Prince William County

Prince William County Comprehensive Traffic

SAFETY ACTION PLAN

DRAFT – May 2025

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Acknowledgements

This Prince William County Comprehensive Traffic Safety Action Plan would not be possible without the contributions of the following individuals and organizations:

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Executive Summary

In 2024, Prince William County had the **second highest number of roadway crashes in the state of Virginia** including 28 fatalities.

Over the past decade, there has been an increase in the number of severe injuries and fatal crashes within the County. This growing safety concern has prompted targeted investment in improved safety on roadways through the development of this Comprehensive Traffic Safety Action Plan (CTSAP).

Prince William County was awarded a Safe Streets and Roads for All (SS4A) Planning Grant in February 2023 by the U.S. Department of Transportation (USDOT) to develop a Comprehensive Traffic Safety Action Plan (CTSAP). This was the result of the County's desire to develop and pursue transportation safety projects and initiatives to address roadway safety concerns and identify possible actions to mitigate and reduce severe injury and fatal crashes.

The CTSAP includes the following components:

- Goals and Objectives
- Public Engagement
- Safety Analysis
- Prioritized Project Lists
- Safety Strategies and Countermeasures
- Policy, Progress, and Performance

Additionally, the CTSAP works in tandem with the following efforts:

- High Injury Network Analysis
- High Injury Network Project Screening Tool
- High Risk Network Tool
- Pedestrian and Bicycle Mobility Gap and Needs Analysis
- Safety Countermeasures Toolbox
- Safety Strategies Guide
- Updated Residential Traffic Management Guide
- Manassas Park Vision Zero Action Plan – *Partnership with Prince William County*

CTSAP Approach

The CTSAP applies a two-pronged approach towards reducing traffic fatalities and serious injuries: Towards Zero and Vision Zero.

Vision Zero

- Aspires towards the complete elimination of all traffic fatalities and serious injuries

Towards Zero

- Shares the understanding that even one traffic fatality or serious injury is unacceptable but recognizes that a complete elimination of all traffic fatalities or serious injuries may not be immediately achievable.
- Builds a culture of transportation safety across behaviors, policies, and infrastructure design to achieve the greatest possible reduction in serious injuries and fatalities.

Under the Prince William County CTSAP, Vision Zero is applied to cities, towns, school zones, and small area plans while Towards Zero is applied to non-urbanized areas (suburban and rural).

Key Themes

The following transportation safety themes represent pillars on which the CTSAP was developed:

- Recognizing that true "accidents" are rare and are more likely to result from human mistakes or system failures that can be mitigated through safe design and increased awareness
- Identifying key factors contributing to crashes
- Proactively preventing incidents in advance rather than reacting as they occur
- Prioritizing safety for the County's most vulnerable users and communities
- Focusing on preventing deaths and serious injuries rather than eliminating crashes
- Recognizing that any investment that contributes to saving human lives is invaluable and limited resources must be used in an optimal way
- Shared responsibility of individual and community safety across stakeholders at all levels
- Combining safety initiatives with diversification of travel options to achieve a continuous multimodal network

Safe System Approach

Prince William County follows the Safe System Approach towards reducing the number of traffic fatalities and serious injuries. This program is officially adopted by the U.S. Department of Transportation (USDOT) and VDOT as the guiding paradigm to address roadway safety. The Approach includes redundant layers of protection which place the lives and safety of humans as the central priority of road network design. **Figure 1** illustrates the five principles which constitute the Safe Systems Approach:

Figure 1: Safe System Approach Principles

Engagement

The project team was committed to a public engagement strategy that ensured community members and stakeholders across the County were informed and involved throughout the CTSAP planning process. Engagement strategies for the CTSAP included a planning committee of multidisciplinary stakeholders in and around the County, a series of public meetings to solicit feedback from community members, and a project webpage to gather additional feedback through an interactive map and survey. Through engagement efforts, the project team was able to reach over 1,500 community members, with 116 location identified comments and nearly 200 survey responses

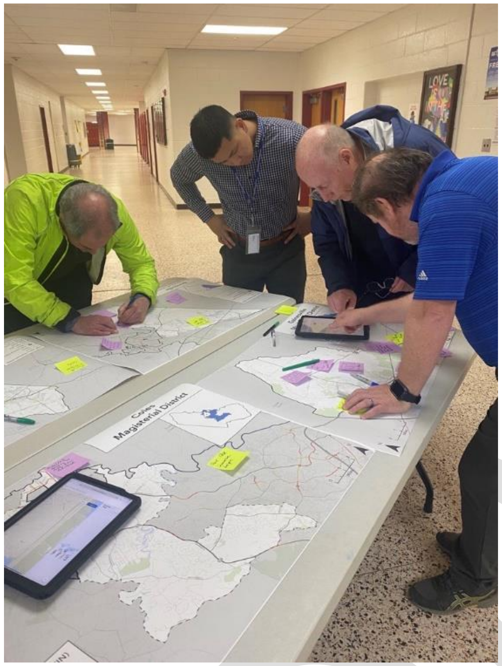

Figure 2: Public meeting mapping activity

Safety Analysis

The safety analysis for the CTSAP applied a multi-pronged approach to identify where Fatal and Serious Injury (FSI) crashes are occurring, which facilities are contributing most to these outcomes, and what roadway characteristics are associated with higher crash risk. This included three complementary analyses: the Equivalent Property Damage Only (EPDO) network screening, the development of a High Injury Network (HIN), and a risk ratio analysis resulting in the development of a High Risk Network (HRN). Crash data was gathered from the Virginia Department of Transportation's (VDOT) Pathways for Planning for a 5-year period from 2018-2022. This accounted for both pre-COVID-19 and post-COVID-19 data.

Table 1: Safety Analysis Summary

Network Screening	High Injury Network (HIN)	High Risk Network (HRN)
Methodology Used the EPDO method which assigns weighting factors to crashes by severity relative to property damage only (PDO) crashes, with greater weights for more severe outcomes.	**Methodology** Based on the EPDO severity rankings, integrating crash history from both intersection and corridor analyses to build a comprehensive picture of network-wide safety and highlight the most critical roadways for safety investment.	**Methodology** A risk ratio analysis examined roadway and intersection characteristics including posted speed limit, urban versus rural land use contexts, functional classification, intersection control, and intersection configuration. Considered roadway segments and intersections separately, comparing the proportion of FSI crashes across key characteristics relative to their exposure (e.g., roadway miles or number of intersections).
Outcome Identified intersections and corridor segments that have experienced higher crash frequencies and severities (i.e., high EPDO scores)	**Outcome** A two-tiered HIN (Tier I = highest severity; Tier II = lower severity) that represents locations that will be targeted for reactive safety projects.	**Outcome** A HRN that identifies roadway segments and intersections as high-priority locations for proactive safety improvement strategies to mitigate safety risk across the network.

Project Prioritization

Project locations were prioritized separately in three groupings: HIN, HRN segments, and HRN intersections. As mentioned above, HIN locations represent targets for reactive safety projects while HRN locations represent opportunities for proactive safety strategies. Project locations were scored based on their alignment with specific CTSAP project criteria within themes of: Equity, Safety and Vulnerable Users, Connectivity, Accessibility, and Public Input. The resulting prioritized list of projects allows the County to have a better understanding of which corridor infrastructure projects may have the greatest impact toward addressing roadway safety concerns while making Prince William a more connected, convenient, and comfortable place to live, work, and visit across all modes of travel.

Safety Strategies and Countermeasures

By implementing effective engineering and non-engineering countermeasures, we can address various risk factors such as road infrastructure deficiencies, driver behavior, vehicle safety standards, and environmental conditions. Infrastructure countermeasures focus on physical roadway improvements at targeted locations, while systemic strategies take a proactive approach to reducing risks across the transportation network.

Recommendations

As part of the CTSAP process approximately 30 countermeasures were recommended for inclusion in the CTSAP in key areas such as:

- Speed Management
- Pedestrian and Bicycle Safety
- Intersection Safety
- Multimodal Improvements
- Roadway Design

To accompany the physical infrastructure countermeasure recommendations, the CTSAP recommends systemic safety strategies that include safety initiatives, programs, and policies that aim at improving roadway safety. These recommendations were identified and refined through the engagement of stakeholders in and around Prince William County.

Policy, Process, and Performance

In addition to the prioritized list of projects for targeted safety improvement, this CTSAP includes a list of recommended strategies that the County should implement to achieve the overall goal of reducing severe injuries and fatalities in the roadways. Each strategy is coupled with associated actions that offer specific direction, along with key performance metrics for each action. The strategies and actions were structured around the elements of the **Safe System Approach**.

Introduction

Introduction

Prince William County envisions a comfortable, accessible, and comprehensive multimodal transportation network that allows for the safe and efficient movement of people throughout the County and into the surrounding region. However, over the past decade, there has been an increase in the number of severe injuries and fatal crashes within the County. **In 2024, Prince William County had the second highest number of roadway crashes in the state of Virginia including 28 fatalities.** This number has remained high over recent years and has become a significant concern for the County, which has prompted targeted investment in improved safety on roadways through the development of this Comprehensive Traffic Safety Action Plan (CTSAP).

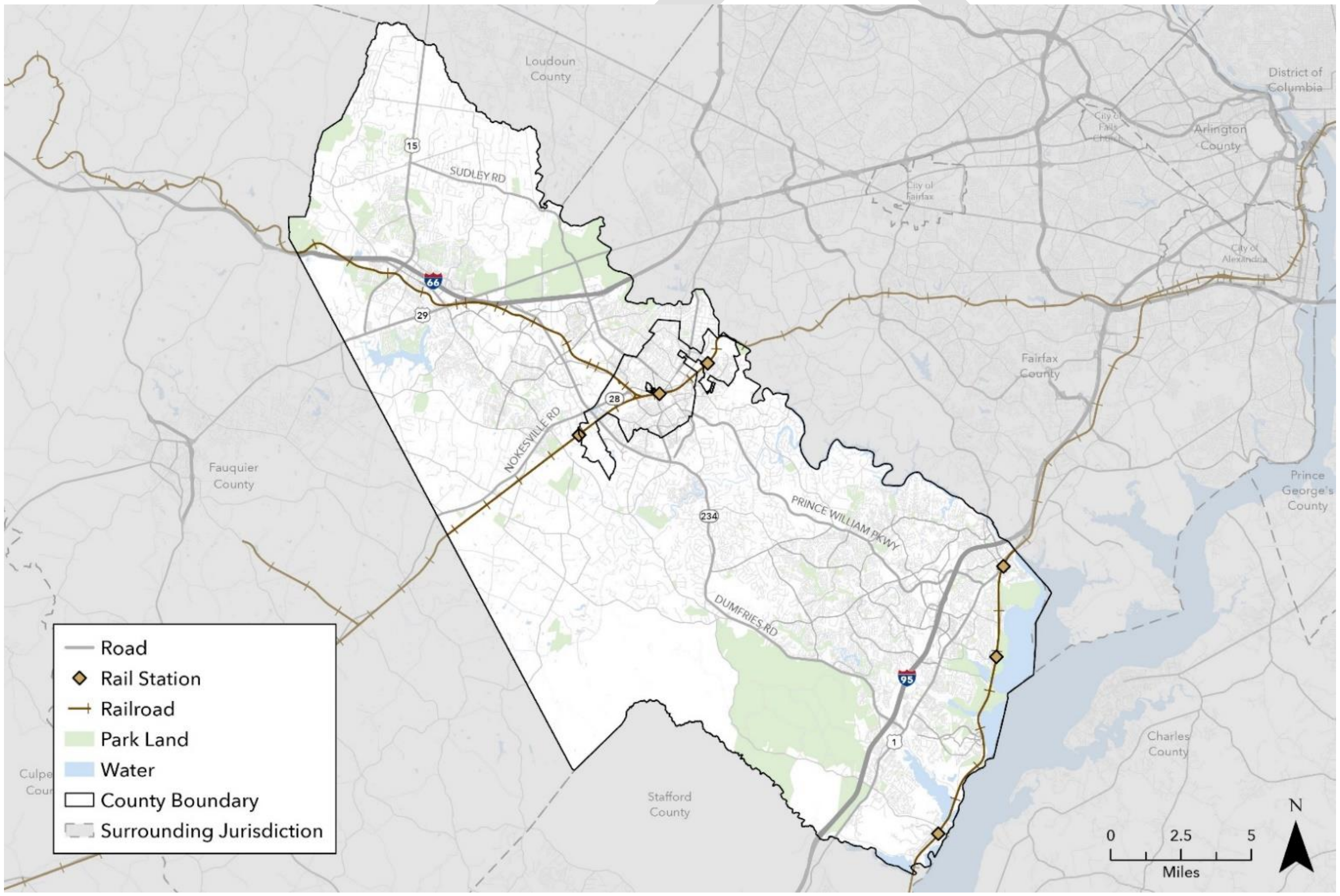

Figure 3: Prince William County base map

Regional Context

Prince William County is located within the greater Washington, DC metropolitan area, roughly 35 miles southwest of the Nation's Capital. Two major interstate highways run through the County: east-west corridor I-66 that connects to Washington DC and I-81, and north-south corridor I-95 that also connects to Washington, DC and to Richmond, VA. Passenger rail service provides another travel option for the County with Amtrak service connecting to destinations along the east coast through stations in the Town of Quantico and the City of Manassas. The Virginia Railway Express (VRE) connects to and from Washington, DC through the City of Manassas and along the southeast border of the County. OmniRide operates bus routes providing local service and transit connections as well as regional routes to key destinations in Northern Virginia and Downtown Washington, DC. **Figure 3** shows the County base map with transportation context. In addition, **Figure 4** provides a statistical snapshot of demographics and transportation in the County.

Jurisdictions

Prince William shares borders with the Counties of Fairfax, Loudoun, Fauquier, Stafford, and Charles. There are two independent cities within Prince William County, the City of Manassas and the City of Manassas Park. While the cities are their own jurisdictions with governing bodies, Prince William County works closely with them, partnering on many planning initiatives due to their important context within the County, especially for transportation. In addition, there are four incorporated towns within the County that operate under the Prince William County government. These include Dumfries, Haymarket, Occoquan, and Quantico. There are also several large Homeowners' Associations (HOAs) with networks of private roads. Additionally, the County is home to significant federal lands including the Quantico Marine Corps Base, Manassas Historic Battlefield, and Prince William Forest Park.

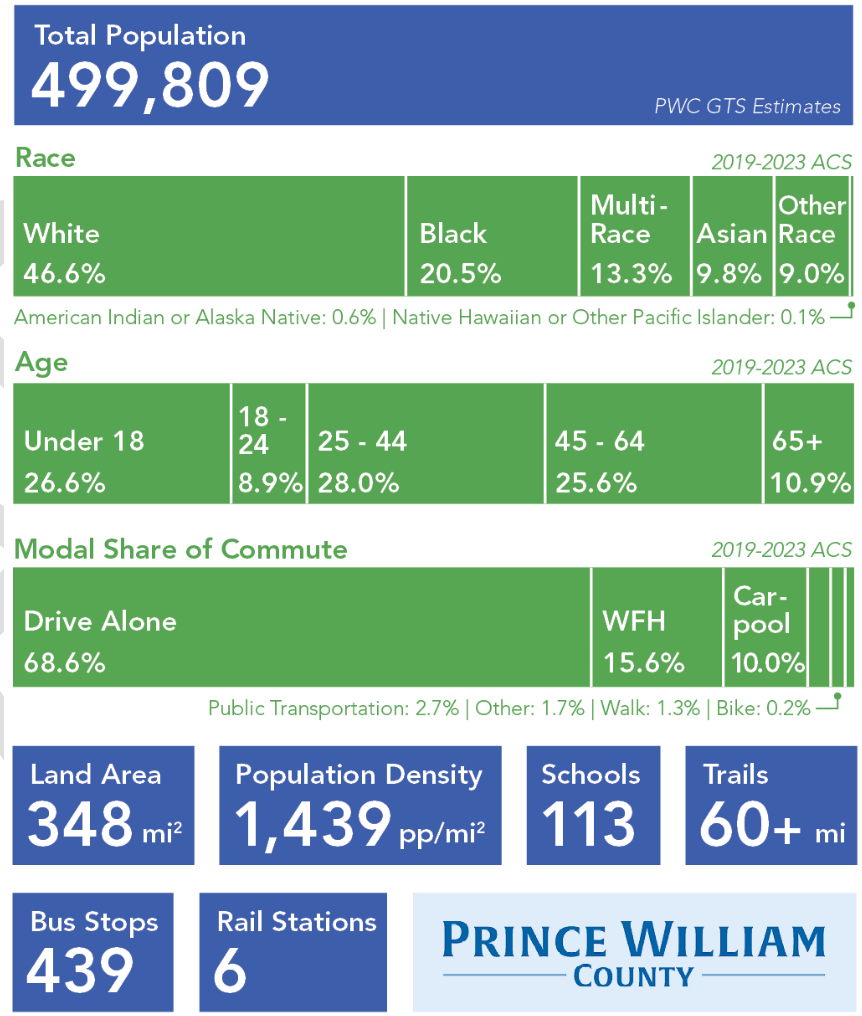

Figure 4: Statistical Snapshot of Prince William County

CTSAP Context

Prince William County was awarded a Safe Streets and Roads for All (SS4A) Planning Grant in February 2023 by the U.S. Department of Transportation (USDOT) to develop a Comprehensive Traffic Safety Action Plan (CTSAP). This was the result of the County's desire to develop and pursue transportation safety projects and initiatives to address roadway safety concerns and identify possible actions to mitigate and reduce severe injury and fatal crashes.

This CTSAP supports Goal #4 of the County's Strategic Plan to "Foster an inter-connected and accessible transportation network that advances the County's mobility infrastructure, broadens transportation choices, and enhances safety", as well as the following goals and objectives in the County's Comprehensive Plan:

- Mobility Policy 1 – "Ensure that the County's transportation network prioritizes safety for all mode users, including motorists, transit riders, pedestrians, including students, and bicyclists"
- Action Strategy G1.1 – "Utilize improved infrastructure design, enhanced enforcement, and public education to provide increased safety for all transportation modes"
- Action Strategy G1.7 – "Identify programs or initiatives to reduce roadway and pedestrian related fatalities and injuries in the County"

The CTSAP includes the following elements:

- Goals and Objectives
- Public Engagement
- Safety Analysis
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- Policy, Progress, and Performance

Additionally, the CTSAP works in tandem with the following efforts:

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Goals and Objectives

Goals and Objectives

The goals and objectives for the CTSAP follow the structure of two industry-standard roadway safety strategies, Vision Zero and Towards Zero. These strategies are tailored to Prince William County through the formal adoption of a Toward Zero Vision Statement and supported by key traffic safety principles.

Vision Zero and Towards Zero

The CTSAP applies a two-pronged approach towards reducing traffic fatalities and serious injuries: Towards Zero and Vision Zero. The application of each strategy differs across the County's localities according to the varying distribution of land uses and development densities.

Vision Zero is a multinational roadway safety approach which aspires towards the complete elimination of all traffic fatalities and serious injuries. In Prince William County, Vision Zero is applied to the cities, towns, school zones, and small area plans. Small area plans were developed through the Comprehensive Plan to direct growth to key locations throughout the County and provide opportunities for detailed planning and multi-modal transportation. Vision Zero target areas can be seen in **Figure 5**.

Towards Zero, officially Toward Zero Deaths (TZD), is a national strategy for roadway safety. Like Vision Zero, Towards Zero shares the understanding that even one traffic fatality or serious injury is unacceptable. However, Towards Zero also recognizes that a complete elimination of all traffic fatalities or serious injuries may not be immediately achievable. Instead, the primary objective of Towards Zero is the establishment of a culture which promotes traffic safety across all transportation behaviors, policies, and infrastructure designs. While this culture of roadway safety may not entirely eliminate all traffic fatalities or serious injuries, it seeks to achieve the greatest reduction of these incidents as possible. In Prince William County, Towards Zero is applied to non-urbanized Vision Zeron Focus areas, including both suburban and rural areas.

The County's Toward Zero Vision Statement is as follows:

This Comprehensive Traffic Safety Action Plan serves as a guide for the County with goals, objectives, and principles to create improved safety across the transportation network. This plan recognizes human mistakes will happen but seeks to mitigate risk by minimizing the consequences of those mistakes, thereby reducing and preventing deaths and serious injuries in the roadway. The County's proactive, data-driven approach seeks to prevent incidents in advance by targeting key risk factors in the network, engaging stakeholders at all levels, creating an increased awareness and culture of road safety, protecting all users, and diversifying and growing safe transportation options in the County.

Along with these Vision Zero vs. Towards Zero distinctions, it is important to acknowledge that public roads in Prince William County are state maintained under the responsibility of the Virginia Department of Transportation (VDOT). VDOT's Strategic Highway Safety Plan (SHSP) operates under a Toward Zero Deaths initiative. Roads within the Cities of Manassas and Manassas Park are maintained by the Cities and private roads are maintained by the property owners.

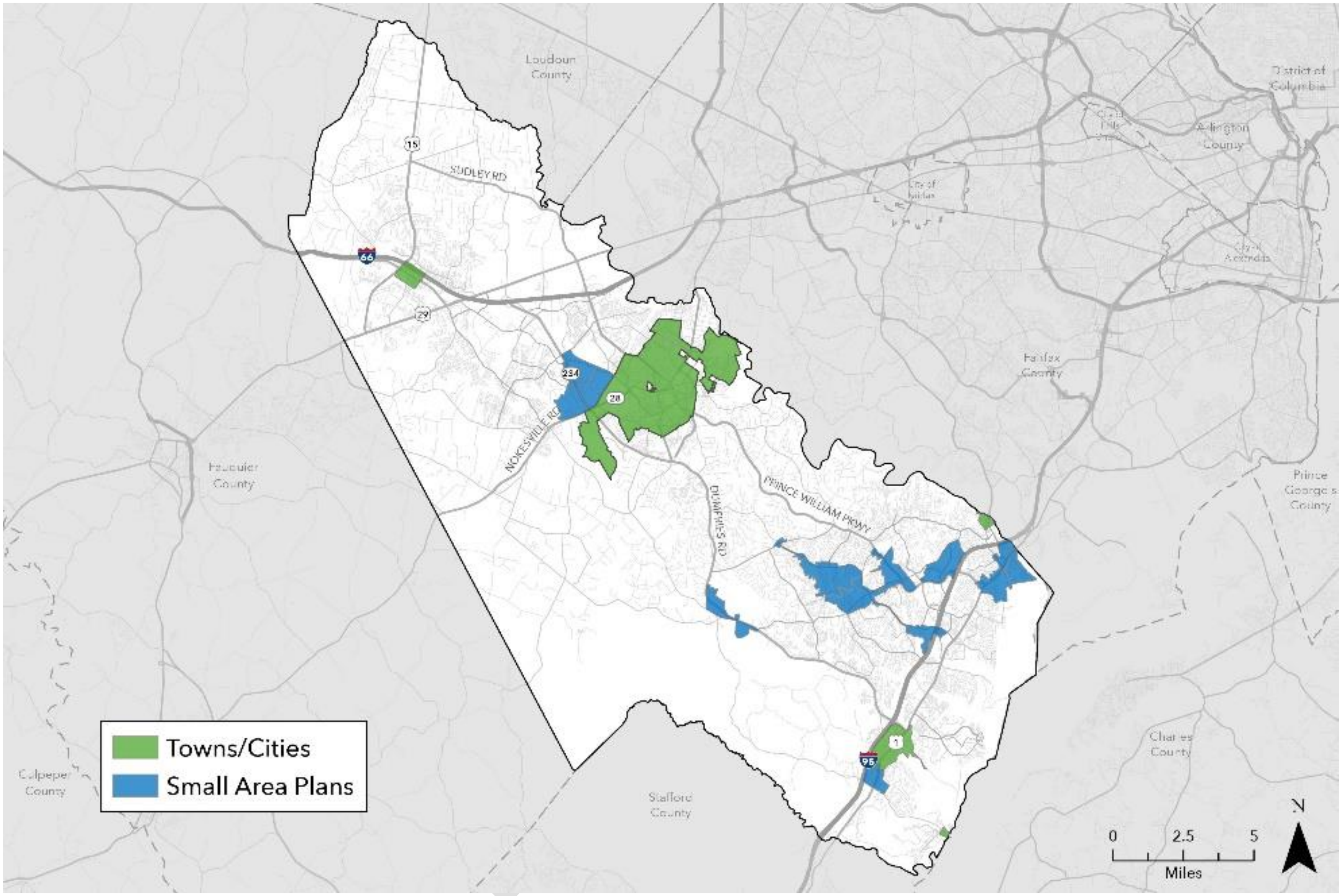


Figure 5: CTSAP Vision Zero target areas

Engagement

Key Themes and Principles

The Vision Statement for this CTSAP is supported by key themes widely applied by other jurisdiction's roadway safety initiatives. Based upon a review of national and regional peer examples of traffic safety principles and several rounds of public and key stakeholder engagement, the following key themes emerged as most appropriate for the County's context.

Key Themes

The following roadway safety themes emerged as consistent pillars of each of the Towards Zero and Vision Zero initiatives reviewed:

Recognize Human Mistakes

True traffic "accidents" are rare and are more likely to result from human mistakes or system failures. Safe design can eliminate system failures and increased safety awareness can reduce the frequency of mistakes. Recognizing this, we can work to improve design and user behavior to better accommodate a wider extent of human errors.

Identify Key Factors

Data-driven analyses can identify where and why traffic incidents occur. This identification of likely incident locations and factors that increase crash risk allows for better and more targeted mitigation efforts.

Focus on Prevention

As a result of human error, traffic incidents are inevitable. Rather than eliminating any possibility of crashes, preventative efforts should instead focus on mitigating and reducing the frequency and impact of these incidents (i.e., preventing deaths and serious injuries when incidents occur).

Responsibility is Shared

Improving safety across the County's transportation network requires the engagement and involvement of stakeholders at all levels across County departments, partner agencies, and the communities that use these facilities.

Safety is Proactive

Safety research, analysis, planning, and policy are needed to identify areas where traffic incidents can be reduced or prevented before they occur, rather than reactively responding after crashes have occurred. To achieve this, it is imperative that proactive, continuous re-evaluation of roadway conditions and transportation safety activities are being done as safety risks change and new risks arise.

Value of Investment

It is impossible to place a value on human life. In turn, any investment that contributes to the saving of a human life is valuable and brings unquantifiable benefits to the community. It is also critical to acknowledge that resources are limited and that committed resources must be optimized and used in the most efficient and effective way to create safer transportation.

Safety for All

Safety improvements should impact all of the County's geographies, with an emphasis on the most vulnerable communities and user types. Vulnerable communities are those with limited safe mobility alternatives, and may include low-income, minority, and historically disadvantaged and underserved populations. Vulnerable user types include children, the elderly, bicyclists, pedestrians and other high risk road users.

Multimodal Vision

Safety improvement strategies should also consider ways to promote safer and more diverse modal choices and improved access to these safe alternatives. Increasing the number of trips taken on foot, by bike, or using transit limits the number of vehicles on the road while promoting a safer, healthier, and more sustainable community.

Safe System Approach

Prince William County follows the Safe System Approach towards reducing the number of traffic fatalities and serious injuries. This program is officially adopted by the U.S. Department of Transportation (USDOT) and VDOT as the guiding paradigm to address roadway safety. The Approach includes redundant layers of protection which place the lives and safety of humans as the central priority of road network design.

Figure 6 illustrates the five principles which constitute the Safe Systems Approach: safer people, safer speeds, safer roads, safer vehicles, and post-crash care. This systems approach acknowledges close interactions between the factors which most directly influence safety risk. Due to these interrelations, addressing just one factor is unlikely to achieve a significant reduction in safety risk. Instead, a successful safe systems approach must consider all the following elements holistically.

The driving principles of the Safe System Approach recognize that:

- People make mistakes which can lead to crashes; however, no one should die or be seriously injured on the road as a result of these mistakes.
- The human body has a limited physical ability to tolerate crash forces—any impact greater than 30 mph significantly increases the risk of dying.
- Road safety is a shared responsibility amongst everyone, including those that design, build, operate, and use the road system.
- All parts of the road system must be strengthened in combination to multiply the protective effects and if one part fails, the others will still protect people.

Figure 6: Elements of the Safe System Approach

Guiding Principles

The success of the initiatives, goals, and objectives in this CTSAP will be facilitated by a commitment to several essential guiding principles that will provide context, structure, and direction for the outcomes of this plan.

Creating and enhancing **a culture of road and transportation safety is critical** in reducing the number of severe and fatal crashes in the County. To achieve this cross-agency collaboration, education and outreach is needed to create a develop a community focused mindset that starts with acknowledging that individual behavior and responsibility is needed to promote and achieve individual and collective safety.

The majority of **roads in Prince William County are state maintained** and are operated by the Virginia Department of Transportation (VDOT) with a focus on the State's interest. Many of the remaining roads are privately owned and maintained and operated in the private owner's interest. The County acknowledges this and aspires to continue to work in partnership with the State and private road owners to enhance the transportation infrastructure to better meet the local transportation and safety needs while recognizing the roles, responsibilities and interests of the State and private entities.

Mobility networks are continuous and are not limited by jurisdictional boundaries. These networks must therefore be uniform and consistent across neighboring jurisdictions for the users traveling across this network. To achieve this, partnerships with other regional and neighboring transportation entities are critical to achieve a unified and comprehensive approach to safe mobility throughout the region.

Resources are limited and any action or improvements implemented must be justified and linked to direct safety improvements. County money, time, staff, and equipment should be strategically deployed, duplicate efforts should be eliminated, and safety activities should be optimized to maximize cost-benefit in the interest of the County's residents.

Enforcement, education, and community outreach are local functions that play an integral part in transportation safety. The County must continue to champion and lead these functions on a local community level to achieve safety goals and objectives, while also continuing to develop the infrastructure and network with its state and regional partners.

A **transportation network must be connected, reliable, robust, and resilient** to meet each community's diverse mobility needs. Expanding and diversifying mobility alternatives with connected, safe, and reliable infrastructure and services is critical to ensuring that all members of the community can safely move around the County in their chosen mode of transportation.

Feeling safe is often as important as being safe. If users feel unsafe using a facility they will stop using it. For all travel modes, a safe and comfortable environment must be prioritized alongside direct safety measures to develop and optimize a multimodal mobility network.

Any **plan must be a dynamic, agile, and living document** that is continually monitored, reviewed and updated to meet the County's rapidly and constantly changing transportation safety needs. The plan must be developed to provide guidance over the next decade but also be able to adapt to the continually changing immediate transportation safety needs of the County.

Any **action or strategy must be continually justified** and show direct transportation safety benefits. Any activity that becomes unachievable, impractical, or loses effectiveness in producing safety benefit should be deprioritized or abandoned in favor of more effective strategies. This will require continued monitoring and reassessment as the activities are implemented.

The County **must be ambitious in exploring and developing new technologies** and methods to advance transportation safety and the County should stive to be a leader in all its transportation safety initiatives.

The County should **aim to achieve continuous improvement** in transportation safety. It must be acknowledged that reducing severe and fatal crashes is a challenging and multifaceted problem that has no single solution. As such it will take a concerted and multi-agency approach to achieve this goal, focusing on small frequent improvements that continually enhance transportation safety.

Engagement

The project team was committed to a public engagement strategy that ensured that community members and stakeholders across the County were informed and involved throughout the CTSAP planning process. The following goals were developed for the engagement process:

- Communicate CTSAP vision and goals
- Identify community safety concerns
- Prioritize a multidisciplinary approach
- Identify and equitably prioritize projects and associated countermeasures

Engagement strategies for the CTSAP included a planning committee of multidisciplinary stakeholders in the County, a series of public meetings to solicit feedback from community members, and a project webpage to gather additional feedback through an interactive map and survey.

Planning Committee

A multidisciplinary approach is a key component of USDOT SS4A Action Plans and was a primary focus of the CTSAP. In fulfillment of this priority, a CTSAP Planning Committee was assembled and consulted throughout the planning process to gather input at key project milestones. The target audience for the planning committee was implementors, including County staff, and agency partners such as OmniRide, Prince William County Schools, and Virginia Department of Transportation (VDOT). As many of these stakeholders will ultimately be involved in the implementation of projects and strategies identified in this plan, providing them with opportunities to provide insight was essential to the success of this plan. The Planning Committee was given the following responsibilities:

- Attending and participating in virtual planning committee meetings
- Providing feedback on project approach and sharing new perspectives
- Acting as champions of the plan to spread awareness, build excitement, and increase public participation among communities and constituencies
- Synthesizing the efforts of the CTSAP with other planning efforts and programs in and around the County to ensure consistency and avoid duplicate efforts

Stakeholders Included

The following Prince William County offices and departments were included in the Planning Committee:

- Communications and Engagement
- Community Safety
- Equity and Inclusion
- Fire and Rescue
- Human Rights Commission
- Long Range and Current Planning
- Police Department
- Public Safety Communications
- Risk and Wellness Services
- Trails and Blueways Council

The following partner agencies and entities were also included in the Planning Committee:

- Prince William County Public Schools
- Virginia Department of Transportation (VDOT)
- OmniRIde

Input Received

Three virtual Planning Committee meetings were held at key points in the CTSAP process:

Meeting #1 – January 13th, 2025

This Planning Committee kickoff meeting introduced the CTSAP context and planning process to the stakeholders and reviewed the roles and responsibilities of the Planning Committee. Additionally, the attending stakeholders participated in an interactive survey to provide input on CTSAP vision and goals, safety themes and risk factors, project prioritization criteria, and public engagement approaches.

Through this exercise, the Committee emphasized the importance of:

- Focusing on key factors contributing to crashes in the County, particularly reckless or improper driver behavior
- Being proactive in addressing safety concerns in advance to prevent incidents rather than reacting as they occur
- Emphasizing safety for the County's most vulnerable users and communities
- Assessing cost and feasibility of projects in prioritization
- Providing greater network connectivity for all modes and user types

As this meeting was held prior to public engagement, the Committee provided direction in effective strategies to reach community members such as utilizing social media and news media to advertise the project and public meetings.

Meeting #2 – March 12th, 2025

This meeting was held following the project's public engagement phase and included highlights from public meetings. In addition, the CTSAP team took the opportunity to communicate and gather feedback on project prioritization criteria, types of safety countermeasures, and progress and performance monitoring strategies.

In response to the presented prioritization criteria, the Committee emphasized the importance of the following:

- Mitigating safety risk in areas of concern, ultimately reducing crashes, serious injuries, and fatalities
- Prioritizing safety in areas where vulnerable users are concentrated such as areas of higher bicycle/pedestrian activity and school zones

The Committee also communicated a need for investment in countermeasures such as:

- Intersection improvements
- Speed management and traffic-calming infrastructure
- Roadway safety infrastructure
- Enforcement of roadway laws
- Impaired driving education and enforcement

Additionally, the Planning Committee contributed examples of achievable performance measures to allow the County to monitor progress toward CTSAP goals.

Meeting #3 – May 20th, 2025

At this final Planning Committee meeting, the results of the CTSAP planning process were shared with the attending stakeholders. The CTSAP team shared full results from the online comment period and public engagement as well as an overview of key content to be published in the CTSAP. In addition, the County team shared a list of projects identified for prioritized implementation to begin working toward safety goals following the adoption of the CTSAP. The attending stakeholders had the opportunity to voice feedback and ask questions following the presentation of these results.

Public Engagement

The CTSAP utilized various public engagement strategies to communicate project information and gather input from community members that was ultimately considered and incorporated into the strategies of this plan. A combination of in-person public meetings and online content and surveys were employed to provide a variety of outlets for public comment.

Advertisements

Public meetings and online engagement opportunities were advertised with posters and fliers distributed across the County, as well as multiple press releases through local media outlets. These advertisements included details of public meetings as well as a QR code directing users to the online webpage with project information and other virtual engagement opportunities.

Public Meetings

The CTSAP project team hosted two in-person public meetings with the intent of communicating project information and gathering input from community members on:

- Locations of safety concern
- Types of safety countermeasures
- Prioritization methods for project locations

Figure 7: Public meeting flier

Activities

At each public meeting, participants were able to view a series of boards displaying key project context, goals, components, and progress. Additionally, they had the opportunity to participate in a series of activities to provide feedback, identify locations of safety concern, or contribute general comments.

Priority Pyramid

This activity focused on criteria for prioritizing project locations, allowing participants to rank options on a pyramid to reflect the criteria that they consider most important in prioritizing projects, as seen in **Figure 8**. The available criteria included safety, connectivity, accessibility, equity, vulnerable users, and public input.

Figure 8: Priority Pyramid

Countermeasure Budgeting

This activity presented participants with bins representing several categories of safety countermeasures and allowed them to "invest" their budget of 5 tokens into the bins of their choice, as seen in **Figure 9**. The intent of this activity was to gather input on countermeasures from the public, while also allowing them to experience the dilemma of deciding how to allocate limited resources.

Figure 9: Countermeasure budget activity

Interactive Map

In addition to the activities, large, printed maps of the full County and specific magisterial districts were laid out for participants to provide location-specific feedback, as seen in **Figure 10**. This allowed community members to highlight areas in which they have experienced safety concerns or areas that should be addressed by the plan.

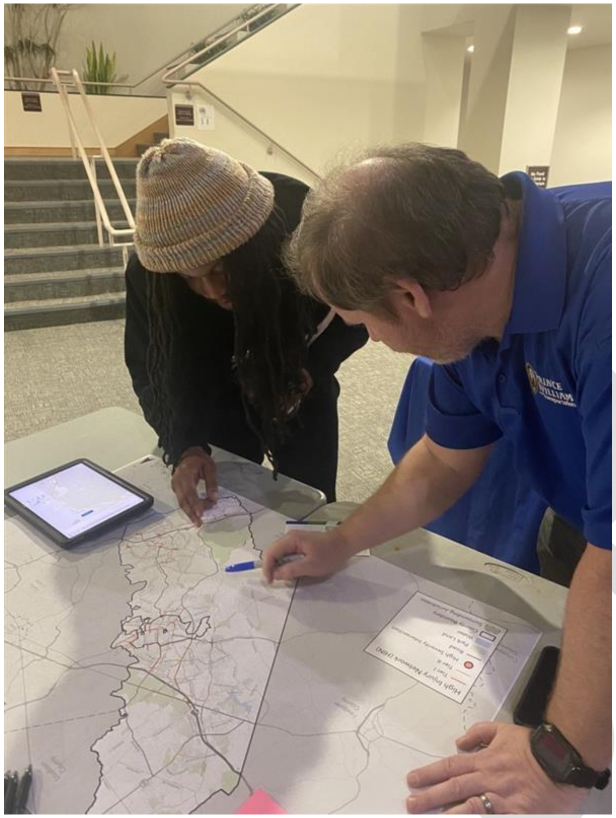


Figure 10: Interactive mapping activity

Online Engagement

An additional piece of the CTSAP public engagement strategy was a project webpage posted to the PWC Works public platform. The webpage communicated the context and intent of the CTSAP, details on public meetings, and a project timeline. The online webpage also hosted an online survey and an interactive map, which allowed the public opportunities to provide location specific comments for those who may not have been able to attend one of the public meetings.

Summary of Feedback

Through the engagement efforts, the project team was able to reach more than 1,500 community members, with 116 comments (seen in **Figure 12**) on maps and nearly 200 survey responses. The most prevalent takeaways from public comments include:

- Educational campaigns to promote safer driving
- Greater enforcement of speeding and distracted and impaired driving
- Gaps in the County's bicycle and pedestrian network
- Dangerous intersections and curves where safety measures are needed
- Additional lighting and visible signage on rural roads
- Calls for road diets to improve bicycle and pedestrian facilities and comfort

Some key quotes of community members' safety vision can be seen in **Figure 11**, and results from public engagement efforts in full detail can be found in **Appendix A.**

Figure 11: Community members' safety vision

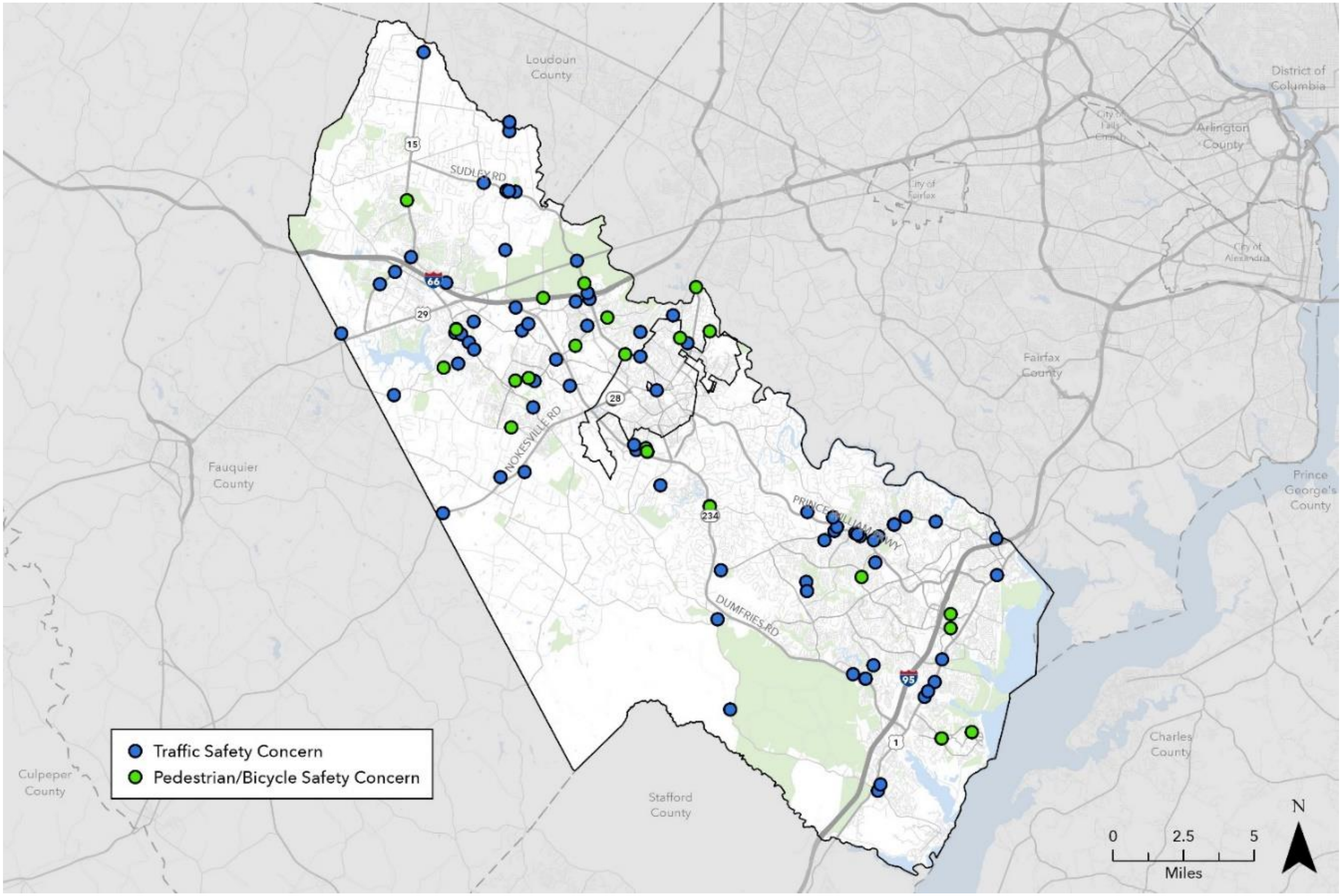
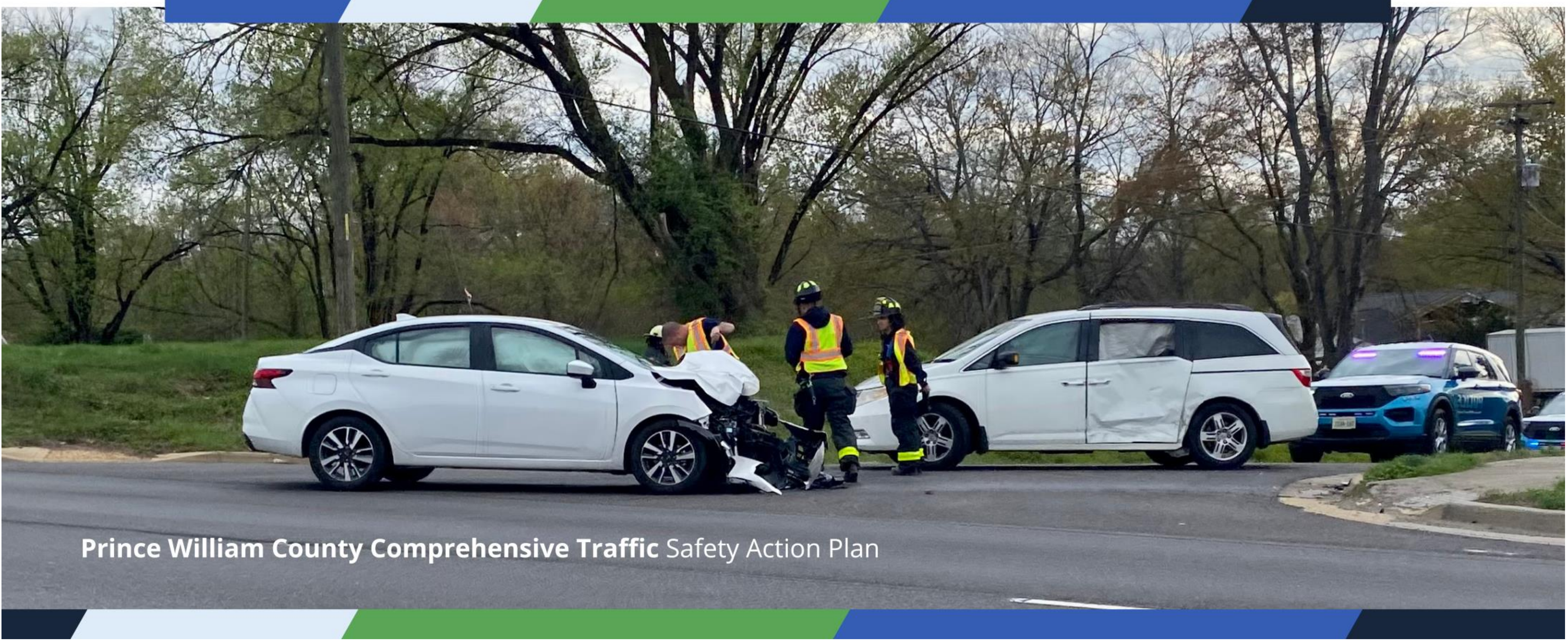


Figure 12: Public comment location

Safety Analysis



Safety Analysis

The safety analysis for Prince William County (PWC) applied a multi-pronged approach to identify where Fatal and Serious Injury (FSI) crashes are occurring, which facilities are contributing most to these outcomes, and what roadway characteristics are associated with higher crash risk. This included three complementary analyses: the Equivalent Property Damage Only (EPDO) network screening, the development of a High Injury Network (HIN), and a risk ratio analysis resulting in the development of a High Risk Network (HRN). While this section includes a summary of the process and results of these analyses, a detailed technical report for the Safety Analysis can be found in **Appendix B.**

For the purposes of this safety analysis, the project team obtained and analyzed five years of crash data from January 1, 2018 to December 31, 2022 for Prince William County, the City of Manassas, and the City of Manassas Park from the Virginia Department of Transportation's (VDOT) Pathways for Planning. Data from 2018-2022 was used rather than the most recent five-year period to include two years of both pre-COVID 19 and post-COVID-19 pandemic data, to understand the pandemic's impact on safety. It is important to note that the analysis did not include all crashes in the City of Manassas, though the County identified crashes along key corridors in the City for inclusion. In addition, crashes occurring on access-controlled facilities (i.e., I-66, I-95) and ramps, rest areas, private roads, and the Quantico Marine Corps Base were excluded from the analysis as those fall beyond the County's jurisdiction.

Network Screening

The network screening focused on analyzing historical crash data to identify intersections and corridors with the highest frequency and severity of crashes, particularly those resulting in FSI. This data-driven process used the EPDO method to assess safety performance across the network and identify locations with elevated crash history. The EPDO method assigns weighting factors to crashes by severity relative to property damage only (PDO) crashes, with greater weights for more severe outcomes.

Key Takeaways:

- Identified intersections and corridor segments that have experienced higher crash frequencies and severities (i.e., high Equivalent Property Damage Only (EPDO) scores)
- Intersections with high EPDO scores are typically located in urban areas where principal arterials intersect with minor arterials or major collectors
- Corridor segments with high EPDO scores are typically located on high volume roads in urban areas, and high-volume roads with horizontal curves in rural areas

High Injury Network (HIN)

The High Injury Network (HIN) analysis builds on the network screening results by highlighting the most critical roadways for safety investment. The analysis was based on the EPDO severity rankings, integrating crash history from both intersection and corridor analyses to build a comprehensive picture of network-wide safety. The product of this analysis was a two-tiered HIN (Tier I = highest severity; Tier II = lower severity) which can be viewed on the following page in **Figure 13**. The HIN communicates the most critical roadways for safety investment in the County, and represents locations that will be targeted for reactive safety projects

Key Takeaways:

- The results of the HIN network screening were ranked based on weighted crash severity and grouped into two tiers, collectively accounting for 50 percent of reported FSI crashes from 2018-2022.
- Tier I and Tier II HIN roads collectively account for only 4.4 percent of the County's total roadway miles but represent 50 percent of all FSI crashes.
- Despite making up just 1.8 percent of the County's roadway mileage, Tier I roads account for 25 percent of all FSI crashes.

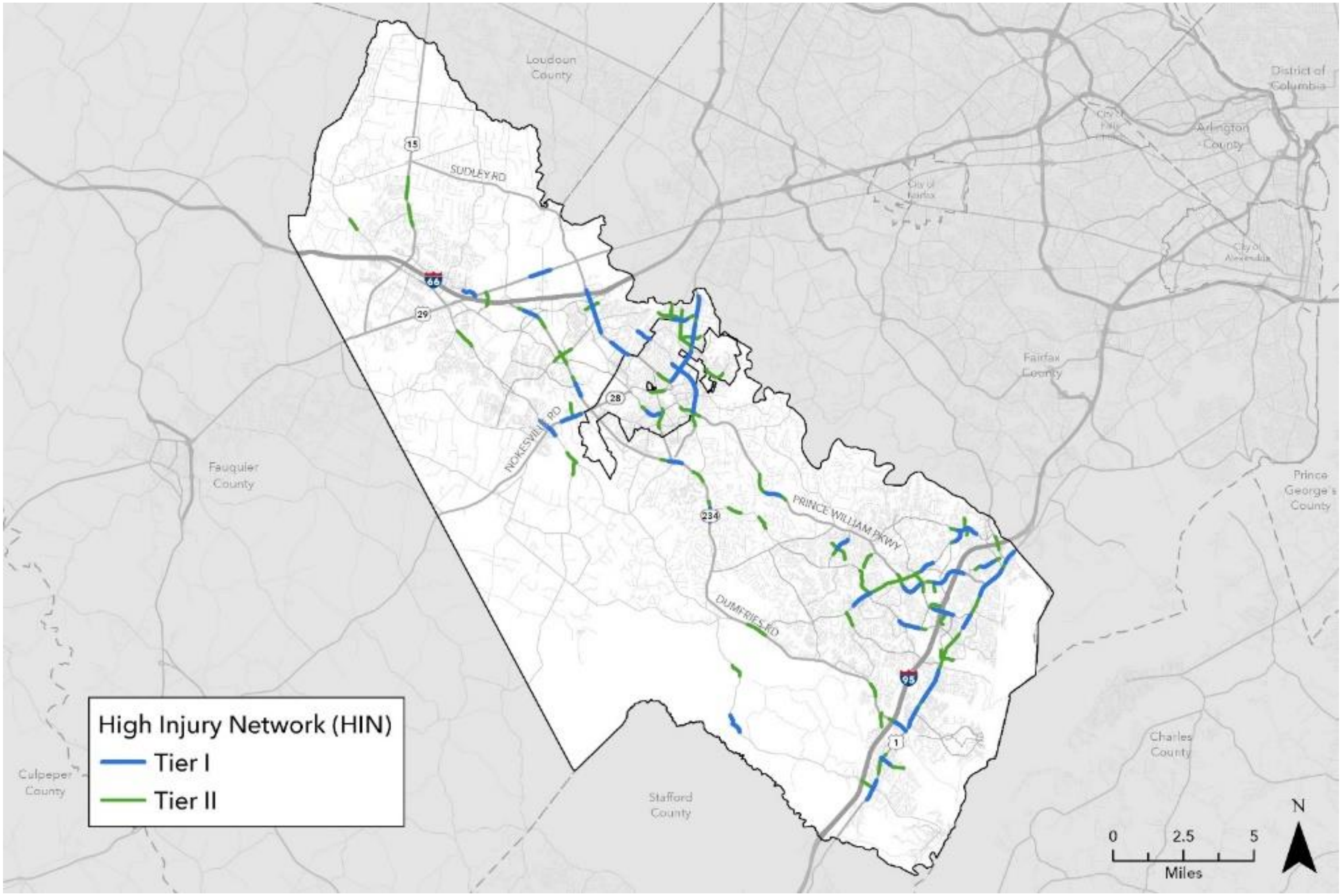


Figure 13: High Injury Network (HIN) results

High Risk Network (HRN)

The High Risk Network (HRN) is the product of the risk ratio analysis, which shifts the focus from where crashes have occurred to why they may be happening. The analysis examines roadway and intersection characteristics including posted speed limit, urban versus rural land use contexts, functional classification, intersection control, and intersection configuration. This offers insight into roadway and intersection characteristics that are more likely to contribute to FSI crashes. The analysis considered roadway segments and intersections separately, comparing the proportion of FSI crashes across key characteristics relative to their exposure (e.g., roadway miles or number of intersections). The resulting HRN (shown in **Figure 14** and **Figure 15**) identifies roadway segments and intersections as high-priority locations for proactive safety improvement strategies to mitigate safety risk across the network.

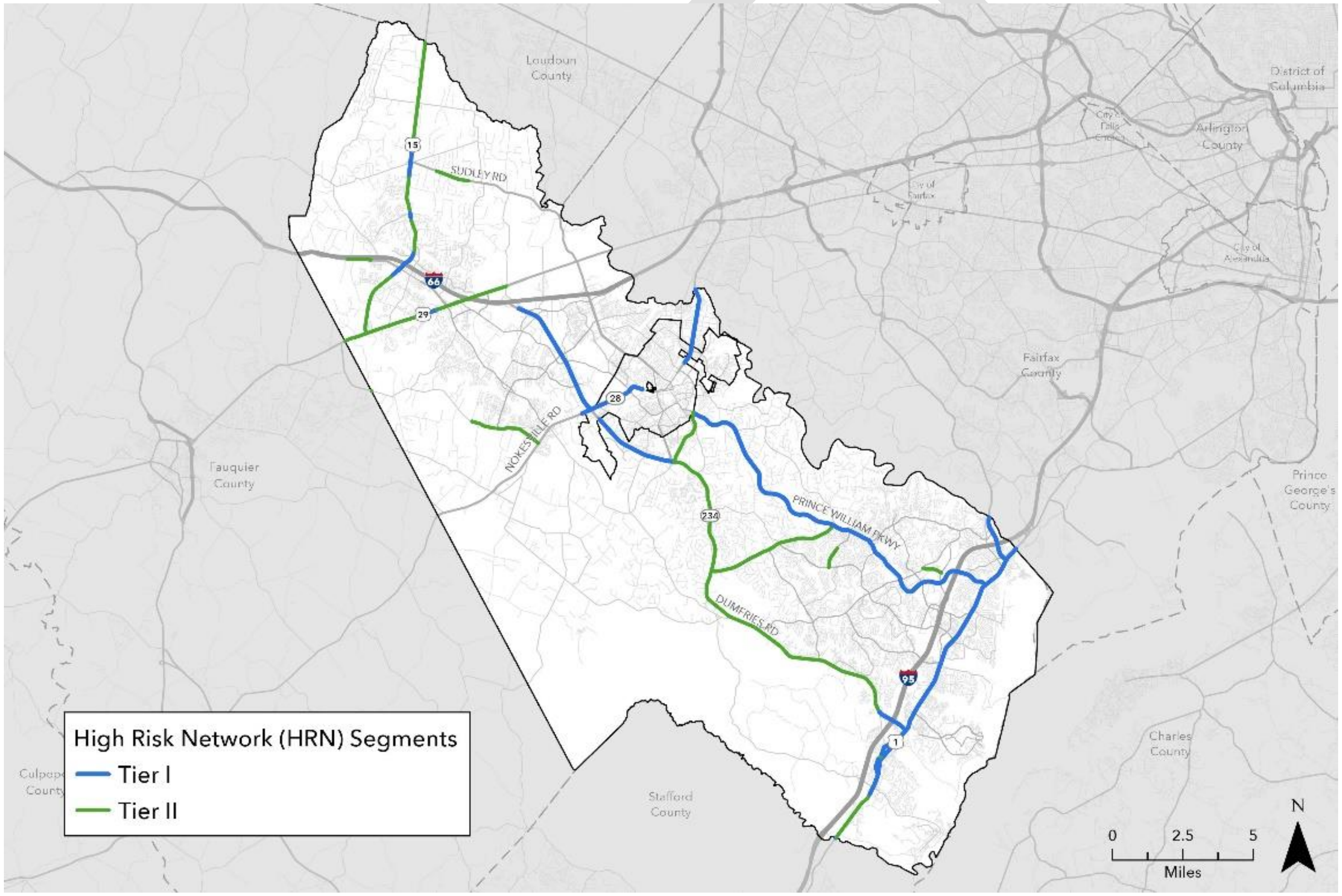


Figure 14: High Risk Network (HRN) segment results

Key Takeaways:

- The corridor analysis highlighted speed as a key factor in severe crash overrepresentation, with both urban and rural roads experiencing elevated risk at higher speeds (> 45 mph)
- The intersection analysis emphasized signalized intersections and higher-order functional classifications as key factors in severe crash overrepresentation. The following intersection characteristics were disproportionately represented:
  - Urban settings: Other Freeways and Expressways, Other Principal Arterial Roads, and Minor Arterial Roads
  - Rural settings: Other Principal Arterial Roads and Minor Arterial Roads
  - Urban and rural settings: signalized intersection

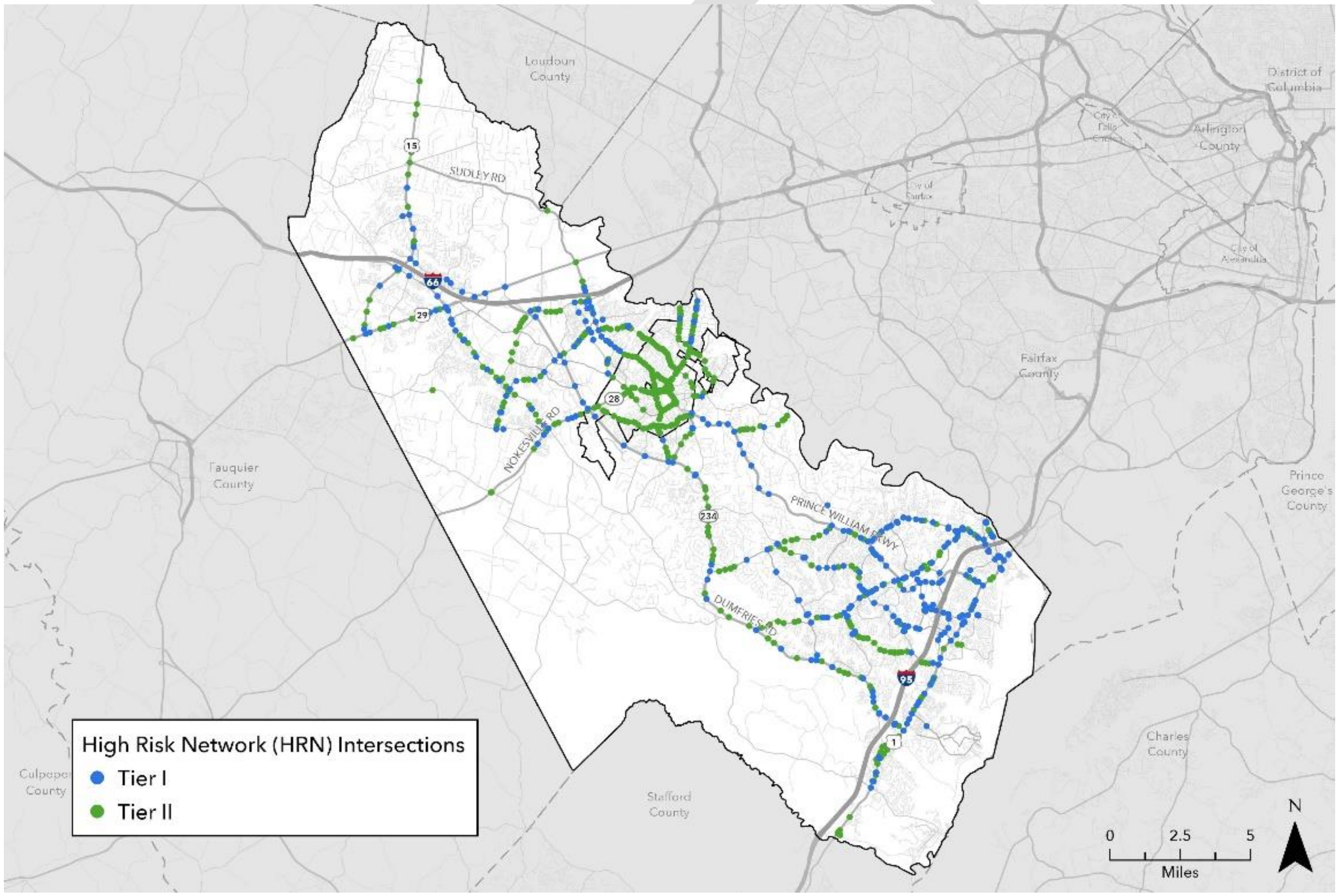


Figure 15: High Risk Network (HRN) intersection results

Crash Trends

While crashes involving impaired driving, speeding, or people walking and biking represent a relatively small share of all reported crashes, they account for a disproportionate number of fatal and serious injury (FSI) outcomes in Prince William County.

Impaired Driving

Most crashes (92%) involved non-impaired drivers. Although only 8% of all crashes involved impaired drivers, these crashes accounted for a disproportionate 24.2% of all fatal and serious injury (FSI) crashes. Crashes involving impaired drivers were nearly four times more likely to result in an FSI (10.5%) compared to crashes involving non-impaired crashes (2.8%).

Pedestrian and Bicycle

Crashes involving pedestrians and bicyclists make up a small share of total crashes (2.1%), but they accounted for a disproportionate 18.7% of all FSI crashes. Pedestrians are especially vulnerable, with 37.3% of pedestrian-involved crashes resulting in FSI. Crossing at an intersection accounted for the highest number of pedestrian crashes (42.8%), with the remainder involving non-intersection crossings, walking along the roadway, or other circumstances. Bicycle crashes also had elevated severity, with nearly 1 in 5 resulting in FSI, and 95.1% resulting in some level of injury. In contrast, only 33.1% of vehicle-only crashes resulted in any injury, underscoring the heightened risk of pedestrians and bicyclists.

Speeding

The majority of crashes (84.8%), including most FSI crashes (70.3%), involved non-speeding vehicles. While speeding is a factor in only 15.2% of total crashes, these crashes were disproportionately severe, accounting for 29.7% of all FSI crashes. Crashes involving speeding were more than twice as likely to result in an FSI (6.7%) compared to non-speeding crashes (2.9%).

Driver Age

Drivers aged 25 and under account for 40.6% of all crashes and 38% of all FSI crashes. Drivers 65 and older account for the smallest share of total crashes (12.7%) as well as 12.5% of all FSI crashes. Drivers aged 26 to 64 account for 46.8% of all crashes and 49.5% of all FSI crashes.

Prioritization of Projects

Prioritization of Projects

As detailed in the Safety Analysis section, High Injury Network (HIN) segments represent targeted locations for reactive safety projects, while High Risk Network (HRN) segments and intersections represent areas to target proactive safety strategies. Project locations were prioritized separately in three groupings: HIN, HRN segments, and HRN intersections.

Project locations were scored based on their alignment with specific CTSAP project criteria within themes of: Equity, Safety and Vulnerable Users, Connectivity, Accessibility, and Public Input. **Appendix C** shows the matrix of prioritization criteria. This list of criteria is a result of a process which included identifying a draft set of criteria based on County priorities, and adjusting and refining the criteria based on feedback and input from community members and the CTSAP Planning Committee.

The CTSAP team also recognizes that the County has limited resources (money, time, personnel, equipment) to fulfill the recommendations for safety improvement in this plan. With that in mind, project prioritization is an essential component of a thorough plan of action. For this CTSAP, the prioritization process allowed the County to assess the identified HIN and HRN through a lens designed around County values. The resulting prioritized list of projects allows the County to have a better understanding of which corridor infrastructure projects may have the greatest impact toward addressing roadway safety concerns while making Prince William a more connected, convenient, and comfortable place to live, work, and visit across all modes of travel.

Equity

In consideration of equity for the prioritization process, the project locations were overlayed with three equity-focused geographies (seen in **Figure 16**):

Metropolitan Washington Council of Governments (MWCOG) Equity Emphasis Areas

- Census tracts identified with high concentrations of low-income individuals and/or traditionally disadvantaged racial and ethnic population groups (Equity Emphasis Areas for TPB's Enhanced Environmental Justice Analysis - Environmental Justice | Metropolitan Washington Council of Governments)

Justice40 Climate and Economic Justice Screening Tool (CEJST) Disadvantaged Census Tracts

- Identifying communities with significant environmental, social, and/or economic burdens (Need source)

U.S. Department of Transportation (USDOT) Areas of Persistent Poverty

- Identifying census tracts with at least 20 percent poverty rate according to the American Community Survey (MPDG - Areas of Persistent Poverty and Historically Disadvantaged Communities | US Department of Transportation)

A project was allocated 1 point for each type of equity geography that it fell within or adjacent to (within a 100-foot buffer of equity area).

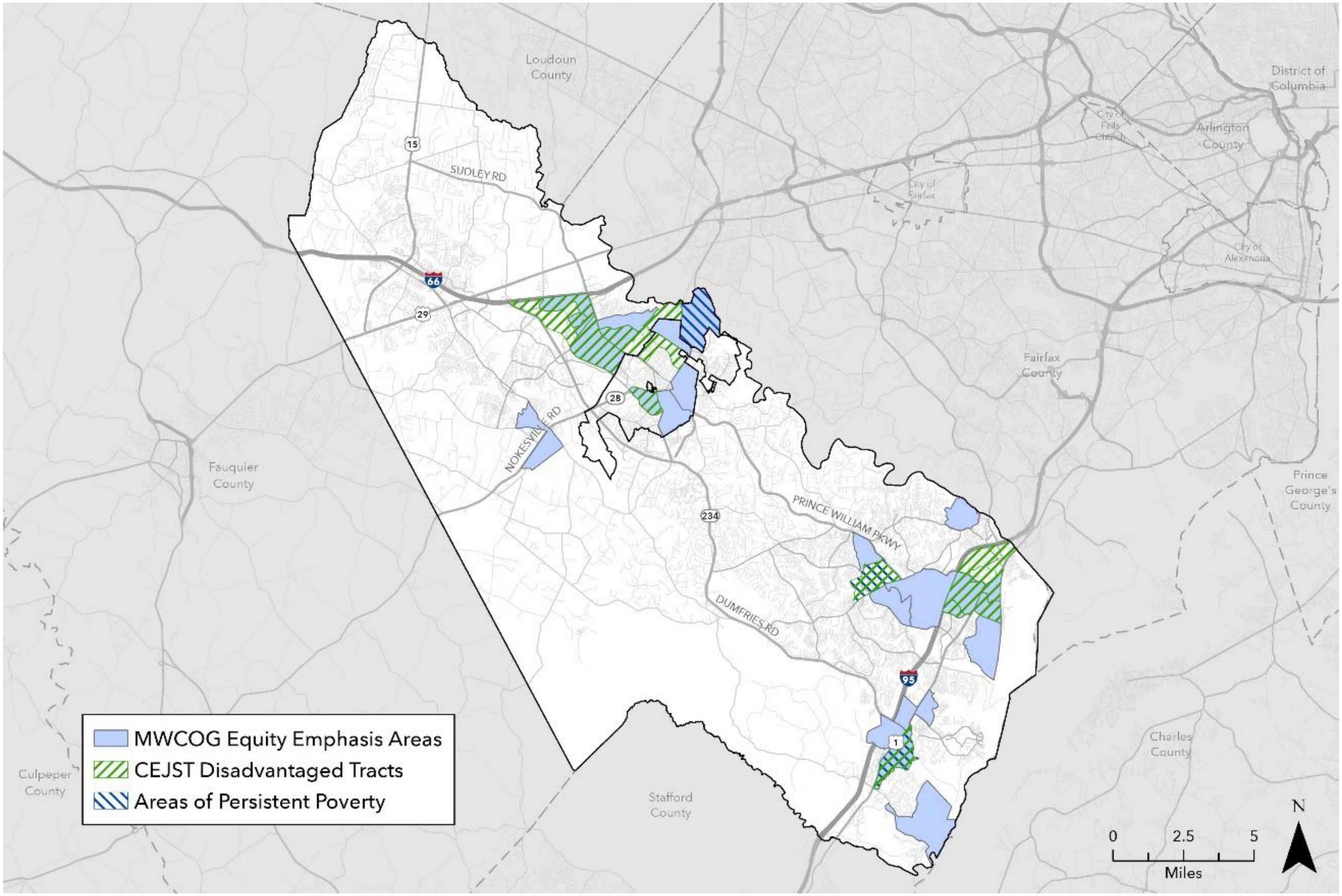


Figure 16: Equity Areas for Prioritization

Safety and Vulnerable Users

Criteria under the theme of Safety and Vulnerable Users included proximity to schools, concentration of crashes involving bicyclists and pedestrians in the project area, and the severity tier of HIN/HRN project locations.

School Zones Catchment Areas

Projects were also given a point if any part of the segment/intersection fell within a ½ mile buffer of a Prince William County School, as seen in **Figure 17**. This included elementary, middle, and high schools as well as learning centers and alternative schools, but did not include private day schools, preschools, or colleges/universities. In addition, the County completed a Safer Schools Analysis as a component of the CTSAP effort. Through this analysis, high priority schools for improved roadway safety were identified, including:

- River Oaks Elementary School
- Westridge Elementary School
- McAuliffe Elementary School
- Enterprise Elementary School
- King Elementary School
- Henderson Elementary School
- Dale City Elementary School
- Kerrydale Elementary School
- Minnieville Elementary School
- Neabsco Elementary School
- Kilby Elementary School
- Potomac View Elementary School
- Yorkshire Elementary School
- Loch Lomond Elementary School
- Sudley Elementary School
- West Gate Elementary School
- Lake Ridge Elementary School
- Coles Elementary School
- Vaughan Elementary School
- Haymarket Elementary School
- Bel Air Elementary School
- Benton Middle School
- Marsteller Middle School
- Potomac Shores Middle School
- Colgan High School
- Gainesville High School

Data Source: Prince William County

To honor the results of the Safer Schools Analysis, an additional point was allocated to project locations within a ½ mile buffer of any school included in the above list.

