volumes in 2022, while **Table 10** ranks the matrix cells based on those volumes. The top two highest origin-destination pairs are between Central Business District (CBD) zones 7 and 8. Following closely, between 15 and 16, are the next two highest pairs, located outside the north and south boundaries of the county, largely due to through traffic on I-81. Additionally, residential districts 2 and 4 show high trip volumes to and from CBD zones 7 and 8.

Tables 11 and 12 serve as companions to **Tables 9 and 10**, focusing on data for 2050. Interestingly, there are few changes in the ranking matrix, as all the district pairs that were top ranked in 2022 remain at the top in 2050. Among the other district pairs, the traffic growth (not shown in the tables) between districts 3 and 7 and 9 and 8 are notable.

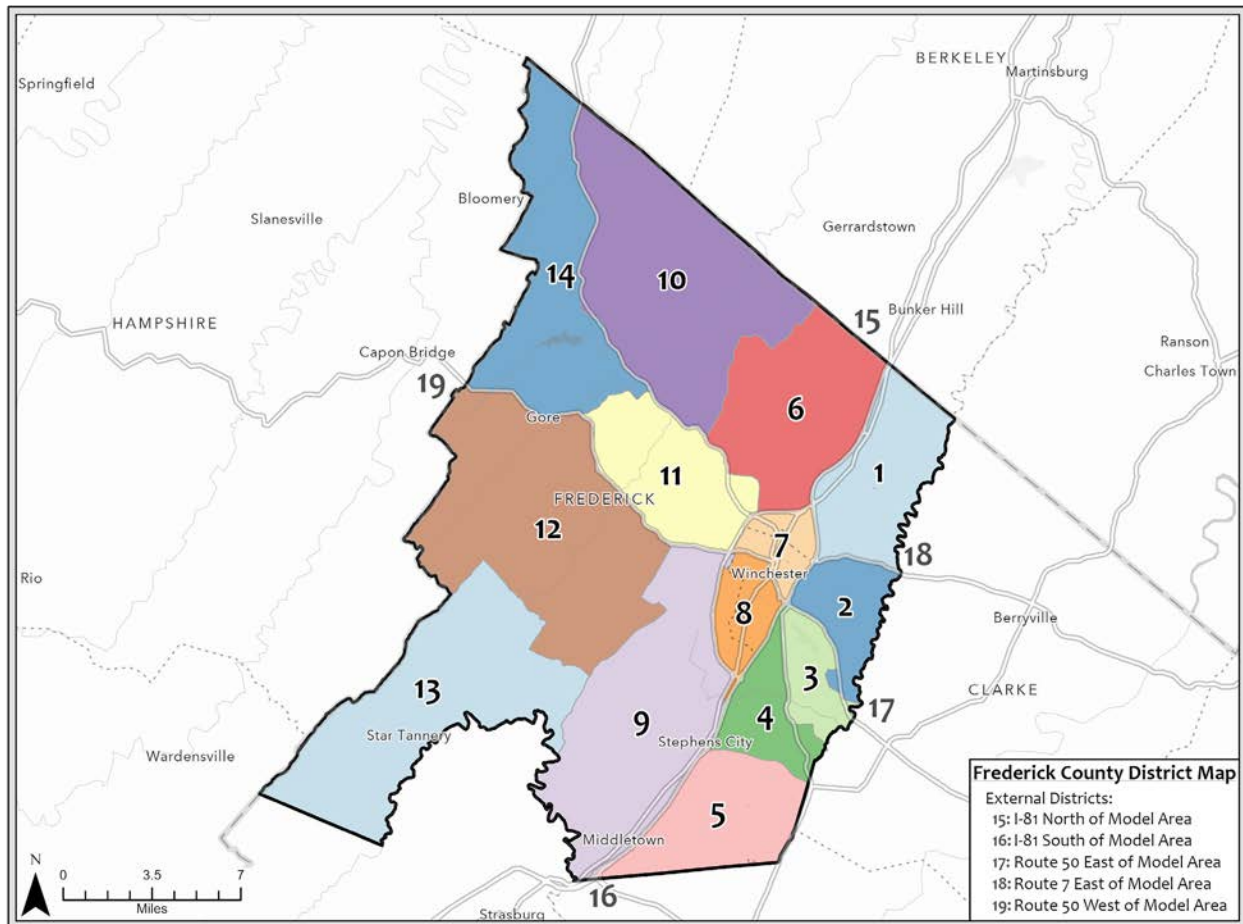


Figure 8: Frederick County District Map | Source: WRA

1 - 10 Highest Trip Pairs

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|----|-------|--------|-------|-------|-------|-------|--------|--------|-------|-------|-------|-------|-----|-------|--------|--------|-------|-------|-----|
| 1 | - | 3,151 | 668 | 920 | 343 | 1,833 | 6,131 | 4,092 | 615 | 334 | 556 | 359 | 141 | 238 | 729 | 299 | 143 | 1,335 | 131 |
| 2 | 3,138 | - | 1,735 | 1,139 | 291 | 755 | 10,159 | 9,326 | 589 | 104 | 404 | 237 | 70 | 99 | 196 | 264 | 368 | 2,568 | 119 |
| 3 | 657 | 1,732 | - | 1,976 | 631 | 360 | 2,438 | 3,162 | 628 | 105 | 253 | 352 | 103 | 130 | 121 | 212 | 622 | 250 | 96 |
| 4 | 902 | 1,123 | 1,976 | - | 4,049 | 445 | 4,371 | 9,937 | 2,552 | 103 | 307 | 286 | 130 | 111 | 364 | 1,123 | 408 | 615 | 361 |
| 5 | 333 | 282 | 630 | 4,049 | - | 174 | 1,540 | 3,408 | 1,849 | 39 | 108 | 108 | 61 | 43 | 120 | 586 | 102 | 192 | 139 |
| 6 | 1,841 | 769 | 360 | 439 | 174 | - | 3,786 | 2,190 | 371 | 398 | 587 | 255 | 75 | 186 | 590 | 226 | 93 | 266 | 90 |
| 7 | 6,139 | 10,156 | 2,395 | 4,348 | 1,526 | 3,815 | - | 16,946 | 3,350 | 1,344 | 3,239 | 2,772 | 649 | 1,155 | 1,992 | 2,495 | 1,445 | 4,276 | 987 |
| 8 | 4,141 | 9,299 | 3,156 | 9,934 | 3,405 | 2,231 | 17,007 | - | 5,447 | 664 | 1,709 | 2,382 | 720 | 710 | 982 | 1,889 | 1,162 | 1,838 | 693 |
| 9 | 615 | 576 | 618 | 2,549 | 1,848 | 374 | 3,361 | 5,450 | - | 106 | 422 | 626 | 381 | 140 | 201 | 926 | 160 | 315 | 186 |
| 10 | 336 | 107 | 105 | 100 | 37 | 398 | 1,341 | 658 | 105 | - | 252 | 122 | 12 | 1,060 | 76 | 173 | 54 | 94 | 55 |
| 11 | 562 | 407 | 240 | 301 | 106 | 589 | 3,227 | 1,703 | 420 | 252 | - | 799 | 112 | 312 | 164 | 260 | 100 | 233 | 141 |
| 12 | 366 | 241 | 340 | 282 | 106 | 257 | 2,761 | 2,382 | 625 | 122 | 799 | - | 161 | 415 | 135 | 310 | 119 | 216 | 171 |
| 13 | 143 | 72 | 103 | 129 | 61 | 75 | 643 | 720 | 381 | 12 | 112 | 161 | - | 12 | 39 | 71 | 36 | 67 | 24 |
| 14 | 240 | 103 | 129 | 108 | 41 | 187 | 1,151 | 706 | 139 | 1,060 | 312 | 415 | 12 | - | 45 | 157 | 48 | 77 | 411 |
| 15 | 729 | 196 | 121 | 364 | 120 | 590 | 1,992 | 982 | 201 | 76 | 164 | 135 | 39 | 45 | - | 15,330 | 284 | 735 | 221 |
| 16 | 299 | 264 | 212 | 1,123 | 586 | 226 | 2,495 | 1,889 | 925 | 173 | 260 | 310 | 71 | 157 | 15,323 | - | 236 | 622 | 156 |
| 17 | 143 | 368 | 622 | 408 | 102 | 93 | 1,445 | 1,162 | 160 | 54 | 100 | 119 | 36 | 48 | 285 | 236 | - | 102 | 27 |
| 18 | 1,335 | 2,568 | 250 | 615 | 192 | 266 | 4,276 | 1,838 | 315 | 94 | 233 | 216 | 67 | 77 | 735 | 622 | 102 | - | 72 |
| 19 | 131 | 119 | 96 | 361 | 139 | 90 | 987 | 693 | 186 | 55 | 141 | 171 | 24 | 411 | 221 | 156 | 27 | 72 | - |

Table 9: 2022 District-to-District Trip Volumes | Source: WRA

1 - 10 Highest Trip Pairs

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | - | 33 | 105 | 89 | 164 | 60 | 12 | 20 | 121 | 167 | 134 | 162 | 244 | 201 | 97 | 177 | 241 | 71 | 253 |
| 2 | 34 | - | 61 | 77 | 179 | 94 | 5 | 9 | 127 | 282 | 146 | 202 | 314 | 294 | 217 | 187 | 153 | 37 | 265 |
| 3 | 108 | 62 | - | 51 | 111 | 160 | 43 | 31 | 113 | 279 | 193 | 163 | 283 | 255 | 261 | 213 | 116 | 196 | 295 |
| 4 | 90 | 78 | 51 | - | 21 | 135 | 15 | 7 | 39 | 283 | 175 | 180 | 255 | 271 | 156 | 78 | 143 | 121 | 158 |
| 5 | 168 | 183 | 112 | 21 | - | 225 | 65 | 25 | 55 | 329 | 272 | 272 | 317 | 327 | 263 | 130 | 287 | 219 | 248 |
| 6 | 57 | 93 | 160 | 136 | 225 | - | 24 | 48 | 152 | 147 | 129 | 192 | 307 | 222 | 125 | 207 | 299 | 185 | 301 |
| 7 | 11 | 6 | 44 | 16 | 66 | 23 | - | 2 | 28 | 69 | 29 | 35 | 109 | 75 | 49 | 41 | 67 | 17 | 83 |
| 8 | 19 | 10 | 32 | 8 | 26 | 47 | 1 | - | 14 | 106 | 63 | 45 | 99 | 101 | 85 | 53 | 73 | 58 | 103 |
| 9 | 121 | 132 | 120 | 40 | 56 | 151 | 27 | 13 | - | 276 | 137 | 114 | 149 | 247 | 215 | 87 | 235 | 169 | 222 |
| 10 | 166 | 275 | 279 | 291 | 332 | 147 | 70 | 107 | 279 | - | 194 | 259 | 339 | 81 | 305 | 227 | 321 | 297 | 319 |
| 11 | 133 | 145 | 199 | 176 | 276 | 127 | 30 | 64 | 138 | 194 | - | 91 | 269 | 171 | 231 | 189 | 291 | 205 | 244 |
| 12 | 155 | 198 | 165 | 183 | 276 | 191 | 36 | 45 | 115 | 259 | 91 | - | 233 | 139 | 251 | 173 | 265 | 211 | 229 |
| 13 | 241 | 309 | 283 | 257 | 317 | 307 | 110 | 99 | 149 | 339 | 269 | 233 | - | 339 | 329 | 312 | 333 | 315 | 337 |
| 14 | 199 | 283 | 257 | 272 | 328 | 221 | 76 | 102 | 248 | 81 | 171 | 139 | 339 | - | 325 | 237 | 323 | 303 | 141 |
| 15 | 97 | 217 | 261 | 156 | 263 | 125 | 49 | 85 | 215 | 305 | 231 | 251 | 329 | 325 | - | 3 | 182 | 95 | 209 |
| 16 | 177 | 187 | 213 | 78 | 130 | 207 | 41 | 53 | 88 | 227 | 189 | 173 | 312 | 237 | 4 | - | 203 | 116 | 239 |
| 17 | 241 | 153 | 116 | 143 | 287 | 299 | 67 | 73 | 235 | 321 | 291 | 265 | 333 | 323 | 181 | 203 | - | 287 | 335 |
| 18 | 71 | 37 | 196 | 121 | 219 | 185 | 17 | 58 | 169 | 297 | 205 | 211 | 315 | 303 | 95 | 116 | 287 | - | 309 |
| 19 | 253 | 265 | 295 | 158 | 248 | 301 | 83 | 103 | 222 | 319 | 244 | 229 | 337 | 141 | 209 | 239 | 335 | 309 | - |

Table 10: 2022 District-to-District Trip Volumes Ranking | Source: WRA

1 - 10 Highest Trip Pairs

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 1 | - | 35 | 91 | 82 | 159 | 56 | 12 | 28 | 96 | 216 | 128 | 190 | 258 | 233 | 61 | 103 | 255 | 67 | 225 |
| 2 | 36 | - | 47 | 75 | 198 | 83 | 6 | 9 | 107 | 294 | 150 | 234 | 316 | 300 | 135 | 123 | 192 | 26 | 239 |
| 3 | 92 | 48 | - | 43 | 119 | 144 | 39 | 31 | 111 | 279 | 197 | 179 | 274 | 265 | 172 | 131 | 121 | 160 | 243 |
| 4 | 84 | 78 | 44 | - | 13 | 117 | 21 | 7 | 37 | 283 | 183 | 198 | 253 | 273 | 89 | 49 | 188 | 101 | 145 |
| 5 | 164 | 203 | 120 | 13 | - | 214 | 79 | 51 | 65 | 327 | 271 | 281 | 314 | 325 | 200 | 87 | 305 | 221 | 237 |
| 6 | 55 | 81 | 143 | 118 | 213 | - | 34 | 60 | 134 | 170 | 130 | 196 | 287 | 232 | 73 | 139 | 303 | 167 | 259 |
| 7 | 11 | 5 | 40 | 22 | 80 | 33 | - | 1 | 42 | 99 | 45 | 63 | 180 | 112 | 19 | 15 | 93 | 17 | 85 |
| 8 | 25 | 10 | 32 | 8 | 52 | 59 | 2 | - | 24 | 162 | 76 | 71 | 157 | 151 | 53 | 29 | 105 | 57 | 97 |
| 9 | 95 | 110 | 114 | 38 | 66 | 133 | 41 | 23 | - | 275 | 171 | 125 | 174 | 249 | 141 | 69 | 261 | 165 | 217 |
| 10 | 215 | 293 | 280 | 287 | 328 | 169 | 100 | 163 | 278 | - | 223 | 294 | 341 | 108 | 251 | 203 | 329 | 291 | 319 |
| 11 | 127 | 149 | 206 | 186 | 272 | 129 | 46 | 77 | 174 | 223 | - | 115 | 297 | 207 | 183 | 147 | 309 | 219 | 245 |
| 12 | 187 | 229 | 182 | 202 | 282 | 195 | 64 | 71 | 126 | 294 | 115 | - | 261 | 192 | 211 | 137 | 307 | 227 | 235 |
| 13 | 257 | 313 | 275 | 253 | 314 | 286 | 181 | 158 | 174 | 341 | 297 | 261 | - | 339 | 317 | 287 | 337 | 321 | 333 |
| 14 | 229 | 297 | 266 | 277 | 326 | 229 | 113 | 152 | 250 | 108 | 207 | 191 | 339 | - | 284 | 209 | 331 | 301 | 155 |
| 15 | 61 | 135 | 172 | 89 | 200 | 73 | 19 | 53 | 141 | 251 | 183 | 211 | 317 | 284 | - | 3 | 248 | 178 | 267 |
| 16 | 103 | 123 | 131 | 49 | 87 | 139 | 15 | 29 | 69 | 203 | 147 | 137 | 287 | 209 | 3 | - | 241 | 153 | 269 |
| 17 | 255 | 192 | 121 | 188 | 305 | 303 | 93 | 105 | 261 | 329 | 309 | 307 | 337 | 331 | 245 | 241 | - | 311 | 335 |
| 18 | 67 | 26 | 160 | 101 | 221 | 167 | 17 | 57 | 165 | 291 | 219 | 227 | 321 | 301 | 177 | 153 | 311 | - | 323 |
| 19 | 225 | 239 | 243 | 145 | 237 | 259 | 85 | 97 | 217 | 319 | 245 | 235 | 333 | 155 | 267 | 269 | 335 | 323 | - |

Table 11: 2050 District-to-District Trip Volumes | Source: WRA

1 - 10 Highest Trip Pairs

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|----|-------|--------|-------|--------|-------|-------|--------|--------|-------|-------|-------|-------|-----|-------|--------|--------|-------|-------|-------|
| 1 | - | 4,878 | 1,403 | 1,781 | 634 | 3,217 | 8,656 | 5,579 | 1,286 | 379 | 871 | 496 | 192 | 310 | 2,899 | 1,203 | 197 | 2,624 | 325 |
| 2 | 4,850 | - | 3,677 | 2,024 | 423 | 1,760 | 13,830 | 10,965 | 1,160 | 125 | 678 | 306 | 83 | 120 | 793 | 943 | 450 | 5,663 | 264 |
| 3 | 1,376 | 3,672 | - | 3,766 | 1,022 | 739 | 4,414 | 5,178 | 1,102 | 146 | 428 | 571 | 150 | 182 | 578 | 851 | 1,007 | 631 | 233 |
| 4 | 1,734 | 1,994 | 3,763 | - | 7,023 | 1,033 | 6,344 | 12,471 | 4,427 | 136 | 517 | 423 | 198 | 154 | 1,416 | 3,660 | 501 | 1,231 | 727 |
| 5 | 613 | 409 | 1,020 | 7,023 | - | 390 | 1,844 | 3,454 | 2,713 | 48 | 166 | 140 | 84 | 54 | 419 | 1,657 | 107 | 339 | 265 |
| 6 | 3,238 | 1,787 | 742 | 1,030 | 394 | - | 5,044 | 2,971 | 821 | 592 | 857 | 442 | 131 | 312 | 2,070 | 759 | 114 | 603 | 188 |
| 7 | 8,661 | 13,831 | 4,352 | 6,291 | 1,816 | 5,099 | - | 21,843 | 4,139 | 1,251 | 3,728 | 2,831 | 562 | 1,089 | 6,370 | 6,830 | 1,362 | 6,786 | 1,671 |
| 8 | 5,667 | 10,934 | 5,167 | 12,456 | 3,446 | 3,029 | 21,842 | - | 5,876 | 618 | 2,006 | 2,215 | 645 | 672 | 3,349 | 5,472 | 1,182 | 3,180 | 1,266 |
| 9 | 1,301 | 1,127 | 1,082 | 4,423 | 2,712 | 831 | 4,152 | 5,886 | - | 149 | 579 | 918 | 576 | 210 | 754 | 2,605 | 185 | 609 | 375 |
| 10 | 382 | 128 | 145 | 131 | 46 | 593 | 1,249 | 615 | 147 | - | 335 | 125 | 13 | 1,128 | 204 | 409 | 44 | 130 | 80 |
| 11 | 879 | 685 | 406 | 506 | 163 | 861 | 3,719 | 2,000 | 576 | 335 | - | 1,046 | 124 | 404 | 517 | 697 | 93 | 371 | 231 |
| 12 | 503 | 313 | 552 | 417 | 138 | 446 | 2,824 | 2,215 | 917 | 125 | 1,046 | - | 185 | 450 | 396 | 787 | 105 | 322 | 266 |
| 13 | 194 | 85 | 149 | 198 | 84 | 133 | 555 | 644 | 576 | 13 | 124 | 185 | - | 14 | 82 | 131 | 22 | 71 | 27 |
| 14 | 313 | 124 | 180 | 148 | 52 | 313 | 1,086 | 669 | 209 | 1,128 | 404 | 451 | 14 | - | 134 | 401 | 42 | 116 | 649 |
| 15 | 2,899 | 793 | 578 | 1,416 | 419 | 2,070 | 6,370 | 3,349 | 754 | 204 | 517 | 396 | 82 | 134 | - | 14,674 | 230 | 572 | 176 |
| 16 | 1,203 | 943 | 851 | 3,660 | 1,657 | 759 | 6,830 | 5,472 | 2,605 | 409 | 697 | 787 | 131 | 401 | 14,674 | - | 260 | 659 | 169 |
| 17 | 197 | 450 | 1,007 | 501 | 107 | 114 | 1,362 | 1,182 | 185 | 44 | 93 | 105 | 22 | 42 | 231 | 260 | - | 92 | 24 |
| 18 | 2,624 | 5,663 | 631 | 1,231 | 339 | 603 | 6,786 | 3,180 | 609 | 130 | 371 | 322 | 71 | 116 | 573 | 659 | 92 | - | 63 |
| 19 | 325 | 264 | 233 | 727 | 265 | 188 | 1,671 | 1,266 | 375 | 80 | 231 | 266 | 27 | 649 | 176 | 169 | 24 | 63 | - |

Table 12: 2050 District-to-District Trip Volume Ranking | Source: WRA

Refer to **Figure 9** for the regional travel demand model zones within the study area.

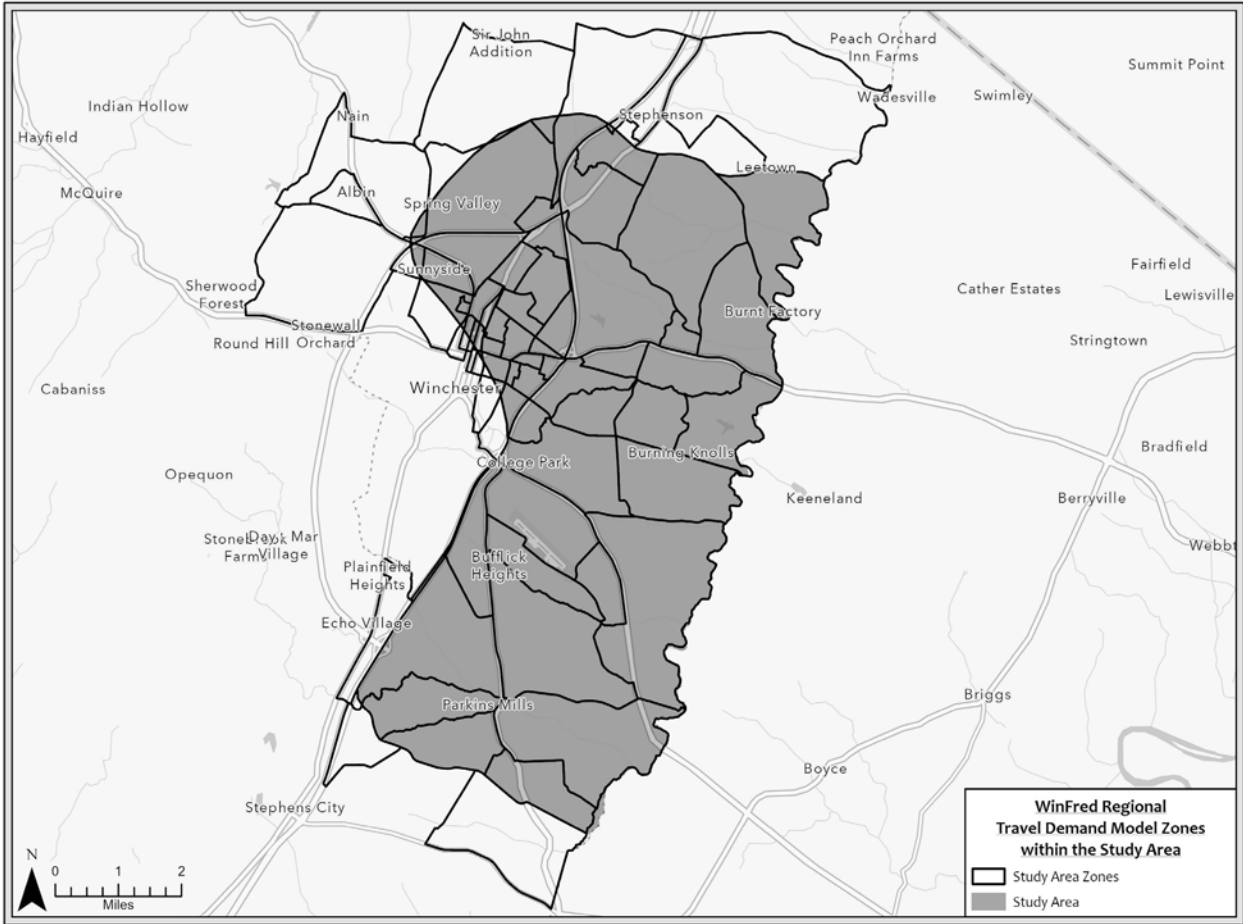


Figure 9: WinFred Regional TAZs Within the Study Area | Source: WRA

Comparison with Streetlight Data

The model results of district-to-district trip distribution were compared with those obtained from Streetlight data. To illustrate with an example, **Figure 10** shows the percentages of trips from District 3 to all the districts according to the Streetlight data and the WinFred model. It shows that, with some exceptions, the percentages correspond well between the model and Streetlight data for most districts.

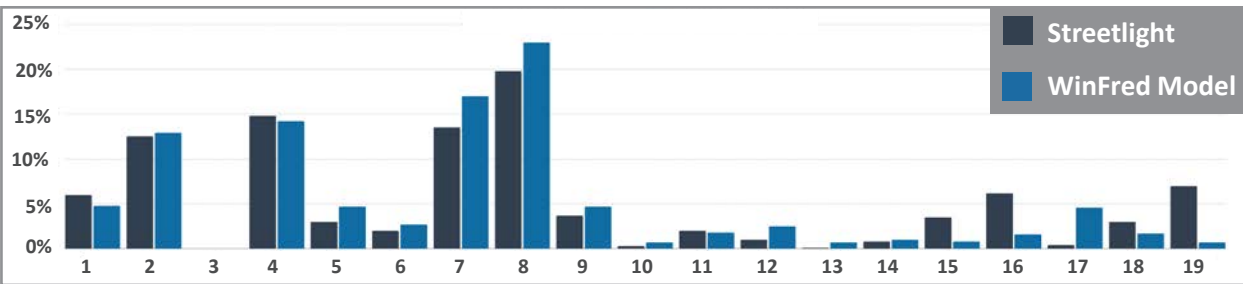


Figure 10: Trip Percentages from District 3 | Source: Streetlight Data and WinFred Model

Capacity / Level of Service Analysis

The maximum flow rate at LOS D and E for different road types are estimated based on the Highway Capacity Manual. The model converts daily productions and attractions into trips from origins to destinations by four time periods: AM (6:00 a.m. – 8:59 a.m.), Midday, PM (3:00 p.m. – 5:59 p.m.), and Night. The time-of-day factors are applied by period, and simultaneously convert production-attraction flows to origin-destination flows by time of day. The peak hour V/C ratio is then estimated to highlight the segments and intersections that are critical in terms of traffic operations. **Figure 11** shows the locations where the V/C ratio would exceed 0.85 (LOS D or worse) in 2050.

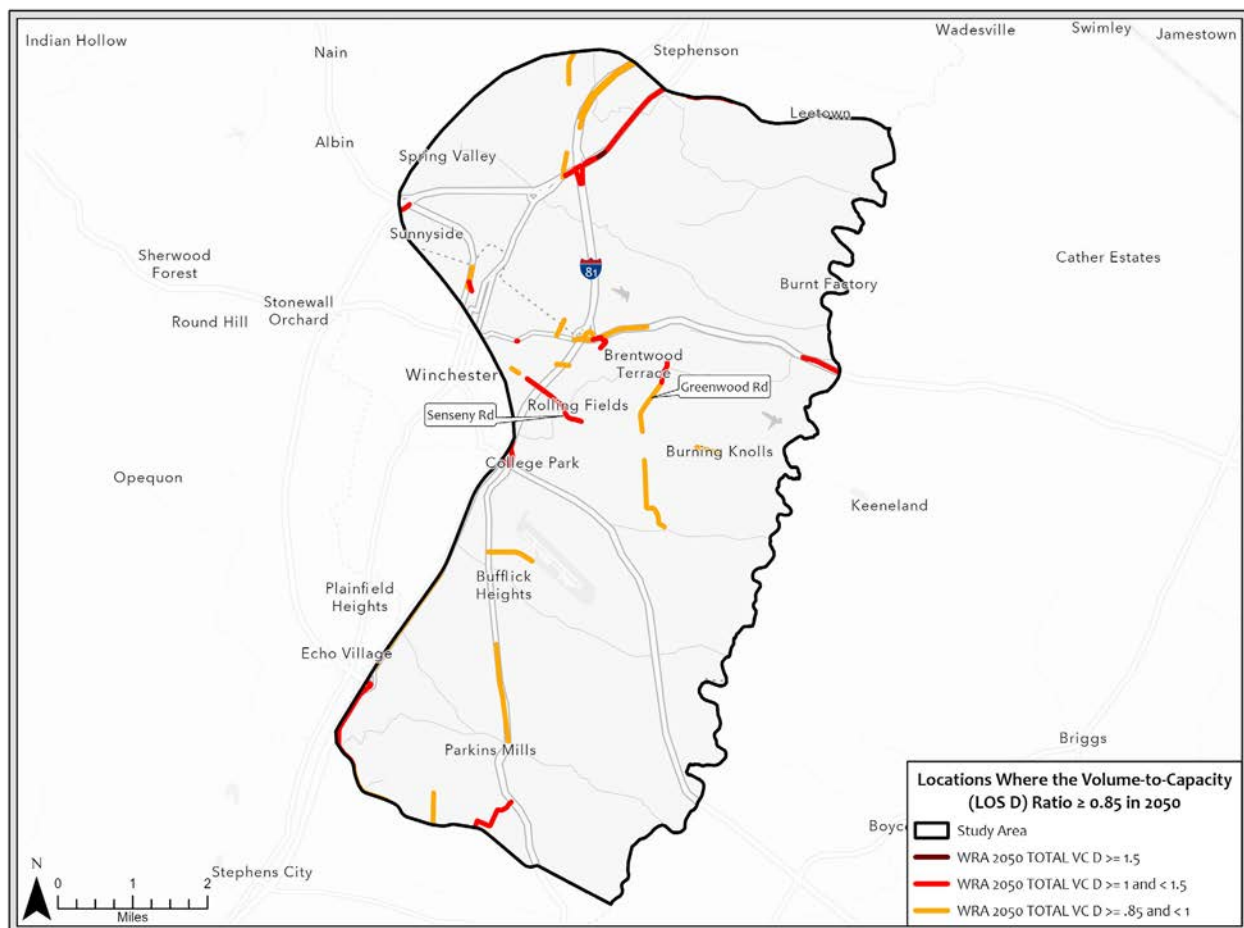


Figure 11: Locations Where V/C (LOS D) Ratio $0.85 \geq$ in 2050 | Source: WRA

Safety Analysis

The road safety aspect of this project was analyzed from three perspectives. The first one identified locations that are predicted to experience high traffic demand in 2050, which may pose safety issues. The second focused on safety issues for vulnerable road users such as pedestrians and bicyclists. The third perspective looked at freight-related accidents on I-81 to determine the potential impact of diversion of truck traffic to other routes. Archived crash data from VDOT was utilized for the analysis.

Sites with Potential Safety Issues and High Future Traffic Demand

The capacity analysis previously discussed identified areas with a high future V/C ratio. This information was then combined with data from VDOT on PSI locations. These PSI locations are determined by VDOT through network screening using safety performance functions (SPFs) that consider crash history, roadway factors, and traffic characteristics to prioritize areas for safety investments.

Figure 12 maps out the top 100 PSI segments and intersections for the years 2018-2022 highlighting segments with V/C ratios above 0.85 predicted for 2050.

The map highlights six locations where both top PSI intersections or segments and V/C values greater than 0.85 intersect. These locations are listed below in sequence corresponding to the numerals on the map.

- **Route 7 near I-81:** There are several top PSI intersections, a top PSI segment, and the predicted V/C is between 0.85 and 1.0.
- **Route 7 (Woods Mills to Clarke County Line):** There is a top PSI intersection and segment as well as a predicted V/C between 1.0 and 1.5.
- **Greenwood Road south of Valley Mill Road:** There is a top PSI intersection, and the predicted V/C is between 1.0 and 1.5.
- **Senseny Road between Meade Drive and Williamson Road:** There are a pair of top PSI intersections that overlap with the predicted V/C on Senseny Road between 1.0 and 1.5.
- **US 17/50 (Millwood Pike) and US 522 (Front Royal Pike):** The intersection is associated with and close to several top PSI segments and intersections. The V/C of Millwood Pike

and the I-81 northbound ramp is between 1.0 and 1.5.

- **Greenwood Road north of Sulphur Spring Road:** The long segment is a top PSI with the predicted V/C between 0.85 and 1.0.
- **Airport Road and US 522 (Front Royal Pike):** This intersection is a top PSI and the predicted V/C of the east approach is between 0.85 and 1.0.

Earlier, some of these six locations were discussed for potential capacity improvements. The above observations highlight that they need to be considered for safety improvements alongside operational treatments.

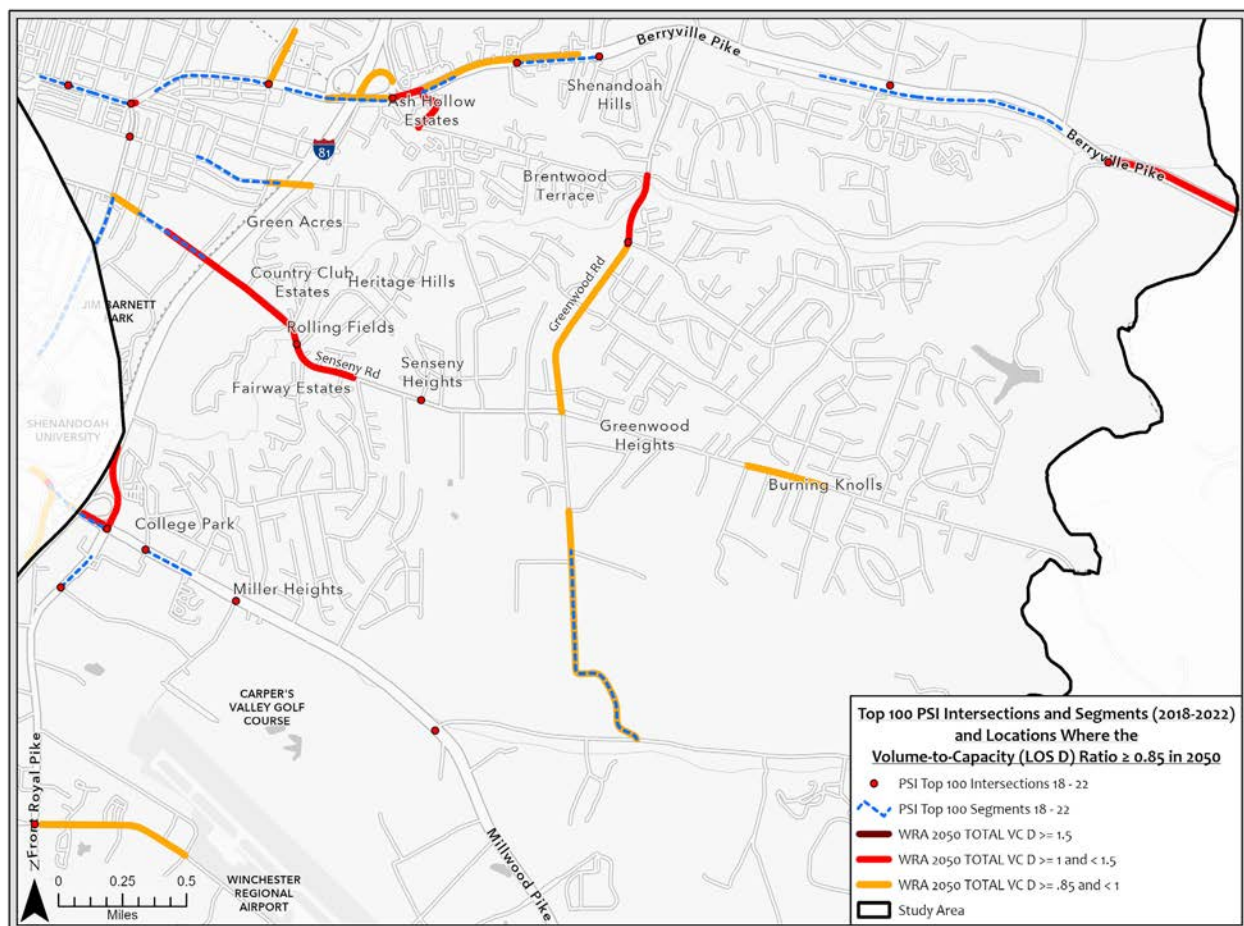


Figure 12: Top 100 PSI Intersections & Segments (2018-2022) & Locations Where the V/C (LOS D) Ratio ≥ 0.85 in 2050 | Source: VDOT

Vulnerable Road User Safety

Pedestrian and bicycle crashes are less common than crashes involving only motorized vehicles, but they tend to be more severe. A total of six bicycle and eight pedestrian-involved crashes occurred within the study area between 2017 and 2021. Regarding

bicycle crashes, Route 7 and Senseny Road each had a cluster of crash pairs located within 1,200 feet, although there was no apparent pattern or significant clustering. Pedestrian-involved crashes showed more clustering. Six of the eight crashes occurred within a half-mile radius from the intersection of US 522 (Front Royal Pike), US 17/50, and the I-81 ramps at Exit 313A, as shown in **Figure 13**. As is common for pedestrian crashes, most of

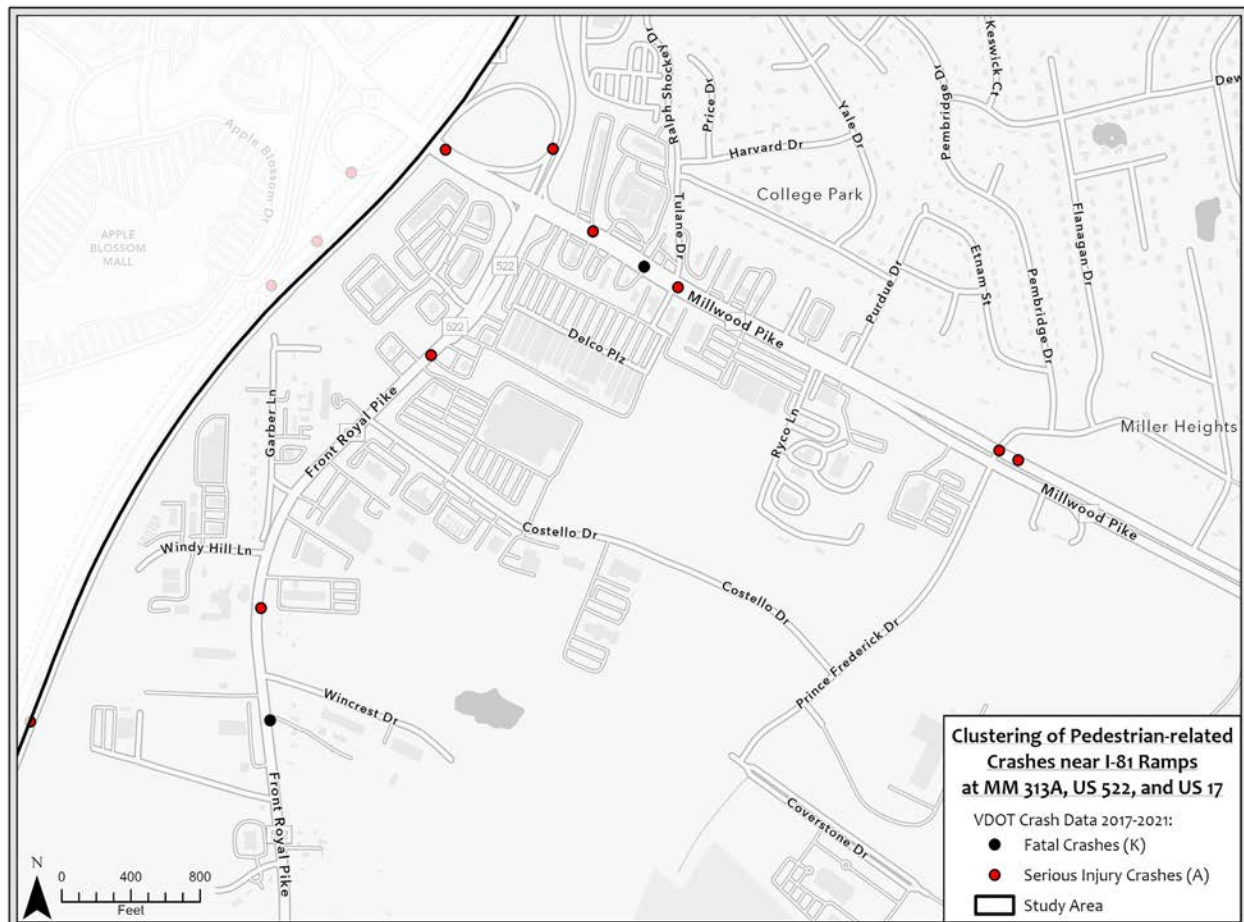


Figure 13: Clustering of Pedestrian-Related Crashes Near I-81 Ramps at MM 313A, US 522, US 17/50 | Source: VDOT

them resulted in serious injuries.

The land use pattern of the portion of US 17/50 and US 522 shown in **Figure 13** is noteworthy in that the north side of US 17/50 has seven hotels and university housing, while the south side has approximately 10 convenience stores and restaurants. The land use on the two sides of US 522 is somewhat similar. Additionally, these road sections coincide with top PSI segments and intersections identified from 2018 to 2022. Significant pedestrian exposure to traffic is expected on both roads, however, there are very limited pedestrian amenities (sidewalks or crosswalks) present on either road within the extent of

the map. These conditions make this area a candidate for further investigations regarding pedestrian safety.

Freight Accident Analysis

The purpose of this analysis was to identify time-based patterns of freight accidents on the interstate route that may suggest the diversion of truck traffic to local roads. The analysis was motivated by the public's concern about truck traffic on I-81 being diverted to local roads due to congestion on I-81. The portion of I-81 within the study area is a major freight route, with more than 20% of daily traffic consisting of trucks. Accident data for trucks and other vehicles by time of day were used for this analysis. As such, a preliminary analysis was completed to see if there was any indication of increased truck exposure on the local roads during peak hours.

Analysis of accident data by time of day showed that the percentage of truck accidents occurring during peak hours is higher on I-81 than on other major local routes like Route 37. According to recent crash data, 24% of truck accidents on I-81 occurred during peak hours. On Route 37, the distribution is more uniform, with 16% of truck accidents occurring during peak hours. For the overall city of Winchester, this percentage is 20%. The pattern suggests that there is no indication of increased truck diversion from I-81 to local roads during peak hours. Additional analysis could be completed in the future if public concerns continue to be voiced.

Project Needs

Given the nature of the study area, a specific point was made to identify problems throughout as opposed to focusing solely on the original Route 37 Bypass study and EIS statements. Original segments of the Route 37 Bypass were analyzed to determine logical termini and independent utility, and whether they would effectively address current and future problems identified during the problem assessment phase of the study.

To create the purpose and needs statements, an evaluation of the most recent studies and existing comprehensive plan was completed. Additionally, conversations with staff at Frederick County Planning and VDOT helped to provide context and frame these statements. A review of the PSI segments and intersections was also conducted, and the needs statements reflect improvements proposed in that list. A thorough region wide travel demand model analysis was completed to determine areas of traffic growth in 2050, and origin and destination of these trip pairs as noted earlier in the report.

Bicycle/Pedestrian

As indicated in the 2014 Bicycle and Pedestrian Plan Update⁵, the existing bicycle network lacks infrastructure and 62% of roadways have LOS D (adequate for advanced riders) or worse. The pedestrian results showed that 60% of the network was either deemed adequate or adequate but not likely used for choice users (people who prefer to use walking as their primary mode of transportation). With land development since 2014, it is likely that bicycle and pedestrian needs have only increased since this time and linkages are desired to regional parks, schools, and commercial development.

Congestion

Virginia State Route 7 between the Frederick/Clarke County line and the City of Winchester is the major link between Frederick County and destinations in Northern Virginia. Volumes from the STARS study in 2017 indicate that the average daily traffic (ADT) on this corridor is projected to reach 40,800 vehicles per day (VPD) by 2047. There is a current SMART SCALE project aimed at improving safety and traffic flow on Route 7 between Route 815/Millbrook Drive/Blossom Drive and Route 656/First Woods Drive/Greenwood Drive; however, additional segments have been identified in the PSI. In addition, two segments of Route 7 within the study area fall within the $1.5 > V/C > 1$.

- The intersection of I-81 Exit 317 and Route 11 is the most congested intersection

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in the Staunton District and is currently being redesigned as a diverging diamond interchange. Additionally, improved connectivity is needed between Route 7 and Route 11 to alleviate congestion.

- Development in the area near the airport along both the Route 50 and Route 522 corridors has the potential to create congestion issues in the future, both at Exit 313 and at intersections along both corridors and the intersection with Crossover Boulevard. The extension of Crossover Boulevard to US 17/50 has been identified in the Frederick County Comprehensive Plan as an important connection and will offer improved access to the Virginia Inland Port.
- Large-scale residential land development on the study area's southern end uses Warrior Drive and Tasker Road to access I-81 and Route 37. Additional interstate or state route connectivity from Warrior Drive is critical to continue residential development in this area and relieve congestion on Tasker Road. The Comprehensive plan includes a proposed link to extend Warrior Drive to the proposed Route 37 alignment as a potential solution to redistribute traffic in this area.

Safety

Upon reviewing the VDOT crash data from 2017 to 2021 and the top PSI intersections, it became apparent that there is a significant safety issue on Route 7.

- Since 2017, there have been 206 reportable crashes in the 3.76-mile stretch of roadway on Route 7 between the City of Winchester and the Frederick/Clarke County line. The 1.28-mile segment between Greenwood Road and Valley Mill Road has been identified as the #7 top PSI priority by VDOT statewide. A SMART SCALE project is in the design phase to add capacity and reduce conflict points to a 0.52-mile segment of roadway in this crash cluster area, but this project only addresses a portion of the study area.
- The VA 7 and US 11 corridors have two of the more prominent crash histories, including significant numbers of fatal and injury (FI) crashes.
 - ADT on Route 7 Eastbound⁶: 14,000 VPD; Route 7 Westbound: 14,000 VPD; Total Crashes = 735; FI = 176

⁶ ArcGIS, VDOT, <https://vdot.maps.arcgis.com/apps/mapviewer/index.html?layers=a8da35dd9ce54993b25f64487c3717ec>

- ADT on Route 11 Northbound⁷: 14,000 VPD; Route 11 Southbound: 14,000 VPD; Total Crashes = 347; FI = 71
- The study area includes 24 intersections and 15 segments in the Statewide VDOT 2017-2021 Top 100 PSI list.
- Six of the 15 segments are located on Route 7:
 - Begin milepost (MP) 1.75, end MP 2.00: Total Crashes = 23; FI = 8 (VDOT District Rank 26)
 - Begin MP 2.10, end MP 2.26: Total Crashes = 52; FI = 10 (VDOT District Rank 2)
 - Begin MP 2.26, end MP 2.51: Total Crashes = 16; FI = 3 (VDOT District Rank 60)
 - Begin MP 2.51, end MP 2.82: Total Crashes = 21; FI = 6 (VDOT District Rank 13)
 - Begin MP 2.82, end MP 3.26: Total Crashes = 17; FI = 3 (VDOT District Rank 94)
 - Begin MP 3.48, end MP 4.76: Total Crashes = 59; FI = 14 (VDOT District Rank 7) – improvements to this segment have been committed in the Six Year Improvement Program (SYIP), with construction completed in 2026.

I-81 Needs – Identified in the I-81 Corridor Improvement Plan (CIP):

- While not specifically identified in the I-81 CIP and outside of the study area, improvements are warranted at the intersection of I-81 Exit 307 to address safety and congestion. A project Pipeline study has been completed at this interchange to identify cost effective solutions to address safety and congestion concerns.
- Recent improvements were completed at the I-81 and Route 37 interchange at Exit 310. The installation of a changeable message sign (CMS) is proposed as a safety measure.
- Safety and congestion are an issue at the I-81 and Route 50 interchange at Exit 313. CMSs are proposed at this interchange, however that does not address the existing congestion issue.
- Widening I-81 to three lanes between Exits 313 and 317 (both Northbound and Southbound) was recommended for funding.

⁷ ArcGIS, VDOT, <https://vdot.maps.arcgis.com/apps/mapviewer/index.html?layers=a8da35dd9ce54993b25f64487c3717ec>

- The addition of an auxiliary lane is a recommended improvement between Exits 313 and 315.
- The addition of traffic cameras was recommended at Exit 317.
- A design concept was created for a diverging diamond interchange at Exit 317 to address congestion and safety (this is a funded project).

The purpose and needs statements were included in a survey for public input and presented at a public meeting, and the results are discussed in the following section.

Agency & Public Engagement

The McCormick Taylor project team collaborated with VDOT, Frederick County, the City of Winchester, the Northern Shenandoah Valley Regional Commission (NSVRC) and the WinFred MPO over the course of this project. Bi-weekly project status meetings were conducted with Frederick County, and project status reports, including PowerPoint presentations, were regularly delivered to the Frederick County Transportation Committee by the McCormick Taylor consultant team Project Managers, Brian St. John, P.E., PTOE, and Alexandra Castrechini, P.E.

The communications protocols and public outreach practices utilized for this project were developed to align with VDOT's Governance Document Public Involvement Manual (revised November 2021). The draft Public Engagement Plan (PEP) was shared with the public for review and comment and presented to Frederick County for implementation approval.

Public Engagement Plan Overview

The PEP for the EFCTS project outlines the comprehensive, proactive outreach strategy implemented during the project. As part of the project development process, Frederick County aimed to have clear, accurate, and regular communications with the public, including project stakeholders, public officials, and the media, as appropriate. Their goal was to effectively plan and implement engagement opportunities to dialogue with stakeholders and collect project-related public input and feedback.

The overall goal of the PEP was to:

- Heighten public awareness and understanding of the project
- Identify and purposefully engage key stakeholders in the project development process
- Provide public access to current and accurate project information
- Deliver timely responses to public inquiries
- Assimilate public views, preferences, and support for project outcomes that enhance mobility, safety, and efficiency

The PEP was updated over the course of the project to reflect the actual strategies and activities implemented and includes documentation of modifications made to be responsive to public needs.

A primary first step in the implementation of the PEP was to identify the demographics of the population in the vicinity of the project area. This step included the use of the Climate and Economic Justice Screening Tool. For the varying perspectives to be considered, it was important to identify the disadvantaged communities, populations of color, and low-income communities at the earliest possible time in project development (**Figures 14 and 15**). Additional information on identified low-income communities can be found in **Appendix A**. Historically, these groups have been unintentionally left out of the planning and project development process for transportation projects. Early identification and specific strategies to reach and be inclusive of disadvantaged communities can help improve transportation project outcomes that will benefit the broader community while also minimizing potential harm from a project.

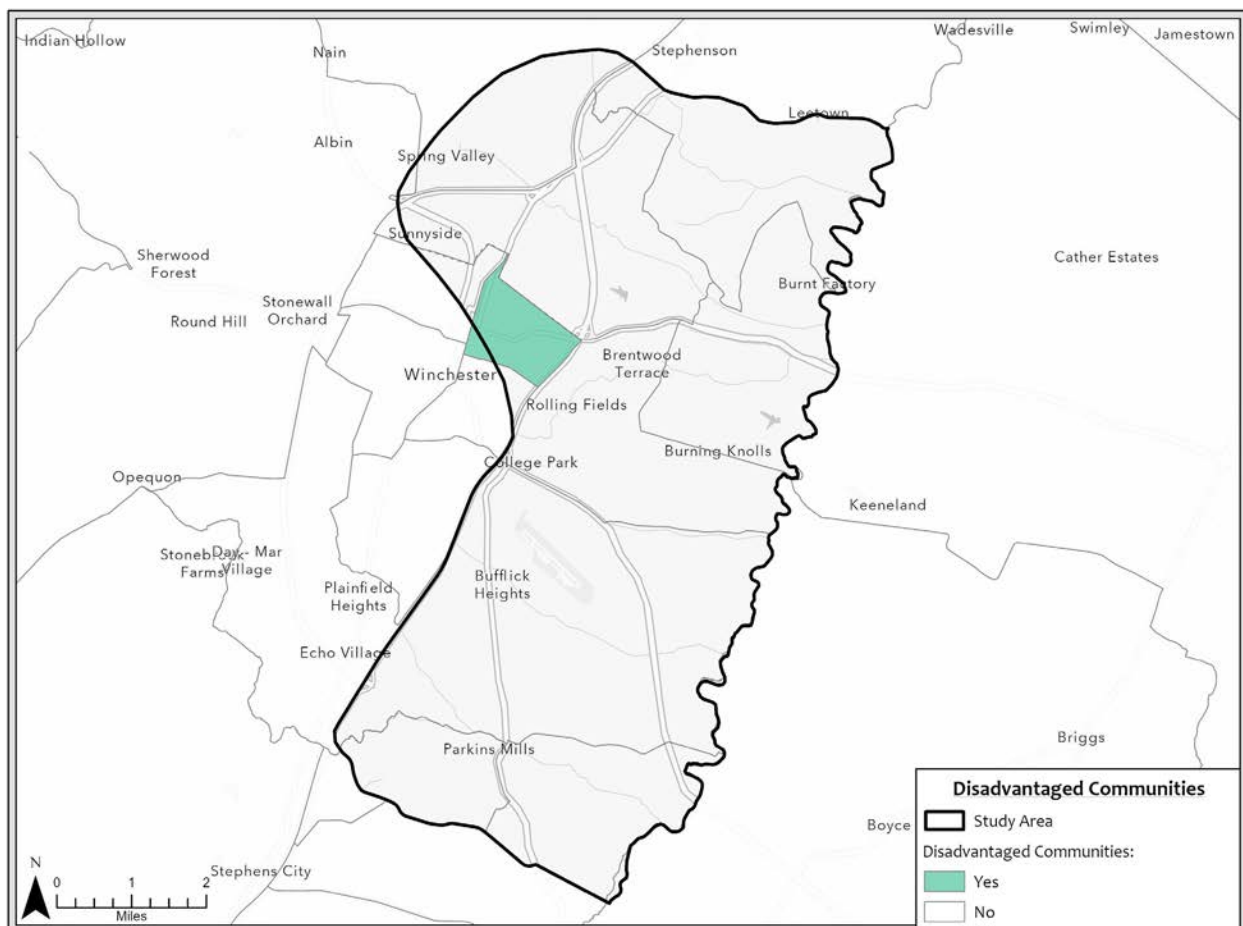


Figure 14: Disadvantaged Communities | Source: Climate and EJScreen

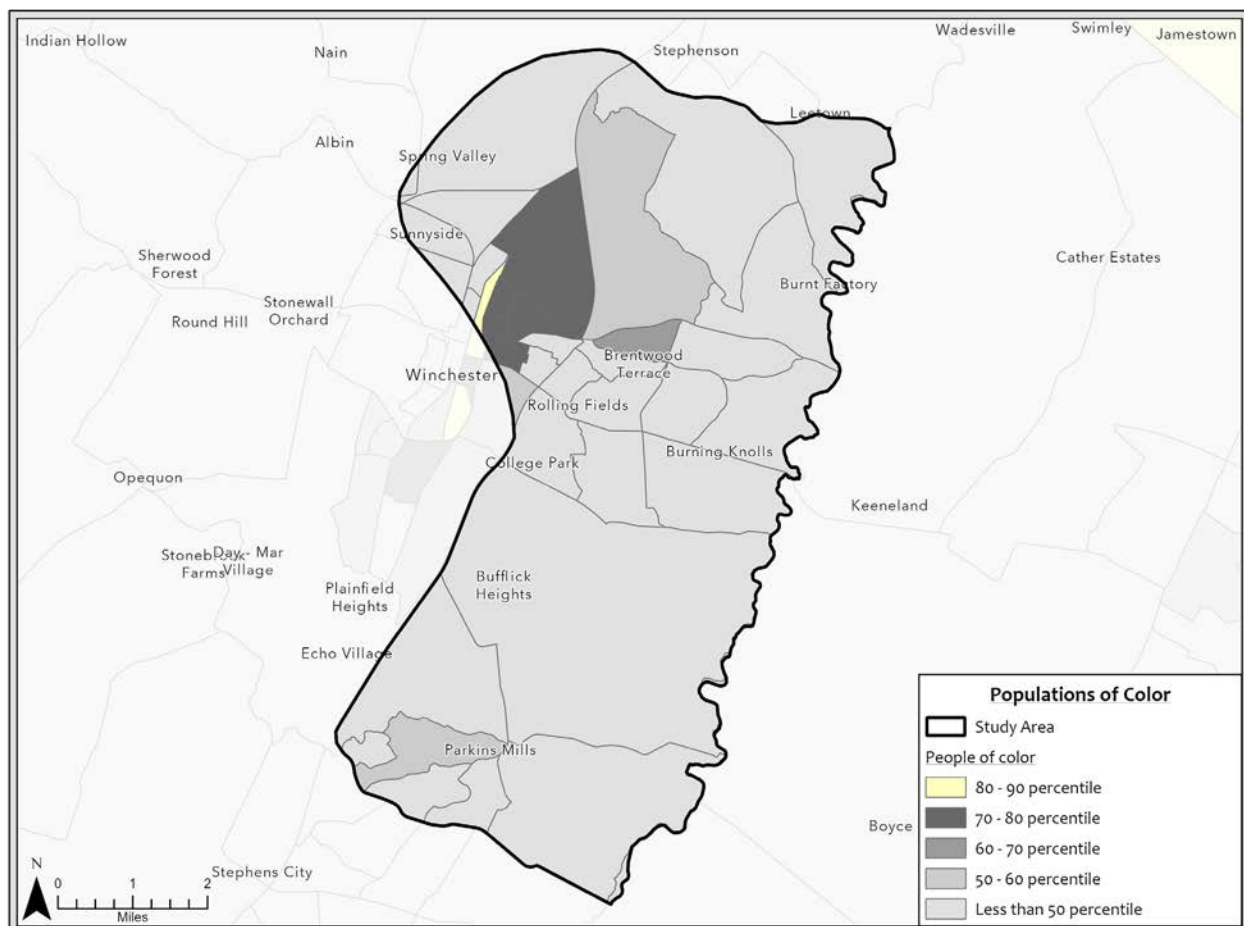


Figure 15: Populations of Color | Source: US EPA EJScreen

Stakeholder Identification

McCormick Taylor and Frederick County worked together to develop a stakeholder database that could be expanded with the continued progress of the project development process. The database created for this phase of the project included property and business owners, educational institutions, and local, state, and federal elected officials within the project area. The stakeholder database was used primarily for the Community Context Audit (CCA) which is discussed in more detail as part of this section on page 41.

Public Meetings

There were three public meetings held in the Frederick County Board of Supervisors' Room to engage, educate, and inform the public. The timeline of public engagement activities is shown in **Figure 16** on the following page. The McCormick Taylor project team received an advance Notice to Proceed (NTP) so the key team members could take part in the Transportation Forum conducted on Thursday, November 10, 2022, which is not shown on

the schedule. The schedule reflects the official start of the outreach process following the issuance of the full NTP for the study beginning in the second quarter of 2023.

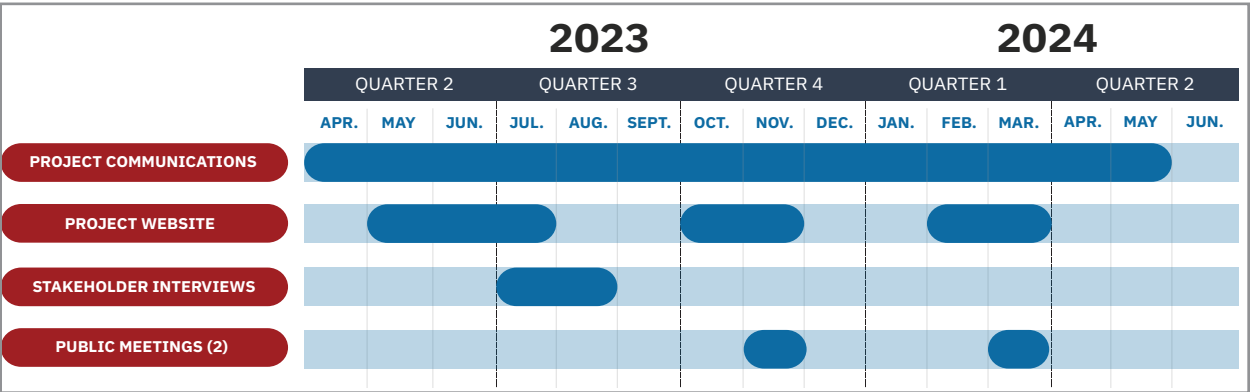


Figure 16: Public Involvement Activities Schedule | Source: US EPA EJScreen

As noted previously, an introductory public meeting for the EFCTS project was held on November 10, 2022, and provided for a brief introduction to the planned project, in addition to an opportunity for the public to express their thoughts, provide feedback, and ask questions about the previous Route 37 Bypass project. A paper survey was made available to meeting attendees to provide an opportunity for them to provide responses to questions on the work already completed, and sentiments on next steps. Eleven completed survey forms were collected before attendees left the meeting. A review of the 11 completed surveys indicated the Route 37 Bypass was still on the minds of the respondents at the meeting. Of the 11 respondents, seven stated that they were familiar with the previous Route 37 studies (two were new to the area, and two lived outside of the project area), and 10 respondents said they support County funding for the Route 37 East Project. Copies of the completed surveys are provided in **Appendix B**.