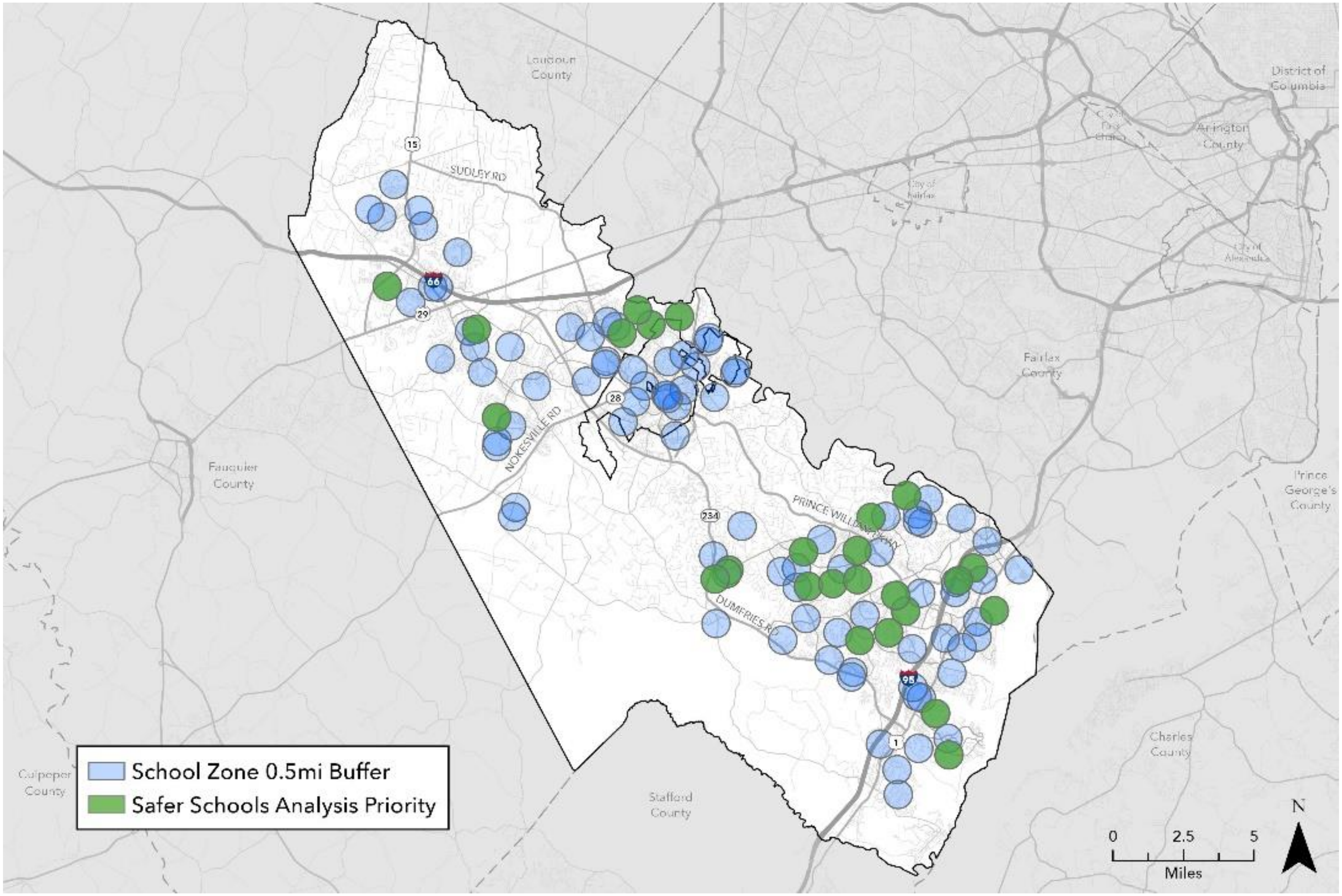


Figure 17: School Zones for Prioritization

Bicycle/Pedestrian Crashes

Additionally, because bicycle and pedestrian crashes were not factored into the identification of the HIN and HRN, each project was allocated 1 point for each bicycle/pedestrian crash (seen in **Figure 18**) within a 100-foot buffer of the project corridor.

Data Source: VDOT Pathways for Planning

HIN/HRN Severity Tier

As discussed in the safety analysis section of this plan, the HIN and HRN were each broken into two tiers of differing severity. These tiers are visualized in **Figure 13**. For prioritization, the higher tier severity projects were allocated 2 points, and the lower tier projects were allocated 1 point.

Data Source: CTSAP Safety Analysis

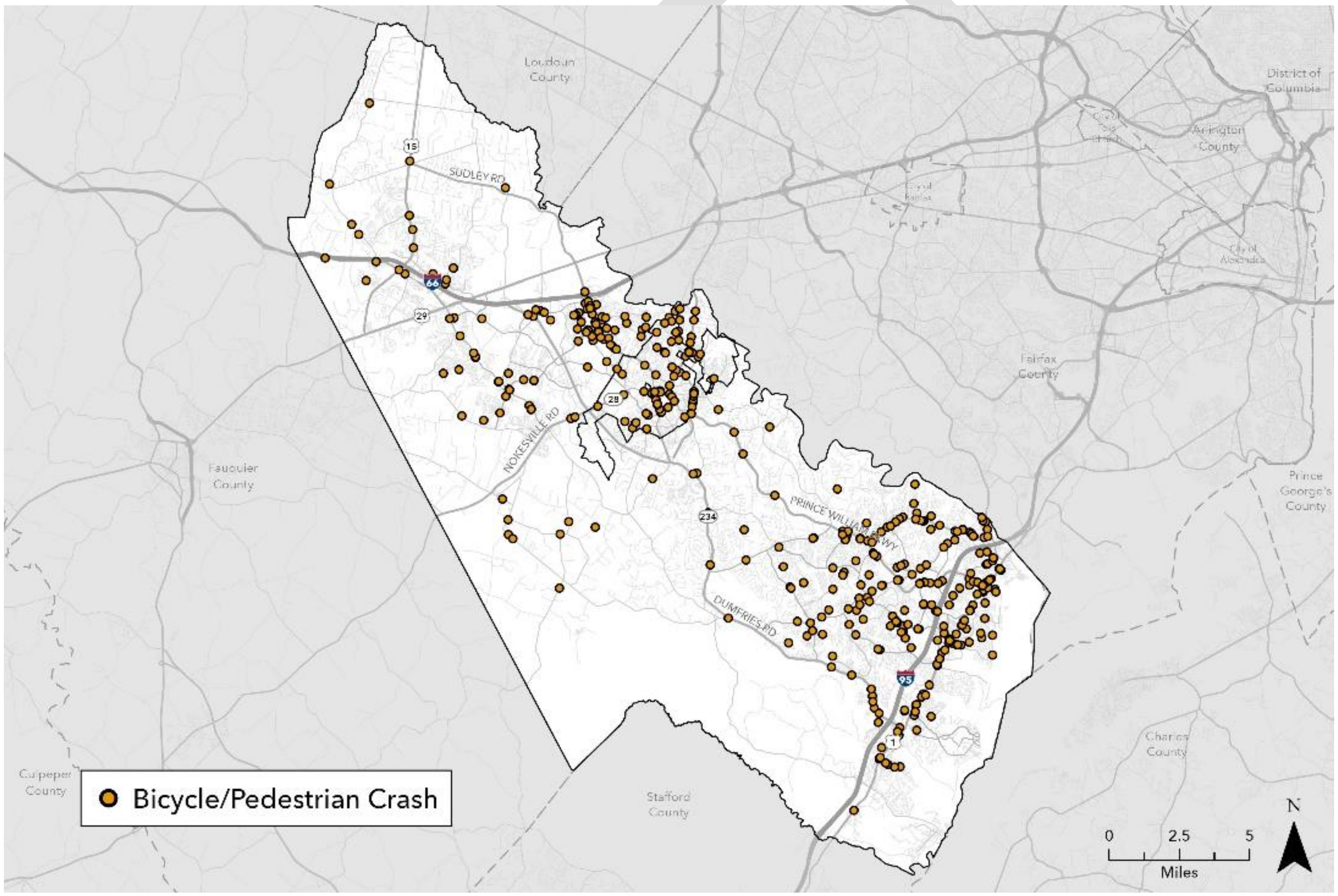


Figure 18: Bicycle/Pedestrian Crashes for Prioritization

Connectivity

Multimodal connectivity was also factored into the prioritization of project locations by assessing existing bicycle and pedestrian facility gaps and transit accessibility in the project area.

Bicycle/Pedestrian Gaps

In anticipation of the development of this CTSAP, the project team conducted a bicycle and pedestrian network analysis in 2024 to identify gaps in the network that are missing multimodal infrastructure for countywide connectivity and accessibility (**Appendix D**). A result of that analysis included an inventory of roadway segments throughout the County that have no existing bicycle or pedestrian infrastructure, seen in **Figure 19**. Using this data, CTSAP project locations were given 1 point if a bicycle or pedestrian gap exists within a 100-foot buffer of the project.

Data Source: Prince William County

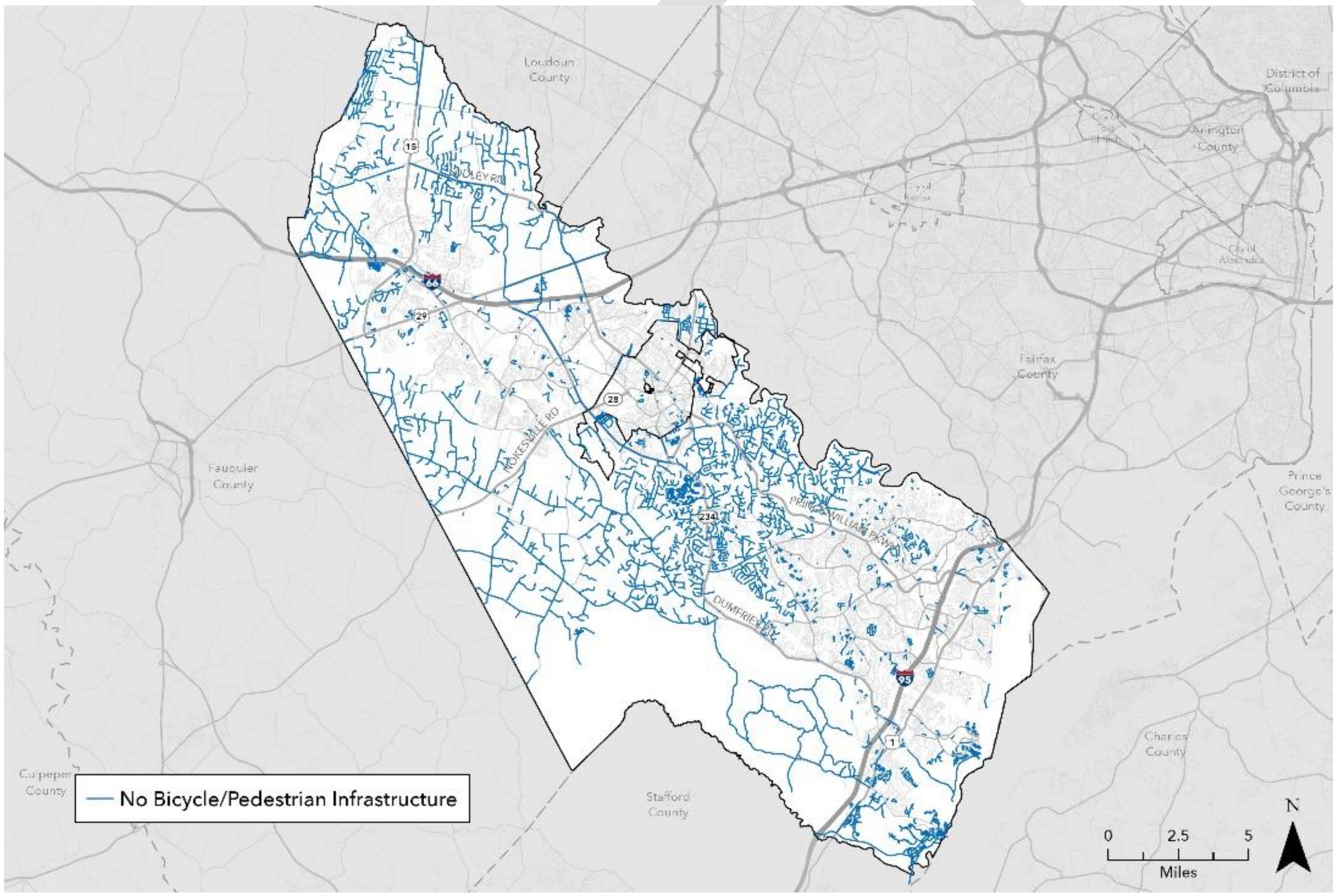


Figure 19: Bicycle/Pedestrian Gaps for Prioritization

Transit

In addition, prioritization focused on safety improvements in transit accessible locations to improve the comfortability of first and last mile connections for transit trips. Project locations were given 1 point if a bus or rail stop (seen in **Figure 20**) fell within a ¼ mile buffer of the project.

Data Source: OmniRide, Prince William County

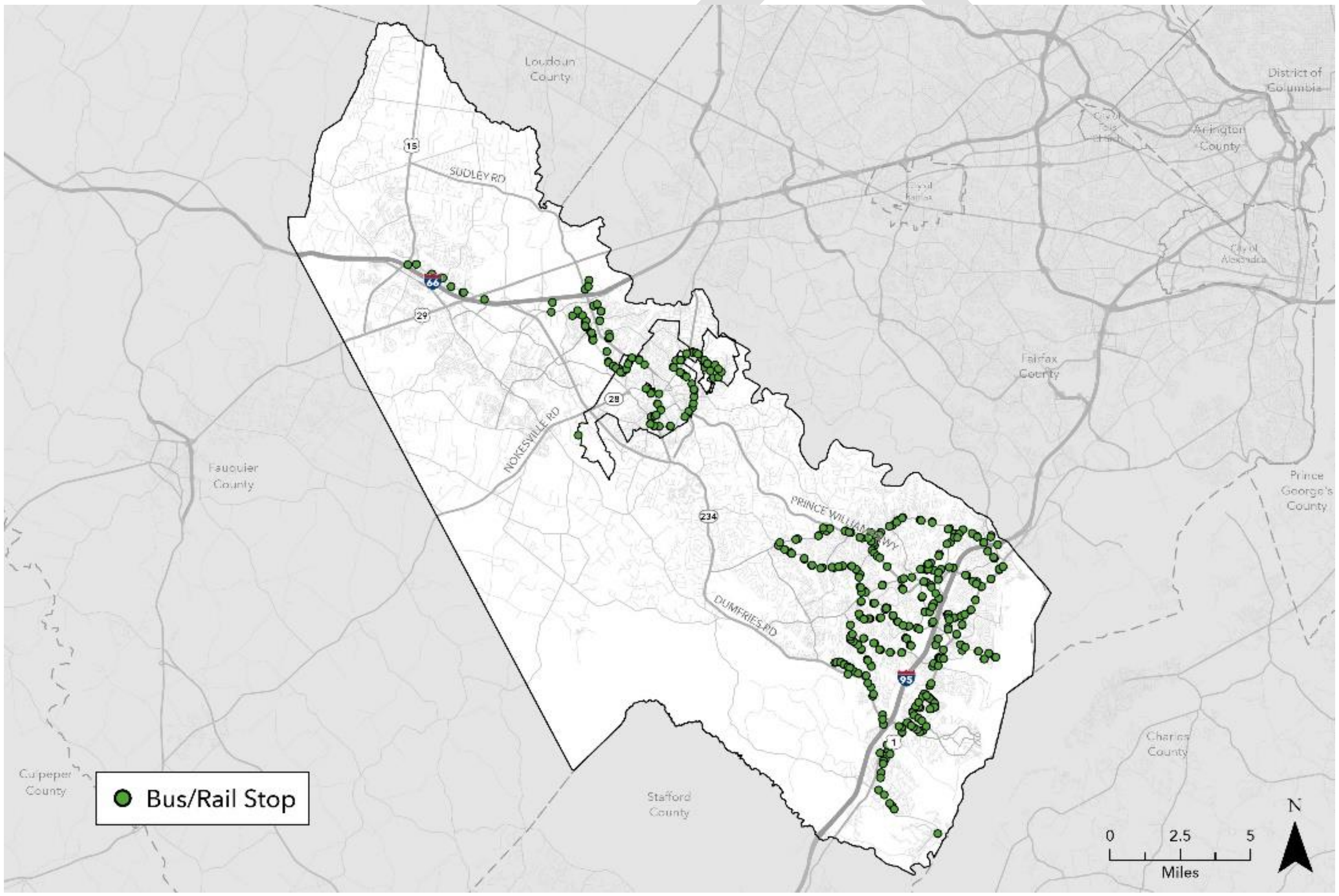


Figure 20: Transit Stops for Prioritization

Accessibility

To prioritize accessibility to key locations and areas in the County, projects were prioritized if they were within or adjacent to a designated town or city, a County-identified activity center or Small Area Plan, or an area of future population or employment growth.

Activity Centers and Small Area Plans

In the County's Comprehensive Plan, small area plans were developed to direct growth to key locations throughout the County. In addition, the County identified several activity centers throughout the County for consideration in the CTSAP process. Project locations were allocated 1 point if they were within a 100-foot buffer of a County-identified activity center or small area plan (seen in **Figure 21**).

Data Source: Prince William County

Towns and Cities

As previously mentioned, Prince William County contains the Independent Cities of Manassas and Manassas Park, as well as the incorporated towns of Dumfries, Haymarket, Occoquan, and Quantico. These represent higher density, higher activity areas within the County. Projects were given 1 point for being within a 100-foot buffer of these designated towns or cities (seen in **Figure 21**).

Data Source: Prince William County

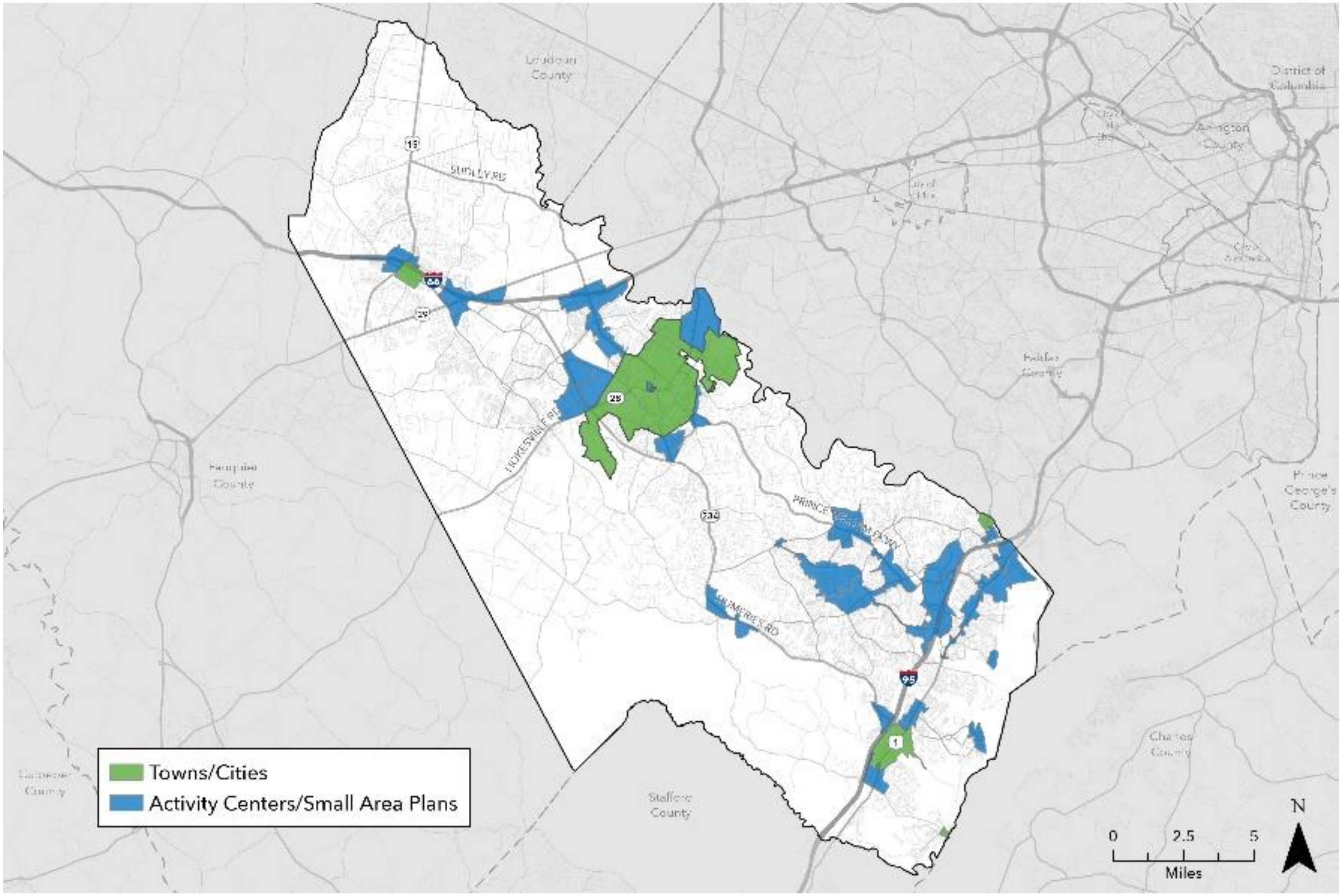


Figure 21: Towns, Cities, Small Area Plans, and Activity Centers for Prioritization

Future Growth

To highlight areas of future growth, MWCOG Cooperative Forecast data was used for projections in population and employment by Traffic Analysis Zone (TAZ). With this data, the project team calculated the percentage change in population and employment density over the next decade (2025-2035). For prioritization scoring, a project location received 1 point if it was within a 100-foot buffer of a TAZ in the top 20 percent of the County for this percent change in density (seen in **Figure 22).** Points were awarded separately for both population and employment density.

Data Source: MWCOG Cooperative Forecast, Round 10.0

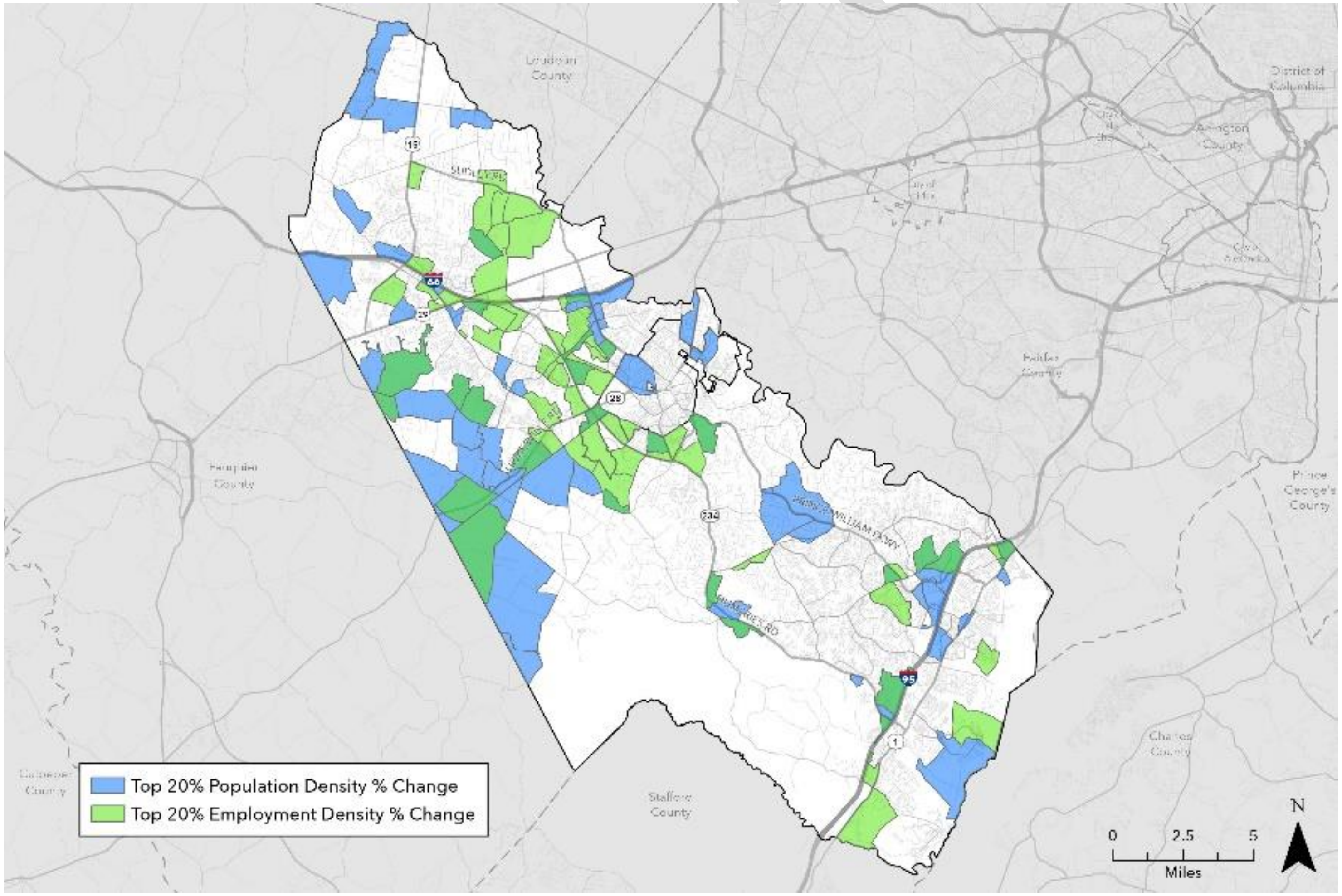


Figure 22: Future Growth Areas for Prioritization

Public Input

The project team received 116 location-specific comments and concerns from community members through the engagement efforts for this CTSAP (seen in **Figure 23**). To factor this important public feedback into the project prioritization process, the project team converted the comment points from the online map into spatial data and awarded 1 point to any project that was within a ½ mile buffer of a public comment point.

Data Source: CTSAP Public Engagement

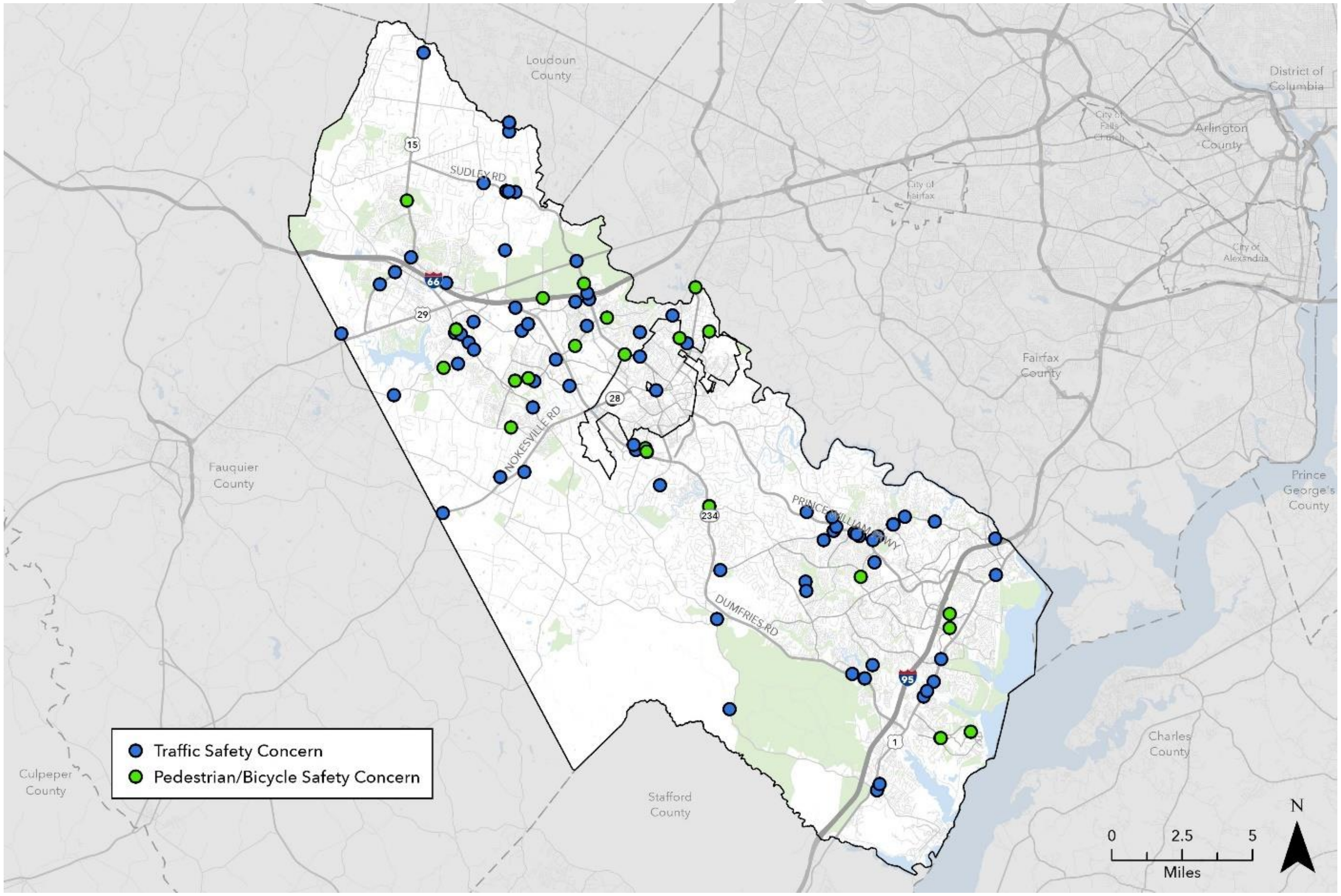


Figure 23: Public Comment Points for Prioritization

Prioritization Results

Prioritization points were tallied across all criteria to obtain an overall Priority Score for each project location. Based on natural breaks in point totals, the HIN segments, HRN segments, and HRN intersections were each divided into 3 tiers, with Tier 1 representing projects with the highest priority and Tier 3 representing the lowest. The remainder of this section details and visualizes Tier 1 (highest priority) projects for HIN segments (**Table 2**, **Figure 26**, **Figure 27**) and HRN segments (**Table 3**, **Figure 28**, **Figure 29**). Prioritization results in full detail can be found in **Appendix E**.

Projects Already Endorsed for Funding

As previously mentioned, the Safety Analysis for this CTSAP used crash data from 2018-2022. As a result of this, several of the segments identified in the High Injury and High Risk Networks have had infrastructure projects or safety studies endorsed for funding in the 3 years between the window of data and the adoption of this plan. These HIN and HRN segments with projects already endorsed for funding can be seen in **Figure 24** and **Figure 25.** In addition, the Tier 1 HIN and HRN results tables in the remainder of this section include any projects already endorsed for funding along each segment. A more detailed table of information about each project already endorsed for funding can be found in **Appendix J**.

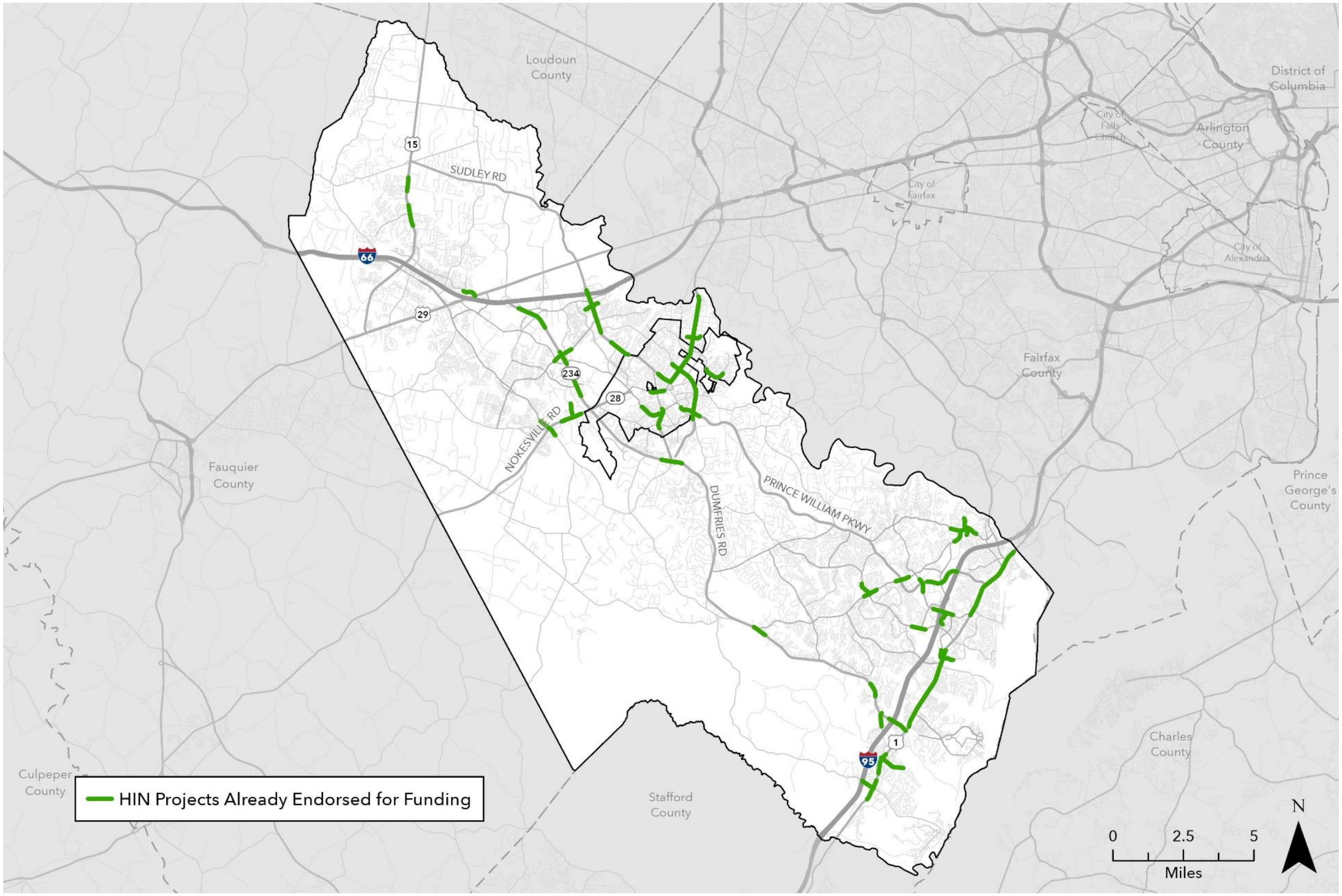


Figure 24: HIN segments with projects already endorsed for funding

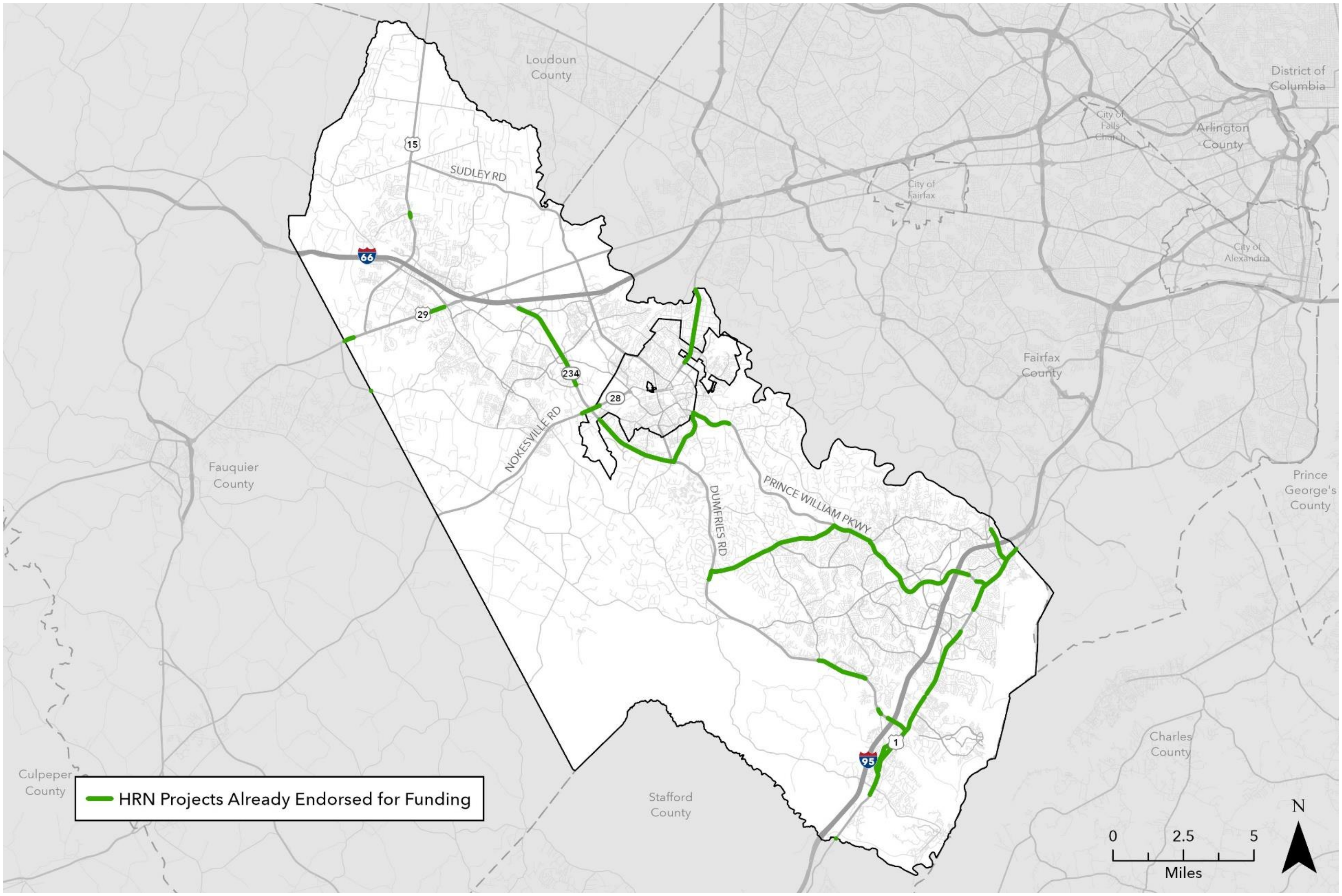


Figure 25: HRN segments with projects already endorsed for funding

High Injury Network – Priority Tier 1
Project Locations

Road Name	Map Reference ID	Priority Score	Equity	Safety & Vulnerable Users	Connectivity	Accessibility	Public Input	Projects Already Endorsed for Funding
Richmond Highway	42	17	2	11	1	2	1	Route 1 Widening
Richmond Highway	3	16	2	11	1	1	1	Route 1 Widening
Sudley Road	48	16	2	9	1	3	1	Sudley 234B STARS Study
Sudley Road	2	15	2	9	1	2	1	Sudley 234B STARS Study
Sudley Road	18	15	2	8	1	3	1	Sudley 234B STARS Study
Richmond Highway	22	15	2	9	1	2	1	Route 1 Widening
Prince William Parkway	110	14	3	7	1	3	0	
Minnieville Road	131	14	3	7	1	3	0	Minnieville SPUI
Old Centreville Road	133	14	3	6	1	3	1	
Coverstone Drive	158	14	2	7	1	3	1	Sudley 234B STARS Study
Sudley Road	12	13	2	7	1	2	1	Sudley 234B STARS Study
Sudley Road	27	13	2	5	2	3	1	Sudley 234B STARS Study
Richmond Highway	33	13	2	7	1	2	1	
Rugby Road	58	13	3	5	1	3	1	
Liberia Avenue	70	13	1	9	1	2	0	City of Manassas Projects
Richmond Highway	80	13	2	8	1	2	0	
Old Centreville Road	93	13	3	5	1	3	1	
Centreville Road	96	13	2	6	1	3	1	Route 28 Innovative Intersections
Fraley Boulevard	123	13	3	5	2	3	0	Fraley Blvd Improvments
Center Street	124	13	2	6	1	3	1	City of Manassas Projects
Centreville Road	143	13	3	5	1	3	1	
Sudley Road	7	12	2	4	2	3	1	Sudley 234B STARS Study
Old Bridge Road	17	12	1	9	2	0	0	OBR - Minnieville Study
Richmond Highway	28	12	2	7	1	1	1	Route 1 Widening
Old Bridge Road	37	12	1	9	2	0	0	OBR - Minnieville Study
Sudley Road	45	12	2	6	1	2	1	Sudley 234B STARS Study
Sudley Road	55	12	2	3	2	4	1	Sudley 234B STARS Study
Graham Park Road	71	12	3	6	2	1	0	Fraley Blvd Improvments
Minnieville Road	75	12	3	5	1	3	0	
Old Centreville Road	95	12	2	4	2	3	1	
Richmond Highway	116	12	2	7	1	2	0	Route 1 Widening
Prince William Parkway	5	11	2	4	2	3	0	
Centreville Road	38	11	2	5	1	2	1	Route 28 Innovative Intersections
Prince William Parkway	41	11	1	6	1	3	0	Prince William Pkwy STARS Study
Dale Boulevard	57	11	1	7	1	2	0	
Liberia Avenue	65	11	1	7	1	2	0	City of Manassas Projects
Liberia Avenue	69	11	1	7	1	2	0	City of Manassas Projects
Horner Road	89	11	1	5	1	3	1	
Old Centreville Road	91	11	2	4	1	3	1	
Rugby Road	145	11	3	3	1	3	1	

Table 2: High Injury Network (HIN) Tier 1 Priority Scores

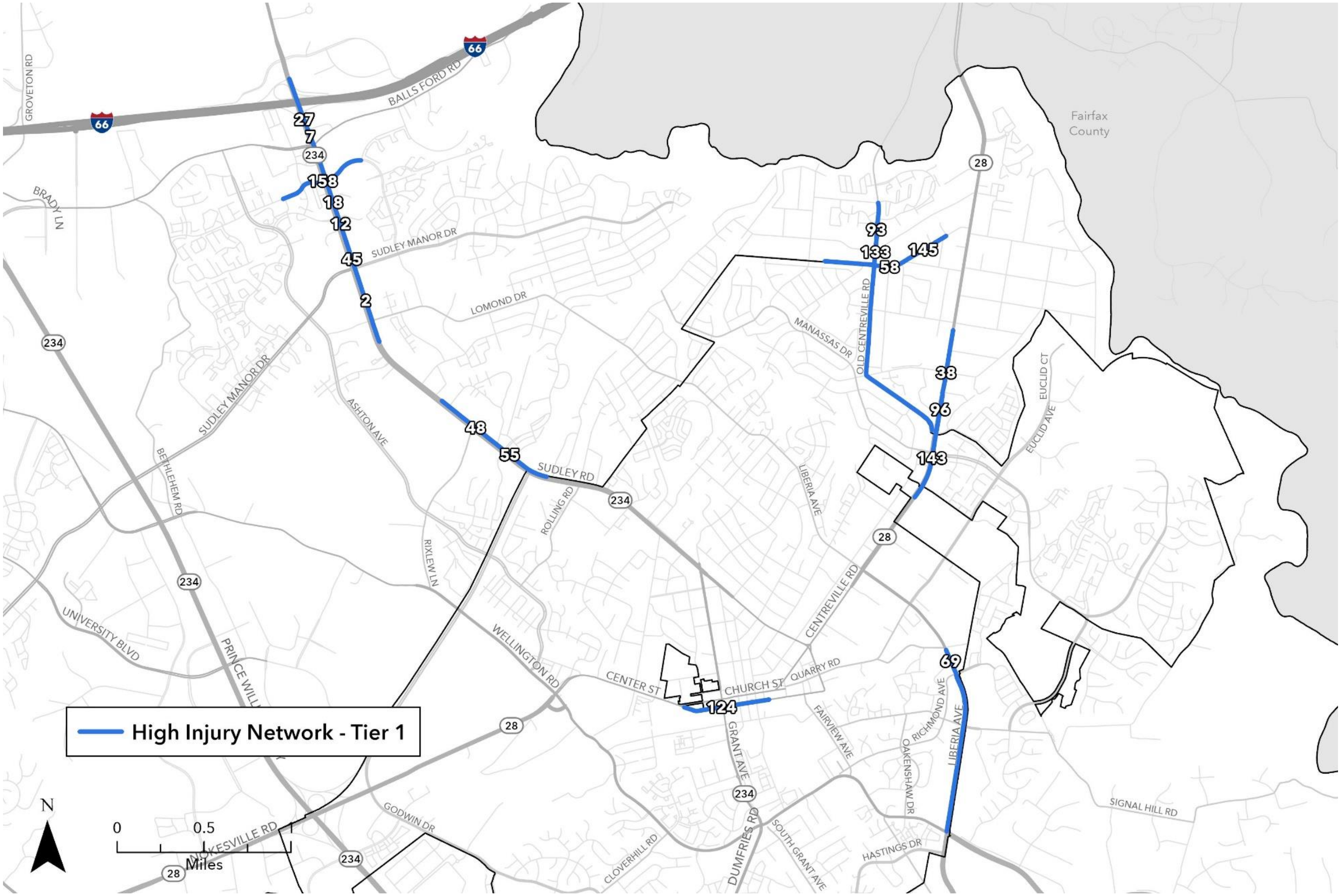


Figure 26: High Injury Network (HIN) Priority Tier 1 Locations (Inset #1)

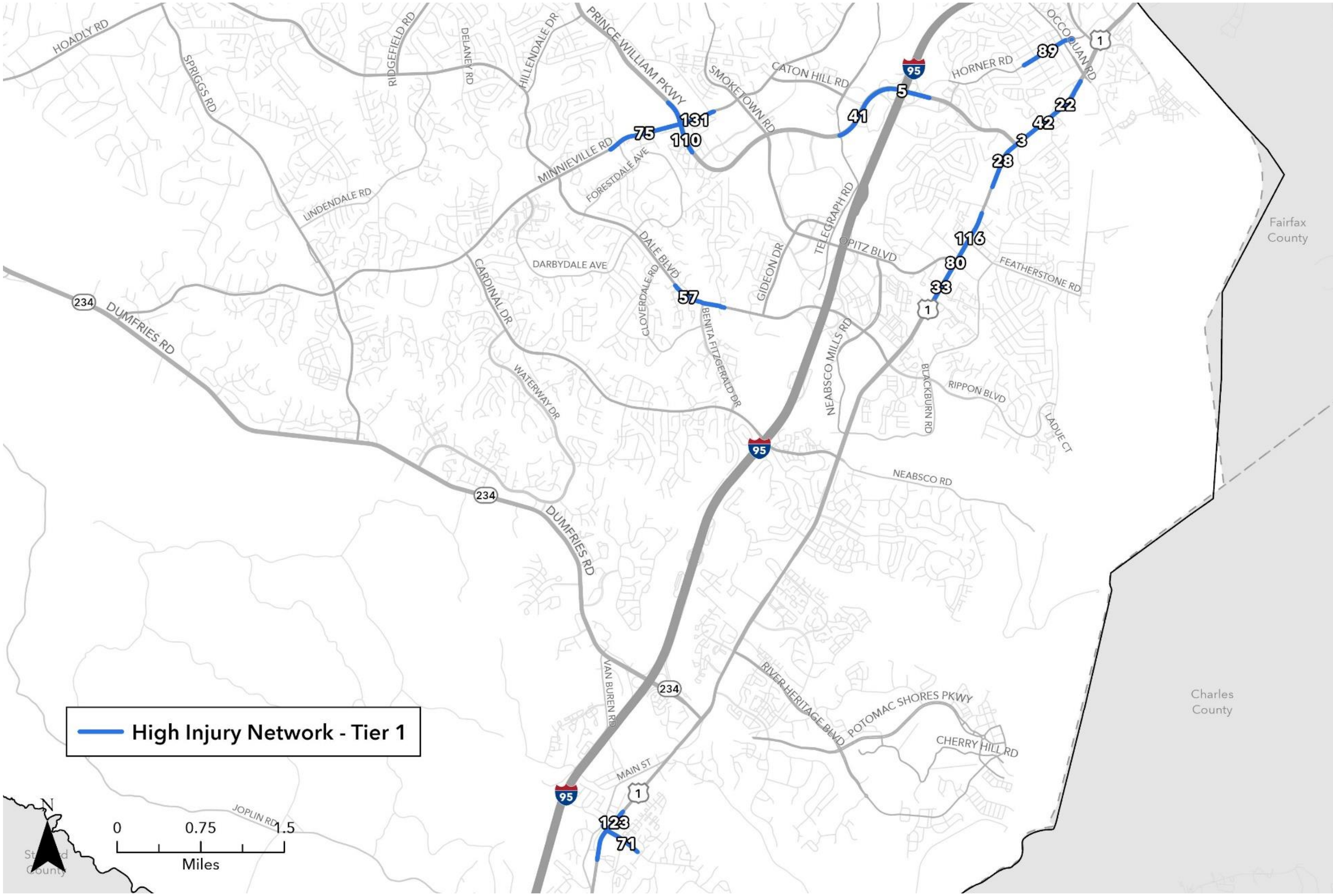


Figure 27: High Injury Network (HIN) Priority Tier 1 Locations (Inset #2)

High Risk Network – Priority Tier 1 Segments

Road Name	Map Reference ID	Priority Score	Equity	Safety & Vulnerable Users	Connectivity	Accessibility	Public Input	Projects Already Endorsed for Funding
Prince William Parkway	139	18	3	10	1	3	1	Quartz Minnieville SPUI
Richmond Highway	151	18	2	13	1	1	1	Route 1 Widening
Prince William Parkway	73	16	3	9	1	3	0	Prince William Pkwy STARS Study
Prince William Parkway	112	15	1	11	1	2	0	Prince William Pkwy STARS Study
Richmond Highway	171	15	2	10	1	2	0	Route 1 Widening
Richmond Highway	97	14	2	9	1	1	1	Route 1 Widening
Prince William Parkway	195	14	2	10	1	1	0	Route 1 Widening
Richmond Highway	14	12	2	7	1	2	0	
Richmond Highway	54	12	0	8	1	2	1	Neabsco Mills Road Widening
Centreville Road	60	12	1	6	1	3	1	Route 28 Innovative Intersections
Richmond Highway	75	12	2	5	1	3	1	Route 1 Widening
Richmond Highway	102	12	3	6	2	1	0	Fraley Blvd Improvments
Richmond Highway	114	12	3	4	2	3	0	Fraley Blvd Improvments
Richmond Highway	126	12	3	5	1	2	1	Route 1 - 234 Intersection Improvements
Richmond Highway	10	11	3	2	2	3	1	Fraley Blvd Improvments
Prince William Parkway	25	11	1	3	2	4	1	Liberia Development
Richmond Highway	26	11	3	2	2	3	1	
Centreville Road	48	11	2	4	1	3	1	Route 28 Innovative Intersections
Centreville Road	68	11	2	5	0	3	1	
Prince William Parkway	166	11	2	7	2	0	0	
Prince William Parkway	167	11	2	4	2	3	0	Prince William Pkwy - I95 Ped Crossing
Centreville Road	21	10	1	5	1	2	1	Route 28 Innovative Intersections
Richmond Highway	24	10	3	2	2	2	1	Fuller Heights Intersection Improvements
Prince William Parkway	82	10	1	4	2	2	1	Hoadly STARS Study
Hoadly Road	85	10	0	5	2	2	1	Hoadly STARS Study
Centreville Road	88	10	2	5	0	2	1	Route 28 Innovative Intersections
Richmond Highway	103	10	2	5	1	2	0	
Dumfries Road	113	10	0	5	1	3	1	
Prince William Parkway	147	10	1	3	2	4	0	Brentsville Interchange
Dumfries Road	159	10	3	3	2	2	0	Route 1 - 234 Intersection Improvements
Dumfries Road	186	10	1	4	1	3	1	234- Sudley Interchange
Main Street	187	10	3	2	1	3	1	Fraley Blvd Improvments

Table 3: High Risk Network (HRN) Segments Tier 1 Priority Scores

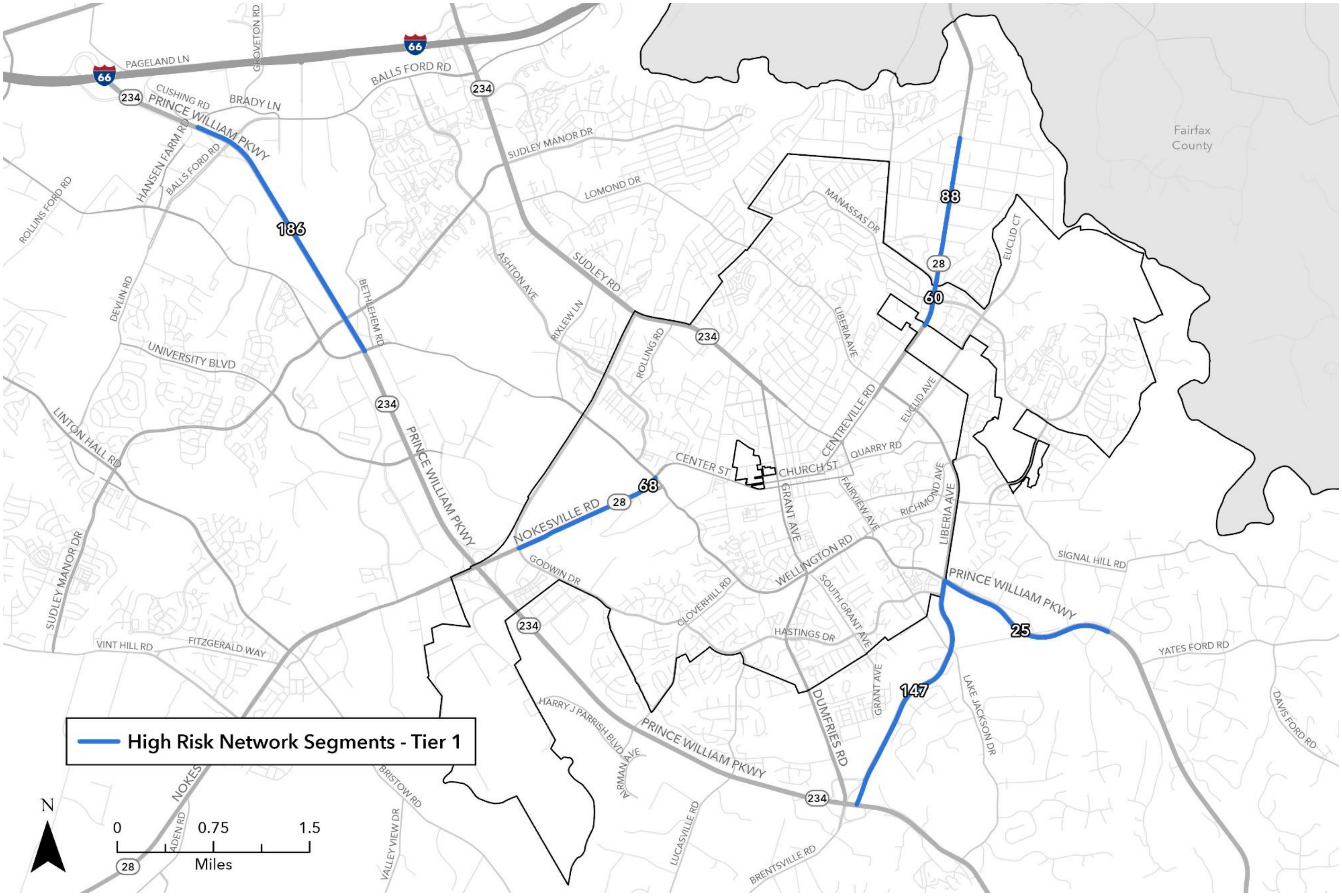


Figure 28: High Risk Network (HRN) Segments Priority Tier 1 Locations (Inset #1)

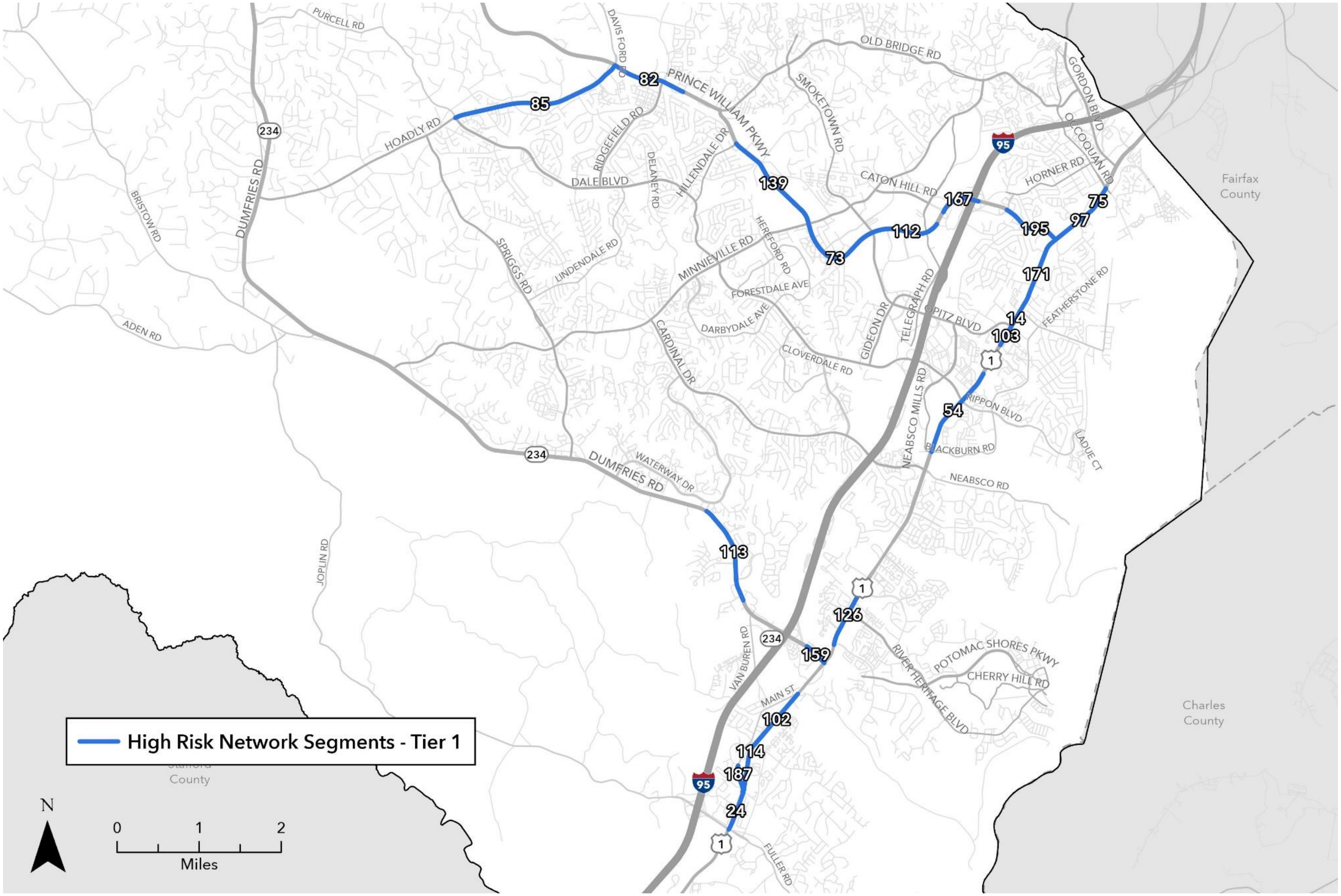


Figure 29: High Risk Network (HRN) Segments Priority Tier 1 Locations (Inset #2)

Safety Strategies and Countermeasures

Safety Strategies and Countermeasures

Developing transportation countermeasures and safety strategies is crucial in minimizing roadway fatalities and serious injuries in Prince William County. These measures are designed to enhance the safety of all road users, including drivers, pedestrians, cyclists, motorcyclists, and transit users. By implementing effective engineering and non-engineering countermeasures, we can address and mitigate various risk factors such as road infrastructure deficiencies, driver behavior, vehicle safety standards, and environmental conditions. These efforts not only save lives but also reduce the economic burden associated with traffic crashes, including medical costs, legal expenses, and lost productivity. Ultimately, a focused approach on transportation safety fosters a safer, more efficient, and reliable transportation system, contributing to the overall well-being of communities.

Countermeasures

Infrastructure Countermeasures

The Comprehensive Traffic Safety Action Plan is intended to provide candidate safety improvements that are recommended by the County to address safety challenges for a variety of road types and road users. This effort focuses on physical countermeasures including information related to where it is recommended to be used, the types of road users it is anticipated to benefit, how it is predicted to reduce crashes (Crash Modification Factors [CMF]), cost, timeline for implementation, implementation history, and whether the Countermeasure is VDOT approved.

As part of the CTSAP, 75+ countermeasures were identified for review by County staff, and following review approximately 30 countermeasures were recommended for inclusion in the CTSAP. The following countermeasures in **Table 4** are recommended for the County to implement as part of the CTSAP and are shown in more detail in **Appendix F**.

Table 4: Infrastructure Countermeasure Recommendations

Countermeasure Strategy	Description
High Visibility Crosswalks	Enhance safety with wide longitudinal lines or bar pair patterns to increase pedestrian awareness.
Rectangular Rapid Flashing Beacon (RRFB)	Uses alternating high-frequency flashing beacons to enhance pedestrian conspicuity at uncontrolled crossings.
Pedestrian Hybrid Beacon (PHB)	Traffic control device to help pedestrians safely cross higher-speed roadways at midblock crossings and uncontrolled intersections.
Pedestrian Median Refuge	Provides a protected refuge area in the median for pedestrians crossing multilane roads.
Curb Extensions	Extend the sidewalk or curb line into the parking lane to reduce the effective street width.
Speed Table	Raised area across the roadway to limit vehicle speed.
Raised Median Island	Constructed in the middle of a roadway to narrow travel lanes and reduce driving speeds.
Raised Intersection	Slows traffic through intersections and improves pedestrian safety.
High Friction Surface Treatment	Pavement treatments to reduce crashes associated with friction issues, especially in wet conditions.
Enhanced Delineation for Horizontal Curves	Various strategies to improve safety at horizontal curves, implemented individually or in combination.
Longitudinal Rumble Strips and Stripes	Increase pavement marking visibility and durability during wet or nighttime conditions.
Wider Edge Lines	Improve visibility of travel lane boundaries compared to traditional edge lines.
Variable Speed Limits	Allow speed limits to adapt to changing circumstances to reduce crash frequency and severity.
Speed Limit Optimization	Studies initiated for speed limit review due to public request, crash-prone locations, or other reasons.

Leading Pedestrian Interval (LPI)	Allows pedestrians to enter a crosswalk before vehicles receive a green indication, enhancing pedestrian visibility.
Roundabouts	Circular intersections that reduce vehicle speeds and conflict points, leading to lower crash risks.
Intersection Lighting	Improves visibility and safety for all roadway users with adequate illuminance levels.
Automatic Gates at Railroad Crossings	Barriers that activate upon train approach to prevent vehicles from crossing railroad tracks.
Road Diet	Reconfigures roadways to improve safety, calm traffic, and enhance mobility for all users.
Shared Use Paths	Extend multimodal networks for pedestrians and bicyclists.
Left-Turn Signal Type Changes	Modify left-turn operations at signalized intersections to improve safety and efficiency.
Systemic Low-Cost Countermeasures	Implement multiple low-cost safety measures at numerous stop-controlled intersections within a jurisdiction.
Automated Speed Enforcement	Uses speed cameras to enforce legal speed limits.
Plastic Inlaid Markers	Pavement markers to enhance lane visibility, especially at night or in inclement weather.
Double Solid White Lines	Indicate a no-passing zone approaching marked crosswalks on multi-lane roads.
Advanced Intersection Warning Signs	Alert drivers to upcoming intersections with street name plaques.
Median and Edge Fences	Prohibit pedestrians from crossing outside crosswalks to improve safety.
Pole Mounted Speed Display (PMSD)	Displays real-time vehicular speed to drivers dynamically.
Widen Shoulder Width	Improves safety, efficiency, and capacity by widening roadway shoulders.
Restricted Crossing U-Turn (RCUT)	Modifies left-turn and through movements to enhance corridor safety and reduce delays.

Safety Strategies

To accompany the physical infrastructure countermeasure recommendations, the CTSAP recommends systemic safety strategies that include safety initiatives, programs, and policies that aim at improving roadway safety. As part of this effort, stakeholders who play a role in roadway safety outside of the Prince William County Department of Transportation were consulted to discuss ongoing strategies and safety initiatives, current and predicted future challenges, and already identified needs and desires. These discussions helped the CTSAP team understand how resources can be leveraged for the long-term achievement of the significant improvements in roadway safety in Prince William County. Stakeholders that participated in the development of the safety strategies included:

- PWC Police Department
- PWC Emergency Communications
- PWC Fire and Rescue
- PWC Community Safety Office
- PWC Government Communications
- OmniRide
- PWC Public Schools
- PWC Trail Advocacy Groups and Parks and Recreation

The initial draft list of Safety Strategies included more than 25 strategies in which the County reviewed and reduced to approximately 15 strategies for inclusion in the CTSAP and can be found in detail in **Appendix G**.

Residential Traffic Management Guide

Another safety improvement initiative included in the CTSAP effort was reviewing and updating the Residential Traffic Management Guide (RTMG) for the County. Residential traffic calming focuses on slowing traffic in communities where cut-through traffic is not a problem. When most of the traffic volumes and speeding are generated from within the neighborhood, residential traffic calming aims to implement measures to reduce speeds.

This guide utilizes the recommendations identified in this plan to propose key infrastructure countermeasures and systemic safety strategies aimed at improving traffic safety on residential and local roads with speeds of 25 mph or less. Infrastructure countermeasures focus on physical roadway improvements at high-risk locations, while systemic strategies take a proactive approach to reducing risks across the transportation network. The RTMG is available in full detail in **Appendix H** and includes the following types of strategies and countermeasures.

Infrastructure Countermeasures

- Speed management countermeasures
- Pedestrian safety improvements
- Intersection safety enhancements
- Bicycle and multimodal facilities
- Roadway reconfiguration projects

Systemic Countermeasures/Safety Strategies

- Community engagement and education programs
- Data-driven planning strategies
- Neighborhood traffic management programs
- School and youth safety initiatives
- Vision Zero and proactive safety policies

Policy, Progress, and Performance Measures

Policy, Progress, and Performance Measures

Recommendations

In addition to the prioritized list of projects for targeted safety improvement, the CTSAP includes a list of recommended strategies that are essential for the County to implement to achieve the overall goal of reducing severe injuries and fatalities in the roadways. Each strategy is coupled with associated actions that offer specific direction, along with key performance metrics for each action.

The policy and process recommendations included in this plan were developed through a process that included:

- A review of relevant plans from peer communities
- Input from the Planning Committee
- Input from community members through public engagement

It is important to acknowledge that the County has limited resources (money, time, personnel, equipment) to fulfill the goals of this plan. However, the intent of these strategies, actions, and performance metrics is to allow the County to efficiently allocate resources to track and maintain progress toward overall plan goals.

The strategies and actions were built around the five elements of the **Safe System Approach:**

The following section details each recommended strategy and associated actions. A detailed table that includes performance metrics, reporting period, and partner departments or organizations can be found in **Appendix I.**

Create a Culture of Transportation Safety in the County

Collaboration, education, and outreach can create a community mindset toward safety and a shared responsibility to reduce dangerous roadway behavior.

1. **Create a Transportation Safety Working Group**
2. **Increase education and outreach focused on Transportation safety**
3. **Focus outreach and education on young or inexperienced users**
4. **Focus outreach and education on older or aging users**
5. **Focus outreach and education on bicyclists and pedestrians**

Maintain and Monitor Progress, Transparency, Accountability, and Accessibility of Transportation Safety Initiatives in the County

1. **Routinely update the CTSAP, assess progress, and make results publicly available**

2. Integrate CTSAP with other supporting plans for the County
3. Create a consistent crash reporting tool and system
4. Optimize and maximize efficiency of County resources

Improve Infrastructure for Safer Transportation Across the County

1. Improve infrastructure to prevent roadway departures
2. Implement measures that increase driver awareness to surroundings
3. Improve intersections to prevent intersection crashes
4. Promote separation of road users in and along the right-of-way

Promote Safer Speeds on County Roads

1. Improve enforcement of speeding
2. Implement traffic-calming infrastructure (non-residential)
3. Increase monitoring of speed on County corridors
4. Implement traffic-calming infrastructure on residential roads (25mph)

Increase Outreach, Education and Enforcement to Promote Safer Behavior on Roads

1. Monitor number of fatal and severe injury (FSI) crashes involving: Impaired Driving, Distracted Driving, Speeding, seatbelts, pedestrians, bicyclists
2. Increase enforcement of impaired and distracted driving
3. Increase education and outreach focused on impaired and distracted driving

Focus on Safer School Zones

1. Assess safety needs for school zones
2. Implement infrastructure for safety in school zones
3. Promote safe behavior in school zones

Encourage Safer, More Comfortable, and Better-Connected Mobility within the County

1. Promote and facilitate transportation alternatives
2. Monitor number of crashes involving bicyclists and pedestrians

3. Increase dedicated infrastructure for bicyclists and pedestrians
4. Increase comfortability of walking and biking in the County
5. Improve accessibility for bicyclists and pedestrians to key destinations
6. Improve accessibility for bus and transit alternatives
7. Develop safety guidelines for electric scooters and bicycles

Become a Leader in Implementing Innovative Solutions and Emerging Technologies to Create Safer Transportation

1. Increase automated enforcement across the County
2. Implement Vehicle-to-Everything (V2X) technology
3. Apply innovative solutions to improve safety at intersections and on roadways

Promote Safer Vehicles on County Roads

1. Promote safer commercial motor vehicles
2. Promote safer passengers
3. Promote safer vehicles on the road
4. Promote safer bicycles and cyclists
5. Promote connected and smart vehicles

Ongoing Local Jurisdictional Efforts

City of Manassas

While the City of Manassas has yet to develop a plan focused specifically on roadway safety, they are in the process of an update to their Mobility Master Plan. The plan identifies how existing roadways, transit access, bike and pedestrian facilities are serving the community, recommends improvements, and provides a guide for future transportation investments to improve mobility in the city. The recommended improvements and facilities from this plan will undoubtedly improve safety on roadways in the City, especially for bicyclists and pedestrians.

City of Manassas Park

The City of Manassas Park is currently in the process of developing a Vision Zero Action Plan with the goal of eliminating deaths and serious injuries on the City's transportation network. This plan is being developed in partnership with Prince William County under the same grant funding that the County has received from the FHWA SS4A for this CTSAP.

Incorporated Towns

Prince William's 4 incorporated Towns of Haymarket, Dumfries, Occoquan, and Quantico each conduct their own safety initiatives in addition to County-wide efforts. The County supports and seeks to partner with the towns in their localized safety initiatives.

Recommendations

Recommendations

Through the safety analysis, input from stakeholders and community members, and prioritization process, Prince William County has identified a list of initial prioritized projects, shown in **Table 5**. These projects will be the focus in the County's initial implementation efforts following the adoption of this CTSAP, and will allow the County to begin working effectively toward the safety goals identified in this plan.

Table 5: Initial Prioritized Projects

Initial Prioritized Projects	Total Cost	Description
	$11,250,000	**Implementation timeline is 24-36 months for all activities**
Streetlights	$500,000	Install and upgrade streetlights at intersections to express way lights on high speed multilane roadway intersections as identified by the HIN/HRN. Includes but not limited to intersections on PW Parkway, Rt 1, Rt 234, Rt 15, Rt 28, Rt 15, and Rt 29
Crash Data Pool and HIN/HRN Tools	$500,000	Continue to develop the existing crash screening and visualization tools to create a centralized roadway crash data pool and site inventory to include Fire and Rescue and 911 call center data integration and streamlining of Police Crash data. Data from the CTSAP screening and gap analyses will be integrated with other local data sets (bus routes, schools, developments, etc) and big data travel volume and speed data (Countywide)
234-28 Wedge Design and Implementation	$2,000,000	Expand the screening and initial assesment of the 234-28 Wedge to implement initial low- cost near term mitigation countermeasures and to design long term ultimate condition solutions. This will include Old Centerville Road, Manassas Drive, Yorkshire Lane, Rugby Road, Amherst Drive, Lomond Drive, Fairmont Avenue, Mathis Avenue and Liberia Road.
PWC Transportation Engagement Strategy	$200,000	Develop an integrated cross agency communication and engagement stragegy and implement it over the next 2 years. This will include PWC agencies (DOT, PD, F&R, Communications, OCS, Social Services) and external partners (PWCS, Omniride, VDOT, DMV) and neighboring Towns and Cities (Countywide)
High Crash Intersection Monitoring	$500,000	Develop and implement a crash monitoring and analysis tool to monitor and identify HIN signalized intersections that that will be suitable for Automated Traffic Light. Includes but not limited to intersections on PW Parkway, Rt 1, Rt 234, Rt 15, Rt 28, Rt 15, and Rt 29
PROWAG Intersection Upgrades	$1,500,000	Upgrade 10-20 pedestrian intersection crossings identified in the HIN/HRN analysis to current PROWAG standards (Countywide)
Roadway Departure Remediation	$1,000,000	Develop and implement low to medium cost roadway departure and intersection improvements on rural roads at locations identified by the HIN to include Joplin Road, Purcell Road, Groveton/Rt28 and Valleyview/Bristow Road.
CMV Truck Inspection Sites	$400,000	Conduct a safety review and identify locations with High CMV volume and design and build pull offs so PWC PD can safety inspect CMVs. Possible locations may include but not be limited to Rt 234, Rt 28, Rt 29, Fleetwood Drive.
SMART Connected Vehicle Infrastructure	$2,000,000	Demonstration Project to install SMART V2X technology at up to 16 HIN intesctions in the Potomac Mills Area and the safety benefits of the connected vehicle technolgy. The demonstration will specifically focus on F&R to show the benefits of this new technology over the current OPTICOM system, demostrate how this technolgy can improve the safety for bus operators, demonstrate the safety benefits of V2X for PWC PD for traversing intersections and responding to calls, in addition to making the technology available for the general motoring public with access to this technology. This will include PW Pkwy (294), Rt1, Opitz Road, Smoketown Road, Minnieville Road and Gideon Drive
Variable Message Boards	$2,000,000	Expand the NVTA "Route 234 Arterial Operations Improvements" project to include DMS/CCTV Sites for Posting Roadway Safety Messages on Prince William Parkway (Rt 294)
Safer Schools Project	$500,000	Complete an detailed safety analysis and implement medium and low cost pedestrian safety improvements in the walksheds of Schools indentified in the HIN (Countywide)
Minnieville Corridor Safety Audit	$150,000	Conduct a road safety audit and detailed study and analysis of the Minnieville Road HIN corridor from Caton Hill to Spriggs Road.