A second public meeting was held on November 16, 2023, again as part of the regularly scheduled Fredrick County Transportation Forum. Assistant Director John Bishop, AICP moderated the meeting, and Alex Castrechini, P.E., the McCormick Taylor Project Manager, provided an update on the project status and next steps. Meeting attendees were also advised of the availability of the draft PEP for public review and comment, which provided a preview of the planned public outreach strategies for the project. Ms. Castrechini’s PowerPoint presentation also included a web map developed to visually convey projected traffic volume data. She explained what the roadway network would look like in 2050 if no improvements were made. Ms. Castrechini shared the results of the CCA and invited the public to review a copy of the report which was available at the project display station

in the rear of the meeting room. A copy of the PEP, and the CCA summary are included in **Appendices A and B**. Of equal importance, Ms. Castrechini reviewed the draft Purpose and Needs statements as part of the presentation. She explained that these statements were developed based on the consultant team analyses. A survey form specific to the Purpose and Needs statements was provided to the meeting attendees to review each of the statements individually, and then provide feedback. Since the survey was extensive and no responses were received the evening of the meeting, an online version was created and released for public use in early December 2023, remaining available until mid-January 2024. The same comment form was also posted on the county website for easy access. A total of 148 surveys were received during the public comment period. The draft Purpose and Needs statements were overwhelmingly accepted as depicted in **Figure 17**. A copy of the Purpose and Needs Statement Survey and a more detailed summary of the survey results are provided in **Appendix C**.

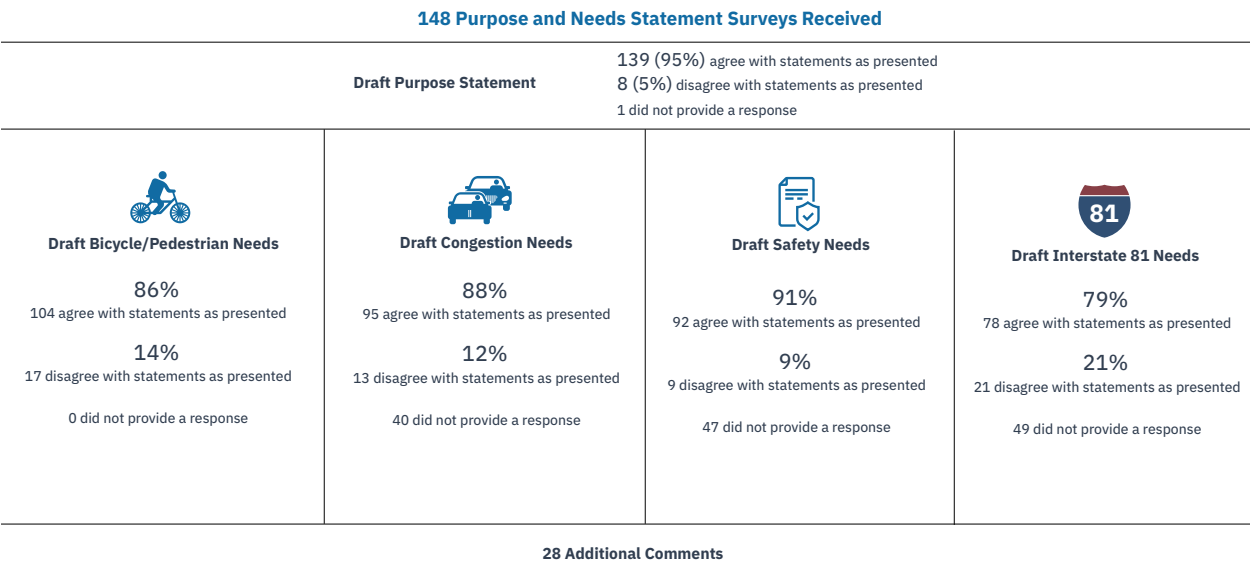


Figure 17: Purpose & Needs Survey Results

A third and final public meeting was held on March 14, 2024, at the Frederick County Board of Supervisors Room. This meeting included a presentation of numerous proposed transportation solutions in the form of conceptual designs to be evaluated by the County for more detailed evaluation, analysis, and design.

Mr. Brian St. John, P.E., PTOE, presented on behalf of the McCormick Taylor team providing a comprehensive review of the project development process leading up to the proposed transportation solutions, and then reviewed each proposed solution individually. He also

revisited the results of the public feedback received on the Purpose and Needs statements survey noting that 95% of the responses received were in agreement with the Purpose and Needs Statements as presented. Displays of the proposed conceptual designs of the transportation solutions were available for the public to review upon the completion of the presentation. Members of the County, VDOT, and the McCormick Taylor project team were present to interact with the meeting attendees and respond to questions.

Community Context Audit

McCormick Taylor worked with the County to identify fifteen key stakeholders to be invited to take part in the CCA. The purpose of the CCA was to solicit a sampling of local interests, concerns, and perceptions about transportation within the project area during the early stages of the project development process. The audit was accomplished through an interview process that could be completed using a method of their choice: 1) an in-person interview; 2) a telephone interview; or 3) a Microsoft Teams Conference Call. The interviews allowed the project team to proactively cultivate relationships with key stakeholders, establish points of contact with local organizations and within the business communities, and establish reliable lines of communication to share project updates. The method for the interview was selected by each individual stakeholder and was conducted on a date and at a time set by the interviewee. The interview questions and methods were prepared by the McCormick Taylor project team and reviewed and approved by the County in advance of implementation.

Interviews with the key stakeholders began on July 14, 2023, with the initial goal to reach all 15 key stakeholders. Stakeholders were given the option to take the interview at the time of the phone call or to schedule a future date for the interview using the method of their choice as noted previously. Four stakeholders who were contacted did not respond to the invitation to participate in the interview; two interviewees opted for a phone interview; and a total of eight interviewees opted for a Microsoft Teams video interview. All interviews were recorded for accuracy and with advance permission from each interviewee. No one requested an in-person interview.

By July 18, 2023, the initial outreach to the stakeholders was completed. With 14 contacts successfully initiated and 10 of the interviews successfully completed, it was determined that the effort made was sufficient. The following information is a summary of the feedback received from the interviewees in total. It is worthy of note that the identified themes

below represent the collective opinions of the interviewees.

Stakeholders who completed the interview process:

- Larry Oliver, Frederick County Fire and Rescue
- Whit Wagner, Fort Collier
- Chris Durant, Navy Federal Credit Union
- Cynthia Schnieder, Top of VA Chamber
- Jeff Buettner, City of Winchester Economic Development Authority
- Gray Farland, Shockey Companies
- JP Carr, Glaize Development
- Nick Sabo, Winchester Regional Airport
- Barry Schnoor, Shenandoah University
- Patrick Barker, Frederick County Economic Development Authority

Stakeholders who were contacted, but opted out of the interview process:

- Lenny Millholland, Frederick County Sheriff's Office
- Seth Levy, Shenandoah Agency on Aging
- Abbey Rembold, Valley Health System
- Justin Kerns, Winchester Frederick County Convention & Visitors Bureau

Collective Themes

- Alleviating traffic congestion and reducing crashes on I-81 is key to improving mobility in Frederick County.
- Traffic congestion and tractor trailers on local roads are caused by drivers avoiding traffic congestion on I-81.
- Traffic congestion on I-81 causes challenges for emergency services to reach emergencies.

- There is concern that the roads where development is planned or underway, like in northern Frederick County, are not sufficiently sized for future traffic and that the development will worsen traffic congestion.
- Alternative forms of transportation are valued and need to be improved and expanded including walking, biking, and public transit.
- Frederick County's location (proximity to I-81, Virginia Inland Port, Frederick County Regional Airport) is ideal for the warehouse/manufacturing/freight industry, which is resulting in increased truck/tractor trailer traffic.
- Roadway infrastructure capacities at present are not enough for the scale and volume of planned developments.
- Frederick County is becoming a less affordable place to live, causing people to live further away from their jobs in Frederick County.
- Proximity to congested commuter routes has a detrimental impact on housing purchase choices.
- Frederick County is becoming a suburb of Washington, D.C. As a result, morning and evening rush hour has worsened, despite an increase in remote work since the COVID-19 pandemic.

A copy of the stakeholders list, the interview script, and the CCA Interview Summary which includes additional detail is provided in the **Appendix B**.

Project Outreach and Coordination

This report was initially completed in May 2024 and reviewed by Frederick County staff. Upon completion of updates to staff comments, this report was submitted to VDOT Planning staff for their review and comments. The project team met with VDOT staff to discuss their comments on August 26 and September 11, 2024. The project was presented to the Frederick County Transportation Committee on October 24, 2024, the Planning Commission on November 20, 2024, and the Board of Supervisors on January 22, 2025. The project team developed a comment response form in order to document and respond to the comments received for this study. This form can be found in **Appendix G**.

Logical Termini, Independent Utility, & Concept Development

Logical Termini & Independent Utility

Logical termini for project development are defined as rational end points for a transportation improvement and for a review of the environmental impacts from such improvement. Typically, the most common termini are points of major traffic generation, especially intersecting roadways. This is because in most cases, traffic generators determine the size and type of facility being proposed. However, there are also cases where the project improvement is not primarily related to congestion due to traffic generators, and the choice of termini based on these generators may not be appropriate.

For projects involving safety improvements, almost any termini (such as political jurisdictions and geographical features) can be chosen to correspond to those sections where safety improvements are most needed. The first criterion, that the project connects logical termini and be of sufficient length to address matters on a broad scope, is largely irrelevant due to the limited scope of most safety improvements. Furthermore, even if other safety improvements are needed, the project termini need not be expanded to include these other improvements. The other two criteria still need to be met to choose logical termini: the safety improvements must have independent utility (i.e., they can function as stand-alone improvements without forcing other improvements that may have impacts), and these improvements must not restrict consideration of other reasonably foreseeable transportation improvements (such as major safety improvements in an adjoining section). In addition, environmental requirements must still be met.

For this project, study area improvements were evaluated in addition to other studies that had been or were in process in the development of logical transportation improvements.

Projects must have independent utility meaning they must be usable and be a reasonable expenditure even if no additional transportation improvements are made. The original Route 37 bypass was considered, in addition to other projects that will be covered on the following pages.

Original Route 37 Bypass Assessment

Each segment of the original bypass was considered, and an evaluation completed. Detailed cost estimates were not developed for the original proposed four lane full limited access configuration, but engineering judgement and comparable facilities were used to develop costs referenced in this section of the report. Detailed work was completed to develop potential solutions to address the needs noted earlier in the document. Refer to **Figure 18** on page 47 for a map showing each of the following segments.

Bypass Segment 1 from Route 37 on the west side of I-81 to Route 11 includes a system interchange with Route 37 on the west and a cloverleaf interchange with I-81. The cloverleaf interchange as proposed would be difficult, if not impossible, to meet interchange spacing requirements and would require significant additional improvements on I-81 and sideroads to meet current design criteria. This segment had the least traffic volume in the updated travel demand model at approximately 13,000 VPD and it is the most expensive segment of the original bypass. Engineering judgement would lead to a cost of over half a billion dollars for that segment of the original bypass including the interchange with I-81 and Route 37.

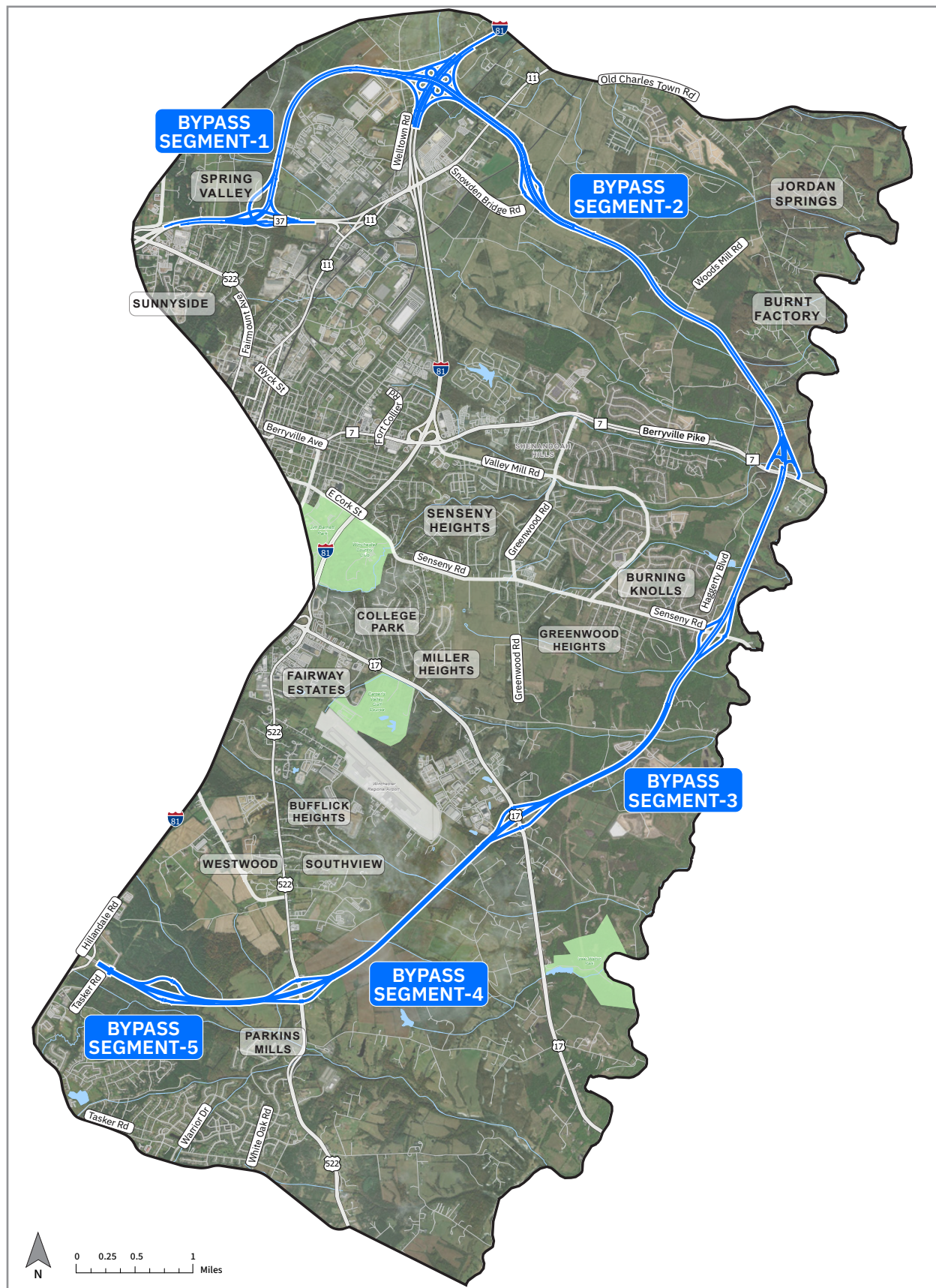
Bypass Segment 2 from Route 11 to Route 7 (Berryville Pike) attracts about 18,000 VPD and is in an area that is rapidly growing from both a residential and employment perspective. It would also allow some relief to Berryville Pike which is one of the corridors with high V/C ratios in 2050. This segment in the four-lane limited access configuration would likely be over \$250 million dollars given the interchanges, right of way (ROW), and structures required.

Bypass Segment 3 from Route 7, Berryville Pike to US 17/50 (Millwood Pike) is a link through relatively undeveloped land and may increase sprawl and encourage development that is not desirable. This segment of the original bypass attracts approximately 22,000 VPD in 2050 but has less independent value as it relates to the needs identified in this study. This segment would also likely cost over \$200 million in the prior configuration. The segment from Berryville Pike to Senseny Road has more value and could reduce traffic on Senseny Road and Greenwood Road and provide an alternative to Route 7 Berryville Pike. The segment south of Senseny Road to Millwood Pike traverses significant topography and an alternatives analysis would be recommended to find the best and most economically feasible route.

Bypass Segment 4 from US 17/50 (Millwood Pike) to US 522 (Front Royal Pike) is another link through relatively undeveloped land but would provide access to appropriately zoned land and areas targeted for development in and around the airport and along both Millwood Pike and Front Royal Pike. It would also provide for alternate connections to Papermill and Airport Road/Crossover Boulevard for future relief. This segment would also likely cost over \$200 million dollars in the prior configuration and would attract approximately 26,000 VPD in the 2050 forecast.

Bypass Segment 5 from US 522 (Front Royal Pike) to I-81/Tasker Road is the most southern section of the original Route 37 bypass and attracts a significant amount of traffic both in the total bypass configuration and independently by itself in the 2050 travel demand model. It is a costly segment in the original configuration and also in the new alternate configuration due to number of structures and wetland/floodplain impact. It does, however, provide for addressing congestion needs in this area and a future connection to Warrior Drive. The segment of the bypass between Tasker Road and the Warrior Drive extension is forecasted to have about 50,000 VPD and would require a four-lane typical section; the capacity of a two-lane roadway with minimal access points is approximately 23,000 to 29,000 VPD. From the Warrior Drive extension to US 17/50, a two-lane roadway would be sufficient for the 2050 forecasted demand of approximately 27,000 VPD.

Using a maximum of 29,000 VPD capacity for a two-lane roadway as a guide, each segment of the Route 37 bypass would be sufficiently served in 2050 with a two-lane roadway, except for the segment between Tasker Road and the Warrior Drive extension which would warrant a four-lane highway based on projected volumes.



Concept Development and Potential Solutions

Formulation of different concepts and solutions were centered around the needs identified and presented to the public. The Partial Limited Access Concept is defined by the following characteristics in VDOT's Roadway Design Manual: provides access to select public roads, crossings at grade, and some private driveway connections. Project cost summaries for the following Potential Improvement Projects are shown on **Figure 19** on page 51 and summarized in **Table 13** on page 52.

Taking the conglomerate dataset of the public feedback, the 2050 forecasted volumes and V/C ratios, and analysis of the sections of the Route 37 bypass from the 2001 EIS, the following concepts were formulated and proposed to the public in March 2024 for feedback. This study focused on providing cost-effective alternatives and volume appropriate solutions to address the 2050 forecasted volumes. This includes a look at the sections of the Route 37 Bypass to determine if a two-lane partial limited access roadway in lieu of a four-lane highway full limited access could adequately meet future needs.

Included in the following discussion are findings from the analysis of Potential Projects 1, 3 and 4 and design considerations that were examined or warrant further analysis. The alignments from the Route 37 bypass in the 2001 EIS and UPC 85972 Study Update were used as a basis for these discussions. Since 2001, there has been land development which occurred either in or in proximity to these alignments. The following paragraphs discuss some of the challenges which warrant further analysis during a potential preliminary engineering phase.

Potential Improvement Project 1: Route 37 extension from Route 11 to Route 7 as a two-lane partial limited access roadway (anticipated Major Collector).

Preliminary Assessment

There is a large commercial property at the northern end of this alignment that would be bisected by the alignment and may warrant additional analysis in the future if this segment were to be widened and residential development that interferes with the planned alignment. At grade intersections with Woods Mill Road, Burnt Factory Road, and Pine Road are geometrically challenging due to the topography. Where the alignment connects with Route 7, a long span structure would likely be required due to floodplain impacts. Approximately ~2700 ft of bridge is required to construct this on alignment. See

Table 14 for a preliminary cost estimate based on the existing alignment and additional design criteria.

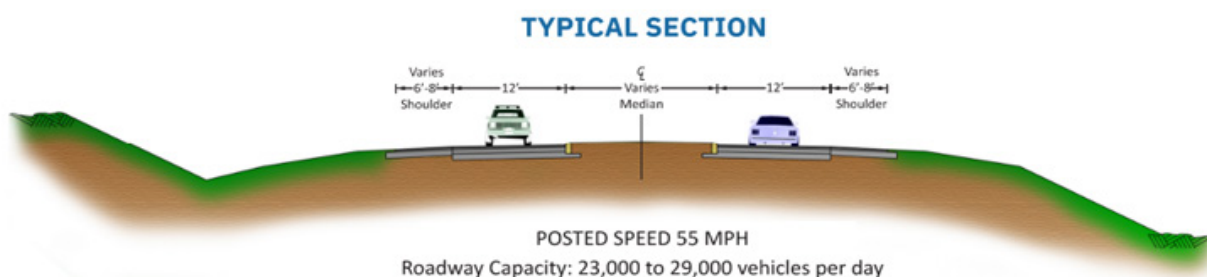
Potential Improvement Project 2: Widening Airport Road from its current configuration of two lanes to four lanes between US 522 and Admiral Byrd Drive (anticipated Major Collector) to help alleviate congestion ($1 > V/C > 0.85$) entering the Airport from I-81.

Potential Improvement Project 3: Tasker Road/Route 37 to US 522 (anticipated Major Collector/Minor Arterial) as a full limited access highway from Tasker Road/Route 37 to Warrior Drive and partial limited access roadway from Warrior Drive to US 522.

Preliminary Assessment

An at-grade connection of the existing alignment with US 522 is located ~350 ft from two driveway connections on U2 522. It may be desirable to find an alternative location in the vicinity to create an at-grade connection with US 522. The existing alignment for Warrior Drive crosses Opequon Creek at one of the wider locations of the floodplain which would result in a long span structure. Between these two roadway segments, there is over ~2,000 ft of bridge required to span floodplains in this area. It would be advisable to revisit these alignments to reduce these stream impacts and decrease structure lengths.

See **Table 16** for a preliminary cost estimate based on the existing alignment and additional design criteria. This project is projected to require four-lanes between I-81 and Warrior Drive as the projected volumes in 2050 exceed the range shown in the typical section below. The typical section graphic was developed and presented at the March 14, 2024 public meeting.



Potential Improvement Project 4: This project entails the extension of Haggerty Boulevard/Hallowed Crossings Way (anticipated Major Collector).

Preliminary Assessment

The Retreat at Winding Creek is in the vicinity of this alignment but is not thought to be a conflict or area of concern with respect to this alignment. See **Table 17** for a preliminary cost estimate based on the existing alignment and additional design criteria.

Potential Improvement Project 5: This proposed improvement includes the addition of a center turn lane to Senseny Road between I-81 and Greenwood Road.

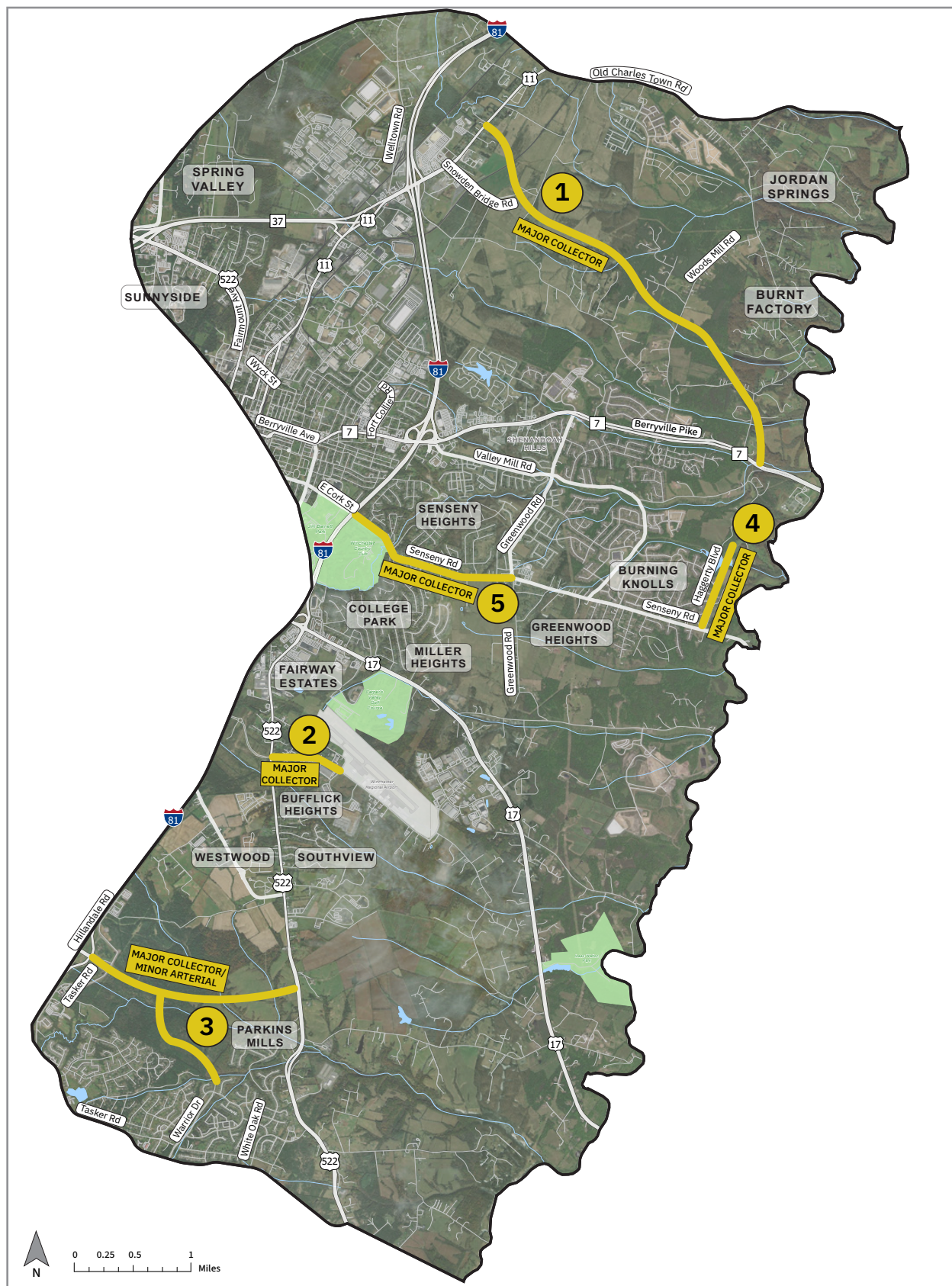


Figure 19: Potential Improvement Projects

| May 2024 | | | Inflation Increase of 5% Compounded Each Year | | | | |
|--------------|--|---|---|-----------------|-----------------|-----------------|-----------------|
| Project # | Description | Project Total With Contingencies (millions) | 2025 (millions) | 2026 (millions) | 2027 (millions) | 2028 (millions) | 2029 (millions) |
| 1 | Route 37 from Route 11 to Route 7 | \$179.5 | \$188.5 | \$198 | \$208 | \$218 | \$229 |
| 2 | Widening Airport Road | \$13.5 | \$14 | \$15 | \$16 | \$17 | \$17.5 |
| 3 | New Roadway from Route 37 to US 522 | \$196 | \$206 | \$216 | \$227 | \$238.5 | \$250 |
| 4 | Extension of Haggerty Blvd/ Hallowed Crossings Way | \$49 | \$51.5 | \$54 | \$56.5 | \$59.5 | \$62.5 |
| 5 | Center turn lane on Senseny Road | \$25.5 | \$27 | \$28 | \$29.5 | \$31 | \$33 |
| TOTAL | | \$463.5 | \$487 | \$511 | \$537 | \$564 | \$592 |

Table 13: Construction Cost Estimate – Side-By-Side Costs

Details are provided in subsequent tables and graphics in this section. Additional detail of the travel demand model analysis is included in a memorandum completed by WRA as part of this project and is included in the **Appendix F**.

To gain perspective and perform analyses, the webmap developed for this project included layers from multiple sources such as Frederick County planning, VDOT planning, and the traffic forecast by WRA. The needs statements are centered around VDOT's PSI Segments and Intersections, review of the projected V/C ratios in 2050, origin/destination (O-D) review, and VDOT/County/citizen comments throughout the project.

While reviewing these datasets, the apparent first area of concern was Route 7. There are projects in the top 100 PSI listing in this area and many crashes on Route 7 between Route 81 and the Frederick/Clark County line. This segment of Route 7 is also included in the Safe Streets for All (SS4A) Action Plan as a potential improvement project. One remediation to the congestion and safety issues on Route 7 is to examine a connection between Route 7 and Route 11. The traffic model shows that the construction of the bypass in this area would reduce the projected volume in 2050.

On the southern end of the study area, the intersection of I-81 and Tasker Road was also identified as a problematic area by County staff and VDOT. As of 2019, Tasker Road at the interchange with I-81 and Route 37 is over capacity with a V/C Ratio between 1 and 1.5.

One logical solution to this problem is to create a connection with Warrior Drive to serve the large residential developments in the area.

A recurring theme during the public input process was citizen discussion of Senseny Road. This roadway was cited as problematic for this study and for the SS4A project. Lack of shoulders creates unsafe conditions for pedestrians and bicyclists, and the lack of a consistent center turn lane from I-81 to Greenwood Road causes queues to form. The V/C ratio on this segment is greater than 1 and less than 1.5 in 2050. To relieve some of the congestion on Senseny Road and Greenwood Road (also V/C greater than 1 and less than 1.5 in 2050) construction of a segment along the current bypass alignment that continues from Haggerty Boulevard (currently in construction) was evaluated.

To further evaluate these alternatives, we conducted an analysis of the potential VHT (vehicle hour time) impacts by looking at the following scenarios:

- The no build scenario (not changing the existing roadway network)
- Construction of Potential Project 1 (referred to as Northern Section)
- Construction of Potential Project 3 (referred to as Southern Section)
- Full bypass build (construction of the bypass as a full limited access facility as planned previously)

The results of this analysis can be found in the **Appendix F**. This comparison was completed for AM peak, Mid-day peak, PM peak, nighttime, and daily average time of day to assess the differences between these time periods. Also, the impacts to different facility types were conducted during the various times of day and for each scenario. The tables include volumes and percent changes between the volumes.

Time of day did have a significant impact on the volumes themselves but not in the percent change relative to each scenario. Most apparent is the 68% increase in FACTYPE 2 (Minor Freeway) for the full bypass build scenario. This increase is coupled with a decrease in the minor arterial and collector facility types, and would provide network benefit for facility types identified as potential problems based on V/C ratios. A full bypass type connection provides the most benefit but the northern and southern possible connection provides relief as well. In contrast, impacts to VHT from the independent construction of Potential Project 1 and 3 are less than 10%. In terms of the VHT analysis, although marginally better,

the southern connection offers slightly more benefit than the northern connection.

Planning Level Cost Estimates

The cost estimate summary can be found in **Table 13** on page 52. Breakdowns by project can be found in **Tables 14 to 18**.

These planning level estimates included the following assumptions:

- Drainage/Stormwater Management (SWM)/Erosion and Sedimentation Control (ESC) is 25% of the subtotal of major roadway quantities
- Utilities is 3% of the subtotal of major roadway quantities
- Signal Performance Measures (SPM)/Maintenance of Traffic (MOT) is 8% of the subtotal of major roadway quantities
- Preliminary Engineering is 10% of the construction subtotal
- Final Design is 7% of the construction subtotal
- ROW is 5% of the construction subtotal
- Construction Engineering & Inspection (CEI) is 17.5% of the construction subtotal

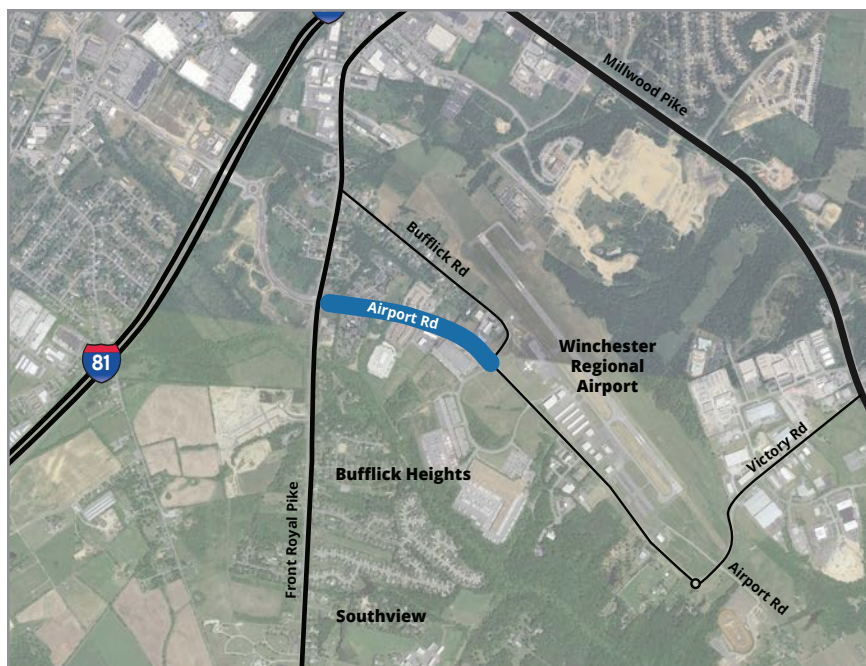


Major Collector

| | |
|----------------|---------|
| ADT | - |
| Terrain | Rolling |
| Design Speed | 60 MPH |
| Minimum Radius | 1200' |
| SSD | 570' |
| Lane Width | 12' |
| Shoulder Width | 6' |
| Max Grade | 10% |

| Item | Quantity / Percentage | Unit Cost | Cost (Millions) |
|---|-----------------------|-----------|-----------------|
| Full-Depth Pavement (sf) | 383178 | \$12 | \$4.5 |
| Milling (sf) | 0 | \$24 | - |
| Leveling (sf) | 0 | \$3 | - |
| Shoulder Pavement (sf) | 224400 | \$8 | \$2 |
| Regular Excavation (cy) | 1126486 | \$20 | \$22.5 |
| Bridge / Structure(s) (sf) | 99316 | \$400 | \$40 |
| Subtotal | | | \$69 |
| Drainage / SWM / ESC | 25% | - | \$17 |
| Utility | 3% | - | \$2 |
| SPM / MOT | 5% | - | \$3.5 |
| Traffic Signals | 4 | \$500,000 | \$2 |
| Subtotal | | | \$93.5 |
| Mobilization | - | - | \$4.5 |
| Construction Survey (1% + 5,000) | - | - | \$1 |
| Subtotal | | | \$99 |
| Contingency | 30% | - | \$29.5 |
| Construction Subtotal | | | \$129 |
| PE | 10% | - | \$13 |
| FD | 7% | - | \$9 |
| ROW | 5% | - | \$6 |
| CEI | 17.50% | - | \$22.5 |
| Project Total (With Contingencies) | | | \$179.5 |

Table 14: Construction Cost Estimate – Potential Improvement Project 1

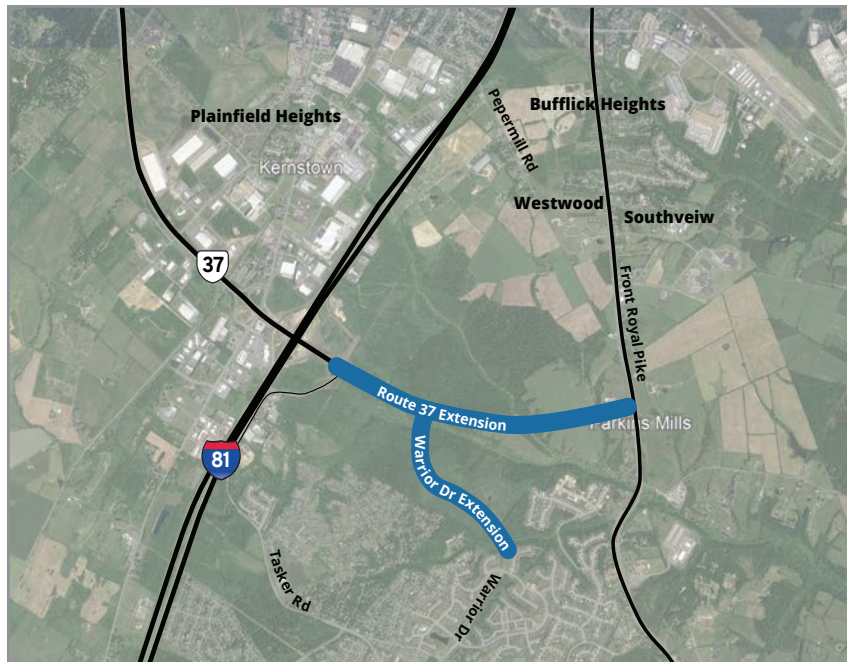


Major Collector

| | |
|----------------|------------------|
| ADT | >2,000 (2050) |
| Terrain | Rolling |
| Design Speed | 25 MPH |
| Minimum Radius | 115' |
| SSD | 155' |
| Lane Width | 12' |
| Shoulder Width | 6' |
| Max Grade | 10% |

| Item | Quantity / Percentage | Unit Cost | Cost (Millions) |
|---|-----------------------|-----------|-----------------|
| Full-Depth Pavement (sf) | 26767 | \$12.00 | \$0.5 |
| Milling (sf) | 135067 | \$24.00 | \$3 |
| Leveling (sf) | 135067 | \$3.00 | \$0.5 |
| Shoulder Pavement (sf) | 36545 | \$8.00 | \$0.5 |
| Regular Excavation (cy) | 28663 | \$20.00 | \$0.5 |
| Bridge / Structure(s) (sf) | 0 | \$400.00 | - |
| Subtotal | | | \$5 |
| Drainage / SWM / ESC | 25% | - | \$0.5 |
| Utility | 3% | - | \$0.5 |
| SPM / MOT | 8% | - | \$0.5 |
| Traffic Signals | 1 | \$500,000 | \$0.5 |
| Subtotal | | | \$7 |
| Mobilization | - | - | \$0.5 |
| Construction Survey (1% + 5,000) | - | - | \$0.5 |
| Subtotal | | | \$8 |
| Contingency | 30% | - | \$2 |
| Construction Subtotal | | | \$10 |
| PE | 10% | - | \$1 |
| FD | 7% | - | \$0.5 |
| ROW | 5% | - | \$0.5 |
| CEI | 17.50% | - | \$1.5 |
| Project Total (With Contingencies) | | | \$13.5 |

Table 15: Construction Cost Estimate – Potential Improvement Project 2



Major Collector

| | |
|----------------|---------|
| ADT | - |
| Terrain | Rolling |
| Design Speed | 60 MPH |
| Minimum Radius | 1200' |
| SSD | 570' |
| Lane Width | 12' |
| Shoulder Width | 6' |
| Max Grade | 6% |

| Item | Quantity / Percentage | Unit Cost | Cost (Millions) |
|---|-----------------------|-----------|-----------------|
| Full-Depth Pavement (sf) | 590090 | \$12.00 | \$7 |
| Milling (sf) | 0 | \$24.00 | - |
| Leveling (sf) | 0 | \$3.00 | - |
| Shoulder Pavement (sf) | 201572 | \$8.00 | \$1.5 |
| Regular Excavation (cy) | 985450 | \$20.00 | \$20 |
| Bridge / Structure(s) (sf) | 112835 | \$400.00 | \$45 |
| Subtotal | | | \$73.5 |
| Drainage / SWM / ESC | 25% | - | \$18.5 |
| Utility | 3% | - | \$2 |
| SPM / MOT | 8% | - | \$6 |
| Traffic Signals | 4 | \$500,000 | \$2 |
| Subtotal | | | \$102 |
| Mobilization | - | - | \$5 |
| Construction Survey (1% + 5,000) | - | - | \$1 |
| Subtotal | | | \$108 |
| Contingency | 30% | - | \$32.5 |
| Construction Subtotal | | | \$140.5 |
| PE | 10% | - | \$14 |
| FD | 7% | - | \$10 |
| ROW | 5% | - | \$7 |
| CEI | 17.50% | - | \$24.5 |
| Project Total (With Contingencies) | | | \$196 |

Table 16: Construction Cost Estimate – Potential Improvement Project 3



Major Collector

| | |
|----------------|------------------|
| ADT | >2,000 (2050) |
| Terrain | - |
| Design Speed | 60 MPH |
| Minimum Radius | 1200' |
| SSD | 570' |
| Lane Width | 12' |
| Shoulder Width | 6' |
| Max Grade | 6% |

| Item | Quantity / Percentage | Unit Cost | Cost (Millions) |
|---|-----------------------|-----------|-----------------|
| Full-Depth Pavement (sf) | 92910 | \$12.00 | \$1 |
| Milling (sf) | 0 | \$24.00 | - |
| Leveling (sf) | 0 | \$3.00 | - |
| Shoulder Pavement (sf) | 54198 | \$8.00 | \$0.5 |
| Regular Excavation (cy) | 298887 | \$20.00 | \$6 |
| Bridge / Structure(s) (sf) | 25200 | \$400.00 | \$10 |
| Subtotal | | | \$17.5 |
| Drainage / SWM / ESC | 25% | - | \$4.5 |
| Utility | 3% | - | \$0.5 |
| SPM / MOT | 5% | - | \$1 |
| Traffic Signals | 4 | \$500,000 | \$2 |
| Subtotal | | | \$25.5 |
| Mobilization | - | - | \$1 |
| Construction Survey (1% + 5,000) | - | - | \$0.5 |
| Subtotal | | | \$27 |
| Contingency | 30% | - | \$8 |
| Construction Subtotal | | | \$35 |
| PE | 10% | - | \$3.5 |
| FD | 7% | - | \$2.5 |
| ROW | 5% | - | \$2 |
| CEI | 17.50% | - | \$6 |
| Project Total (With Contingencies) | | | \$49 |

Table 17: Construction Cost Estimate – Potential Improvement Project 4



Major Collector

| | |
|----------------|---------------|
| ADT | >2,000 (2050) |
| Terrain | - |
| Design Speed | 35 MPH |
| Minimum Radius | 316' |
| SSD | 250' |
| Lane Width | 12' |
| Shoulder Width | 6' |
| Max Grade | 9% |

| Item | Quantity / Percentage | Unit Cost | Cost (Millions) |
|---|-----------------------|-----------|-----------------|
| Full-Depth Pavement (sf) | 186520 | \$12.00 | \$2 |
| Milling (sf) | 99680 | \$24.00 | \$2.5 |
| Leveling (sf) | 99680 | \$3.00 | \$0.5 |
| Shoulder Pavement (sf) | 111300 | \$8.00 | \$1 |
| Regular Excavation (cy) | 62812 | \$20.00 | \$1 |
| Bridge / Structure(s) (sf) | 3072 | \$400.00 | \$1 |
| Subtotal | | | \$8 |
| Drainage / SWM / ESC | 25% | - | \$2 |
| Utility | 3% | - | \$0.5 |
| SPM / MOT | 8% | - | \$0.5 |
| Traffic Signals | 4 | \$500,000 | \$2 |
| Subtotal | | | \$13 |
| Mobilization | - | - | \$0.5 |
| Construction Survey (1% + 5,000) | - | - | \$0.5 |
| Subtotal | | | \$14 |
| Contingency | 30% | - | \$4 |
| Construction Subtotal | | | \$18 |
| PE | 10% | - | \$2 |
| FD | 7% | - | \$1.5 |
| ROW | 5% | - | \$1 |
| CEI | 17.50% | - | \$3 |
| Project Total (With Contingencies) | | | \$25.5 |

Table 18: Construction Cost Estimate – Potential Improvement Project 5

| Potential Improvement Project 1 | | | | | | | |
|---|--|---------------|---|---------------|--|-----------------|---------------------------------------|
| Project Total With Contingencies | Project Needs | | | | | | |
| \$179.5 Million | | | | | | | |
| Issues that May Affect Design or Construction | | | | | | | |
| This project poses many difficulties from constructability standpoint. These are documented in the Logical Termini, Independent Utility, and Concept Development section of the report. | | | | | | | |
| | <table> <tr> <td>Safety</td><td>- This project would improve safety by diverting traffic off Route 7 (2050 ADT without project: ~47,000, 2050 with project ~28,000)</td></tr> <tr> <td>Access</td><td>- This was proposed to be a four-lane limited access highway (similar to the existing Route 37 bypass)</td></tr> <tr> <td>Mobility</td><td>- Projected volume in 2050 is ~18,000</td></tr> </table> | Safety | - This project would improve safety by diverting traffic off Route 7 (2050 ADT without project: ~47,000, 2050 with project ~28,000) | Access | - This was proposed to be a four-lane limited access highway (similar to the existing Route 37 bypass) | Mobility | - Projected volume in 2050 is ~18,000 |
| Safety | - This project would improve safety by diverting traffic off Route 7 (2050 ADT without project: ~47,000, 2050 with project ~28,000) | | | | | | |
| Access | - This was proposed to be a four-lane limited access highway (similar to the existing Route 37 bypass) | | | | | | |
| Mobility | - Projected volume in 2050 is ~18,000 | | | | | | |

| Potential Improvement Project 2 | | | | | | | |
|--|--|---------------|---|---------------|--|-----------------|---------------------------------------|
| Project Total With Contingencies | Project Needs | | | | | | |
| \$13.5 Million | | | | | | | |
| Issues that May Affect Design or Construction | | | | | | | |
| Maintaining phased construction (this section cannot be closed). | | | | | | | |
| | <table> <tr> <td>Safety</td><td>- There are two severe injury crashes and two minor crashes between 2017 and 2021</td></tr> <tr> <td>Access</td><td>- The projected V/C ratio in 2050 is between 0.85 and 1. Construction of this project will help with access to the airport as it grows</td></tr> <tr> <td>Mobility</td><td>- Projected volume in 2050 is ~17,000</td></tr> </table> | Safety | - There are two severe injury crashes and two minor crashes between 2017 and 2021 | Access | - The projected V/C ratio in 2050 is between 0.85 and 1. Construction of this project will help with access to the airport as it grows | Mobility | - Projected volume in 2050 is ~17,000 |
| Safety | - There are two severe injury crashes and two minor crashes between 2017 and 2021 | | | | | | |
| Access | - The projected V/C ratio in 2050 is between 0.85 and 1. Construction of this project will help with access to the airport as it grows | | | | | | |
| Mobility | - Projected volume in 2050 is ~17,000 | | | | | | |

| Potential Improvement Project 3 | | | | | | | |
|--|--|---------------|--|---------------|---|-----------------|---|
| Project Total With Contingencies | Project Needs | | | | | | |
| \$196 Million | | | | | | | |
| Issues that May Affect Design or Construction | | | | | | | |
| There are a number of environmental impacts in this area, these are documented in the Logical Termini, Independent Utility, and Concept Development section of the report. | | | | | | | |
| | <table> <tr> <td>Safety</td><td>- In the absense of this link, existing traffic uses Tasker Road in order to gain access to the residential parcels in the vicinity of Warrior Drive</td></tr> <tr> <td>Access</td><td>- This was proposed to be a four-lane limited access highway similar to the existing Route 37 bypass. Volumes could justify a four lane roadway from Tasker Road to Warrior Drive in 2050</td></tr> <tr> <td>Mobility</td><td>- Projected volume in 2050 is ~50,000 between I-81 and future Warrior Drive and ~27,000 between future Warrior Drive and US 522</td></tr> </table> | Safety | - In the absense of this link, existing traffic uses Tasker Road in order to gain access to the residential parcels in the vicinity of Warrior Drive | Access | - This was proposed to be a four-lane limited access highway similar to the existing Route 37 bypass. Volumes could justify a four lane roadway from Tasker Road to Warrior Drive in 2050 | Mobility | - Projected volume in 2050 is ~50,000 between I-81 and future Warrior Drive and ~27,000 between future Warrior Drive and US 522 |
| Safety | - In the absense of this link, existing traffic uses Tasker Road in order to gain access to the residential parcels in the vicinity of Warrior Drive | | | | | | |
| Access | - This was proposed to be a four-lane limited access highway similar to the existing Route 37 bypass. Volumes could justify a four lane roadway from Tasker Road to Warrior Drive in 2050 | | | | | | |
| Mobility | - Projected volume in 2050 is ~50,000 between I-81 and future Warrior Drive and ~27,000 between future Warrior Drive and US 522 | | | | | | |

Table 19: Mini TIP

| Potential Improvement Project 4 | |
|---|--|
| Project Total With Contingencies | Project Needs |
| \$49 Million | |
| Issues that May Affect Design or Construction | |
| A development in this area, The Retreat at Winding Creek, was constructed since the original bypass was proposed. It will be challenging to either tie into the existing road network here or do some kind of flyover bridge. | |
| Safety | - There is 1 intersection on the Top 100 PSI list on Greenwood Road in this area and one segment south of Senseny Road. Construction of this segment would take some demand off Greenwood Road |
| Access | - The top half of Haggerty Boulevard is being constructed by a developer. It makes sense to close the connection to Senseny Boulevard to improve access in this area |
| Mobility | - This creates an alternate roadway to Greenwood Road to get north/south through the project area |

| Potential Improvement Project 5 | |
|---|--|
| Project Total With Contingencies | Project Needs |
| \$25.5 Million | |
| Issues that May Affect Design or Construction | |
| This project would need to be completed using phased construction and significant delays could occur. Lack of shoulders will make phasing difficult. May not be a competitive project for grants. | |
| Safety | - 15 crashes reported from 2017 - 2022 - There are 2 intersection projects in VDOT's Top 100 PSI 18-22 Listing - V/C > 1 in 2050 |
| Access | - There are no bicycle or pedestrian accommodations |
| Mobility | - There are 27 driveways/intersecting roadways along this corridor where a center turn lane would prevent queuing |

Table 19 (Continued): Mini TIP

Grant Opportunities & Next Steps

Grant Opportunities

There are multiple grant opportunities available to fund any project or combination of these projects. At the time of this report, the SS4A Action Plan has been completed and adopted by the WinFred MPO. This report included street, intersection, and sidewalk improvements. Projects identified in this Action Plan are eligible for an Implementation Grant by the United States Department of Transportation (USDOT). USDOT has a grant round that opens annually in the early spring. The local match required is 20% and the federal match is 80%. A project on Route 7 has been identified in the Action Plan that could be eligible for a supplemental planning grant or implementation grant, depending on the wishes of Frederick County.

SMART SCALE is a bi-annual funding opportunity offered by VDOT. In the 6th round offered this year, VDOT has instituted the “Gating Process” whereby the project readiness requirements are increased from prior grant rounds. Roadways on new alignments, adding managed lanes (HOV, etc.), and major widening now require an alternatives analysis. As such, the pieces of the Route 37 bypass proposed as projects in this study would have to be further studied to be eligible. Early coordination with VDOT is key to a successful application and working relationship throughout the project, and it is a critical “gate” for the SMART SCALE pre-application. The project which includes the addition of a center-turn lane on Senseny Road may be eligible for SMART SCALE using these criteria, but discussion with VDOT is encouraged to accurately ensure eligibility.

There are many more grant opportunities available in the Commonwealth. The Virginia Highway Safety Improvement Program (VHSIP) uses state and federal funding to implement safety improvements. Localities can submit applications between August 1 and October 31 annually for these funds. Examples of improvements eligible for grant funding are flashing yellow arrows, pedestrian crossings, road diets, unsignalized intersection improvements, and curve delineation. Some of these creative solutions could be utilized throughout the project area to enhance safety at a lower cost to the residents.

Revenue Sharing provides a matching allocation up to \$5 million for projects designated by the locality for improvement, construction, maintenance, or reconstruction of highway systems. The projects proposed in this study far exceed the \$5 million mark, but utilizing these funds for other projects can help the County re-allocate funds to be able to support these larger scale projects in the future.

Next Steps

In addition to searching for grant opportunities to fund the potential solutions proposed, this study can be used in many ways. Reviewing the information provided in this study to re-calibrate the thought process behind the necessity of constructing the Route 37 Eastern bypass is an important one. Consideration should be made to update the Comprehensive Transportation Plan/Eastern Frederick County Road Plan to show that a two-lane roadway can meet the future transportation needs in certain segments of the bypass. Additionally, consider adding the other proposed improvements in this study to support long term transportation planning goals to increase mobility and safety for the residents of Frederick County and the traveling public. Examples include capacity preservation on US 522 and US 17/50 as this intersection and segments/intersections along US 522 were identified on VDOT's Top PSI list. As development increases in Frederick County, these areas of preservation should receive special attention and consideration.

It is also a recommendation to find a mechanism to ensure that future development will not interfere with projects included in the Transportation Plan. As noted previously, sections of the Route 37 Eastern Bypass will not be constructable on the alignment scoped in the 2001 EIS due to development that has occurred since. Consider asking developers to provide a GIS layer with the proposed footprint to avoid these conflicts in the future.

This study is intended to precipitate a Phase II analysis to fully vet the alternatives so that the County and Commonwealth make the best-informed decisions possible with tax funds. As noted in the section above, SMART SCALE applications in the 6th round now require the following for roadways on new alignments: "Provide a Planning Study/Safety Study, which includes an operational analysis and documents a preferred alternative that is consistent with the scope described in the application to support this feature. The study must include an alternatives analysis that considers improvements not on a new alignment"⁸. It was not within this study's scope to do this detailed analysis for the proposed roadways on new alignment; therefore, a Phase II is necessary to enable the County to apply for SMART SCALE funding in the future.

⁸ Commonwealth Transportation Board, "SMART SCALE Technical Guide", Table 2.6, https://smartscale.virginia.gov/media/smartscale/documents/508_R6_Technical-Guide_FINAL_FINAL_acc043024_PM.pdf

APPENDIX A

PUBLIC ENGAGEMENT PLAN



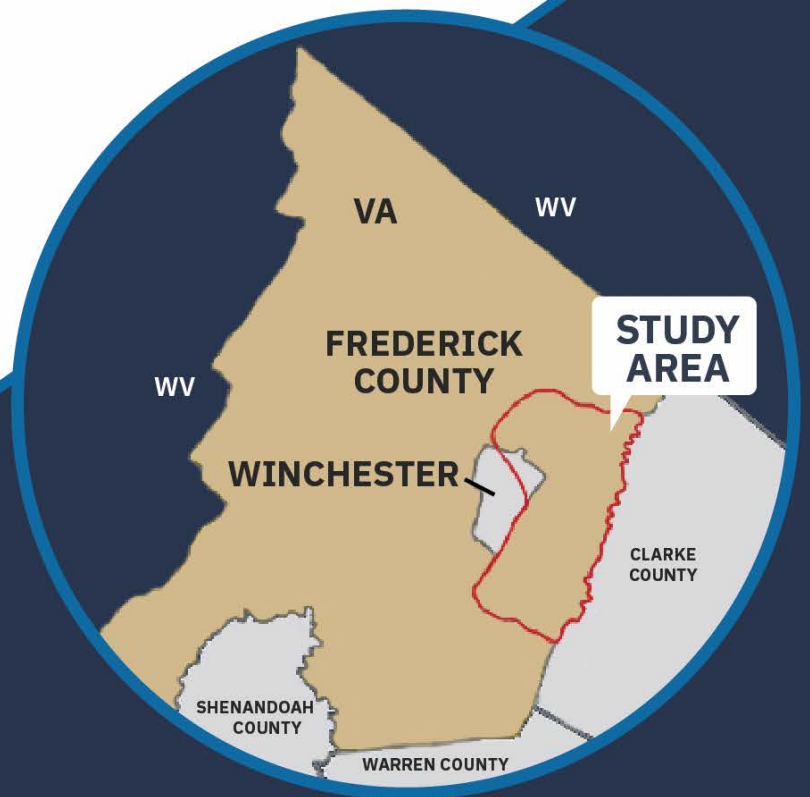
EASTERN FREDERICK COUNTY

TRANSPORTATION STUDY

www.FCVA.us/Departments/Planning-Development/Transportation

Public Engagement Plan

Last Updated
October 2023



EASTERN FREDERICK COUNTY **TRANSPORTATION STUDY**

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Eastern Frederick County Transportation Study Draft Public Engagement Plan (PEP) Last Updated 10-27-23

1. INTRODUCTION

1.1 Project Description

Frederick County is studying transportation issues and viable solutions for the project area situated to the east of the City of Winchester. The goal of the study is to develop a well-defined and documented set of transportation needs and implementable transportation improvements.

The study area includes Interstate 81 (I-81) in the west to the Frederick County/Clarke County line in the east; and extends from Route 761 on the north side of the city to the Tasker Road area east of the I-81 Exit 310.

The study will analyze transportation issues related to the road network and conceptually develop viable transportation solutions for the area through data collection and interviews. A map of the project area is provided in **Figure 1**.

1.2 Plan Purpose

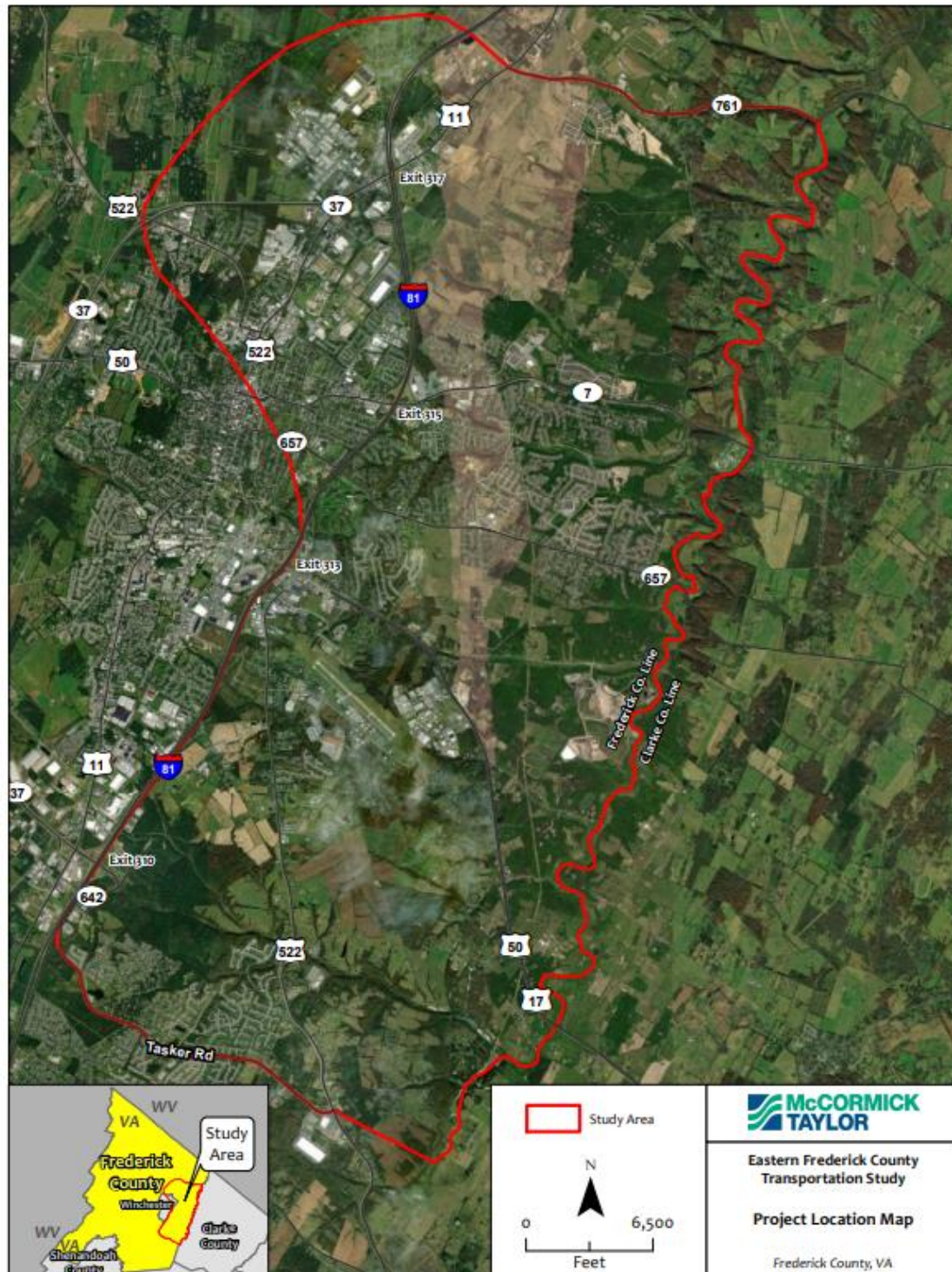
As part of the project development process, Frederick County will communicate regularly with the public, project stakeholders, and public officials and the media, as appropriate, and provide opportunities for project-related input and feedback. The Public Engagement Plan (PEP) outlines a comprehensive, proactive outreach strategy to be implemented during the study. The overall goal of the PEP is to:

- Heighten public awareness and understanding of the project
- Identify and purposefully engage key stakeholders in the project development process
- Provide public access to current and accurate project information
- Deliver timely responses to public inquiries; and
- Assimilate public views, preferences, and support for project outcomes that enhance mobility, safety, and efficiency

2. REGULATORY COMPLIANCE

Public participation in the transportation planning process has been a priority for federal, state, and local officials since the passage of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991 and its successors, the Transportation Efficiency Act for the 21st Century (TEA-21); the Safe Accountable Flexible Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU); the Moving Ahead for Progress in the 21st Century Act (MAP 21); the Fixing America's Surface Transportation (FAST) Act in 2015; and continues to be maintained in the Infrastructure Investment and Jobs Act (IIJA) which was signed by President Biden on November 15, 2021. The IIJA also requires agencies to prioritize investments in low-income, historically underserved, economically disadvantaged areas, including rural communities and tribal lands.