Appendices

Prince William County Comprehensive Traffic Safety Action Plan

Appendices

- A: Public Engagement Summaries
- B: HIN/HRN Methodology
- C: Complete Prioritization Scoring Matrix
- D: Bicycle and Pedestrian Gap Analysis
- E: Prioritization Results
- F: Countermeasure Toolkit
- *G: Safety Strategies – to come*
- H: Residential Traffic Management Guide
- *I: Performance Measures Matrix – to come*
- J: Projects Already Endorsed for Funding

Appendix A

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PRINCE WILLIAM COUNTY

Comprehensive Traffic Safety Action Plan

Towards Zero Planning Committee Kickoff

January 13, 2025

Agenda

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PRINCE WILLIAM COUNTY

- What are Safe Streets and Roads for All (SS4A) and a Comprehensive Traffic Safety Action Plan (TSAP)?
- TSAP Components
- TSAP Engagement
- Committee Roles + Responsibilities
- Interactive Exercise
- Next Steps

What is SS4A?

The **Safe Streets and Roads for All (SS4A)** program was established by USDOT through the Bipartisan Infrastructure Law in 2021

SS4A grants fund the planning and implementation of infrastructure projects, policies, and programs which **prevent roadway deaths and serious injuries**

In 2023, Prince William County received **$992,000** in federal grant funding for a Comprehensive Traffic Safety Action Plan (SAP)

- Supplemented by **$218,000** match from Prince William County
- Supplemented by **$30,000** match from the City of Manassas Park
- **In total, $1.24M** in funds to support safer mobility in Prince William County

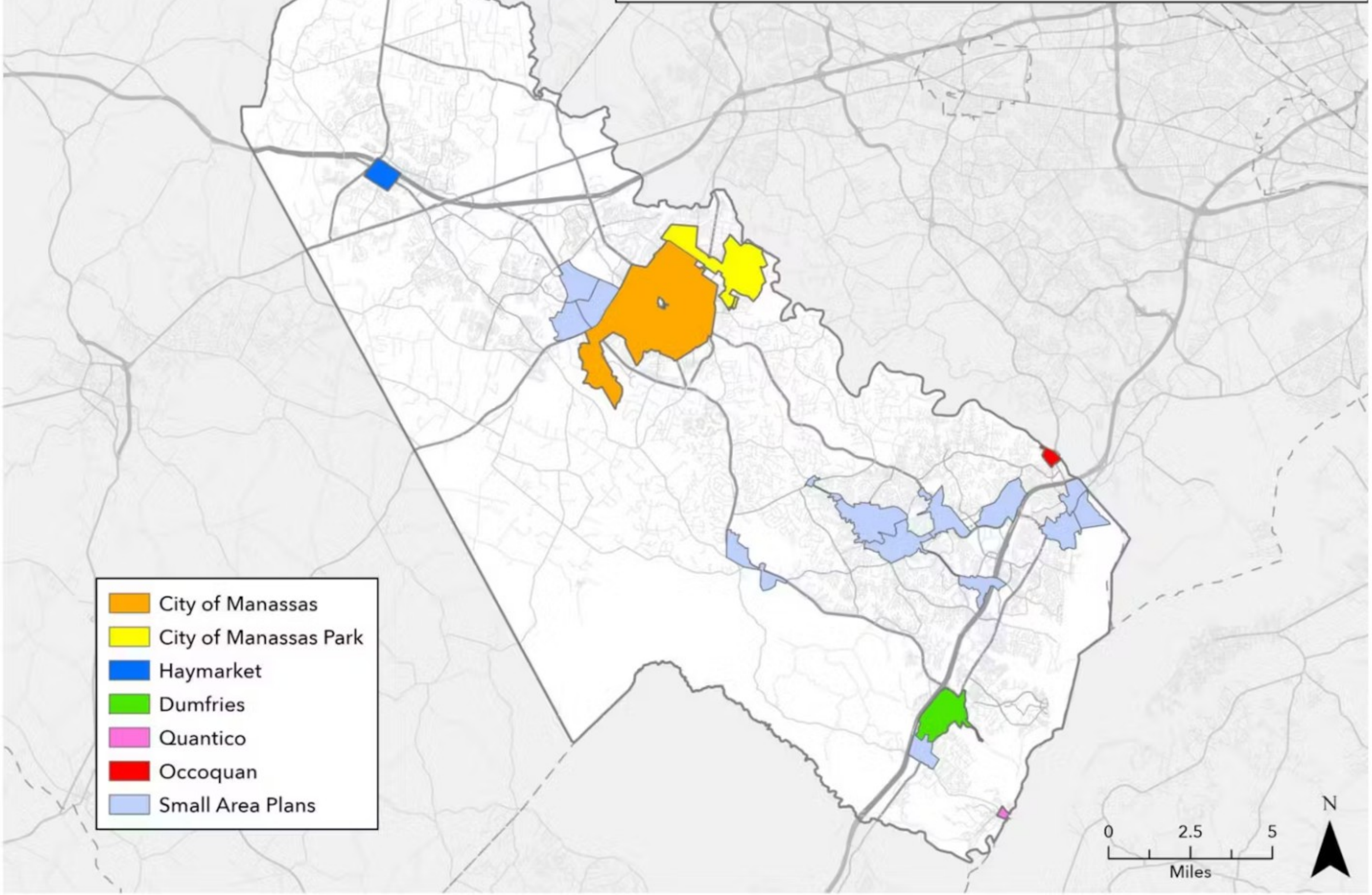
What is a Comprehensive Traffic Safety Action Plan (TSAP)?

A **Comprehensive Traffic Safety Action Plan (TSAP)** is a planning document which identifies a community's most significant roadway safety risks and proposes strategies to address them

0
deaths or serious injuries

The SAP will outline two safety programs in Prince William County: **Vision Zero** for cities and urbanized areas, and **Towards Zero** for suburban and rural areas

Prince William County: Jurisdictions & Small Area Plans



TSAP Components

Leadership Commitment + Goal Setting
- Develop towards vision statement
- Identify target benchmarks (e.g., "0")

Planning Structure
- Involve project implementors
- Create planning committee

Safety Analysis
- Assess historical crash data
- Identify high-injury network

Engagement + Collaboration
- Develop public engagement plan
- Host events and feedback platforms

Equity
- Identify impact to underserved populations
- Affirm inclusive study methodologies

Policy + Progress Changes
- Assess existing plans and standards
- Introduce policy updates and improvements

Strategy + Project Selections
- Prioritize highest-impact projects
- Correlate projects to countermeasures

Progress + Transparency
- Measure achievement of plan goals
- Publish and promote finalized plan

Tasks Completed To-Date

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PRINCE WILLIAM COUNTY

- ✓ Assessment of historical crash data
- ✓ Identification of high injury network
- ✓ Countermeasure development
- ✓ Bicycle and pedestrian gap analysis for project identification
- ✓ Planning committee creation

TSAP Engagement

Online materials on PWC Works website, including **general project information** and links to **virtual participatory tools**

Two rounds of in-person public meetings, the first focused on **process and priorities** and the second focused on **project selection and prioritization results**

Virtual planning committee meetings with plan champions and implementors to iterate through analyses methodologies and promote public engagement

Committee Roles + Responsibilities

Attend and participate in **virtual planning committee meetings**

Provide feedback on project approach and **share new perspectives**

Act as a **champion of the plan** to spread awareness, build excitement, and increase public participation among your communities and constituencies

Synthesize efforts of TSAP with other planning efforts and programs in and around the County, **ensuring consistency and avoiding duplicate efforts**

Interactive Questions

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What key words or phrases best capture your vision for improved traffic safety in PWC?

34 responses

3

14

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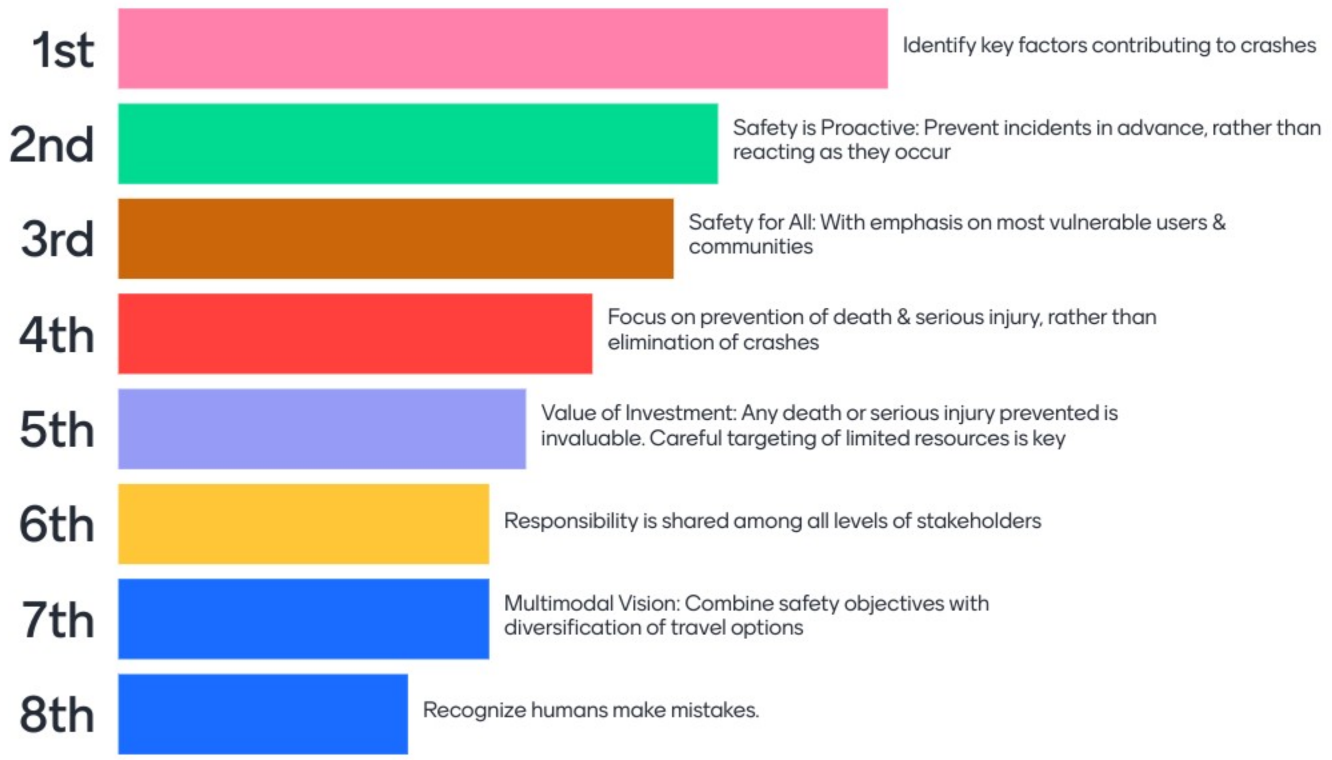
Rank themes by importance for Toward Zero Vision/Goals development based on County context, feasibility, and your own experience:



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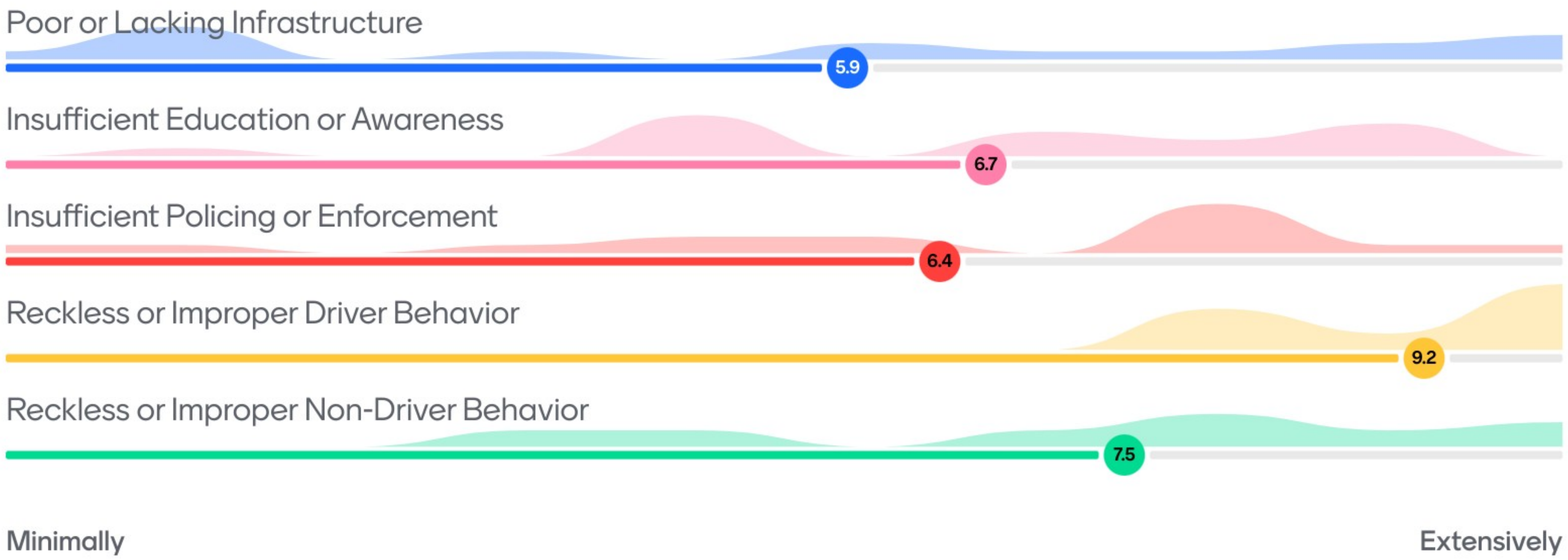
How extensively do the following factors contribute to transportation safety risk in PWC?



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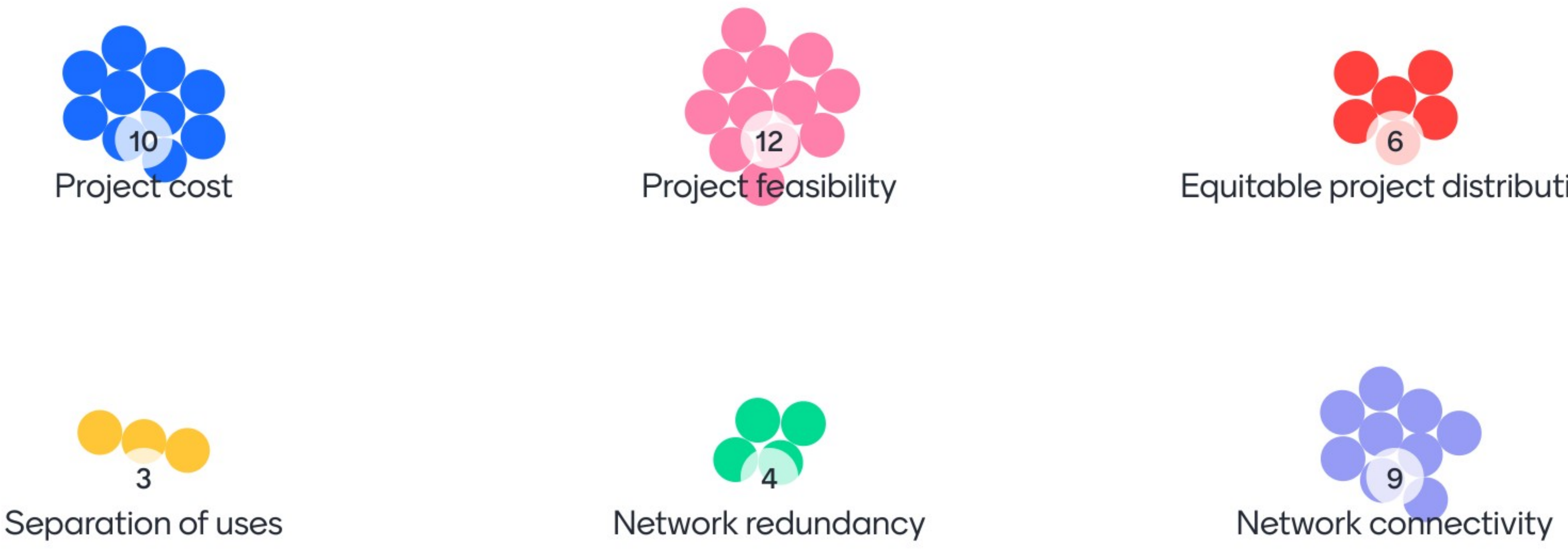
When evaluating different projects, which prioritization factors are most important?



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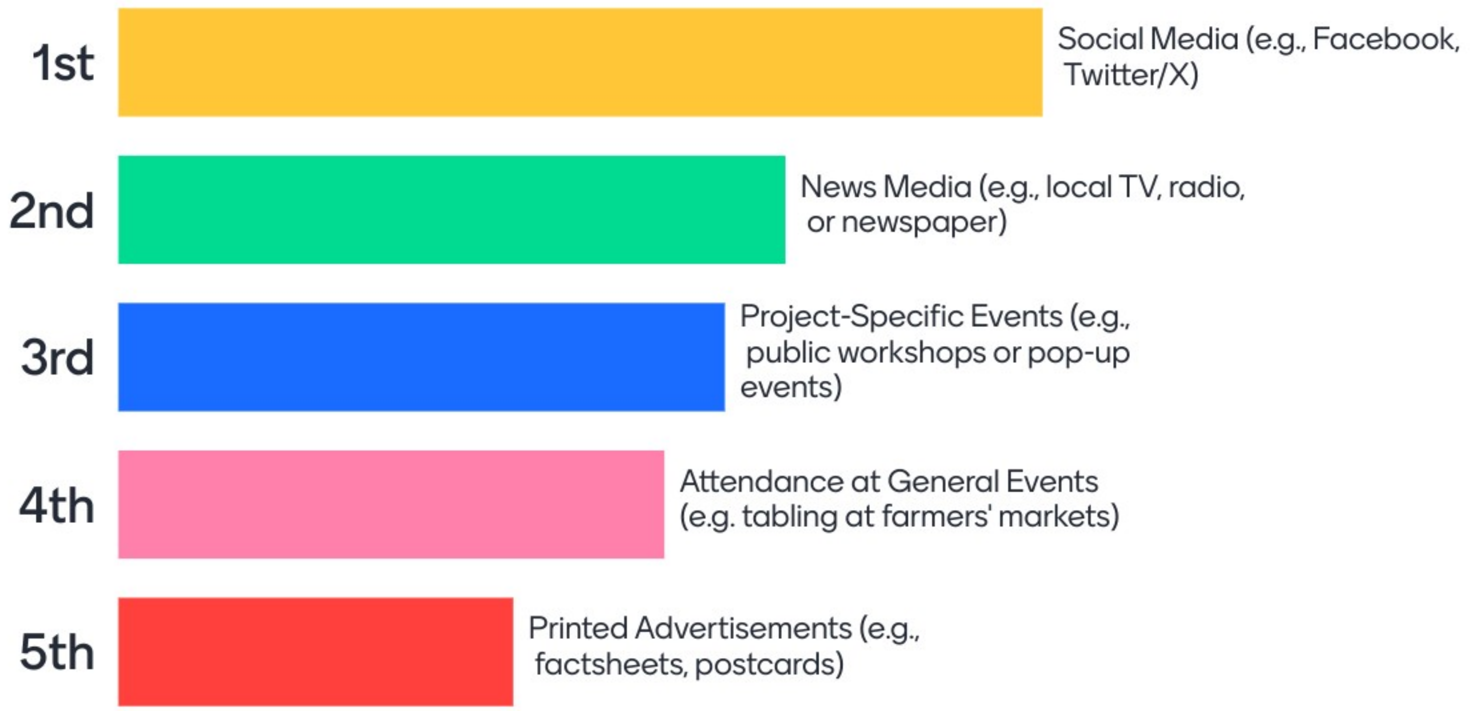
Which public engagement approaches will most effectively reach and excite the PWC community?



Next Steps

- Finalize public engagement approach for public meetings
- Develop public-facing materials for project webpage
- Project recommendation identification
- Project prioritization approach

Questions?

Thank You!

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PRINCE WILLIAM COUNTY

Comprehensive Traffic Safety Action Plan

Towards Zero Planning Committee Meeting #2

March 12, 2025

6

Agenda

- Public Engagement Recap & Highlights from Public Comment
- Project Prioritization Methodology
- Overview of Types of Countermeasures
- Introduction of Draft Performance Measures
- Interactive Survey
- Next Steps

Public Engagement Recap

- Hosted 2 public meetings to communicate project information and gather input on:
  - Locations of safety concern
  - Types of safety countermeasures
  - Prioritization methods for projects
- Posted project information on PWC Works webpage
- Gathering additional input through an online survey and interactive map

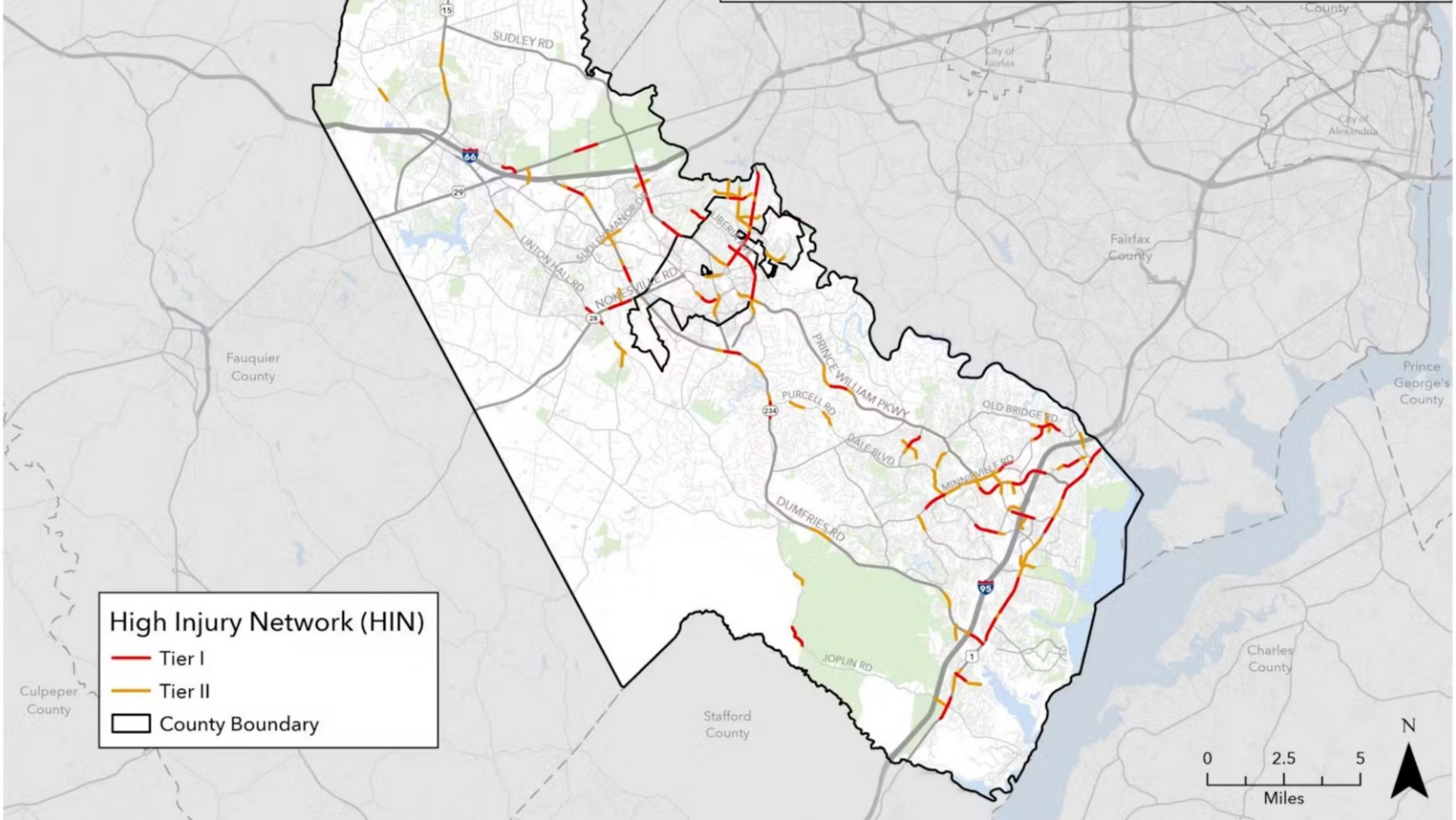
Highlights from Public Comment

- Educational campaign needed for safer driving
- Greater enforcement of speeding/distracted driving
- Highlighted gaps in bicycle/pedestrian network
- Dangerous intersections/curves where safety measures are needed
- Additional lighting/signage on rural roads
- Road diets to improve bicycle/pedestrian facilities/comfort

Project Prioritization

- **High Injury Network (HIN)** segments will represent **reactive** safety projects and **High Risk Network (HRN)** segments will represent **proactive** safety projects
- Projects will be scored based on prioritization criteria and weights
- HIN and HRN locations will each be allocated into 3 tiers (Tier 1 = Highest Priority; Tier 3 = Lowest Priority)

Prince William County High Injury Network



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Previous Studies/Investment

There are some locations in the HIN where the County has already conducted safety studies or proposed safety projects…

Would it be an effective strategy to prioritize those project locations first to seek implementation funding before assessing other locations?

Prioritization Criteria

Safety	Connectivity	Accessibility
Projects in areas with concentration of: • *Fatalities & Serious Injuries* • *Bicycle & Pedestrian Crashes*	Projects in areas that: • *Address Bicycle/Pedestrian Facility Gaps* • *Provide Improved Transit Connections*	Projects providing connection to: • *County-Identified Activity Centers/Small Area Plans* • *Incorporated Towns (Denser Areas)* • *Areas of Projected Growth*
Public Input	**Equity**	**Vulnerable Users**
Projects in areas identified through public comment	Projects that fall within: • *MWCOG Equity Emphasis Areas* • *CEJST Disadvantaged Census Tracts* • *Areas of Persistent Poverty*	Projects that fall in: • *School Zones* • *Areas with Concentration of Bicycle/Pedestrian Activity*

Countermeasures

- Roadway safety countermeasures include **infrastructure** and **strategies** aimed at improving safety and reducing fatalities and serious injuries on the County's roadways
- Countermeasures align with the components of the **Safe System Approach** to address locations of concern identified through the HIN and HRN in the CTSAP
- The project team is developing:
  - Specific infrastructure countermeasures to **reactively** address locations of concern identified in the **HIN**
  - Safety strategies to address locations identified in the **HRN**, making recommendations for improvements to **proactively** mitigate potential future risk

Countermeasures

Bicycle/Pedestrian Facility Improvements

- Examples: Protected/buffered bike lanes, shared-use paths, safe crosswalks

Intersection Improvements

- Examples: Roundabouts, dedicated turn lanes, improved visibility/signage and pavement markings, crosswalk enhancements such as high-visibility markings, pedestrian signals, and median islands/refuges

Roadway Safety Infrastructure

- Examples: High-visibility signage/pavement markings, rumble strips, guardrails

Speed Management/Traffic Calming Infrastructure

- Examples: Curb extensions, speed feedback signs, raised crosswalks, speed humps/bumps

Street Lighting Improvements

- Examples: Lighting along roadways, sidewalks, and shared-use paths/trails, lighting at intersections and crosswalk

Countermeasures (Cont.)

Enforcement of Driver, Pedestrian, & Bicycle Laws

- Examples: Automated enforcement (speed/red light cameras), increased patrol, increased fines/penalties, community reporting

Investment in Emergency Medical Response & Post-Crash Care

- Examples: Training program improvements, medical equipment upgrades, increased/upgraded infrastructure and facilities, improving response time and effectiveness

School Bicycle/Pedestrian Safety Programs

- Examples: Safety workshops, curriculum integration, public awareness, enhanced bicycle/pedestrian facilities in school zones, crossing guards, safe route planning, volunteer programs, law enforcement collaboration

Impaired Driving Education/Enforcement

- Examples: Public awareness campaigns, school/community programs, partnerships with community organizations, sobriety checkpoints (prior announcements), increased patrol and enforcement

Key Performance Measures

The CTSAP will include performance measures to allow the County to monitor progress toward:

- CTSAP goals of reduction in fatalities and serious injuries
- Aligning with **Safe System Approach** principles

Safer People
- Ex. Reduction in seatbelt violations

Safer Speeds
- Ex. Reduction in speeding violations

Safer Roads
- Ex. Increase in mileage of dedicated bicycle facilities

Safer Vehicles
- Ex. SMART infrastructure connecting with transit fleets

Post-Crash Care
- Ex. Reduction in the average emergency medical response time

Interactive Questions

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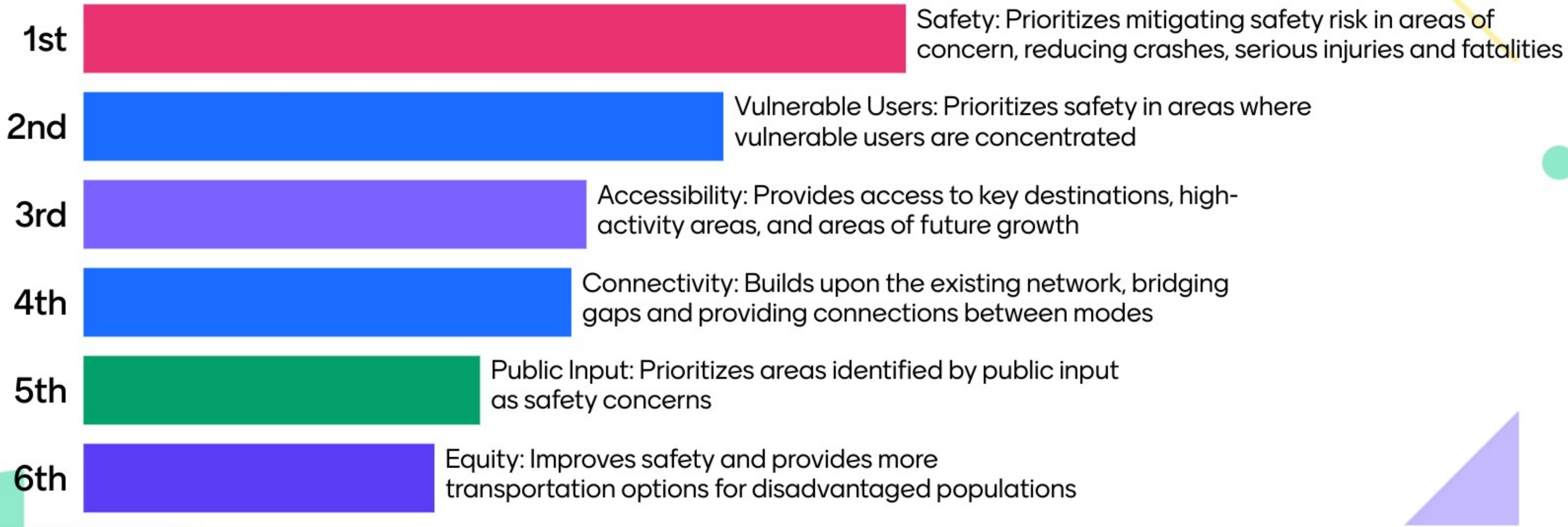
What factors are most important to you in prioritizing the identified safety project locations?



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If you were given $100 of funding, how would you distribute that money to implement the following safety countermeasures?

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What is an example of a performance measure you feel is achievable in the County related to...

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...Safer People? (Ex. Reduction in seatbelt violations)

various traffic violations; I also think near misses are important. I'm not sure how to track that other than using cameras

Increased distracted driver education

Distracted driving awareness

enforcement and education in the importance of wearing seatbelts and how wearing a seatbelt can prevent death or serious injuries in a crash. Social media, message boards along with various messages

educational campaigns

more enforcement of distracted driver activities - texting, holding phone, red light running

surveys to find out where people feel unsafe

distracted driver citations. Pedestrian injuries / 100K population % of accidents that are fatal ALS and BLS response times

9

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...Safer People? (Ex. Reduction in seatbelt violations)

Education efforts focused on where different modes intercept/interact. i.e Intersections, crosswalks, shared lanes.

9

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...Safer Speeds? (Ex. Reduction in speeding violations)

Increased in speeding enforcement

Education and enforcement on the importance of obeying speed laws!

increased photo enforcement

evaluating appropriate speeds for various areas - sometimes the posted limit is unreasonable so people go faster

Photo enforcement in school zones

Your Speed signs

Speed feedback signs

I think using speed cameras would provide the biggest impact.

8

...Safer Speeds? (Ex. Reduction in speeding violations)

identifying where speed is resulting is severe crashes

Physical infrastructure (narrower lanes, curb radii, etc. which can encourage reduced speeds

limit road width and other traffic calming devices, rumble strips

8

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...Safer Roads? (Ex. Increase in mileage of dedicated bike facilities)

increased lighting in high ped areas

Better maintenance of bike lanes

More multi-modal opportunities

Enforcement and education of bicycle riders. Education of not using headphones, wearing bright clothing and lighting along bike / roadways.

improve transportation alternatives

Ensure safe pedestrian routes that are not directly next to high-speed roads.

Dedicated facilities (bike and pedestrian)

More visual signs - marketing campaign around safety

8

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...Safer Roads? (Ex. Increase in mileage of dedicated bike facilities)

regulation of E-bikes

8

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...Safer Vehicles? (SMART infrastructure connecting with transit fleets)

This seems to be out of our locus of control

more CMV enforcement

Education for driver's in the proper way to react when emergency vehicles are approaching.

Enhancement of Opticom systems

target areas with longer response times for capital investment.

5

Mentimeter

...Post-Crash Care? (Ex. Reduction in average emergency medical response time)

defer to DFR for their input

Education on moving over for emergency response vehicles and increased enforcement

2

Public Participation

As mentioned, both public meetings so far had very little participation.

What are some effective strategies you would suggest for increasing public participation for future engagement?

Next Steps

- Project prioritization
- Applying countermeasures
- Finalizing performance measures
- Action Plan & project page development
- Gather public feedback on prioritized projects & performance measures

Questions?

Thank You!

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Comprehensive Traffic Safety Action Plan

Towards Zero Planning Committee Meeting #3

May 20, 2025

Agenda

- Public Engagement Recap
- CTSAP Plan Overview
- Next Steps

Public Engagement

- CTSAP specific public meeting in the winter
- Three additional public events – PWC DOT meetings - in spring
- Online engagement summary – PWC Works
  - Almost 200 survey participants
  - Over 100 location specific map comments
  - 1,500 visits to the site

Public Engagement Results

- Online Survey Results
  - Most respondents believe that **<u>reckless or improper driving behaviors</u>** contributes extensively to transportation safety risk in PWC
  - Most respondents felt that funding related to **<u>school bicycle/pedestrian safety programs</u>** was a top priority
  - Respondents felt the following factors were most important in selecting and prioritizing safety projects:
    - Equity
    - Vulnerable users
    - Accessibility

"Pedestrians feel safe because there are plenty of ***sidewalks*** *and* ***safe ways to cross*** *busy intersections"*

"Increased ***enforcement*** *and presence"*

"Improved ***driver's education program*** *for new drivers"*

"Drivers are ***not using their phones*** *or running red lights"*

"No reckless or ***aggressive drivers****"*

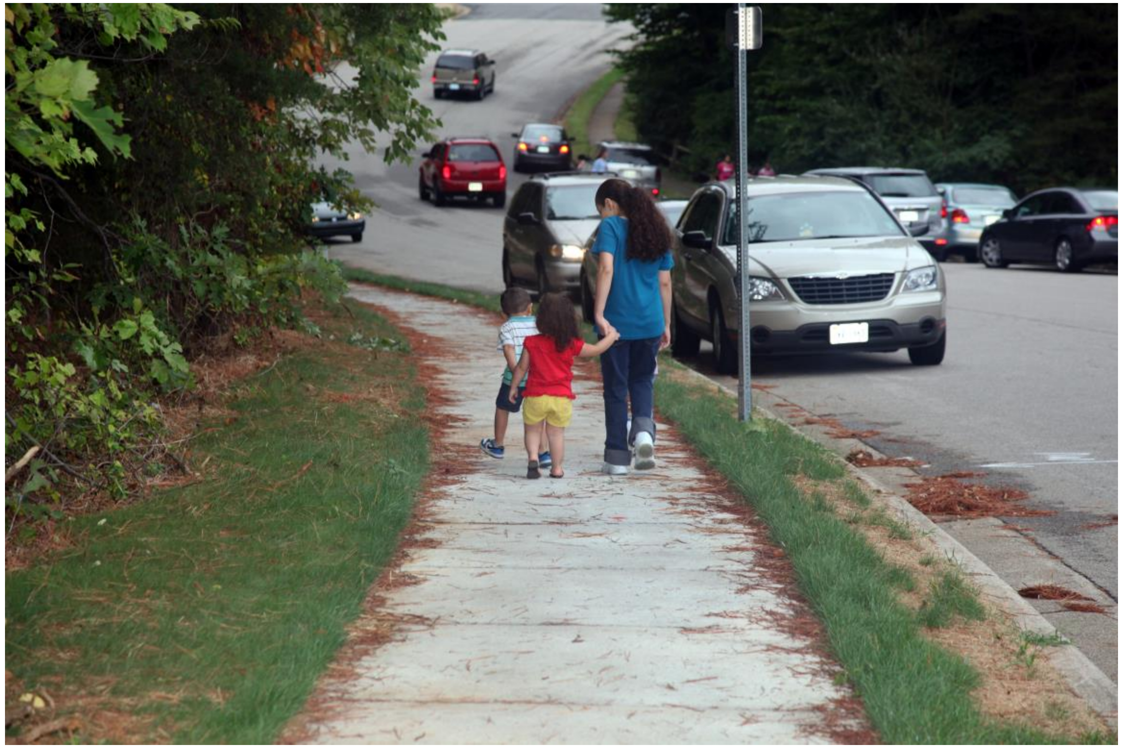
"Plan for the ***future of transportation****, not today's traffic"*

"Creating ***accessibility*** *to transportation for the most vulnerable and disadvantaged populations in the County"*

How would **you** describe your vision for **improved traffic safety** in the County?

CTSAP

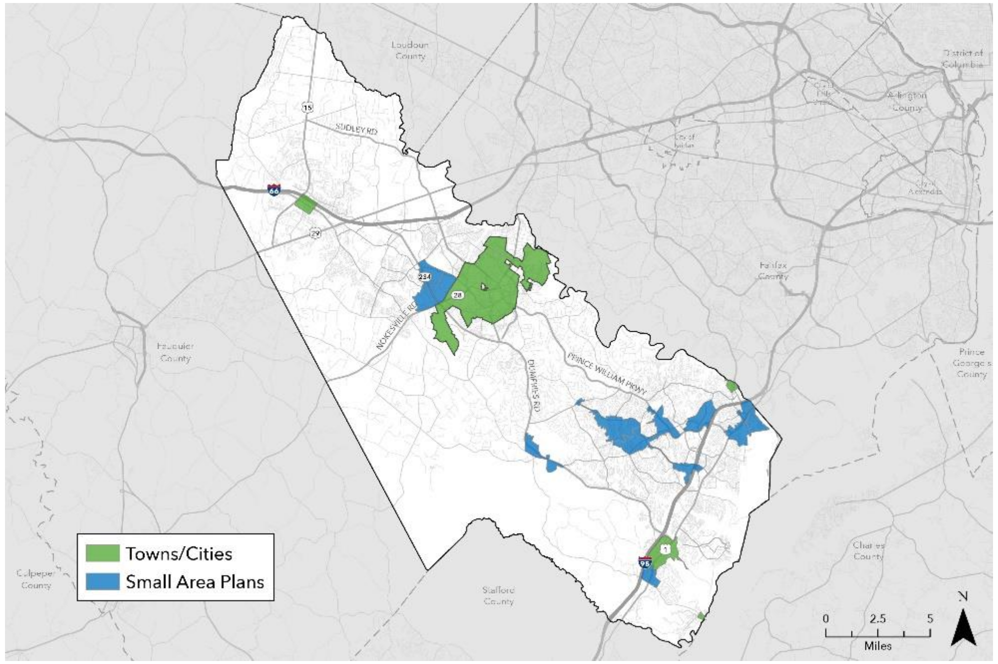
- Goals and Objectives
- Safety Analysis
- Project Prioritization
- Safety Strategies and Countermeasures
- Policy and Performance Measures
- Recommendations



Goals and Objectives

- **Vision Zero** - multinational roadway safety approach which aspires towards the complete elimination of all traffic fatalities and serious injuries.
  - *In PWC, Vision Zero is applied to the cities, towns, school zones, and small area plans*

- **Towards Zero** - establish a culture which promotes traffic safety across all transportation behaviors, policies, and infrastructure designs. While this culture may not eliminate all traffic fatalities or serious injuries, it seeks to achieve the greatest reduction of these incidents as possible.
  - *Towards Zero is applied to non-urbanized areas, including both suburban and rural areas in PWC*



PWC Toward Vision Zero Statement

This Comprehensive Traffic Safety Action Plan serves as a guide for the County with goals, objectives, and principles to create improved safety across the transportation network. This plan recognizes human mistakes will happen, but seeks to mitigate risk by minimizing the consequences of those mistakes, thereby reducing and preventing deaths and serious injuries in the roadway. The County's proactive, data-driven approach seeks to prevent incidents in advance by targeting key risk factors in the network, engaging stakeholders at all levels, creating an increased awareness and culture of road safety, protecting all users, and diversifying and growing safe transportation options in the County.

Safety Analysis

- Included three complementary analyses:
  - Equivalent Property Damage Only (EPDO) network screening
  - High Injury Network (HIN)
  - High-Risk Network (HRN)

- Data from 2018-2022 was used rather to include two years of both pre- and post- COVID-19 pandemic data, to understand to pandemic's impact on safety

Safety Analysis – Network Screening

Key Takeaways:

- Identified intersections and corridor segments that have experienced higher crash frequencies and severities (i.e., high Equivalent Property Damage Only (EPDO) scores)
- Intersections with high EPDO scores are typically located in urban areas where principal arterials intersect with minor arterials or major collectors
- Corridor segments with high EPDO scores are typically located on high volume roads in urban areas, and high-volume roads with horizontal curves in rural areas

Safety Analysis – High Injury Network

Key Takeaways:

- The results of the HIN network screening were ranked based on weighted crash severity and grouped into two tiers, collectively accounting for 50% of reported fatal or serious injury (FSI) crashes from 2018- 2022
- Tier I and Tier II HIN roads collectively account for only 4.4% of the County's total roadway miles but represent 50.0% of all FSI crashes
- Despite making up just 1.8% of the County's roadway mileage, Tier I roads account for 25% of all FSI crashes

Safety Analysis – High Risk Network

Key Takeaways:

- The corridor analysis highlighted speed as a key factor in severe crash overrepresentation, with both urban and rural roads experiencing elevated risk at higher speeds (> 45 mph)
- The intersection analysis emphasized signalized intersections and higher-order functional classifications as key factors in severe crash overrepresentation. The following intersection characteristics were disproportionately represented:
  - Urban settings: Other Freeways and Expressways, Other Principal Arterial Roads, and Minor Arterial Roads
  - Rural settings: Other Principal Arterial Roads and Minor Arterial Roads
  - Urban and rural settings: signalized intersection

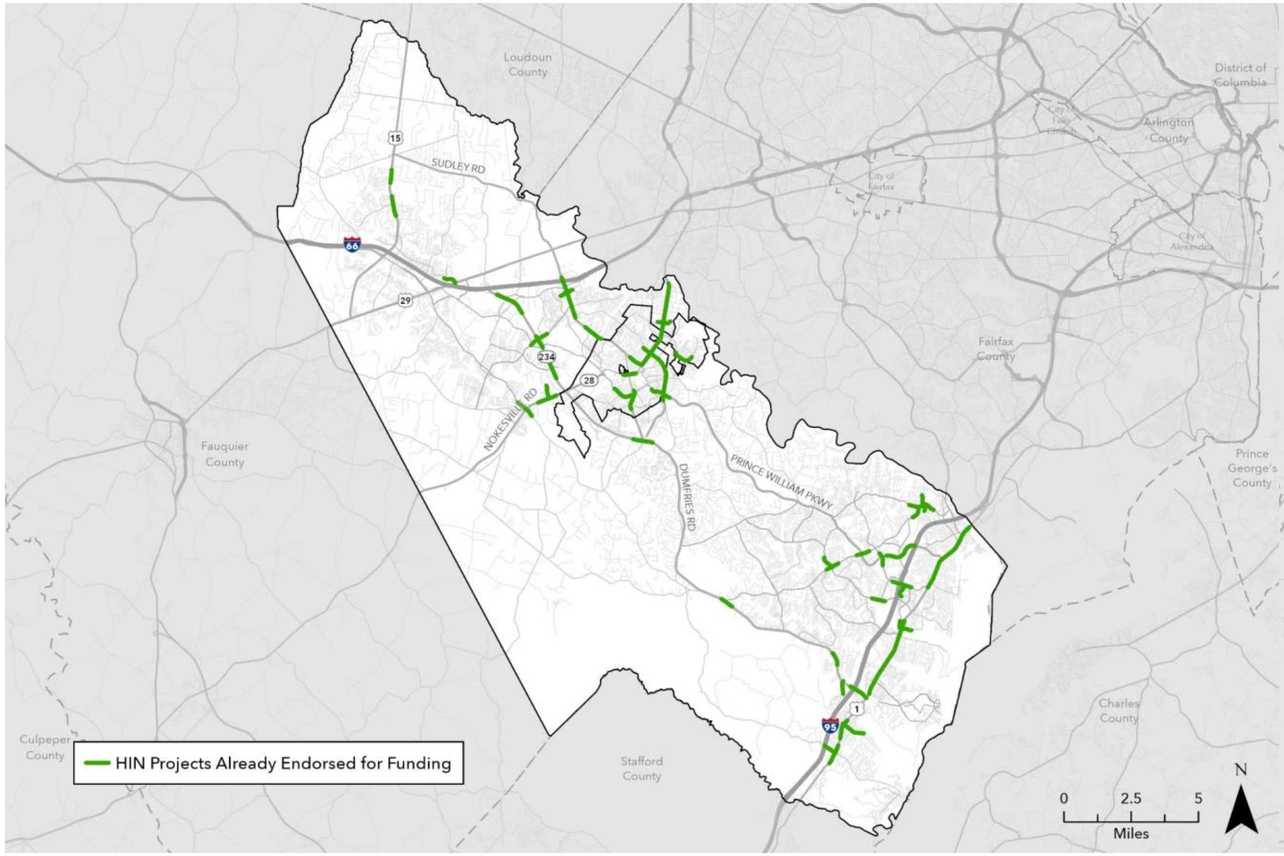
Crash Trends

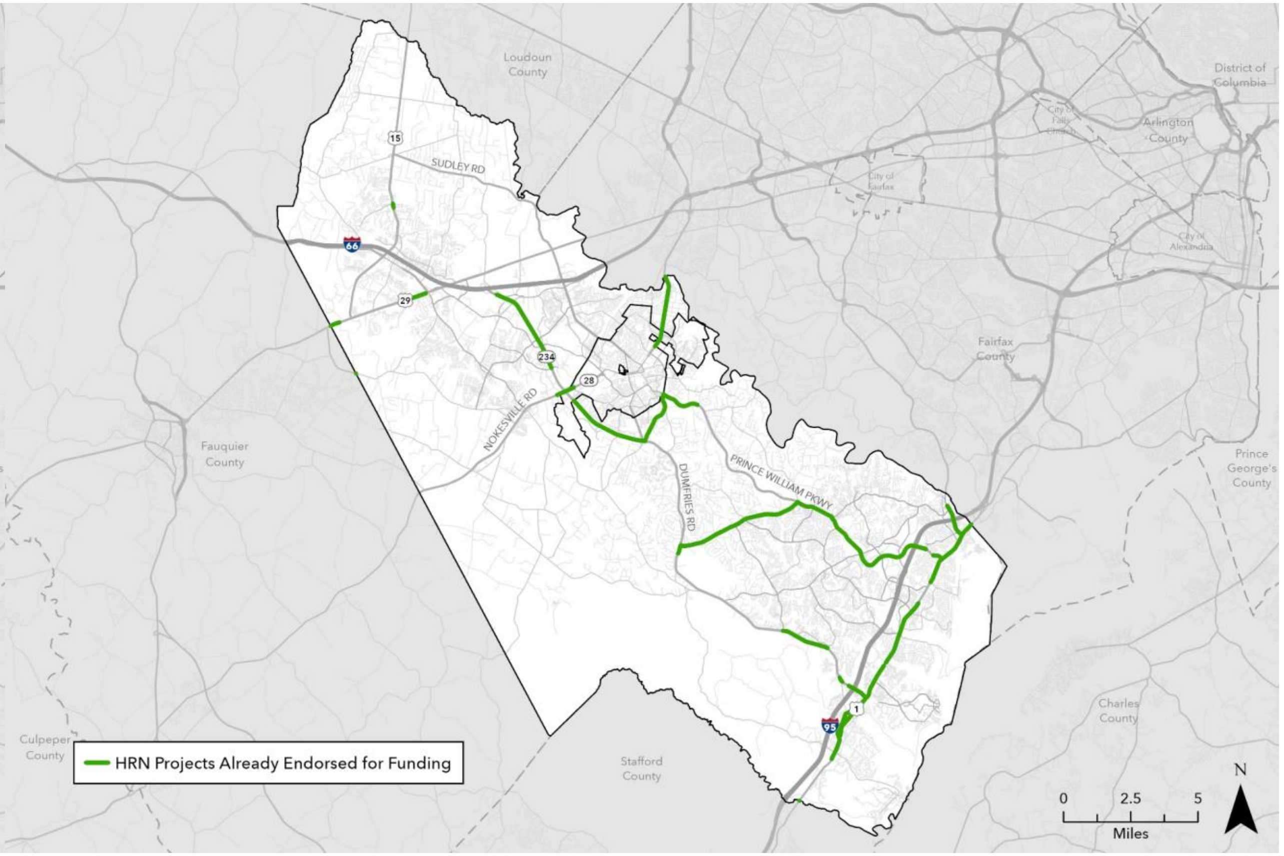
- Impaired Driving
  - Crashes involving impaired drivers were nearly four times more likely to result in an FSI
- Speeding
  - Crashes involving speeding were more than twice as likely to result in an FSI
- Pedestrian and Bicycle
  - Crashes involving pedestrians and bicyclists make up a small share of total crashes (2.1%), but they accounted for a disproportionate 18.7% of all FSI crashes
- Driver Age
  - Drivers aged 25 and under account for 40.6% of all crashes and 38% of all FSI crashes

Project Prioritization

- Projects were scored based on prioritization criteria and weights
- HIN and HRN locations were allocated into 3 tiers (Tier 1 = Highest Priority; Tier 3 = Lowest Priority)

Active and Projects Endorsed for Funding





Prioritization Criteria

Safety	Connectivity	Accessibility
Projects in areas with concentration of: • *Fatalities & Serious Injuries* • *Bicycle & Pedestrian Crashes*	Projects in areas that: • *Address Bicycle/Pedestrian Facility Gaps* • *Provide Improved Transit Connections*	Projects providing connection to: • *County-Identified Activity Centers/Small Area Plans* • *Incorporated Towns (Denser Areas)* • *Areas of Projected Growth*
Public Input	**Equity**	**Vulnerable Users**
Projects in areas identified through public comment	Projects that fall within: • *MWCOG Equity Emphasis Areas* • *CEJST Disadvantaged Census Tracts* • *Areas of Persistent Poverty*	Projects that fall in: • *School Zones* • *Areas with Concentration of Bicycle/Pedestrian Activity*

Countermeasures

- Roadway safety countermeasures include **infrastructure** and **strategies** aimed at improving safety and reducing fatalities and serious injuries on the County's roadways
- Countermeasures align with the components of the **Safe System Approach** to address locations of concern identified through the HIN and HRN in the CTSAP
- The project team developed:
  - Specific infrastructure countermeasures to **reactively** address locations of concern identified in the **HIN**
  - Safety strategies to address locations identified in the **HRN**, making recommendations for improvements to **proactively** mitigate potential future risk

Countermeasures

Bicycle/Pedestrian Facility Improvements

- Examples: Protected/buffered bike lanes, shared-use paths, safe crosswalks

Intersection Improvements

- Examples: Roundabouts, dedicated turn lanes, improved visibility/signage and pavement markings, crosswalk enhancements such as high-visibility markings, pedestrian signals, and median islands/refuges

Roadway Safety Infrastructure

- Examples: High-visibility signage/pavement markings, rumble strips, guardrails

Speed Management/Traffic Calming Infrastructure

- Examples: Curb extensions, speed feedback signs, raised crosswalks, speed humps/bumps

Street Lighting Improvements

- Examples: Lighting along roadways, sidewalks, and shared-use paths/trails, lighting at intersections and crosswalk

Countermeasures (Cont.)

Enforcement of Driver, Pedestrian, & Bicycle Laws

- Examples: Automated enforcement (speed/red light cameras), increased patrol, increased fines/penalties, community reporting

Investment in Emergency Medical Response & Post-Crash Care

- Examples: Training program improvements, medical equipment upgrades, increased/upgraded infrastructure and facilities, improving response time and effectiveness

School Bicycle/Pedestrian Safety Programs

- Examples: Safety workshops, curriculum integration, public awareness, enhanced bicycle/pedestrian facilities in school zones, crossing guards, safe route planning, volunteer programs, law enforcement collaboration

Impaired Driving Education/Enforcement

- Examples: Public awareness campaigns, school/community programs, partnerships with community organizations, sobriety checkpoints (prior announcements), increased patrol and enforcement

Policy, Progress, Performance Measures

The CTSAP includes a list of recommended strategies to achieve the overall goal of reducing severe injuries and fatalities in the roadways

Safer People

- Ex. Reduction in seatbelt violations

Safer Speeds

- Ex. Reduction in speeding violations

Safer Roads

- Ex. Increase in mileage of dedicated bicycle facilities

Safer Vehicles

- Ex. SMART infrastructure connecting with transit fleets

Post-Crash Care

- Ex. Reduction in the average emergency medical response time

Policy, Progress, Performance Measures

1. Create a **Culture of Transportation Safety** in the County
2. Maintain and Monitor Progress, **Transparency, Accountability**, and Accessibility of Transportation Safety Initiatives in the County
3. Improve **Infrastructure** for Safer Transportation Across the County
4. Promote **Safer Speeds** on County Roads
5. Increase Outreach, Education and Enforcement to Promote **Safer Behavior** on Roads
6. Focus on **Safer School** Zones
7. Encourage Safer, More Comfortable, and **Better-Connected** Mobility within the County
8. Become a Leader in Implementing **Innovative Solutions** and Emerging Technologies to Create Safer Transportation
9. Promote **Safer Vehicles** on County Roads

Recommendations

Streetlights	Install and upgrade streetlights at intersections to express way lights on high-speed multilane roadway intersections as identified by the HIN/HRN. Includes but not limited to intersections on PW Parkway, Rt 1, Rt 234, Rt 15, Rt 28, Rt 15, and Rt 29
Crash data pool and HIN/HRN Tools	Continue to develop the existing crash screening and visualization tools to create a centralized roadway crash data pool and site inventory to include Fire and Rescue and 911 call center data integration and streamlining of Police Crash data. Data from the CTSAP screening and gap analyses will be integrated with other local data sets (bus routes, schools, developments, etc.) and big data travel volume and speed data. Countywide
234-28 Wedge Design and implementation	Expand the screening and initial assessment of the 234-28 Wedge to implement initial low costs near term mitigation countermeasures and to design long term ultimate condition solutions. This will include Old Centerville Road, Manassa Drive, Yorkshire Lane, Rugby Road, Amherst Drive, Lomond Drive, Fairmont Avenue, Mathis Avenue and Liberia Road.
PWC Transportation Engagement Strategy	Develop an integrated cross agency communication and engagement strategy and implement it over the next 2 years. This will include PWC agencies(DOT, PD, F&R, Communications, OCS, Social Services) and external partners (PWCS, Omniride, VDOT, DMV) and neighboring Towns and Cities. Countywide
High Crash Intersection Monitoring	Develop and implement a crash monitoring and analysis tool to monitor and identify HIN signalized intersections that that will be suitable for Automated Traffic Light . Includes but not limited to intersections on PW Parkway, Rt 1, Rt 234, Rt 15, Rt 28, Rt 15, and Rt 29
PROWAG Intersection Upgrades	Upgrade 10-20 pedestrian intersection crossings identified in the HIN/HRN analysis to current PROWAG standards. Countywide

Recommendations

Roadway departure remediation	Develop and implement low to medium cost roadway departure and intersection improvements on rural roads at locations identified by the HIN to include Joplin Road, Purcell Road, Groveton/Rt28 and Valleyview/Bristow Road.
CMV Truck Inspection sites	Conduct a safety review and identify locations with High CMV volume and design and build pull offs so PWC PD can safety inspect CMVs. Possible locations may include but not be limited to Rt 234, Rt 28, Rt 29, Fleetwood Drive.
SMART connected vehicle infrastructure	Demonstration Project to install SMART V2X technology at up to 16 HIN intersections in the Potomac Malls Area and the safety benefits of the connected vehicle technology. The demonstration will specifically focus on F&R to show the benefits of this new technology over the current OPTICOM system, demonstrate how this technology can improve the safety for bus operators, demonstrate the safety benefits of V2X for PWC PD for traversing intersections and responding to calls, in addition to making the technology available for the general motoring public with access to this technology. This will include PW Pkway (294), Rt1, Opitz Road, Smoketown Road, Minnieville Road and Gideon Drive
Variable Message Boards	Expand the NVTA "Route 234 Arterial Operations Improvements" project to include DMS/CCTV Sites for Posting Roadway Safety Messages on Prince William Parkway (Rt 294)
Safer Schools Project	Complete a detailed safety analysis and implement medium and low-cost pedestrian safety improvements in the walksheds of Schools identified in the HIN. Countywide
Minnieville Corridor Safety Audit	Conduct a road safety audit and detailed study and analysis of the Minniveille Road HIN corridor from Canton Hill to Spriggs Road.

Next Steps

- Adopt CTSAP (BOCS June 3rd, 2025, meeting)
- Seek 2025 SS4A funding for Implementation
- Establish CTSAP Technical Working Group (PWC Staff)
  - Develop a Communication and Engage Strategy
  - Develop a Crash and Transportation Data Sharing framework and system
  - Identify and Scope future Projects and Initiatives.
- Establish CTSAP Stakeholder Working Groups (Partner Agencies and Public Groups)
  - Interface and Engage with public and other stakeholders
  - Identify Safety Needs and Concerns
  - Solicit Feedback and Guidance on Projects and Initiatives
- Establish Comprehensive Transportation Safety Program
  - Identify future program budget, staffing and resources
  - Reporting and ongoing accountability activities

Questions?

Thank You!

Project Contacts

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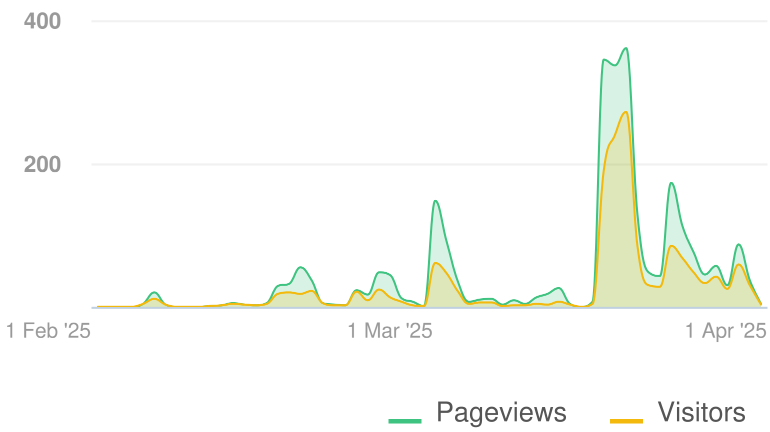
Project Report

01 February 2025 - 01 April 2025

PWC Works

Comprehensive Traffic Safety Action Plan

Visitors Summary



Highlights

TOTAL VISITS
1.7 k

MAX VISITORS PER DAY
272

NEW REGISTRATIONS
6

ENGAGED VISITORS
243

INFORMED VISITORS
510

AWARE VISITORS
1.5 k

Aware Participants	1,460
Aware Actions Performed	Participants
Visited a Project or Tool Page	1,460

Informed Participants	510
Informed Actions Performed	Participants
Viewed a video	0
Viewed a photo	0
Downloaded a document	0
Visited the Key Dates page	0
Visited an FAQ list Page	0
Visited Instagram Page	0
Visited Multiple Project Pages	256
Contributed to a tool (engaged)	243

Engaged Participants		243	
Engaged Actions Performed	Registered	Unverified	Anonymous
Contributed on Forums	0	0	0
Participated in Surveys	1	5	176
Contributed to Newsfeeds	0	0	0
Participated in Quick Polls	0	0	0
Posted on Guestbooks	0	0	0
Contributed to Stories	0	0	0
Asked Questions	0	0	0
Placed Pins on Places	11	56	0
Contributed to Ideas	0	0	0

ENGAGEMENT TOOLS SUMMARY

0	1	1	0	0
FORUM TOPICS	SURVEYS	NEWS FEEDS	QUICK POLLS	GUEST BOOKS

0	0	2
STORIES	Q&A S	PLACES

Tool Type	Engagement Tool Name	Tool Status	Visitors	Contributors		
				Registered	Unverified	Anonymous
Newsfeed	Community Meetings Scheduled	Published	1	0	0	0
Place	Traffic Safety Map	Draft	369	11	56	0
Survey Tool	Comprehensive Traffic Safety Action Plan Survey	Archived	757	1	5	176

ENGAGEMENT TOOL: PLACE

Traffic Safety Map

Visitors 369	Contributors 67	CONTRIBUTIONS 127

2025-02-20 17:28:22 -0500 PWC Open House Anonymous CATEGORY Traffic Safety Concern VOTES 0	No light. Difficult for school buses to exit from Georgetown village community. Address: Richmond Hwy, Woodbridge, VA, 22191, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-126757
2025-02-20 17:49:59 -0500 PWC Open House Anonymous CATEGORY Traffic Safety Concern VOTES 0	Need more enforcement to address speeding from US Route 1 Address: Fuller Rd, Triangle, VA, 22172, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-126758
2025-02-27 18:57:37 -0500 Public comment CATEGORY Traffic Safety Concern VOTES 0	Intersection unsafe Address: 14723 Joplin Rd, Manassas, VA, 20112, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-126966
2025-02-27 19:00:24 -0500 Public comment CATEGORY Traffic Safety Concern VOTES 1	Illegal left Address: Balls Ford Rd, Manassas, VA, 20109, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-126967
2025-02-27 19:02:16 -0500 Public comment CATEGORY Traffic Safety Concern VOTES 0	Yorkshire lane needs wider shoulders or bike lanes Address: 8728 Yorkshire Ln, Manassas, VA, 20111, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-126968

ENGAGEMENT TOOL: PLACE

Traffic Safety Map

2025-02-27 19:04:15 -0500 Public comment CATEGORY Traffic Safety Concern VOTES 0	Do 4 lane to 3 lane road diet for sudley rd in Manassas. Grant to portnor Address: Thai Taste Restaurant, 8657 Sudley Rd, Manassas, VA, 20110, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-126969
2025-02-27 19:05:02 -0500 Public comment CATEGORY Traffic Safety Concern VOTES 0	Do a road diet for Dumfries rd in Manassas Address: 9701 Cheshire Ridge Cir, Manassas, VA, 20110, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-126970
2025-02-27 19:07:31 -0500 Public comment CATEGORY Pedestrian Safety Concern VOTES 0	Bike/ped access to Bull Run bridge Address: 7123 Centreville Rd, Centreville, VA, 20121, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-126971
2025-02-28 10:14:43 -0500 Public comment CATEGORY Pedestrian Safety Concern VOTES 0	Need safe path to cross Route 15 on Catharpin Greenway - could be under Route 15 using Catharpin Creek Address: James Madison Hwy, Haymarket, VA, 20169, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-126979
2025-02-28 10:18:40 -0500 Public comment CATEGORY Traffic Safety Concern VOTES 0	Unsafe at railroad crossing Address: 6643-6649 James Madison Hwy, Haymarket, VA, 20169, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-126980

ENGAGEMENT TOOL: PLACE

Traffic Safety Map

2025-02-28 10:21:47 -0500 Public comment CATEGORY Traffic Safety Concern VOTES 0	Catharpin left onto 234 - warning flashes Address: 4533-4537 Sudley Rd, Gainesville, VA, 20155, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-126981
2025-02-28 10:22:24 -0500 Public comment CATEGORY Traffic Safety Concern VOTES 1	Pageland, Sudley, and Sanders - warning flashes Address: 4625-4657 Sudley Rd, Catharpin, VA, 20143, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-126982
2025-02-28 10:23:22 -0500 Public comment CATEGORY Pedestrian Safety Concern VOTES 0	No bike/ped crossing over I-66 on Groveton Rd Address: Groveton Rd, Manassas, VA, 20109, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-126983
2025-02-28 10:29:14 -0500 Public comment CATEGORY Pedestrian Safety Concern VOTES 0	Plan for parking lot for Flat Branch Trail at end of Godwin Address: Godwin Dr, Manassas, VA, 20109, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-126984
2025-02-28 10:30:32 -0500 Public comment CATEGORY Pedestrian Safety Concern VOTES 0	Connect Parkridge to NVCC along 234 for bike/ped Address: 6901-6935 Sudley Rd, Manassas, VA, 20109, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-126985

ENGAGEMENT TOOL: PLACE

Traffic Safety Map

2025-02-28 10:35:20 -0500 Public comment CATEGORY Traffic Safety Concern VOTES 0	Sudley signal timing 66 - Manassas Address: Sudley Rd, Manassas, VA, 20109, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-126986
2025-02-28 10:37:47 -0500 Public comment CATEGORY Pedestrian Safety Concern VOTES 0	Need bike/ped connection from Euclid into Yorkshire because Route 28 will always be t raffic sewer Address: Manassas Park, VA, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-126987
2025-02-28 10:40:49 -0500 Public comment CATEGORY Traffic Safety Concern VOTES 0	Unsafe intersection Address: 6345-6349 Sudley Rd, Manassas, VA, 20109, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-126988
2025-03-03 17:11:43 -0500 Resident since 1979 CATEGORY Traffic Safety Concern VOTES 0	Route 15 between 234 and the Loudoun County line is a hazardous zone due to dange rous driving behavior; numerous drivers pass multiple cars at a time and ignore the "no passing zones". This area is near the County line so I am concerned it does not get en ough attention. There may be a need for coordination with Loudoun since the problem occurs in both counties. Address: 1430-1472 James Madison Hwy, Haymarket, VA, 20169, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127069
2025-03-04 13:04:15 -0500 Public comment CATEGORY Traffic Safety Concern VOTES 0	234: Phones, speeding Address: 12500-12580 Kyle Wilson Way, Catharpin, VA, 20143, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127072

ENGAGEMENT TOOL: PLACE

Traffic Safety Map

2025-03-04 13:07:26 -0500 Public comment CATEGORY Traffic Safety Concern VOTES 0	Joplin Rd: Deer/woods, dangerous curves Address: 16612-16698 Joplin Rd, Quantico, VA, 22134, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127073
2025-03-04 13:08:27 -0500 Public comment CATEGORY Traffic Safety Concern VOTES 0	Old Triangle at Fuller Heights: PWPD enforce more speeding Address: 18602 Old Triangle Rd, Triangle, VA, 22172, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127074
2025-03-04 13:14:53 -0500 Public comment CATEGORY Traffic Safety Concern VOTES 0	Route 1: Red light running Address: Locksmith Woodbridge, 13732 Richmond Hwy, Woodbridge, VA, 22191, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127075
2025-03-05 10:49:24 -0500 Public comment CATEGORY Traffic Safety Concern VOTES 0	County received citizen concern/request for traffic signal installation at the intersection. Number of crashes at this intersection increased considerably in 2024 as compared to previous years. Intersection is not lighted currently. Half of crashes in 2024 occurred at dark/dusk times. Address: Fauquier Dr, Nokesville, VA, 20181, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127088
2025-03-14 11:36:23 -0400 BrianF CATEGORY Traffic Safety Concern VOTES 0	4 way stop. Through commuter traffic on Waterway, often fails to stop for turning vehicles. frequent accidents. There was even a pedestrian struck at this location last Halloween. Round-about?!? Address: 15713 Edgewood Dr, Dumfries, VA, 22025, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127256

ENGAGEMENT TOOL: PLACE

Traffic Safety Map

2025-03-18 11:15:01 -0400 brownc72 CATEGORY Traffic Safety Concern VOTES 0	The entire length of PW Parkway from Hoadly to Liberia is too long to not have move ri ght except for passing or slower vehicles stay in the right lanes or commercial vehicles stay right. It's gotten ridiculous and road rage waiting to happen. Also the evening rush light settings are not sufficient either. Address: 22192, Woodbridge, VA, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reportin g=true#marker-127343
2025-03-18 11:26:37 -0400 RA CATEGORY Traffic Safety Concern VOTES 1	There is no 4 way stop here. We have lived here for 15 years. We have witnessed cars speeding through this intersection, cars not stopping at stop signs. There should be a c ross walk in this intersection and some cameras for speeding but also the many childre n and walkers in the area. Address: 5709-5711 Rhode Island Dr, Woodbridge, VA, 22193, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reportin g=true#marker-127345
2025-03-18 11:34:12 -0400 brownc72 CATEGORY Traffic Safety Concern VOTES 0	Right turn lane off Old Bridge by the Exxon, cars boomerang back into the main lane al l the time when the light changes after acting like they're going to turn. Address: Exxon Mobil, 3514 Old Bridge Rd, Woodbridge, VA, 22192, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reportin g=true#marker-127346
2025-03-18 11:36:36 -0400 JLWITT CATEGORY Traffic Safety Concern VOTES 0	Lack of unprotected left turn from 15 to Market Ridge creates frustrating situation. Address: 6745-6899 James Madison Hwy, Haymarket, VA, 20169, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reportin g=true#marker-127347
2025-03-18 11:37:19 -0400 Rachel W CATEGORY Traffic Safety Concern VOTES 0	Left turn lane onto Oakwood Drive from westbound old Bridge Road should be a flashin g yellow instead of solid red when through lanes are green. Plenty of site line for it to b e an issue to change. Address: 2680-2698 Old Bridge Rd, Woodbridge, VA, 22192, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reportin g=true#marker-127348