Figure 1: Project Area Map





The Eastern Frederick County Transportation Study PEP is comprised of strategies and activities designed to meet or exceed the guidance and directives prescribed in the IJJA, and the following:

- *The National Environmental Policy Act (NEPA of 1969);*
- *Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended in 2016;*
- *Executive Order 12898 of February 11, 1994;*
- *Title VI of the Civil Rights Act of 1964;*
- *Clean Air Act Amendments of 1990;*
- *Americans with Disabilities Act (ADA) of 1990; and*
- *Executive Order 14091 of February 16, 2023.*

Additionally, the overall framework and context of this PEP are consistent with the Virginia Department of Transportation (VDOT) Public Involvement Manual, dated November 2021. The PEP follows the guidance in the United States Department of Transportation (USDOT) document, *Promising Practices for Meaningful Public Involvement in Transportation Decision-Making*, dated October 2022, to reduce inequities and ensure communities have a voice in the transportation decision-making process.

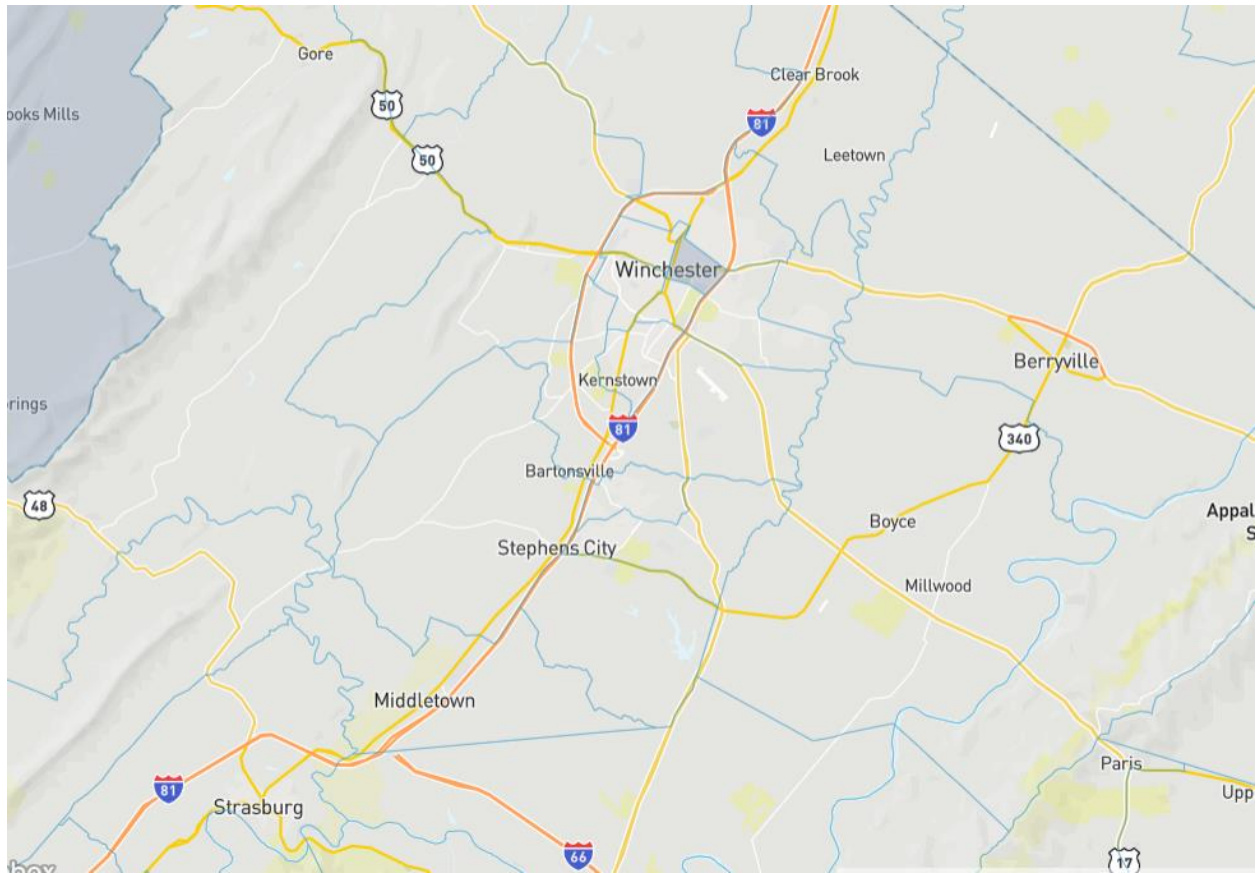
3. DISADVANTAGED COMMUNITIES AND ENVIRONMENTAL JUSTICE

Beyond requirements to identify disadvantaged communities, it is important to analyze for these populations at the earliest possible time in project development because, historically, these groups have been left out of the planning and project development process. Early identification of disadvantaged communities can improve transportation for the entire community, as well as minimize or avoid potential harm from a project. Additionally, appropriate communication tools and outreach activities for these groups can be determined in advance.

In January of 2021, President Biden issued Executive Order 14008, which directed the Council on Environmental Quality (CEQ) to develop the Climate and Economic Justice Screening Tool. The tool has an interactive map and uses datasets that are indicators of burdens in eight categories: climate change, energy, health, housing, legacy pollution, transportation, water and wastewater, and workforce development. The tool uses this information to identify communities that are experiencing these burdens. These are the communities that are disadvantaged because they are overburdened and underserved.

Within the study area, there are no United States (US) Census tracts that are considered disadvantaged. However, within Winchester City, adjacent to the Interstate 81 border, Census tract 51840000100 is considered to be disadvantaged (**Figure 2**).

Figure 2: Disadvantaged Communities



Source: Climate and Economic Justice Screening Tool

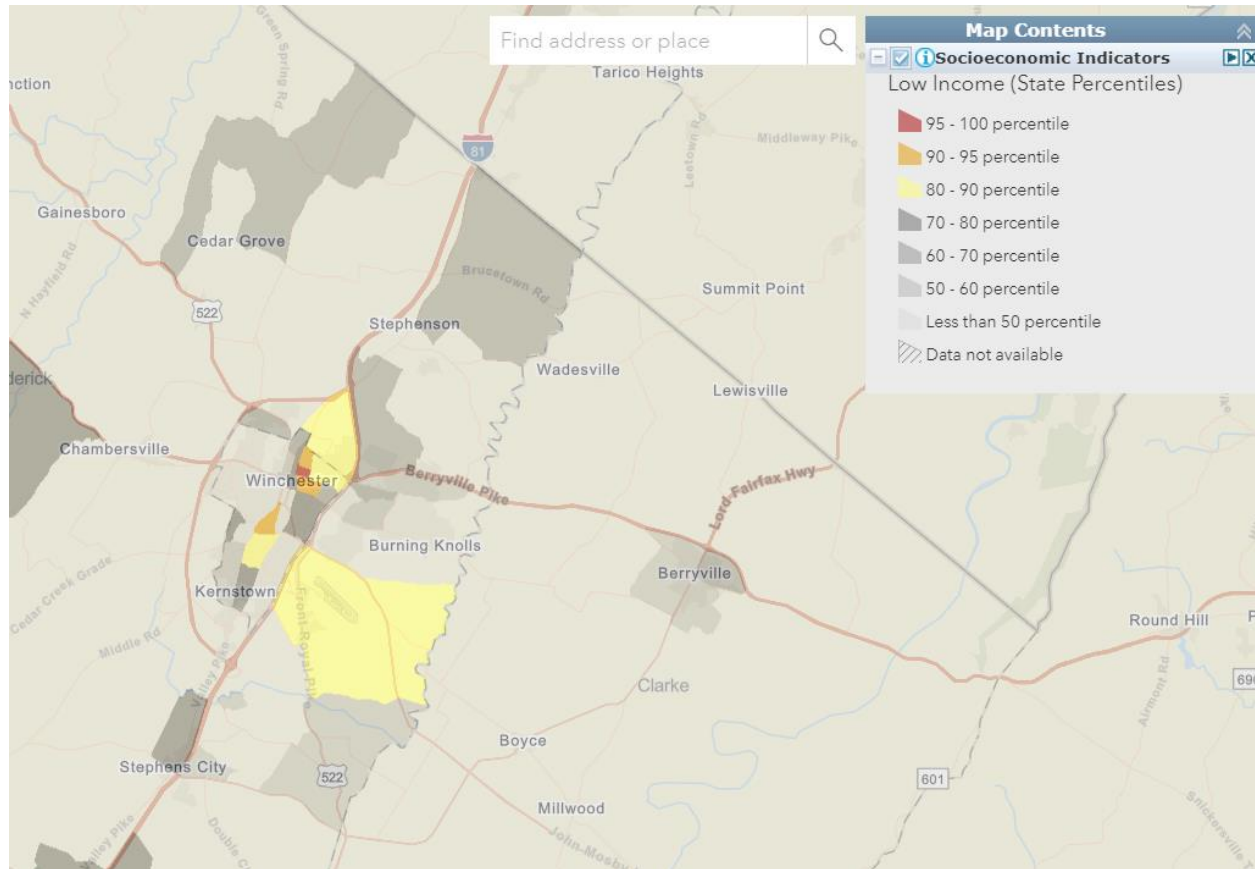
VDOT requires that all projects be evaluated using EJSCREEN. The U.S. Environmental Protection Agency (EPA) developed an Environmental Justice (EJ) mapping and screening tool, called Environmental Justice Screening and Mapping Tool (EJSCREEN). It is based on nationally consistent data and is an approach that combines environmental and demographic indicators in maps and a standard report. EJSCREEN uses demographic factors as very general indicators of a community's potential susceptibility to environmental pollutants. The latest version (2019) of EJSCREEN uses the 2013-2017 ACS 5-year estimates summary file data.

EJ is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations, and policies.

EJSCREEN defines low-income as individuals whose ratio of household income to poverty level in the past 12 months was less than 2 (as a fraction of individuals for whom ratio was determined).

At the block group level, **Figure 3** compares the low-income population of the study area to the rest of the state. Within the study area, there is one block group that is in the 89th percentile. This means that 89% of the block group's population is low-income.

Figure 3: Low-income Populations



Source: EJSCEEN

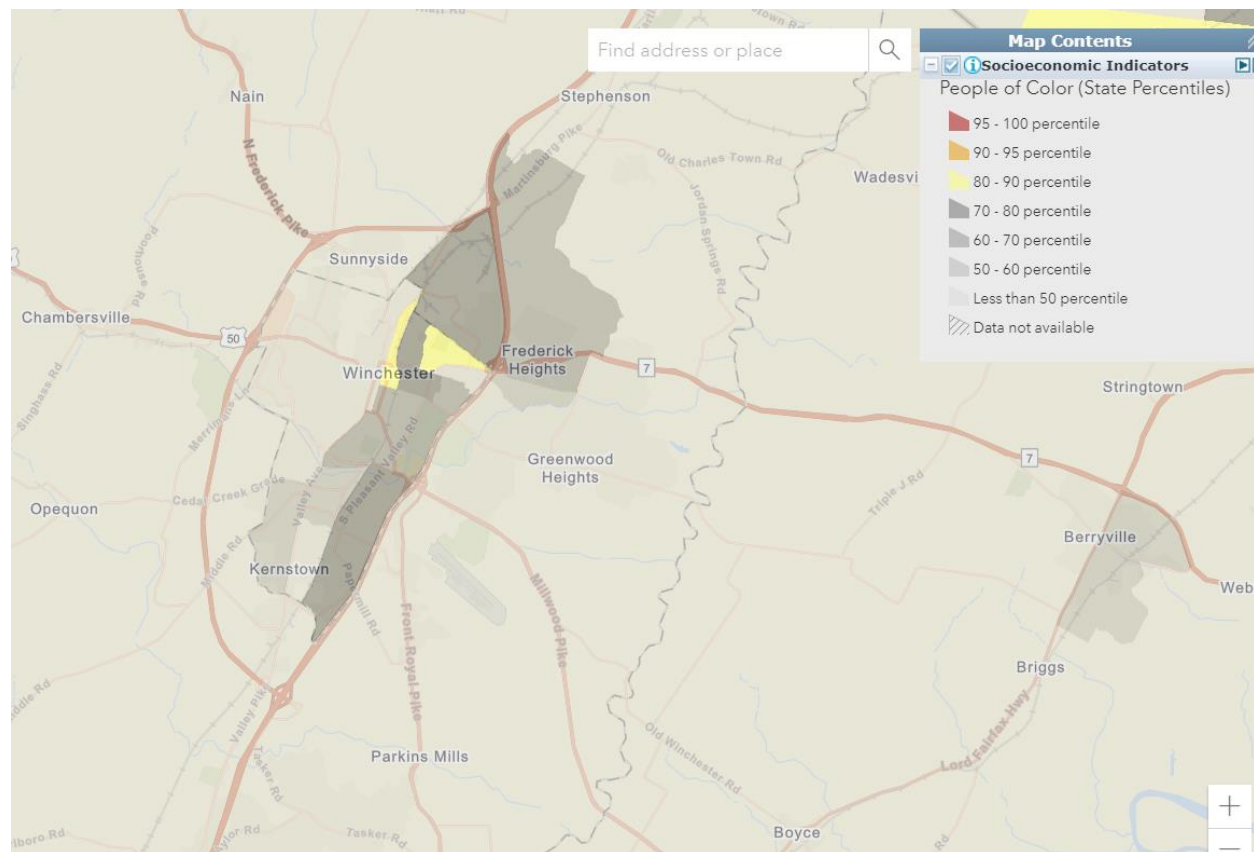
EJSCEEN defines people of color people as who list their racial status as a race other than white alone and/or list their ethnicity as Hispanic or Latino. That is, all people other than non-Hispanic white-alone individuals. The word "alone" in this case indicates that the person is of a single race, not multiracial.

Figure 4 on the following page compares the population of people of color at the block group level to the rest of the state. Within the study area, there is one block group that is in the 69th percentile and one block group that is in the 51st percentile.

4. PEP APPROACH

The following PEP approach outlines the communication methods to be utilized by the McCormick Taylor project team. The components are well-defined but may be modified as the project progresses to be responsive to the needs of key stakeholders, impacted communities within the study area, public officials, and for the continued advancement of the project. The primary components include **project communications, project website, key stakeholder coordination, and public engagement**.

Figure 4: People of Color



The McCormick Taylor project team will implement, maintain, and update the PEP in collaboration with Frederick County over the course of this project. To ensure the quality of PEP materials, McCormick Taylor employs a corporatewide **Quality Control/Quality Assurance (QC/QA)** Process for the overall public involvement effort and materials generated by the McCormick Taylor project team.

4.1 Project Communications

Responding to Public Inquiries

Effective and timely project communications are fundamental to a successful public involvement program. From responses to public inquiries to meeting invitations, it is critical that all project communications contain accurate information, reflect consistency with overall project messaging, and represent Frederick County in a professional and thoughtful manner. Accordingly, a protocol for processing and tracking public inquiries received via the project website, written correspondence, telephone, or other means will be developed for this project as directed by the County. The protocol may include establishing standard content to open and close responses, standardized replies to sensitive issues, and standardized copy lists so that key project team members consistently review and receive copies of all outgoing responses. The protocol also helps minimize, if not eliminate, the possibility of an untimely response or no response being provided.



Branding

An easily identifiable project brand will be created to distinguish this study from other studies or projects completed for or associated with the Route 37 east bypass. This will foster public recognition of materials, communications, and other related public-facing communications resources. The branding will be utilized on the project website, meeting materials, reports, display boards, publications, and electronic communications, including social media, and is featured in this document design.

Social Media

Social media helps expand project-related communications and engage traditionally underserved populations throughout the project area. Research has shown that social media is a highly effective tool to reach Latinos and African Americans; particularly via Facebook and Twitter, where representation is higher than average. Frederick County social media sites will be used to share important project information and events, including **Facebook, Twitter, Instagram, and YouTube**. McCormick Taylor will coordinate social media posts with the Frederick County Public Information Office. Social media campaigns are supported through the development of project-related graphics and content designed specifically for the identified platform. Content for use on social media is most effective when it includes attention-getting visual explanations and concise copy.

Mass Communications

Project-related communications with the public are coordinated with Frederick County Project Manager and Public Information Office. Email blasts and 'e-bulletins' will be developed as requested by the County, and as the project progresses to keep the impacted community members and key stakeholders informed. This will help to further the public's comprehension of the project and foster an open and continuing dialogue regarding the project. Potential email topics include meeting announcements, project website updates, schedule updates, and other significant project developments.

Media Coordination

All project-related communications with the media are to be coordinated with Frederick County Project Manager and Public Information Office. All media inquiries received by phone, electronically or in person are re-directed to the Public Information Officer. McCormick Taylor will develop news releases, media advisories and other project-related advertisements in draft format for review and comment by the Frederick County Project Manager and the Public Information Office. The final versions of the news releases, media advisories and other forms of project-related advertisements are to be placed or disseminated as directed by Frederick County Public Information Office.

4.2 Project Website/Web page

The consultant project team will consult with Frederick County to establish a project web-based resource on the County's website. McCormick Taylor will design and develop content for the website/web page. Additionally, two types of comprehensive content/graphic updates are planned for the project website/web page over the course of the project as follows:

- Updates associated with milestones and progress during the study (including materials/information about the two public meetings), and
- Updates after presenting the proposed alternatives.



4.3 Stakeholder Identification

McCormick Taylor and Frederick County worked together to develop a stakeholder database. It will be updated at least twice throughout this phase of the project and includes property and business owners, as well as local officials within the study area. The database serves as a stakeholder list to be utilized for information-sharing.

Fifteen stakeholders were identified for interviews as part of the Community Context Audit. The purpose of the Community Context Audit was to solicit a sampling of local interests, concerns, and perceptions about transportation within the study area. The interviews were conducted in the summer of 2023 and will allow the project team to proactively cultivate relationships with stakeholders, establish points of contact with local organizations and within the business communities, and establish reliable lines of communication to share project updates.

The stakeholder list will be updated regularly as the project development progresses.

4.4 Public Engagement

Public Meetings

Two public meetings will be held to engage, educate, and inform the public. The first meeting will be scheduled for Fall 2023 (November Transportation Forum) and will present the updated draft purpose and need statement for the project based on the consultant team analyses. A second public meeting will be held in Spring 2024 for the presentation of the proposed alternative concepts to carry forward for more detailed evaluation, analysis, and design.

If a meeting space is not available in the County Office, the project team will select a meeting venue that is accessible to all people in the community. Participants will be able to access the meeting in-person or online on the County website following the in-person session.

Traditional media and public meeting promotion often does not always reach disadvantaged and environmental justice communities. McCormick Taylor will identify methods to inform these groups of the public meetings as directed by the County.

In coordination with Frederick County, McCormick Taylor will prepare advertisements, social media posts, invitations, handouts, presentations, graphic displays, comment forms, sign-in sheets, nametags, and other material needed for the meetings as appropriate. Following the public meeting, meeting materials will be posted on the County website unless otherwise directed by the County.

A summary for each meeting will be prepared and will include documentation of notifications, materials, attendance, and follow-up actions for project documentation.

5. AMERICAN WITH DISABILITIES ACT OF 1990

The Americans with Disabilities Act (ADA) requires that individuals with disabilities be provided equal opportunity to participate in or benefit from public services, programs, and activities provided by all state and local governments. In conjunction with the implementation of this PEP, Frederick County and the consultant project team have considered the needs of individuals with disabilities. In addition to seeking out those individuals who are often under-represented in this process, Frederick County and the



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consultant project team are committed to encouraging the involvement of individuals with disabilities to gain their invaluable perspective on the attitudes and needs of a vital component of the community for whom the transportation project is being implemented.

To accommodate individuals with hearing, speech, vision or mobility limitations, accessibility and/or auxiliary aids or services needed for communications and participation in project-related public events are made available upon requests received at least 48 hours before the date of the scheduled event. Public meetings are also held in facilities that are accessible to individuals with physical disabilities. All public notices and advertisements for public meetings will include Frederick County contact information for individuals needing special assistance due to a physical disability to participate.

6. QUALITY CONTROL/QUALITY ASSURANCE

All materials developed by McCormick Taylor and our sub consultant team members are subject to McCormick Taylor's Quality Control/Quality Assurance Process (QC/QA). The QC/ QA Process ensures that our project deliverables are technically accurate, appropriate, complete, satisfy the expectations of Frederick County, and meet the project needs.

All draft and final versions of project-related materials designed for public consumption will undergo an internal quality control review before delivery to Frederick County. Final versions of public engagement materials will also include a quality assurance review prior to delivery to Frederick County.

7. PUBLIC ENGAGEMENT ACTIVITIES SCHEDULE

The timeline of public engagement activities shown below in **Figure 5** is based on the current overall project schedule and is subject to change. The schedule is updated as needed to reflect changes in the program's components and/or the progress of the project development process.

Figure 5: Public Involvement Activities Schedule



APPENDIX B

COMMUNITY CONTEXT AUDIT



EASTERN FREDERICK COUNTY

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Eastern Frederick County Transportation Study Community Context Audit Interview Questions

Subject: Commuter Concerns

1. Are you aware of transportation issues that affect local drivers' ability to reach their destinations on time?
2. Other than I-81, are you aware of any commuter routes where local drivers experience traffic congestion? If so, what are those routes?

Subject: Development/Growth

3. Are you aware of any recent or known planned developments that will generate truck traffic, or a large number of vehicles in the study area?
4. We are aware of the County's urban growth areas and sewer/water service area. Are there any areas where growth/development should be limited or restricted?
5. As part of this study, we are looking at transportation studies completed by Frederick County and the WinFred MPO. Are you aware of studies developed by private industry, developers, or other governmental agencies that can help us better understand population or economic/job growth, traffic generators, proposed development, etc.?
6. Do you know if developers are being asked to participate in transportation improvements, through actual construction or transportation impact fees (TIFs), etc.?
7. Do you have any concerns about the transportation system impacting the environment or cultural and historic resources within the study area?

Subject: Large Trucks

8. For non-businesses: Are there large trucks, such as tractor trailers or freight trucks, on local/residential roads?
9. For businesses: Do large trucks, such as tractor trailers or freight trucks, belonging to your business use local/residential roads?



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Subject: Emergency Services

10. Do you have knowledge of any specific emergency services/first responders concerns in the study area?

Subject: School Bus Traffic Concerns

11. Are you aware of issues that school bus drivers and students have when traveling to/from school (conflicts with freight, access issues, speeding, etc.)? If so, what are they and where are the locations?

Subject: Frederick County, VA Regional Airport

12. Is there any freight handling/shipping occurring at the regional airport? If so, which industries or companies are generating the freight? How is the freight getting to the airport).

Subject: Virginia Inland Port

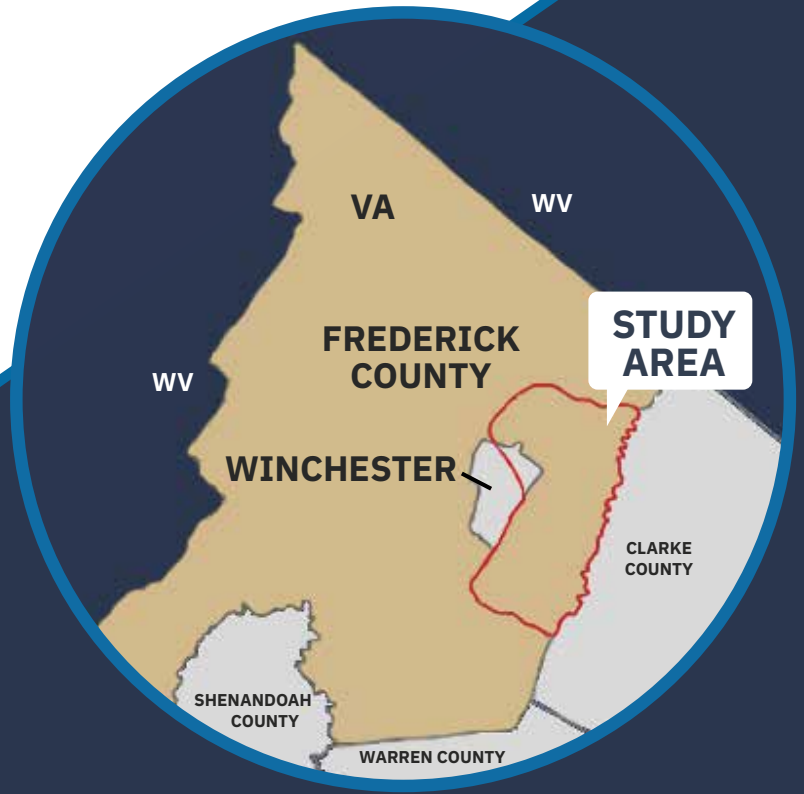
13. Do you have a relationship with the Virginia Inland Port? If so, what is that relationship and will it have an impact on traffic in general or to/from the Airport?

Subject: Stakeholder Preferences/Demographics

14. Are you interested in receiving updates on the study? How do you prefer to receive your information?
15. Do you live and/or work in the study Area? What is your ZIP code?
16. Is there another individual or organization that you believe should be considered a key stakeholder in conjunction with this study? What is their name and contact information?
17. Are there any populations, communities, or groups in Frederick County who may need assistance to participate in a public meeting and/or need assistance with accessing project-related information in either a print or electronic format? For example, language barriers, lack of internet access, or no access to a personal vehicle.

Community Context Audit Interview Summary

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Community Context Audit Interview Summary

Interview outreach of up to 15 stakeholders began on July 14, 2023, via phone. Stakeholders who were reached were given the option to take the interview at the time of the phone call or to schedule a future date for a phone, Microsoft (MS) Teams video, or in-person interview. Barry Schnoor, Director, Physical Plant, Shenandoah University, and Jeff Buettner, Interim Economic Development Authority Executive Director, opted for a phone interview. Eight interviewees opted for an MS Teams video interview. All interviews were recorded for accuracy and with permission from each interviewee. No one requested an in-person interview. By July 18, 2023, the initial outreach to the 15 stakeholders was completed. If the phone was not answered, a voice mail was left. Follow-up emails were sent if our initial calls were not returned as requested. Ten stakeholders were interviewed. There were four stakeholders who did not respond to the invitation to take part in the interviews.

It is also worthy of note that the information received and summarized below represents the collective opinions of the interviewees. This feedback and summary information will only be utilized for the purposes of the community context audit.

Completed Interviews (10):

- Larry Oliver, Frederick County Fire and Rescue
- Whit Wagner, Fort Collier
- Chris Durant, Navy Federal Credit Union
- Cynthia Schnieder, Top of VA Chamber
- Jeff Buettner, City of Winchester Economic Development Authority
- Gray Farland, Shockey Companies
- JP Carr, Glaize Development
- Nick Sabo, Winchester Regional Airport
- Barry Schnoor, Shenandoah University
- Patrick Barker, Frederick County Economic Development Authority

Unsuccessful Interview Contacts:

- Lenny Millholland, Frederick County Sheriff's Office
- Seth Levy, Shenandoah Agency on Aging
- Abbey Rembold, Valley Health System
- Justin Kerns, Winchester Frederick County Convention & Visitors Bureau

Themes

- Alleviating traffic congestion and reducing crashes on I-81 is key to improving mobility in Frederick County.



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- Traffic congestion and tractor trailers on local roads are caused by drivers avoiding traffic congestion on I-81.
- Traffic congestion on I-81 causes challenges for emergency services to reach emergencies.
- There is concern that the roads where development is planned or underway, like in northern Frederick County, are not sufficiently sized for future traffic and that the development will worsen traffic congestion.
- Alternative forms of transportation are valued and need to be improved and expanded: walking, biking, public transit.
- Frederick County's location (proximity to I-81, Virginia Inland Port, Frederick County Regional Airport) is ideal for the warehouse/manufacturing/freight industry, which is resulting in increased truck/tractor trailer traffic.
- Roadway infrastructure capacities at present are not enough for the scale and volume of planned developments.
- Frederick County is becoming a less affordable place to live, causing people to live further away from their jobs in Frederick County.
- Proximity to congested commuter routes has a detrimental impact on housing purchase choices.
- Frederick County is becoming a suburb of Washington, D.C. As a result, morning and evening rush hour has worsened, despite of an increase in remote work since the COVID-19 pandemic.



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Interview Summaries by Topic

Commuter Concerns

- I-81 has a perceived high volume of traffic and a perceived high rate of crashes.
 - Capacity does not appear to be, based on interviewee input, sufficient for the needs of the community.
 - Safety appears to be an issue on I-81. There is a high concentration of crashes on I-81 and the interchanges – this will be verified and validated through the study traffic analysis.
 - The partial clover leaf and diamond shape designs of the I-81 interchanges are thought to contribute to traffic congestion.

- I-81 interchanges/exits of concern:

Interchanges where development is occurring are problematic at peak times. At these locations there is limited land, which is challenging for making improvements. Interchange traffic levels appear to be maxed out and the known growth that is occurring cause concerns that level of service below expectations.

- 317
- 310
- 313: Signal timing causes traffic to back up.
- 315: Where Route 7 comes in, especially going westbound in the evening
- Route 11 & I-81 interchange (north of Winchester City): On-off ramp, convergence of major arteries, unsynchronized signals, industrial park, and manufacturing plant appear to contribute to congestion.
- I-66 and I-81 interchange: When there is a crash, there is 5 to 10 miles of traffic congestion between Winchester City and the interchange.
- Route 50 and Route 522 interchange with I-81: Especially during rush hour.