ENGAGEMENT TOOL: PLACE

Traffic Safety Map

2025-03-18 11:41:55 -0400

Green123

CATEGORY

Traffic Safety Concern

VOTES

0

Road needs to be widened and/or sidewalks added. Increase in traffic with new home builds and road is unsafe for drivers and pedestrians.
Address: 11610 Bradley Forest Rd, Manassas, VA, 20112, USA

http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127349

2025-03-18 11:52:42 -0400

Gwarrendiaz

CATEGORY

Traffic Safety Concern

VOTES

0

Blind corner at this location. Traffic coming from Burrell turning left onto vint hill can't see past the trees on the right side of the road making the intersection blind on the right side. A 4 way stop sign would help.
Address: Burwell Rd, Nokesville, VA, 20181, USA

http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127352

2025-03-18 12:08:53 -0400

Amos

CATEGORY

Traffic Safety Concern

VOTES

0

The light at the intersection of vint hill rd and route 29 is way to short for green light when turning left off of vint hill. Only 2 vehicles go through before the light changes to yellow. This causes more vehicles running a red light which creates a dangerous situation.
Address: 20155, Gainesville, VA, USA

http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127357

2025-03-18 14:56:55 -0400

CitSafety

CATEGORY

Traffic Safety Concern

VOTES

0

This intersection needs a roundabout so that people can enter and exit the neighborhood safely
Address: 13062 Sterling Point Dr, Gainesville, VA, 20155, USA

http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127359

2025-03-18 14:58:55 -0400

CitSafety

CATEGORY

Traffic Safety Concern

VOTES

0

There is absolutely no reason for a "no turn on red" at this intersection. It is a dedicated turn & merge lane!
Address: 11252-11294 University Blvd, Manassas, VA, 20109, USA

http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127360

ENGAGEMENT TOOL: PLACE

Traffic Safety Map

2025-03-18 15:52:23 -0400

JW20155

CATEGORY

Traffic Safety Concern

VOTES

0

This one lane bridge is on the line between Loudoun and PWC. As each county develops more and more surrounding this road the more this bridge becomes a hazard. It's dangerous, as this road gives little to no room for error. Especially at night, drivers just have to pray the cars coming from either county stop before the lane narrows.
Address: 3100-3102 Sanders Ln, Catharpin, VA, 20143, USA

http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127363

2025-03-18 15:58:47 -0400

Amy G

CATEGORY

Traffic Safety Concern

VOTES

0

Rt. 234 & Falling Creek Drive. This cross over is horribly busy morning noon and night. People in the crossover on 234 don't know which side of the road to stay on when they are waiting for traffic. They block the view of oncoming traffic, which means ALL that traffic coming from the traffic light at Purcell and 234 can't be seen when you are crossing over 234 to turn in or out of Falling Creek. We need yellow stripes on the the road so people turning left from 234 onto Falling Creek know to stay on the right hand side and visa versa. NO ONE knows how to use the crossover properly and it's lead to more than one wreck in or near that intersection. The traffic coming from the stop light at Purcell and 234 FLIES by. This is also a horrible pedestrian spot.
Address: Dumfries Rd, Manassas, VA, 20112, USA

http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127364

2025-03-18 15:59:59 -0400

Amy G

CATEGORY

Pedestrian Safety Concern

VOTES

0

See previous comment regarding driving in this interchange. It's just as bad for pedestrians trying to get to the bike path on the other side of 234.
Address: Dumfries Rd, Manassas, VA, 20112, USA

http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127365

2025-03-18 16:25:02 -0400

BL

CATEGORY

Pedestrian Safety Concern

VOTES

0

The turn is like a UTurn to go down Maplewood from OCR. Cars do not slow down
Address: 102 Polk Dr, Manassas, VA, 20111, USA

http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127367

2025-03-18 17:16:14 -0400

CC

CATEGORY

Traffic Safety Concern

VOTES

0

This map is not updated, it's missing the new cross through off Lomond Dr and fairmount. Traffic is backed up every day due to this turn being opened. It's constantly congested and you should not be able to make a left turn there. This will prevent the pile up traffic in the afternoons on Lomond.
Address: 9534 Lomond Dr, Manassas, VA, 20109, USA

http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127378

ENGAGEMENT TOOL: PLACE

Traffic Safety Map

2025-03-18 17:20:46 -0400 CC CATEGORY Traffic Safety Concern VOTES 0	What genius thought it was a good idea to make it only be one lane to enter 234, all lan es have to merge into one and it's only getting worse. Address: Sudley Rd, Manassas, VA, 20109, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reportin g=true#marker-127379
2025-03-18 17:29:22 -0400 Ashley Luksik CATEGORY Traffic Safety Concern VOTES 1	The intersection of Lucasville Rd. and Godwin Dr. sees numerous accidents. Traffic on Lucasville flies around the turn approaching Godwin (from 234) and traffic on Godwin d oesn't have a clear enough line of sight to see cars approaching at a high rate of speed from Lucasville. Address: Lucasville Rd, Manassas, VA, 20112, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reportin g=true#marker-127381
2025-03-18 17:52:53 -0400 Klrwfls17 CATEGORY Traffic Safety Concern VOTES 0	This light needs to be on a timer not a sensor. It does not detect motorcycles at all. Hav e had to myself as well as have seen others with the need to just go when it appears s afe due to 4+ cycles without being given a green. Which if misjudged can cause a seve re issue since coming from ashton traffic from the left is almost blind due to the hill. Address: Balls Ford Rd, Manassas, VA, 20109, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reportin g=true#marker-127383
2025-03-18 20:50:53 -0400 heathcote15 CATEGORY Traffic Safety Concern VOTES 0	I have seen allot close calls in this intersection during evening rush hours. There is lon g back in southbound of 15 due to red light at 15 @ I66 and traffic is mess in 15 @ Hea thcote intersection. I was not able to make left turn from Heathcote to 25 south. It will e ven get worst since this area is growing. Something must be done to resolve this mess. Thanks! Address: James Madison Hwy, Haymarket, VA, 20169, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reportin g=true#marker-127384
2025-03-19 06:52:27 -0400 T2pennington CATEGORY Traffic Safety Concern VOTES 0	There have been 2 deaths at this intersection and numerous accidents Address: 13900-13978 Estate Manor Dr, Gainesville, VA, 20155, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reportin g=true#marker-127386

ENGAGEMENT TOOL: PLACE

Traffic Safety Map

2025-03-19 07:07:17 -0400 Dkrcva CATEGORY Traffic Safety Concern VOTES 0	Route 28 towards Bealeton doubles as a speedway. People pass at high rates of speed and also pass in no passing zones. Please do something to slow this road down. Doing 55 mph isn't enough to keep some people off other's bumpers. Thank you. Address: 12700 Nokesville Rd, Nokesville, VA, 20181, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127387
2025-03-19 07:28:05 -0400 T2pennington CATEGORY Traffic Safety Concern VOTES 1	Constant red light running people turning right from Linton Hall Address: 7890-7998 Linton Hall Rd, Gainesville, VA, 20155, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127388
2025-03-19 07:28:46 -0400 T2pennington CATEGORY Traffic Safety Concern VOTES 0	Numerous accidents at this intersection Address: Song Sparrow Dr, Gainesville, VA, 20155, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127389
2025-03-19 07:32:10 -0400 T2pennington CATEGORY Traffic Safety Concern VOTES 0	Illegal left turn constantly Address: Balls Ford Rd, Manassas, VA, 20109, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127390
2025-03-19 07:38:10 -0400 T2pennington CATEGORY Traffic Safety Concern VOTES 0	Crazy bad intersection because of limited sight lines and poor design Address: 13100-13238 University Blvd, Gainesville, VA, 20155, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127391

ENGAGEMENT TOOL: PLACE

Traffic Safety Map

2025-03-19 10:08:56 -0400 Amn9 CATEGORY Traffic Safety Concern VOTES 0	Busy intersection. Needs some sort of control Address: 11010 Sudley Manor Dr, Manassas, VA, 20109, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127393
2025-03-19 11:04:12 -0400 Crow CATEGORY Traffic Safety Concern VOTES 1	Traffic heading toward 234 speeds through this intersection (Lucasville and Godwin) causing multiple accidents and damage to property each year. This is a very large concern for the taxpayers in these communities. This would be an incredible place to accrue speeding tickets and reckless driving citations. Address: 10744-10798 Lucasville Rd, Manassas, VA, 20112, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127394
2025-03-19 17:15:00 -0400 Aden123 CATEGORY Traffic Safety Concern VOTES 0	Traffic goes way to fast through Aden on blind turns where residents are trying to leave residential driveways Address: 11308-11308 Aden Rd, Nokesville, VA, 20181, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127403
2025-03-20 15:19:58 -0400 swedela CATEGORY Traffic Safety Concern VOTES 0	Warped mirror is impossible to see out of. It's so hard to get out of sanders lane. Address: 4625 Sudley Rd, Catharpin, VA, 20143, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127424
2025-03-20 15:20:53 -0400 swedela CATEGORY Traffic Safety Concern VOTES 0	Need the light activated here ASAP. also enforce no through trucks on pageland and sanders ln. Address: 4659-4661 Sudley Rd, Catharpin, VA, 20143, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127425

ENGAGEMENT TOOL: PLACE

Traffic Safety Map

2025-03-20 15:22:03 -0400 swedela CATEGORY Traffic Safety Concern VOTES 0	Blind turn for those on pageland. Address: 5932-6038 Pageland Ln, Gainesville, VA, 20155, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127426
2025-03-20 15:23:16 -0400 swedela CATEGORY Traffic Safety Concern VOTES 0	Insane speeding and illegal passing happening here every single day multiple times a day Address: 3403-3429 Sanders Ln, Catharpin, VA, 20143, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127427
2025-03-20 15:24:38 -0400 swedela CATEGORY Traffic Safety Concern VOTES 0	One lane bridge is a nightmare and a crash hazard. Address: 26305-26335 Auburn Farm Rd, Aldie, VA, 20105, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127428
2025-03-20 18:53:58 -0400 CEKR CATEGORY Traffic Safety Concern VOTES 0	There are multiple accidents here each year. Those that are waiting to turn left from Saybrooke Dr onto Linton Hall can't clearly see incoming traffic on Braemar Pkwy if there are cars waiting to turn left from Braemar onto Linton Hall due to a slight hill/ rise in the road. We've been asking for left turn arrows for decades and it keeps getting denied. Address: 12115 Tamar Ct, Bristow, VA, 20136, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127429
2025-03-21 06:39:38 -0400 MM CATEGORY Traffic Safety Concern VOTES 0	Left hand turns out of the school are extremely dangerous in the mornings. Please consider making this a no left turn interaction from out of the school. Address: 13529 Bradford Ln, Manassas, VA, 20112, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127435

ENGAGEMENT TOOL: PLACE

Traffic Safety Map

2025-03-21 11:14:02 -0400 S.E. Childress CATEGORY Traffic Safety Concern VOTES 0	My backyard fence faces the intersection of Godwin Dr and Lucasville Rd. We have lived here for over 10 years. I have literally lost count of the number of accidents at this intersection. I have spoken to numerous responding officers and even VDOT about our concerns. So far, we haven't been able to make any progress with either. Traffic is often traveling on Lucasville Rd at posted speeds or above, but because of the two curves (one North of the Godwin intersection and one south of the Godwin intersection), cross traffic on Godwin doesn't always see the vehicles on Lucasville until it's too late to avoid a collision. There is also a highly used pedestrian crossing at this intersection. At this point, I can't recall any pedestrian incidents, but it is definitely a concern. Out homeowners asscoiation has approached VDOT about installing a 4-way stop, but we were not successful. Any help the county can provide is appreciated. Address: Lucasville Rd, Manassas, VA, 20112, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127437
2025-03-21 12:05:24 -0400 Sheen Childress CATEGORY Traffic Safety Concern VOTES 0	We have witnessed countless accidents at this intersection including one that went through a neighbor's fence. One almost went through our fence as well. A four way stop would greatly help this very dangerous situation. Address: 10812 Haggle Ct, Manassas, VA, 20112, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127440
2025-03-21 13:15:51 -0400 Kip62 CATEGORY Traffic Safety Concern VOTES 0	The north bound lane on lucasville is hidden and at speed (45mph) and if a south bound car is moving past Godwin going south. As the two cars cross the auto at Godwin going east can't see the north bound traffic. The same is true for the west bound Godwin car with the northbound lucasville car blocking the view of the southbound car as it comes off the corner at allegro Address: 10504 Godwin Dr, Manassas, VA, 20112, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127452
2025-03-21 15:53:33 -0400 Cu_25 CATEGORY Pedestrian Safety Concern VOTES 1	It's both a traffic and pedestrian safety concern. Overall, this corner is a problematic blind spot in general. The curve has trees and a house that visual obstructs the sight of potential oncoming, going traffic, and pedestrians (who walk in the middle of the curve because there's no walkway or sidewalk). At times there are vehicles that speed around the corner and drivers may not be aware of how close the upcoming intersection is and don't take in account the speed they're going. For the vehicles that are at the intersection it's hard to see past the house and trees at times. Furthermore, I believe the side that has the overpass also doesn't realize how close the intersection is. Address: 10615-10699 Lucasville Rd, Manassas, VA, 20112, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127471
2025-03-22 09:41:02 -0400 Parviz B CATEGORY Traffic Safety Concern VOTES 0	Many accidents during past 4 years of living here. Address: 10744-10798 Lucasville Rd, Manassas, VA, 20112, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127482

ENGAGEMENT TOOL: PLACE

Traffic Safety Map

2025-03-22 11:06:59 -0400 PDilick CATEGORY Traffic Safety Concern VOTES 0	This intersection has a HORRIBLE problem with vehicles running red lights, especially tractor trailers bypassing the weigh station on I-95. Too many people (vehicles and ped estrians) have been killed or nearly killed by red light runners. There needs to be some consistent traffic calming measure and police enforcement applied to this intersection. Address: Dumfries Rd, Dumfries, VA, 22025, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127485
2025-03-22 11:10:28 -0400 PDilick CATEGORY Traffic Safety Concern VOTES 0	The right lane of northbound Rt. 234 (which used to be a right turn only lane) has now been extended through the intersection with Country Club Drive as a merge lane. Too many people are using this merge lane as a passing lane, speeding through the inters ection and force merging when the lane ends, cutting off vehicles that have the right-of-way. I would really like to see the merge removed from this lane and and have the lane turned into a right turn lane only into the shopping center on Kevin Walker Drive. Address: Country Club Dr, Dumfries, VA, 22025, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127486
2025-03-22 11:11:36 -0400 PDilick CATEGORY Traffic Safety Concern VOTES 0	Request active police enforcement of 25 mph speed limit when the school zone lights a re activated. Far too many people speed through the school zone. Address: 16107-16107 Dumfries Rd, Dumfries, VA, 22025, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127487
2025-03-22 13:15:04 -0400 Brad B CATEGORY Traffic Safety Concern VOTES 0	To many accidents at this intersection. Address: 10779-10799 Lucasville Rd, Manassas, VA, 20112, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127489
2025-03-22 13:16:35 -0400 Jen B CATEGORY Traffic Safety Concern VOTES 0	Too many bad accidents to count at this dangerous intersection with blind curves from both directions. Address: Lucasville Rd, Manassas, VA, 20112, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127490

ENGAGEMENT TOOL: PLACE

Traffic Safety Map

2025-03-24 14:33:05 -0400

Elboogie09

CATEGORY

Traffic Safety Concern

VOTES

0

No speed limit signs posted. Was informed speed limit is supposed to be 25 mph. Yet I see cars everyday speeding like they on I95.. A few times they sped right in front of pol ice cars who did nothing in response.
Address: Singh Vision, 12703 Apollo Dr, Woodbridge, VA, 22192, USA

http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reportin g=true#marker-127549

2025-03-24 17:48:33 -0400

Gio64

CATEGORY

Traffic Safety Concern

VOTES

0

Excessive speed & traffic during school drop off/pick up times
Address: 12051-12085 Tygart Lake Dr, Bristow, VA, 20136, USA

http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reportin g=true#marker-127557

2025-03-24 17:51:22 -0400

Gio64

CATEGORY

Traffic Safety Concern

VOTES

0

Lack of street lights everywhere on Wellington as well as Hornbaker
Address: 11923-11925 Sudley Manor Dr, Manassas, VA, 20109, USA

http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reportin g=true#marker-127558

2025-03-24 18:24:52 -0400

JP

CATEGORY

Pedestrian Safety Concern

VOTES

0

Lack of sidewalk between Garry Glen Dr and Fitzgerald Drive in Bristow.
Address: 12540-12564 Vint Hill Rd, Nokesville, VA, 20181, USA

http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reportin g=true#marker-127559

2025-03-24 21:31:27 -0400

Dfong12

CATEGORY

Traffic Safety Concern

VOTES

0

The merge here from 95 South to 123 is really bad when trying to merge to the left to tu rn onto Old Bridge Road.
Address: Exit 160, Woodbridge, VA, 22192, USA

http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reportin g=true#marker-127561

ENGAGEMENT TOOL: PLACE

Traffic Safety Map

2025-03-24 21:50:17 -0400 Gtivr6ps CATEGORY Traffic Safety Concern VOTES 0	People using the right hand turn lane for Smoketown to continue straight past the gas s tation, crossing over all the white lines. Can also be considered a pedestrian issue as w ell. Address: Exxon Mobil, 3514 Old Bridge Rd, Woodbridge, VA, 22192, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127562
2025-03-24 21:53:29 -0400 Gtivr6ps CATEGORY Traffic Safety Concern VOTES 0	The left hand turn lane is marked as a turn lane into the equipment rental place. Driver s get over then but continue straight putting those who get over following that turn lane in risk. Many speed past in that lane. Address: Prince William Pkwy, Woodbridge, VA, 22192, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127563
2025-03-24 22:41:28 -0400 FC CATEGORY Traffic Safety Concern VOTES 0	The incidents of vehicle accidents and narrowly avoided pedestrian collisions at this cr oss traffic intersection are very concerning. One major difficulty is seeing oncoming traf fic approaching from the west. And with a high speed limit posting, most vehicles exce ed that, perhaps due to momentum, as they come around that curve. Slow moving vehi cles, such as school buses, are at great risk while crossing through the intersection. A f our way stop would enhance the safety of vehicle drivers and pedestrians by eliminatin g/reducing these dangers. Address: 10779-10799 Lucasville Rd, Manassas, VA, 20112, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127565
2025-03-24 22:48:23 -0400 Scap CATEGORY Traffic Safety Concern VOTES 0	This is a 2 way stop even though the road with the stop is a main road. Also at the stop you can't really even see if any traffic is coming. It's just dangerous and could easily be fixed with a 4 way stop like all the other spots where two "main" roads intersect. The ro ad that goes out to the 4 lane is the one that has the stop sign, not the intersecting whic h is weird. Address: 5786-5820 Riverside Dr, Woodbridge, VA, 22193, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127566
2025-03-25 07:49:24 -0400 pr CATEGORY Pedestrian Safety Concern VOTES 0	Additional signage and lighting (minimumn) needed to alert drivers to the presence of p edestrians crossing Glenkirk Rd. The issue is primarily with vehicles traveling south on Linton Hall Rd. and turning right onto Glenkirk Rd. When these vehicles have a green li ght, the pedestrians are also presented with a 'WALK' symbol and since the vehicles rig ht turn is about 145 degrees (not a 90) they move are moving very quickly. A fill stop of right-hand turns (green light and red light) when pedestrians are present would be best. I have seen and experienced multiple close-calls Address: 7890-7998 Linton Hall Rd, Gainesville, VA, 20155, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127568

ENGAGEMENT TOOL: PLACE

Traffic Safety Map

2025-03-25 10:34:48 -0400 Walter CATEGORY Pedestrian Safety Concern VOTES 0	Lack of sidewalk, form Victory Lakes area to Linton Hall road on West bound lane. This is a problem with the new community being built at the corner of Linton Hall and Sudley Manor. Address: 12664-12670 Sudley Manor Dr, Bristow, VA, 20136, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127569
2025-03-25 10:37:34 -0400 Walter CATEGORY Pedestrian Safety Concern VOTES 0	Lack of sidewalk on East bound Sudley Manor between Chatsworth Dr. and Pope. Forces pedestrians to cross two lanes at the light rather than staying on Eastbound side of the street. Aligns better with all the Pedestrian crossings on Sudley Manor. Address: 11295-11331 Sudley Manor Dr, Manassas, VA, 20109, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127570
2025-03-25 10:56:22 -0400 Walter CATEGORY Traffic Safety Concern VOTES 0	Add an additional lane for people merging onto 234 Southbound from Rt. 66 East bound, people are driving at speed and have to merge with people that are trying to exit at either Hanson Farm Rd or Ballsford exit. I've seen many near misses in that area. There seems like there is enough clearance to add on lane from the merge to Hanson Farm. Address: VA-234 Byp, Manassas, VA, 20109, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127571
2025-03-25 11:36:57 -0400 Stopbuildingpwc CATEGORY Pedestrian Safety Concern VOTES 0	People are crossing Dale blvd to walk their kids to and from school at Minnieville more now that a crosswalk has been added at this intersection. This crosswalk needs more indicators for motorist approaching. Address: Greenwood Dr, Woodbridge, VA, 22193, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127572
2025-03-25 11:38:44 -0400 Stopbuildingpwc CATEGORY Traffic Safety Concern VOTES 0	The last minute mergers cause accidents here often. Address: 4449-4519 Prince William Pkwy, Woodbridge, VA, 22192, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127573

ENGAGEMENT TOOL: PLACE

Traffic Safety Map

2025-03-25 11:39:44 -0400 Stopbuildingpwc CATEGORY Traffic Safety Concern VOTES 0	The flashing yellow light is misleading. Make it a normal traffic light or get rid of it. Address: 4598-4630 Prince William Pkwy, Woodbridge, VA, 22192, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127574
2025-03-25 11:55:21 -0400 BookReader2 CATEGORY Traffic Safety Concern VOTES 0	Cars use right turn lane to bypass standstill traffic, sometimes at a high rate of speed. This is an everyday concern and also jeopardizes pedestrian/bike traffic as well. Address: Exxon Mobil, 3514 Old Bridge Rd, Woodbridge, VA, 22192, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127575
2025-03-25 11:57:13 -0400 BookReader2 CATEGORY Traffic Safety Concern VOTES 0	Individuals do not heed the no u turn sign. Numerous close calls with traffic coming around the bend on Old Bridge, only to have a car make a U Turn in front of them. Right hand turns off Hedges are also dangerous when drivers aren't expecting U Turns. Address: Hedges Run Dr, Woodbridge, VA, 22192, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127576
2025-03-25 11:59:07 -0400 BookReader2 CATEGORY Traffic Safety Concern VOTES 0	Traffic always backs up in the left lane to turn left on PW Pkwy. Cars will dart over to the right lane instead of braking only to cut back in further down in line. This is a continuous problem all the way down Old Bridge including heading east on PW Pkwy between Ridgefield and Old Bridge. Address: Old Bridge Rd, Woodbridge, VA, 22192, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127577
2025-03-25 12:24:12 -0400 Gretarc CATEGORY Traffic Safety Concern VOTES 1	The flashing light does not provide enough safety for cars coming out of the neighborhood onto the Parkway. I've seen so many accidents from both sides of the road coming onto the Parkway. We need a regular traffic light. Address: Black Forest Ln, Woodbridge, VA, 22192, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127579

ENGAGEMENT TOOL: PLACE

Traffic Safety Map

2025-03-25 18:23:10 -0400 shelbydintino CATEGORY Pedestrian Safety Concern VOTES 0	Drivers, turning right on Glerkirk, have the “green light” when pedestrians have the “walk” sign across the cross walk. Address: 7890-7998 Linton Hall Rd, Gainesville, VA, 20155, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127582
2025-03-26 00:46:37 -0400 ShellsinVA CATEGORY Pedestrian Safety Concern VOTES 0	I am writing to express a concern regarding pedestrian safety at the intersection connecting the Potomac Club community to Stonebridge. With the current "turn on red" allowance, many drivers fail to look to their right for pedestrians using the crosswalk. This creates a hazardous situation for those walking in the area. Additionally, I believe adding a pedestrian crosswalk on the opposite side of the road would significantly improve safety. This would help deter pedestrians from using an unmarked path and ensure a safer and more accessible connection between the two communities. Address: 15001-15001 River Rock Way, Woodbridge, VA, 22191, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127583
2025-03-26 00:47:16 -0400 ShellsinVA CATEGORY Pedestrian Safety Concern VOTES 0	I am writing to express a concern regarding pedestrian safety at the intersection connecting the Potomac Club community to Stonebridge. With the current "turn on red" allowance, many drivers fail to look to their right for pedestrians using the crosswalk. This creates a hazardous situation for those walking in the area. Additionally, I believe adding a pedestrian crosswalk on the opposite side of the road would significantly improve safety. This would help deter pedestrians from using an unmarked path and ensure a safer and more accessible connection between the two communities. Address: 2292-2294 Opitz Blvd, Woodbridge, VA, 22191, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127584
2025-03-26 08:19:36 -0400 Wath out Left Turn Vehicle CATEGORY Traffic Safety Concern VOTES 0	Cars should reduce speed for incoming vehicles from Cabbel Drive or at least adhere to the speed limit to prevent collisions. Address: 8219-8265 Old Centreville Rd, Manassas, VA, 20111, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127586
2025-03-26 15:20:53 -0400 Gtivr6ps CATEGORY Traffic Safety Concern VOTES 0	It starts here! Some of your own officers don’t follow the rules, especially the ones in the unmarked Explorers with dark tinted windows. I have even sent dash cam videos. Address: 5057-5099 Davis Ford Rd, Woodbridge, VA, 22192, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127590

ENGAGEMENT TOOL: PLACE

Traffic Safety Map

2025-03-26 21:09:14 -0400 Afosmire CATEGORY Traffic Safety Concern VOTES 0	No U-turn signs for both directions. Drivers making U-turns who are trying to avoid the l ong waits at both Glenkirk Rd and Limestone Dr. These drivers are already impatient a nd do not yield to right of way. Address: Rocky Run Rd, Gainesville, VA, 20155, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reportin g=true#marker-127593
2025-03-26 22:11:20 -0400 T1gh8 CATEGORY Traffic Safety Concern VOTES 0	Both a traffic and pedestrian concern. I witness cars making a left turn coming out of th e Harris teeter onto catharpin even though there is a median preventing it. We were al most hit a few weeks ago because of this. Also Traffic is getting heavier, making the lef t turn from legend onto catharpin really challenging. I have seen multiple pedestrians al most get hit by speeding cars (and many who cross here are kids). And the signs in tha t intersection are constantly getting hit by cars making the illegal turns. It’s a mess!! A pedestrian bridge, four way stop, or a stop light would be smart. Address: Legend Dr, Gainesville, VA, 20155, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reportin g=true#marker-127594
2025-03-27 03:43:25 -0400 crndriver CATEGORY Pedestrian Safety Concern VOTES 0	Drivers do not stop for pedestrians in crosswalk due to high traffic and poor visibility. R ecommend adding a flashing lights along pedestrian path when pedestrians are presen t. Address: Copeland Dr, Manassas, VA, 20109, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reportin g=true#marker-127596
2025-03-27 07:27:45 -0400 Larsb CATEGORY Pedestrian Safety Concern VOTES 0	To get from the Hailee's grove side of this intersection to the play area at the Lucasville school a couple blocks down Godwin, you need to cross this intersection. Either by foot /bike or car - this intersection feels very uncomfortable to cross with the extreme speed s vehicles come from in both directions (but mainly from the south). even at a jog or sm all kid running across this intersection with no cars in sight, cars have nearly hit people. Address: 10779-10799 Lucasville Rd, Manassas, VA, 20112, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reportin g=true#marker-127597
2025-03-27 07:30:07 -0400 Larsb CATEGORY Traffic Safety Concern VOTES 0	There is a dip in the road at the start of the bridge that is growing larger by the year. In a vehicle with a bad suspension this feels like a foot + drop! Multi vehicles drive into th e opposite lane of traffic to avoid it risking head on collisions. The opposite side of the r oad is also starting to get a dip. Address: 10401-10401 Godwin Dr, Manassas, VA, 20110, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reportin g=true#marker-127598

ENGAGEMENT TOOL: PLACE

Traffic Safety Map

2025-03-27 07:35:53 -0400 Larsb CATEGORY Traffic Safety Concern VOTES 0	Several man made pot holes northbound on 28 in this stretch. Recently the road was r epaved and the large manholes are a couple inches below the road. Initially on the righ t side, then on the left. I have seen cars swerve into the opposite lane or into the curb to avoid them Address: Nokesville Rd, Manassas, VA, 20110, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reportin g=true#marker-127599
2025-03-27 12:06:01 -0400 kroberts CATEGORY Traffic Safety Concern VOTES 0	There needs to be a red light camera here! Every single day, morning and afternoon, p eople are sitting in the intersection trying to turn left onto Grant from Church St! AND s peeding through the light well after it has turned red. I have seen so many people almo st hit pedestrians and other vehicles! Address: 9403-9403 Grant Ave, Manassas, VA, 20110, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reportin g=true#marker-127600
2025-03-27 13:15:04 -0400 welsr CATEGORY Traffic Safety Concern VOTES 0	Making a left hand turn from Harness Shop Rd onto Linton Hall Road can be a life thre atening event. Cars routinely run east on LHR toward Bristow at 60 mph. We need so me tame the traffic Address: Linton Hall Rd, Bristow, VA, 20136, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reportin g=true#marker-127604
2025-03-27 13:16:20 -0400 welsr CATEGORY Traffic Safety Concern VOTES 0	Routine speeding through the school zone. How about a speed camera to help manag e speeds Address: 8269-8309 Linton Hall Rd, Bristow, VA, 20136, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reportin g=true#marker-127605
2025-03-27 17:29:00 -0400 NovaVA CATEGORY Traffic Safety Concern VOTES 0	Too many cars park along the curb and makes it dangerous for those that are trying to pull out on to the main road as they have to look past the park cars when events are go ing on around this community. Something needs to be done especially since many cars speed down the road without a car. Address: 12987 Queen Chapel Rd, Woodbridge, VA, 22193, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reportin g=true#marker-127607

ENGAGEMENT TOOL: PLACE

Traffic Safety Map

2025-03-28 22:03:44 -0400 C Fred CATEGORY Traffic Safety Concern VOTES 0	Parking on this corner is dangerous due to inadequate visibility of cross traffic. Address: 4214 Hoffman Dr, Woodbridge, VA, 22193, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127615
2025-03-29 16:32:40 -0400 Walter CATEGORY Pedestrian Safety Concern VOTES 0	Contractor that did the horizontal boring to place new fiber conduit along the west bound side of Sudley Manor drive did a horrible job with regrading the ground along the side walk, When I walk along the sidewalk there are drop offs of 3" or more all along the right side of the sidewalk which is a big tripping hazard. Not sure if there was any county oversight on that project but this should be a punch list item that needs to be addressed before someone breaks and ankle or wrecks on a bike because of this. Someone from the county needs to walk the lengtht of that side walk from Wellington to the end of the sidewalk at just past Victory Lakes Loop Rd. Address: 12281 United Park Way, Bristow, VA, 20136, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127618
2025-03-30 11:46:12 -0400 PinDrop CATEGORY Traffic Safety Concern VOTES 0	All along Old Bridge, people constantly use the turn lanes to go straight across the intersection. Install collapsible bollards to enforce the turn lanes. Address: Merchant Plz, Woodbridge, VA, 22192, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127621
2025-03-30 16:59:09 -0400 * CATEGORY Traffic Safety Concern VOTES 0	Frequent high-speed weaving from the right turn-only lane into the center straight lane southbound on US-1 between Neabsco Mills Road and Cardinal Drive. Why have planning/design efforts not started to widen US-1 between Cardinal Drive to VA-234? The Van Buren extension will not provide sufficient relief to residents who live east of US-1 in this corridor. Address: 15550 Neabsco Mills Rd, Woodbridge, VA, 22191, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127622
2025-03-30 17:03:06 -0400 * CATEGORY Traffic Safety Concern VOTES 0	Frequent high-speed passing on right shoulder / turn lanes between Celestial Drive and Port Potomac Ave. Why have planning/design efforts not started to widen US-1 between Cardinal Drive to VA-234? Please consider an immediate spot improvement to add a third "thru" lane for the Northbound segment between the Powells Creek Bridge and Cardinal Drive. The Van Buren extension will not provide sufficient relief to residents who live east of US-1 in this corridor. Address: 16183-16189 Richmond Hwy, Woodbridge, VA, 22191, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127623

ENGAGEMENT TOOL: PLACE

Traffic Safety Map

2025-03-30 17:06:17 -0400 * CATEGORY Traffic Safety Concern VOTES 0	Southbound left turn traffic onto Powells Creek Blvd frequently backs up into the left thru lane, causing dangerous weaving into the right thru lane to pass the backed-up cars. Why have planning/design efforts not started to widen US-1 between Cardinal Drive to VA-234? Please consider an immediate spot improvement to add a second left turn lane onto Powells Creek Blvd. The Van Buren extension will not provide any relief to this condition, or for residents who live east of US-1 in this corridor. Address: 16300 Jefferson Davis Hwy, Woodbridge, VA, 22191, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127624
2025-03-30 17:09:22 -0400 * CATEGORY Traffic Safety Concern VOTES 0	Encourage the Potomac Shores developer and/or VDOT (to allow the developer) to immediately install the traffic signal at this intersection. Northbound traffic volume on River Heritage makes left turn movements onto Potomac Shores Parkway difficult. Address: River Heritage Blvd, Dumfries, VA, 22026, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127625
2025-03-30 17:10:40 -0400 * CATEGORY Pedestrian Safety Concern VOTES 0	Encourage the Potomac Shores developer and/or VDOT (to allow the developer) to immediately install the traffic signal at this intersection. Peak period traffic volume and failure to yield makes pedestrian crossing across very difficult and dangerous. Address: Potomac Shores Pkwy, Dumfries, VA, 22026, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127626
2025-03-30 17:14:14 -0400 * CATEGORY Pedestrian Safety Concern VOTES 0	Frequent speeding (35 MPH on VDOT road, transitions to 25MPH beyond intersection onto private (future VDOT) road makes it dangerous to cross Potomac Shores Parkway in marked crosswalks. Install rectangular rotating flashing beacons to improve visibility of pedestrians, along with PWC Police enforcement efforts. Address: 1810 Potomac Shores Pkwy, Dumfries, VA, 22026, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127627
2025-03-30 19:59:35 -0400 Mildre flores CATEGORY Pedestrian Safety Concern VOTES 0	The high speed between these intersection are not safe for walkers, specially we have a elementary school that we can walk specially in the warm weather. People can not really cross one intersection to other since cars are speedy above 50 mph. We need something to get cars to slow down. Thank you Address: Song Sparrow Dr, Gainesville, VA, 20155, USA http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=true#marker-127628

ENGAGEMENT TOOL: SURVEY TOOL

Comprehensive Traffic Safety Action Plan Survey

Visitors 757	Contributors 182	CONTRIBUTIONS 185

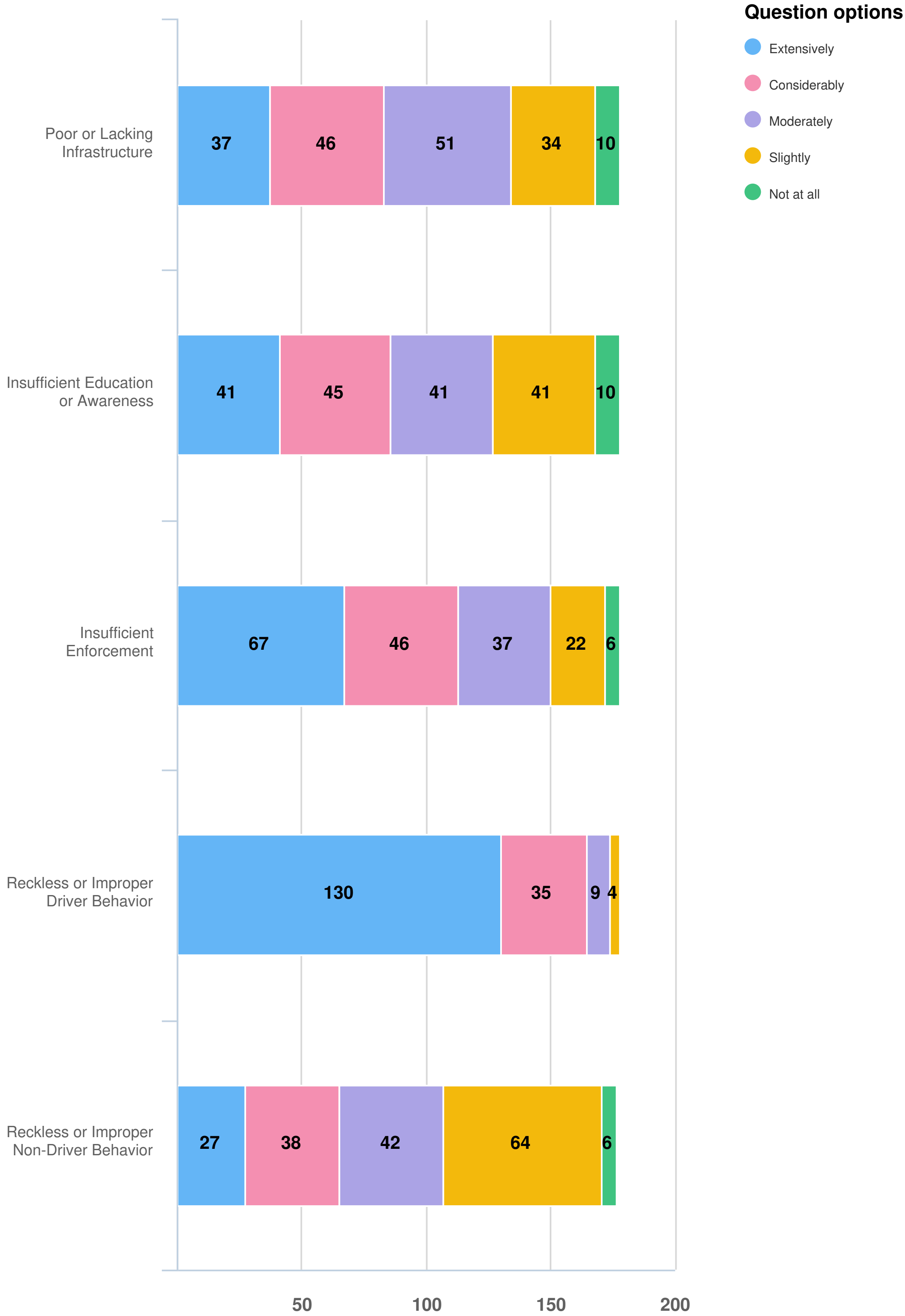
What themes for the Traffic Safety Action Plan are most important to you? Please rank 1-8, with 1 being the most important.

OPTIONS	AVG. RANK
Safety is Proactive: Prevent incidents in advance, rather than reacting as they occur	2.54
Identify Key Factors Contributing to Crashes: Understanding the cause of crashes is important	3.13
Focus on the Prevention of Death and Serious Injury: Prioritize serious crashes rather than the elimination of all crashes	4.22
Shared Responsibility: Safety involves all levels of stakeholders and the community	4.65
Value of Investment: Any death or serious injury prevented is invaluable; careful targeting of limited resources is key	4.68
Safety for All: With emphasis on most vulnerable users and communities	4.70
Multimodal Vision: Safety objectives include the diversification of travel options	5.15
Recognize Humans Make Mistakes: Understanding people make mistakes and accidents happen	6.11

Optional question (178 response(s), 7 skipped)

Question type: Ranking Question

How extensively do the following factors contribute to transportation safety risk in PWC?



Optional question (178 response(s), 7 skipped)

Question type: Likert Question

What factors are most important to you in selecting and prioritizing safety projects? Please rank 1-6, with 1 being the most important.

OPTIONS	AVG. RANK
Safety: Prioritizes mitigating safety risk in areas of concern, reducing crashes, serious injuries and fatalities	2.18
Public Input: Prioritizes areas identified by public input as safety concerns	2.88
Connectivity: Builds upon the existing network, bridging gaps and providing connections between modes of transportation	3.42
Accessibility: Provides access to key destinations, high-activity areas, and areas of future growth	3.53
Vulnerable Users: Prioritizes safety in areas where vulnerable users are concentrated	4.21
Equity: Improves safety and provides more transportation options for disadvantaged populations	4.49

Optional question (168 response(s), 17 skipped)

Question type: Ranking Question

What Safety Countermeasure Areas do you feel are most important to receive funding. Please rank 1-9, with 1 being the most important.

OPTIONS	AVG. RANK
Intersection Improvements (roundabouts, median islands, crosswalk enhancements)	3.70
Enforcement of Driver, Pedestrian, and Bicycle Laws (speed/red light cameras, increased patrol)	3.96
Street Lighting Improvements (roadway/sidewalk/intersection lighting)	4.60
Speed Management/Traffic Calming Infrastructure (speed humps/bumps, curb extensions)	4.65
Roadway Safety Infrastructure (rumble strips, guardrails)	4.67
Bicycle/Pedestrian Facility Improvements (protected bike lanes, safe crosswalks)	4.72
Impaired Driving Education/Enforcement (public awareness, increased enforcement)	5.65
Improve Emergency Medical Response and Post-Crash Care (training program improvements, equipment upgrades)	6.09
School Bicycle/Pedestrian Safety Programs (public awareness, safety workshops, crossing guards)	6.14

Optional question (174 response(s), 11 skipped)

Question type: Ranking Question

Appendix B

KITTELSON & ASSOCIATES
11480 Commerce Park Drive #230
Reston, VA 20191
P (703) 885-8970

TECHNICAL MEMORANDUM

April 22, 2025 Project# 28960.002

To: Richard Weinmann,
Traffic Safety Engineering Branch Manager
Prince William County Government
Department of Transportation

From: Meredyth Sanders, Jesús Cuellar, Jeff Riegner, PE, AICP, PTOE, RSP1, Kittelson & Associates

RE: Prince William County SS4A Safety Action Plan: High Injury Network Analysis

Introduction

Kittelson is supporting the development of a Comprehensive Safety Action Plan for Prince William County (PWC) as part of a grant from the U.S. Department of Transportation's Safe Streets for All (SS4A) program. The PWC Department of Transportation secured this grant in coordination with the City of Manassas Park. The collaborative effort aims to create a data-driven blueprint of strategies to promote and enhance safety across the County's diverse communities.

This memorandum supports the completion and adoption of a Safety Action Plan and includes the following sections:

- **Regional Trends** – Describes historical crash trends for PWC, focusing on crash characteristics and participant demographics. The goal is to identify priority crash characteristics that contribute to fatal and serious injury (FSI) crashes in the County.
- **Risk-Ratio Analysis** – Provides a system-wide analysis to evaluate differences in FSI crash frequency on roadways and at intersections based on differences in specific factors, such as urban versus rural land use contexts.
- **Network Screening** – Identifies locations with higher crash frequencies and more severe outcomes along roadways and intersections in PWC.
- **High-Injury Network (HIN) Development** – Outlines the process used to identify the high-injury network for PWC, summarizing the roadways and intersections where FSI crashes are concentrated.
- **Equity Evaluation** – Assesses disparities in crash frequency and severity among different demographic and socioeconomic groups in PWC. This section examines how traffic safety outcomes vary based on factors such as income levels, race, ethnicity, and access to transportation infrastructure, ensuring that future safety interventions address the needs of disadvantaged communities. This section also examines the relationship between the HIN and disadvantaged communities within the county.

DATA USED

The study team used a comprehensive, data-driven approach to develop a reliable safety analysis for PWC, the City of Manassas Park, and select roads within the City of Manassas. The project team leveraged multiple datasets to assess crash trends, intersection conditions, and roadway characteristics, ensuring a holistic understanding of safety challenges across the study area.

Three primary data sources formed the foundation of this analysis:

- **Crash Data** provided insights into historical crash trends and locations with a history or higher likelihood of experiencing frequent or severe crashes.
- **Intersection Data** captured the spatial distribution and attributes of County intersections.
- **Roadway Data** established a detailed street network.

By integrating these datasets, the team conducted a robust assessment to identify safety priorities and inform data-driven recommendations for improving roadway safety. The following sections describe each dataset and its role in the analysis.

Crash Data

The project team obtained and analyzed five years of crash data (January 1, 2018 – December 31, 2022) for PWC, the City of Manassas Park, and select roads in the City of Manassas from Virginia Department of Transportation's (VDOT's) Pathways for Planning. While standard practice involves reviewing the most recent five years of crash data, this analysis includes 2018-2022 to capture two years of pre- and post-COVID-19 pandemic data and assess its impact on safety.

Although the analysis does not include all crashes from the City of Manassas, PWC identified crashes along key corridors within the city for inclusion. The dataset was further refined by removing crashes that occurred on access-controlled facilities (e.g., I-66, I-95), ramps, rest areas, private roads, and Marine Corps Base Quantico, as these crashes fall outside the County's jurisdiction.

The final dataset included 23,299 crashes.

Roadway Data

The network screening analysis used VDOT's Linear Referencing System (LRS) Route Master feature class, available through the VDOT Open Data Portal. This dataset contains official state measures from VDOT's linear referencing system.

The project team processed the data to remove dual carriageways, access-controlled facilities (e.g., I-66, I-95), ramps, rest areas, and private roads, and all but select roads within the City of Manassas. The team split noncontiguous routes (i.e., where a valid physical gap exists where another LRS route takes precedence) into distinct segments. The team created a new LRS for the modified dataset with unique IDs for each segment in the analysis roadway network.

The final roadway dataset included approximately 2,000 miles of roadways.

Intersection Data

The project team created an intersection dataset using the analysis roadway network. The team identified intersections formed by public roads across the County. Initially, the team generated a preliminary set of intersections by extracting points where roadways in the analysis roadway network intersected. The team reviewed this dataset to remove duplicates.

The final dataset included 15,654 intersections.

Regionwide Historical Trends

This section provides a regionwide analysis of crash trends in PWC from 2018 to 2022, focusing on crash frequency, severity, and contributing factors. The analysis examines crash distribution across different roadway types, temporal patterns, user modes, and environmental conditions, offering insight into recurring safety issues.

Further insights explore how crash severity varies by roadway classification, intersection presence, lighting conditions, driver age, impairment, speeding behavior, and jurisdiction. These findings help identify conditions contributing to severe crashes, and locations and user groups with a higher likelihood of experiencing fatal or serious injury crashes.

KEY TAKEAWAYS

General Trends

- An average of 4,660 crashes occurred annually, with 3.5% resulting in a fatal or serious injury (FSI).
- Rear-end (37.2%) and angle (33.9%) crashes were the most common crash types.
- Angle (31.6%), fixed object-off road (17.7%), and pedestrian (16.0%) crashes collectively account for the largest share of all FSI crashes.
- Crash types that experienced a disproportionate number of FSI crashes compared to their share of all crashes included Fixed Object – Off Road (17.7% of FSI crashes, 8.6% of total crashes), pedestrian (16% of FSI crashes, 1.5% of total crashes), head-on (6.3% of FSI crashes, 2.8% of total crashes), and bicycle (2.7% of FSI crashes, 0.5% of total crashes).
- Crashes declined in 2020 but rebounded to pre-pandemic levels in 2021 and 2022. FSI crashes increased by 17.5% in 2021–2022 compared to 2018–2019.

Pedestrian and Bicycle Crashes

- A high proportion of pedestrian and bicyclist crashes resulted in a fatal or serious injury compared to all other crash types.
    - 37.3% percent of all pedestrian crashes were FSI crashes
    - 17.6% of all bicycle crashes were FSI crashes
- Crossing at an intersection accounted for the highest number of pedestrian crashes (42.8%), with the remainder involving non-intersection crossings, walking along the roadway, or other circumstances.
- Regardless of pedestrian action, FSI crashes accounted for 37.3% of pedestrian crashes, reinforcing that pedestrian-involved crashes tend to result in severe outcomes regardless of location or activity.

Driver Age

- Drivers aged 26 to 64 account for the largest share of all crashes (46.8%) and all FSI crashes (49.5%).
- Drivers aged 25 and under account for 40.6% of all crashes and 38.0% of all FSI crashes, making them the second key contributor to total reported incidents and FSI crashes.

Temporal Patterns

- October to December saw the most crashes (28.3% of the annual total), with October recording the highest number.
- Fridays had the highest crash frequency (16.7%) and FSI crashes (17.2%).
- Crash frequencies peaked during the evening rush hour (5:00 PM, 8.7% of total crashes) and remained elevated between 3:00 PM and 7:00 PM.
- The time periods between 7:00 PM and 4:00 AM account for elevated proportions of FSI crashes compared to their share of all crashes, suggesting that crashes during these hours tend to be more severe despite lower traffic volumes.

Roadway Characteristics

- Intersections accounted for 55.8% of total crashes and 53.1% of FSI crashes.
- Minor arterials had the highest crash share (35.2%) and contributed 32.5% of FSI crashes.

Other Crash Characteristics

- Crashes on dark, unlit roads made up 10.3% of total crashes but 19.6% of FSI crashes.
- Impaired driving was involved in only 8.0% of crashes but made up 24.2% of FSI crashes. Crashes involving impaired drivers were nearly four times more likely to result in an FSI (10.5%) compared to non-impaired crashes (2.8%).
- Speeding-related crashes accounted for 15.2% of total crashes but 29.7% of FSI crashes, making them disproportionately severe.
- Rural crashes were less frequent (5.9%) but had a higher proportion of severe outcomes (10.5%). Crashes in rural areas were nearly twice as likely to result in an FSI (6.2%) compared to urban crashes (3.3%).

GENERAL TRENDS

This section examines crash frequency and severity trends in PWC from 2018 to 2022. An average of 4,660 crashes occurred annually, with 3.5% resulting in an FSI. Rear-end and angle crashes were the most common, while pedestrian, bicycle, and head-on crashes had the highest proportion of FSI outcomes.

Crash trends over time show a decline in 2020, followed by a rebound to pre-pandemic levels in 2021 and 2022. FSI crashes increased by 17.5% in 2021–2022 compared to 2018–2019, indicating a potential shift toward more severe crashes following the COVID-19 pandemic.

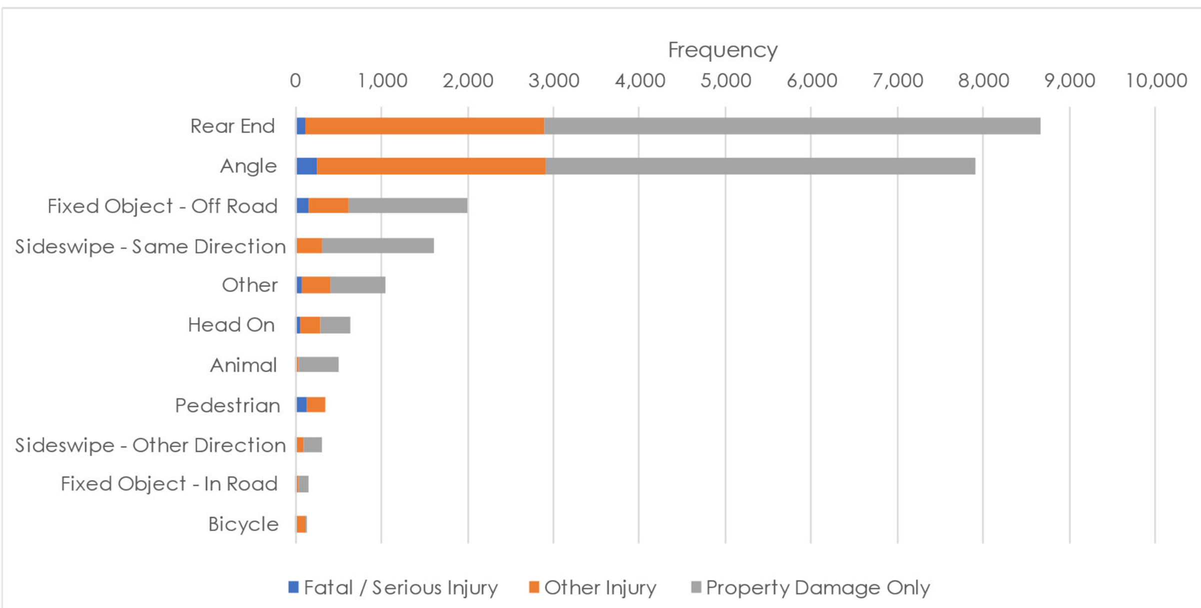
Figure 1 summarizes reported crashes in PWC by severity and crash type from 2018 to 2022. Rear-end crashes (37.2%) and angle crashes (33.9%) are by far the most frequent, and account for over 70% of all crashes.

Angle (31.6%), fixed object-off road (17.7%), and pedestrian (16.0%) crashes collectively account for the largest share of all FSI crashes. However, four crash types experienced a disproportionate number of FSI crashes compared to their share of all crashes:

- Fixed object – off road (17.7% of FSI crashes, 8.6% of total crashes)
- Pedestrian (16% of FSI crashes, 1.5% of total crashes)
- Head on (6.3% of FSI crashes, 2.8% of total crashes)
- Bicycle (2.7% of FSI crashes, 0.5% of total crashes)

While these crash types happen less frequently, they are more likely to result in severe outcomes when they do occur.

Figure 1: Total Reported Crashes by Severity (2018 – 2022)



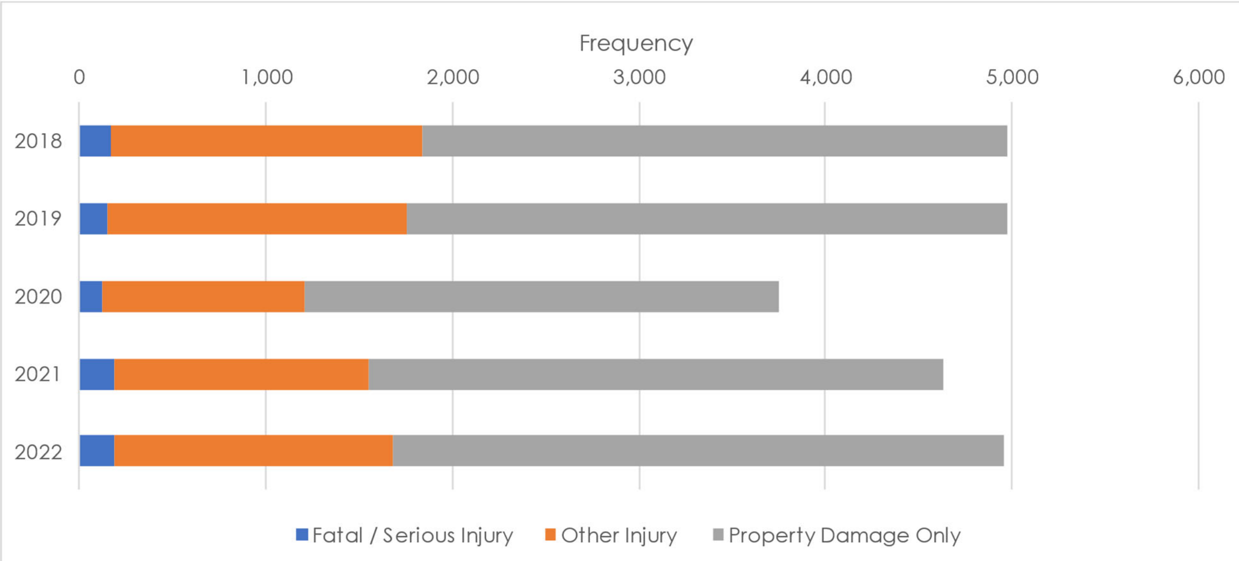
Source: VDOT Pathways for Planning, Prince William County, compiled by Kittelson

Figure 2 presents crash frequencies by year and severity from 2018 to 2022. Crash counts were equally high in 2018 and 2019 before dropping substantially in 2020 during the COVID-19 pandemic. Total crashes dropped by 24.6% from 4,980 crashes in 2019 to 3,753 crashes in 2020. However, FSI crashes declined by only 17.1%, from 146 in 2019 to 121 in 2020, demonstrating that while total crashes fell, the reduction in severe crashes was less pronounced.

Crash frequencies increased in 2021. By 2022, crash counts had returned to 2018-2019 levels. While total crash counts rebounded, the proportion of FSI crashes increased from an average of 3.2% of all crashes in 2018-2019 to 3.9% in 2021-2022, indicating a rise in crash severity. The absolute number of FSI crashes increased from an annual average of 158 in 2018-2019 to 185 in 2021-2022, representing a 17.5%

increase. This trend suggests that while overall crash volumes stabilized, severe crashes became more frequent following the COVID-19 pandemic.

Figure 2: Annual Crashes by Severity (2018 – 2022)



Source: VDOT Pathways for Planning, Prince William County, compiled by Kittelson

PEDESTRIAN AND BICYCLE CRASHES

This section examines crash severity by roadway user type from 2018 to 2022. As shown in **Table 1**, crashes involving only motor vehicles account for nearly all reported crashes (97.9%), while those involving pedestrians and bicyclists make up a small share (2.1%) but represent a disproportionate number of all FSI crashes (18.7%).

Pedestrians are particularly likely to experience severe outcomes, with 37.3% of pedestrian crashes resulting in FSI. Similarly, nearly 1 in 5 bicycle crashes involved an FSI, and 95.1% resulted in some level of injury. In contrast, 33.1% of motor-vehicle-only crashes resulted in some level of injury, further highlighting the vulnerability of pedestrians and bicyclists in crashes.

Table 1: Crashes by Mode and Severity (2018 – 2022)

Roadway User Type	Fatal / Serious Injury	Other Injury	Property Damage Only	Total	Crash Share
Pedestrian	138	225	-	363	1.6%
Bicycle	21	97	6	124	0.5%
Motor Vehicle	647	6,898	15,267	22,812	97.9%
Total	**806**	**7,220**	**15,273**	**23,299**	**100%**

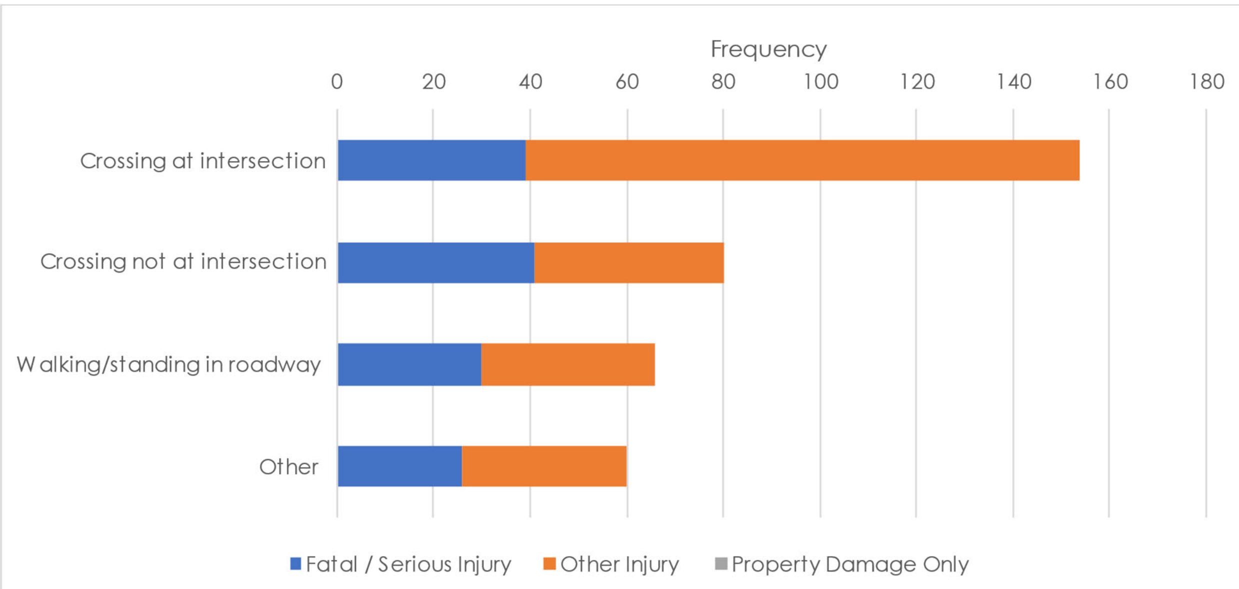
Source: VDOT Pathways for Planning, Prince William County, compiled by Kittelson

Figure 3 illustrates pedestrian activity during crashes, highlighting where and how pedestrian-involved crashes occurred. Crossing at an intersection accounted for the highest number of pedestrian crashes

(42.8%). Crashes involving pedestrians crossing away from an intersection represent 22.2% of crashes, indicating that midblock crossings are another common crash scenario.

Additionally, 18.3% of crashes involved pedestrians walking or standing in the roadway, which may reflect locations without sidewalks or other pedestrian infrastructure. The remaining 16.7% of crashes fell into the "Other" category. For each pedestrian action, FSI crashes accounted for 25.3% to 51.3% of total crashes, reinforcing that pedestrian-involved crashes tend to result in severe outcomes regardless of location or activity.

Figure 3: Pedestrian Crashes by Action and Severity (2018 – 2022)



Source: VDOT Pathways for Planning, Prince William County, compiled by Kittelson

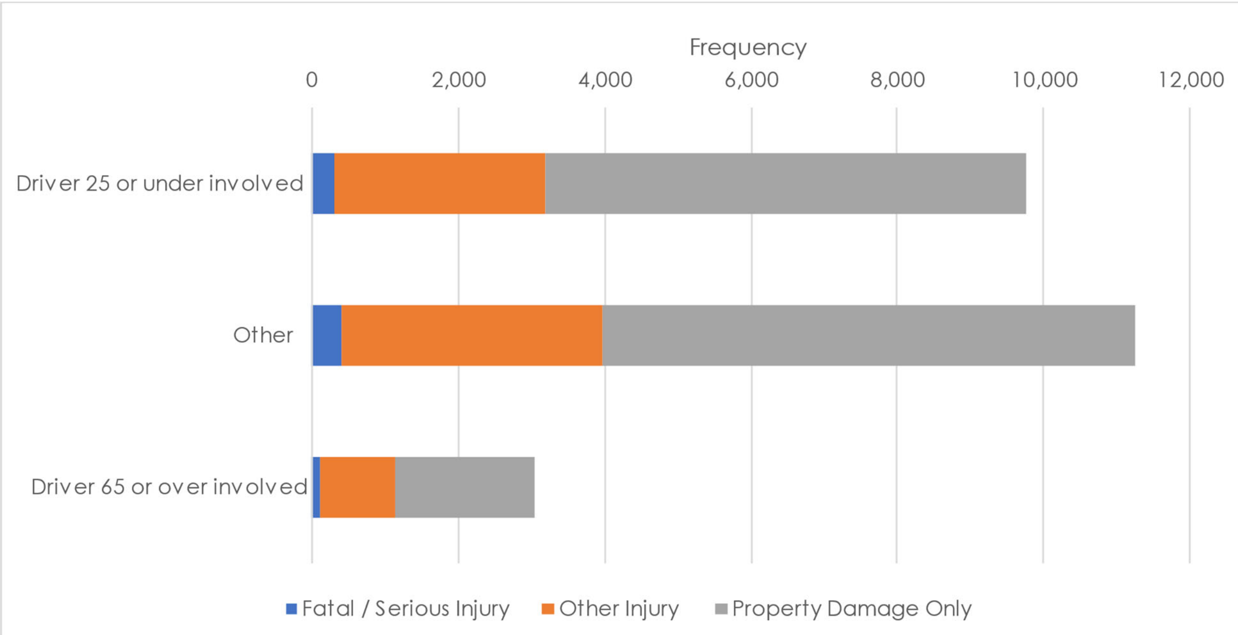
DRIVER AGE

Figure 4 presents crashes by driver age group and severity from 2018 to 2022. Drivers aged 25 and under account for 40.6% of all crashes, making them a substantial contributor to total reported incidents. This group accounted for 38.0% of all FSI crashes.

The largest share of crashes (46.8%) falls under the "Other" category, which includes drivers aged 26 to 64. Additionally, this group accounted for the largest share of total FSI crashes (49.5%), highlighting their overall contribution to severe crashes.

Crashes involving drivers aged 65 and older made up the smallest share of total crashes (12.7%). This group accounted for 12.5% of all FSI crashes.

Figure 4: Crashes by Driver Age and Severity (2018 – 2022)



Source: VDOT Pathways for Planning, Prince William County, compiled by Kittelson

TEMPORAL PATTERNS

This section examines crash trends by month, day of the week, and time of day from 2018 to 2022.

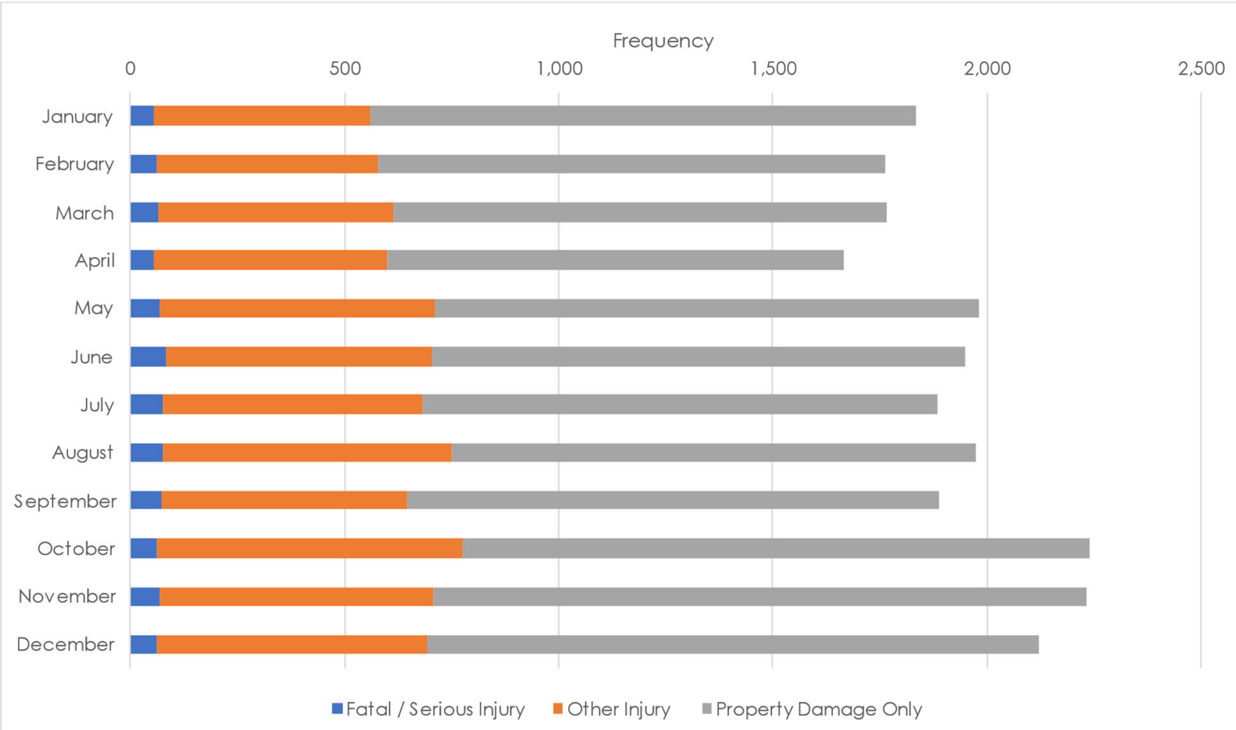
Crashes by Month

Figure 5 illustrates crash frequencies by month from 2018 to 2022. Crash frequencies were lowest from January to April, with each of these months accounting for between 7.2% and 7.9% of total crashes. Crash volumes increased moderately from May to September, ranging between 8.1% and 8.5%. The highest crash counts occurred from October to December. The peak crash months are October, November, and December, with these months collectively representing 28.3% of all crashes. October had the highest number of crashes at 2,240 (9.6%), followed closely by November with 2,231 (9.6%) and December with 2,122 (9.1%). This trend differs from national patterns[1], which typically do not exhibit a significant increase in crashes during November and December.

Additionally, the FSI share of total crashes peaked in June at 10.2% and remained at 9.6% in July and August.

[1] According to "Crashes by Month", National Safety Council (NSC)

Figure 5: Crashes by Month and Severity (2018 – 2022)

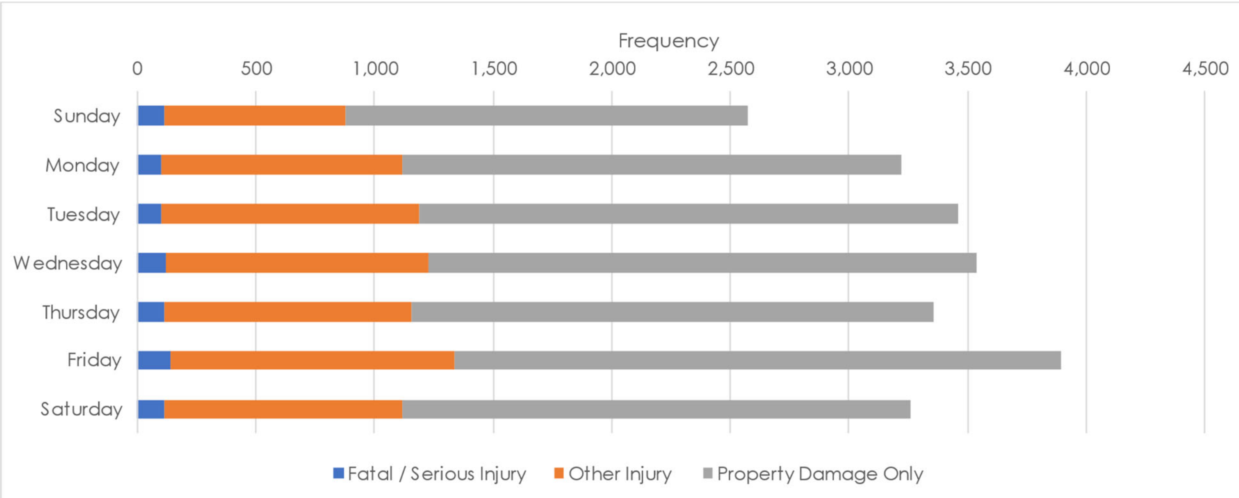


Source: VDOT Pathways for Planning, Prince William County, compiled by Kittelson

Crashes by Day of the Week

Figure 6 illustrates crash frequencies by day of the week from 2018 to 2022. Crashes occur more frequently on weekdays than on weekends, with the highest number of crashes and FSI crashes reported on Fridays (16.7% and 17.2%, respectively), followed by Wednesdays (15.2% and 15.3%, respectively). Sundays have the lowest total crash counts (11.0%), but they accounted for the highest share of FSI crashes relative to their crash type (4.5%). Additionally, Sundays had the third-highest share of total FSI crashes (14.3%), making them one of the most severe crash days relative to their overall occurrence.

Figure 6: Crashes by Day of Week and Severity (2018 – 2022)



Source: VDOT Pathways for Planning, Prince William County, compiled by Kittelson

Crashes by Time of Day

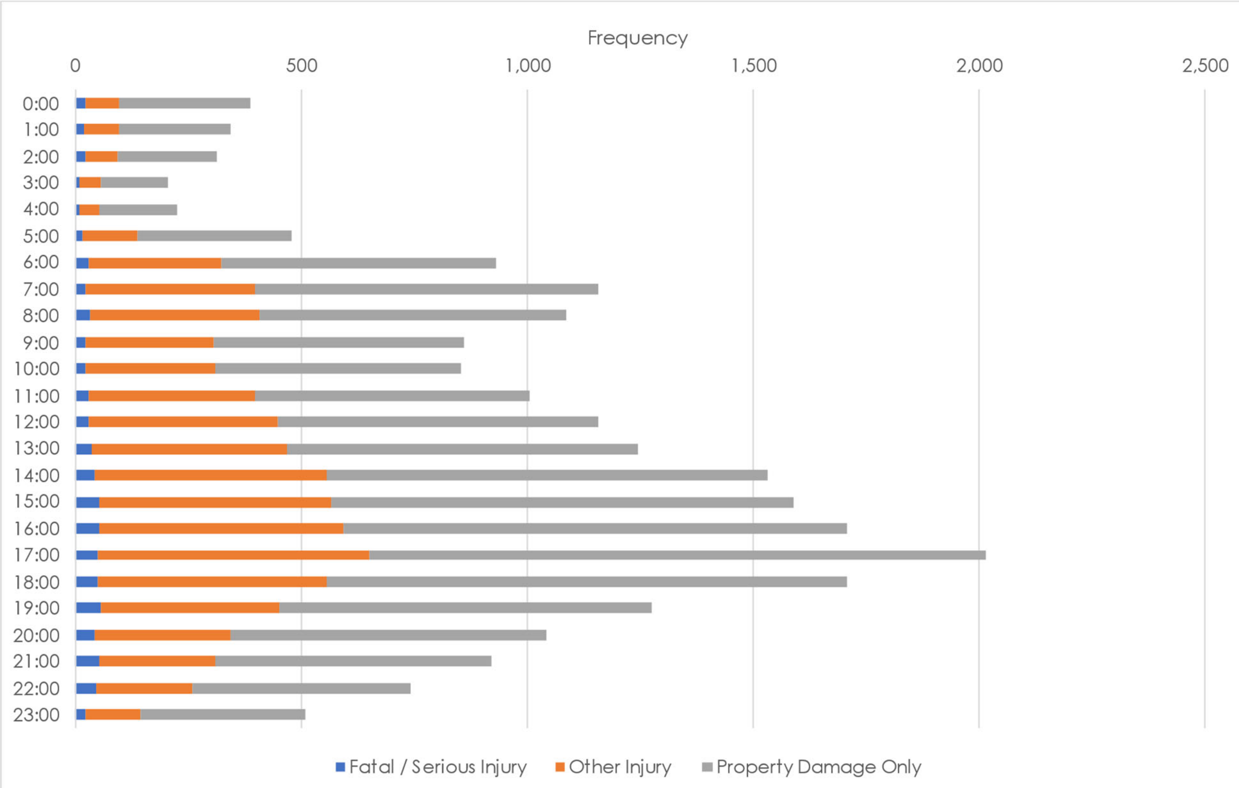
Figure 7 illustrates crash frequencies by time of day from 2018 to 2022, showing a distinct daily pattern. Crash volumes are lowest between midnight and 4:00 AM. However, these time periods account for elevated proportions of FSI crashes compared to their share of all crashes, suggesting that crashes during these hours tend to be more severe despite lower traffic volumes.