Future growth/developments are planned and could contribute to congestion in the following areas:

- 321 (Route 672)
 - 323 (Route 669)
 - 307 (Stephen City) & Stephen's City Bridge (Route 277 – south of this study area)
 - 302 (Middletown) Route 627 – south of this study area
 - 277 (south of Winchester City) -Bowman's Crossing, Route 614
- Development and growth in other areas, combined with cars and trucks trying to bypass traffic on I-81, is increasing congestion on other routes.



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- 7/Leesburg Pike: especially during rush hour since it catches commuters from DC to the Winchester area.
 - 37
 - 50/17
 - 522
 - 11 (Clearbrook and Stevenson areas)
 - Between Route 50 and City of Winchester, especially at Victory Avenue.
 - Currently, Route 50 has two lanes in each direction with turning lanes at some intersections. Will the length of these turning lanes be sufficient for future traffic?
 - 661/Redbud Road: On-off ramps are misaligned, and traffic signal sequences are off.
- Local roads are also seeing increased traffic.
 - Senseny Road: Experiencing a lot of development growth; two-lanes might not be sufficient for future traffic.
 - Tasker Road: Tractor trailer traffic
 - Pleasant Valley Road at Millwood Avenue (near Shenandoah University)
- Other Areas experiencing traffic congestion:
 - Bottlenecks around the West Virginia border.
- Rush hour
 - Exists and is getting worse: 8:00 AM, 3:30/4:00 PM
 - Commuter Destinations outside of Frederick County:
 - Washington, D.C. (Frederick County is the “new suburb of Washington, D.C.”)
 - Cumberland, Maryland
- Lack of public transit in Frederick County.
- Lack of alternate routes:
 - There are limited east-west connections through the County.
 - Many roads feed right into downtown Winchester City, instead of being able to bypass.

Development/Growth

- Infrastructure
 - Capacities at present are not enough for the scale and volume of developments coming up.
 - Development needs to happen where infrastructure (utilities, water/sewer, roads) already exists or where it can be delivered in a short time period. Those areas are few and far between.



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- A lot of development and growth in the County, especially in the north and towards the eastern side.
- Residential, retail, and mixed-use developments causing more traffic:
 - Crosspointe Center
 - Crossover Boulevard: Recently completed road improvements.
 - The Shops at Crossover Boulevard: >20 acres of developable commercial land
 - 311-unit apartment complex
 - Home2 Suite by Hilton hotel: 90 guests
 - Trex Co, Inc.
 - Hang 10 Car Wash
 - Carmax Dealership
 - First Bank & Trust Co
- Known planned industrial developments bringing more traffic:
 - Carmeaus: Stone manufacturer with several stone quarries in Clearbrook and Middletown
 - One Logistics: Route 50 connection to the airport. (Also known as Carpers Valley project: 300 acres under development located on Route 50.)
 - “Fruit Hill” mixed use development: 2.1 million square feet of warehouse space. Equus Development: Application has been withdrawn.
 - Valley Innovation Park: A 147-acre development with advanced, bioscience manufacturing located southwest of 310 Interchange with access to I-81.
 - Planned industrial zoning near Exit 321/323
 - More industrial land uses are being developed towards the northern part of the study area.
- Other development concerns:
 - Development near northern part of I-81, near Exit 319 – a JJJ bus stopping area.
 - Concerns about traffic management during planned construction at the Route 50-522 and I-81 interchange.
 - Speculated expansion of airport could, if ever realized, bring more traffic congestion.
 - Route 37 east bypass will have on-ramps to Route 50, causing more traffic congestion.
 - Subdivisions cause sprawl and require people to drive to their destinations.
 - People who work in Frederick County can’t afford to live in Frederick County, causing people to commute further to/from work.
- Developers work closely with the County to minimize negative impacts to the community:
 - Developer participation in transportation improvements through revenue-sharing, proffers, and “smart-scale” projects (essentially formula grants)
 - Developers can be asked to put up money, about \$10,000 per acre, plus setbacks, easements, and right of way



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Historical Resources/Environmental Concerns

- Air pollution from tractor trailers.
- Lack of EV infrastructure in the County.
- “Every field” is a historical site from the Revolutionary War era.
- Natural beauty and history of Frederick County provides a sense of identity and quality of life
- Excessive transportation infrastructure can also negatively impact water runoff etc.
- If uncurbed, development moving westward can threaten natural and agricultural land that forms an economic and cultural foundation for the area.
- Expanding Route 37 on the west side of Frederick County can help relieve traffic, but it is important to see how its building will impact the environment.

Large Trucks/Tractor Trailers

- The area is generating more truck traffic every year. I-81 is the only major north-south route on the east coast that has no major cities or bridges. This allows truckers to move more quickly than other interstates, like I-95. As a result, the Winchester City and Frederick County area is a major hub for industrial/warehouse/trucking.
- Major distribution hubs cause a large volume of freight flowing through the area.
- Large trucks/tractor trailer travel patterns:
 - Most trucks are on I-81 or the major arteries.
 - Truckers use a few local roads to get between industrial parks and I-81.
 - Truckers stop between Exits 317 and 323 before crossing over into the West Virginia border.
 - Truckers use “all the local roads” along I-81 to avoid traffic congestion on I-81 and the interchanges.
 - GPS is rerouting tractor trailers to local roads to avoid traffic congestion.
 - A lot of truckers have no option but to go through downtown, because of the way exits are designed.
 - Route 50 to Route 522: Truckers coming from Maryland or West Virginia
 - Welltown Pike (coming from Stonewall Industrial Park): When traffic is backed up on Exit 317.
- Fredrick County retail industry generating freight:
 - Amazon
 - Walmart
 - Lowe’s
 - Home Depot
 - Trex



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Emergency Services

- Traffic congestion on I-81 and the interchanges causes the volunteer fire company and emergency services to use circuitous routes to reach emergencies, especially during rush hour:
 - Route 522-50 corridor at Millwood Pike.
 - Intersection of I-81 and Berryville Pike (around Route 7).
 - In the City of Winchester, because of delays at traffic signals.
- Reducing emergency response time is always a priority for the airport.
- By Shenandoah University, there is a planned replacement of the Route 50 bridge over I-81. As a result, Route 50 entry/exit to residential halls will close. Concerns about fire rescue response time and ability to get to that part of campus.

School Bus Traffic Concerns

- Some issues with people passing stopped school buses with red lights activated.
- Some concerns of speeding in residential areas.
- Could be congestion concerns for schools near industrial areas, such as Stonewall Elementary on Route 11 north.
- Potential concerns on hilly roads:
 - Armel Elementary on Route 522.
 - Blind spots at Greenwood Mill Elementary School, off Channing Road and High Cliff Drive.

Frederick County Regional Airport/Virginia Inland Port

- Currently, neither location is a heavy node for freight operations, so they don't attract large volumes of truck traffic
 - However, several Frederick County businesses and industrial warehouses and manufacturing companies heavily rely upon the airport and Inland Port.
 - Manufacturing companies rely on private plane delivery of parts (faster than FedEx).
 - Manufacturing companies have several trucks (sometimes 20) that travel to/from Inland Port every day.
 - Some freight comes in from arterial highways, namely Routes 50 and 522.
- Connections to airport and Inland Port could be a need in the future depending on the regional growth and expansion of the manufacturing and trucking industry. Current connections might impact freight movement timeframes.
- If future plans for airport expansion would materialize, an increase in truck traffic would need to be considered.



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- Aircraft manufacturing is a targeted growth sector, which could generate new activity in freight and handling.
- Virginia Inland Port
 - Located in Warren County.
 - Currently, the four-lane road system at the Inland Port feels sufficient.
- A lot of freight is transported by train (Norfolk Southern and CSX).

Other Transportation and Demographic Studies

- Logistics One Traffic Study
- Study of traffic light at Route 50 and Independence Avenue
- Crosspointe TIA, by Glaize Development
- Carpers Valley project TIA
- Equus Development TIA
- Rumor of a private entity in talks with the State to add a toll road and build and manage the third and fourth lanes of I-81.
- Transportation and demographic studies concerns:
 - 2020 Census could be underestimating total population in Frederick County.
 - Understand “real” versus “projected” traffic numbers. VDOT’s guidelines overestimate traffic projections, and most developers who carry out their own studies are meant to follow them. Some might have published their actual counts in a traffic impact analysis or an appendix as part of a rezoning study.
 - Reevaluation of Route 522, and a potential relocation and realignment of the intersection of Routes 50 and 522

Pedestrian/Bicyclist Concerns

- Most local roads are like country roads with soft shoulders, no curb, gutter, or walking paths; though people regularly try to walk and bike to/from downtown.
- No shoulders on rural roads.
- No sidewalks in subdivisions.

Other Recommended Stakeholders

- Public Safety Communications Department
- Planning Department, Frederick County and Winchester City
- Charles Daniels, VP, Fortessa, and Chair of the Board of Top of Virginia Regional Chamber [crdaniels@fortessa.com]
- Chris Boies, Clarke County Administrator [cboies@clarkecounty.gov]
- Adielle Rivera, Loan Officer with a local business, can reach out to Hispanic residents and business-owners [adielle.rivera@guildmortgage.net]
- Ed Podboy, Logistics One, 703-608-9393 (mobile)



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- Facebook group: “What’s Happening in Winchester and Frederick County, Virginia”
- Jason Akins Developments
- Industry: HP Hood, Trex, Rubbermaid, Southeastern Container, American Woodmark Cabinetry
- Mike Perry of Perry, civil contractor who deals with traffic and trucks in the area
- Denny Perry, quarry owner and truck operator
- Dave Foley, Cargo Operator, Winchester Regional Airport
- Chris Rucker, Valley Health System [crucker2@valleyhealthlink.com]
- Jason Craig, EdD, BCBA, VHS Director, Community Health, 540-536-5949 (direct line) [jcraig@valleyhealthlink.com]
- Winchester Wheelmen
- WinFred MPO bike and pedestrian advocacy committee

Other Groups

- Spanish materials (18% of the City of Winchester are Hispanic)
- There is not an overarching voice for businesses. The Chamber and “EDOs” can help promote public engagement opportunities to the businesses.

Stakeholder Ideas

- Build safer connectors (better shoulders and curbs) to enable people to walk and bike.
- Expand public transit to the County, especially the Westview Business Park Center, and major industrial and manufacturing employers. This could help attract talent.
- Expand bike lanes and sidewalks.
- Create a parkway with at-grade crossings and traffic moving at 45-55 mph, instead of a limited access highway. This would help move domestic traffic stuck in I-81 traffic congestion.
 - Would also allow for more development that can tie in with secondary feeder roads coming in at at-grade crossings.
- Realign Redbud Road on the east side of I-81 to fix signal timing issues.
- Coordinate with City of Winchester on improving bike-ability, walkability, and public transportation, including on-demand transit.
- Efficiency measures need to be put in place on I-81 so there aren’t issues/interactions between tractor trailers and personal vehicles.
- Improvements to Coverstone Road through the One Logistics Park could help with reducing emergency response time.
- Improve Route 522 connection between airport and Inland Port; currently traffic congestion prohibits truckers to arrive on time.
- Install shoulders on the rural/county roads to benefit the safety of bicyclists and drivers.

APPENDIX C

PURPOSE AND NEEDS



EASTERN FREDERICK COUNTY

TRANSPORTATION STUDY

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EASTERN FREDERICK COUNTY TRANSPORTATION STUDY

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Eastern Frederick County Transportation Study Purpose and Needs Statements Survey Summary

The Purpose and Needs Statements survey was initially shared with public meeting attendees at the Frederick County Transportation Forum on November 16, 2023. A digital version of the survey was made available to the public from December 20, 2023, through January 31, 2024. The digital version was posted on the Frederick County website to extend the opportunity for public input through the end of January 2024. A detailed compilation of the survey responses received (paper copies and digital) was provided to the County at the conclusion of the public comment period. **A total of 148 surveys were submitted.**

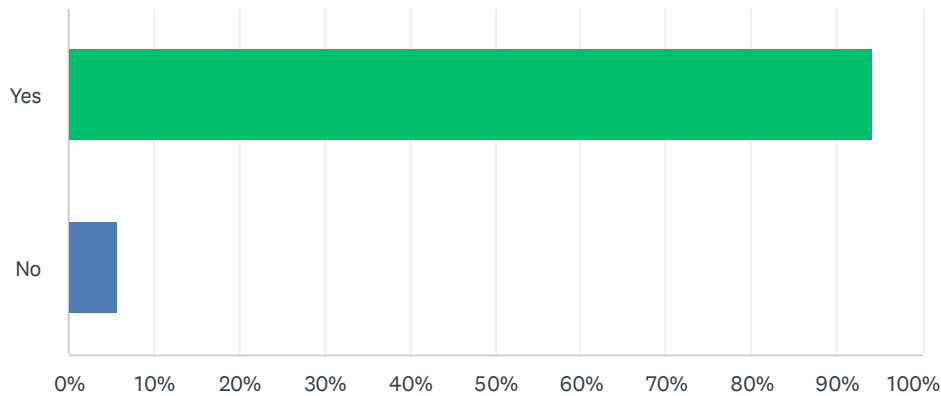
The following summation is provided as a general overview of the survey results including the total number of responses received, the number/percentage of respondents who selected 'agree' or 'disagree' as their response to each statement as presented, and the number of respondents who did not provide a response to specific statements.

To receive a copy of the detailed version of the Purpose and Needs Statements survey summary, please contact Alexandra Castrechini at Amcastrechini@mccormicktaylor.com or by phone at (804) 915-1584.

| 148 Purpose and Needs Statement Surveys Received | | | | |
|--|------------------------------------|---------------------------------------|-----------------|----------|
| Purpose and Needs Statement Topics | # of Responses/Statement | | | |
| | Agree with Statements as Presented | Disagree with Statements as Presented | No Response | Comments |
| 1. Draft Purpose | 139 (95%) | 8 (5%) | 1 | |
| 2. Draft Need – Bicycle/Pedestrian | 104 (86%) | 17 (14%) | 0 | |
| 3. Draft Need - Congestion | 95 (88%) | 13 (12%) | 40 | |
| 4. Draft Need: Safety | 92 (91%) | 9 (9%) | 47 | |
| 5. Draft Need: Interstate 81 | 78 (79%) | 21 (21%) | 49 | |
| | | | | |
| Additional Comments | | | | 28 |
| Total Responses | 508 Agree | 68 Disagree | 137 No Response | 28 |
| | | | | |

Q1 Do you agree with the Purpose statement as presented?

Answered: 123 Skipped: 1



| ANSWER CHOICES | RESPONSES | |
|----------------|-----------|-----|
| Yes | 94.31% | 116 |
| No | 5.69% | 7 |
| TOTAL | | 123 |

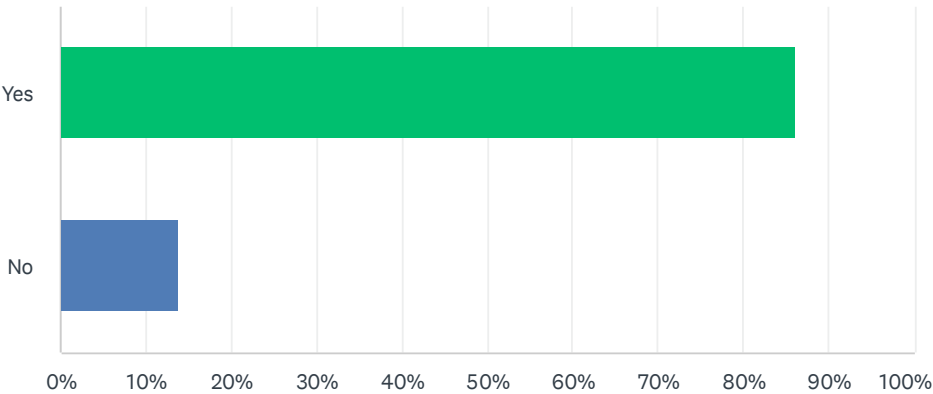
Q2 If no, please state below the basis for your disagreement and how your concern may be addressed.

Answered: 8 Skipped: 116

| # | RESPONSES | DATE |
|---|--|--------------------|
| 1 | The Route 37 bypass is a pipe dream. The County has out built itself in the areas required to fulfill it (i.e. Stonewall Industrial Park). It would cost the County a tremendous amount of money that could be better spent elsewhere. | 1/21/2024 12:11 PM |
| 2 | But spending money on Consultants really isn't the answer. Open your eyes and the answers to most of the issues are obvious. | 1/20/2024 6:28 PM |
| 3 | Too many buzz words around important issues! | 1/19/2024 6:08 PM |
| 4 | I believe spending money to create a plan that will never be funded is a waste of taxpayer money. I would recommend utilizing the last plan that included RT 37 around the eastern side of FC. | 1/19/2024 4:01 PM |
| 5 | Route 37 will not be built on the proposed route because neither the state nor local government has bought the land. | 1/19/2024 10:57 AM |
| 6 | Because it's evident of the work needed on Rt 7 and Rt 50. Also removal of stop lights and signs will keep traffic moving constantly. Maintain what you have already. Please have a look in Loco to see their motorway setups. | 1/19/2024 10:10 AM |
| 7 | Need to expand on, brief description of, or link to what is the proposed Route 37 is. | 1/19/2024 7:48 AM |
| 8 | Stop the mass building and roadway improvements won't be needed | 1/18/2024 11:26 PM |

Q3 Do the Bicycle/Pedestrian Needs statements encompass the mobility issues in the project area adequately?

Answered: 101 Skipped: 23



| ANSWER CHOICES | | RESPONSES | |
|----------------|--|-----------|-----|
| Yes | | 86.14% | 87 |
| No | | 13.86% | 14 |
| TOTAL | | | 101 |

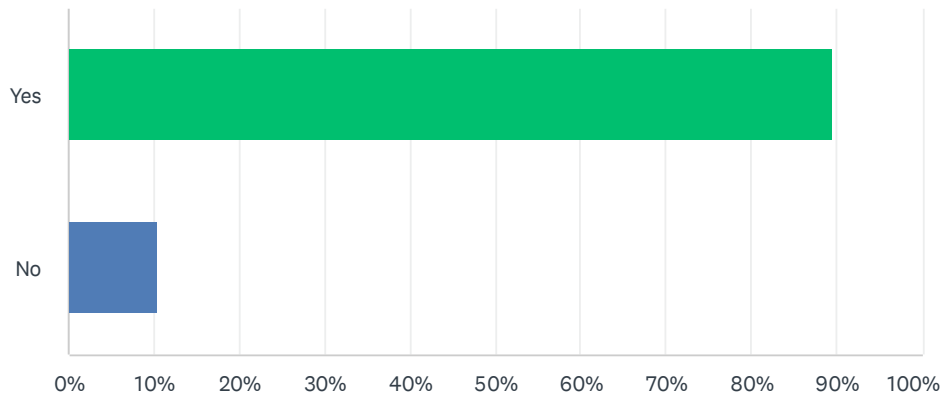
Q4 If no, please explain what bicycle/pedestrian need(s) should be included and the area where the need(s) exist.

Answered: 12 Skipped: 112

| # | RESPONSES | DATE |
|----|---|--------------------|
| 1 | The statements seem somewhat disjointed. 2014 = infrastructure is lacking, but it seems that what does exist is kinda OK. Then there is the totally subjective guess that current infrastructure is inadequate. Though subjective, my personal observation is that biking needs are woefully and embarrassing lacking, including community connectivity and linkages. | 1/21/2024 12:54 PM |
| 2 | Focus more on pedestrian traffic as bikers use the road instead of paved bike paths. | 1/21/2024 12:12 PM |
| 3 | This isn't something that needs addressed as a priority. | 1/20/2024 6:28 PM |
| 4 | It presumes roads are the problem, not having sidewalks and other paved equivalents away from the roads! | 1/19/2024 6:11 PM |
| 5 | 2014 was 10 years ago and little has been done to address shortcomings in this area. I believe the County returned \$ around this time that could have expanded the shoulder on Senseny Rd. Do not do a survey if leadership has no interest in acting. | 1/19/2024 4:06 PM |
| 6 | They are dangerous. they refuse to follow traffic laws that pertain to them. There is already and issue with the traffic. Why ball it up with cyclists? | 1/19/2024 10:11 AM |
| 7 | The county is too large for bike travel alone to sufficiently address the majority of travel needs, though I am in favor of increasing available bike travel. Increases in public transport seems more viable with depots at larger residential areas, example Shawneeland | 1/19/2024 12:01 AM |
| 8 | None. | 1/18/2024 11:27 PM |
| 9 | Don't need no bike lanes | 1/18/2024 8:52 PM |
| 10 | Bicycles and pedestrians is not a priority and should not be included in any transportation plans. It's absurd. | 1/18/2024 8:32 PM |
| 11 | 60% of the network was deemed adequate or adequate?" Something isn't right here. The two are not a choice. Constituents should be provided the criteria. What is the other 40% id 60 is advanced riders or worse? 40% is rideable. That seems unlikely. | 1/18/2024 7:32 PM |
| 12 | Apple Pie Ridge Road | 1/16/2024 4:16 PM |

Q5 Do the Congestion Needs statements encompass the mobility issues in the project area adequately?

Answered: 87 Skipped: 37



| ANSWER CHOICES | RESPONSES | |
|----------------|-----------|----|
| Yes | 89.66% | 78 |
| No | 10.34% | 9 |
| TOTAL | | 87 |

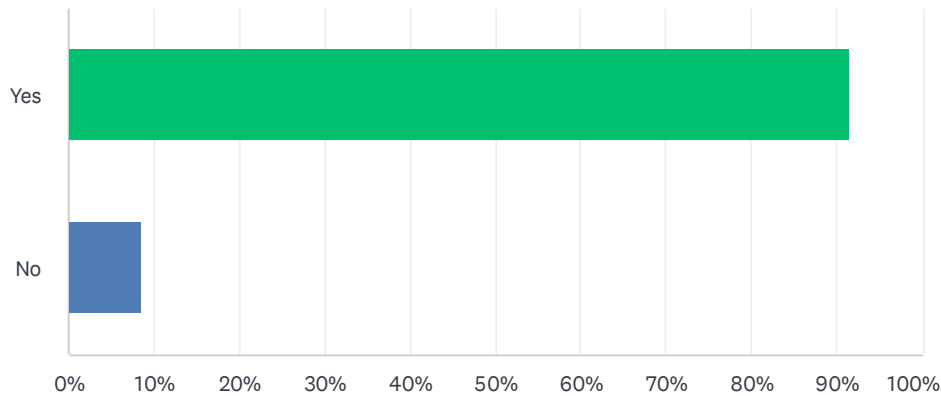
Q6 If no, please explain what congestion need(s) should be included and the area where the need(s) exist. Additional space is available for feedback on page 6 of this survey.

Answered: 12 Skipped: 112

| # | RESPONSES | DATE |
|----|--|--------------------|
| 1 | All that said, why is a new 700ish home subdivision being allow to connect to VA-7 in the area noted? Again, obvious answers and people with knowledge are not managing with the public's best interest. | 1/20/2024 6:31 PM |
| 2 | All four areas mentioned require have issues, but most of the stated solutions seem to be based on political assumptions! | 1/19/2024 6:15 PM |
| 3 | New developments and increased traffic along Senseny Rd need to be addressed, particularly from the bridge on Senseny Rd that divides Winchester and Frederick County to Senseny Glen Dr. Both turning left onto Senseny Rd from a side road where there is no light and turning left off of Senseny Rd to a side road where there is no light are issues. In addition during higher traffic times, the stoplight-ed intersection at Senseny Rd and Greenwood Rd often does not move because the turn lane from Senseny Rd to Greenwood Rd is not long enough. | 1/19/2024 5:40 PM |
| 4 | no more houses please | 1/19/2024 5:32 PM |
| 5 | I believe the last bullet should state FC will not be able to approve future new home construction plans until transportation and other infrastructure needs are addressed. | 1/19/2024 4:10 PM |
| 6 | Think of the implications on schools and bus commutes! | 1/19/2024 11:23 AM |
| 7 | These questions are overly complicated for your everyday person. Even VDOT employees don't know what they mean unless you taught them. | 1/19/2024 10:13 AM |
| 8 | There is significant traffic coming east to west that is trying to get to the west of the City of Winchester that has to go through Winchester because there is no other direct or higher speed route. Connection from Route 7 south connecting 7 and 50 to Route 37 would alleviate the congestion at all the congestion points listed in the draft statement. A high speed on off ramp road like 37 west of Winchester east of Winchester would HIGHLY benefit traffic if it could route traffic from Route 7 and 50 to Exit 310 connecting to Route 37. | 1/19/2024 7:57 AM |
| 9 | Warrior drive does not need to be continued thru. We need to stop building and slow the growth. The county lacks all infrastructure and needs to fix all issues before anymore houses are built | 1/18/2024 10:20 PM |
| 10 | Additional development off Rt7 at the Fred co/Clarke Co line will increase volume on 7. | 1/18/2024 8:34 PM |
| 11 | Congestion on Fairfax Pike, Main Street, and the Interatate 81 307 interchange far supersedes any of these projects. It's an embarrassment it's not the number one priority. | 1/18/2024 8:33 PM |
| 12 | Merge lanes at entrances to 81 and exit lanes off of 81 are too short and do not allow adequate distance to mitigate congestion. | 1/18/2024 7:39 PM |

Q7 Do the Safety Needs statements encompass the mobility issues in the project area adequately?

Answered: 82 Skipped: 42



| ANSWER CHOICES | RESPONSES | |
|----------------|-----------|----|
| Yes | 91.46% | 75 |
| No | 8.54% | 7 |
| TOTAL | | 82 |

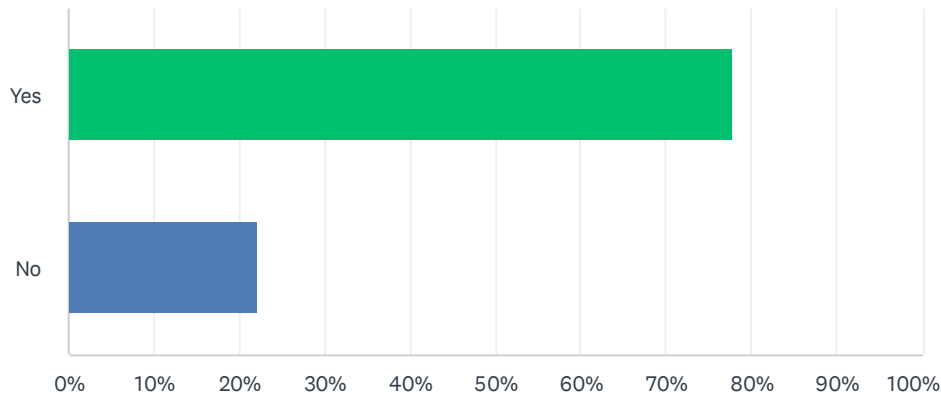
Q8 If no, please explain what safety need(s) should be included and the area where the need(s) exist.

Answered: 8 Skipped: 116

| # | RESPONSES | DATE |
|---|--|--------------------|
| 1 | It seems that the focus areas solely involve Rt 7. What other geographic problem/growth areas are under consideration to address ? 340, 522, 277, 11, etc. | 1/21/2024 12:58 PM |
| 2 | See previous answers..... | 1/20/2024 6:31 PM |
| 3 | We need more roads and lanes on I81 | 1/19/2024 4:13 PM |
| 4 | Most of this will never be done because the money goes to NOVA and RIC. | 1/19/2024 11:00 AM |
| 5 | Nobody understands your crazy analytics. | 1/19/2024 10:14 AM |
| 6 | Rush hour traffic effects needs to be studied on Senseny. Significant traffic is diverting off of Valley Mill (7) down Greenwood to use Senseny to cross through Winchester to get to 50 or 522 to avoid the congestion on 7 from Greenwood into Winchester on 7. Again a high speed limited access road from 7 and 50 to Route 37 would eliminate significant congestion. | 1/19/2024 8:04 AM |
| 7 | The problem I see is lack of police enforcement in the areas in question. | 1/18/2024 9:36 PM |
| 8 | Slowing traffic or rather creating an atmosphere where drivers observe posted speed limit may be necessary to improve safety on rt 7 between Winchester and Clarke county. | 1/18/2024 7:23 PM |

Q9 Do the Interstate 81 Needs statements encompass the mobility issues in the project area adequately?

Answered: 81 Skipped: 43



| ANSWER CHOICES | RESPONSES | |
|----------------|-----------|----|
| Yes | 77.78% | 63 |
| No | 22.22% | 18 |
| TOTAL | | 81 |

Q10 If no, please explain what Interstate 81 need(s) should be included and the area where the need(s) exist.

Answered: 20 Skipped: 104

| # | RESPONSES | DATE |
|----|---|--------------------|
| 1 | I81 needs to be widened from MM296 to WV state line not just in the area of 313 to 317. | 1/21/2024 6:47 PM |
| 2 | Exit 310 needs much more improvement | 1/21/2024 1:32 PM |
| 3 | There are already traffic cameras at the 317. | 1/21/2024 12:14 PM |
| 4 | You guys really can't figure out the basics... | 1/20/2024 6:32 PM |
| 5 | Exit 317 needs to be done ASAP. | 1/20/2024 12:03 AM |
| 6 | Exit 307 congestion issues are worse than at 313. Not sure why this would be excluded from this study since massive housing developments are being created which will further exacerbate this problem. | 1/19/2024 8:59 PM |
| 7 | Need to add a longer entrance ramp at mile marker 317 NB and SB due to the incline and larger vehicles trying to merge onto the interstate at a slower speed due to the incline. | 1/19/2024 8:33 PM |
| 8 | We need 3 lanes from the WV line through all of FC. Unfortunately I81 is one of the few roads in FC moving local traffic north and south of Winchester. | 1/19/2024 4:16 PM |
| 9 | Exception of disagreement is 37 11 interchange is worse because it's slower & doesn't flow. Should have been cloverleaf with merges not traffic signals | 1/19/2024 1:58 PM |
| 10 | I-81 should be widened to 3 lanes (northbound and southbound) for all of Frederick County VA to alleviate traffic congestion and increase safety. | 1/19/2024 8:31 AM |
| 11 | Widening should go from 321 to 310 to actually facilitate reducing congestion. Widening between 313 and 315 is already accomplished and helps and from 317 to 315 may help but it is limited in vision as traffic continues to build. To really plan for the future widening from 321 to 310 will facilitate North South I-81 traffic for many years to come while helping to facilitate local traffic that may use the exits between 310 and 321 to get to work, school, appointments etc without the need to go through the city. | 1/19/2024 8:12 AM |
| 12 | I think the entire length of I-81 through Frederick County should be widened, not just a few spots. And what will the traffic cameras help with? | 1/18/2024 10:29 PM |
| 13 | 81 needs to be 3-4 lanes in both directions from WV line to Shen co line | 1/18/2024 10:23 PM |
| 14 | We should begin widening to 6 lanes beginning at the WV line just as WV is doing and complete this through Frederick County. | 1/18/2024 10:08 PM |
| 15 | Again, a lack of police enforcement is what is needed here! | 1/18/2024 9:37 PM |
| 16 | The three lanes may address this- but there is a need to get slow moving trucks out of the left lane exacerbating the congestion issue. | 1/18/2024 8:37 PM |
| 17 | The 307 interchange is vastly more important than any other project. | 1/18/2024 8:35 PM |
| 18 | Adding a right turn lane to enter I-81 South from Route 37 South (Exit 310). It can be dangerous to merge onto I-81 South from Route 37 South because of congestion from traffic coming from Route 11. | 1/18/2024 7:41 PM |
| 19 | A separate truck lane and longer merge lanes are needed. | 1/18/2024 7:41 PM |
| 20 | I'm not sure widening I81 is a worthwhile investment. In places where I81 has been widened I find the third lane is either not necessary, creates bottlenecks when reducing back down to 2 lanes, or drives traffic from local roads onto the interstate (Jevons Paradox). If the primary issue with traffic on 81 is related to accident congestion, does the third lane create any significant improvement in the event of an accident? | 1/18/2024 7:29 PM |

Q11 Please utilize the remaining space to provide additional project-related comments or questions. If a response is needed, please provide your name and email or US Postal Address so that we may respond accordingly.

Answered: 20 Skipped: 104

| # | RESPONSES | DATE |
|----|--|--------------------|
| 1 | Exit 307 causes major congestion on Fairfax Pike. Extending Rt37 to Warrior Drive could help alleviate some of this issue. | 1/21/2024 6:48 PM |
| 2 | Explore adding a right turn lane at greenwood road and rt 7 light | 1/20/2024 7:26 PM |
| 3 | Until the politicians profiting of the County's growth are replaced with people that understand the most basic traffic engineering principles, Frederick County is doomed. Remember, a straight line is the best way to get from point A to B. | 1/20/2024 6:34 PM |
| 4 | Fix the traffic issues at Route 7 and I81 (exit 317) and at Exit 307. | 1/19/2024 9:00 PM |
| 5 | Traffic in the route 11/81/37 area desperately needs to be addressed | 1/19/2024 8:55 PM |
| 6 | We are wasting local taxpayer money creating plans state lawmakers are not committed to funding. Our elected state representatives need to get more state transportation money for our area. They are failing in this regard. Not sure this plan does much more than spend local tax dollars instead of using them on services for our residents. | 1/19/2024 4:30 PM |
| 7 | Timing of traffic light needs to be addressed, especially at the intersection of US 50 & 522 as well as on 522 directly south of US 50 | 1/19/2024 3:04 PM |
| 8 | While I agree with the previous statements within the study I cannot stress enough the need for change in the traffic on route 11 from Old Charlestown Rd to the route 11 split into downtown. The inability to merge traffic, the lights being improperly staggered, and the traffic. The current infrastructure does not meet the needs of the rapid expansion the area has experienced. | 1/19/2024 2:51 PM |
| 9 | Building the remainder of the route 37 loop on the east side of winchester will make traffic in this area immeasurably better. | 1/19/2024 11:25 AM |
| 10 | I think even a toll lane "fast lane" on Rt 7 would help fund more police presence to eliminate speeding and people generally driving aggressively would be helpful as well as easing up some of the congestion. | 1/19/2024 11:07 AM |
| 11 | Safety improvements much needed on Rt7 between Frederick and Clarks Counties, particularly the left turn from Rt7 westbound onto Valley Mill. And the congestion at Rt7 and I81 (too many traffic within a small section on 7) and the I81 Rt11/37 exit (again too many traffic lights within a small area contributing to the con.) Also, the traffic light timing cycles need adjusted for the light at Valley Mill to get onto I81 and Rt7. | 1/19/2024 2:51 AM |
| 12 | Please stop the mass subdivisions! | 1/18/2024 11:29 PM |
| 13 | The I 81 and 7 exit could be better handled currently with better traffic signaingl in the mean time. Thank you for this study | 1/18/2024 11:17 PM |
| 14 | I appreciate the changes that are being proposed. They are urgently needed as the county has allowed continued growth without considering the infrastructure. | 1/18/2024 10:11 PM |
| 15 | Investigate the area police to find out why they are not enforcing driving laws in these areas adequately. | 1/18/2024 9:38 PM |
| 16 | The Rt 11/81 intersection and extended stretch from Rutherford crossing to the start of 37 is one of the most frustrating stretches of road I've ever encountered. There are too many lights | 1/18/2024 8:39 PM |

Eastern Frederick County Transportation Study

that are not synchronized. I'm not sure what a divergent diamond is, but it seems that adding flyovers and eliminating lights would help.

| | | |
|----|--|-------------------|
| 17 | If and when Warrior drive is extended to 37 Tasker Rd will need improvements. Several left turns between white oak and Tasker lack left turn lanes. I believe that Warrior and Tasker would be well suited for some sort of large traffic circle design that could incorporate more safe pedestrian crossing. The same could be said for other intersections. Forced right turn only from some neighborhoods with a short distance to a traffic circle where direction could be changed would help slow traffic and eliminate left turns and reduce crashes. The issues with exit 307 need to be addressed as well. Maybe one direction crossing at a time is a better solution for the time being. Jonathan Luety jluty@hotmail.com | 1/18/2024 8:09 PM |
| 18 | Exit 317/Route 11/Welltown Road/Red Bud Road area is a mess. Next to prioritize fix in the near term (2 years or less). | 1/16/2024 7:24 PM |
| 19 | There needs to be an assessment of some "Quick fix/Low Cost" areas. For example, there are continuing wrecks at the SB 310 Exit on I-81. When you come down this exit there is a continuous "appearing" lane that suddenly ends. There are no signs, no arrows on the pavement, it just ends and you have two vehicles suddenly in the same lane. I know there are others. Least experienced VDOT workers need to drive around and just follow the signs or lack of signs and indicators.. (To find out the worst ones, hold a contest with VDOT workers with a small cash award or a day off.) Thanks for listening Brenda.belew@hotmail.com | 1/16/2024 4:25 PM |
| 20 | Rural housing off of woods mill & burnt factory shouldn't be affected. | 1/16/2024 4:12 PM |

APPENDIX D

PUBLIC MEETING MATERIALS



EASTERN FREDERICK COUNTY

TRANSPORTATION STUDY

www.FCVA.us/Departments/Planning-Development/Transportation



Winchester/Frederick County Regional Transportation Projects Public Meeting
Frederick County Administration Building
Board of Supervisors Room
Thursday, March 14, 2024
6:00 p.m. – 8:00 p.m.

Meeting Agenda

- | | |
|---|--|
| 1. Meeting Registration | 5:30 p.m. – 6:00 p.m. |
| 2. Welcome and Introductions | John Bishop, Assistant Director Frederick County |
| 3. EFCTS Transportation Study & Safe Streets for All Project Presentations | Alexandria Castrechini, P.E. Project Manager, McCormick Taylor, Inc. |
| 4. Visit Plans Displays & Complete Comment Forms | |
| 5. Meeting Concludes | 8:00 p.m. |

Accommodations:

Onsite Spanish Language Translator: Diana Patterson



EASTERN FREDERICK COUNTY TRANSPORTATION STUDY

www.FCVA.us/Departments/Planning-Development/Transportation

Eastern Frederick County Transportation Study Project Overview

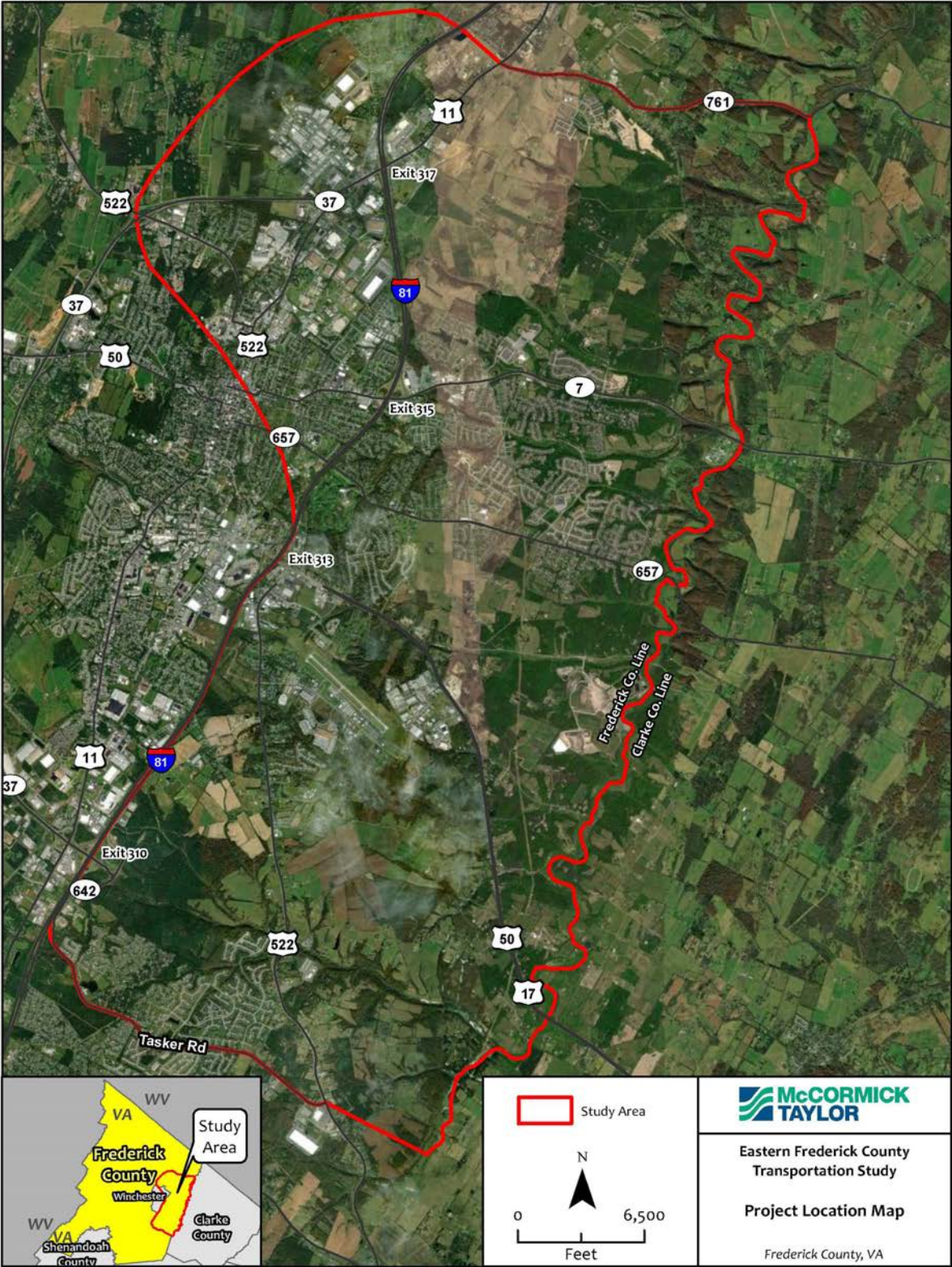
Frederick County, Virginia has hired McCormick Taylor, Inc., an engineering, planning and environmental consulting firm, to perform a study of transportation issues (needs) and possible solutions for the area to the east of the City of Winchester. The study area will generally include Interstate 81 (I-81) in the west to the Frederick County/Clarke County line in the east; and will extend from Route 761 on the north side of the city to the Tasker Road area east of the I-81 Exit 310. You can view a map of the study area on the second page of this document.

Data collection and analysis efforts will focus on traffic data, including current and future projections (generally a 20-year horizon). Traffic generated by new and pending development within, or that influence the transportation network in the study area, will be included in the analyses. The traffic data will be supplemented with existing background information and local knowledge provided by various key stakeholders and the public. Opportunities for public engagement and input will be announced on the County's website, along with updates on the study.

The purpose of the study is to identify and document specific transportation needs. Possible solutions for these needs will then be developed as concepts. The public will then have opportunities to provide input on both the needs and any conceptual solutions. Once the conceptual solutions have been refined for public comment, an implementation plan that is expected to include a prioritized list of improvements with estimates of probable costs will be developed for the County's use for implementation of funding for transportation improvements in the study area.

The study team is aware of previous efforts to pursue a Route 37 east bypass around Winchester. A bypass will be considered, along with other possible transportation improvements, during the conceptual solution development and analysis process. The goal of the study is to develop a well-defined and documented set of transportation needs to be addressed by a prioritized and fiscally implementable set of transportation improvements. Additional recommendations, beyond transportation improvements, such as land use or access management controls, may also be included in the final plan.

Project Area for the Eastern Frederick County Transportation Study (EFCTS)





EASTERN FREDERICK COUNTY TRANSPORTATION STUDY

www.FCVA.us/Departments/Planning-Development/Transportation

Public Comment Form

March 14, 2024

Thank you for attending our meeting this evening. The County and its EFCTS Consultant Project Team would appreciate your feedback. Please place your completed form in the designated drop box or scan a copy of your completed form and send it to Alexandra Castrechini at amcastrechini@mccormicktaylor.com. If you would like to receive a response to your comment(s), please provide your name, email address or US Postal Address in the box below so that we may respond accordingly. *Thank you in advance for your participation.*

| | | |
|--------------------------|------------------|-------------------|
| Name: _____ | | |
| Email: _____ | | |
| and/or | | |
| US Postal Address: _____ | | |
| _____ (City) | _____ (State) | _____ Zip Code |

Please note your comments/questions below and use the back of this sheet if you need additional space.

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APPENDIX E

TRANSPORTATION FORUM



EASTERN FREDERICK COUNTY

TRANSPORTATION STUDY

www.FCVA.us/Departments/Planning-Development/Transportation

Route 37 East Comprehensive Phasing and Feasibility Study Survey & Comment Form

November 10, 2022

Respondent Information

First and Last Name STUART PREGUAK

Street Address 257 NORLAND KNOLL DRIVE

City, State, Zip Code STEPHENSON VA 22616

Sign up for Route 37 East Project Updates: ☒ Yes ☐ No

a. Email Address stuartpreguak@gmail.com

b. Mailing Address (if different from above) _____

Instruction:

Your response to the following questions is requested to provide the VDOT and Frederick County project team with a sampling of current local opinions on the Route 37 East Project proposal. Your responses will also help inform future public engagement concepts and the project development process.

1. Are you familiar with the previous Route 37 East studies conducted over the past 20-30 years?
☐ Yes ☒ No

2. Were you engaged in the previous Route 37 East development process?
☐ Yes ☒ No

a. If yes, in what capacity were you engaged?

- ☐ Public/Elected Official
- ☐ Interested/Concerned citizen
- ☐ Impacted Business/Property Owner
- ☐ Special Interest Group

b. If no, why not?

- ☐ No interest in the project
- ☐ Not impacted by the project or project outcomes
- ☐ Do not reside in the project area
- ☐ I would not benefit from the Route 37 East project

Just recently moved to the area - 2020

3. Would you support local (County) funding to be used for the Route 37 East project?
☒ Yes ☐ No

(Comment form continues on reverse side)

4. Which area of the Route 37 East project is most important to you?

Completion of the loop 😊

5. Should a capacity improvement be needed, what look or feel would be most appealing to you?
- ☐ Unrestricted access (regular entry points [businesses, residential, etc.] along the corridor)
 - ☒ Controlled access (midblock access, driveways and access to some businesses may be restricted)
 - ☐ Limited access (no at-grade intersections along corridor)
6. If you have any comments, ideas, concerns or questions regarding the upcoming Route 37 East Comprehensive Phasing and Feasibility Study, please use the space below for this information:

I like the "independent utility" model - invest where the most positive impact can be made - as long as design allows future expansion / connection to the whole Rte 37 plan.

7. In the event of any necessary follow-up questions, please provide your full name and email/US Postal address if different from the name and address provided above.

First and Last Name _____

Street Address _____

City, State, Zip Code _____

Email Address _____

Thank you for your participation. Please deposit your completed form in the designated drop box or leave it with a County or VDOT representative.

Route 37 East Comprehensive Phasing and Feasibility Study Survey & Comment Form

November 10, 2022

Respondent Information

First and Last Name Melvin Pearson

Street Address 271 Northumberland Dr

City, State, Zip Code Stevenson VA 22656

Sign up for Route 37 East Project Updates: ☒ Yes ☐ No

a. Email Address Melvin.pearson@me.com

b. Mailing Address (if different from above) _____

Instruction:

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1. Are you familiar with the previous Route 37 East studies conducted over the past 20-30 years?
☒ Yes ☐ No

2. Were you engaged in the previous Route 37 East development process?
☐ Yes ☒ No

a. If yes, in what capacity were you engaged?

- ☐ Public/Elected Official
- ☐ Interested/Concerned citizen
- ☐ Impacted Business/Property Owner
- ☐ Special Interest Group

b. If no, why not?

- ☐ No interest in the project
- ☐ Not impacted by the project or project outcomes
- ☒ Do not reside in the project area
- ☐ I would not benefit from the Route 37 East project

3. Would you support local (County) funding to be used for the Route 37 East project?
☒ Yes ☐ No

(Comment form continues on reverse side)

4. Which area of the Route 37 East project is most important to you?

I81- EXIT 317 - Rt 11

5. Should a capacity improvement be needed, what look or feel would be most appealing to you?

- ☐ Unrestricted access (regular entry points [businesses, residential, etc.] along the corridor)
☐ Controlled access (midblock access, driveways and access to some businesses may be restricted)
☒ Limited access (no at-grade intersections along corridor)

6. If you have any comments, ideas, concerns or questions regarding the upcoming Route 37 East Comprehensive Phasing and Feasibility Study, please use the space below for this information:

7. In the event of any necessary follow-up questions, please provide your full name and email/US Postal address if different from the name and address provided above.

First and Last Name _____

Street Address _____

City, State, Zip Code _____

Email Address _____

Thank you for your participation. Please deposit your completed form in the designated drop box or leave it with a County or VDOT representative.

Route 37 East Comprehensive Phasing and Feasibility Study Survey & Comment Form

November 10, 2022

Respondent Information

First and Last Name Susan Shick

Street Address 183 Sherwood Pines Lane

City, State, Zip Code Cross Junction, VA 22625

Sign up for Route 37 East Project Updates: ☒ Yes ☐ No

a. Email Address shicksusan.va@gmail.com

b. Mailing Address (if different from above) _____

Instruction:

Your response to the following questions is requested to provide the VDOT and Frederick County project team with a sampling of current local opinions on the Route 37 East Project proposal. Your responses will also help inform future public engagement concepts and the project development process.

1. Are you familiar with the previous Route 37 East studies conducted over the past 20-30 years?

☒ Yes ☐ No

2. Were you engaged in the previous Route 37 East development process?

☐ Yes ☒ No

a. If yes, in what capacity were you engaged?

☒ Public/Elected Official

☒ Interested/Concerned citizen

☐ Impacted Business/Property Owner

☐ Special Interest Group

b. If no, why not?

☐ No interest in the project

☐ Not impacted by the project or project outcomes

☐ Do not reside in the project area

☐ I would not benefit from the Route 37 East project

3. Would you support local (County) funding to be used for the Route 37 East project?

☒ Yes ☐ No

(Comment form continues on reverse side)

4. Which area of the Route 37 East project is most important to you?

Exit 317

5. Should a capacity improvement be needed, what look or feel would be most appealing to you?
- ☒ Unrestricted access (regular entry points [businesses, residential, etc.] along the corridor)
 - ☐ Controlled access (midblock access, driveways and access to some businesses may be restricted)
 - ☐ Limited access (no at-grade intersections along corridor)

6. If you have any comments, ideas, concerns or questions regarding the upcoming Route 37 East Comprehensive Phasing and Feasibility Study, please use the space below for this information:

Just please keep me updated!
I work for Delegate Bill Wiley
Would love to stay informed.

7. In the event of any necessary follow-up questions, please provide your full name and email/US Postal address if different from the name and address provided above.

First and Last Name Susan Shick

Street Address 183 Sherwood Pines Lane

City, State, Zip Code Cross Junction VA 22625

Email Address shick-susan.va@gmail.com

Thank you for your participation. Please deposit your completed form in the designated drop box or leave it with a County or VDOT representative.

Route 37 East Comprehensive Phasing and Feasibility Study Survey & Comment Form

November 10, 2022

Respondent Information

First and Last Name Andrea Ber KenKemper

Street Address 324 W Cedar meade drive

City, State, Zip Code Winchester, VA 22601

Sign up for Route 37 East Project Updates: ☒ Yes ☐ No

a. Email Address berke777@hotmail.com

b. Mailing Address (if different from above) _____

Instruction:

Your response to the following questions is requested to provide the VDOT and Frederick County project team with a sampling of current local opinions on the Route 37 East Project proposal. Your responses will also help inform future public engagement concepts and the project development process.

1. Are you familiar with the previous Route 37 East studies conducted over the past 20-30 years?

☐ Yes ☒ No

2. Were you engaged in the previous Route 37 East development process?

☐ Yes ☒ No

a. If yes, in what capacity were you engaged?

- ☐ Public/Elected Official
- ☐ Interested/Concerned citizen
- ☒ Impacted Business/Property Owner
- ☐ Special Interest Group

b. If no, why not?

- ☐ No interest in the project
- ☐ Not impacted by the project or project outcomes
- ☐ Do not reside in the project area
- ☐ I would not benefit from the Route 37 East project

3. Would you support local (County) funding to be used for the Route 37 East project?

☐ Yes ☒ No

(Comment form continues on reverse side)

4. Which area of the Route 37 East project is most important to you?

Red Bud Run - Fresh WATER Spring
Environmental Impact

5. Should a capacity improvement be needed, what look or feel would be most appealing to you?
- ☐ Unrestricted access (regular entry points [businesses, residential, etc.] along the corridor)
 - ☐ Controlled access (midblock access, driveways and access to some businesses may be restricted)
 - ☐ Limited access (no at-grade intersections along corridor)

6. If you have any comments, ideas, concerns or questions regarding the upcoming Route 37 East Comprehensive Phasing and Feasibility Study, please use the space below for this information:

Opequon Creek - Wastewater treatment plant has polluted this waterway. My concern is Red Bud Run being harmed by mining & roads.

7. In the event of any necessary follow-up questions, please provide your full name and email/US Postal address if **different from the name and address provided above**.

First and Last Name Andrea Breckenkemper

Street Address 324 W. Cedarmeade Ave

City, State, Zip Code Winchester, VA 22601

Email Address berke777@hotmail.com

Thank you for your participation. Please deposit your completed form in the designated drop box or leave it with a County or VDOT representative.

Route 37 East Comprehensive Phasing and Feasibility Study Survey & Comment Form

November 10, 2022

Respondent Information

First and Last Name LINDA D. Harrison

Street Address 113 Blackford Drive

City, State, Zip Code Stephenson, VA 22656

Sign up for Route 37 East Project Updates: ☒ Yes ☐ No

a. Email Address two parent 2@aol.com

b. Mailing Address (if different from above) _____

Instruction:

Your response to the following questions is requested to provide the VDOT and Frederick County project team with a sampling of current local opinions on the Route 37 East Project proposal. Your responses will also help inform future public engagement concepts and the project development process.

1. Are you familiar with the previous Route 37 East studies conducted over the past 20-30 years?
☐ Yes ☒ No

2. Were you engaged in the previous Route 37 East development process?
☐ Yes ☒ No

a. If yes, in what capacity were you engaged?

- ☐ Public/Elected Official
- ☐ Interested/Concerned citizen
- ☐ Impacted Business/Property Owner
- ☐ Special Interest Group

b. If no, why not?

- ☐ No interest in the project
- ☒ Not impacted by the project or project outcomes
- ☐ Do not reside in the project area
- ☐ I would not benefit from the Route 37 East project

3. Would you support local (County) funding to be used for the Route 37 East project?
☒ Yes ☐ No

(Comment form continues on reverse side)

4. Which area of the Route 37 East project is most important to you?

propose connectors of 37 E project to N end

5. Should a capacity improvement be needed, what look or feel would be most appealing to you?

- ☒ Unrestricted access (regular entry points [businesses, residential, etc.] along the corridor)
☐ Controlled access (midblock access, driveways and access to some businesses may be restricted)
☐ Limited access (no at-grade intersections along corridor)

6. If you have any comments, ideas, concerns or questions regarding the upcoming Route 37 East Comprehensive Phasing and Feasibility Study, please use the space below for this information:

- Advocate for policy changes needed for forward thinking VDOT planning and funding
- Appreciate Frederick County's assertive actions toward road projects. We can't get the needed funds if we don't ask.

7. In the event of any necessary follow-up questions, please provide your full name and email/US Postal address **if different from the name and address provided above.**

First and Last Name _____

Street Address See over

City, State, Zip Code _____

Email Address _____

Thank you for your participation. Please deposit your completed form in the designated drop box or leave it with a County or VDOT representative.

Route 37 East Comprehensive Phasing and Feasibility Study Survey & Comment Form

November 10, 2022

Respondent Information

First and Last Name ROBERT (BOB) WELLS

Street Address 5114 LAURA DR

City, State, Zip Code STEPHENS CITY VA 22655

Sign up for Route 37 East Project Updates: ☒ Yes ☐ No

a. Email Address robertwells946@comcast.net

b. Mailing Address (if different from above) _____

Instruction:

Your response to the following questions is requested to provide the VDOT and Frederick County project team with a sampling of current local opinions on the Route 37 East Project proposal. Your responses will also help inform future public engagement concepts and the project development process.

1. Are you familiar with the previous Route 37 East studies conducted over the past 20-30 years?

☒ Yes ☐ No

2. Were you engaged in the previous Route 37 East development process?

☒ Yes ☐ No

a. If yes, in what capacity were you engaged?

☐ Public/Elected Official

☒ Interested/Concerned citizen

☒ Impacted Business/Property Owner

☐ Special Interest Group

b. If no, why not?

☐ No interest in the project

☐ Not impacted by the project or project outcomes

☐ Do not reside in the project area

☐ I would not benefit from the Route 37 East project

3. Would you support local (County) funding to be used for the Route 37 East project?

☒ Yes ☐ No

(Comment form continues on reverse side)

4. Which area of the Route 37 East project is most important to you?

EASTERN BYPASS

5. Should a capacity improvement be needed, what look or feel would be most appealing to you?

- ☒ Unrestricted access (regular entry points [businesses, residential, etc.] along the corridor)
☐ Controlled access (midblock access, driveways and access to some businesses may be restricted)
☐ Limited access (no at-grade intersections along corridor)

6. If you have any comments, ideas, concerns or questions regarding the upcoming Route 37 East Comprehensive Phasing and Feasibility Study, please use the space below for this information:

7. In the event of any necessary follow-up questions, please provide your full name and email/US Postal address if different from the name and address provided above.

First and Last Name _____

Street Address _____

City, State, Zip Code _____

Email Address _____

Thank you for your participation. Please deposit your completed form in the designated drop box or leave it with a County or VDOT representative.

Route 37 East Comprehensive Phasing and Feasibility Study Survey & Comment Form

November 10, 2022

Respondent Information

First and Last Name Josh Ludwig
 Street Address 226 Summerfield Dr
 City, State, Zip Code Winchester, VA 22602
 Sign up for Route 37 East Project Updates: ☒ Yes ☐ No
 a. Email Address josh.ludwig@fcva.us
 b. Mailing Address (if different from above) _____

Instruction:

Your response to the following questions is requested to provide the VDOT and Frederick County project team with a sampling of current local opinions on the Route 37 East Project proposal. Your responses will also help inform future public engagement concepts and the project development process.

1. Are you familiar with the previous Route 37 East studies conducted over the past 20-30 years?
☒ Yes ☐ No
2. Were you engaged in the previous Route 37 East development process?
☐ Yes ☒ No
 - a. If yes, in what capacity were you engaged?
☐ Public/Elected Official
☐ Interested/Concerned citizen
☐ Impacted Business/Property Owner
☐ Special Interest Group
 - b. If no, why not? Did not live here then
☐ No interest in the project
☐ Not impacted by the project or project outcomes
☐ Do not reside in the project area
☐ I would not benefit from the Route 37 East project
3. Would you support local (County) funding to be used for the Route 37 East project?
☒ Yes ☐ No

(Comment form continues on reverse side)

4. Which area of the Route 37 East project is most important to you?

Southern end, esp Tasker Rd to 522

5. Should a capacity improvement be needed, what look or feel would be most appealing to you?

☐ Unrestricted access (regular entry points [businesses, residential, etc.] along the corridor)

☐ Controlled access (midblock access, driveways and access to some businesses may be restricted)

☒ Limited access (no at-grade intersections along corridor)

6. If you have any comments, ideas, concerns or questions regarding the upcoming Route 37 East Comprehensive Phasing and Feasibility Study, please use the space below for this information:

Need access for One Logistics Park and Inland Port traffic to relieve trucking traffic inside the Route 37 loop, especially Exit 313 intersection.

7. In the event of any necessary follow-up questions, please provide your full name and email/US Postal address if different from the name and address provided above.

First and Last Name _____

Street Address _____

City, State, Zip Code _____

Email Address _____

Thank you for your participation. Please deposit your completed form in the designated drop box or leave it with a County or VDOT representative.

Route 37 East Comprehensive Phasing and Feasibility Study Survey & Comment Form

November 10, 2022

Respondent Information

First and Last Name Nick Lauderdale
Street Address 136 Babbs Mountain Road
City, State, Zip Code Winchester, VA 22603-3209

Sign up for Route 37 East Project Updates: ☒ Yes ☐ No

- a. Email Address _____
b. Mailing Address (if different from above) _____

Instruction:

Your response to the following questions is requested to provide the VDOT and Frederick County project team with a sampling of current local opinions on the Route 37 East Project proposal. Your responses will also help inform future public engagement concepts and the project development process.