Crashes gradually increase from 5:00 AM (2.1%) to 8:00 AM (4.7%), with a peak at 7:00 AM (5.0%), aligning with morning commuter traffic. Afterward, crash frequencies remain relatively stable throughout the midday period.

A significant increase in crashes occurs between 2:00 PM (6.6%) and 6:00 PM (7.3%), with 5:00 PM recording the highest overall crash frequency (8.7%), coinciding with the evening commute. This period also has some of the highest shares of FSI crashes, peaking at 6.7% at 3:00 PM.

From 7:00 PM to midnight, crash volumes decreases while FSI crash severities remain elevated. Like early morning hours, these time periods account for elevated proportions of FSI crashes compared to their share of all crashes. Additionally, 7:00 PM has the highest share of total FSI crashes (6.9%), indicating that more FSI crashes occur during this hour than any other.

Figure 7: Crashes by Time of Day and Severity (2018 – 2022)



Source: VDOT Pathways for Planning, Prince William County, compiled by Kittelson

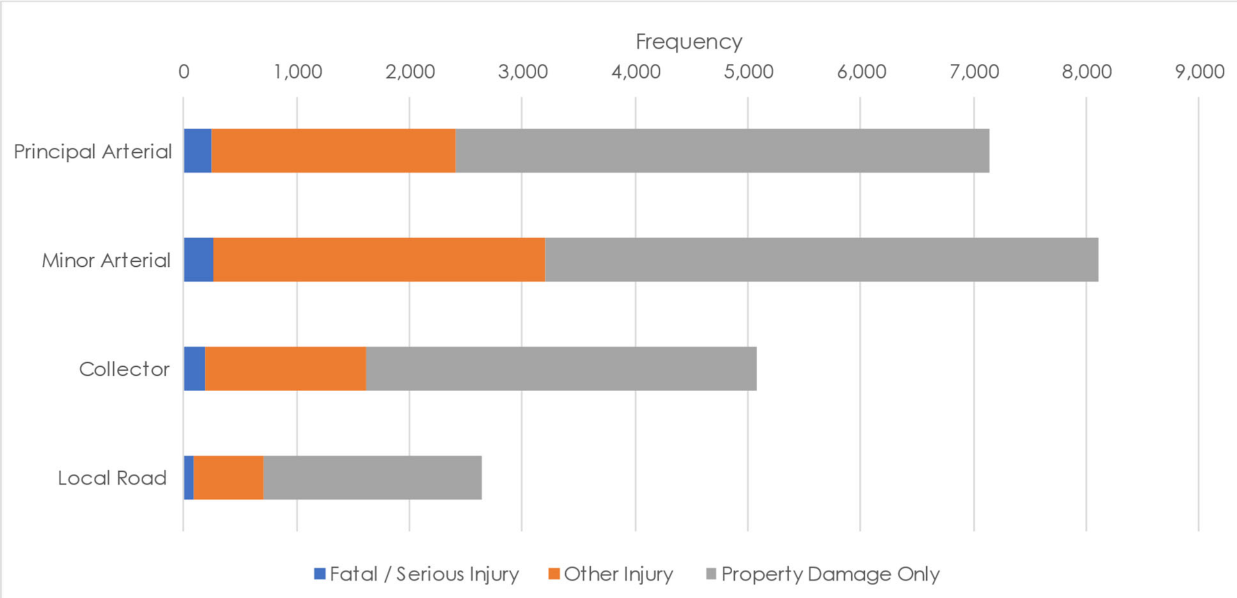
ROADWAY CHARACTERISTICS

This section examines crash distribution by roadway functional classification and location from 2018 to 2022.

Figure 8 illustrates crashes by roadway functional classification from 2018 to 2022. Minor arterials account for the highest share of total (35.2%) and FSI (32.5%) crashes, followed by principal arterials (31.0% total and 30.9% FSI).

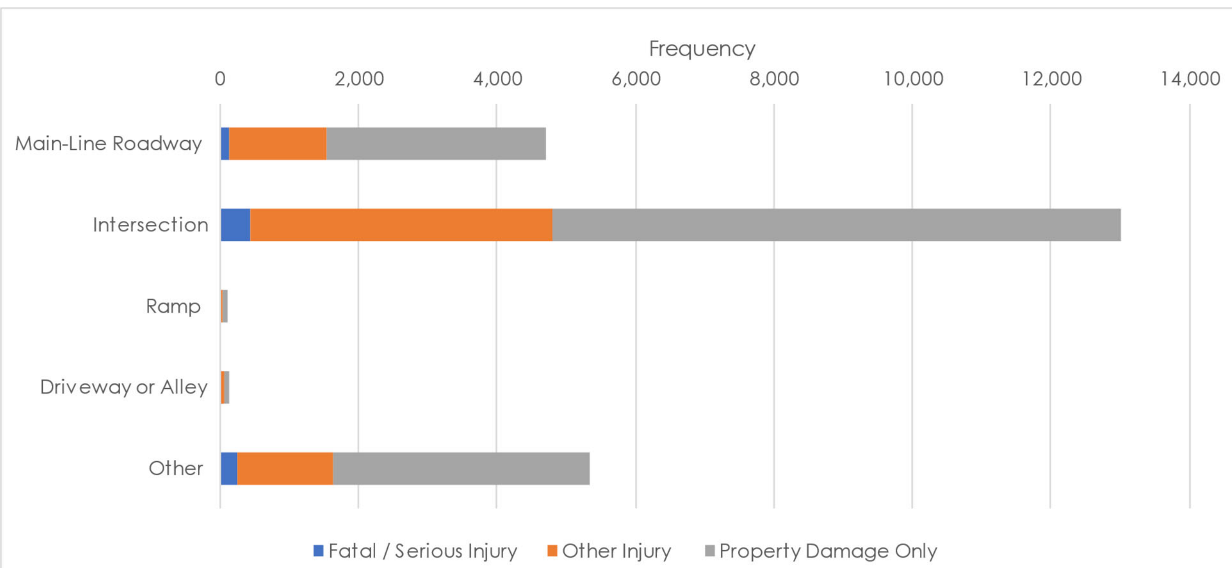
Figure 9 illustrates where crashes occurred in relation to the roadway from 2018 to 2022. Intersections account for the highest share of total (55.8%) and FSI (53.1%) crashes. Main-line roadways contribute 20.2% of crashes and 16.4% of FSI crashes, indicating a lower crash volume but notable severity.

Figure 8: Crashes by Facility Type and Severity (2018 – 2022)



Source: VDOT Pathways for Planning, Prince William County, compiled by Kittelson

Figure 9: Crashes by Relation to Roadway and Severity (2018 – 2022)



Source: VDOT Pathways for Planning, Prince William County, compiled by Kittelson

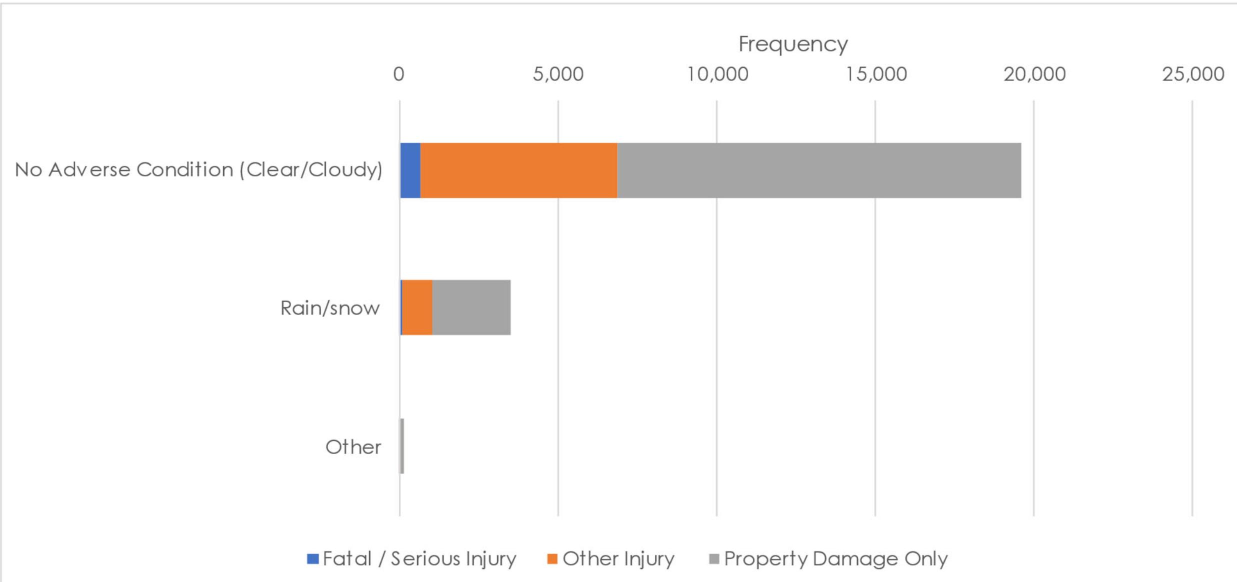
OTHER CRASH CHARACTERISTICS

This section examines key crash characteristics from 2018 to 2022, highlighting factors such as weather, lighting conditions, driver impairment, vehicle class, speeding behavior, urban versus rural context, and jurisdictional distribution. While most crashes occurred in clear weather, daylight, and urban areas, certain conditions, including nighttime driving, driving while impaired, speeding, and crashes on rural roadways, were linked to more severe crash outcomes.

Crashes by Weather

Figure 10 shows that most crashes (84.3%) from 2018 to 2022, including most FSI crashes (87.7%), occurred during clear or cloudy conditions. Crashes in rain or snow were much less frequent (15.1%), with fewer severe crashes (11.0%). The "Other" category had minimal crash counts.

Figure 10: Crashes by Weather Condition and Severity (2018 – 2022)

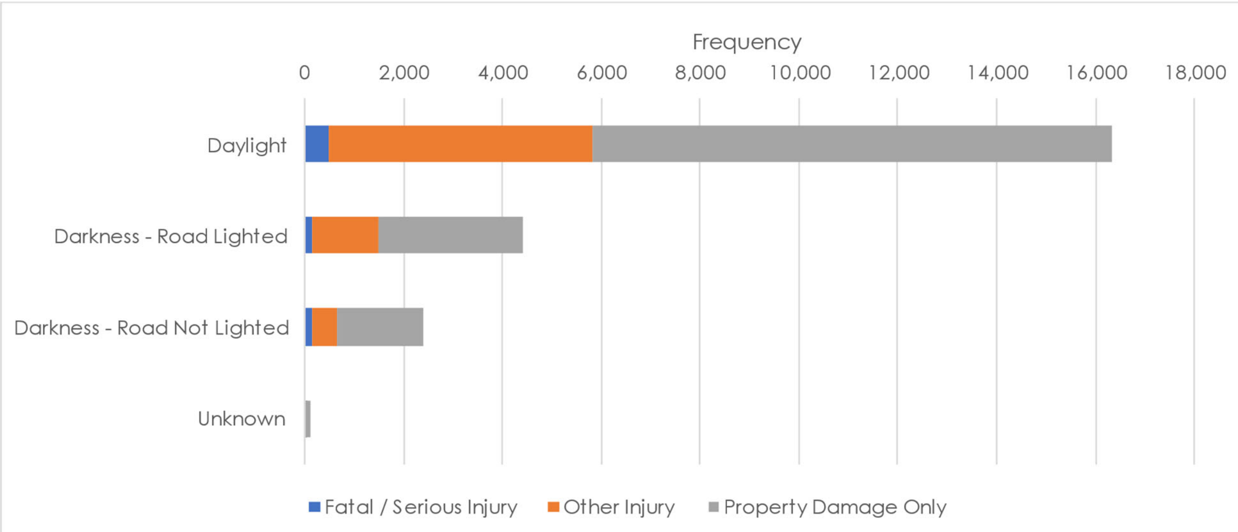


Source: VDOT Pathways for Planning, Prince William County, compiled by Kittelson

Crashes by Lighting Condition

Figure 11 shows crashes by lighting condition from 2018 to 2022. Most crashes (70.2%) occurred in daylight, but a significant share of the FSI crashes (39.8%) happened at night. Although only 10.3% of crashes occurred in dark conditions without street lighting, these crashes accounted for a disproportionate 19.6% of all FSI crashes, highlighting their increased severity.

Figure 11: Crashes by Lighting Condition and Severity (2018 – 2022)

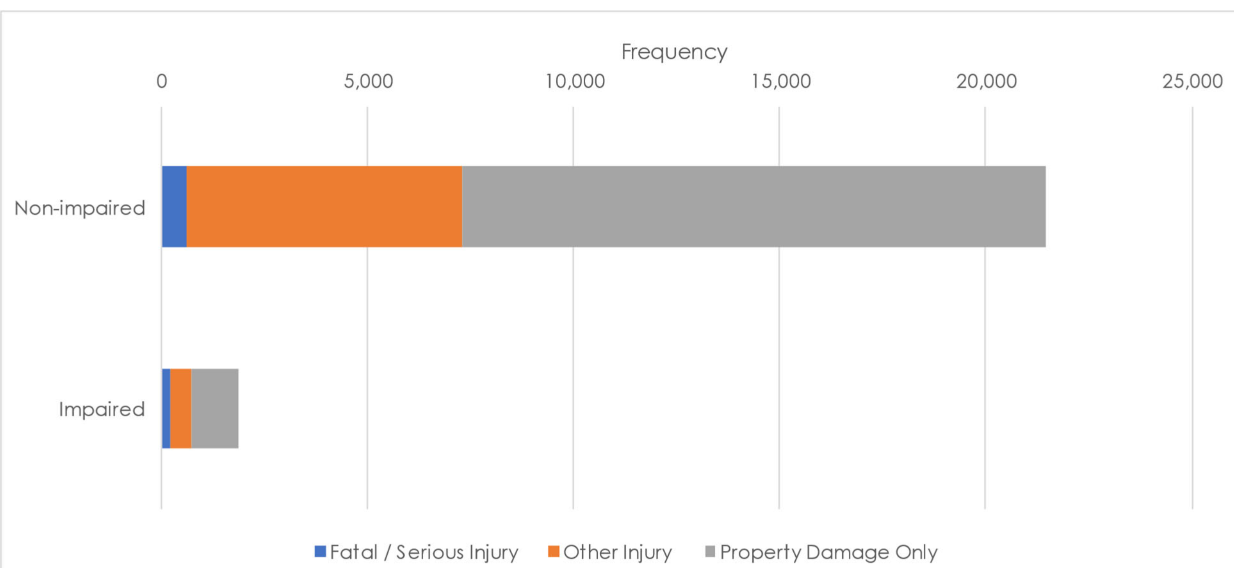


Source: VDOT Pathways for Planning, Prince William County, compiled by Kittelson

Crashes by Impairment

Figure 12 shows crashes by driver impairment from 2018 to 2022. Most crashes (92.0%) involved non-impaired drivers. Although only 8.0% of all crashes involved impaired drivers, these crashes accounted for a disproportionate 24.2% of all FSI crashes, highlighting their severity. Crashes involving impaired drivers were nearly four times more likely to result in an FSI (10.5%) compared to non-impaired crashes (2.8%).

Figure 12: Crashes by Impairment and Severity (2018 – 2022)

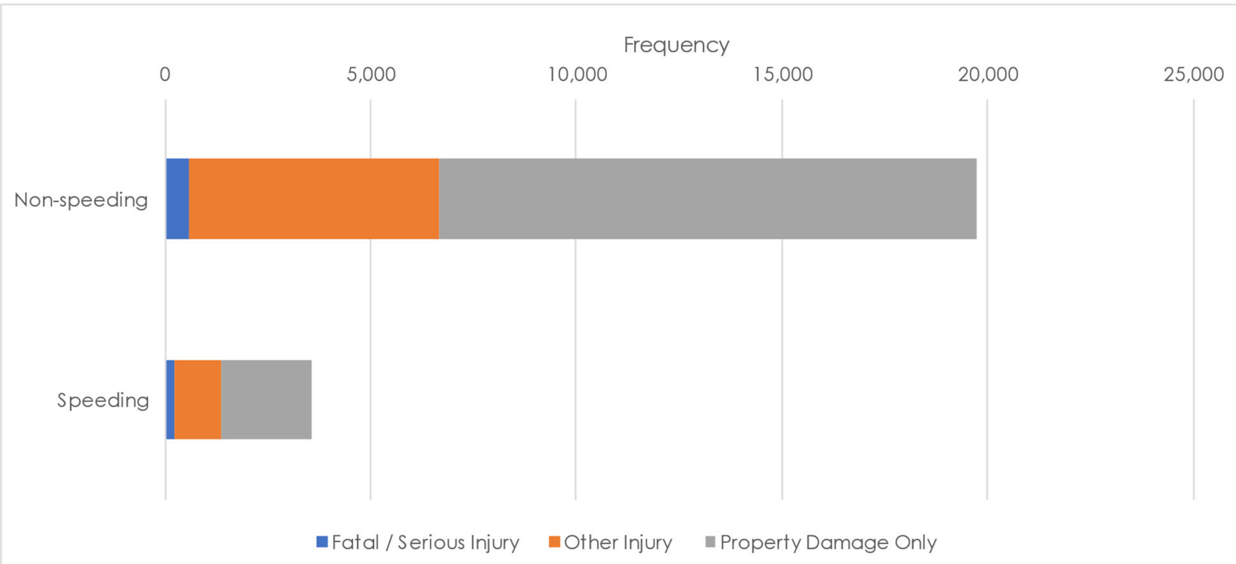


Source: VDOT Pathways for Planning, Prince William County, compiled by Kittelson

Crashes Involving Speeding

Figure 13 shows crashes by speeding behavior from 2018 to 2022. Most crashes (84.8%), including FSI crashes (70.3%), involved non-speeding vehicles. While speeding is a factor in only a small percentage of total crashes (15.2%), these crashes are disproportionately severe, accounting for 29.7% of all FSI crashes and having a more than double likelihood (6.7%) of resulting in an FSI compared to non-speeding crashes (2.9%).

Figure 13: Crashes by Speed Behavior and Severity (2018 – 2022)

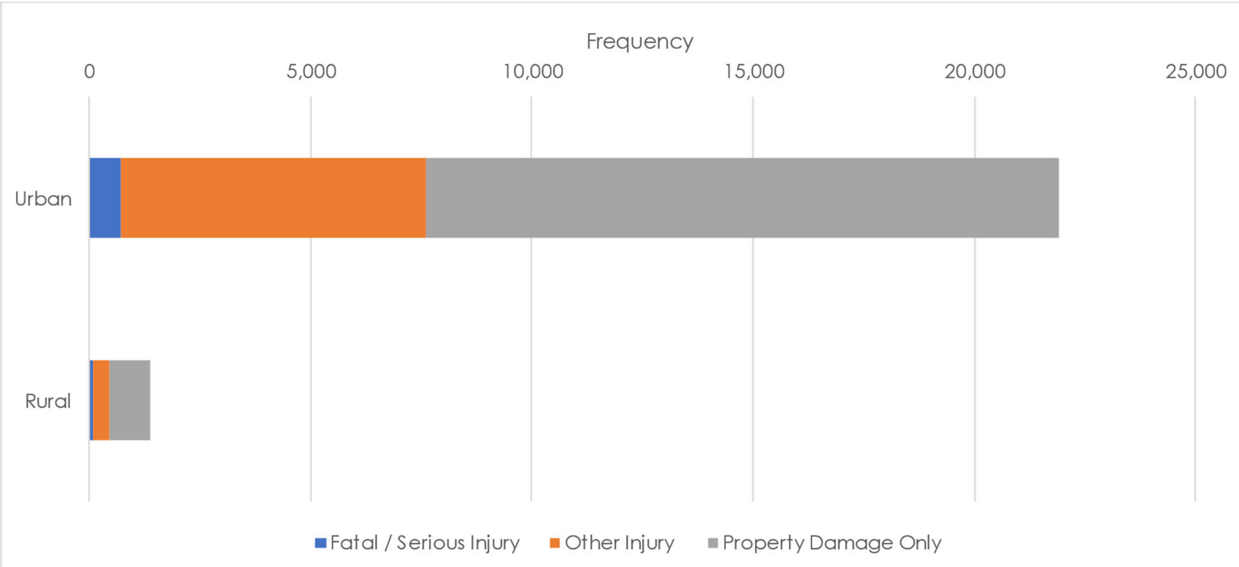


Source: VDOT Pathways for Planning, Prince William County, compiled by Kittelson

Crashes by Urban Context

Figure 14 shows crashes by urban and rural context from 2018 to 2022. Most crashes (94.1%), including FSI crashes (89.5%), occur in urban areas in PWC. Although only 5.9% of crashes occurred in rural areas, they accounted for 10.5% of all FSI crashes, highlighting their disproportionate severity. Crashes in rural areas were nearly twice as likely to result in an FSI (6.2%) compared to urban crashes (3.3%).

Figure 14: Crashes by Urban Context and Severity (2018 – 2022)



Source: VDOT Pathways for Planning, Prince William County, compiled by Kittelson

Risk Ratio Analysis

This section provides a system-wide analysis to evaluate differences in FSI crash frequency on roadways and at intersections based on differences in specific factors. The analysis examines roadway and intersection characteristics including posted speed limit, urban versus rural land use contexts, functional classification, intersection control, and intersection configuration. The analysis offers insight into roadway and intersection characteristics that are more likely to contribute to FSI crashes and would benefit from systemic safety treatments.

KEY TAKEAWAYS

- A risk ratio analysis was conducted to identify locations where FSI crashes occur at disproportionately higher rates to help prioritize roadway and intersection characteristics to target for preventative safety interventions.
- For corridors, the analysis considered land use context (urban v. rural) and functional classification in relation to speed limit.
- The risk ratio analysis for corridors highlighted speed as a key factor in severe crash overrepresentation, with both urban and rural roads experiencing elevated risk at higher speeds (> 45 mph)
- For intersections, the analysis examined functional classification, intersection control (e.g., signalized vs. unsignalized), and intersection configuration (e.g., 3-way, 4-way) in relation to land use context.
- The risk ratio analysis for intersections emphasized signalized intersections and higher-order functional classifications as key factors in severe crash overrepresentation. The following intersection characteristics were disproportionately represented:

- Urban settings: Other Freeways and Expressways, Other Principal Arterial Roads, and Minor Arterial Roads
- Rural settings: Other Principal Arterial Roads and Minor Arterial Roads
- Urban and rural settings: signalized intersections

ANALYIS METHOD AND ASSUMPTIONS

The risk ratio analysis evaluates the relative risk of severe crashes—defined as fatal and serious injury (FSI) crashes—by comparing the proportion of FSI crashes within a specific category (e.g., roadway type, speed limit, intersection type) to the proportion of total FSI crashes across all other categories. This method normalizes crash occurrences based on exposure, such as roadway miles or the number of intersections, allowing for more meaningful comparisons of crash risk across different locations. By identifying where severe crashes occur at disproportionately higher rates, the analysis helps prioritize roadway and intersection characteristics that may contribute to FSI crashes and would benefit from preventative safety interventions.

For example, a risk ratio analysis can compare the proportion of FSI crashes on urban roads to the total proportion of FSI crashes, relative to the share of total roadway miles or intersections located in urban areas. If the risk ratio is greater than 1, it suggests that severe crashes occur more frequently than expected in urban areas based on exposure. Conversely, a risk ratio less than 1 indicates that severe crashes are underrepresented relative to exposure.

While this method is a valuable tool for identifying categories with elevated crash risk and where the need for interventions may be required, it does have limitations—particularly when crash counts are low, or data coverage is incomplete. Small sample sizes can lead to unstable ratios and wide confidence intervals, making it difficult to determine whether observed differences are meaningful or simply due to chance. Categories with very few or zero crashes may skew results or prevent risk ratios from being calculated at all. Additionally, the analysis is only feasible when comprehensive data are available for both crashes and roadway characteristics. To improve reliability, this analysis aggregated crash data where appropriate (e.g., speed limit) and was limited to categories with sufficient data coverage.

To ensure the findings were not due to random variation, a 95% statistical significance test was conducted. This test helps determine whether the observed crash patterns are statistically meaningful, or simply the result of chance. Risk ratios greater than 1 were only considered meaningful if they were also statistically significant. Values above 1 that did not meet the 95% confidence threshold were not considered in the identification of disproportionately high crash risk locations.

The analysis was conducted at both the corridor and intersection levels, offering a data-driven approach to assess and compare crash risk across varying roadway environments. For corridors, the analysis considered three factors: land use context (urban vs. rural), functional classification, and posted speed limit. Land use context and functional classification were evaluated in relation to speed limit, meaning the analysis did not assess urban or rural areas in isolation, but rather examined how crash risk in those contexts varied across different speed environments. For example, the risk ratio for urban context was evaluated separately for roads with varying posted speed limits. The same approach was applied to each functional classification to understand how crash risk changes with speed. The speed limit bins used were:

- ≤ 25 mph
- > 25 mph and ≤ 45 mph
- > 45 mph

For intersections, the analysis examined functional classification, intersection control (e.g., signalized vs. unsignalized), and intersection configuration (e.g., 3-way, 4-way), as well as land use context (urban vs. rural). Unlike the corridor analysis, posted speed limit was not included; instead, each intersection characteristic was evaluated relative to land use context to understand how crash risk varied between urban and rural environments.

Table 2**Table 2** below presents the categories evaluated for corridors and intersections.

Table 2: Risk-Ratio Evaluation Categories

Corridors	Intersections
Posted Speed Limit	Functional Classification
Urban/Rural Land Use Context	Urban/Rural Land Use Context
Functional Classification	Stop Control (Signalized/Unsignalized)
	Number of Approaches/Intersection Configuration (e.g., 3-way, 4-way)

The risk-ratio analysis was conducted for both corridors and intersections, excluding crashes on access-controlled roadways (e.g., interstates). Intersection crashes were defined as those that occurred within 250 feet of an intersection; all other crashes were classified as corridor crashes. This approach enables a direct comparison of the proportion of severe crashes relative to the distribution of roadway or intersection characteristics.

To enhance the robustness of the risk-ratio analysis, crash data were aggregated where appropriate to ensure sufficient sample sizes for meaningful comparison. For example, fatal (KABCO rating “K”) and serious injury (KABCO rating “A”) crashes were combined to improve reliability when evaluating the proportion of severe crashes across roadway and intersection characteristics. From 2018 to 2022, Prince William County and the City of Manassas Park recorded a total of 806 FSI crashes. Of these, 259 occurred along corridors and 547 occurred at intersections.

The following sections present the findings of the risk ratio analysis, examining how the roadway features listed in **Table 2** are associated with the relative risk of severe crashes. As previously described, the analysis compares the proportion of severe crashes across different roadway and intersection characteristics to identify where these crashes occur disproportionately and where preventative safety interventions may be needed.

ANALYSIS RESULTS: CORRIDOR CRASHES

The risk ratio analysis for corridors evaluates the proportion of FSI crashes relative to roadway exposure, categorized by land use context (urban vs. rural), and functional classification in relation to speed limit bins. This approach ensures sufficient crash data for meaningful comparisons and helps identify where FSI crashes occur disproportionately. By analyzing these factors together, the analysis assessed how severe crash risk varies not only by roadway type but also by speed environment, allowing for a more nuanced understanding of crash trends.

The risk ratio analysis for corridors highlights several patterns of severe crash overrepresentation. The following findings illustrate where severe crashes are disproportionately occurring, emphasizing the impact of higher-speed environments on different land use contexts and roadway types:

- Other freeways and expressways have the highest risk ratio of all corridor categories analyzed. At posted speed limits > 45 mph, these facilities have a risk ratio of 12.3, meaning severe crashes occur 12.3 times more frequently than expected, based on this facility type's proportion of total roadway miles.
- Speed is a major factor in severe crash overrepresentation, with both urban and rural roads experiencing elevated risk at higher speeds.
  - Within land use context, urban roads with posted speed limits > 45 mph have the highest risk ratio (6.6)
  - Rural roads > 45 mph also show elevated risk (3.6), though not as high as in urban areas
- Other principal arterial roads and minor arterial roads have high severe crash risk at both moderate (25 < x ≤ 45 mph) and high-speed (> 45 mph) categories.

Table 3 presents the full risk ratio results for corridors, highlighting where FSI crashes are disproportionately occurring. Gray-shaded cells indicate cases where there was insufficient data or where the results were not statistically significant.

For additional context, **Table 4** displays the absolute number of FSI crashes for corridors, providing a clearer picture of the total crash occurrences across different categories relative to the posted limit speed bins.

Table 3: Risk Ratio for Corridors by Posted Speed Limit

Evaluation Factor	≤ 25 MPH	25 < x ≤ 45 MPH	> 45 MPH
Land Use Context			
Urban Context	0.2	3.7	6.6
Rural Context	0.1	2.4	3.6
Functional Classification			
Other Freeways and Expressways			12.3
Other Principal Arterial Road		10.2	5.4
Minor Arterial Road		4.5	
Major Collector Road		3.3	
Minor Collector Road			
Local Road	0.1		

Note: Gray-shaded cells indicate cases where there was insufficient data or where the results were not statistically significant.

Table 4: Absolute Number of FSI Crashes on Corridors

Evaluation Factor	≤ 25 MPH	25 < x ≤ 45 MPH	> 45 MPH
Land Use Context			
Urban Context	25	135	46
Rural Context	3	41	9
Functional Classification			
Other Freeways and Expressways	0	0	25
Other Principal Arterial Road	0	43	23
Minor Arterial Road	3	52	3
Major Collector Road	2	62	4
Minor Collector Road	2	8	0
Local Road	21	11	0

ANALYSIS RESULTS: INTERSECTION CRASHES

The risk ratio analysis for intersections evaluates the proportion of FSI crashes relative to intersection exposure, categorized by land use context (urban vs. rural), functional classification, intersection control (e.g., signalized vs. unsignalized), and intersection configuration (e.g., 3-way, 4-way). Unlike the corridor analysis, posted speed limit was not included; instead, intersection characteristics were assessed in relation to land use context. By analyzing these factors together, the analysis assessed how severe crash risk varies across different intersection types and settings.

The risk ratio analysis for intersections, like the analysis for corridors, highlights patterns of severe crash overrepresentation. The following findings illustrate where severe crashes are disproportionately occurring, emphasizing the impact of land use context and intersection characteristics such as functional classification, control type, and configuration on crash risk.

- Intersections, both signalized and unsignalized, on roads classified as ‘Other Freeways and Expressways’ have the highest risk ratio of all intersection categories analyzed. In urban land use contexts, these facilities have a risk ratio of 12.7, meaning severe crashes occur 12.7 times more frequently than expected, based on this facility type’s proportion of total roadway miles.
- Other principal arterial roads and minor arterial roads are disproportionately represented in both urban and rural areas, with elevated risk ratios in each context. In urban areas, their risk ratios are 8.1 and 6.4, respectively, while in rural areas, they remain high at 6.5 and 3.7, indicating consistently elevated severe crash risk across land use settings.
- Signalized intersections are disproportionately represented in both urban and rural areas, with high risk ratios of 11.2 (urban) and 8.9 (rural). Urban signalized intersections have the second highest risk ratio of all categories.
- Intersections with 4 approaches are disproportionately represented in both urban and rural areas, with risk ratios of 2.9 and 2.5, respectively. While these values are not as high as those observed for signalized or arterial intersections, they still indicate that 4-leg intersections experience more severe crashes than expected based on their prevalence.

Table 5 presents the full risk ratio results for intersections, highlighting where FSI crashes are disproportionately occurring. Gray-shaded cells indicate cases where there was insufficient data or where the results were not statistically significant.

For additional context, **Table 6** displays the absolute number of FSI crashes for intersections, providing a clearer picture of the total crash occurrences across different categories relative to the land use context.

Table 5: Risk Ratio for Intersections by Land Use

Evaluation Factor	Urban	Rural
Functional Classification		
Other Freeways and Expressways	12.7	
Other Principal Arterial Road	8.1	6.5
Minor Arterial Road	6.4	3.7
Major Collector Road	1.9	
Minor Collector Road		
Local Road	0.1	0.1
Intersection Control		
Signal	11.2	8.9
Unsignalized	0.5	
Intersection Approaches		
3 Approaches	0.5	
4 Approaches	2.9	2.5

Note: Gray-shaded cells indicate cases where there was insufficient data or where the results were not statistically significant.

Table 6: Absolute Number of FSI Crashes at Intersections

Evaluation Factor	Urban	Rural
Functional Classification		
Other Freeways and Expressways	25	0
Other Principal Arterial Road	142	5
Minor Arterial Road	197	6
Major Collector Road	86	15
Minor Collector Road	18	5
Local Road	46	2
Intersection Control		
Signal	257	2
Unsignalized	257	5
Intersection Approaches		
3 Approaches	193	26
4 Approaches	321	7

Network Screening

A network screening safety evaluation of PWC's intersections and streets was conducted using the Highway Safety Manual's (HSM) Part B network screening process. The analysis uses geolocated crash data, an intersection feature class, and a street network feature class to calculate the Equivalent Property Damage Only (EPDO) performance measure for all input locations. This method assesses the relative safety performance of locations based on reported crash history and helps identify priority intersections and corridors, aligning with best practices for data-driven safety evaluation.

KEY TAKEAWAYS

- A network screening was conducted to identify intersections and corridor segments that have experienced higher crash frequencies and severities (i.e., high Equivalent Property Damage Only (EPDO) scores.
- Intersections with high EPDO scores are typically located in urban areas where principal arterials intersect with minor arterials or major collectors.
- Corridor segments with high EPDO scores are typically located on high volume roads in urban areas, and high-volume roads with horizontal curves in rural areas.

SCREENING METHODS

The EPDO performance measure was used to screen PWC's intersection and roadway network. This approach assigns weighting factors to crashes based on severity, relative to property damage only (PDO) crashes, with greater weights for more severe outcomes. This metric differentiates locations with a similar number of crashes by emphasizing those with more severe outcomes.

The weighting factors were identified using Virginia Department of Transportation (VDOT) crash costs. These crash costs were simplified for PWC's analysis to reflect a three-tier system that accounts for the societal costs of fatal and serious injury crashes versus non-severe injury crashes. Fatal and serious injuries were weighted equally, recognizing that the difference in outcomes for serious injury and fatal crashes often depends on the individuals involved. As such, both types of crashes indicate priority locations for safety improvements. The assigned weights were:

- 500x for Fatal and Serious Injury Crashes
- 15x for Moderate and Minor Injury Crashes
- 1x for Property Damage Only Crashes

Intersection Analysis Method

Reported crashes were first categorized by severity. Crashes occurring within 250 feet of an intersection were then spatially joined and summarized in ArcGIS to determine the total number of crashes by severity at each intersection. If intersections were located less than 500 feet apart, crashes were assigned to the nearest intersection. Crashes occurring more than 250 feet from an intersection were included in the corridor analysis.

The EPDO score for intersections was calculated by multiplying the number of crashes at each severity level by its assigned weight and summing the results using the formula below. The EPDO score was annualized by dividing the total score by the five years of crash data used in the analysis. **Figure 15** illustrates the draft EPDO scores for intersections within PWC.

EPDO Score =
[(fatal weight × # of fatal crashes) **+**
(serious injury weight × # of serious injury crashes) **+**
(moderate injury weight × # of moderate injury crashes) **+**
(minor injury weight × # of minor injury crashes) **+**
PDO crashes]/5 years of crash data

Corridor Analysis Method

Following the intersection analysis approach, crashes were first categorized by severity. Crashes occurring more than 250 feet from an intersection were classified as segment-related crashes and associated with the nearest roadway feature if they occurred within 100 feet of it.

To evaluate crash history along roadways, the team conducted a sliding window analysis. This method aggregates crash history along a roadway by creating a "window" of a predetermined length that moves along the road network at defined intervals (i.e., the "slide"). Crashes are then spatially joined to each window, and the crash history is summarized for each window.

For this analysis, the team used a:

- Half-mile window
- Quarter-mile slide

This method helps identify roadway segments with the greatest potential for safety improvements. The sliding window method is illustrated in **Figure 16**.

Like the intersection method, crashes are summarized by severity, and totals were multiplied by the EPDO weights for roadway segments. The weighted crashes were then summed and annualized by dividing the score by the five years of crash data, generating an annualized EPDO score. **Figure 17** illustrates the draft EPDO scores for corridors within PWC.

Figure 15: Intersection EPDO Analysis

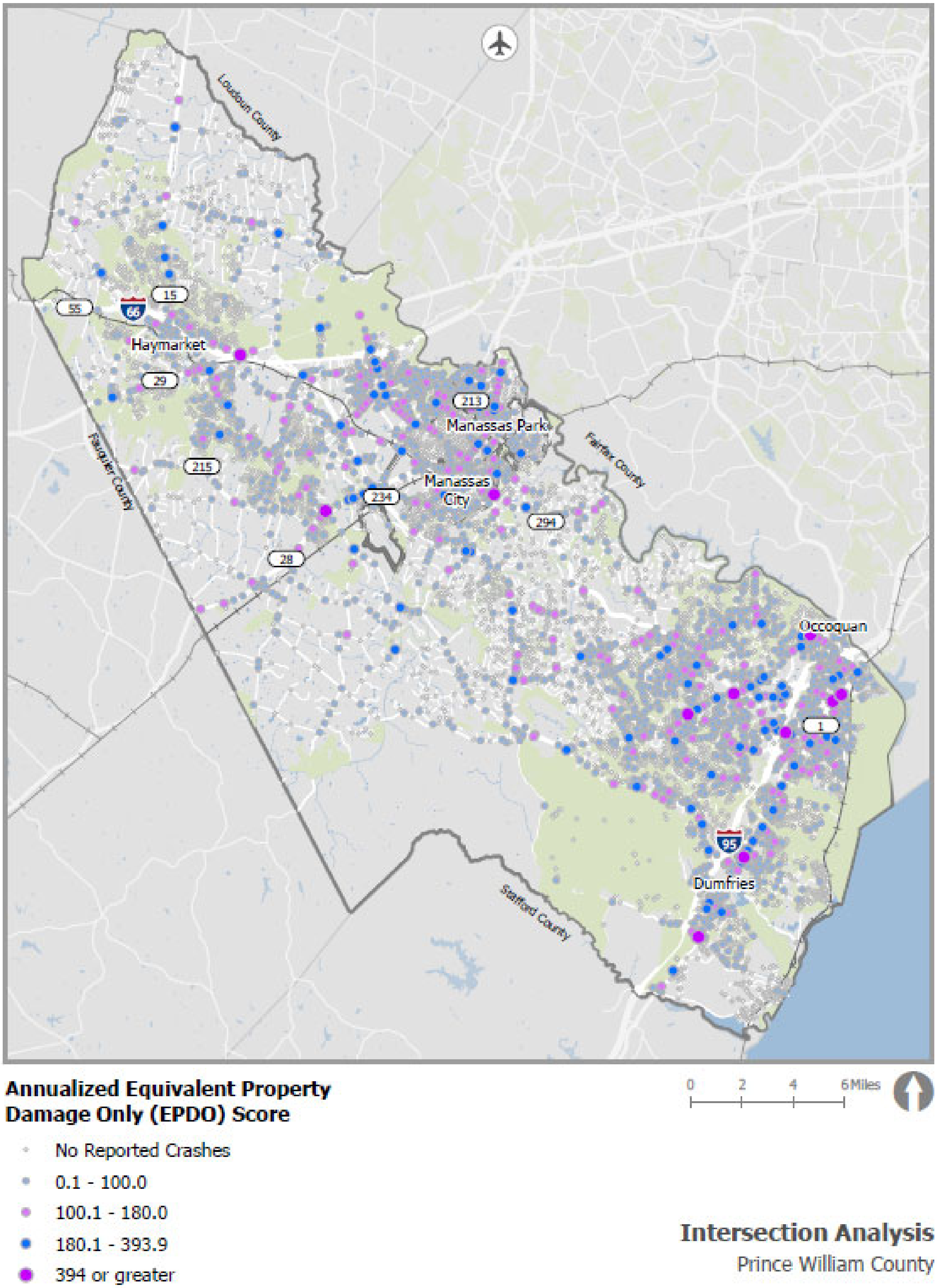
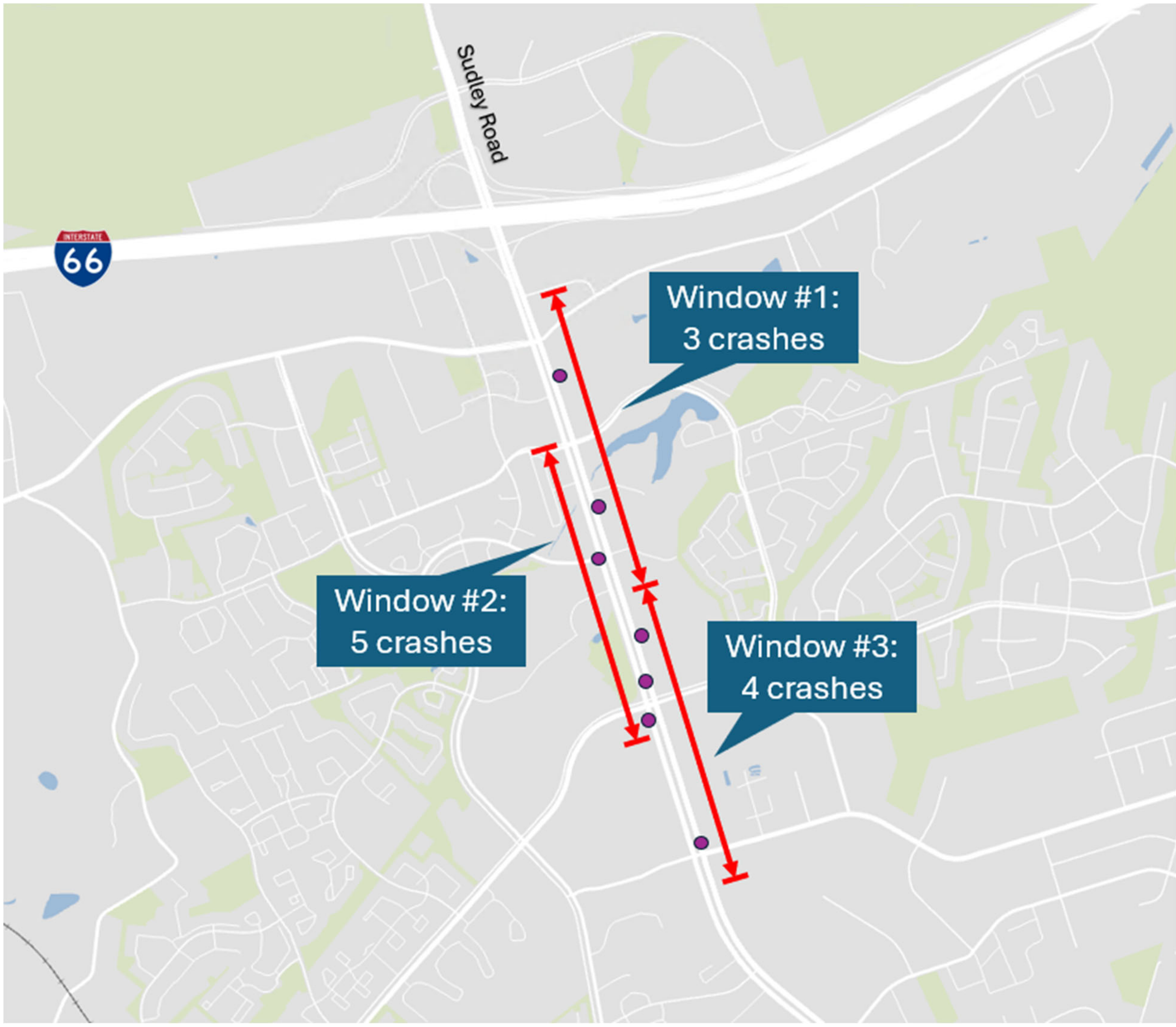
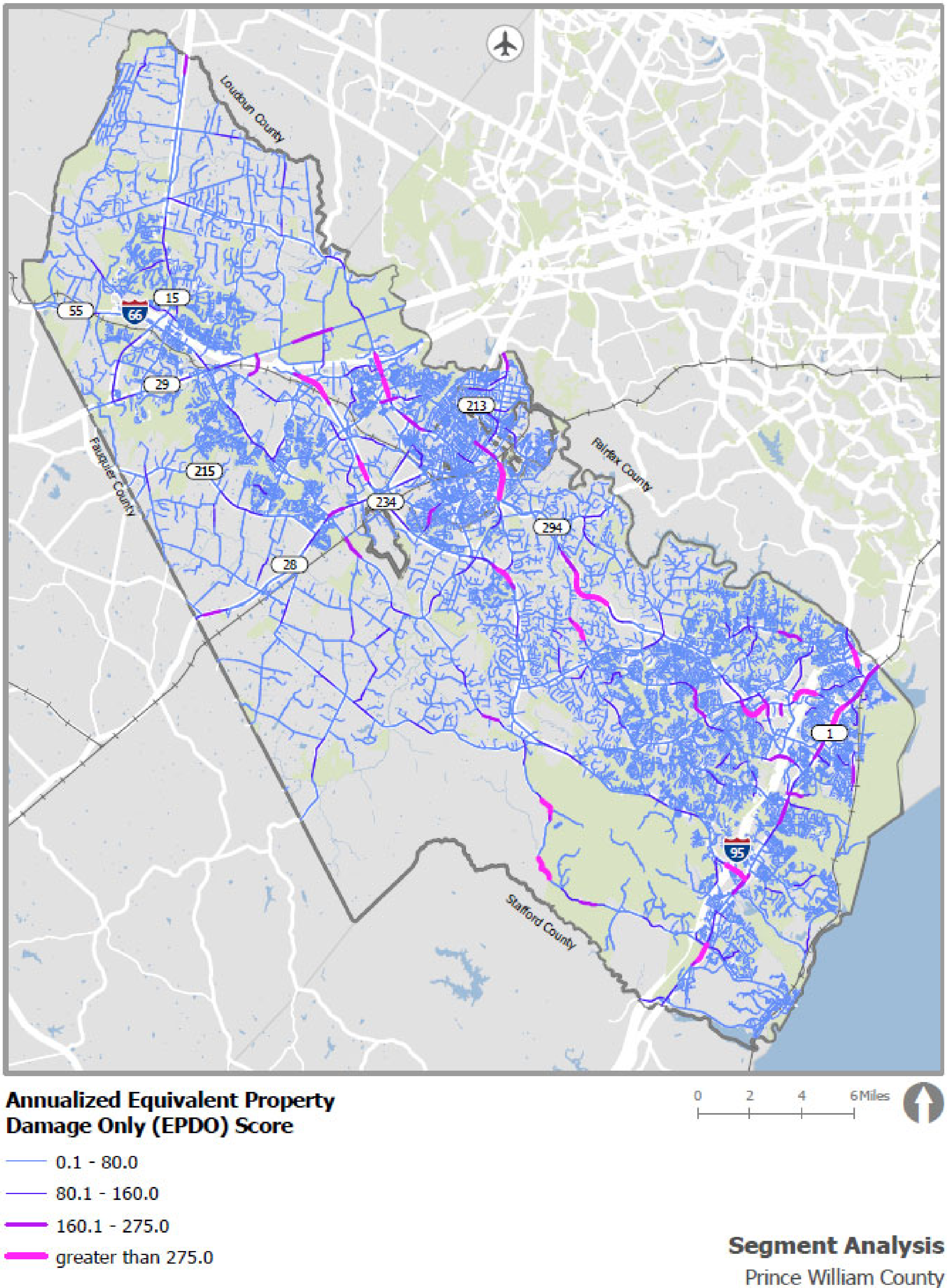


Figure 16: Example of Sliding Window Analysis for Crash Frequency Along a Roadway Segment



Source: Kittelson & Associates, Inc.

Figure 17: Corridor EPDO Analysis



SCREENING RESULTS

Figure 15 and **Figure 17** present the results of the EPDO analysis for intersections and corridors. **Table 7** and **Table 8** list the top 20 highest-scoring intersections and window segments, respectively. Notably, many of the highest scoring segments overlap.

The overlapping segments in the sliding window approach improve the detection of high-crash locations by ensuring that critical crash patterns are not overlooked due to arbitrary segment boundaries. This method provides a more continuous and comprehensive safety assessment.

Intersections

Figure 15 illustrates the intersections in the County categorized by their assigned EPDO scores, while **Table 7** lists the 20 highest-scoring intersections within the study area. Intersections with the highest annualized EPDO scores are typically located where principal arterials intersect with minor arterials or major collectors. Most of these intersections are isolated and evenly distributed throughout urban areas (e.g., Dale City, Bethel, Woodbridge, etc.) in the southern portion of the County.

The next highest-scoring tier of intersections is generally clustered along arterials in the urban areas to the north and south of the County. Corridors with particularly high intersection crash counts include:

- SR 234 from I-66 to Godwin Drive, north of the City of Manassas
- SR 28 from Yorkshire Lane to Manassas Drive, near Manassas Park
- Minnieville Road from Oak Farm Drive to Darbydale Avenue in Dale City
- Prince William Parkway from Minnieville Road to Telegraph Road in Woodbridge

Corridors

Figure 17 illustrates County corridors categorized by their assigned EPDO scores, while **Table 8** lists the 20 highest-scoring window segments within the study area. The roadway screening, specifically designed to identify crashes occurring away from intersections, revealed an overrepresentation of crashes on high-volume roads with horizontal curves in both rural and urban areas. Additionally, two stretches of Joplin Road, a rural, low-volume roadway located south of Prince William Forest Park, also exhibit high crash rates. The next highest-scoring tier of roadways consist of high-volume roads without horizontal curves in urban areas.

Table 7: Top 20 Intersection Locations by EPDO Score (2018 – 2022)

No	Location	EPDO Score	Crashes				
			FSSI	Moderate Injury	Minor Injury	PDO	Total
1	Nokesville Rd / Bristow Rd	986.8	9	21	5	44	79
2	Richmond Hwy / Prince William Pkwy	676.4	6	20	3	37	66
3	Prince William Pkwy / Wellington Rd / Liberia Ave	614.6	5	19	17	33	74
4	Lee Hwy / Heathcote Blvd	559.6	5	18	0	28	51
5	Minnieville Rd / Darbydale Ave	475.2	4	21	2	31	58
6	Opitz Blvd / River Rock Way	458.2	4	16	2	21	43
7	Richmond Hwy / Fuller Rd	445.0	4	10	3	30	47
8	Old Bridge Rd / Clipper Dr	433.0	4	9	0	30	43
9	Richmond Hwy / Pine Bluff Dr	423.6	4	6	1	13	24
10	Richmond Hwy / Mount Pleasant Dr	418.0	3	34	1	65	103
11	Prince William Pkwy / Minnieville Rd	394.4	3	24	2	82	111
12	Prince William Pkwy / Telegraph Rd	392.4	3	27	1	42	73
13	Liberia Ave / Centreville Rd	375.0	2	23	34	20	79
14	Liberia Ave / Euclid Ave	365.2	2	28	26	16	72
15	Prince William Pkwy / University Blvd	364.4	3	14	5	37	59
16	Old Centreville Rd / Rugby Rd*	364.4	3	20	0	22	45
17	Richmond Hwy / Blackburn Rd	358.0	3	16	2	20	41
18	Nokesville Rd / Piper Ln	357.8	3	15	2	34	54
19	Sudley Rd / Godwin Dr	354.2	3	9	8	16	36
20	Richmond Hwy / River Ridge Blvd	347.0	3	14	0	25	42

**Old Centreville Rd / Rugby Rd is two-way stop controlled, while all other intersections on this list are signalized*

Note: Crash frequencies reflect crashes occurring between 2018 – 2022. The EPDO score is annualized.

Source: VDOT Pathways for Planning, Prince William County, compiled by Kittelson

Table 8: **Top 20 Window Segments by EPDO Score (2018 – 2022)**

Window Segment Number	Road Name	Intersecting Road[1]	Start Milepost	End Milepost	Overlapping Windows [2]	EPDO Score	Crashes				
							FSSI	Moderate Injury	Minor Injury	PDO	Total
1	Liberia Ave	Signal Hill Rd	2.50	3.00	2	701.0	6	18	15	10	49
2	Liberia Ave	Richmond Ave	2.25	2.75	1	658.8	6	12	7	9	34
3	Prince William Pkwy	Horner Rd	14.25	14.75	4	549.0	4	40	4	85	133
4	Prince William Pkwy	I-95	14.50	15.00	3	542.8	4	39	3	84	130
5	Prince William Pkwy	Sonora St	12.50	13.00	10	510.6	5	3	0	8	16
6	Richmond Hwy	Wigglesworth Way	174.50	175.00	17	436.2	4	9	0	46	59
7	Joplin Rd	NA	19.75	20.25	8	430.6	4	8	1	18	31
8	Joplin Rd	NA	19.50	20.00	7	430.6	4	8	1	18	31
9	Dumfries Rd	Interstate Dr	0.00	0.50	19	429.2	3	36	4	46	89
10	Prince William Pkwy	Noble Pond Way	12.75	13.25	5	410.6	4	3	0	8	15
11	Prince William Pkwy	Scenic Pointe Pl	5.50	6.00	NA	408.6	4	2	0	13	19
12	Dumfries Rd	Lake Jackson Dr	13.25	13.75	NA	405.2	4	1	0	11	16
13	Prince William Pkwy	Fingerlake Way	6.25	6.75	NA	404.4	4	1	0	7	12
14	Sudley Rd	Balls Ford Rd	6.75	7.25	NA	373.2	3	18	2	66	89
15	Prince William Pkwy	Hansen Farm Rd	22.00	22.50	18	363.6	3	14	5	33	55
16	Sudley Rd	Sudley Manor Dr	6.00	6.50	NA	352.2	3	15	0	36	54
17	Richmond Hwy	Bel Air Rd	174.25	174.75	6	348.2	3	12	1	46	62
18	Prince William Pkwy	Balls Ford Rd	21.75	22.25	15	325.4	3	7	0	22	32
19	Dumfries Rd	I-95	0.25	0.75	9	324.4	3	6	0	32	41
20	Prince William Pkwy	University Blvd	18.75	19.25	NA	318.6	3	3	2	18	26

[1]To aid in locating the window segment, this column lists the intersection closest to the center.
[2]This column identifies the other window from this list with which this window overlaps, if applicable.
Note: Crash frequencies reflect crashes occurring between 2018 – 2022. The EPDO score is annualized.
Source: VDOT Pathways for Planning, Prince William County, compiled by Kittelson

High Injury Network

A High Injury Network (HIN) is typically a binary or tiered system that highlights streets with a history of more frequent and severe crashes. The primary goal of a HIN is to visually communicate areas of heightened crash severity in a jurisdiction. This contrasts with the network screening results presented above, which provide more detailed insights into individual locations and are particularly useful for evaluating crash severities within sub-areas or identifying specific crash patterns.

KEY TAKEAWAYS

- The High Injury Network was developed by conducting a network screening that captured the frequency and severity of both intersection and roadway crashes along the PWC roadway network.
- The results of the HIN network screening were ranked based on weighted crash severity and grouped into two tiers, collectively accounting for 50% of reported FSI crashes from 2018-2022.
- Tier I and Tier II HIN roads collectively account for only 4.4% of the County's total roadway miles but represent 50.0% of all FSI crashes.
- Despite making up just 1.8% of the County's roadway mileage, Tier I roads account for 25% of all FSI crashes.

HIN ANALYSIS METHOD

The project team conducted a comprehensive safety evaluation by integrating crashes at both intersections and roadway segments. Crashes were first categorized by severity, and EPDO scores were calculated using the previously described corridor analysis method. This approach identifies high-priority locations for safety improvements across the entire network. The annualized EPDO score, derived by dividing the total EPDO score by the five years of crash data, provides a clear and consistent measure of network-wide safety performance.

Figure 18 illustrates the High Injury Network for PWC.

HIN ANALYSIS RESULTS

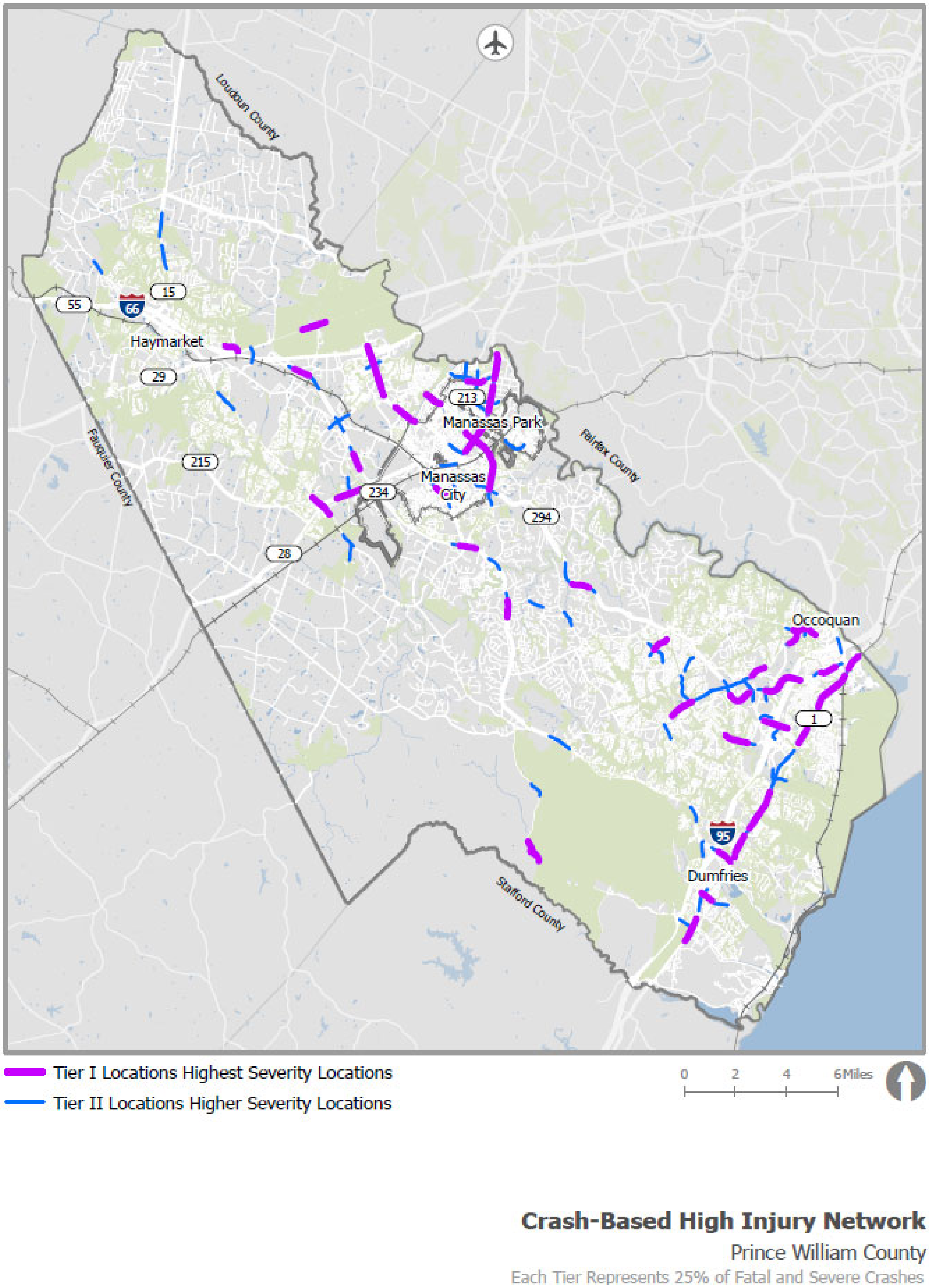
The HIN in **Figure 18** uses the same crash data as the screening results to develop a two-tiered HIN for PWC. This approach captures crash history along corridors associated with one or more intersections. The screening results were then ranked based on weighted crash severity and grouped into two tiers, collectively accounting for 50% of reported FSI crashes from 2018 and 2022.

- Tier I – Roads with the highest severity results. These roads account for 1.8% of County centerline roadway miles and 25% of FSI crashes.
- Tier II – Roads with the next highest severity results. These roads account for 2.6% of County centerline roadway miles and another 25% of FSI crashes.

The reported percentages reflect overlapping HIN segments used in the EPDO calculations, which were based on a specified window and slide length. Removing these overlaps would result in lower percentages, as certain roadway segments were counted multiple times due to their inclusion in multiple high-crash corridors.

The resulting HIN network consolidates roadways identified in both the intersection and roadway screenings, providing a comprehensive figure for communicating safety needs across the county.

Figure 18: HIN for the County



Equity Evaluation

Equity plays a critical role in safety action plans by ensuring that investments in transportation infrastructure and policies address the needs of all community members, particularly those in historically underserved and high-crash areas. Disadvantaged populations often face higher rates of traffic-related fatalities and serious injuries due to limited access to safe walking, biking, and transit infrastructure. By integrating equity considerations into data analysis, decision-making, and project implementation, safety action plans can help close these disparities and promote a transportation system that prioritizes safety for those communities that are disproportionately represented in crashes.

This analysis evaluates equity considerations in PWC using the USDOT Equitable Transportation Community Explorer (ETC) National Results. It highlights disparities in crash history, infrastructure exposure, and socioeconomic factors affecting transportation safety. Findings emphasize the disproportionate burden of traffic-related FSI crashes in disadvantaged communities.

KEY TAKEAWAYS

- Disadvantaged census tracts contain 24.5% of the County's population but account for 35.0% of total crashes, 32.3% of fatal crashes, and 28.4% of serious injury crashes.
- These areas include 42.6% of the county's High Injury Network (HIN) while making up only 24.0% of census tracts, meaning residents face a higher crash burden due to their proximity to high crash road segments.

EQUITY EVALUATION RESULTS

To assess disparities in transportation safety outcomes, this analysis leverages the USDOT Equitable Transportation Community Explorer (ETC) data set. This dataset identifies disadvantaged communities at the census tract level, using 2020 Census population counts and multiple equity indicators. The evaluation focuses on PWC and the City of Manassas Park. Census tracts for the City of Manassas were not included in this analysis. By using ETC data, this assessment provides insights into the extent and distribution of disadvantaged census tracts, helping to inform targeted interventions.

Table 9 presents the number of disadvantaged census tracts identified using the ETC National Results, along with the percentage of disadvantaged census tracts and the percentage of the population residing in them.

Table 9: ETC National Results

Measure	Total
Total Number of Census Tracts (Excluding the City of Manassas)	96
Total Number of Disadvantaged Census Tracts	15
Percentage of Disadvantaged Census Tracts in Project Area	15.6%
Total Population in the County (Excluding the City of Manassas)	484,382
Population in Disadvantaged Census Tracts	67,571
Percentage of Population Living in Disadvantaged Census Tracts	13.9%

Table 10 presents the total and average number of fatal, serious injury, and overall crashes countywide, as well as a comparison between non-disadvantaged and disadvantaged census tracts. It also includes the total and average length of high injury network (HIN) segments. For crashes and HIN segment lengths, the percentage of the countywide total for non-disadvantaged and disadvantaged census tracts is shown in parentheses.

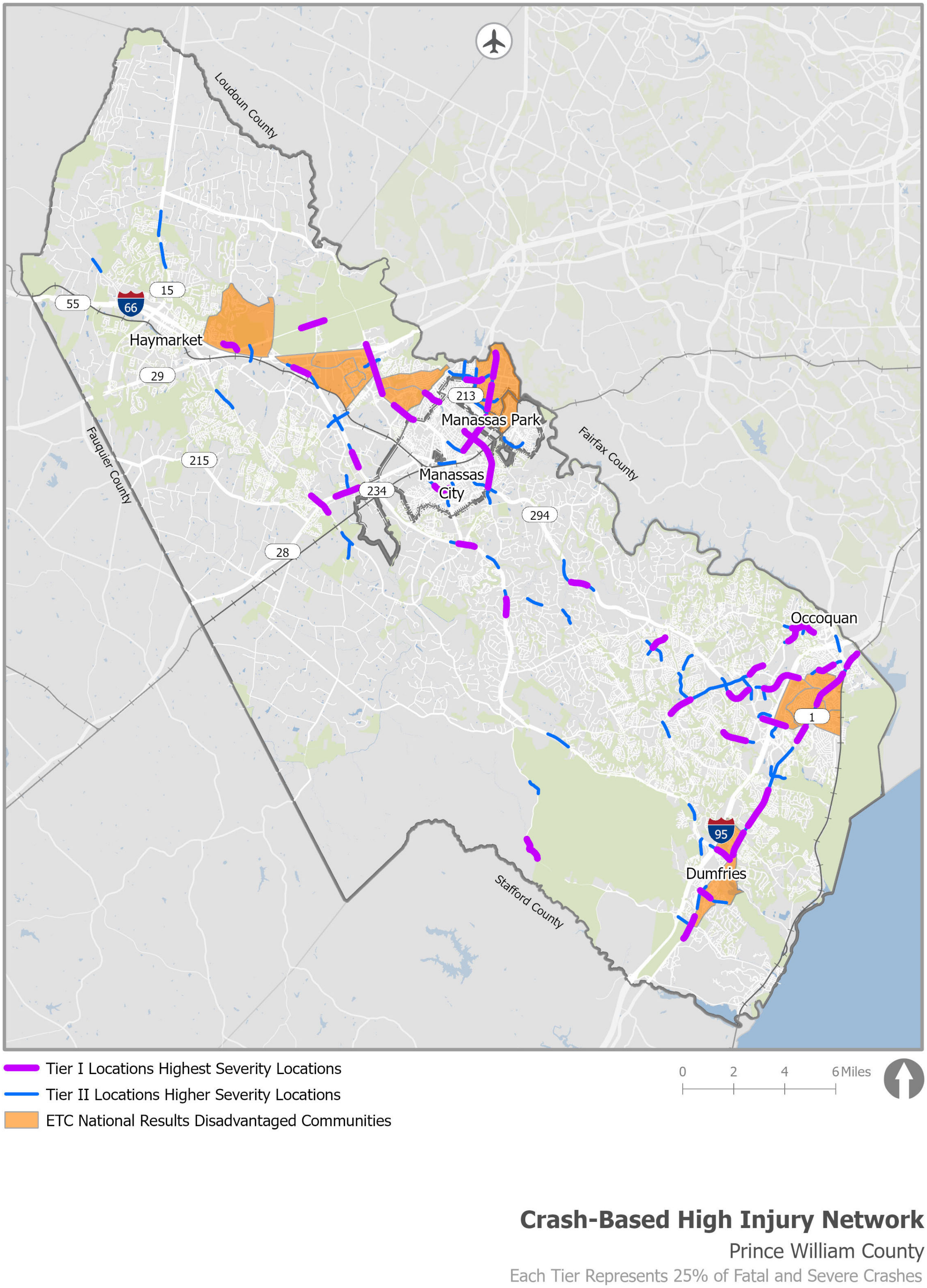
Table 10: Distribution of Crashes by ETC National Disadvantaged Communities

Measure	Total	Non-Disadvantaged	Disadvantaged
No. of Fatal Crashes	99	84 (84.8%)	15 (15.2%)
No. of Serious Injury Crashes	656	560 (85.4%)	96 (14.6%)
No. of Total Crashes	21,520	18,067 (84%)	3,453 (16%)
Total Length of HIN Roadway (miles)	79.9	62.5 (78.2%)	17.4 (21.8%)
Avg. No. of Fatal Crashes Per Census Tract	1.0	1.0	1.0
Avg. No. of Serious Injury Crashes Per Census Tract	6.8	6.9	6.4
Avg. No. of Total Crashes Per Census Tract	224.2	223	230.2
Avg. Length of HIN Roadway per Census Tract (miles)	0.8	0.8	1.2

Compared to the non-disadvantaged census tracts, the disadvantaged census tracts have, on average, the same number of fatal crashes per census tract, 0.5 fewer serious injury crashes per census tract (6.4 vs. 6.9), seven more total crashes per census tract (230.2 vs. 223), and 0.4 more miles of HIN roadway per census tract (1.2 vs. 0.8 miles). Although disadvantaged census tracts make up only 13.9% of the county's population, they account for 15.2% of fatal crashes and 14.6% of serious injury crashes. Additionally, these communities contain nearly 22% of the County's HIN, meaning disadvantaged census tracts are exposed to high-crash roadways at a rate 1.6 times higher than their population share. This indicates a disproportionately high occurrence of fatal and serious injury crashes in these areas.

Figure 19 shows the County's HIN overlapped with its disadvantaged census tracts.

Figure 19: HIN Overlapped with the County's Disadvantaged Census Tracts



Next Steps

The High Injury Network (HIN) developed for Prince Willliam County serves as a critical tool for identifying high crash areas by pinpointing corridors and intersections with the highest concentration of severe crashes, particularly those involving fatalities and serious injuries. By leveraging this data, the County can take a data-driven approach to decision-making, ensuring that resources are allocated effectively to the locations with the greatest need for safety improvements. This targeted approach will help prioritize projects that have the highest potential to reduce severe crashes and improve roadway conditions for all users. As part of this report, the findings from this HIN analysis and detailed in this memorandum will directly support the development of a Safety Action Plan for Prince William County, guiding future investments and policy decisions to enhance transportation safety countywide.

Appendix C

Prioritization Theme	Criteria	Description	Data Source	Scoring	GIS Analysis
Equity	MWCOG Equity Emphasis Areas	Project falls within area designated as Equity Emphasis Area	Equity Emphasis Areas for TPB's Enhanced Environmental Justice Analysis - Environmental Justice | Metropolitan Washington Council of Governments	1 point	Select by location to allocate 1 point to HIN/HRN locations that are within 100 ft of equity area boundary
	CEJST Disadvantaged Census Tracts	Project falls within census tract identified as disadvantaged by CEJST	Justice40	1 point	Select by location to allocate 1 point to HIN/HRN locations that are within 100 ft of equity area boundary
	Areas of Persistent Poverty	Project falls within census tract identified as an Area of Persistent Poverty by USDOT	USDOT	1 point	Select by location to allocate 1 point to HIN/HRN locations that are within 100 ft of equity area boundary
Safety & Vulnerable Users	HIN/HRN Tier	HIN and HRN are each broken into 2 tiers of differing severity (Tier 1 = highest severity, Tier 2 = less severity)	Kittelson	Tier 1 = 2 points Tier 2 = 1 point	No spatial analysis
	School Zone	Project falls within 1/2 mile buffer of a Prince William County School (does not include private day schools or preschools)	Prince William County	1 point	Select by location to allocate 1 point to HIN/HRN locations that intersect with 1/2 mile buffer from school
		Project falls within 1/2 mile buffer of a school highlighted for safety focus by the Prince William County Safer Schools Analysis	Prince William County Safer Schools Analysis	1 point	Select by location to allocate 1 point to HIN/HRN locations that intersect with 1/2 mile buffer from school
	Bike/Ped Crashes	Bike/Ped crashes have occurred in project area	VDOT	Bike/ped crashes within 100 ft buffer: 1 point each	Spatial join to count number of crashes within 100 ft buffer of HIN/HRN locations. Allocate 1 point for each crash
Connectivity	Addressing Bike/Ped Gaps	Project is in location with identified bike/ped facility gaps	Prince William County	Bike/ped gap(s) within 100 ft buffer: 1 point	Select by location to allocate 1 point to HIN/HRN locations that have a bike/ped gap within 100 ft buffer
	Transit Connectivity	Project is in transit accessible location	OmniRide, Prince William County	Transit stop(s) within 1/4 mile buffer: 1 point	Select by location to allocate 1 point to HIN/HRN locations that have a bus or rail stop within 1/4 mile buffer
Accessibility	Activity Centers	Project falls within County identified Activity Center/Small Area Plan	Prince William County	1 point	Select by location to allocate 1 point to HIN/HRN locations that are within 100 ft of area boundary
	Towns	Project falls in Manassas, Manassas Park, Quantico, Haymarket, Occoquan, or Dumfries	Prince William County	1 point	Select by location to allocate 1 point to HIN/HRN locations that are within 100 ft of area boundary
	Future Growth	Project falls within Traffic Analysis Zone with high projected population and employment growth over the next decade (2025-2035)	MWCOG Population/Employment Projections (Traffic Analysis Zones)	Top 20% TAZ for... Population Density % Change: 1 point Employment Density % Change: 1 point	Select by location to allocate 1 point to HIN/HRN segments that are within 100 ft of area boundary
Public Input	Public Comment Location	Project area was identified in a public comment as a safety concern	Public Engagement	1 point	Select by location to allocate 1 point to HIN/HRN locations that are within 0.5 mi of a public comment point

Analysis
High Injury Network (HIN) segments will represent reactive safety projects and High Risk Network (HRN) segments/intersections will represent proactive safety projects. Fields will be created in the project layer attribute table for each of the above criteria. Based on varying spatial analysis for each criteria, a point value will be assigned to each project for each criteria. A total score will be calculated for each project by tallying the points across all criteria. This score will be used to rank and prioritize projects. Based on the number of projects and natural breaks in point totals, the HIN and HRN locations will each be allocated into 3 tiers, with Tier 1 representing projects with highest priority, and Tier 3 representing the lowest. A map of projects symbolized by tier will be generated to visualize locations of highest priority reactive and proactive projects.

Appendix D

Kimley»Horn

MEMORANDUM

BICYCLE AND PEDESTRIAN GAP ANALYSIS

Purpose of Analysis

The goal of this analysis was to perform a spatial evaluation of bicycle and pedestrian facilities within the County to identify gaps in the network that are missing multimodal infrastructure for countywide connectivity and accessibility. This gap analysis was an important first step in establishing pedestrian and bicycle network needs throughout the County for the purposes of the ongoing Comprehensive Safety Action Plan initiatives.

Data Discovery

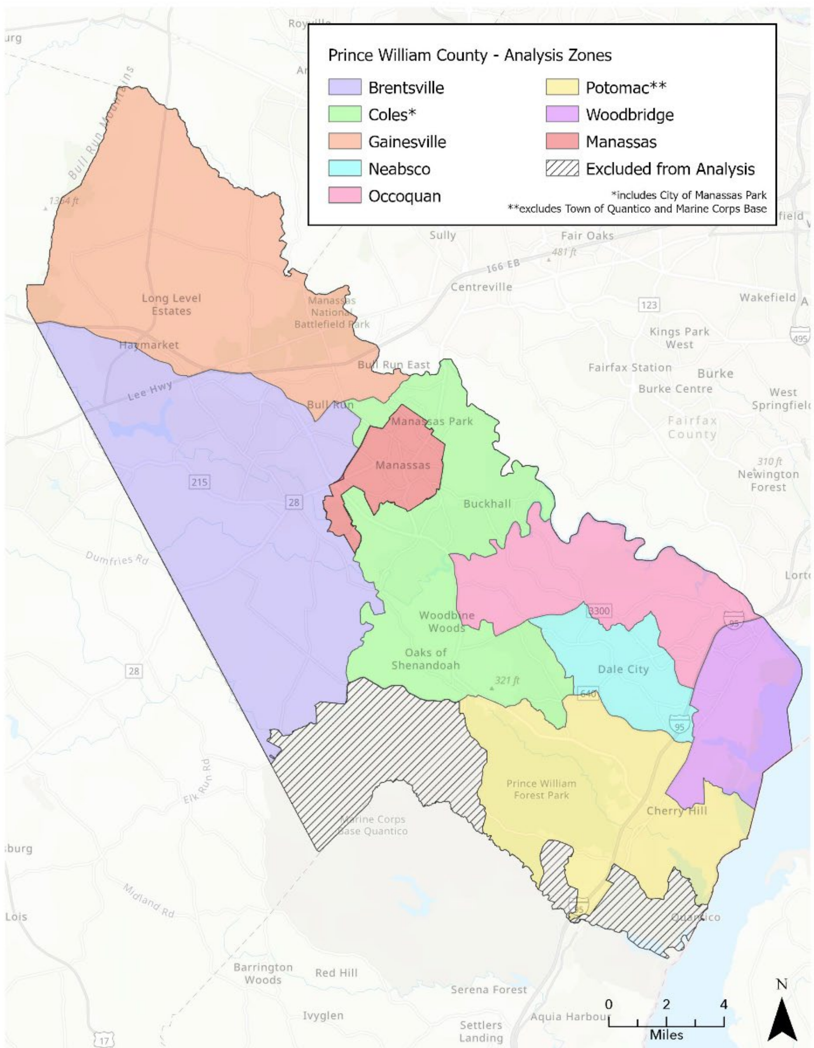
A summary table of the data used throughout this analysis is shown below in Figure 1:

Figure 1: Bicycle/pedestrian analysis data summary table

Data Item	Source Agency	Source Link	Data Date	Date Downloaded
Bicycle Lanes	VDOT	https://www.virginiaroads.org/datasets/62e19f8aff714932aa2956e5d7374ce9_0/explore	12/21/2023	6/21/2024
Functional Class	VDOT	https://virginiaroads.org/maps/VDOT::functional-classification-web-map-1/explore	9/23/2022	6/27/2024
Magisterial Districts	PWC	https://gisdata-pwcgov.opendata.arcgis.com/datasets/PWCGOV::voting-precincts/explore	5/6/2022	7/1/2024
Pedestrian Crossings	PWC	https://pwcgov.maps.arcgis.com/home/item.html?id=3a8079622aa349a1811c6322bd591926	8/10/2022	6/27/2024
Roads	PWC	https://gisdata-pwcgov.opendata.arcgis.com/datasets/PWCGOV::roads/explore	8/10/2022	6/21/2024
Shared-Use Paths	VDOT	https://www.virginiaroads.org/datasets/62e19f8aff714932aa2956e5d7374ce9_0/explore	12/21/2023	6/21/2024
Sidewalks	PWC	https://gisdata-pwcgov.opendata.arcgis.com/datasets/39141a480d3a47acb9f2483e8f5e8daa/about	8/10/2022	6/27/2024

The study area for this analysis was Prince William County, shown below in Figure 2. For the purpose of this analysis, the study area was divided into eight analysis zones represented by the seven magisterial districts (Brentsville, Coles, Gainesville, Nebasco, Occoquan, Potomac, and Woodbridge) as well as the City of Manassas. Note from the map that the City of Manassas Park was included in the analysis within the Coles district, while the Town of Quantico and Quantico Marine Corps Base were excluded from the analysis in the Potomac district.

Figure 2: Prince William County study area with Analysis Zones

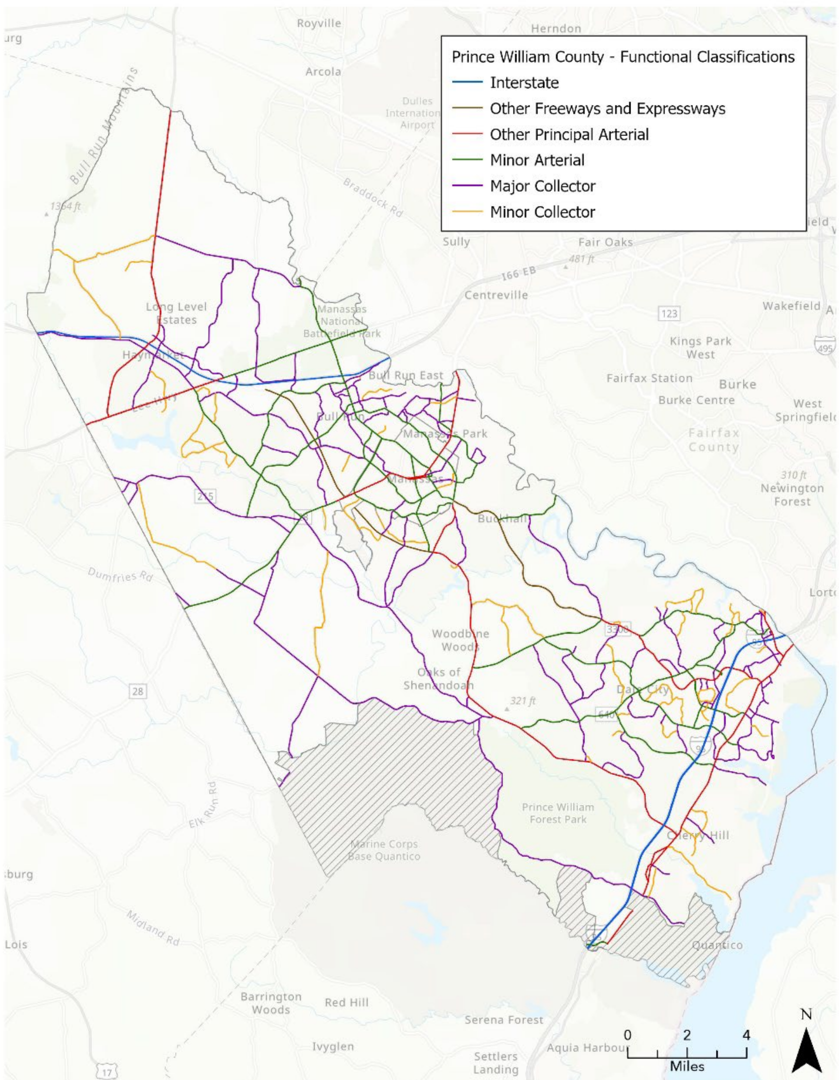


The next step of the data discovery process was to identify and map the roadways that would be analyzed for their existing and planned pedestrian and bicycle facilities. For the purpose of this analysis, only roadways under the following six selected functional classifications were:

- Interstate
- Freeway, Expressway, and Parkway
- Principal Arterial
- Minor Arterial
- Major Collector
- Minor Collector

The map shown below in Figure 3 depicts the roadway centerlines that were analyzed, symbolized to represent their respective functional class:

Figure 3: Roadways for analysis by functional class



Once the roadways were identified, each roadway was analyzed to highlight adjacent pedestrian and/or bicycle infrastructure. For the pedestrian facilities, existing sidewalk and crosswalk centerlines adjacent to the roadway were mapped, as shown in Figure 4. Note that crosswalks are not shown for the City of Manassas as the City was added to the analysis later in the process and the crosswalk data was not available for visualization. In addition, sidewalk and crosswalk data in the City of Manassas Park was excluded from this map, as those data items were not available for visualization. For the bicycle facilities, existing shared-use path and bike lane centerlines adjacent to the roadway were mapped, shown in Figure 5.

Figure 4: Existing pedestrian facilities

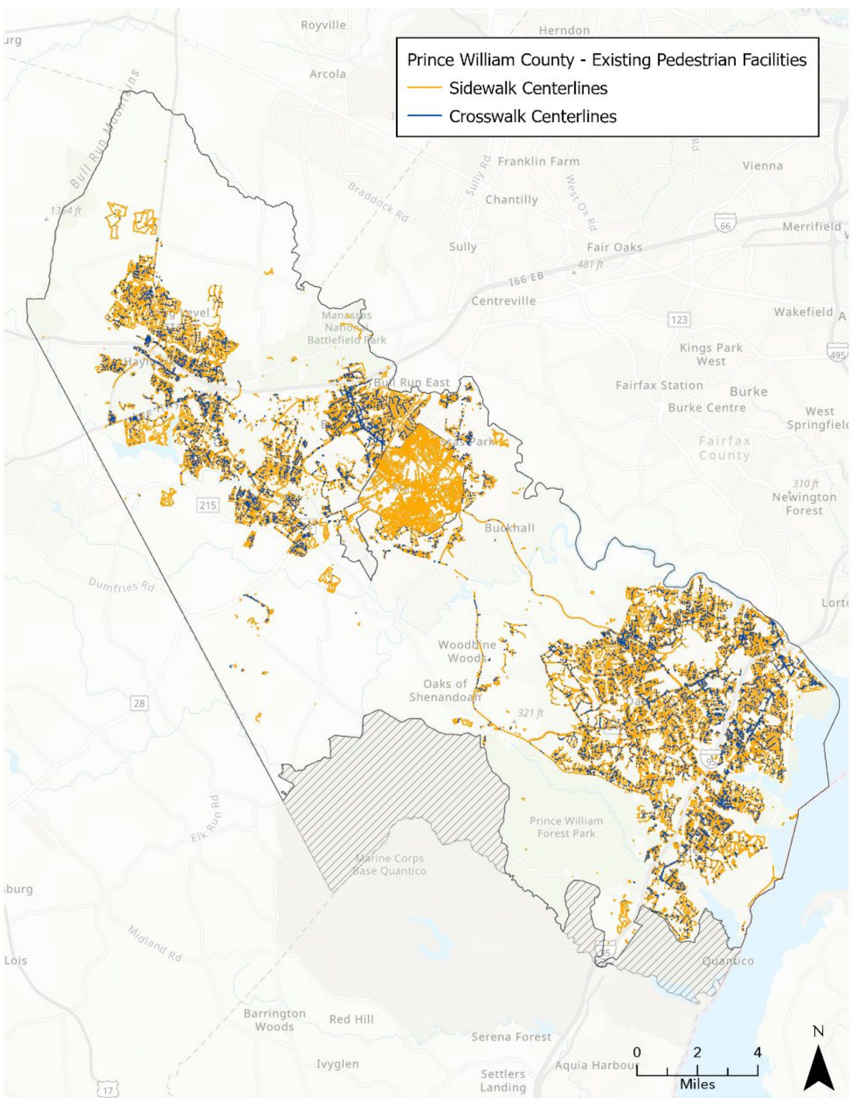
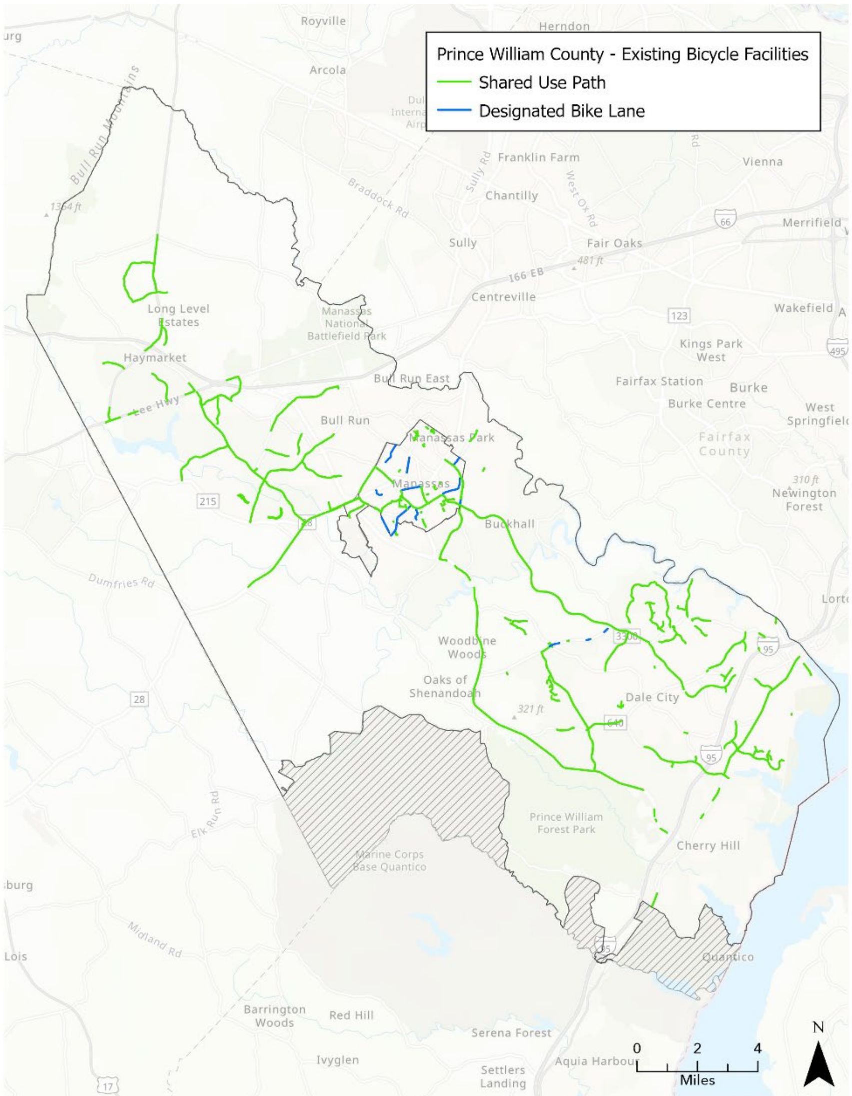


Figure 5: Existing bicycle facilities



Data Cleanup

The following section details the steps taken to perform the data cleanup process for the Prince William County roadways and adjacent sidewalks, shared-use paths, bike lanes, and crosswalks data. The purpose of this data cleanup was to identify any discrepancies between the data included in the shapefiles of the inventory of sidewalks, share-use paths, bike lanes, and crosswalks with aerial imagery.

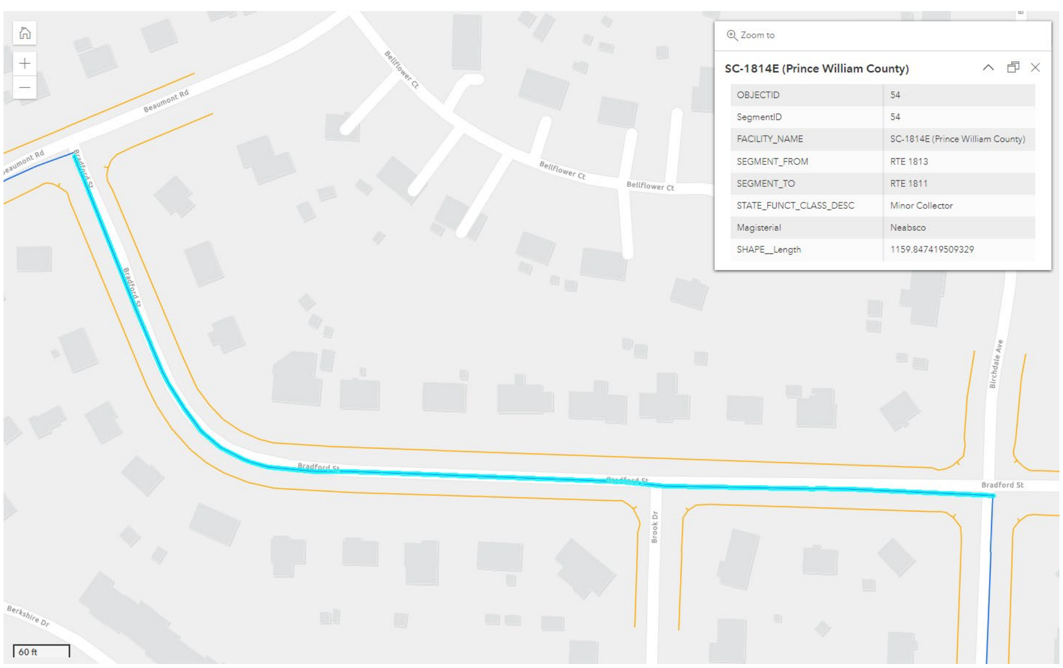
For the purposes of this cleanup, a spreadsheet was developed to track each roadway segment and any adjacent sidewalks, shared-use paths, bike lanes, or crosswalks. Each entry held information for a subsequent roadway segment, including:

- Roadway Functional Class
- Magisterial District
- For each side of the road:
  - Sidewalk present? Yes or No
  - Sidewalk update needed on online shapefile? Yes or No
  - Shared-use path present? Yes or No
  - Shared-use path update needed on online shapefile? Yes or No
  - Bike lane present? Yes or No
  - Bike lane update needed on online shapefile? Yes or No

The following steps were taken during the data cleanup of sidewalks, shared-use paths, and bike lanes:

1. Identify roadway segment to be analyzed
2. Locate segment within online shapefile
   a. Example: Segment #54 below in Figure 6 is a piece of Bradford St., a minor collector in Nebasco magisterial district.

Figure 6: Segment #54 on online map



3. Notice any sidewalk, shared-use path, or bike lane linework adjacent to the roadway.

   a. Example: Segment #54 above has sidewalk linework on both sides along the entire segment.
4. Locate segment on Nearmap using satellite imagery
   a. Example: Segment #54 on Bradford St. located on Nearmap below in Figure 7

Figure 7: Segment #54 on Nearmap

5. Assess if sidewalk, shared-use path, and bike lane existing in satellite imagery matches linework within online map.
6. Populate spreadsheet tracker accordingly.

Crosswalks were only evaluated along principal arterials, freeways, and expressways. In addition, the analysis was limited to **marked crosswalks,** which were coded using the following classifications from Prince William County:

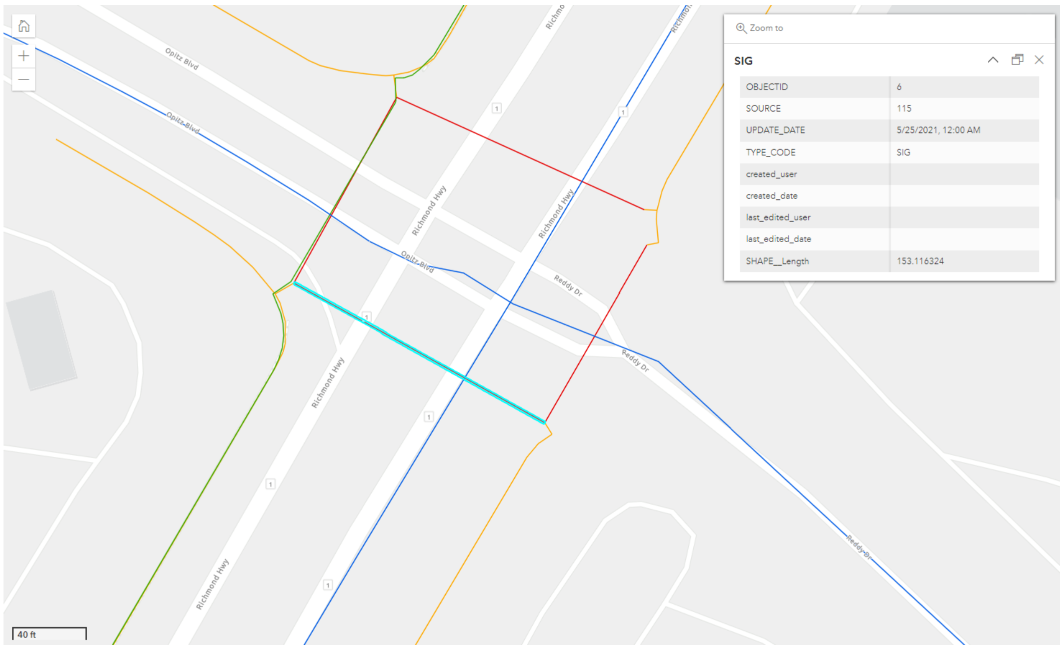
- SIG = Signal – A signal is found mounted to a pole near the crosswalk and typically includes electronic push buttons used by pedestrians to change traffic signal timing to accommodate pedestrian crossings.
- NOSIG = No Signal – A marked crosswalk with no associated signal.
- CONN = Connector – A connector is used to create a continuous pedestrian network where there is **no marked crosswalk** – therefore, these were not included in the analysis despite being identified in the data tracking spreadsheet.

The following steps were taken during the data cleanup of **marked** crosswalks:

1. Identify a crosswalk to be analyzed
2. Locate crosswalk within online shapefile

a. Example: Crosswalk #6 below in Figure 8 connects Opitz Blvd to Reddy Dr across Richmond Hwy

Figure 8: Crosswalk #6 on online map



3. Locate crosswalk on Nearmap using satellite imagery
   a. Example: Crosswalk #6 located on Nearmap below in Figure 9

Figure 9: Crosswalk #6 on Nearmap

4. Confirm that crosswalk is marked
    a. Populated column labeled “Marked Crosswalk Present?” with Yes or No in crosswalk tracking spreadsheet

Creating the Network

Following the completion of the Data Cleanup process detailed above, the next step was to create the network to be used for the gap analysis. The steps below outline the process for creating the network:

1. Ensure the shapefile with roads for analysis is ready to be converted into a network.
    a. Join the spreadsheet (populated during Data Cleanup process) detailing existing sidewalk, shared-use path, and bike lane facilities to the roadway shapefile within ArcGIS Pro.
    b. Use Intersect tool to generate points at intersections.
    c. Use Split Line at Point tool to ensure junctions are correctly located in the network.
    d. Make sure every road intersects if it is meant to (checking roads with medians).
2. Create a new Feature Dataset within the geodatabase and put a copy of the roads shapefile inside.
3. Use the Create Network Dataset tool to convert the feature dataset into a network and then build the network (right click the network dataset in the contents pane).
4. Use the Explore Network tool under the data tab to verify junctions and edges are connecting appropriately in a few random spot checks (there should not be any duplicate junctions in the same location and a single junction should connect to all the edges around it).

Creating the Existing Facility End Points

The next step to prepare for the network analysis was to create a point shapefile marking the endpoints of the segments of existing facilities. The steps to perform this process are below:

1. Decide which side of the road (A or B) and facility type to be analyzed.
2. Export a new shapefile of road with existing facility (Yes in attribute table under chosen side and facility type).
3. Export a new shapefile of road with no facility (No/Partial in attribute table under chosen side and facility type).
4. Use the Pairwise Intersect tool to create points where the two shapefiles intersect. Verify the points are at the end of sections of existing facilities.

Running the Analysis

Once the point layer is created identifying the endpoints of existing facilities, the network is ready for the analysis to be run. The steps for this are listed below:

1. Under Network Analysis Workflows, create a Closest Facility analysis layer.
2. Under Closest Facility Layer tab select Import Facilities and import the shapefile of points at the end of existing facilities. Import the same point file for the incidents.
3. Set the number of facilities to 2 with no cutoff and run the analysis.

4. Verify that each intersection is connecting properly and following the shortest route between them.
5. Increase the number of facilities to an appropriate number (decide based on how dense the number of facilities/incidents is) and apply cutoff if necessary.
6. Run the analysis. The Routes layer under the Closest Facility group will populate.

Identifying the Gaps

The last portion of the process is to identify the gaps using the results from the Closest Facility analysis. The steps for this are listed below:

1. Export the data from the Routes shapefile created by the analysis.
2. Using the Clip tool, put the shapefile of no existing facilities created earlier as input feature and the exported routes shapefile as the clip feature and run the clip.
3. Output will be a shapefile of the shortest routes between each of the existing facility end points with no existing facilities.

Results

The results from the analysis include shapefiles of identified pedestrian and bicycle facility gaps on each side of the road. These resulting gaps include segments with no existing facilities or partial facilities. The purpose is to highlight segments where there are breaks in the network where facilities could potentially be added to establish further connections. A summary of the existing facilities and identified gaps from the analysis is shown in Figure 10 below:

Figure 10: Results summary table

	Pedestrian: Side A	Pedestrian: Side B	Bicycle: Side A	Bicycle: Side B
Existing Facilities	163 miles	173 miles	42 miles	45 miles
No Facilities	144 miles	146 miles	340 miles	325 miles
Partial Facilities	115 miles	103 miles	41 miles	52 miles
Gaps Between Existing Facilities	70 miles	70 miles	54 miles	52 miles

In addition to the gaps, shapefiles of existing pedestrian and bicycle facilities for each side of the road were also generated. Listed and shown below are maps of the identified gaps overlayed with the existing facilities. For the existing facilities visualization, green segments ("Yes") represent full existing facilities while red segments ("No") represent a partial or full lack of facilities.

- Figure 11: Pedestrian Facilities - Side A (West, Northwest, North, Northeast)
- Figure 12: Pedestrian Facilities - Side B (East, Southeast, South, Southwest)
- Figure 13: Bicycle Facilities/Gaps - Side A (West, Northwest, North, Northeast)
- Figure 14: Bicycle Facilities/Gaps - Side B (East, Southeast, South, Southwest)

Figure 11: Pedestrian Facilities - Side A (West, Northwest, North, Northeast)

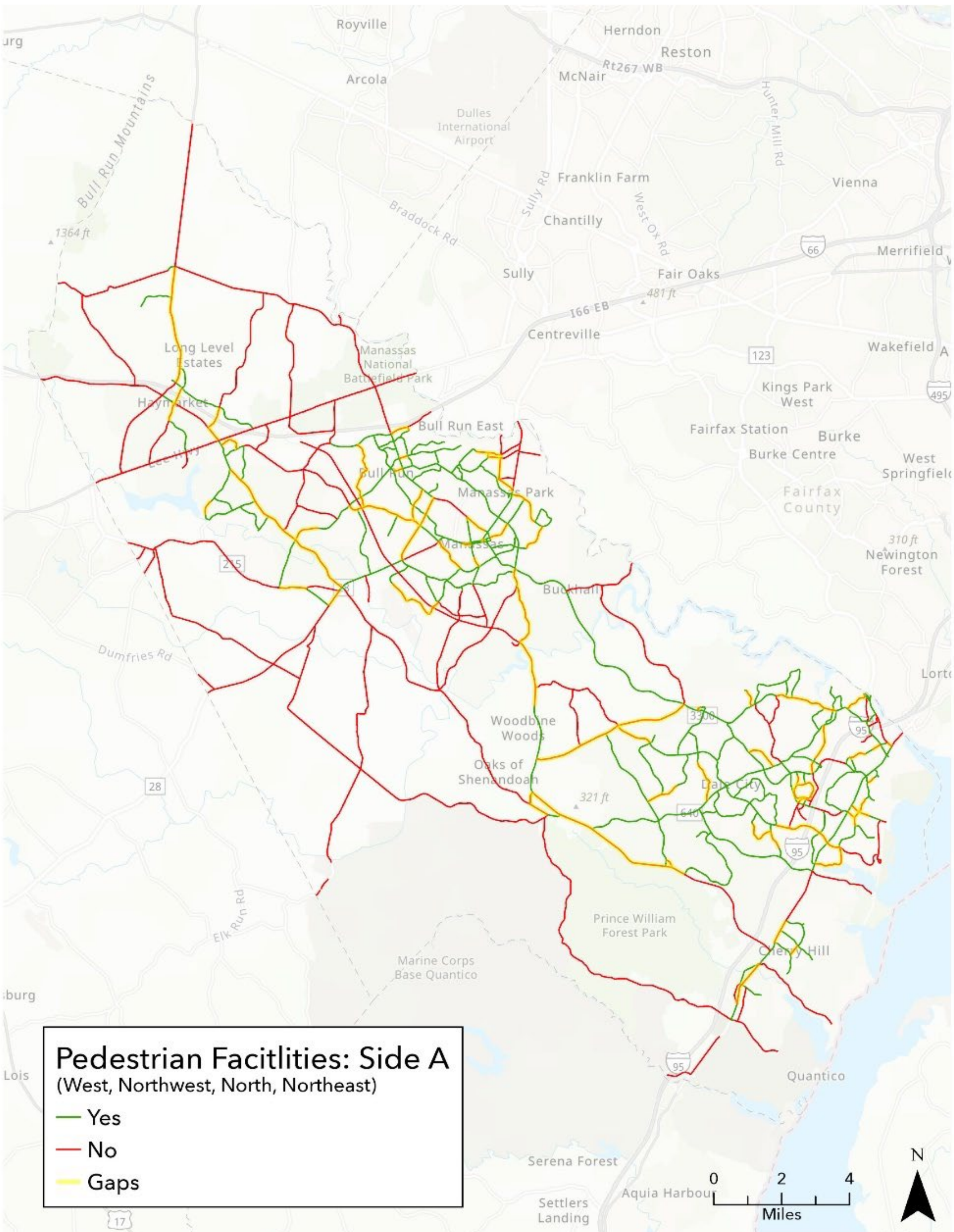


Figure 12: Pedestrian Facilities - Side B (East, Southeast, South, Southwest)

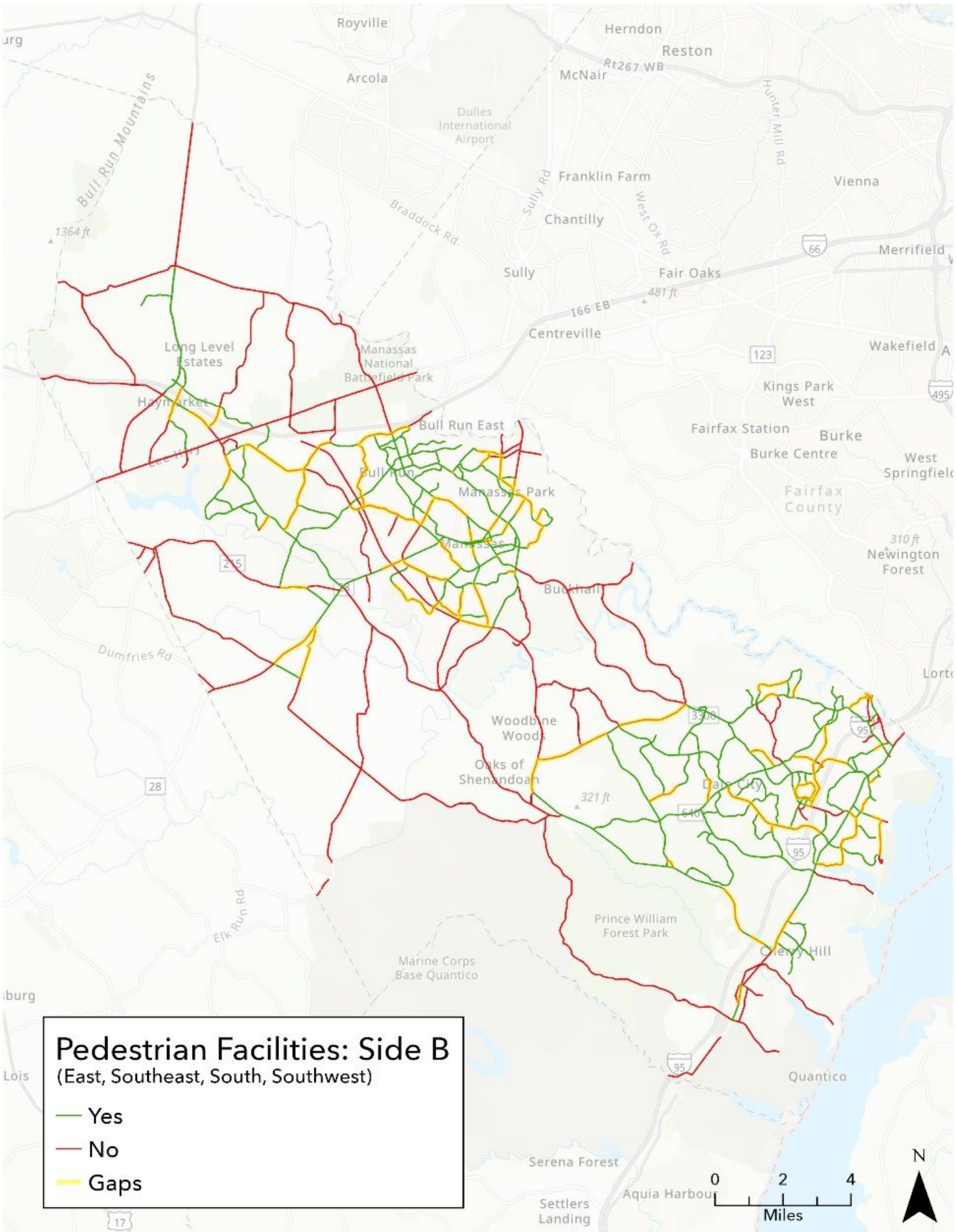


Figure 13: Bicycle Facilities/Gaps - Side A (West, Northwest, North, Northeast)

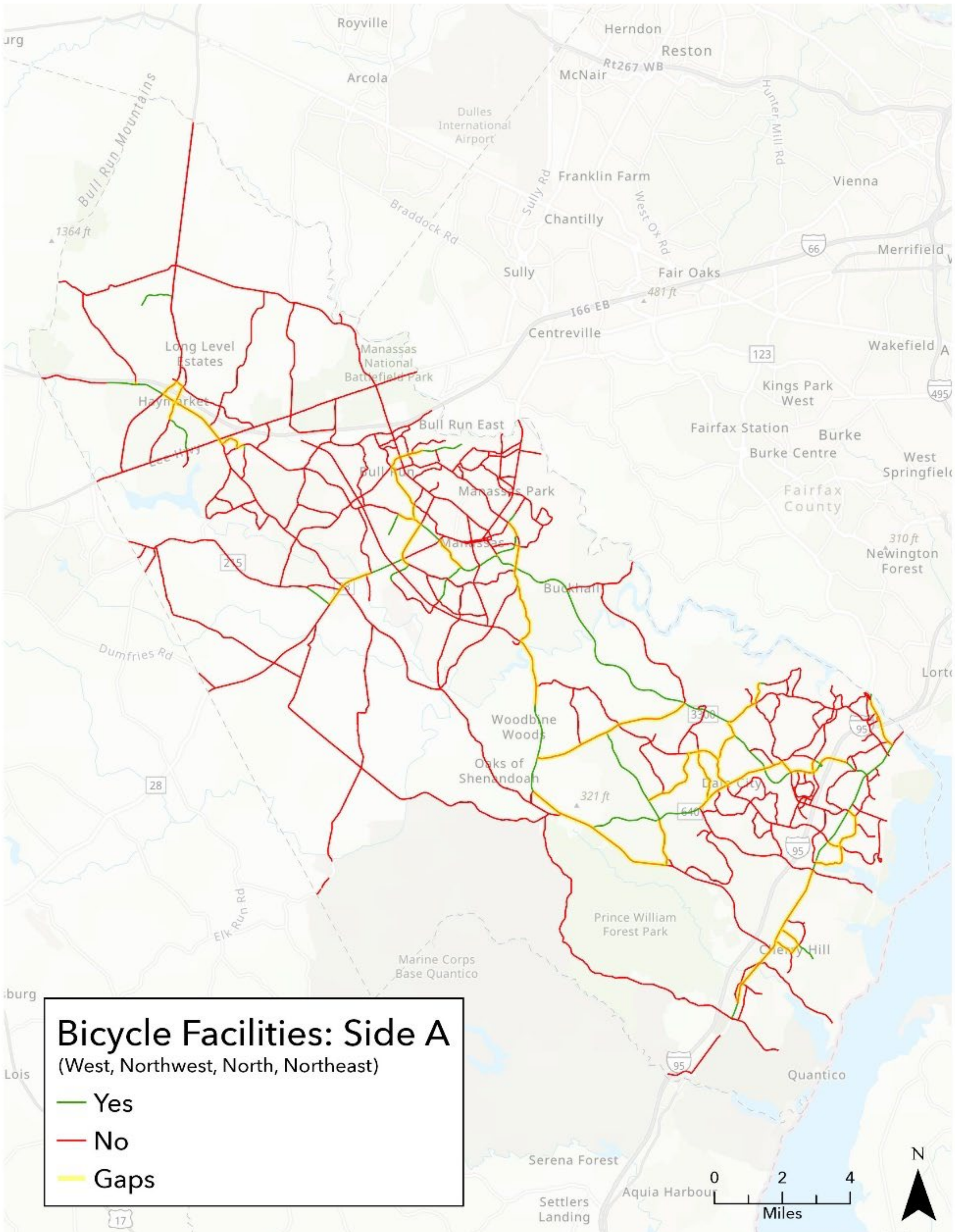
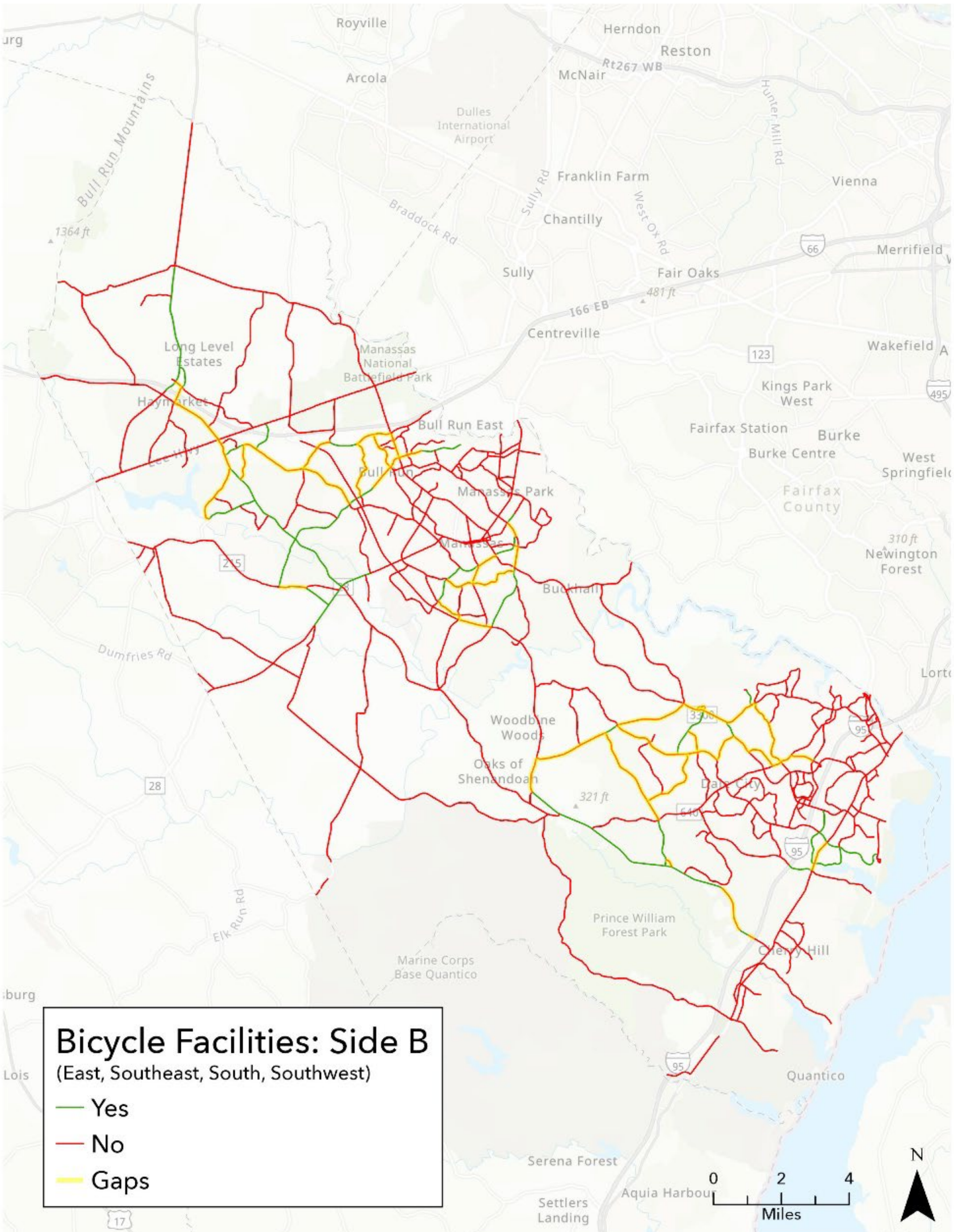


Figure 14: Bicycle Facilities/Gaps - Side B (East, Southeast, South, Southwest)



In addition to the shapefiles shown above, two summary maps were developed that show the analyzed roadways coded by existing facilities on both sides, one side, or neither side.

- Figure 15: Existing Pedestrian Facilities Summary
- Figure 16: Existing Bicycle Facilities Summary

Figure 15: Existing pedestrian facilities summary

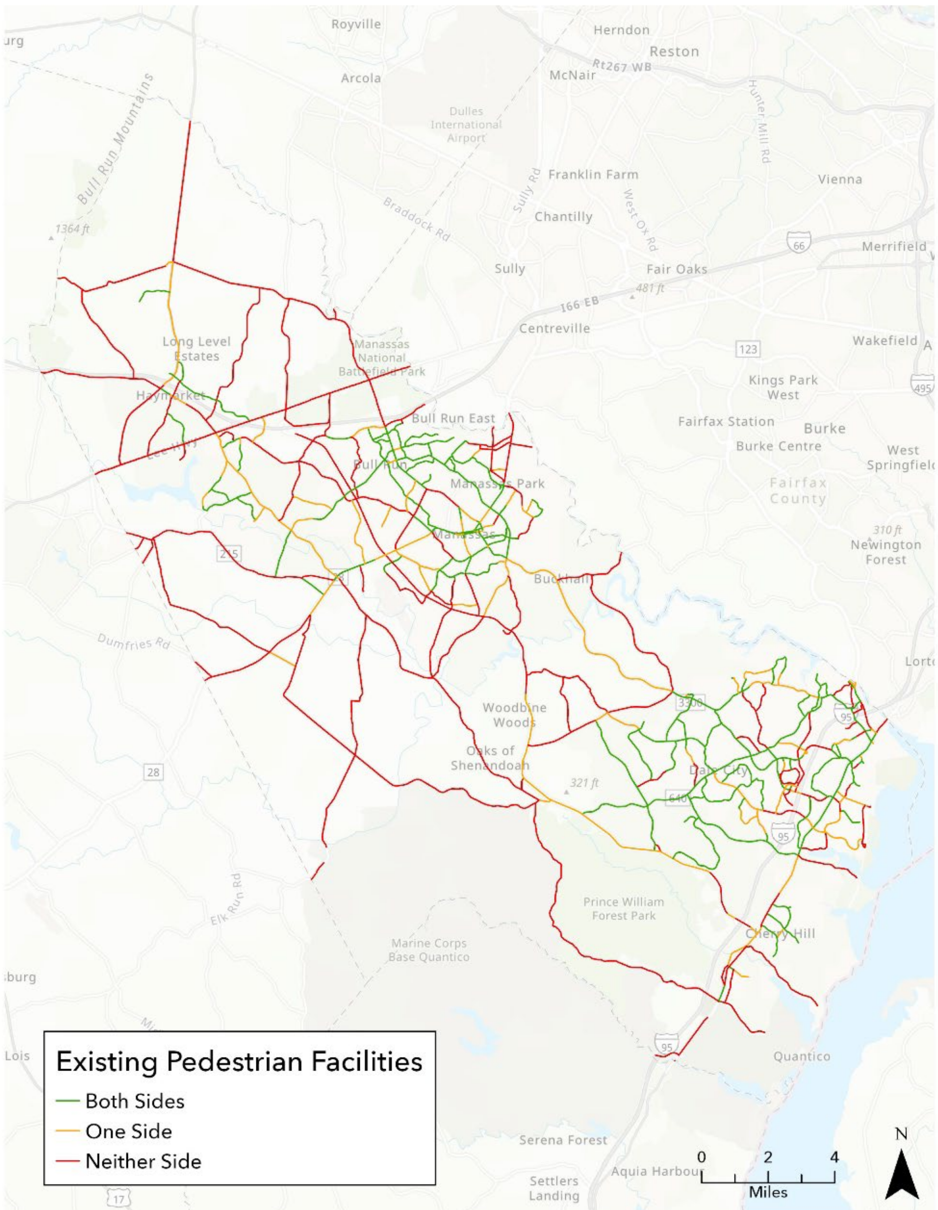
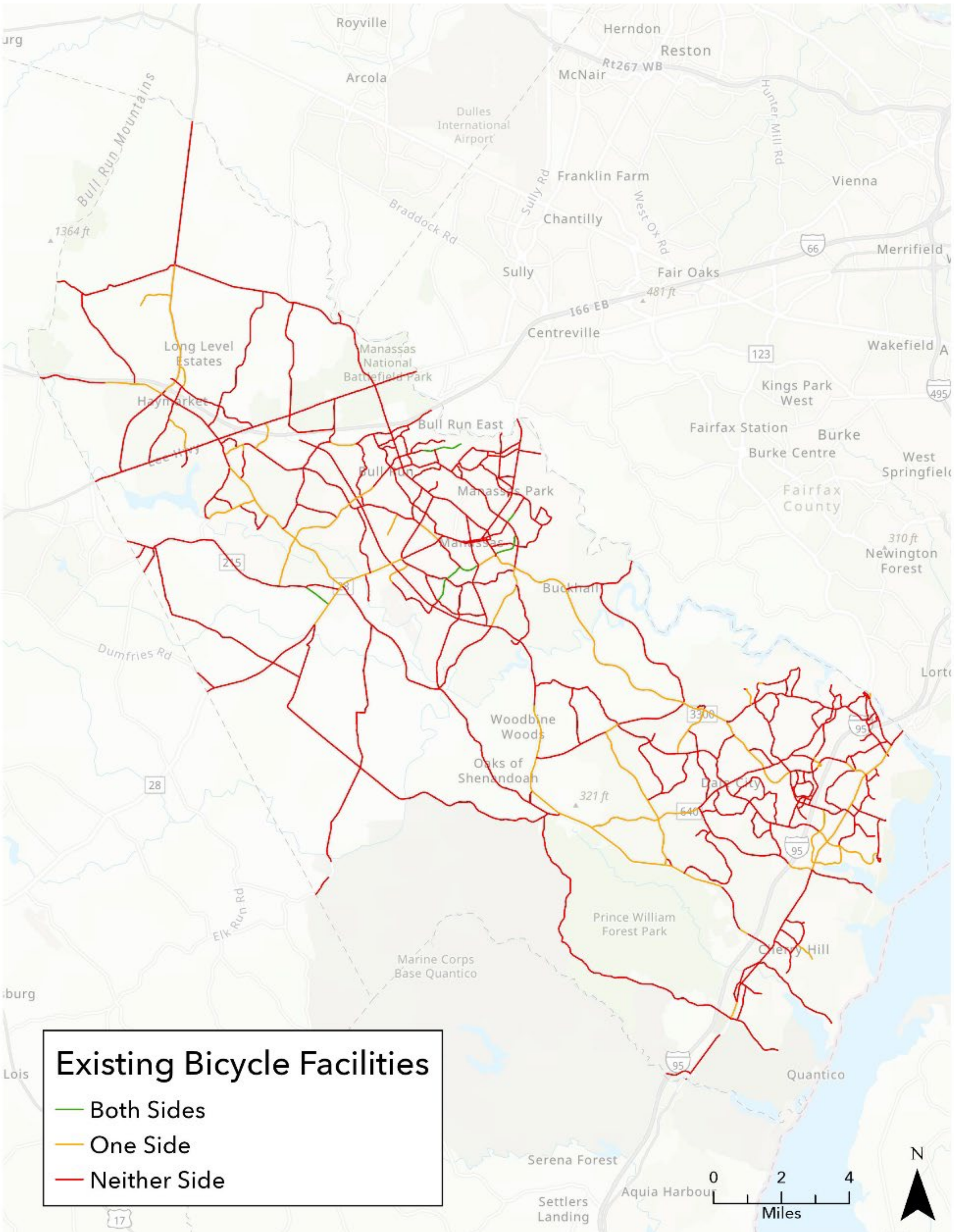


Figure 16: Existing bicycle facilities summary



LOCAL TRANSIT GAP ANALYSIS

Purpose of Analysis

In addition to the bicycle and pedestrian network gap analysis, a spatial gap analysis was conducted for local bus service along with identification of high-level opportunity areas for microtransit in the County. The intent of this additional analysis was to determine locations throughout the County that are lacking bicycle and pedestrian access to local bus transit and the gaps in infrastructure that need to be addressed to improve countywide connectivity and accessibility. The gap analysis incorporated population and employment density and projected growth for areas across the County as well as key destinations and activity centers to provide the County with information to use to prioritize the mitigation of identified gaps.

Data Discovery

A summary table of the data used for this analysis is included below in Figure 17.

Figure 17: Transit analysis data summary table

Shared-Use Paths	VDOT	https://www.virginiaroads.org/datasets/62e19f8aff714932aa2956e5d7374ce9_0/explore	12/21/2023	6/21/2024
Sidewalks	PWC	https://gisdata-pwcgov.opendata.arcgis.com/datasets/39141a480d3a47acb9f2483e8f5e8daa/about	8/10/2022	6/27/2024
Activity Centers	PWC	https://gisdata-pwcgov.opendata.arcgis.com/datasets/9a00496f46534b888ee06d10c15620e1_12/explore	1/18/2023	10/7/2024
OmniRide Bus Routes	OmniRide	https://omniride.com/about/tools/	7/29/2024	10/7/2024
Employment Density and Projections	MWCOG	https://www.mwcog.org/documents/2023/11/03/cooperative-forecasts-employment-population-and-household-forecasts-by-transportation-analysis-zone-cooperative-forecast-demographics-housing-population/	11/3/2023	10/7/2024
Incorporated Towns, Cities, and Counties	PWC	https://gisdata-pwcgov.opendata.arcgis.com/datasets/26e0c74d4fe845d7a5871c0747e6e74f_19/explore?	9/11/2023	10/7/2024

Land Use Planning Areas	PWC	https://gisdata-pwcgov.opendata.arcgis.com/datasets/	8/10/2022	10/7/2024
OmniRide Bus Stops	OmniRide	https://omniride.com/about/tools/	7/29/2024	10/7/2024
Population Density and Projections	MWCOG	https://www.mwcog.org/documents/2023/11/03/cooperative-forecasts-employment-population-and-household-forecasts-by-transportation-analysis-zone-cooperative-forecast-demographics-housing-population/	11/3/2023	10/7/2024
Redevelopment Districts – Overlay Zone	PWC	https://gisdata-pwcgov.opendata.arcgis.com/datasets/45eae9670f6244f587fe6a214aaea0d2_59/explore	8/10/2022	10/7/2024
Shopping Centers	PWC	https://gisdata-pwcgov.opendata.arcgis.com/datasets/d6bf5ac9189946d6a8601ec146c2ab1c/explore	8/11/2020	10/7/2024
Small Area Plan Boundaries	PWC	https://gisdata-pwcgov.opendata.arcgis.com/datasets/9a00496f46534b888ee06d10c15620e1_12/explore	1/18/2023	10/7/2024
Special Planning Areas	PWC	https://gisdata-pwcgov.opendata.arcgis.com/datasets/9a00496f46534b888ee06d10c15620e1_12/explore	1/18/2023	10/7/2024
Microtransit Zones	OmniRide	https://omniride.com/sites/omniride/assets/File/omniride-connect/OR24_OmniRide_Connect_Riders_Guide_9x12_Print_English_05-31-24.pdf	5/31/2024	10/7/2024

This analysis used the same study area as the bicycle and pedestrian gap analysis. However, for this analysis, gaps were identified on local/neighborhood roads in addition to the 6 functional classes used in the bicycle/pedestrian analysis.

Local Bus Stop Walkshed and Bikeshed Analysis

The first analysis conducted related to local bus transit was a process to identify pedestrian and bicycle facility gaps within walksheds and bikesheds of existing local bus stops to determine where there is a lack of access to public transit in the active transportation network. The process of this analysis is outlined below:

1. Create a ¼ mile buffer around each OmniRide bus stop to serve as the walk/bikeshed
2. Identify all local/neighborhood roads (identified by County type code) that do not have an adjacent sidewalk nor shared-use path within 100 feet of the roadway centerline
3. Add in results from the bicycle/pedestrian gap analysis, identifying segments of higher functional class roads within the bus stop walk/bikesheds that lack bicycle/pedestrian infrastructure
    a. Note: a separate bicycle-specific analysis was not conducted in this process, as the previous bicycle gap analysis already assessed all roadways in the County with a classification above local roads, which are unlikely to need additional bike infrastructure due to their low traffic stress

The resulting maps from the analysis showing facility gaps within OmniRide stop walk/bikesheds can be observed below.

- Figure 18: Bike/ped facility gaps within OmniRide stop walk/bikesheds (Area 1)
- Figure 19: Bike/ped facility gaps within OmniRide stop walk/bikesheds (Area 2)

Figure 18: Bike/ped facility gaps within OmniRide stop walk/bikesheds (Area 1)

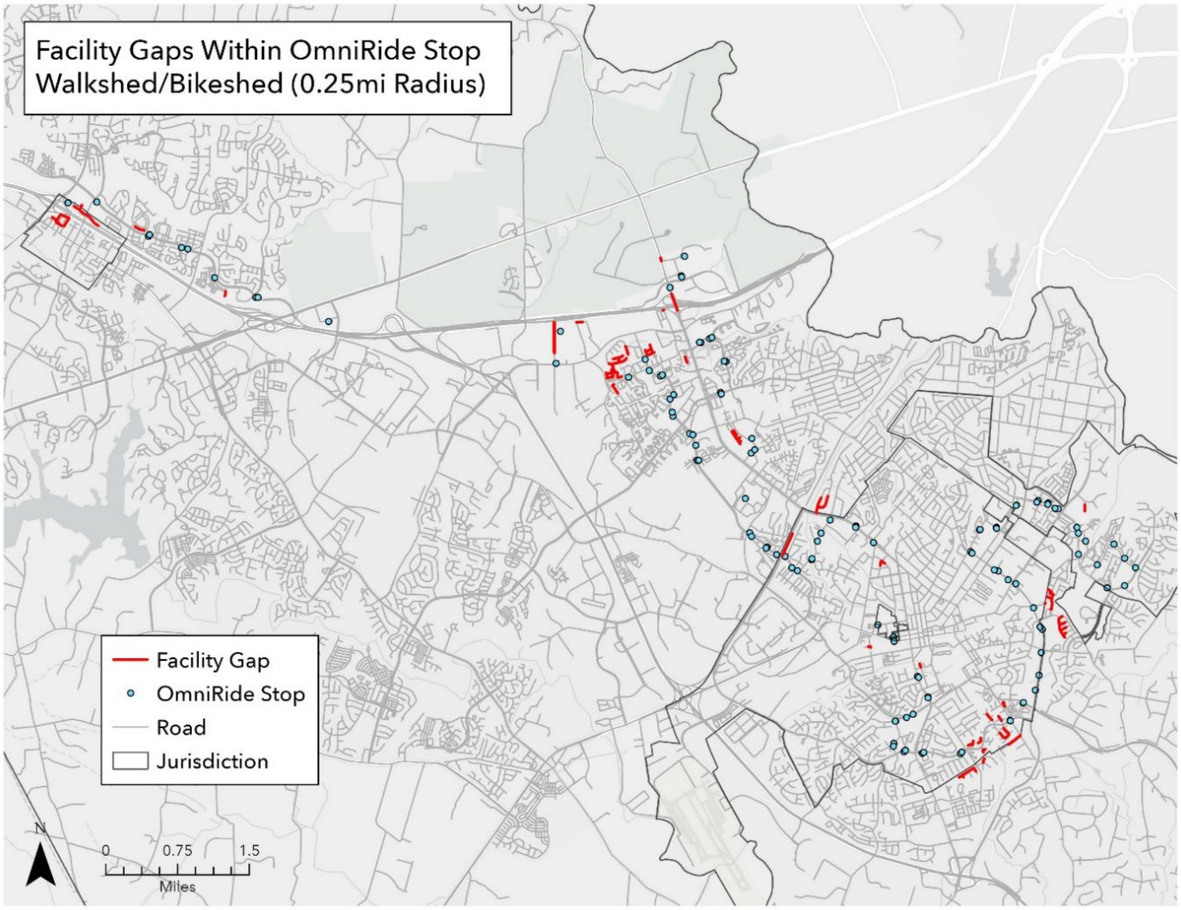
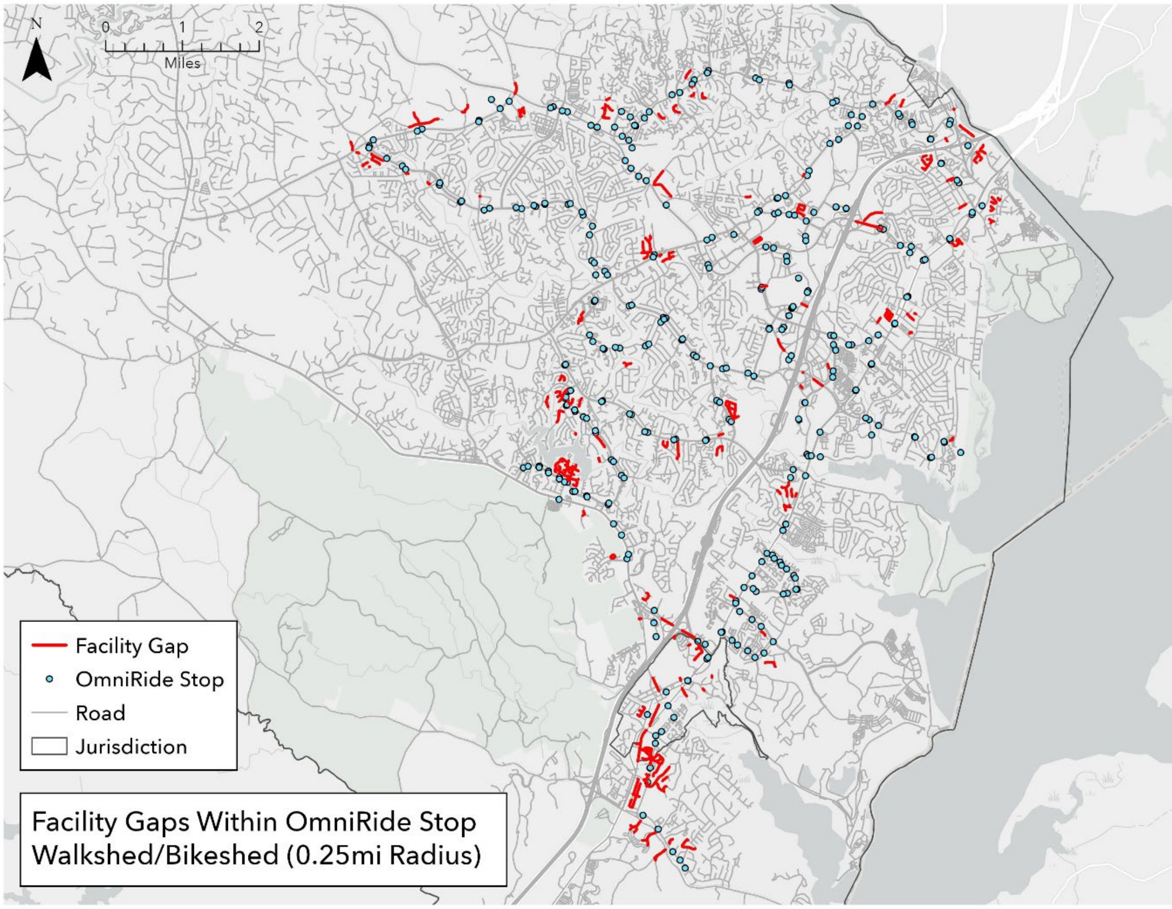


Figure 19: Bike/ped facility gaps within OmniRide stop walk/bikesheds (Area 2)



Transit Gaps in Activity-Dense Areas

The next analysis had the goal of identifying gaps in local bus routes between major activity centers based on Metropolitan Washington Council of Governments' (MWCOG) Traffic Analysis Zone (TAZ) projections for population and employment in Prince William County, published in November 2023. The steps of this analysis are outlined below:

1. Identify the top 20 percent (roughly 75) of TAZs with the greatest population density and employment density forecasted for the year 2050
2. Identify the top 20 percent of TAZs with the greatest percent change in population density and employment density between the years 2020-2050
3. Identify the top 10 TAZs by each metric listed above that do not have an OmniRide stop within their boundaries

The resulting maps below show the top 75 TAZs by projected 2050 population and employment densities as well as projected percent growth in population and employment density between 2020-2050.

- Figure 20: Top 75 TAZs in projected 2050 population density
- Figure 21: Top 75 TAZs in projected 2050 employment density
- Figure 22: Top 75 TAZs in projected percent change in population density 2020-2050
- Figure 23: Top 75 TAZs in projected percent change in employment density 2020-2050

Figure 20: Top 75 TAZs in projected 2050 population density

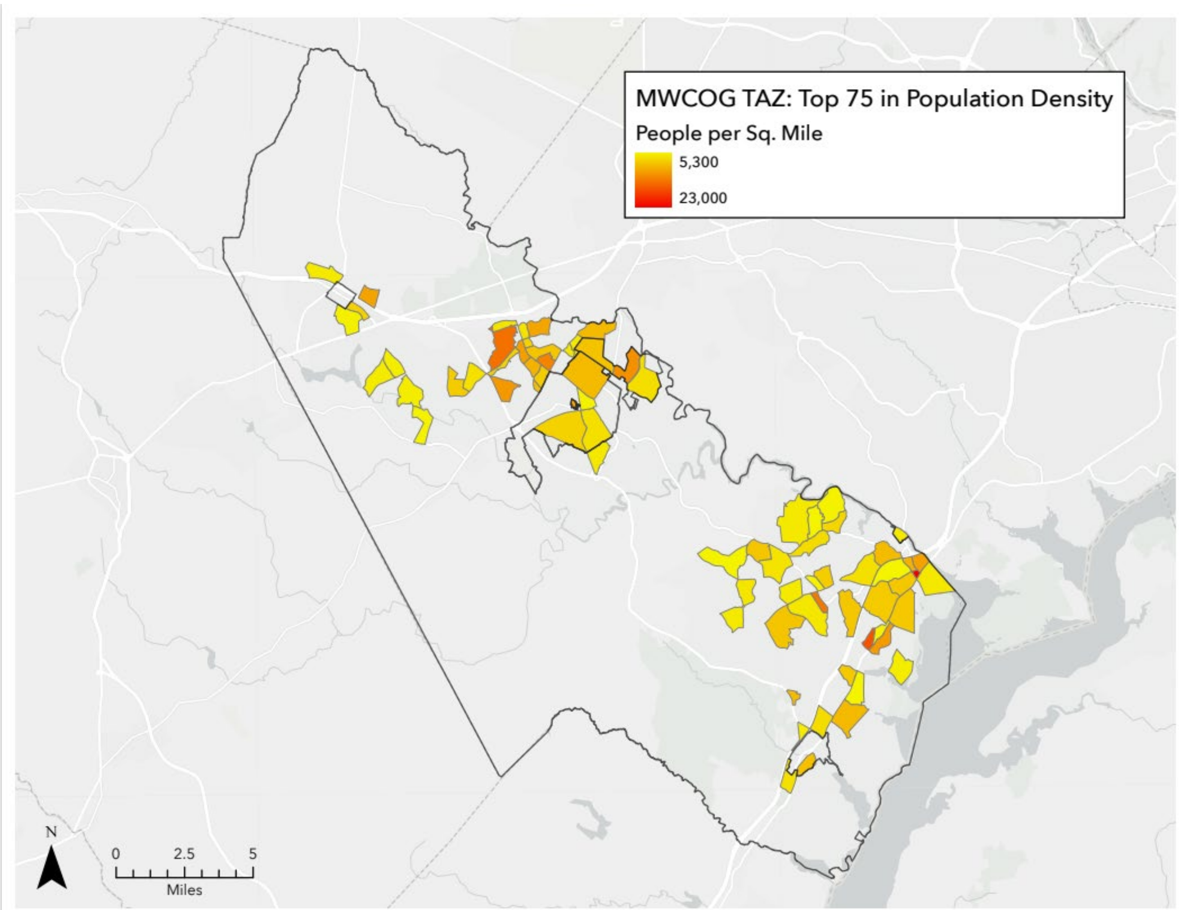


Figure 21: Top 75 TAZs in projected 2050 employment density

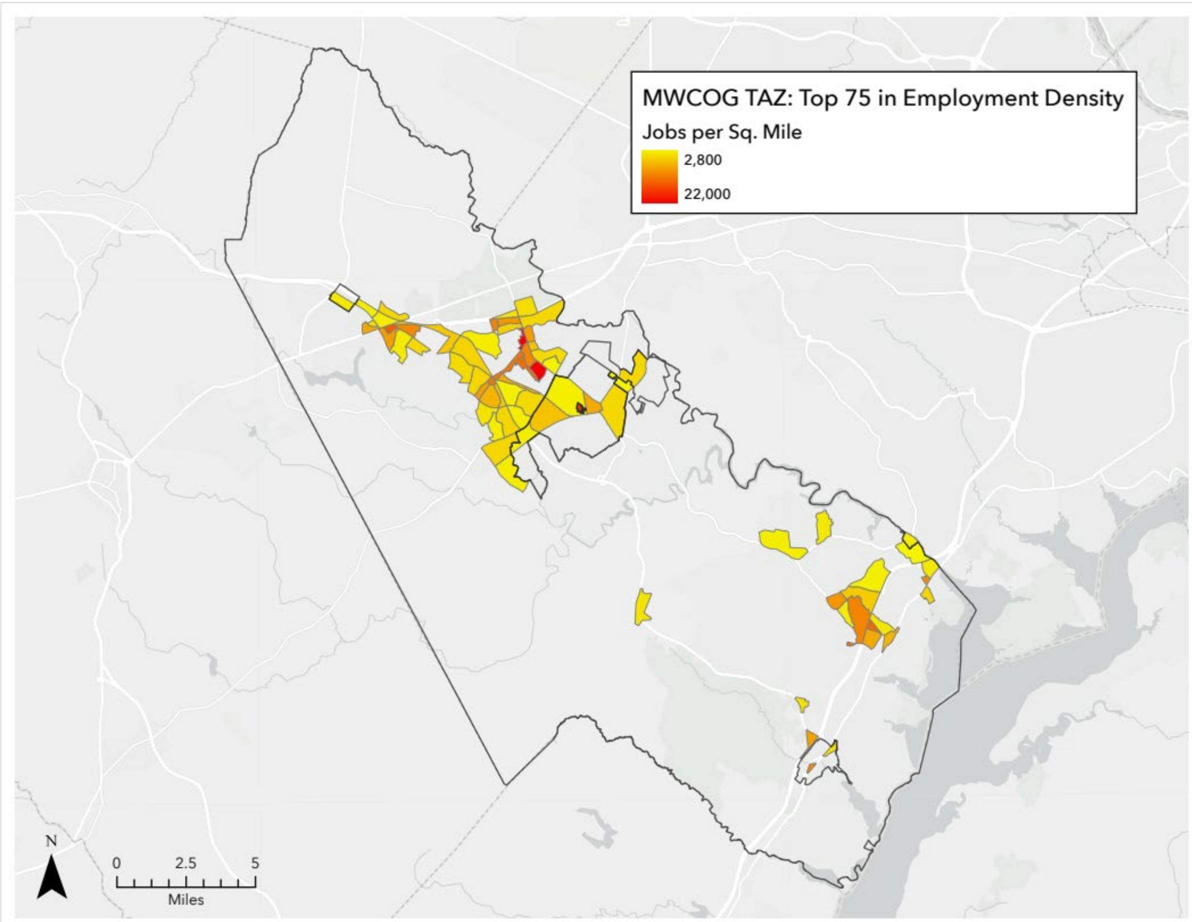


Figure 22: Top 75 TAZs in projected percent change in population density 2020-2050

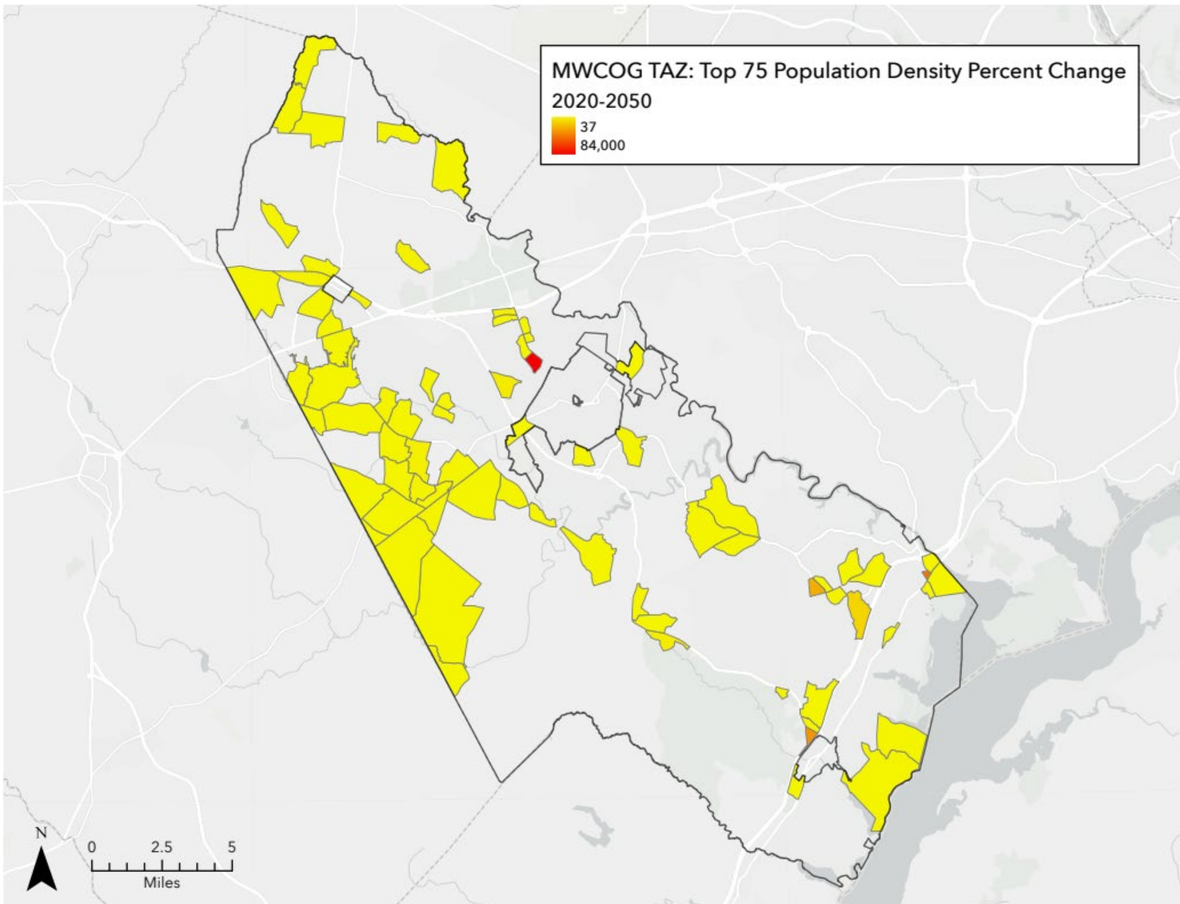
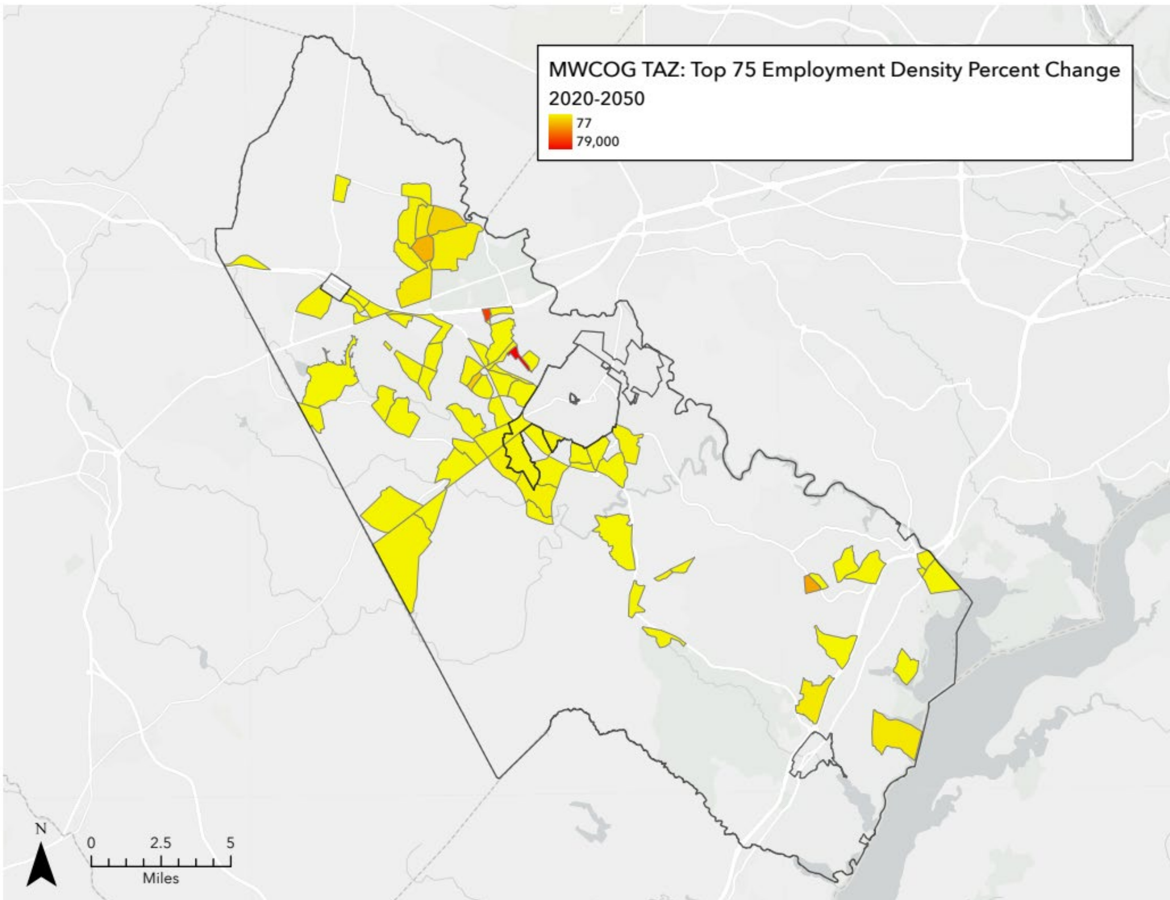


Figure 23: Top 75 TAZs in projected percent change in employment density 2020-2050



In addition, as mentioned in the steps above, this piece of the analysis identified the top 10 TAZs by each of these metrics that do not have OmniRide access within them. This specified analysis will help to prioritize future transit investment in high-activity areas that are currently lacking access. The resulting maps from this analysis are shown below.