1. Are you familiar with the previous Route 37 East studies conducted over the past 20-30 years?
☐ Yes ☒ No
2. Were you engaged in the previous Route 37 East development process?
☐ Yes ☒ No
 - a. If yes, in what capacity were you engaged?
☐ Public/Elected Official
☐ Interested/Concerned citizen
☐ Impacted Business/Property Owner
☐ Special Interest Group
 - b. If no, why not?
☐ No interest in the project
☐ Not impacted by the project or project outcomes
☒ Do not reside in the project area
☐ I would not benefit from the Route 37 East project
3. Would you support local (County) funding to be used for the Route 37 East project?
☒ Yes ☐ No

(Comment form continues on reverse side)

- 3
4. Which area of the Route 37 East project is most important to you?

N/A

5. Should a capacity improvement be needed, what look or feel would be most appealing to you?
- ☐ Unrestricted access (regular entry points [businesses, residential, etc.] along the corridor)
- ☐ Controlled access (midblock access, driveways and access to some businesses may be restricted)
- ☐ Limited access (no at-grade intersections along corridor)

6. If you have any comments, ideas, concerns or questions regarding the upcoming Route 37 East Comprehensive Phasing and Feasibility Study, please use the space below for this information:

Benefit from traffic diversion eastbound
(US 50, VA 7) before city limits

7. In the event of any necessary follow-up questions, please provide your full name and email/US Postal address if different from the name and address provided above.

First and Last Name Sep Front page!

Street Address _____

City, State, Zip Code _____

Email Address _____

Thank you for your participation. Please deposit your completed form in the designated drop box or leave it with a County or VDOT representative.

Route 37 East Comprehensive Phasing and Feasibility Study Survey & Comment Form

November 10, 2022

Respondent Information

First and Last Name Betsy Brumback

Street Address 540 Bailey LN

City, State, Zip Code Winchester VA 22602

Sign up for Route 37 East Project Updates: ☒ Yes ☐ No

a. Email Address betsybrumback@gmail.com

b. Mailing Address (if different from above) _____

Instruction:

Your response to the following questions is requested to provide the VDOT and Frederick County project team with a sampling of current local opinions on the Route 37 East Project proposal. Your responses will also help inform future public engagement concepts and the project development process.

1. Are you familiar with the previous Route 37 East studies conducted over the past 20-30 years?
☒ Yes ☐ No
2. Were you engaged in the previous Route 37 East development process?
☐ Yes ☒ No
 - a. If yes, in what capacity were you engaged?
☐ Public/Elected Official
☐ Interested/Concerned citizen
☐ Impacted Business/Property Owner
☐ Special Interest Group
 - b. If no, why not?
☐ No interest in the project
☐ Not impacted by the project or project outcomes
☒ Do not reside in the project area
☐ I would not benefit from the Route 37 East project
3. Would you support local (County) funding to be used for the Route 37 East project?
☒ Yes ☐ No

(Comment form continues on reverse side)

4. Which area of the Route 37 East project is most important to you?

Area near Rt 7

5. Should a capacity improvement be needed, what look or feel would be most appealing to you?
- ☐ Unrestricted access (regular entry points [businesses, residential, etc.] along the corridor)
 - ☒ Controlled access (midblock access, driveways and access to some businesses may be restricted)
 - ☐ Limited access (no at-grade intersections along corridor)

6. If you have any comments, ideas, concerns or questions regarding the upcoming Route 37 East Comprehensive Phasing and Feasibility Study, please use the space below for this information:

7. In the event of any necessary follow-up questions, please provide your full name and email/US Postal address if **different from the name and address provided above**.

First and Last Name _____

Street Address _____

City, State, Zip Code _____

Email Address _____

Thank you for your participation. Please deposit your completed form in the designated drop box or leave it with a County or VDOT representative.

Route 37 East Comprehensive Phasing and Feasibility Study Survey & Comment Form

November 10, 2022

Respondent Information

First and Last Name CHRISTOPHER DURANT

Street Address 101 SENECA AVE.

City, State, Zip Code WINCHESTER VA 22602

Sign up for Route 37 East Project Updates: ☒ Yes ☐ No

a. Email Address CDURANT78@gmail.com

b. Mailing Address (if different from above) _____

Instruction:

Your response to the following questions is requested to provide the VDOT and Frederick County project team with a sampling of current local opinions on the Route 37 East Project proposal. Your responses will also help inform future public engagement concepts and the project development process.

1. Are you familiar with the previous Route 37 East studies conducted over the past 20-30 years?
☒ Yes ☐ No
2. Were you engaged in the previous Route 37 East development process?
☐ Yes ☒ No
 - a. If yes, in what capacity were you engaged?
☐ Public/Elected Official
☐ Interested/Concerned citizen
☐ Impacted Business/Property Owner
☐ Special Interest Group
 - b. If no, why not?
☐ No interest in the project
☒ Not impacted by the project or project outcomes
☐ Do not reside in the project area
☐ I would not benefit from the Route 37 East project
3. Would you support local (County) funding to be used for the Route 37 East project?
☒ Yes ☐ No

(Comment form continues on reverse side)

4. Which area of the Route 37 East project is most important to you?

RT 50 + RT 7 INTERCHANGES

5. Should a capacity improvement be needed, what look or feel would be most appealing to you?

- ☐ Unrestricted access (regular entry points [businesses, residential, etc.] along the corridor)
- ☒ Controlled access (midblock access, driveways and access to some businesses may be restricted)
- ☐ Limited access (no at-grade intersections along corridor)

6. If you have any comments, ideas, concerns or questions regarding the upcoming Route 37 East Comprehensive Phasing and Feasibility Study, please use the space below for this information:

7. In the event of any necessary follow-up questions, please provide your full name and email/US Postal address **if different from the name and address provided above.**

First and Last Name _____

Street Address _____

City, State, Zip Code _____

Email Address _____

Thank you for your participation. Please deposit your completed form in the designated drop box or leave it with a County or VDOT representative.

Route 37 East Comprehensive Phasing and Feasibility Study Survey & Comment Form

November 10, 2022

Respondent Information

First and Last Name SHERIFF LENNY MILLHOLLAND

Street Address 1080 Coverstone Dr

City, State, Zip Code Winchester, VA 22602

Sign up for Route 37 East Project Updates: ☒ Yes ☐ No

a. Email Address l.millholland@fcva.us

b. Mailing Address (if different from above) _____

Instruction:

Your response to the following questions is requested to provide the VDOT and Frederick County project team with a sampling of current local opinions on the Route 37 East Project proposal. Your responses will also help inform future public engagement concepts and the project development process.

1. Are you familiar with the previous Route 37 East studies conducted over the past 20-30 years?

☒ Yes ☐ No

2. Were you engaged in the previous Route 37 East development process?

☐ Yes ☒ No

a. If yes, in what capacity were you engaged?

- ☐ Public/Elected Official
- ☐ Interested/Concerned citizen
- ☐ Impacted Business/Property Owner
- ☐ Special Interest Group

b. If no, why not?

- ☐ No interest in the project
- ☐ Not impacted by the project or project outcomes
- ☐ Do not reside in the project area
- ☐ I would not benefit from the Route 37 East project

was not provided meeting information

3. Would you support local (County) funding to be used for the Route 37 East project?

☒ Yes ☐ No

(Comment form continues on reverse side)

4. Which area of the Route 37 East project is most important to you?

as much as we can get done and not
hinder additional county work.

5. Should a capacity improvement be needed, what look or feel would be most appealing to you?

☐ Unrestricted access (regular entry points [businesses, residential, etc.] along the corridor)

☐ Controlled access (midblock access, driveways and access to some businesses may be restricted)

☒ Limited access (no at-grade intersections along corridor)

6. If you have any comments, ideas, concerns or questions regarding the upcoming Route 37 East Comprehensive Phasing and Feasibility Study, please use the space below for this information:

It has been a long time waiting!!
It needs to be done to assist with
traffic issues.

7. In the event of any necessary follow-up questions, please provide your full name and email/US Postal address if different from the name and address provided above.

First and Last Name _____

Street Address _____

City, State, Zip Code _____

Email Address _____

Thank you for your participation. Please deposit your completed form in the designated drop box or leave it with a County or VDOT representative.

APPENDIX F

TRAFFIC FORECASTING



EASTERN FREDERICK COUNTY

TRANSPORTATION STUDY

www.FCVA.us/Departments/Planning-Development/Transportation

| Time of Day: AM | Full Bypass Build | Southern Section | Northern Section | No Build |
|-----------------------------------|-------------------|------------------|------------------|----------|
| FACTYPE 1 (Interstate) | 7,758 | 8,219 | 8,309 | 8,266 |
| FACTYPE 2 (Minor Freeway) | 1,761 | 1,115 | 1,052 | 1,053 |
| FACTYPE 4 (Principal Arterial) | 5,215 | 5,750 | 5,476 | 5,771 |
| FACTYPE 5 (Major Arterial) | 3,099 | 3,161 | 3,227 | 3,212 |
| FACTYPE 6 (Minor Arterial) | 3,875 | 4,458 | 4,748 | 4,968 |
| FACTYPE 7 (Major Collector) | 694 | 713 | 722 | 726 |
| FACTYPE 8 (Minor Collector) | 1,552 | 1,571 | 1,625 | 1,637 |
| FACTYPE 10 (Ramp) | 688 | 531 | 531 | 560 |
| Total VHT | 24,642 | 25,518 | 25,690 | 26,193 |

AM Change in VHT Compared to No Build

| Time of Day: AM | Full Bypass Build | Southern Section | Northern Section | No Build |
|-----------------------------------|-------------------|------------------|------------------|----------|
| FACTYPE 1 (Interstate) | -6% | -1% | 1% | 0% |
| FACTYPE 2 (Minor Freeway) | 67% | 6% | 0% | 0% |
| FACTYPE 4 (Principal Arterial) | -10% | 0% | -5% | 0% |
| FACTYPE 5 (Major Arterial) | -4% | -2% | 0% | 0% |
| FACTYPE 6 (Minor Arterial) | -22% | -10% | -4% | 0% |
| FACTYPE 7 (Major Collector) | -4% | -2% | -1% | 0% |
| FACTYPE 8 (Minor Collector) | -5% | -4% | -1% | 0% |
| FACTYPE 10 (Ramp) | 23% | -5% | -5% | 0% |
| Total VHT | -6% | -3% | -2% | 0% |

| Time of Day: MD | Full Bypass Build | Southern Section | Northern Section | No Build |
|-----------------------------------|-------------------|------------------|------------------|---------------|
| FACTYPE 1 (Interstate) | 24,686 | 25,988 | 26,188 | 26,178 |
| FACTYPE 2 (Minor Freeway) | 4,703 | 2,985 | 2,817 | 2,798 |
| FACTYPE 4 (Principal Arterial) | 12,853 | 14,268 | 13,779 | 14,233 |
| FACTYPE 5 (Major Arterial) | 8,468 | 8,758 | 8,728 | 8,648 |
| FACTYPE 6 (Minor Arterial) | 10,189 | 11,469 | 12,307 | 12,666 |
| FACTYPE 7 (Major Collector) | 1,798 | 1,823 | 1,847 | 1,863 |
| FACTYPE 8 (Minor Collector) | 4,046 | 4,155 | 4,206 | 4,319 |
| FACTYPE 10 (Ramp) | 1,698 | 1,337 | 1,319 | 1,366 |
| Total VHT | 68,441 | 70,783 | 71,191 | 72,071 |

MD Change in VHT Compared to No Build

| Time of Day: MD | Full Bypass Build | Southern Section | Northern Section | No Build |
|-----------------------------------|-------------------|------------------|------------------|-----------|
| FACTYPE 1 (Interstate) | -6% | -1% | 0% | 0% |
| FACTYPE 2 (Minor Freeway) | 68% | 7% | 1% | 0% |
| FACTYPE 4 (Principal Arterial) | -10% | 0% | -3% | 0% |
| FACTYPE 5 (Major Arterial) | -2% | 1% | 1% | 0% |
| FACTYPE 6 (Minor Arterial) | -20% | -9% | -3% | 0% |
| FACTYPE 7 (Major Collector) | -3% | -2% | -1% | 0% |
| FACTYPE 8 (Minor Collector) | -6% | -4% | -3% | 0% |
| FACTYPE 10 (Ramp) | 24% | -2% | -3% | 0% |
| Total VHT | -5% | -2% | -1% | 0% |

| Time of Day: PM | Full Bypass Build | Southern Section | Northern Section | No Build |
|-----------------------------------|-------------------|------------------|------------------|---------------|
| FACTYPE 1 (Interstate) | 6,496 | 6,907 | 7,119 | 7,132 |
| FACTYPE 2 (Minor Freeway) | 2,216 | 1,429 | 1,324 | 1,321 |
| FACTYPE 4 (Principal Arterial) | 6,083 | 6,675 | 6,550 | 6,705 |
| FACTYPE 5 (Major Arterial) | 4,298 | 4,422 | 4,523 | 4,484 |
| FACTYPE 6 (Minor Arterial) | 5,094 | 5,734 | 6,214 | 6,438 |
| FACTYPE 7 (Major Collector) | 804 | 813 | 822 | 829 |
| FACTYPE 8 (Minor Collector) | 1,904 | 1,980 | 2,005 | 2,034 |
| FACTYPE 10 (Ramp) | 951 | 784 | 788 | 809 |
| Total VHT | 27,846 | 28,744 | 29,345 | 29,752 |

PM Change in VHT Compared to No Build

| Time of Day: PM | Full Bypass Build | Southern Section | Northern Section | No Build |
|-----------------------------------|-------------------|------------------|------------------|-----------|
| FACTYPE 1 (Interstate) | -9% | -3% | 0% | 0% |
| FACTYPE 2 (Minor Freeway) | 68% | 8% | 0% | 0% |
| FACTYPE 4 (Principal Arterial) | -9% | 0% | -2% | 0% |
| FACTYPE 5 (Major Arterial) | -4% | -1% | 1% | 0% |
| FACTYPE 6 (Minor Arterial) | -21% | -11% | -3% | 0% |
| FACTYPE 7 (Major Collector) | -3% | -2% | -1% | 0% |
| FACTYPE 8 (Minor Collector) | -6% | -3% | -1% | 0% |
| FACTYPE 10 (Ramp) | 18% | -3% | -3% | 0% |
| Total VHT | -6% | -3% | -1% | 0% |

| Time of Day: NT | Full Bypass Build | Southern Section | Northern Section | No Build |
|-----------------------------------|-------------------|------------------|------------------|---------------|
| FACTYPE 1 (Interstate) | 9,147 | 9,577 | 9,565 | 9,584 |
| FACTYPE 2 (Minor Freeway) | 2,150 | 1,312 | 1,295 | 1,276 |
| FACTYPE 4 (Principal Arterial) | 6,157 | 6,635 | 6,437 | 6,658 |
| FACTYPE 5 (Major Arterial) | 3,701 | 3,781 | 3,661 | 3,635 |
| FACTYPE 6 (Minor Arterial) | 4,170 | 4,553 | 4,890 | 4,887 |
| FACTYPE 7 (Major Collector) | 3,931 | 4,338 | 4,619 | 4,732 |
| FACTYPE 8 (Minor Collector) | 1,731 | 1,742 | 1,745 | 1,769 |
| FACTYPE 10 (Ramp) | 762 | 690 | 657 | 701 |
| Total VHT | 31,749 | 32,628 | 32,869 | 33,242 |

NT Change in VHT Compared to No Build

| Time of Day: NT | Full Bypass Build | Southern Section | Northern Section | No Build |
|-----------------------------------|-------------------|------------------|------------------|-----------|
| FACTYPE 1 (Interstate) | -5% | 0% | 0% | 0% |
| FACTYPE 2 (Minor Freeway) | 68% | 3% | 1% | 0% |
| FACTYPE 4 (Principal Arterial) | -8% | 0% | -3% | 0% |
| FACTYPE 5 (Major Arterial) | 2% | 4% | 1% | 0% |
| FACTYPE 6 (Minor Arterial) | -15% | -7% | 0% | 0% |
| FACTYPE 7 (Major Collector) | -17% | -8% | -2% | 0% |
| FACTYPE 8 (Minor Collector) | -2% | -2% | -1% | 0% |
| FACTYPE 10 (Ramp) | 9% | -2% | -6% | 0% |
| Total VHT | -4% | -2% | -1% | 0% |

| Time of Day: Daily | Full Bypass Build | Southern Section | Northern Section | No Build |
|-----------------------------------|-------------------|------------------|------------------|----------|
| FACTYPE 1 (Interstate) | 48,087 | 50,691 | 51,181 | 51,160 |
| FACTYPE 2 (Minor Freeway) | 10,830 | 6,841 | 6,488 | 6,448 |
| FACTYPE 4 (Principal Arterial) | 30,308 | 33,328 | 32,242 | 33,367 |
| FACTYPE 5 (Major Arterial) | 19,566 | 20,122 | 20,139 | 19,979 |
| FACTYPE 6 (Minor Arterial) | 23,328 | 26,214 | 28,159 | 28,959 |
| FACTYPE 7 (Major Collector) | 7,227 | 7,687 | 8,010 | 8,150 |
| FACTYPE 8 (Minor Collector) | 9,233 | 9,448 | 9,581 | 9,759 |
| FACTYPE 10 (Ramp) | 4,099 | 3,342 | 3,295 | 3,436 |
| Total VHT | 152,678 | 157,673 | 159,095 | 161,258 |

Daily Change in VHT Compared to No Build

| Time of Day: Daily | Full Bypass Build | Southern Section | Northern Section | No Build |
|-----------------------------------|-------------------|------------------|------------------|----------|
| FACTYPE 1 (Interstate) | -6% | -1% | 0% | 0% |
| FACTYPE 2 (Minor Freeway) | 68% | 6% | 1% | 0% |
| FACTYPE 4 (Principal Arterial) | -9% | 0% | -3% | 0% |
| FACTYPE 5 (Major Arterial) | -2% | 1% | 1% | 0% |
| FACTYPE 6 (Minor Arterial) | -19% | -9% | -3% | 0% |
| FACTYPE 7 (Major Collector) | -11% | -6% | -2% | 0% |
| FACTYPE 8 (Minor Collector) | -5% | -3% | -2% | 0% |
| FACTYPE 10 (Ramp) | 19% | -3% | -4% | 0% |
| Total VHT | -5% | -2% | -1% | 0% |

APPENDIX G

COMMENTS AND RESOLUTIONS



EASTERN FREDERICK COUNTY **TRANSPORTATION STUDY**

www.FCVA.us/Departments/Planning-Development/Transportation

**VIRGINIA DEPARTMENT OF TRANSPORTATION
DISTRICT REVIEW
COMMENT AND RESOLUTION SHEET**

| COUNTY: FREDERICK | | DISTRICT: STAUNTON | | REVIEWERS: BRAD REED AND SCOTT ALEXANDER (VDOT) & FREDERICK COUNTY TRANSPORTATION COMMITTEE | | DATE: 9/24/2024 & 1/31/2025 |
|--|--------------------------|-------------------------------|---|--|---|----------------------------------|
| DESCRIPTION: ROUTE 37/EASTERN FREDERICK COUNTY TRANSPORTATION STUDY | | REVIEW PHASE: N/A | | DISCIPLINE: N/A | | |
| REVIEW CODES: C. CRITICAL COMMENT, ADDRESS WITH RESUBMISSION S. SUGGESTION FOR PHASE 1, ADDRESS IF RESUBMISSION REQUIRED F. SUGGESTION FOR FUTURE PHASE 2 SUBMISSION | | | | RESPONSE CODES: A. ACCEPT COMMENT—HAS BEEN CORRECTED, ADDED, OR CLARIFIED. D. DELETE COMMENT (JUSTIFICATION PROVIDED) E. DESIGNER WILL EVALUATE FOR PHASE 2 SUBMISSION | | |
| ITEM | PAGE ⁽¹⁾) | REVIEW CODE ⁽²⁾ | COMMENTS ⁽²⁾ | RESPONSE CODE ⁽³⁾ | RESPONSE ⁽³⁾ | FINAL DISPOSITION ⁽⁴⁾ |
| 1 | G | S | Recommend that the County set a meeting to walk through the study with the residency prior to presenting a final version to the Transportation Committee/BOS. | A | Agree with this comment. County plans to reach out to the Residency for comment. | |
| 2 | G | S | Study Overview and Next Steps sections - Elaborate on next steps to describe phase 2 effort to study one or more locations in more detail and support a future Smart Scale application. | A | Will add some narrative in the Study Overview and Next Steps sections to describe the Phase 2 effort as it pertains to a Smart Scale application. | |
| 3 | G | S | Possible Applications of Alternative Intersections – Recommend that this section be removed and saved for phase 2. Presenting a screening-level VJuST analysis at the two selected intersections may mislead the public. This evaluation should be provided in the context of a full iCAP analysis. | A | This section will be removed as recommended. | |

| | |
|--|--|
| (1) Indicate drawing no./page no. or use "G" for general comment (2) To be filled out by Reviewer to aide in processing of application (3) To be filled out by applicant (4) To be filled out by VDOT Project Manager | Reviewer to insert additional rows as required to adequately document comments |
|--|--|

**VIRGINIA DEPARTMENT OF TRANSPORTATION
DISTRICT REVIEW
COMMENT AND RESOLUTION SHEET**

| COUNTY: FREDERICK | | | DISTRICT: STAUNTON | | REVIEWERS: BRAD REED AND SCOTT ALEXANDER (VDOT) & FREDERICK COUNTY TRANSPORTATION COMMITTEE | DATE: 9/24/2024 & 1/31/2025 |
|--|--------------------------|-------------------------------|--|--|--|----------------------------------|
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| 4 | G | S | Project Needs – It's unclear why the Congestion and Safety sections focus on Rt 7. Recommend adding context. Is Rt 7 the next most congested location after Exit 317? | A | Some narrative will be added to justify why these sections refer frequently to Route 7. | |
| 5 | 39 | S | Public Meetings – “The survey generated a total of 11 responses and out of those responses it was clear that the Route 37 Bypass was still on the minds of the respondents at the meeting.” Please elaborate. Were respondents supportive or not supportive? | A | The survey asked residents if they are familiar with previous Route 37 studies, if they would support county funding for the Route 37 E project, and which areas are most important to them. We can include the details in the report. | |
| 6 | G | S | Cost Estimates – Recommend rounding costs to the nearest \$100k or \$1M since they are planning level estimates. | A | We will revise costs to round up to the nearest \$0.5M since these are high level planning estimates. | |

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| 7 | G | S | Concept Development - Provide forecast volume and VHT reduction vs. No Build for the project recommendations to inform next steps. | A | This analysis will be provided in the appropriate section. | |
| 8 | 35 | S | Page 35 notes that the I-81 CIP states that improvements are needed at Exit 307. Please verify this statement. | A | I went back through the I-81 improvements (Staunton Projects Improve 81 (virginia.gov)) and you are correct, there are no improvements listed at Exit 307 as a part of this effort. That entry/line may have been anecdotal. I will remove this from the Needs section. | |

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| 9 | G | S | The current EFCTS study does not acknowledge or reference the ca. 2010-2013 Rt 37 Eastern Bypass alignment study (UPC 85972). The \$1.5M project developed near-PFI plans that that addressed many of the alignment concerns that is raised in the EFCTS; it's unclear if/why the new study is apparently assessing the "original" (EIS corridor?) alignment when so much work has followed. | A | We discussed this further during the joint meeting between MT, VDOT and Frederick County. The alignment in the Frederick County Comprehensive plan is from this study. We will reference that this project took place in the existing studies section and clarify this point. | |
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| 10 | G | S | <p>The 2050 volumes shown on Figure 18 seem extremely low (e.g. 11,400 VPD between Snowden/I-81) given the northwestern, less populous side of 37 has a <i>current</i> ADT of 36,000 VPD).</p> <p>Do the volumes account for a completed eastern Rt. 37 as depicted (LAC Freeway)? If not, shouldn't it, so that even if initially constructed as two lanes the ultimate RW could be acquired? There seems to be some confusion between independent utility of individual segments vs. the overall logical termini of eastern Rt. 37. Conversely, is the recommendation to completely abandon Rt. 37 east as a limited access freeway and downgrade to secondary/major collector status? If so, Figure 18 should not depict Rt 37 as a limited-access facility with independent/isolated volumes (if that is what is being shown).</p> | E | <p>During our joint meeting, we justified the VPD in question and I think we agree on that point now.</p> <p>This study is not recommending that the Route 37 bypass should never be constructed, mainly that the volumes in 2050 do not justify the construction of a full bypass/four lane divided highway.</p> <p>We will add further clarification in the report to address these questions and what the figures are intended to illustrate with respect to volumes, independent utility, etc.</p> | |

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| 11 | G | S | It would be helpful if under the “Concept Development” section to include a comprehensive map with the newly-proposed projects and their functional classifications. | A | The map will be added. | |
| 12 | 45 | S | The Concept Development narrative mentions “limited access points/driveways” for the replacement of Rt 37 as a parkway. Highly recommend defining exactly what this means now (e.g. LAC lines such as on Millwood/Jubal Early?) so there is no misunderstanding later. A parkway will most certainly lead to as much, if not more, “sprawl” mentioned in the original 37 Segment 3 narrative (pg 45), and demand for access points will be high. | A | We will define parkway in this report to clarify that point. | |

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| 13 | G | S | It is very confusing with the discussion of the original Rt. 37 segment numbers on Pages 45-47 intermixed in discussion with the new EFCTS project numbers on Pg 48, the cost estimate Table 15 on Pg 48, which then don't seem to agree with the numbered list on Pg 50. | A | We will provide clarification in the report regarding the project numbering and maintain consistency. | |

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| 14 | G | S | (Refencing Table 15 for project ID's:) The new Project 1 limits are unclear (Rt. 7 to Rt. 11 or Snowden Bridge). a. On Pg 48 it indicates going from Rt. 7 to Rt. 11 b. The graphic on Pg 53 shows going from Rt. 7 to an intersection on Snowden Bridge. c. Has the Rt. 11/Snowden intersection, 2030 LOS F without a connection to Rt. 7, been evaluated for this plan? | A | The project limits have been identified by Frederick County has Route 7 to Route 11. Inconsistencies in the report to be corrected. We did not evaluate level of service at the intersection level. Our forecast looked at segments of the roadway network in 2050. | |

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| 15 | G | S | <p>What is being proposed for the new Project 2 (Airport Road)?</p> <p>There is little scope information of improvements (4-lane).</p> <p>On page 54 the design criteria lists “ADT: > 2,000”, which is a pretty loose target (same for several other of the projects).</p> <p>If there are other development-backed roads driving this, it may be helpful to include them on the map discussed in #4 above.</p> | A | <p>What is being proposed is widening the section of Airport Road between US 522 and Byrd Drive from 2 lanes to 4 lanes to relieve congestion forecasted at that location. The project recommendation is based on the V/C ratio that our model predicted in 2050 (1> VC > 0.85).</p> | |

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| 16 | G | S | For Project 3 (Rt. 37 Extended/Warrior Extended) there is a lot of history and commitments based on the desires of the County and adjacent development, made to FHWA during the Exit 310 IJR (now IAR), including the removal of the 37/Tasker temporary ramps and a grade-separated interchange at Warrior. UPC 85972 mentioned above even drafted an IJR for the Warrior interchange. Strongly recommend this be addressed in the Plan. | A | We recognize that there is a lot of history pertaining to the Route 37 bypass over several decades and will include the information provided in the narrative. | |
| 17 | G | S | While it's understood that this is a County planning study, a study year of 2050 would assume an advertisement of 2028, for projects not even in the FY25-30 SYP. The estimates provided are likely to change. How sensitive are these projected ADTs relative to the lane numbers and intersections being proposed? | E | This study constitutes Phase I of this effort and additional research and development is needed in Phase II to be able to think about programming projects and applying for grant funding. | |

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| 18 | G | S | The cost estimates have not been reviewed as the scopes are too vague. It was noted that there are many figures that, at first glance, appear exceedingly optimistic (e.g. \$200k for utilities when converting Airport Blvd from 2-lanes to 4-lanes). | A | Will round these estimates to the nearest \$0.5M as indicated in Item 6. | |
| 19 | G | F | Would connecting Rt 11 and Rt 7 relieve any traffic congestion? | A | Based on our initial evaluation, it would provide some relief. This will be evaluated further in future studies. | |
| 20 | G | S | Traffic projection for 2050 -to include the One Logistic traffic? Why is Airport Road showing congestion? | A | Any anticipated developments to occur between now and 2050 were included in the travel demand model. | |

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| 21 | G | S | Funding options e.g., Developers? | A | There are several funding opportunities available including SMART SCALE, etc. These options are discussed in the last section of the report. Any funding provided by developers will have to be proffered through the land development process. | |
| 22 | G | S | Understanding the Rt. 50 corridor analysis as to the study? | A | This was not studied as a part of this effort. This could be incorporated in future studies. | |
| 23 | G | S | Alternative routes with the already congested area of exit 317 diverging diamond and Interchange Improvement projects? | A | This was not studied as a part of this effort. This could be studied in detail in future studies. | |
| 24 | G | S | Is the Hallowed Crossings Way new to the study? Benefits of connecting? | A | This connection is not new to the study and was included in the public involvement effort on March 14, 2024, and presented to the public. | |

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| 25 | 60 | S | Widening Airport Road to four lanes from two – Page 60 states under “Mobility” that projected volume in 2050 is ~17,000. Elsewhere in the report it is noted that a two-lane road can handle up to 29,000. Why is this improvement needed? | A | The Volume to Capacity ratio for this stretch of roadway is 0.85 in 2050 during the peak hour, please see Figure 11 on page 27. This project aims to reduce the congestion during the peak hour. | |
| 26 | 55 | S | The exhibit on page 55 has labeled Snowden Bridge Boulevard as Route 11. The segment from Snowden Bridge Boulevard to Route 11 is not shown. This raises two questions: 1. Is the "Project Total (With Contingencies)" \$179.5 million inclusive of the costs of the missing piece? 2. Should the Improvement stop at Snowden Bridge Boulevard anyway since it joins an already existing and paid for four-lane road at that point that goes to Route 11? Projected volume in 2050 is -18,000. | A | The intention was to make the connection between Route 7 and 11, and this graphic has been updated through discussions with County staff. | |

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| 27 | G | S | Recommendations to promote project success b. Remove portions of the Route 37 East plan no longer being recommended to remove the cloud over the property owners that were potentially impacted and refocus on what remains c. Relocate improvements to favor existing road paths to reduce costs, i.e., follow significant portions of Red Bud Road | A | Agree with these recommendations. This will be studied in detail in future studies. | |
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| (1) Indicate drawing no./page no. or use "G" for general comment (2) To be filled out by Reviewer to aide in processing of application (3) To be filled out by applicant (4) To be filled out by VDOT Project Manager | Reviewer to insert additional rows as required to adequately document comments |
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