- Figure 24: Top 10 TAZs with Highest Population Density & No OmniRide Stops
- Figure 25: Top 10 TAZs with Highest Employment Density & No OmniRide Stops
- Figure 26: Top 10 TAZs with Highest Population Percent Change (2020-2050) & No OmniRide Stops
- Figure 27: Top 10 TAZs with Highest Employment Percent Change (2020-2050) & No OmniRide Stops

Figure 24: Top 10 TAZs with Highest Population Density & No OmniRide Stops

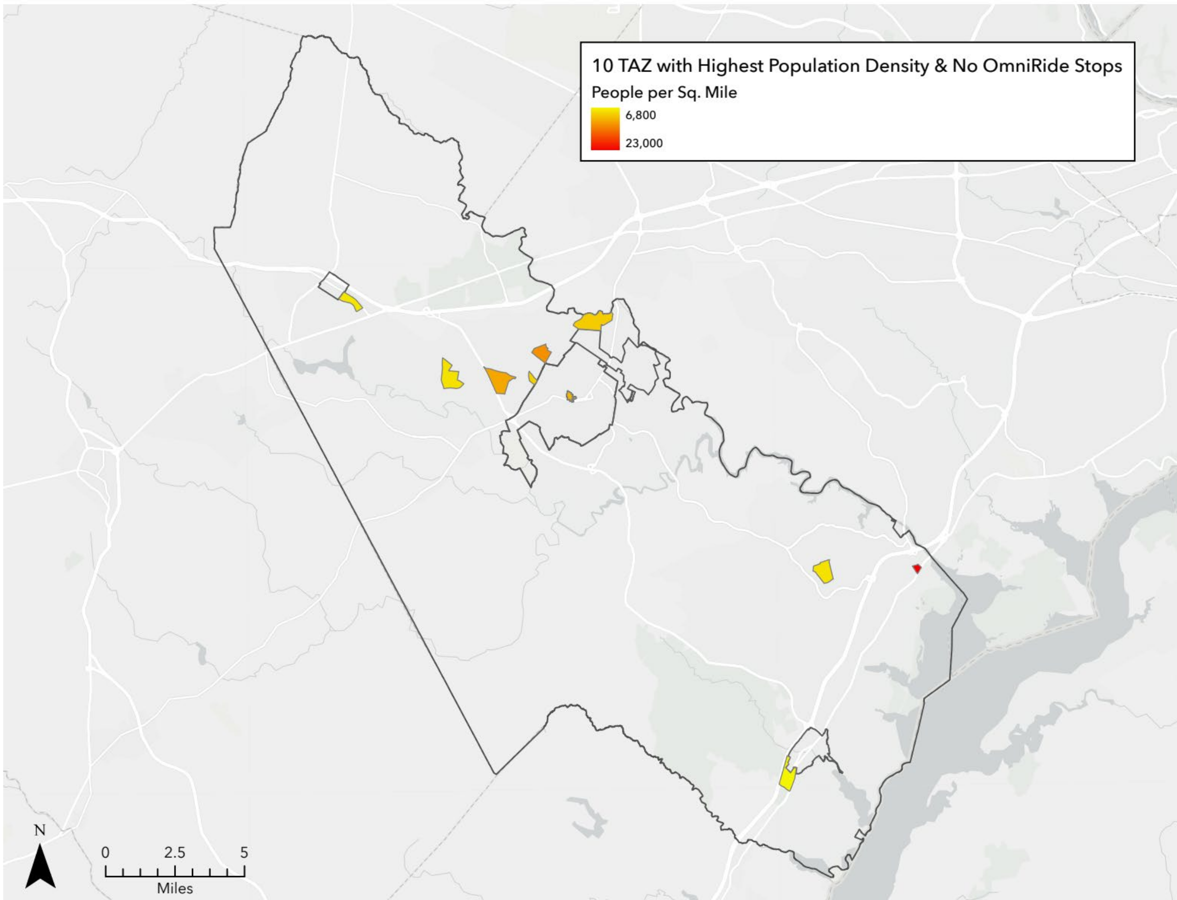


Figure 25: Top 10 TAZs with Highest Employment Density & No OmniRide Stops

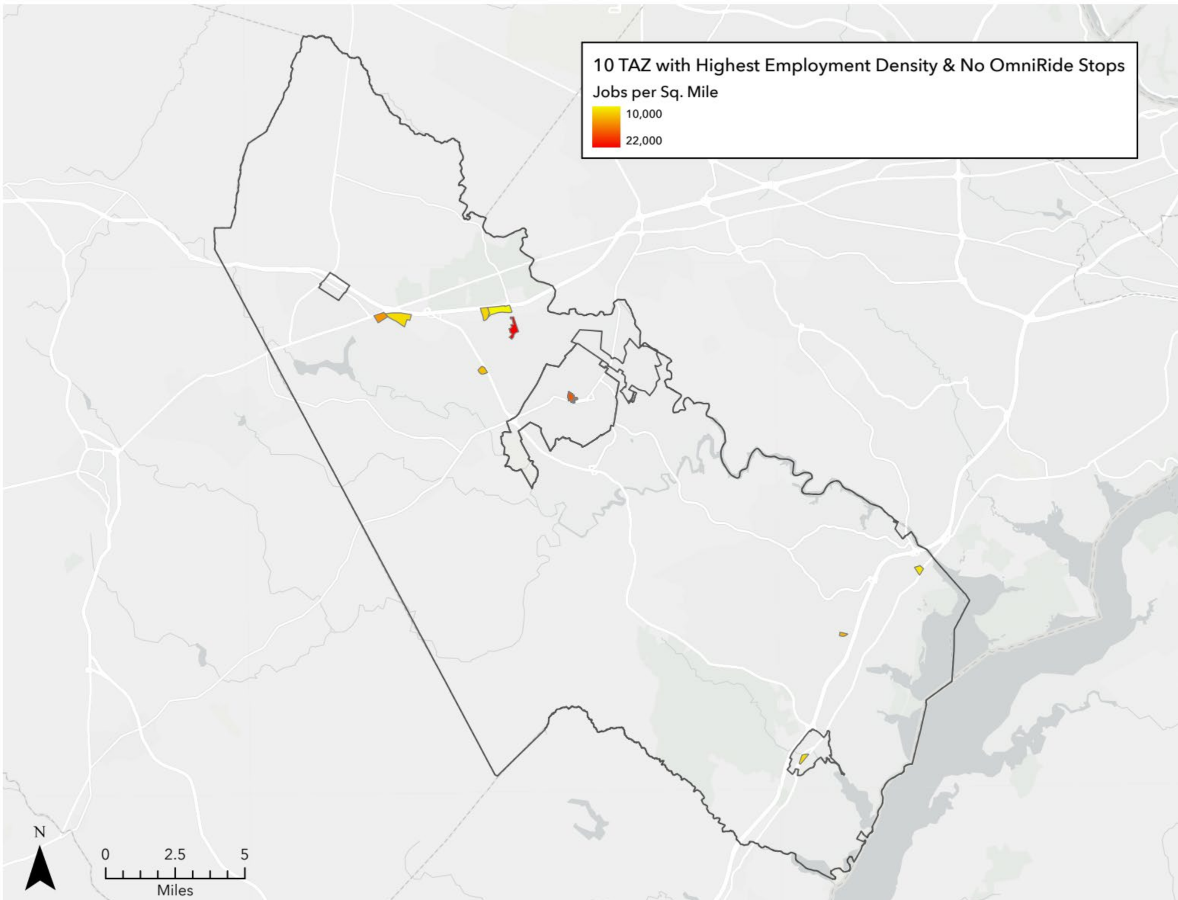


Figure 26: Top 10 TAZs with Highest Population Percent Change (2020-2050) & No OmniRide Stops

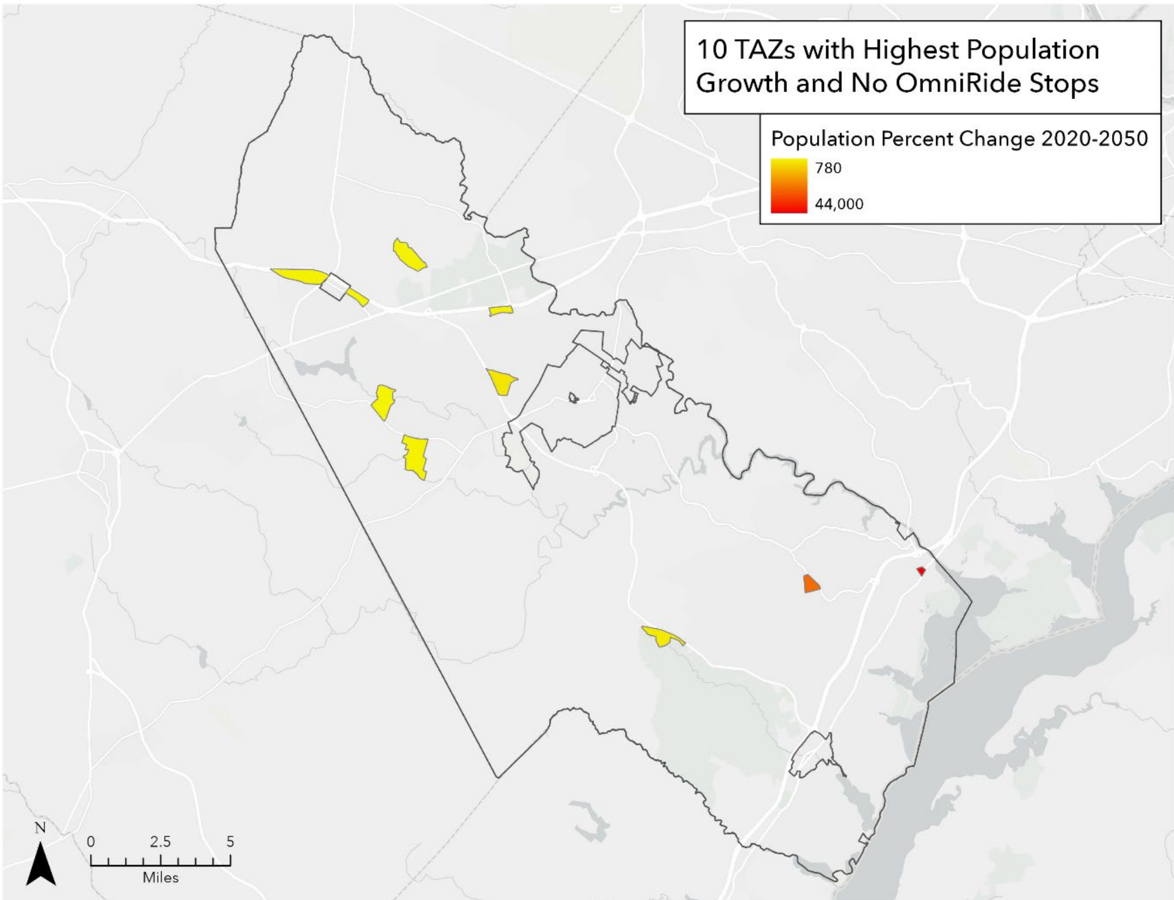
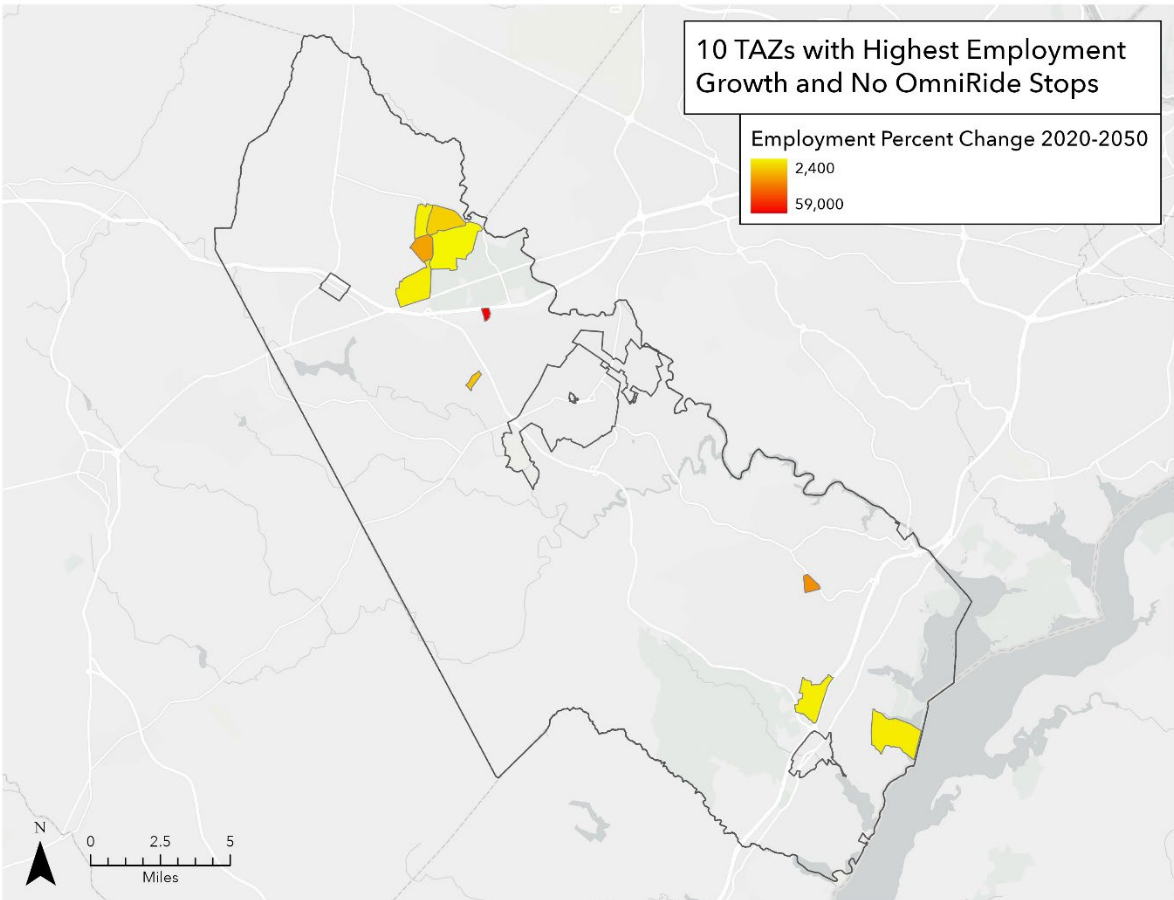


Figure 27: Top 10 TAZs with Highest Employment Percent Change (2020-2050) & No OmniRide Stops



Transit Gaps in County-Identified Activity Centers

The next analysis performed was similar to the activity analysis outlined above, but was focused on a set of 30 Special Planning Areas chosen by the County to be analyzed. The analysis included a mix of Activity Centers, Redevelopment Corridors, and Small Area Plans. The steps performed in this analysis are outlined below:

1. For each area, identify the number of OmniRide stops within the area boundaries
2. For each area, identify the number of OmniRide stops within a ¼ mile buffer of the area boundaries
3. For areas with no OmniRide stops within area boundaries, calculate the distance to the nearest OmniRide stop

The resulting maps from these analyses are included below. Similar to the previous analysis of population and employment trends in TAZs, these results identify gaps in transit access to key destinations within the County.

- Figure 28: Number of OmniRide stops within activity centers
- Figure 29: Number of OmniRide stops within 1/4 mile of activity centers
- Figure 30: Nearest OmniRide stop if none existing within activity centers

Figure 28: Number of OmniRide stops within activity centers

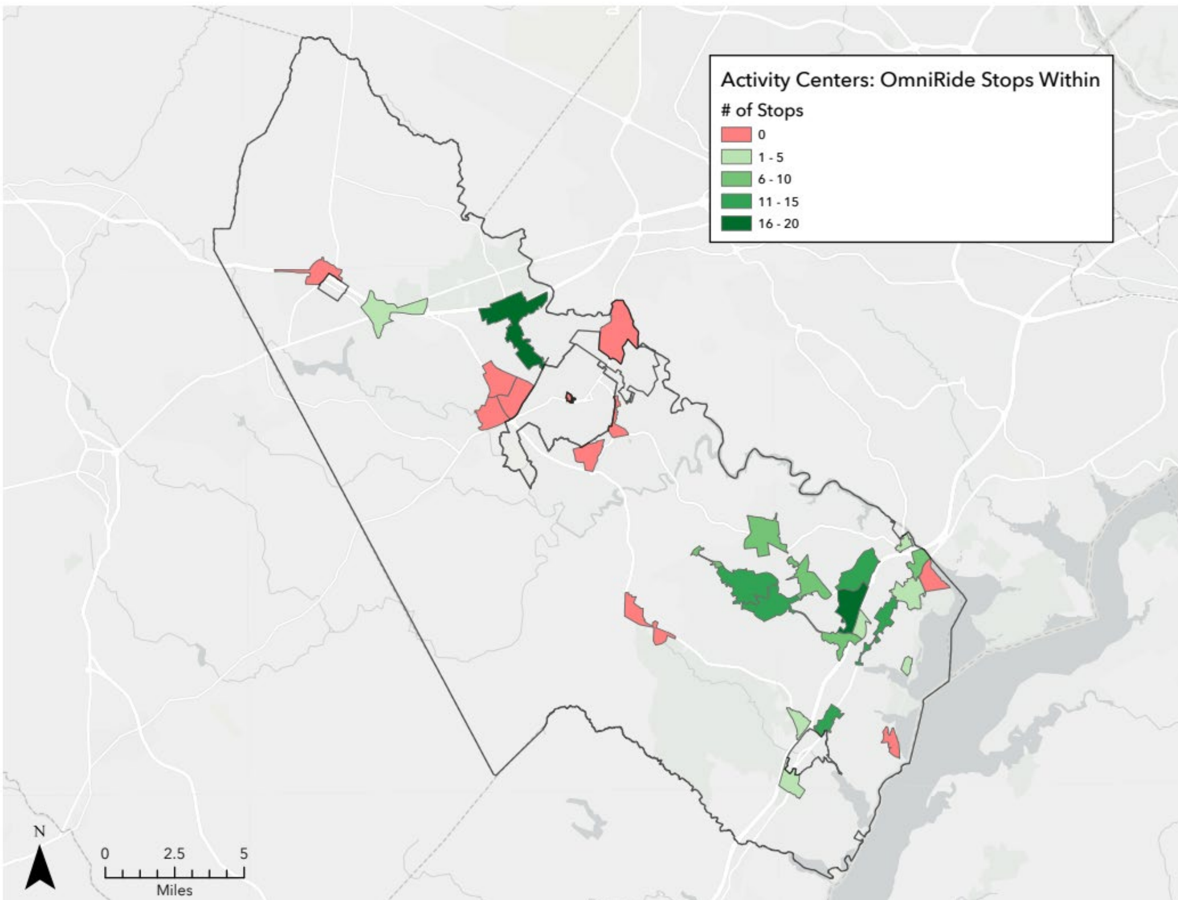


Figure 29: Number of OmniRide stops within 1/4 mile of activity centers

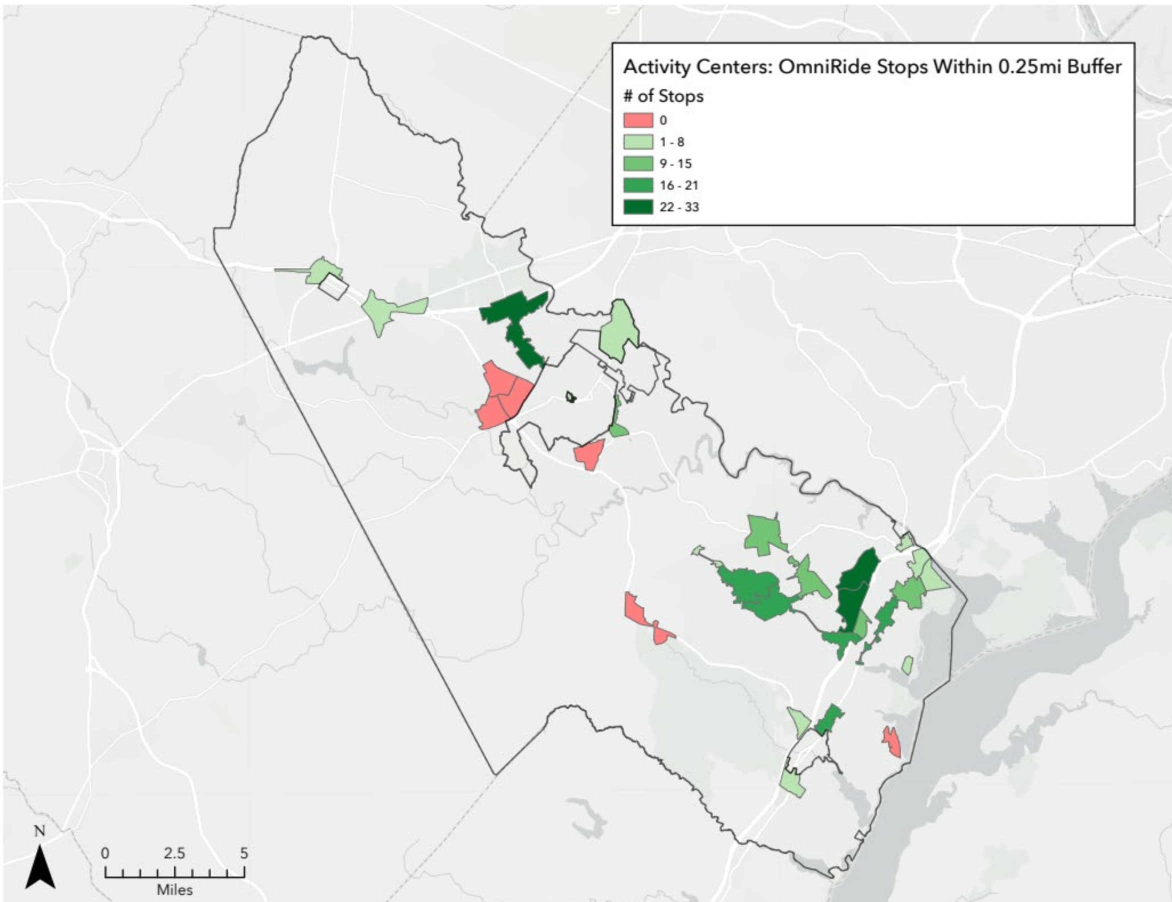
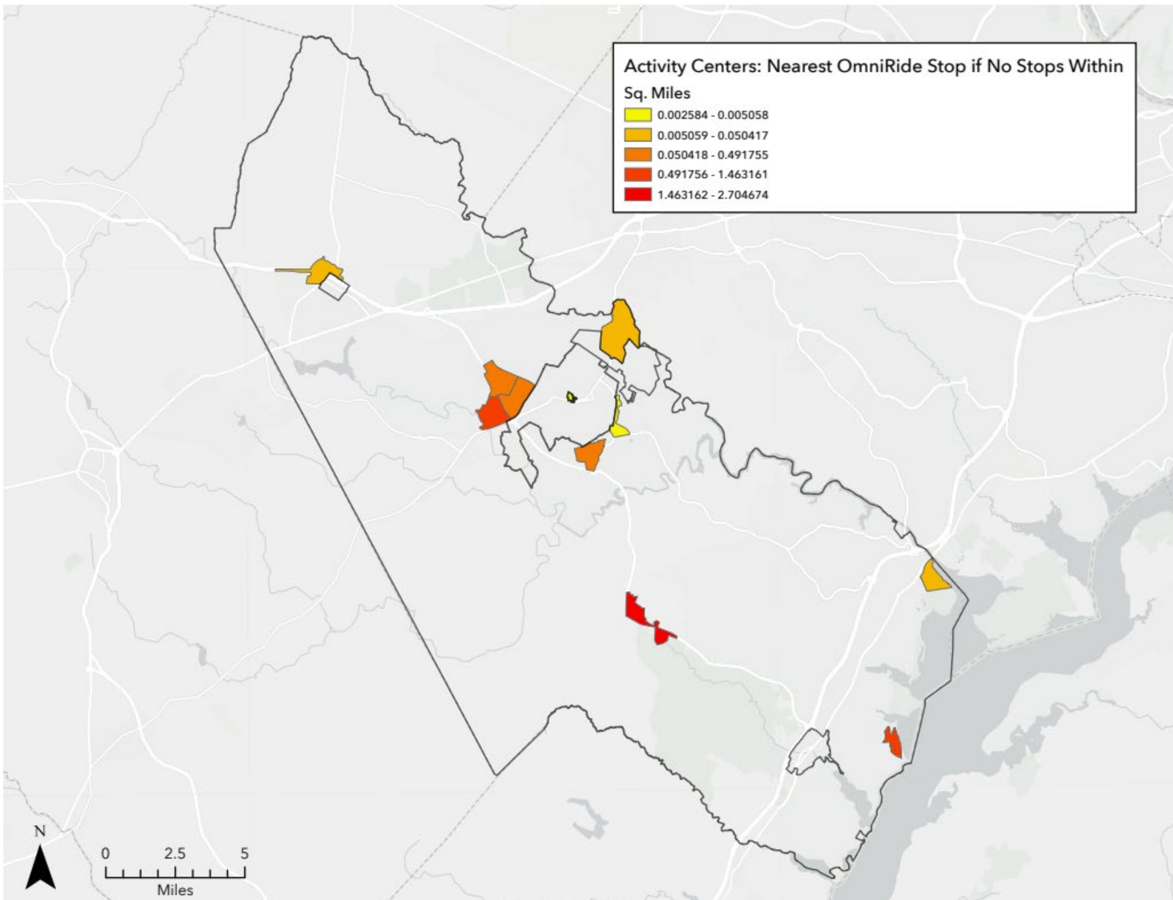


Figure 30: Nearest OmniRide stop if none existing within activity centers



High-Level Opportunities for Micromobility

The final goal of the Local Transit Gap Analysis was to identify high-level opportunities for micromobility based on factors such as locations of microtransit, local bus routes and stops, and existing/planned bicycle and pedestrian conditions. For this analysis, spatial overlays were created using the following data:

- Heat map of transit facilities (OmniRide, VRE, Amtrak)
- Heat map of existing and planned bicycle/pedestrian facilities
- Top 75 TAZs in population and employment densities in 2020
- Top 75 TAZs in population and employment densities in 2030
- High Injury Network
- OmniRide Connect Microtransit Service Areas

The maps below show the resulting overlays.

- Figure 31: Micromobility overlay with 2020 TAZ data and bicycle/pedestrian heat map
- Figure 32: Micromobility overlay with 2020 TAZ data and transit heat map
- Figure 33: Micromobility overlay with 2030 TAZ data and bicycle/pedestrian heat map
- Figure 34: Micromobility overlay with 2030 TAZ data and transit heat map

Figure 31: Micromobility overlay with 2020 TAZ data and bicycle/pedestrian heat map

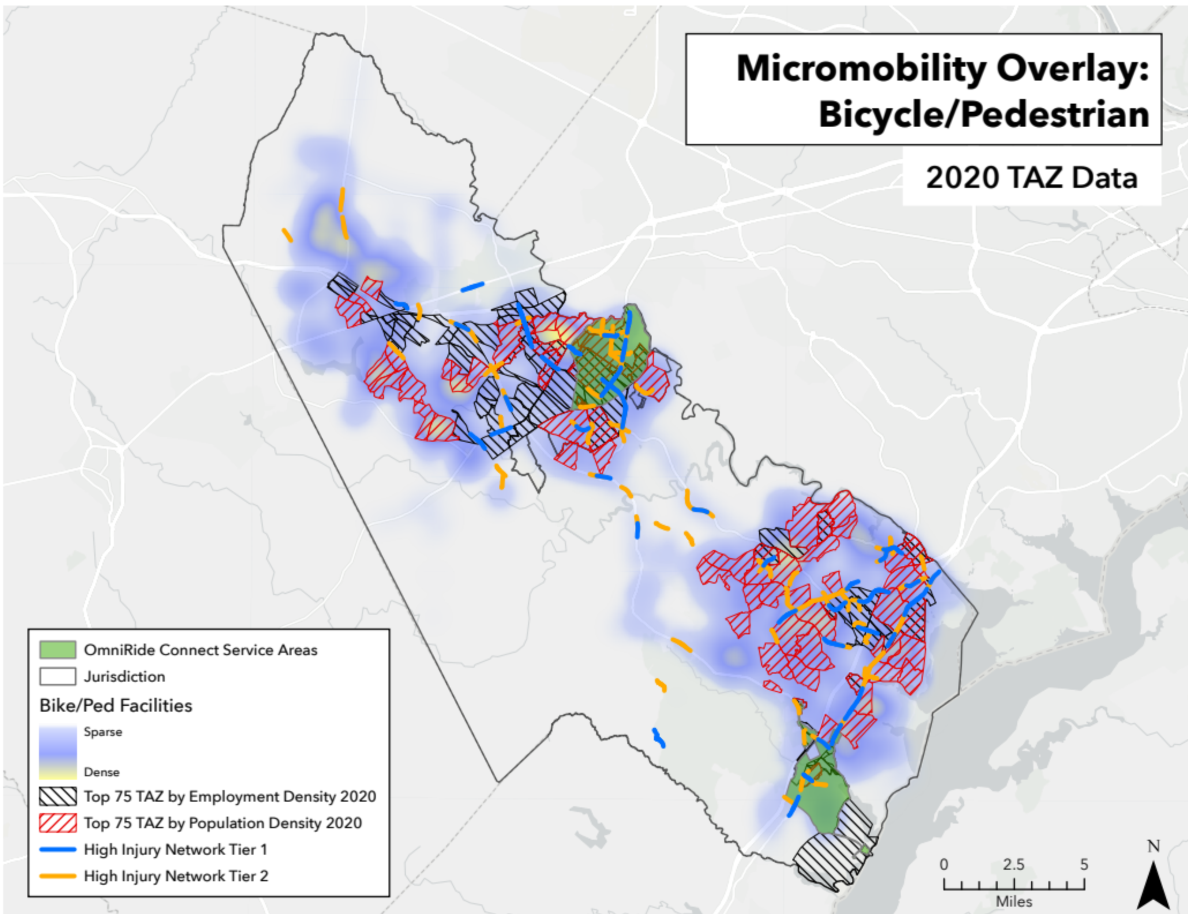


Figure 32: Micromobility overlay with 2020 TAZ data and transit heat map

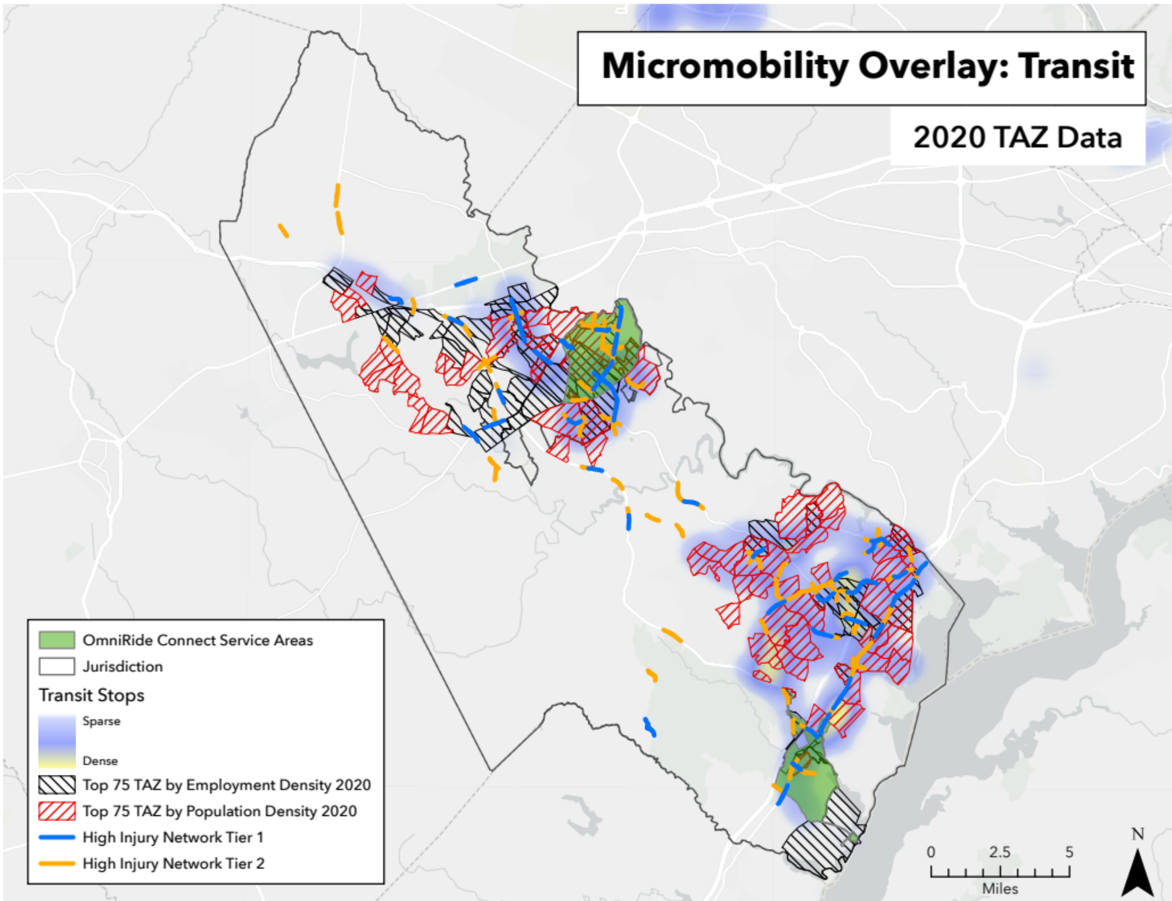


Figure 33: Micromobility overlay with 2030 TAZ data and bicycle/pedestrian heat map

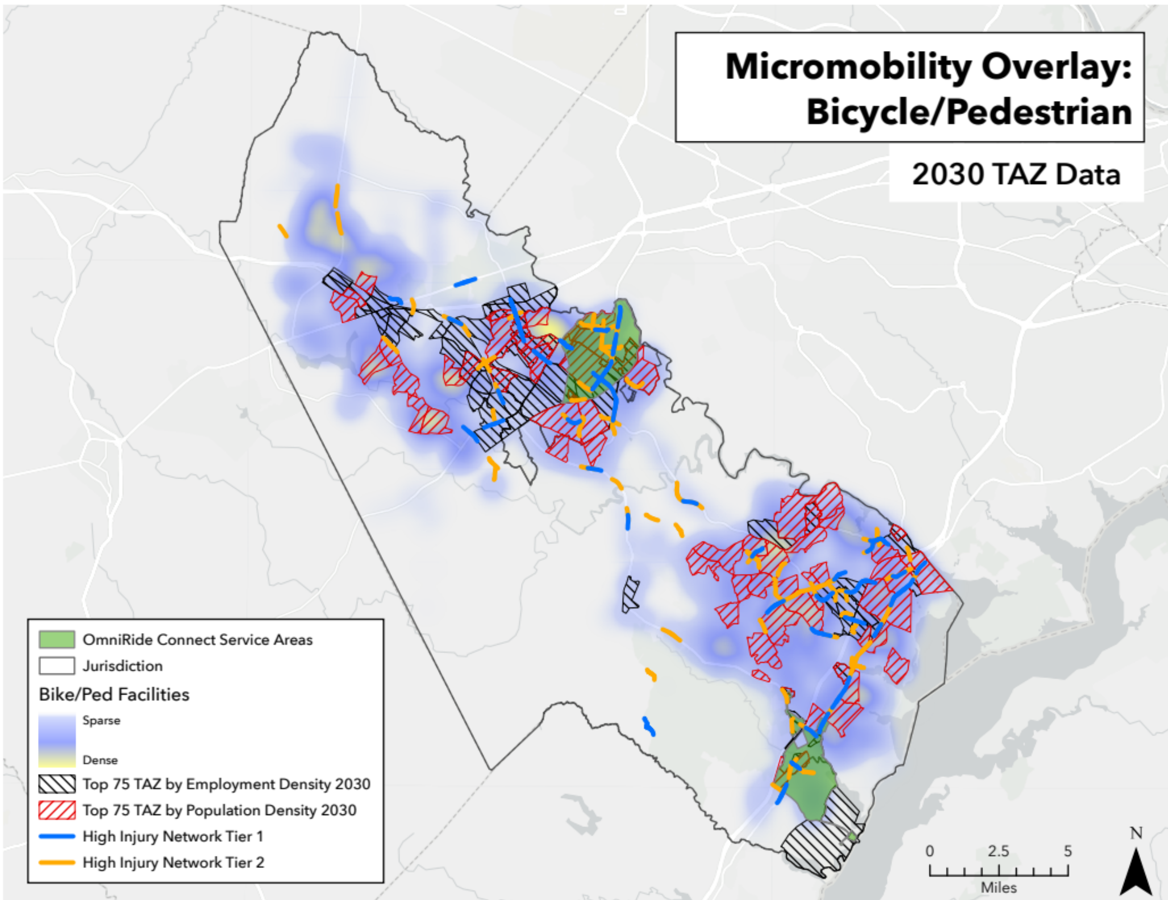
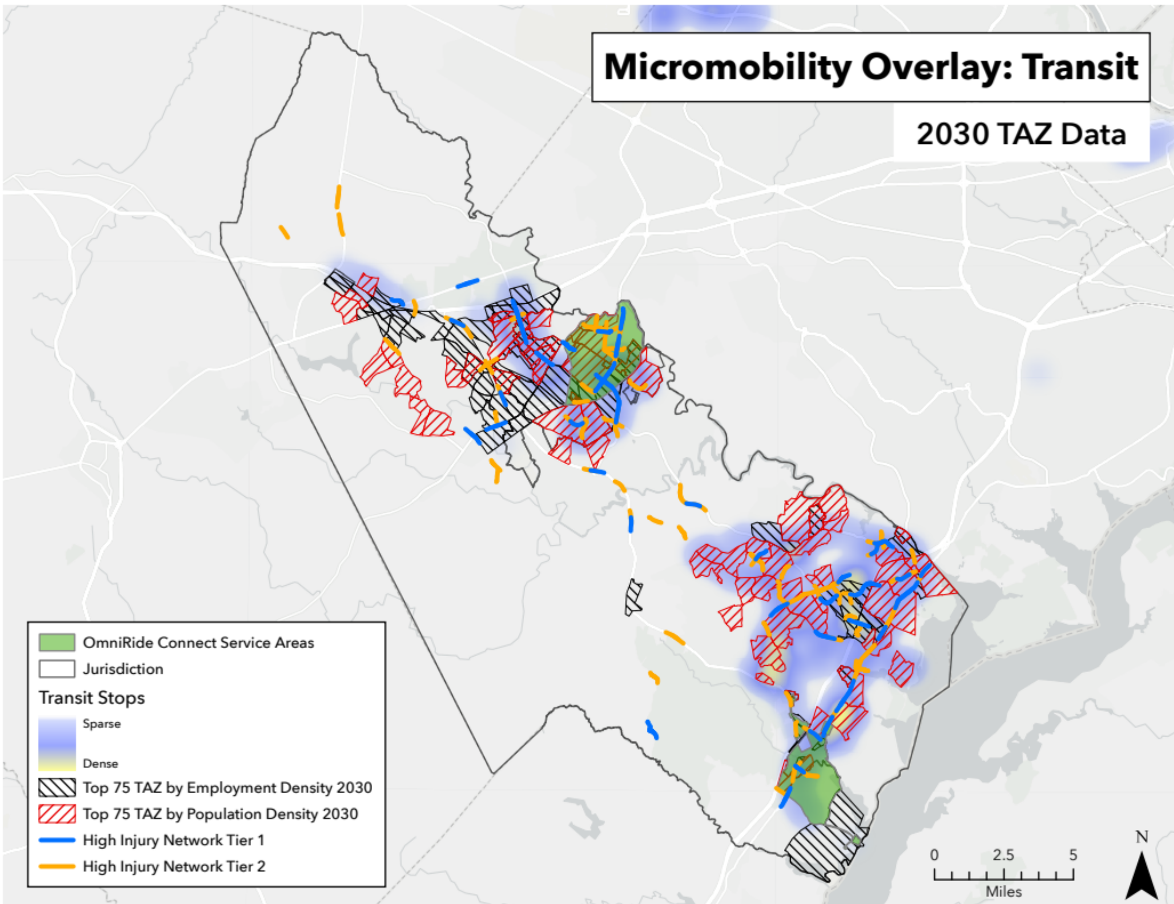


Figure 34: Micromobility overlay with 2030 TAZ data and transit heat map



Appendix E

HIN Prioritization Results

Reference ID	Road Name	Projects Endorsed for Funding	HIN Original Tier	Priority Score	Priority Tier	MWCOG Equity	CEJST Tracts	APP Equity	Activity Center	Town	Population Growth	Public Comment	School Zone	Safety Priority Schools	Employment Growth	Transit	Bike/Ped Crashes	Bike/Ped Gap	Severity Tier Points
42	Richmond Highway	RT 1 Widening	1	17	1	1	1	0	1	0	1	1	1	0	0	1	8	0	2
3	Richmond Highway	RT 1 Widening	1	16	1	1	1	0	1	0	0	1	1	0	0	1	8	0	2
48	Sudley Road	Sudley 234B STARS	1	16	1	1	1	0	1	0	1	1	1	1	1	1	5	0	2
2	Sudley Road	Sudley 234B STARS	1	15	1	1	1	0	1	0	1	1	1	0	0	1	6	0	2
18	Sudley Road	Sudley 234B STARS	1	15	1	1	1	0	1	0	1	1	0	0	1	1	6	0	2
22	Richmond Highway	RT 1 Widening	1	15	1	1	1	0	1	0	1	1	1	0	0	1	6	0	2
110	Prince William Parkway		2	14	1	1	1	1	1	0	1	0	1	1	1	1	4	0	1
131	Minnieville Road	Minnieville SPUI	2	14	1	1	1	1	1	0	1	0	1	1	1	1	4	0	1
133	Old Centreville Road		2	14	1	1	1	1	1	1	1	1	1	1	0	0	3	1	1
158	Coverstone Drive	Sudley 234B STARS	2	14	1	1	1	0	1	0	1	1	0	0	1	1	6	0	1
12	Sudley Road	Sudley 234B STARS	1	13	1	1	1	0	1	0	1	1	1	0	0	1	4	0	2
27	Sudley Road	Sudley 234B STARS	1	13	1	1	1	0	1	0	1	1	0	0	1	1	3	1	2
33	Richmond Highway		1	13	1	1	1	0	1	0	1	1	1	0	0	1	4	0	2
58	Rugby Road		1	13	1	1	1	1	1	1	1	1	1	1	0	0	1	1	2
70	Liberia Avenue	City of Manassas Projects	1	13	1	1	0	0	1	1	0	0	1	0	0	1	6	0	2
80	Richmond Highway		2	13	1	1	1	0	1	0	1	0	1	0	0	1	6	0	1
93	Old Centreville Road		2	13	1	1	1	1	1	1	1	1	1	1	0	0	2	1	1
96	Centreville Road	Rt 28 Innovative Intersections	2	13	1	1	0	1	1	1	1	1	1	0	0	1	4	0	1
123	Fraley Boulevard	Fraley Blvd Improvments	2	13	1	1	1	1	1	1	0	0	1	0	1	1	3	1	1
124	Center Street	City of Manassas Projects	2	13	1	1	1	0	1	1	1	1	1	0	0	1	4	0	1
143	Centreville Road		2	13	1	1	1	1	1	1	1	1	1	0	0	1	3	0	1
7	Sudley Road	Sudley 234B STARS	1	12	1	1	1	0	1	0	1	1	0	0	1	1	2	1	2
17	Old Bridge Road	OBR - Minnieville Study	1	12	1	1	0	0	0	0	0	0	1	0	0	1	6	1	2
28	Richmond Highway	RT 1 Widening	1	12	1	1	1	0	1	0	0	1	1	0	0	1	4	0	2
37	Old Bridge Road	OBR - Minnieville Study	1	12	1	1	0	0	0	0	0	0	1	0	0	1	6	1	2
45	Sudley Road	Sudley 234B STARS	1	12	1	1	1	0	1	0	1	1	1	0	0	1	3	0	2
55	Sudley Road	Sudley 234B STARS	1	12	1	1	1	0	1	1	1	1	0	0	1	1	1	1	2
71	Graham Park Road	Fraley Blvd Improvments	1	12	1	1	1	1	0	1	0	0	1	0	0	1	3	1	2
75	Minnieville Road		2	12	1	1	1	1	1	0	1	0	1	1	1	1	2	0	1
95	Old Centreville Road		2	12	1	1	0	1	1	1	1	1	1	0	0	1	2	1	1
116	Richmond Highway	RT 1 Widening	2	12	1	1	1	0	1	0	1	0	1	0	0	1	5	0	1
5	Prince William Parkway		1	11	1	1	1	0	1	0	1	0	1	1	1	1	0	1	2
38	Centreville Road	Rt 28 Innovative Intersections	1	11	1	1	0	1	1	0	1	1	1	0	0	1	2	0	2
41	Prince William Parkway	PWPky STARS	1	11	1	1	0	0	1	0	1	0	1	1	1	1	2	0	2
57	Dale Boulevard		1	11	1	1	0	0	1	0	0	0	1	1	1	1	3	0	2
65	Liberia Avenue	City of Manassas Projects	1	11	1	1	0	0	1	1	0	0	1	0	0	1	4	0	2
69	Liberia Avenue	City of Manassas Projects	1	11	1	1	0	0	1	1	0	0	1	0	0	1	4	0	2
89	Horner Road		2	11	1	0	1	0	1	0	1	1	0	0	1	1	4	0	1
91	Old Centreville Road		2	11	1	1	0	1	1	1	1	1	1	0	0	0	2	1	1
145	Rugby Road		2	11	1	1	1	1	1	1	1	1	1	1	0	0	0	1	1
6	Minnieville Road		1	10	2	1	1	1	1	0	0	1	0	0	1	1	1	0	2
14	Richmond Highway	ller Heights Intersection Improveme	1	10	2	1	1	1	1	0	0	1	0	0	1	1	0	1	2
32	Dumfries Road	Rt1 - 234 Intersection Improvements	1	10	2	1	1	1	1	1	0	0	0	0	0	1	1	1	2
35	Minnieville Road	OBR - Minnieville Study	1	10	2	1	0	0	1	0	1	0	1	0	1	1	2	0	2
49	Centreville Road	City of Manassas Projects	1	10	2	1	1	0	0	1	1	1	1	0	0	1	1	0	2
54	Prince William Parkway	PWPky STARS	1	10	2	1	0	0	1	0	1	0	1	1	0	1	2	0	2
61	Opitz Boulevard	VDOT Opitz Bridge Project	1	10	2	1	1	0	1	0	1	1	0	0	0	1	2	0	2
66	Liberia Avenue	City of Manassas Projects	1	10	2	1	1	0	0	1	0	0	1	0	0	1	3	0	2
82	Minnieville Road		2	10	2	1	1	1	1	0	1	0	0	0	1	1	2	0	1
100	Fraley Boulevard	Fraley Blvd Improvments	2	10	2	1	1	1	1	1	0	1	0	0	1	1	0	1	1
111	Minnieville Road	Minnieville SPUI	2	10	2	1	1	1	1	0	0	1	0	0	1	1	2	0	1
135	Prince William Parkway	PWPky STARS	2	10	2	1	0	0	1	0	1	0	1	0	0	1	4	0	1
154	Dale Boulevard	Dale - Minnievlie Red Light Camera	2	10	2	1	1	1	1	0	0	1	1	1	1	1	0	0	1
162	Smoketown Road		2	10	2	1	0	0	1	0	1	0	1	0	0	1	4	0	1
178	Wellington Road	City of Manassas Projects	2	10	2	1	0	0	1	1	1	0	1	0	1	1	2	0	1
8	Richmond Highway	ller Heights Intersection Improveme	1	9	2	1	1	1	1	0	0	1	0	0	1	0	0	1	2
9	Prince William Parkway	PWPky STARS	1	9	2	1	0	0	1	0	1	0	1	1	1	1	0	0	2
13	Minnieville Road		1	9	2	1	0	0	1	0	1	0	0	0	1	1	2	0	2
26	Horner Road		1	9	2	0	1	0	0	0	0	1	1	1	0	1	2	0	2
50	Richmond Highway	Rt1 - Cardinal - 234 Study	1	9	2	1	0	0	1	0	0	1	1	0	0	1	2	0	2
56	Dale Boulevard		1	9	2	1	0	0	1	0	0	0	1	1	1	1	1	0	2
60	Lomond South Drive		1	9	2	1	1	0	0	1	0	1	1	1	0	0	1	0	2
62	Opitz Boulevard	Parking Garage Project	1	9	2	1	1	0	1	0	1	1	0	0	0	1	1	0	2
67	Liberia Avenue	City of Manassas Projects	1	9	2	1	1	0	0	1	0	0	1	0	0	1	2	0	2
74	Richmond Highway		2	9	2	0	0	0	1	0	1	1	1	0	0	1	3	0	1
94	Richmond Highway	RT 1 Widening	2	9	2	1	1	0	1	0	1	1	0	0	1	1	1	0	1
108	Prince William Parkway	Liberia Development	2	9	2	1	0	0	1	1	1	1	0	0	1	1	1	0	1
134	Maplewood Drive		2	9	2	1	0	1	1	1	1	1	0	0	0	0	1	1	1
148	Graham Park Road	Graham Park Study and Sidewalk	2	9	2	1	1	1	0	1	0	0	1	0	0	1	2	0	1
150	Dale Boulevard		2	9	2	1	1	1	1	0	0	1	1	1	0	1	0	0	1
152	Bull Run Road		2	9	2	1	1	0	0	1	0	1	1	1	0	0	1	1	1
163	Smoketown Road	PWPky STARS	2	9	2	1	0	0	1	0	1	0	1	0	0	1	3	0	1
173	Liberia Avenue	City of Manassas Projects	2	9	2	1	0	0	1	1	0	0	1	0	0	1	3	0	1
15	Centreville Road	City of Manassas Projects	1	8	2	1	1	0	0	1	0	0	1	0	0	1	1	0	2
19	Prince William Parkway	Balls Ford Interchange	1	8	2	0	1	0	0	0	0	1	0	0	1	0	2	1	2
24	Centreville Road	Rt 28 Innovative Intersections	1	8	2	1	0	1	1	0	1	1	0	0	0	0	1	0	2
25	Richmond Highway	Rt1 - 234 Intersection Improvements	1	8	2	1	1	1	1	1	0	0	0	0	0	1	0	0	2
29	Prince William Parkway		1	8	2	1	0	0	1	0	1	0	1	1	0	1	0	0	2
31	Prince William Parkway		1	8	2	1	0	0	1	0	1	0	1	1	0	1	0	0	2
39	Prince William Parkway	4-Univeristy Intersection Improvmen	1	8	2	0	0	0	1	0	1	1	1	0	1	0	0	1	2
43	Minnieville Road		1	8	2	0	1	1	1	0	0	0	0	0	0	1	1	1	2
44	Centreville Road	Rt 28 Innovative Intersections	1	8	2	1	0	1	1	0	1	1	0	0	0	0	1	0	2
46	Richmond Highway	Rt1 - Cardinal - 234 Study	1	8	2	1	0	0	0	0	0	1	1	0	0	1	2	0	2
52	Centreville Road	City of Manassas Projects	1	8	2	1	1	0	0	1	0	0	1	0	0	1	1	0	2
59	Lomond South Drive		1	8	2	1	1	0	0	0	0	1	1	1	0	0	1	0	2
72	Wellington Road	City of Manassas Projects	1	8	2	1	1	0	0	1	0	0	0	0	0	1	2	0	2
76	Maplewood Drive	Rt 28 Innovative Intersections	2	8	2	1	0	1	1	0	1	1	1	0	0	0	0	1	1
77	Gordon Boulevard		2	8	2	0	1	0	1	0	1	1	1	0	1	1	0	0	1
86	Richmond Highway	Neabsco Mills Road Widening	2	8	2	0	0	0	1	0	1	1	1	0	0	1	2	0	1
90	Dumfries Road	City of Manassas Projects	2	8	2	1	1	0	0	1	0	0	1	0	0	1	2	0	1
97	Van Buren Road	Van Burren Road Project	2	8	2	1	0	0	1	0	1	0	0	0	1	1	2	0	1
99	Richmond Highway	Rt1 - Cardinal - 234 Study	2	8	2	1	0	0	1	0	0	1	1	0	0	1	2	0	1
101	Minnieville Road		2	8	2	1	0	0	1	0	1	0	0	0	1	1	2	0	1
105	Minnieville Road		2	8	2	1	0	0	1	0	1	0	0	0	1	1	2	0	1
109	Richmond Highway	Rt1 - Cardinal - 234 Study	2	8	2	0	0	0	1	0	1	1	1	0	0	1	2	0	1
113	Prince William Parkway		2	8	2	1	0	0	1	1	1	0	0	0	1	1	1	0	1
130	Joplin Road	ller Heights Intersection Improveme	2	8	2	1	1	1	1	0	0	1	0	0	1	0	0	1	1

142	Richmond Highway		2	8	2	0	0	0	1	0	1	1	1	0	0	1	2	0	1
151	Graham Park Road		2	8	2	1	1	1	0	0	0	0	1	0	0	1	2	0	1
156	Sudley Manor Drive	234- Sudley Interchange	2	8	2	1	1	0	1	0	1	1	0	0	1	0	0	1	1
161	Hillendale Drive		2	8	2	1	1	1	0	0	0	1	1	1	0	1	0	0	1
164	Clipper Drive	OBR - Minnieville Study	2	8	2	1	0	0	0	0	0	0	1	0	0	1	4	0	1
165	Clipper Drive	OBR - Minnieville Study	2	8	2	1	0	0	0	0	0	0	1	0	0	1	4	0	1
176	Wellington Road	City of Manassas Projects	2	8	2	1	1	0	0	1	0	0	1	0	0	1	2	0	1
20	Nokesville Road	Rt 28 Widening	1	7	2	0	0	0	1	0	0	0	0	0	1	0	3	0	2
30	Richmond Highway	Rt1 - 234 Intersection Improvements	1	7	2	1	0	0	1	0	0	1	1	0	0	1	0	0	2
34	Centreville Road	Rt 28 Innovative Intersections	1	7	2	1	0	1	1	0	1	0	0	0	0	0	1	0	2
47	Richmond Highway	RT 1 Widening	1	7	2	0	1	0	1	0	1	0	0	0	1	1	0	0	2
118	Dumfries Road	234 - I95 Ped Crossing	2	7	2	1	0	0	1	0	1	0	0	0	1	1	0	1	1
119	Blackburn Road	Neabsco Mills Road Widening	2	7	2	0	0	0	1	0	1	1	1	0	0	1	1	0	1
136	Richmond Highway	RT 1 Widening	2	7	2	1	1	0	1	0	0	0	1	0	0	1	1	0	1
137	Dumfries Road	Talon and Stockbridge Signals	2	7	2	0	0	0	0	0	1	1	0	0	1	1	2	0	1
138	Centreville Road	Rt 28 Innovative Intersections	2	7	2	1	0	1	1	0	1	0	0	0	0	0	2	0	1
140	Neabsco Mills Road	Neabsco Mills Road Widening	2	7	2	0	0	0	1	0	1	1	1	0	0	1	1	0	1
141	Prince William Parkway	4-Univeristy Intersection Improvmen	2	7	2	0	0	0	1	0	1	1	1	0	1	0	0	1	1
146	Bull Run Road		2	7	2	0	1	0	0	0	0	1	1	1	0	0	1	1	1
147	Yorkshire Lane		2	7	2	0	1	0	0	0	0	1	1	1	0	0	1	1	1
153	Yorkshire Lane		2	7	2	0	1	0	0	0	0	1	1	1	0	0	1	1	1
155	Dale Boulevard	Dale Blvd STARS	2	7	2	1	0	0	1	0	1	0	0	0	0	1	2	0	1
169	Gideon Drive		2	7	2	1	0	0	1	0	1	1	0	0	0	1	1	0	1
170	River Rock Way	Parking Garage Project	2	7	2	1	1	0	1	0	0	1	1	0	0	1	0	0	1
23	Nokesville Road	Rt 28 Widening	1	6	3	0	0	0	1	0	0	0	0	0	1	0	2	0	2
51	Prince William Parkway		1	6	3	0	0	0	0	0	1	1	0	0	0	0	1	1	2
63	Heathcote Boulevard	rsection Improvements and Red Lig	1	6	3	0	0	0	1	0	0	0	0	0	1	1	0	1	2
64	Ridgefield Road		1	6	3	0	0	0	1	0	0	1	1	1	0	0	0	0	2
68	Liberia Avenue	City of Manassas Projects	1	6	3	1	0	0	0	1	0	0	1	0	0	1	0	0	2
73	Prince William Parkway	Balls Ford Interchange	2	6	3	0	1	0	0	0	0	1	0	0	1	0	1	1	1
92	Centreville Road	Rt 28 Innovative Intersections	2	6	3	1	0	1	1	0	1	0	0	0	0	0	1	0	1
107	Old Bridge Road	OBR - Minnieville Study	2	6	3	1	0	0	0	0	0	0	1	0	0	1	2	0	1
125	Prince William Parkway	234- Sudley Interchange	2	6	3	0	0	0	1	0	1	1	0	0	1	0	0	1	1
139	Minnieville Road		2	6	3	0	0	0	1	0	1	0	0	0	1	1	1	0	1
157	Sudley Manor Drive	234- Sudley Interchange	2	6	3	0	0	0	1	0	1	1	0	0	1	0	0	1	1
174	Liberia Avenue	City of Manassas Projects	2	6	3	1	0	0	1	1	0	0	1	0	0	1	0	0	1
4	Dumfries Road	Brentsville Interchange	1	5	3	0	0	0	1	0	0	0	0	0	1	0	0	1	2
10	Linton Hall Road	okeville -Linton Hall Red Light Came	1	5	3	1	0	0	0	0	0	0	0	0	1	0	0	1	2
11	Richmond Highway	Rt1 - Cardinal - 234 Study	1	5	3	0	0	0	0	0	0	1	1	0	0	1	0	0	2
53	Bristow Road	okeville -Linton Hall Red Light Came	1	5	3	1	0	0	0	0	0	0	0	0	1	0	0	1	2
79	Prince William Parkway	Balls Ford Interchange	2	5	3	0	1	0	0	0	0	1	0	0	1	0	0	1	1
83	Horner Road		2	5	3	0	1	0	0	0	0	1	1	1	0	0	0	0	1
127	Linton Hall Road		2	5	3	0	0	0	0	0	0	1	1	0	1	0	1	0	1
129	Prince William Parkway	Balls Ford Interchange	2	5	3	0	1	0	0	0	0	1	0	0	0	0	1	1	1
149	University Boulevard		2	5	3	0	0	0	1	0	1	0	0	0	1	1	0	0	1
166	Worth Avenue		2	5	3	1	0	0	1	0	1	0	0	0	0	1	0	0	1
171	Manassas Drive	Manassas Park Projects	2	5	3	0	0	0	0	1	0	0	1	0	0	1	1	0	1
172	Manassas Drive	Manassas Park Projects	2	5	3	0	0	0	0	1	0	0	1	0	0	1	1	0	1
175	Sudley Road	City of Manassas Projects	2	5	3	1	0	0	0	1	0	1	1	0	0	0	0	0	1
177	Sudley Road	City of Manassas Projects	2	5	3	0	0	0	0	1	0	1	1	0	0	0	1	0	1
1	Joplin Road		1	4	3	0	0	0	0	0	0	1	0	0	0	0	0	1	2
21	Joplin Road		1	4	3	0	0	0	0	0	0	1	0	0	0	0	0	1	2
36	Dumfries Road		1	4	3	0	0	0	0	0	0	1	0	0	0	0	1	0	2
84	Cardinal Drive		2	4	3	0	0	0	1	0	0	0	0	0	0	1	1	0	1
85	Linton Hall Road		2	4	3	0	0	0	0	0	0	1	1	0	1	0	0	0	1
87	Dumfries Road	Brentsville Interchange	2	4	3	0	0	0	1	0	0	0	0	0	1	0	0	1	1
88	James Madison Highway	Battlefiled HS improvements	2	4	3	0	0	0	0	0	0	1	1	0	0	0	1	0	1
98	Dumfries Road		2	4	3	0	0	0	1	0	1	0	0	0	1	0	0	0	1
102	Bristow Road		2	4	3	0	0	0	0	0	1	0	0	0	1	0	0	1	1
103	Dumfries Road	City of Manassas Projects	2	4	3	1	0	0	0	1	0	0	0	0	0	1	0	0	1
104	James Madison Highway		2	4	3	0	0	0	0	0	0	1	1	0	1	0	0	0	1
106	Dumfries Road		2	4	3	0	0	0	0	0	0	0	0	0	1	0	1	1	1
112	Dumfries Road	Liberia Development	2	4	3	0	0	0	1	0	1	0	0	0	1	0	0	0	1
115	Prince William Parkway		2	4	3	0	0	0	0	0	1	1	0	0	0	0	0	1	1
117	Antioch Road		2	4	3	0	0	0	0	0	1	0	0	0	0	0	1	1	1
120	Valley View Drive		2	4	3	0	0	0	0	0	1	0	0	0	1	0	0	1	1
121	Dumfries Road		2	4	3	0	0	0	0	0	0	1	0	0	0	0	1	1	1
126	Prince William Parkway		2	4	3	0	0	0	0	0	1	1	0	0	0	0	1	0	1
128	James Madison Highway	Battlefiled HS improvements	2	4	3	0	0	0	0	0	0	1	1	0	1	0	0	0	1
132	James Madison Highway	Battlefiled HS improvements	2	4	3	0	0	0	0	0	0	1	1	0	0	0	1	0	1
159	Delaney Road		2	4	3	0	0	0	0	0	0	0	1	1	0	1	0	0	1
160	Delaney Road		2	4	3	0	0	0	0	0	0	0	1	1	0	1	0	0	1
16	Lee Highway		1	3	3	0	0	0	0	0	0	0	0	0	0	0	0	1	2
40	Lee Highway		1	3	3	0	0	0	0	0	0	0	0	0	0	0	0	1	2
78	Hornbaker Road	Rt 28 Widening	2	3	3	0	0	0	1	0	0	0	0	0	1	0	0	0	1
81	Purcell Road		2	3	3	0	0	0	0	0	0	0	1	0	0	0	0	1	1
114	Purcell Road		2	3	3	0	0	0	0	0	1	0	0	0	0	0	0	1	1
122	Prince William Parkway		2	3	3	0	0	0	0	0	0	1	0	0	0	0	0	1	1
144	Joplin Road		2	3	3	0	0	0	0	0	0	1	0	0	0	0	0	1	1
168	Quell Court		2	3	3	0	0	0	0	0	0	1	1	0	0	0	0	0	1
167	Ridgefield Road		2	2	3	0	0	0	1	0	0	0	0	0	0	0	0	0	1

HRN Segment Prioritization Results

Reference ID	Road Name	Projects Already Endorsed	Focus Rank	Priority Score	Priority Tier	MWCOG Equity	CEJST Tract	APP Equity	Activity Center	Town	Population Growth	Employment Growth	School Zone	Safety Priority School	Bike/Ped Gap	Bike/Ped Crash	Transit	Public Comment	Tier Points
139	Prince William Parkway	Quartz Minnieville SPUI	3	18	1	1	1	1	1	0	1	1	1	0	0	7	1	1	2
151	Richmond Highway	RT 1 Widening	3	18	1	1	1	0	1	0	0	0	1	0	0	10	1	1	2
73	Prince William Parkway	PWPky STARS	3	16	1	1	1	1	1	0	1	1	1	1	0	5	1	0	2
112	Prince William Parkway	PWPky STARS	3	15	1	1	0	0	1	0	1	0	1	1	0	7	1	0	2
171	Richmond Highway	RT 1 Widening	3	15	1	1	1	0	1	0	1	0	1	0	0	7	1	0	2
97	Richmond Highway	RT 1 Widening	3	14	1	1	1	0	1	0	0	0	1	0	0	6	1	1	2
195	Prince William Parkway	RT 1 Widening	3	14	1	1	1	0	1	0	0	0	1	1	0	6	1	0	2
14	Richmond Highway		3	12	1	1	1	0	1	0	1	0	1	0	0	4	1	0	2
54	Richmond Highway	Neabsco Mills Road Widening	3	12	1	0	0	0	1	0	1	0	1	0	0	5	1	1	2
60	Centreville Road	Rt 28 Innovative Intersections	3	12	1	1	0	0	1	1	1	0	1	0	0	3	1	1	2
75	Richmond Highway	RT 1 Widening	3	12	1	1	1	0	1	0	1	1	1	0	0	2	1	1	2
102	Richmond Highway	Fraley Blvd Improvments	3	12	1	1	1	1	0	1	0	0	1	0	1	3	1	0	2
114	Richmond Highway	Fraley Blvd Improvments	3	12	1	1	1	1	1	1	0	1	0	0	1	2	1	0	2
126	Richmond Highway	Rt1 - 234 Intersection Improvements	3	12	1	1	1	1	1	1	0	0	1	0	0	2	1	1	2
10	Richmond Highway	Fraley Blvd Improvments	3	11	1	1	1	1	1	1	0	1	0	0	1	0	1	1	2
25	Prince William Parkway	Liberia Development	3	11	1	1	0	0	1	1	1	1	0	0	1	1	1	1	2
26	Richmond Highway		3	11	1	1	1	1	1	1	0	1	0	0	1	0	1	1	2
48	Centreville Road	Rt 28 Innovative Intersections	3	11	1	1	0	1	1	1	1	0	1	0	0	1	1	1	2
68	Centreville Road		3	11	1	1	1	0	0	1	1	1	1	0	0	2	0	1	2
166	Prince William Parkway		3	11	1	1	1	0	0	0	0	0	1	1	1	3	1	0	2
167	Prince William Parkway	PW Pkwy -I95 Ped Crossing	3	11	1	1	1	0	1	0	1	1	1	1	1	0	1	0	2
21	Centreville Road	Rt 28 Innovative Intersections	3	10	1	1	0	0	0	1	1	0	1	0	0	2	1	1	2
24	Richmond Highway	Fuller Heights Intersection Improvement	3	10	1	1	1	1	1	0	0	1	0	0	1	0	1	1	2
82	Prince William Parkway	Hoadly STARS Study	3	10	1	1	0	0	1	0	1	0	0	0	1	2	1	1	2
85	Hoadly Road	Hoadly STARS Study	2	10	1	0	0	0	1	0	1	0	1	1	1	2	1	1	1
88	Centreville Road	Rt 28 Innovative Intersections	3	10	1	1	0	1	1	0	1	0	0	0	0	3	0	1	2
103	Richmond Highway		3	10	1	1	1	0	1	0	1	0	1	0	0	2	1	0	2
113	Dumfries Road		2	10	1	0	0	0	1	0	1	1	0	0	0	4	1	1	1
147	Prince William Parkway	Brentsville Interchange	2	10	1	1	0	0	1	1	1	1	1	0	1	1	1	0	1
159	Dumfries Road	Rt1 - 234 Intersection Improvements	3	10	1	1	1	1	1	1	0	0	0	0	1	1	1	0	2
186	Dumfries Road	234- Sudley Interchange	3	10	1	0	1	0	1	0	1	1	0	0	1	2	0	1	2
187	Main Street	Fraley Blvd Improvments	3	10	1	1	1	1	1	1	0	1	0	0	0	0	1	1	2
33	Gordon Boulevard	VDOT 123 Interchange	3	9	2	0	1	0	1	0	1	1	1	0	0	0	1	1	2
36	Richmond Highway	RT 1 Widening	3	9	2	0	1	0	1	0	1	1	0	0	0	1	1	1	2
52	Richmond Highway	Fraley Blvd Improvments	3	9	2	1	1	1	1	0	0	1	0	0	0	0	1	1	2
56	Richmond Highway	Fuller Heights Intersection Improvement	3	9	2	1	1	1	1	0	0	1	0	0	1	0	0	1	2
65	Richmond Highway		3	9	2	0	0	0	1	0	1	0	1	0	0	3	1	0	2
99	Prince William Parkway		3	9	2	0	0	0	1	0	1	0	0	0	1	2	1	1	2
131	Richmond Highway	Rt1 - Cardinal - 234 Study	3	9	2	1	0	0	1	0	0	0	1	0	0	2	1	1	2
136	Main Street	Fraley Blvd Improvments	3	9	2	1	1	1	0	1	0	0	1	0	0	1	1	0	2
137	Centreville Road	Rt 28 Innovative Intersections	3	9	2	1	1	0	0	1	1	0	1	0	0	0	1	1	2
155	James Madison Highway		3	9	2	0	0	0	1	1	0	1	1	1	1	0	0	1	2
163	Gordon Boulevard	VDOT 123 Interchange	3	9	2	0	1	0	1	0	1	1	1	0	0	0	1	1	2
168	Richmond Highway		3	9	2	1	1	1	1	0	0	1	0	0	0	0	1	1	2
2	Richmond Highway		3	8	2	0	0	0	1	0	1	0	1	0	0	1	1	1	2
6	Dumfries Road	Brentsville Interchange	3	8	2	0	0	0	1	1	1	1	0	0	1	0	0	1	2
31	James Madison Highway		3	8	2	0	0	0	1	1	0	0	0	0	1	1	1	1	2
39	Prince William Parkway	PW Pkwy - OBR Intersection	3	8	2	1	0	0	1	0	0	0	1	0	0	1	1	1	2
42	Dumfries Road	234 - I95 Ped Crossing	3	8	2	1	0	0	1	0	1	1	0	0	1	0	1	0	2
53	Prince William Parkway	PW Pkwy -I95 Ped Crossing	3	8	2	1	1	0	0	0	0	0	1	1	1	0	1	0	2
77	Richmond Highway	Rt1 - 234 Intersection Improvements	3	8	2	1	1	1	1	1	0	0	0	0	0	0	1	0	2
87	Richmond Highway	Fraley Blvd Improvments	3	8	2	1	1	1	0	1	0	0	0	0	0	1	1	0	2
93	Richmond Highway	Neabsco Mills Road Widening	3	8	2	0	0	0	1	0	1	0	1	0	0	1	1	1	2
122	Dumfries Road	e restriping and Red Light photo at cou	2	8	2	0	0	0	0	0	1	0	1	0	1	2	1	1	1
124	Richmond Highway		3	8	2	1	0	0	0	0	0	0	1	0	0	2	1	1	2
130	Dumfries Road		3	8	2	1	0	0	1	0	1	1	0	0	1	0	1	0	2
142	Richmond Highway		3	8	2	1	1	1	1	1	0	0	0	0	0	0	1	0	2
144	Gordon Boulevard		3	8	2	0	0	0	1	1	0	0	1	0	0	1	1	1	2
148	Prince William Parkway	PWPky STARS	3	8	2	1	0	0	1	0	1	0	1	1	0	0	1	0	2
154	James Madison Highway		3	8	2	0	0	0	1	1	1	1	0	0	0	0	1	1	2
164	Richmond Highway		3	8	2	1	1	1	1	1	0	0	0	0	0	0	1	0	2
169	Centreville Road		3	8	2	1	1	0	0	1	1	0	1	0	0	0	1	0	2
174	Dumfries Road	234-Univeristy Intersection Improvments	3	8	2	0	0	0	1	0	1	1	1	0	1	0	0	1	2
178	Richmond Highway		3	8	2	1	0	0	1	0	0	0	1	0	0	1	1	1	2
180	Richmond Highway	RT 1 Widening	3	8	2	0	1	0	1	0	1	1	0	0	0	0	1	1	2
182	Richmond Highway		3	8	2	1	1	1	0	1	0	0	0	0	0	1	1	0	2
189	Hoadly Road	Hoadly STARS Study	2	8	2	0	0	0	0	0	1	1	1	1	1	1	0	1	1
191	Centreville Road		3	8	2	1	0	0	0	1	1	0	1	0	0	0	1	1	2
5	Prince William Parkway	PW Pkwy - OBR Intersection	3	7	2	1	0	0	1	0	0	0	0	0	0	1	1	1	2
16	Prince William Parkway		2	7	2	1	0	0	1	0	1	0	1	1	0	0	1	0	1
18	Dumfries Road	Hoadly STARS Study	2	7	2	0	0	0	0	0	1	1	1	1	1	0	0	1	1
28	Centreville Road	Rt 28 Innovative Intersections	3	7	2	1	0	1	1	0	1	0	0	0	0	0	0	1	2
30	Richmond Highway	Fraley Blvd Improvments	3	7	2	1	1	1	0	1	0	0	0	0	0	0	1	0	2
38	Richmond Highway	Fraley Blvd Improvments	3	7	2	1	1	1	0	1	0	0	0	0	0	0	1	0	2
47	Caton Hill Road		2	7	2	1	0	0	1	0	1	1	0	0	0	1	1	0	1
51	Dumfries Road		3	7	2	0	0	0	1	0	0	1	1	0	1	0	0	1	2
62	Richmond Highway		3	7	2	1	1	1	0	1	0	0	0	0	0	0	1	0	2
70	Dumfries Road	Van Burren Road Project	3	7	2	1	0	0	1	0	1	1	0	0	0	0	1	0	2
83	Richmond Highway	Rt1 - Cardinal - 234 Study	3	7	2	1	0	0	0	0	0	0	1	0	0	1	1	1	2
86	Dumfries Road		2	7	2	0	0	0	1	0	1	1	1	0	1	0	0	1	1
104	Dumfries Road		2	7	2	0	0	0	1	0	1	1	1	1	1	0	0	0	1
106	Richmond Highway	Rt1 - Cardinal - 234 Study	3	7	2	1	0	0	0	0	0	0	1	0	0	1	1	1	2
109	Centreville Road	Rt 28 Innovative Intersections	3	7	2	1	0	1	1	0	1	0	0	0	0	0	0	1	2
153	Centreville Road	Rt 28 Innovative Intersections	3	7	2	1	0	1	1	0	1	0	0	0	0	1	0	0	2
177	Centreville Road		3	7	2	1	1	0	0	1	1	0	1	0	0	0	0	0	2
183	Gordon Boulevard	RT 1 Widening	3	7	2	0	1	0	1	0	1	1	0	0	0	0	1	0	2
185	Richmond Highway		3	7	2	1	1	1	0	1	0	0	0	0	0	0	1	0	2
190	Dumfries Road		2	7	2	0	0	0	0	0	1	1	1	1	1	0	0	1	1
192	Dumfries Road	Balls Ford Interchange	3	7	2	0	1	0	0	0	0	1	0	0	1	1	0	1	2
193	Centreville Road	Rt 28 Widening	3	7	2	0	0	0	1	1	1	1	0	0	1	0	0	0	2
203	Dumfries Road		3	7	2	0	0	0	1	1	1	1	0	0	1	0	0	0	2
7	Richmond Highway	RT 1 Widening	3	6	3	0	1	0	1	0	1	1	0	0	0	0	0	0	2
8	Centreville Road	Rt 28 Widening	3	6	3	0	0	0	1	1	1	1	0	0	0	0	0	0	2
11	Gordon Boulevard	OBR-123 overpass	3	6	3	0	0	0	1	0	0	0	1	0	0	0	1	1	2
22	James Madison Highway		3	6	3	0	0	0	1	1	0	0	0	0	0	0	1	1	2
23	Centreville Road	Rt 28 Widening	3	6	3	0	0	0	0	1	1	1	0	0	0	1	0	0	2
27	Vint Hill Road		2	6	3	0	0	0	0	0	1	1	1	1	1	0	0	0	1
32	James Madison Highway		2	6	3	0	0	0	0	0	0	0	1	0	0	3	0	1	1

44	James Madison Highway		3	6	3	0	0	0	1	1	0	0	0	0	1	0	0	1	2
66	Richmond Highway		3	6	3	1	0	0	0	0	0	0	1	0	0	0	1	1	2
81	Main Street		3	6	3	0	0	0	1	1	0	1	0	0	1	0	0	0	2
132	James Madison Highway		3	6	3	0	0	0	1	1	0	0	0	0	1	0	0	1	2
135	Dumfries Road		2	6	3	0	0	0	1	0	1	1	1	0	1	0	0	0	1
140	Main Street	Fraley Blvd Improvments	3	6	3	0	0	0	1	1	0	1	0	0	1	0	0	0	2
141	Vint Hill Road		2	6	3	1	0	0	0	0	1	0	1	1	0	0	0	1	1
156	Richmond Highway	Rt1 - Cardinal - 234 Study	3	6	3	1	0	0	0	0	0	0	1	0	0	0	1	1	2
165	Gordon Boulevard	OBR-123 overpass	3	6	3	0	0	0	1	0	0	0	1	0	0	0	1	1	2
176	Prince William Parkway	PW Pkwy - OBR Intersection	3	6	3	1	0	0	1	0	0	0	0	0	0	0	1	1	2
188	Richmond Highway	Rt1 - Cardinal - 234 Study	3	6	3	0	0	0	0	0	0	0	1	0	0	1	1	1	2
194	James Madison Highway		3	6	3	0	0	0	1	0	1	1	0	0	0	0	0	1	2
197	Centreville Road	Rt 28 Widening	3	6	3	0	0	0	1	1	1	1	0	0	0	0	0	0	2
199	James Madison Highway		3	6	3	0	0	0	1	1	0	0	0	0	1	0	0	1	2
204	Dumfries Road		3	6	3	0	0	0	0	1	1	1	0	0	1	0	0	0	2
3	Main Street	Fraley Blvd Improvments	3	5	3	0	0	0	0	1	0	0	1	0	0	0	1	0	2
13	James Madison Highway		2	5	3	0	0	0	0	0	0	1	1	1	0	0	0	1	1
40	Vint Hill Road		2	5	3	0	0	0	0	0	1	1	1	0	0	0	0	1	1
50	Richmond Highway		2	5	3	0	0	0	0	0	0	1	0	0	1	1	0	1	1
58	Dumfries Road	Brentsville Interchange	3	5	3	0	0	0	1	0	0	1	0	0	1	0	0	0	2
78	Hoadly Road	Hoadly STARS Study	2	5	3	0	0	0	1	0	0	1	0	0	1	0	1	0	1
80	Gordon Boulevard		3	5	3	0	0	0	1	1	0	0	0	0	0	0	0	1	2
89	Dumfries Road		2	5	3	0	0	0	1	0	1	1	0	0	1	0	0	0	1
92	Lee Highway		2	5	3	0	0	0	1	0	0	1	0	0	1	0	1	0	1
95	Prince William Parkway		3	5	3	0	0	0	1	0	0	1	0	0	1	0	0	0	2
96	James Madison Highway		2	5	3	0	0	0	0	0	0	1	1	1	0	0	0	1	1
119	Gordon Boulevard		3	5	3	0	0	0	0	1	0	0	0	0	1	1	0	0	2
121	Prince William Parkway		3	5	3	0	0	0	1	0	0	1	0	0	1	0	0	0	2
127	James Madison Highway	Battlefiled HS improvements	3	5	3	0	0	0	0	0	0	0	1	0	0	1	0	1	2
129	James Madison Highway		2	5	3	0	0	0	0	0	0	1	1	1	0	0	0	1	1
138	Dumfries Road		2	5	3	0	0	0	1	0	1	1	0	0	1	0	0	0	1
149	Prince William Parkway		3	5	3	0	0	0	0	0	0	0	0	0	1	1	0	1	2
152	James Madison Highway		2	5	3	0	0	0	0	0	0	1	1	1	0	0	0	1	1
162	James Madison Highway		3	5	3	0	0	0	0	0	0	1	0	0	1	1	0	0	2
175	Dumfries Road		2	5	3	0	0	0	1	0	0	1	0	0	1	1	0	0	1
4	Lee Highway		2	4	3	0	0	0	1	0	0	1	0	0	1	0	0	0	1
12	Dumfries Road	Talon and Stockbridge Signals	2	4	3	0	0	0	1	0	1	0	0	0	0	0	1	0	1
29	Richmond Highway	Rt1 - 234 Intersection Improvements	3	4	3	0	0	0	0	0	0	1	0	0	1	0	0	0	2
34	James Madison Highway		3	4	3	0	0	0	0	0	0	1	0	0	1	0	0	0	2
35	Dumfries Road		2	4	3	0	0	0	1	0	1	1	0	0	0	0	0	0	1
41	James Madison Highway		2	4	3	0	0	0	0	0	1	0	0	0	1	0	0	1	1
45	Vint Hill Road	VDOT 29 Pipeline Study	2	4	3	0	0	0	0	0	1	1	0	0	1	0	0	0	1
55	Vint Hill Road		2	4	3	1	0	0	0	0	1	1	0	0	0	0	0	0	1
61	Vint Hill Road		2	4	3	0	0	0	0	0	1	1	0	0	1	0	0	0	1
63	Richmond Highway		3	4	3	0	0	0	0	0	0	1	0	0	1	0	0	0	2
64	James Madison Highway		2	4	3	0	0	0	0	0	0	1	1	0	0	0	0	1	1
91	Lee Highway		2	4	3	0	0	0	1	0	0	1	0	0	1	0	0	0	1
98	Lee Highway		2	4	3	0	0	0	1	0	1	1	0	0	0	0	0	0	1
101	Vint Hill Road		2	4	3	1	0	0	0	0	0	0	1	0	0	0	0	1	1
111	Dumfries Road	Brentsville Interchange	3	4	3	0	0	0	1	0	0	0	0	0	1	0	0	0	2
118	Vint Hill Road		2	4	3	1	0	0	0	0	1	1	0	0	0	0	0	0	1
120	Richmond Highway	Rt1 - Cardinal - 234 Study	3	4	3	0	0	0	0	0	0	0	0	0	0	0	1	1	2
123	Hoadly Road	Hoadly STARS Study	2	4	3	0	0	0	0	0	0	1	0	0	1	1	0	0	1
125	Dumfries Road		2	4	3	0	0	0	1	0	1	0	0	0	0	0	0	1	1
133	Lee Highway		2	4	3	0	0	0	1	0	0	1	0	0	1	0	0	0	1
160	Richmond Highway		2	4	3	0	0	0	0	0	0	1	0	0	1	1	0	0	1
161	John Marshall Highway		2	4	3	0	0	0	1	0	1	0	0	0	1	0	0	0	1
172	Dumfries Road		2	4	3	0	0	0	0	0	0	0	0	0	1	1	0	1	1
179	Dumfries Road		2	4	3	0	0	0	1	0	1	1	0	0	0	0	0	0	1
198	James Madison Highway		2	4	3	0	0	0	0	0	0	1	1	0	0	0	0	1	1
200	Ridgefield Road		2	4	3	0	0	0	1	0	0	0	1	0	0	0	1	0	1
201	Ridgefield Road		2	4	3	0	0	0	1	0	0	0	1	0	0	0	1	0	1
202	Curtis Drive		2	4	3	0	0	0	0	1	0	0	1	0	0	0	1	0	1
1	Lee Highway		2	3	3	0	0	0	0	0	0	0	0	0	1	0	0	1	1
9	Hoadly Road	Hoadly STARS Study	2	3	3	0	0	0	0	0	0	1	0	0	1	0	0	0	1
15	Lee Highway		2	3	3	0	0	0	1	0	0	1	0	0	0	0	0	0	1
49	Dumfries Road		2	3	3	0	0	0	0	0	0	1	0	0	1	0	0	0	1
57	Vint Hill Road		2	3	3	0	0	0	0	0	0	0	1	0	0	0	0	1	1
67	Gordon Boulevard		3	3	3	0	0	0	0	1	0	0	0	0	0	0	0	0	2
71	Gordon Boulevard		3	3	3	0	0	0	0	1	0	0	0	0	0	0	0	0	2
72	Lee Highway	VDOT 29 Pipeline Study	3	3	3	0	0	0	0	0	0	1	0	0	0	0	0	0	2
74	James Madison Highway		2	3	3	0	0	0	0	0	1	0	0	0	1	0	0	0	1
76	James Madison Highway	Battlefiled HS improvements	3	3	3	0	0	0	0	0	0	0	1	0	0	0	0	0	2
79	Richmond Highway		2	3	3	0	0	0	0	0	0	1	0	0	1	0	0	0	1
84	Lee Highway	VDOT 29 Pipeline Study	2	3	3	0	0	0	0	0	1	1	0	0	0	0	0	0	1
90	Lee Highway		2	3	3	0	0	0	1	0	0	1	0	0	0	0	0	0	1
94	Lee Highway		2	3	3	0	0	0	0	0	1	0	0	0	1	0	0	0	1
100	Richmond Highway		2	3	3	0	0	0	0	0	0	1	0	0	1	0	0	0	1
105	Dumfries Road		2	3	3	0	0	0	0	0	0	0	0	0	1	0	0	1	1
107	Vint Hill Road		2	3	3	0	0	0	0	0	0	0	1	0	0	0	0	1	1
110	John Marshall Highway		2	3	3	0	0	0	1	0	0	0	0	0	1	0	0	0	1
116	Richmond Highway		2	3	3	0	0	0	0	0	0	1	0	0	1	0	0	0	1
117	Lee Highway		2	3	3	0	0	0	1	0	0	1	0	0	0	0	0	0	1
128	Richmond Highway		2	3	3	0	0	0	0	0	0	1	0	0	1	0	0	0	1
150	James Madison Highway		3	3	3	0	0	0	0	0	0	1	0	0	0	0	0	0	2
157	Lee Highway	VDOT 29 Pipeline Study	2	3	3	0	0	0	0	0	0	0	0	0	1	0	0	1	1
170	Hoadly Road	Hoadly STARS Study	2	3	3	0	0	0	0	0	0	1	0	0	1	0	0	0	1
173	James Madison Highway		2	3	3	0	0	0	0	0	0	0	1	0	0	0	0	1	1
184	Lee Highway		2	3	3	0	0	0	1	0	0	1	0	0	0	0	0	0	1
19	James Madison Highway		2	2	3	0	0	0	0	0	0	0	0	0	0	0	0	1	1
20	Lee Highway		2	2	3	0	0	0	0	0	1	0	0	0	0	0	0	0	1
43	James Madison Highway		2	2	3	0	0	0	0	0	0	1	0	0	0	0	0	0	1
46	Lee Highway		3	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	2
59	James Madison Highway		3	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	2
69	James Madison Highway		2	2	3	0	0	0	0	0	0	1	0	0	0	0	0	0	1
108	Richmond Highway		2	2	3	0	0	0	0	0	0	1	0	0	0	0	0	0	1
115	Dumfries Road		2	2	3	0	0	0	0	0	0	0	1	0	0	0	0	0	1
134	Lee Highway	VDOT 29 Pipeline Study	3	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	2
143	Richmond Highway		2	2	3	0	0	0	0	0	0	1	0	0	0	0	0	0	1
145	Lee Highway		2	2	3	0	0	0	0	0	1	0	0	0	0	0	0	0	1
146	Richmond Highway		2	2	3	0	0	0	0	0	0	1	0	0	0	0	0	0	1

158	Lee Highway	Rt1 - 234 Intersection Improvements	3	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	2
17	James Madison Highway		2	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1
37	Lee Highway		2	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1
181	Lee Highway		2	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1
196	James Madison Highway		2	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1

HRN Intersection Prioritization Results

Reference ID	Focus Rank	Priority Score	Priority Tier	MWCOG Equity	CEJST Tract	APP Equity	Transit	Activity Center	Town	Population Growth	Employment Growth	School Zone	Bike/Ped Crash	Bike/Ped Gap	Tier Points	Safety Priority Schools	Public Comment	Street Name 1	Street Name 2	Street Name 3	Street Name 4
253	3	14	1	1	1	1	1	1	0	1	1	0	5	0	2	0	0	Prince William Parkway	Minnieville Road		
108	2	13	1	1	1	0	1	0	1	0	0	1	6	0	1	0	1	Grant Avenue	Byrd Drive		
461	2	13	1	1	1	0	1	0	1	0	0	1	6	0	1	0	1	Grant Avenue	Bartow Street		
178	3	12	1	1	1	0	1	1	0	1	1	1	2	0	2	0	1	Sudley Manor Drive	Ashton Avenue		
215	2	12	1	1	1	0	1	1	0	0	0	1	5	0	1	0	1	Richmond Highway	Marys Way	Mount Pleasant Drive	
239	3	12	1	1	1	1	0	1	0	1	0	1	1	1	2	1	1	Old Centreville Road	Yorkshire Lane		
693	3	12	1	1	1	0	1	1	0	1	1	1	2	0	2	1	0	Sudley Road	Irongate Way		
199	3	11	1	1	1	0	1	1	0	1	0	1	3	0	2	0	0	Richmond Highway	Featherstone Road		
232	2	11	1	1	1	1	0	1	1	1	0	1	0	1	1	1	1	Old Centreville Road	Rugby Road		
384	3	11	1	1	1	0	0	1	0	1	0	1	3	0	2	0	1	Lomond Drive	Sudley Road		
440	3	11	1	1	1	0	1	1	0	1	0	0	3	0	2	0	1	Williamson Boulevard	Sudley Road		
443	2	11	1	1	1	0	1	0	1	1	0	1	3	0	1	0	1	Church Street	Grant Avenue		
38	2	10	1	1	1	0	1	1	1	1	0	1	1	0	1	0	1	Center Street	Peabody Street		
157	3	10	1	1	0	0	1	1	0	0	1	1	2	0	2	1	0	Cloverdale Road	Dale Boulevard		
176	3	10	1	1	1	0	1	1	0	1	0	1	1	0	2	0	1	Sudley Manor Drive	Sudley Road		
201	3	10	1	1	1	1	1	0	1	0	0	0	2	1	2	0	0	Fraley Boulevard	Graham Park Road		
231	2	10	1	1	0	1	0	1	1	1	0	1	0	1	1	1	1	Spruce Street	Old Centreville Road		
235	2	10	1	1	0	1	0	1	1	1	0	1	0	1	1	1	1	Park Place	Old Centreville Road		
251	3	10	1	1	1	1	1	1	0	0	1	0	2	0	2	0	0	Hereford Road	Minnieville Road	Andorra Drive	
296	3	10	1	1	1	0	1	1	0	0	0	1	3	0	2	0	0	Prince William Parkway	Richmond Highway	East Longview Drive	
304	3	10	1	1	0	0	1	1	1	1	1	0	2	0	2	0	0	Prince William Parkway	Liberia Ave	Wellington Road	
305	3	10	1	1	0	0	1	1	0	1	0	1	3	0	2	0	0	Prince William Parkway	Smoketown Road		
322	2	10	1	1	0	0	1	0	1	1	0	1	3	0	1	0	1	Manassas Drive	Centreville Road		
389	3	10	1	1	1	0	1	1	0	1	1	1	0	0	2	0	1	Lomond Drive	Ashton Avenue		
479	2	10	1	1	0	0	1	0	1	1	0	1	3	0	1	0	1	Centreville Road	Manassas Drive		
560	3	10	1	1	1	1	1	1	0	0	0	1	0	0	2	1	1	Kaiser Court	Dale Boulevard	Hillendale Drive	
601	3	10	1	0	1	0	1	1	0	1	1	0	2	0	2	0	1	Richmond Highway	Dawson Beach Road	Occoquan Road	
630	3	10	1	1	1	0	1	1	0	1	1	0	1	0	2	0	1	Sage Street	Coverstone Drive	Miramar Drive	
701	2	10	1	1	1	0	1	1	0	1	1	1	1	0	1	0	1	Gambril Drive	Sudley Manor Drive		
707	2	10	1	1	1	1	0	0	0	0	0	1	3	0	1	1	1	Old Centreville Road	Dogan Lane	Somersworth Drive	
714	3	10	1	1	1	1	1	1	0	0	1	0	2	0	2	0	0	Cheshire Station Plaza	Minnieville Road		
39	2	9	1	1	1	0	1	1	1	1	0	1	0	0	1	0	1	Church Street	Peabody Street		
96	3	9	1	1	1	1	0	1	0	0	1	0	0	1	2	0	1	Richmond Highway	Fuller Road	Joplin Road	
121	3	9	1	1	1	1	1	1	0	0	0	1	0	0	2	0	1	Hoffman Drive	Prince William Parkway		
181	3	9	1	1	1	0	0	0	0	1	1	1	1	0	2	0	1	Schofield Way	Sudley Manor Drive	Rodes Drive	
207	3	9	1	0	1	1	1	1	0	0	0	1	0	0	2	1	1	Glendale Road	Dale Boulevard		
208	3	9	1	1	1	0	0	1	0	1	1	0	1	0	2	0	1	Sudley Road	Rixlew Lane		
219	3	9	1	1	0	0	1	0	0	0	0	1	4	0	2	0	0	Clipper Drive	Old Bridge Road		
233	2	9	1	1	0	1	1	1	1	1	0	1	0	0	1	0	1	Blooms Quarry Lane	Centreville Road		
236	2	9	1	1	0	1	0	1	1	1	0	1	0	0	1	1	1	Runyon Court	Old Centreville Road		
240	2	9	1	1	0	1	0	1	1	1	0	0	1	1	1	0	1	Maplewood Drive	Polk Drive	Old Centreville Road	
280	2	9	1	1	1	1	1	1	1	0	1	0	0	1	1	0	0	Richmond Highway	Triangle Shopping Plaza	Fraley Boulevard	
317	3	9	1	1	0	0	1	1	0	1	0	1	1	0	2	1	0	Prince William Parkway	Crossing Place		
433	2	9	1	1	1	0	1	0	1	1	0	1	1	0	1	0	1	Center Street	Grant Avenue		
441	3	9	1	1	1	0	1	1	0	1	1	0	0	0	2	0	1	Balls Ford Road	Sudley Road		
520	3	9	1	1	0	0	1	1	0	1	0	1	2	0	2	0	0	Smoketown Road	Garza Way		
536	3	9	1	1	1	0	1	0	0	1	1	1	1	0	2	0	0	Crestwood Drive	Ashton Avenue		
556	3	9	1	0	0	0	1	1	0	1	0	1	1	1	2	0	1	Neabsco Mills Road	Dale Boulevard	Potomac Center Boulevard	
557	3	9	1	0	0	0	0	1	0	1	0	1	3	0	2	0	1	Rippon Boulevard	Richmond Highway		
558	3	9	1	0	1	1	1	1	0	0	0	1	0	0	2	1	1	Dale Boulevard	Gemini Way		
622	3	9	1	1	1	1	1	1	0	0	1	0	0	0	2	0	1	Richmond Highway	Quantico Gateway Drive		
632	3	9	1	1	1	0	0	1	0	1	1	0	1	0	2	0	1	Balls Ford Road	New Market Court		
688	3	9	1	0	0	0	1	1	0	1	0	0	2	1	2	0	1	Vandor Lane	Sudley Road	I66 W Ex47 On Ramp	
726	3	9	1	0	1	1	1	1	0	1	1	0	0	0	2	0	1	Prince William Parkway	Elm Farm Road		
749	2	9	1	1	1	0	1	1	1	1	0	1	0	0	1	0	1	Grant Avenue	Lee Highway		
751	2	9	1	1	1	0	1	1	1	1	0	1	0	0	1	0	1	Center Street	Church Street		
752	2	9	1	1	1	0	1	0	1	1	0	1	1	0	1	0	1	Center Street	Mosby Street	Lee Highway	
770	2	9	1	1	1	1	1	0	1	0	0	1	1	1	1	0	0	Fraley Boulevard	Dr David Cline Lane	Dumfries Shopping Plaza	
15	2	8	1	1	1	1	1	1	0	0	1	0	0	0	1	0	1	Richmond Highway	Bradys Hill Road		
95	3	8	1	1	0	0	0	0	0	0	1	0	3	0	2	0	1	Linton Hall Road	Saybrooke Drive	Braemar Parkway	
106	3	8	1	1	0	0	0	0	0	0	1	0	3	0	2	0	1	Linton Hall Road	Braemar Parkway		
110	2	8	1	1	1	1	1	1	0	1	1	0	0	0	1	0	0	Seven Oaks Lane	Minnieville Road		
118	3	8	1	1	0	0	1	1	0	1	0	0	2	0	2	0	0	Dale Boulevard	Gideon Drive		
182	3	8	1	1	0	0	1	0	0	1	0	1	1	0	2	0	1	Garner Drive	Sudley Manor Drive	Williamson Boulevard	
209	3	8	1	1	1	0	1	0	0	0	1	1	1	0	2	0	0	Rixlew Lane	Ashton Avenue		
210	2	8	1	1	1	0	1	1	0	1	1	1	0	0	1	0	0	Rixlew Lane	Woodbury Drive		
227	3	8	1	1	0	1	0	1	0	1	0	0	1	0	2	0	1	Centreville Road	Browns Lane		
234	2	8	1	1	1	1	0	0	0	1	0	1	0	0	1	1	1	Old Centreville Road	Yorkshire Elementary School		
237	2	8	1	1	0	1	0	1	1	1	0	1	0	0	1	0	1	Cabbel Drive	Old Centreville Road		
250	3	8	1	1	0	0	1	1	0	1	0	1	0	1	2	0	0	Nazarene Way	Smoketown Road		
273	3	8	1	1	1	1	0	1	0	1	1	0	0	0	2	0	0	Hedgewood Drive	Minnieville Road		
290	3	8	1	1	0	0	1	1	0	1	0	0	2	0	2	0	0	Prince William Parkway	Telegraph Road		
301	3	8	1	1	0	0	1	1	0	0	0	1	1	0	2	0	1	Prince William Parkway	Hillendale Drive		
307	3	8	1	1	1	0	1	0	0	0	0	1	0	1	2	1	0	Prince William Parkway	Summerland Drive	York Drive	
310	3	8	1	1	0	0	1	1	0	1	0	1	1	0	2	0	0	Prince William Parkway	Shoppers Best Way		
312	3	8	1	1	1	0	1	1	0	0	0	1	1	0	2	0	0	Prince William Parkway	Church Hill Drive		
313	3	8	1	0	1	1	1	1	0	0	0	1	0	0	2	0	1	Prince William Parkway	Haversack Lane		
374	3	8	1	0	0	0	0	0	0	1	1	1	0	1	2	1	1	Hoadly Road	Dumfries Road		
383	2	8	1	1	0	0	1	1	1	0	0	1	2	0	1	0	0	Liberia Avenue	Signal Hill Road		
395	2	8	1	1	1	0	1	0	0	1	0	1	1	0	1	0	1	Lomond Drive	Garner Drive		
404	2	8	1	1	1	0	1	1	0	1	0	1	0	0	1	0	1	Lomond Drive	Lomond Court		
437	3	8	1	1	1	0	0	1	0	1	0	1	1	0	2	0	0	Sudley Road	Crestwood Drive		
438	3	8	1	1	1	0	0	1	0	1	0	0	1	0	2	0	1	Sudley Road	Broken Branch Lane	Rosemary Drive	
447	3	8	1	1	1	0	1	1	0	1	1	0	0	0	2	0	0	Portsmouth Road	Sudley Road		
449	2	8	1	1	1	0	1	0	1	0	0	1	2	0	1	0	0	Wellington Road	Dumfries Road		
525	3	8	1	1	0	0	1	1	0	1	0	0	1	0	2	0	1	Telegraph Road	Opitz Boulevard		
537	3	8	1	1	1	0	1	1	0	0	1	0	0	0	2	0	1	Ashton Avenue	Seymour Road		
538	3	8	1	1	1	0	1	0	0	0	1	0	1	0	2	0	1	Coverstone Drive	Ashton Avenue		
539	3	8	1	1	1	0	0	1	0	1	1	0	0	0	2	0	1	Balls Ford Road	Ashton Avenue		
540	3	8	1	1	1	1	0	1	0	0	1	0	0	0	2	0	1	Richmond Highway	Squire Lane		
545	3	8	1	1	0	0	1	1	0	0	0	1	1	0	2	0	1	Richmond Highway	River Ridge Boulevard		
567	2	8	1	0	1	1	1	1	0	0	0	1	0	0	1	1	1	Greenwood Drive	Dale Boulevard		

569	3	8	1	1	0	0	1	1	0	0	1	1	0	0	2	1	0	Cherrydale Drive	Dale Boulevard		
587	3	8	1	0	0	0	1	1	0	1	0	1	1	0	2	0	1	Potomac Club Parkway	Richmond Highway	Beacon Ridge Drive	
602	3	8	1	0	1	0	1	0	0	0	1	1	1	0	2	0	1	Occoquan Road	Hylton Avenue		
606	3	8	1	0	0	0	1	1	0	1	0	1	2	0	2	0	0	Richmond Highway	Delaware Drive		
613	3	8	1	1	1	0	1	1	0	1	0	1	0	0	2	0	0	Reddy Drive	Richmond Highway	Opitz Boulevard	
679	3	8	1	1	0	0	1	1	0	0	1	1	0	0	2	1	0	Cranmer Mews	Cherrydale Drive		
686	3	8	1	1	0	0	1	1	0	1	1	0	0	1	2	0	0	Dewey Boulevard	Old Stage Road		
702	2	8	1	1	1	0	1	0	0	1	1	1	0	0	1	0	1	Gambril Drive	Sudley Manor Drive		
716	3	8	1	1	1	1	1	1	0	0	1	0	0	0	2	0	0	Dale Boulevard	Minnieville Road		
738	3	8	1	1	1	1	1	1	1	0	0	0	0	0	2	0	0	Old Stage Coach Road	Richmond Highway	Fraley Boulevard	Dumfries Road
746	2	8	1	1	1	0	0	1	1	1	0	0	0	1	1	0	1	Sudley Road	Godwin Drive		
753	2	8	1	1	1	0	1	0	1	1	0	1	0	0	1	0	1	Center Street	Lee Highway		
12	2	7	2	0	0	0	1	1	1	1	0	1	0	0	1	0	1	Grant Avenue	Bartow Street		
40	3	7	2	1	0	0	1	0	0	1	1	0	1	0	2	0	0	Minnieville Road	Madison Farm Drive		Caton Hill Road
43	3	7	2	0	0	0	1	1	0	1	0	0	1	0	2	0	1	Dawson Beach Road	Express Drive		
45	2	7	2	1	1	0	1	0	1	0	0	1	0	0	1	0	1	Grant Avenue	Douglas Street		
67	2	7	2	1	1	1	0	0	0	0	0	1	0	0	1	1	1	Old Centreville Road	Stoneridge Drive		
76	3	7	2	0	1	0	1	1	0	1	1	0	0	0	2	0	0	Horner Road	Occoquan Road		
78	3	7	2	0	1	0	1	1	0	1	1	0	0	0	2	0	0	Marina Way	Gordon Boulevard		
87	3	7	2	0	0	0	0	0	0	1	0	0	3	0	2	0	1	Sudley Manor Drive	Linton Hall Road		
112	3	7	2	0	0	0	1	1	0	1	0	1	0	0	2	0	1	Neabsco Mills Road	Smoke Court		
131	2	7	2	1	0	1	0	1	1	1	0	0	0	0	1	0	1	Yost Street	Old Centreville Road		
145	3	7	2	0	0	0	0	1	1	0	0	0	1	1	2	0	1	Washington Street	James Madison Highway	John Marshall Highway	
146	3	7	2	0	0	0	1	1	0	1	1	0	0	0	2	0	1	James Madison Highway	Heathcote Boulevard		
170	3	7	2	1	1	0	0	0	0	1	1	0	0	0	2	0	1	Sudley Manor Drive	Chatsworth Drive		
175	3	7	2	0	0	0	0	1	0	1	1	0	0	1	2	0	1	Prince William Parkway	Sudley Manor Drive		
187	2	7	2	1	1	0	0	0	0	1	1	1	0	0	1	0	1	Wallace Lane	Sudley Manor Drive		
189	3	7	2	0	0	0	1	1	0	1	0	0	0	1	2	0	1	Davis Ford Road	Hoadly Road	Prince William Parkway	
193	3	7	2	0	0	0	0	1	0	0	1	1	0	1	2	0	1	Prince William Parkway	University Boulevard		
205	2	7	2	1	0	0	1	1	0	0	0	1	0	0	1	1	1	Dale Boulevard	Kerrydale Road		
212	3	7	2	0	0	0	1	1	0	1	0	1	1	0	2	0	0	Maryland Avenue	Richmond Highway	Daniel Stuart Square	
214	3	7	2	1	1	0	1	1	0	1	0	0	0	0	2	0	0	Daniel Stuart Square	Opitz Boulevard	Montgomery Drive	
230	3	7	2	0	1	0	1	1	0	1	1	0	0	0	2	0	0	Annapolis Way	Gordon Boulevard	Monroe Drive	
238	2	7	2	1	0	1	0	1	1	1	0	0	0	0	1	0	1	Mclean Way	Old Centreville Road		
241	2	7	2	1	1	1	0	0	0	0	0	1	0	0	1	1	1	Old Centreville Road	Parkland Street		
244	3	7	2	1	0	1	0	1	0	1	0	0	0	0	2	0	1	Centreville Road	Orchard Bridge Drive		
247	2	7	2	0	1	0	1	0	1	1	0	1	0	0	1	0	1	Sudley Road	Rolling Road		
257	3	7	2	0	0	0	1	1	0	1	1	0	1	0	2	0	0	Telegraph Road	Minnieville Road		
262	3	7	2	0	0	0	1	1	0	1	1	0	1	0	2	0	0	Colby Drive	Minnieville Road		
267	3	7	2	1	1	1	0	1	0	0	1	0	0	0	2	0	0	Minnieville Road	Bluefin Drive		
274	3	7	2	0	1	1	1	1	0	0	0	0	1	0	2	0	0	Darbydale Avenue	Minnieville Road		
277	2	7	2	1	0	0	1	0	1	0	0	1	1	0	1	0	1	Center Street	Main Street		
284	3	7	2	1	0	0	1	1	0	1	1	0	0	0	2	0	0	Dumfries Road	Van Buren Road		
285	3	7	2	1	0	0	1	1	0	0	1	0	1	0	2	0	0	Benita Fitzgerald Drive	Dale Boulevard		
289	2	7	2	1	0	0	1	1	1	1	1	0	0	0	1	0	0	Prince William Parkway	Hastings Drive		
297	3	7	2	1	0	0	1	1	0	0	0	1	0	0	2	1	0	Prince William Parkway	Golansky Boulevard	Sonora Street	
302	3	7	2	1	0	0	1	1	0	0	0	1	0	0	2	0	1	Prince William Parkway	Trowbridge Drive		
309	3	7	2	1	0	0	1	1	0	0	0	1	0	0	2	0	1	Prince William Parkway	Kenwood Drive		
314	3	7	2	1	0	0	1	1	0	0	0	0	1	0	2	0	1	Prince William Parkway	Old Bridge Road		
328	2	7	2	0	0	0	1	0	1	1	0	1	1	0	1	0	1	Manassas Drive	Sandstone Way		
358	3	7	2	0	0	0	0	1	0	1	1	0	0	1	2	0	1	Prince William Parkway	Wellington Road		
378	3	7	2	0	0	0	0	1	0	1	1	1	0	1	2	0	0	Dumfries Road	American Legion Drive	Old Dominion Drive	
394	2	7	2	1	1	0	1	0	0	0	0	1	0	0	1	1	1	Lomond Drive	Ashland Avenue		
399	3	7	2	1	1	0	0	0	0	0	0	1	0	0	2	1	1	Lomond Drive	Damascus Drive		
415	2	7	2	1	1	0	0	1	0	1	0	1	0	0	1	0	1	Lomond Drive	Brighton Way		
416	2	7	2	0	1	0	1	0	1	1	0	1	0	0	1	0	1	Plantation Lane	Sudley Road		
421	2	7	2	1	0	0	1	0	1	1	0	1	0	0	1	0	1	Conner Drive	Centreville Road		
435	2	7	2	1	1	0	1	0	1	0	0	1	0	0	1	0	1	Grant Avenue	Liberty Street		
436	2	7	2	1	1	0	1	1	0	1	0	0	0	0	1	0	1	Davidson Place	Sudley Road		
442	2	7	2	1	1	0	1	1	0	1	1	0	0	0	1	0	0	Festival	Sudley Road		
446	2	7	2	0	1	0	1	0	1	1	0	0	0	1	1	0	1	Sudley Road	Impalla Drive		
448	2	7	2	1	1	0	0	1	0	1	1	0	0	0	1	0	1	Automotive Drive	Sudley Road		
451	2	7	2	1	1	0	1	0	1	0	0	1	0	0	1	0	1	Grant Avenue	Prince William Parkway		
457	2	7	2	0	1	0	1	0	1	1	0	1	0	0	1	0	1	Dorsey Circle	Sudley Road		
459	2	7	2	0	1	0	1	0	1	1	0	1	0	0	1	0	1	Sudley Road	Thomas Drive		
460	2	7	2	0	1	0	1	0	1	1	0	1	0	0	1	0	1	Digges Road	Sudley Road		
472	2	7	2	1	0	0	1	0	1	0	0	1	1	0	1	0	1	Center Street	Opera Alley		
478	2	7	2	1	0	0	1	0	1	0	0	1	1	0	1	0	1	Center Street	West Street		
493	3	7	2	1	0	1	0	1	0	1	0	0	0	0	2	0	1	Centreville Road	Maplewood Drive		
497	2	7	2	1	1	0	1	0	1	1	0	1	0	0	1	0	0	Center Street	Stonewall Road		
517	3	7	2	0	1	0	1	0	0	0	1	1	0	0	2	0	1	Occoquan Road	Vineyard Way		
541	3	7	2	0	1	0	1	0	0	0	1	1	0	0	2	0	1	Milbank Road	Putnam Circle		
548	3	7	2	0	0	0	0	1	0	1	1	1	0	1	2	0	0	John Marshall Highway	Catharpin Road		
549	2	7	2	1	1	0	1	1	0	0	0	1	0	0	1	0	1	Richmond Highway	Jefferson Street		
564	2	7	2	1	0	0	1	1	0	0	1	1	0	0	1	1	0	Dale Boulevard	Catalpa Court		
576	3	7	2	0	0	0	1	1	0	0	0	1	1	0	2	0	1	Catharpin Road	Heathcote Boulevard		
583	3	7	2	1	0	0	1	1	0	0	0	1	0	0	2	0	1	Richmond Highway	Panther Pride Drive		
594	3	7	2	0	0	0	1	1	0	1	0	1	0	0	2	0	1	Ridgefield Village Drive	Hoadly Road	Galveston Court	
596	3	7	2	0	0	0	1	1	0	1	0	0	1	0	2	0	1	Richmond Highway	Blackburn Road		
610	2	7	2	1	1	1	1	0	1	0	0	1	0	0	1	0	0	Fraley Boulevard	Williamstown Drive		
611	2	7	2	1	1	1	1	0	1	0	0	0	0	1	1	0	0	Fraley Boulevard	Canal Road		
615	3	7	2	1	1	1	1	0	1	0	0	0	0	0	2	0	0	Fraley Boulevard	Possum Point Road		
619	3	7	2	1	0	0	1	0	0	0	0	1	1	0	2	0	1	Powells Creek Boulevard	Richmond Highway	Fox Lair Drive	
621	3	7	2	1	1	0	1	1	0	0	0	0	1	0	2	0	0	Richmond Highway	Rosedale Court		
624	3	7	2	0	1	0	1	1	0	1	1	0	0	0	2	0	0	Richmond Highway	Gordon Boulevard		
629	3	7	2	1	0	0	1	1	0	1	0	1	0	0	2	0	0	Smoketown Road	Golansky Boulevard	Great Oaks Drive	
631	2	7	2	1	1	0	0	1	0	1	1	0	0	0	1	0	1	Balls Ford Road	Stream Walk		
639	3	7	2	1	0	0	1	0	0	0	1	1	0	0	2	1	0	Beale Court	Barksdale Street		
670	3	7	2	1	1	0	1	1	0	0	0	0	0	0	2	0	1	River Rock Way	Opitz Boulevard		
671	3	7	2	1	1	0	1	0	0	1	0	0	0	0	2	0	1	Mason Creek Circle	Opitz Boulevard		
674	3	7	2	1	1	1	1	0	1	0	0	0	0	0	2	0	0	Main Street	Possum Point Road		
703	2	7	2	1	1	0	0	0	0	1	1	1	0	0	1	0	1	Gambril Drive	Sudley Manor Drive		
704	2	7	2	1	1	0	0	0	0	1	1	1	0	0	1	0	1	Gambril Drive	Sudley Manor Drive		
708	2	7	2	1	1	1	0	0	0	0	0	1	0	0	1	1	1	Old Centreville Road	Somersworth Drive		
715	2	7	2	1	1	1	1	1	0	0	1	0	0	0	1	0	0	Minnieville Road	Cheshire Station Plaza		

728	3	7	2	1	0	0	1	1	0	0	0	0	1	0	2	0	1	Prince William Parkway	Ridgewood Center Drive		
731	2	7	2	1	0	0	1	1	0	0	0	1	1	0	1	0	1	Prince William Parkway	Centerpointe Way		
745	2	7	2	1	1	0	1	0	1	0	0	1	1	0	1	0	0	Grant Avenue	Taney Road		
768	3	7	2	1	1	0	1	1	0	0	0	0	0	0	2	0	1	Opitz Boulevard	Potomac Center Boulevard		
769	2	7	2	1	1	1	1	0	1	0	0	1	0	0	1	0	0	Fraley Boulevard	Dumfries Shopping Plaza		
17	3	6	2	0	0	0	1	1	0	0	0	1	0	0	2	0	1	Occoquan Road	Devils Reach Road		
18	3	6	2	0	0	0	1	1	0	0	0	1	0	0	2	0	1	Devils Reach Road	Sea Ray Lane		
19	3	6	2	0	0	0	1	1	0	0	0	1	0	0	2	0	1	Gordon Boulevard	Devils Reach Road		
28	2	6	2	1	0	1	0	1	0	1	0	0	0	0	1	0	1	Centreville Road	Birch Street		
30	2	6	2	1	1	0	1	0	0	0	0	1	0	0	1	1	0	Prince William Parkway	Breezy Ridge Way		
59	3	6	2	0	0	0	1	1	0	1	0	0	1	0	2	0	0	Old Stage Road	Van Buren Road	Copper Mill Drive	
74	3	6	2	1	0	0	1	1	0	1	0	0	0	0	2	0	0	Prince William Parkway	Worth Avenue		
77	3	6	2	0	1	0	1	0	0	0	0	1	0	0	2	1	0	Botts Avenue	Horner Road		
99	3	6	2	0	0	0	0	0	0	0	0	1	2	0	2	0	1	Linton Hall Road	Rollins Ford Road		
114	2	6	2	0	0	0	0	1	0	1	0	0	2	0	1	0	1	Bristow Road	Dumfries Road		
117	3	6	2	1	0	0	1	1	0	1	0	0	0	0	2	0	0	Gideon Drive	Town Center Road		
119	3	6	2	1	0	0	1	1	0	1	0	0	0	0	2	0	0	Gideon Drive	Opitz Boulevard	Smoketown Road	
128	2	6	2	1	1	0	0	0	0	0	0	1	0	0	1	1	1	Lomond Drive	Norfolk Court		
133	3	6	2	1	0	0	1	0	1	0	0	0	0	1	2	0	0	Village Drive	Greentree Lane		
138	3	6	2	0	0	0	0	0	0	0	1	1	0	0	2	1	1	James Madison Highway	Somerset Crossing Drive	Market Ridge Boulevard	
159	3	6	2	1	0	0	1	0	0	1	1	0	0	0	2	0	0	Minnieville Road	Office Place	Foulger Square	
188	3	6	2	0	0	0	0	0	0	0	0	1	2	0	2	0	1	Tygart Lake Drive	Sudley Manor Drive	Ribbon Falls Loop	
192	2	6	2	1	0	0	1	0	1	0	0	1	1	0	1	0	0	Main Street	Batestown Road		
198	3	6	2	1	1	0	0	1	0	0	0	1	0	0	2	0	0	Featherstone Road	Blackburn Road	Colchester Road	
213	3	6	2	0	0	0	1	1	0	1	0	1	0	0	2	0	0	Buildamerica Drive	Maryland Avenue		
216	3	6	2	0	1	1	0	1	0	0	0	0	0	1	2	0	0	Central Park Drive	Delaney Road	Minnieville Road	
220	3	6	2	0	0	0	1	0	0	0	0	1	1	0	2	0	1	Hedges Run Drive	Old Bridge Road		
221	2	6	2	0	0	0	0	0	0	0	1	1	0	1	1	1	1	Hoadly Road	Ellicott Lane	Token Valley Road	
229	2	6	2	1	0	0	1	0	1	0	0	1	1	0	1	0	0	Lake Jackson Drive	Hastings Drive		
245	3	6	2	1	0	0	1	1	0	1	0	0	0	0	2	0	0	Caton Hill Road	Telegraph Road		
246	2	6	2	1	0	0	1	1	0	1	1	0	0	0	1	0	0	Caton Hill Road	Great Oaks Drive		
248	3	6	2	0	0	0	0	1	0	1	1	0	0	1	2	0	0	Prince William Parkway	Lake Jackson Drive		
249	3	6	2	0	0	0	0	1	0	1	1	0	0	1	2	0	0	Lake Jackson Drive	Prince William Parkway		
270	3	6	2	1	0	0	1	0	0	1	0	0	1	0	2	0	0	Smoketown Road	Minnieville Road		
272	3	6	2	1	0	0	1	0	0	0	0	1	1	0	2	0	0	Minnieville Road	Old Bridge Road		
278	2	6	2	0	0	0	1	0	1	0	0	1	1	0	1	0	1	Church Street	Main Street		
294	3	6	2	1	0	0	0	1	0	1	0	1	0	0	2	0	0	Prince William Parkway	Noble Pond Way		
298	3	6	2	0	0	0	1	1	0	0	0	0	1	0	2	0	1	Prince William Parkway	County Complex Court	Marblestone Drive	
308	3	6	2	0	0	0	1	1	0	0	0	0	1	0	2	0	1	Prince William Parkway	Greatbridge Road	Ridgefield Road	
311	2	6	2	1	1	0	1	1	0	0	0	1	0	0	1	0	0	Prince William Parkway	Lynn Street		
316	3	6	2	0	0	0	0	1	0	1	1	0	0	1	2	0	0	Prince William Parkway	Buckhall Road		
318	2	6	2	1	1	0	0	0	1	1	0	1	0	0	1	0	0	Center Street	Center Point Lane	Brinkley Lane	
321	3	6	2	0	0	0	1	0	0	0	0	0	2	0	2	0	1	Cricket Lane	Old Bridge Road	Dillingham Square	
329	2	6	2	0	1	0	1	0	1	0	0	1	1	0	1	0	0	Liberia Avenue	Mathis Avenue		
334	3	6	2	0	0	0	1	1	0	0	1	0	0	0	2	0	1	Old Carolina Road	Heathcote Boulevard		
344	3	6	2	0	0	0	0	0	1	1	1	0	0	1	2	0	0	Gateway Court	Prince William Parkway		
346	3	6	2	0	0	0	1	0	0	1	1	0	1	0	2	0	0	Dumfries Road	Exeter Drive		
354	3	6	2	0	0	0	1	1	0	1	0	0	0	0	2	0	1	Sudley Road	Bulloch Drive	Battleview Parkway	
364	3	6	2	0	0	0	0	1	0	1	1	0	0	1	2	0	0	Dumfries Road	Independent Hill Drive		
367	3	6	2	0	0	0	0	0	0	1	1	1	0	0	2	1	0	Dumfries Road	Walton Drive		
368	3	6	2	0	0	0	1	0	0	1	1	0	1	0	2	0	0	Four Seasons Drive	Dumfries Road		
385	2	6	2	1	1	0	1	0	1	0	0	1	0	0	1	0	0	Centreville Road	Liberia Ave		
408	2	6	2	0	1	0	1	0	1	0	0	1	1	0	1	0	0	Liberia Avenue	Portner Avenue		
410	2	6	2	0	1	0	0	0	0	0	0	1	1	0	1	1	1	Lomond South Drive	Westmoreland Avenue		
411	2	6	2	1	1	0	0	0	0	0	0	1	0	0	1	1	1	Lomond Drive	Fairmont Avenue		
453	2	6	2	0	0	0	1	0	1	1	0	0	1	0	1	0	1	Stonewall Road	Sudley Road		
455	2	6	2	1	1	0	1	0	1	0	0	1	0	0	1	0	0	Grant Avenue	Buckner Road		
456	2	6	2	0	0	0	0	1	0	1	1	1	0	1	1	0	0	Dumfries Road	Bradley Manor Place		
458	3	6	2	1	1	0	0	1	0	0	0	0	0	0	2	0	1	Fairmont Avenue	Sudley Road	Sunnygate Drive	
462	3	6	2	0	1	1	1	1	0	0	0	0	0	0	2	0	0	Dale Boulevard	Gerry Lane		
473	2	6	2	1	1	0	1	0	1	0	0	1	0	0	1	0	0	Phoenix Drive	Centreville Road		
474	3	6	2	1	0	1	0	1	0	1	0	0	0	0	2	0	0	Centreville Road	Leland Road		
475	3	6	2	1	0	1	0	1	0	1	0	0	0	0	2	0	0	Centreville Road	Leland Road		
482	2	6	2	1	1	0	1	0	1	0	0	1	0	0	1	0	0	Centreville Road	Kincheloe Drive		
484	3	6	2	1	0	1	0	1	0	1	0	0	0	0	2	0	0	Centreville Road	Yorkshire Lane	Falls Grove Drive	
487	2	6	2	1	0	0	1	0	1	0	0	1	0	0	1	0	1	Center Street	East Street		
488	3	6	2	1	0	1	0	1	0	1	0	0	0	0	2	0	0	Centreville Road	Sharlee Lane		
489	2	6	2	1	1	0	0	0	1	1	0	1	0	0	1	0	0	Center Street	Cockrell Road		
502	2	6	2	1	0	0	1	0	1	0	0	1	0	0	1	0	1	Center Street	Battle Court		
504	2	6	2	1	1	0	0	0	1	0	0	1	0	1	1	0	0	Wellington Road	Dean Drive		
518	3	6	2	1	0	0	1	1	0	1	0	0	0	0	2	0	0	Faith Court	Bixby Road		
519	2	6	2	0	0	0	1	1	0	0	0	1	0	0	1	1	1	Kingsman Road	Dale Boulevard		
521	3	6	2	1	0	0	1	1	0	1	0	0	0	0	2	0	0	Gideon Drive	Potomac Mills Circle		
522	3	6	2	0	0	0	0	0	0	1	0	1	0	0	2	1	1	Vint Hill Road	Kettle Run Road		
527	3	6	2	0	0	0	1	0	0	0	0	1	1	0	2	0	1	Old Bridge Road	Mohican Road		
535	2	6	2	0	0	0	1	0	0	1	0	1	1	0	1	0	1	Websters Way	Hoadly Road	Lost Creek Court	
546	3	6	2	1	0	0	1	0	0	0	0	1	1	0	2	0	0	Harbor Drive	Old Bridge Road		
566	3	6	2	0	0	0	1	1	0	0	0	1	0	0	2	1	0	Princedale Drive	Dale Boulevard	Nottingdale Drive	
568	3	6	2	1	0	0	1	1	0	0	1	0	0	0	2	0	0	Dale Boulevard	Birchdale Avenue		
574	3	6	2	0	0	0	1	1	0	0	0	1	0	0	2	0	1	Specialized Trail	Heathcote Boulevard		
579	3	6	2	0	0	0	0	1	0	0	1	0	0	1	2	0	1	Corby Street	Southway Lane		
582	2	6	2	1	1	1	1	0	1	0	0	0	0	0	1	0	0	Fraley Boulevard	Tripoli Boulevard		
586	3	6	2	1	1	0	0	0	0	0	0	0	0	1	2	0	1	Brady Lane	Groveton Road		
588	3	6	2	1	0	0	1	1	0	1	0	0	0	0	2	0	0	Opitz Boulevard	Potomac Mills Circle		
597	3	6	2	0	0	0	1	0	0	1	0	1	1	0	2	0	0	College Drive	Neabsco Mills Road		
598	3	6	2	0	0	0	1	1	0	0	0	1	0	0	2	0	1	Potomac Center Boulevard	River Rock Way		
603	3	6	2	0	0	0	1	1	0	0	0	1	0	0	2	0	1	Occoquan Road	Old Bridge Road		
609	3	6	2	0	1	0	0	1	0	1	1	0	0	0	2	0	0	Richmond Highway	Annapolis Way		
612	3	6	2	0	0	0	1	0	0	0	0	1	1	0	2	0	1	Cardinal Drive	Richmond Highway	Neabsco Road	
616	2	6	2	0	0	0	1	1	0	1	0	1	0	0	1	0	1	Richmond Highway	Vantage Drive		
620	2	6	2	1	0	0	1	0	0	0	0	1	1	0	1	0	1	Georgetown Road	Richmond Highway		
623	3	6	2	1	1	0	1	1	0	0	0	0	0	0	2	0	0	Richmond Highway	Village Drive	Bel Air Road	
638	3	6	2	1	0	0	0	0	0	0	0	1	0	0	2	1	1	Damascus Drive	Strasburg Street		
640	3	6	2	0	1	0	1	0	0	0	0	1	0	0	2	1	0	Botts Avenue	Botts Avenue		
650	3	6	2	0	0	0	1	0	0	0	0	1	1	0	2	0	1	Springwoods Drive	Old Bridge Road		

659	3	6	2	0	0	0	1	0	0	0	0	1	1	0	2	0	1	Old Bridge Road	Cambridge Drive		
672	3	6	2	0	0	0	1	0	0	0	0	1	1	0	2	0	1	Smoketown Road	Old Bridge Road		
677	3	6	2	0	0	0	1	1	0	0	1	0	0	0	2	0	1	Main Street	Quantico Gateway Drive		
683	3	6	2	0	0	0	1	1	0	0	0	1	0	0	2	0	1	Gordon Boulevard	Old Bridge Road		
706	3	6	2	0	1	0	1	1	0	0	1	0	0	0	2	0	0	Tyler Court	Monroe Drive		
712	3	6	2	1	0	0	1	1	0	0	1	0	0	0	2	0	0	Minnieville Road	Noblewood Plaza		
713	3	6	2	1	0	0	1	1	0	0	1	0	0	0	2	0	0	Noblewood Plaza	Minnieville Road		
718	3	6	2	0	0	0	1	1	0	1	1	0	0	0	2	0	0	Minnieville Road	Green Ash Loop	Oak Farm Drive	
724	3	6	2	0	0	0	0	1	0	0	1	0	2	0	2	0	0	Nokesville Road	Hornbaker Road		
727	2	6	2	1	0	0	1	1	0	0	0	1	0	0	1	1	0	Prince William Parkway	Malta Street		
730	2	6	2	1	0	0	1	1	0	0	0	1	0	0	1	0	1	Prince William Parkway	Centerpointe Way		
739	2	6	2	1	1	1	1	0	1	0	0	0	0	0	1	0	0	Fraley Boulevard	Old Stage Coach Road		
744	2	6	2	1	1	0	1	0	1	0	0	1	0	0	1	0	0	Grant Avenue	Taney Road		
748	2	6	2	0	0	0	1	0	1	1	0	1	0	0	1	0	1	Grant Avenue	Mosby Street		
764	3	6	2	1	0	0	1	1	0	0	1	0	0	0	2	0	0	Forestdale Avenue	Dale Boulevard		
765	3	6	2	1	0	0	1	1	0	0	1	0	0	0	2	0	0	Darbydale Avenue	Dale Boulevard		
3	2	5	2	1	0	0	1	0	1	0	0	1	0	0	1	0	0	Liberia Avenue	Quarry Road		
8	2	5	2	0	0	0	1	1	0	0	0	1	0	0	1	0	1	Gordon Boulevard	Admiral Drive		
9	2	5	2	1	1	0	1	0	0	0	0	1	0	0	1	0	0	Rixlew Lane	Kim Graham Lane		
13	2	5	2	0	1	0	0	0	0	0	0	1	0	0	1	1	1	Lomond South Drive	Victoria Street		
23	3	5	2	0	0	0	0	1	0	0	1	0	0	1	2	0	0	Prince William Py W On Ramp	Prince William Parkway		
25	2	5	2	0	0	0	0	1	0	1	1	0	0	1	1	0	0	Six Towers Road	Dumfries Road		
31	3	5	2	1	0	0	1	0	1	0	0	0	0	0	2	0	0	Village Drive	Prince William Parkway		
32	2	5	2	0	0	0	0	0	0	0	1	1	0	1	1	1	0	Hoadly Road	Natick Drive		
33	2	5	2	0	0	0	0	0	1	0	1	1	0	1	1	0	0	Godwin Drive	Central Park Drive		Tanner Way
35	2	5	2	0	0	0	0	0	1	0	1	1	1	0	1	0	0	Hastings Drive	Justin		
47	2	5	2	1	0	0	1	0	0	0	0	1	0	1	1	0	0	Old Bridge Road	Tanyard Hill Road		
49	2	5	2	0	0	0	1	0	0	1	0	1	0	0	1	0	1	Queen Chapel Road	Hoadly Road		
50	2	5	2	0	0	0	1	0	0	1	0	1	0	0	1	0	1	Dumfries Road	Kevin Walker Drive		
57	2	5	2	1	0	0	1	0	1	0	0	1	0	0	1	0	0	Hastings Drive	Farmington Court		
60	2	5	2	1	1	0	0	0	0	0	0	1	0	0	1	1	0	Lomond Drive	Urbanna Road		
66	2	5	2	0	1	0	1	0	1	0	0	1	0	0	1	0	0	Liberia Avenue	Point Of Woods Drive		
68	2	5	2	0	0	0	0	1	0	1	1	0	0	1	1	0	0	Snowfall Drive	Dumfries Road		
72	2	5	2	0	1	0	0	0	0	0	0	1	0	0	1	1	1	Lomond South Drive	Chatham Street		
73	2	5	2	0	0	0	0	0	1	1	0	1	0	0	1	0	1	Grant Avenue	Bennett Drive		
82	3	5	2	0	0	0	0	1	0	0	1	0	0	1	2	0	0	Prince William Parkway	Nokesville E Pw W On Ramp		
83	2	5	2	0	0	0	0	1	1	1	1	0	0	0	1	0	0	Nokesville Road	Nokesville E Pw W On Ramp		
85	2	5	2	0	0	0	0	0	0	0	1	1	1	0	1	0	1	Linton Hall Road	Rocky Run Road		
86	2	5	2	1	0	0	0	0	0	0	1	0	1	0	1	0	1	Linton Hall Road	Country Mill Drive		
93	3	5	2	0	0	0	0	0	0	0	1	1	0	0	2	0	1	Linton Hall Road	Laurianne Terrace		
98	3	5	2	0	0	0	0	0	0	1	0	0	2	0	2	0	0	Linton Hall Road	Hunting Cove Place		
101	3	5	2	0	0	0	0	1	0	1	0	0	0	0	2	0	1	Linton Hall Road	Wellington Road		
102	3	5	2	0	0	0	0	0	0	1	0	1	0	0	2	0	1	Linton Hall Road	Glenkirk Road		
105	3	5	2	0	0	0	0	1	0	1	1	0	0	0	2	0	0	Linton Hall Road	Lee Hy E Off Ramp	John Marshall Highway	
111	2	5	2	0	0	0	0	0	1	0	0	1	1	0	1	0	1	Technology Drive	Nokesville Road		
115	2	5	2	0	0	0	0	0	0	0	0	1	0	1	1	1	1	Den Hollow Court	Hoadly Road		
122	2	5	2	0	0	0	1	1	0	1	1	0	0	0	1	0	0	Minnieville Road	Omisol Road		
125	3	5	2	0	0	0	0	1	0	0	1	0	1	0	2	0	0	Nokesville Road	Residency Road		
129	2	5	2	1	0	0	0	0	1	0	0	1	1	0	1	0	0	Fairview Avenue	Richmond Highway		
130	3	5	2	0	0	0	1	1	0	0	0	0	1	0	2	0	0	Cloverdale Road	Babbitt Lane		
135	2	5	2	1	0	1	0	1	0	1	0	0	0	0	1	0	0	Centreville Road	Patton Lane		
141	3	5	2	0	0	0	0	0	0	0	0	1	1	0	2	0	1	James Madison Highway	Dominion Valley Drive	Graduation Drive	
155	2	5	2	0	0	0	0	1	1	0	0	0	0	1	1	0	1	James Madison Highway	Kapp Valley Way		
156	3	5	2	0	0	0	1	1	0	0	0	0	1	0	2	0	0	Cloverdale Road	Benita Fitzgerald Drive		
158	2	5	2	0	0	0	1	0	0	1	0	1	0	0	1	1	0	Websters Way	Hoadly Road	Reserve Place	
160	2	5	2	1	1	0	1	1	0	0	0	0	0	0	1	0	0	Richmond Highway	Woodside Drive		
163	2	5	2	1	0	0	1	0	1	0	0	1	0	0	1	0	0	Hastings Drive	Abbott Road		
165	3	5	2	0	0	0	0	0	0	0	0	1	1	0	2	1	0	Sudley Manor Drive	Tartan Hills Parkway	Rob Roy Way	
167	2	5	2	0	0	0	1	1	0	0	0	1	0	0	1	0	1	Gordon Boulevard	Riverview Drive		
172	2	5	2	0	0	0	0	1	0	1	1	0	0	0	1	0	1	Bethlehem Road	Sudley Manor Drive		
186	3	5	2	0	0	0	0	0	0	1	0	1	0	0	2	1	0	Sudley Manor Drive	Vint Hill Road		
191	3	5	2	0	0	0	0	0	0	1	0	0	0	1	2	0	1	Davis Ford Road	Bacon Race Road		
195	3	5	2	0	0	0	1	1	0	0	1	0	0	0	2	0	0	University Boulevard	Lee Highway		
197	3	5	2	1	1	0	0	0	0	0	0	1	0	0	2	0	0	Featherstone Road	Alabama Avenue		
200	3	5	2	0	0	0	1	0	1	0	0	1	0	0	2	0	0	Triangle Shopping Plaza	Graham Park Road		
202	3	5	2	0	0	0	1	0	1	0	0	1	0	0	2	0	0	Main Street	Graham Park Road	Curtis Drive	
204	2	5	2	1	0	0	1	1	0	0	0	1	0	0	1	0	0	Richmond Highway	Chesapeake Drive		
211	3	5	2	0	0	0	0	1	0	0	1	1	0	0	2	0	0	Wellington Road	Rixlew Lane		
217	3	5	2	0	0	0	1	1	0	0	0	1	0	0	2	0	0	Delaney Road	Dale Boulevard		
218	3	5	2	1	0	0	1	0	0	0	0	1	0	0	2	0	0	Clipper Drive	Lake Ridge Drive		
222	3	5	2	0	0	0	0	0	0	0	1	0	0	1	2	0	1	Clover Hill Road	Prince William Parkway		
226	2	5	2	0	0	0	1	0	1	1	0	1	0	0	1	0	0	Manassas Drive	Market Street	Park Central Plaza	
254	3	5	2	0	0	0	0	1	0	1	1	0	0	0	2	0	0	Dumfries Road	Minnieville Road		
256	2	5	2	0	0	0	1	1	0	1	1	0	0	0	1	0	0	Minnieville Road	Sturbridge Road		
258	3	5	2	0	0	0	1	1	0	0	0	0	1	0	2	0	0	Minnieville Road	Summit School Road	Lake Manor Drive	
264	2	5	2	0	1	1	1	1	0	0	0	0	0	0	1	0	0	Minnieville Road	Gemini Way		
266	2	5	2	0	0	0	1	1	0	1	1	0	0	0	1	0	0	Minnieville Road	Fowke Lane		
275	2	5	2	0	1	0	1	0	1	0	0	1	0	0	1	0	0	Centreville Road	Breeden Avenue		
279	2	5	2	1	0	0	1	0	1	0	0	1	0	0	1	0	0	Wellington Road	Main Street		
283	2	5	2	1	0	1	0	1	0	1	0	0	0	0	1	0	0	Centreville Road	Spruce Street		
293	3	5	2	0	0	0	0	0	0	1	1	0	0	1	2	0	0	Prince William Parkway	Moore Drive		
303	3	5	2	0	0	0	0	1	0	1	1	0	0	0	2	0	0	Prince William Parkway	Hynson Drive		
325	2	5	2	0	0	0	1	0	1	1	0	1	0	0	1	0	0	Euclid Avenue	Manassas Drive		
332	3	5	2	1	0	0	1	1	0	0	0	0	0	0	2	0	0	Richmond Highway	Allen Dent Road	River Heritage Boulevard	
336	3	5	2	0	0	0	0	1	0	0	1	0	0	1	2	0	0	Prince William Parkway	Pw Dumfries Road On Ramp		
338	3	5	2	1	0	0	1	0	0	0	0	0	0	1	2	0	0	Village Drive	Dumfries Road		
343	3	5	2	0	0	0	1	0	0	0	0	1	1	0	2	0	0	Dumfries Road	Waterway Drive		
347	3	5	2	0	0	0	0	0	0	0	1	0	0	1	2	0	1	Prince William Parkway	Lucasville Road		
349	2	5	2	0	0	0	0	1	0	1	0	0	0	1	1	0	1	Dumfries Road	Wolf Run Lane		
352	3	5	2	0	0	0	1	0	0	0	0	1	0	0	2	0	1	Country Club Drive	Dumfries Road		
375	3	5	2	0	0	0	0	0	0	0	0	1	1	0	2	0	1	Dumfries Road	Counselor Road		
376	3	5	2	0	1	0	0	0	0	0	0	0	0	1	2	0	1	Prince William Parkway	Balls Ford Road		
377	2	5	2	0	0	0	1	1	0	0	0	1	0	0	1	1	0	Orangewood Drive	Dale Boulevard	Trident Lane	
386	2	5	2	0	1	0	0	0	0	0	0	1	0	0	1	1	1	Lomond South Drive	Salem Street		
388	2	5	2	1	0	0	1	0	1	0	0	1	0	0	1	0	0	Liberia Avenue	Euclid Avenue		

392	2	5	2	0	1	0	0	0	0	0	0	1	0	0	1	1	1	Lomond South Drive	Spotsylvania Street		
393	2	5	2	1	0	0	1	0	1	0	0	1	0	0	1	0	0	Liberia Avenue	Richmond Highway		
397	2	5	2	1	1	0	0	0	0	0	0	1	0	0	1	1	0	Lomond Drive	Powhatan Street		
402	2	5	2	0	1	0	0	0	0	0	0	1	0	0	1	1	1	Lomond South Drive	Lomond Drive		
403	2	5	2	0	1	0	0	0	0	0	0	1	0	0	1	1	1	Lomond South Drive	Blackstone Road		
405	2	5	2	0	1	0	0	0	1	0	0	1	1	0	1	0	0	Liberia Avenue	Cannon Ridge Drive		
409	2	5	2	0	1	0	1	0	1	0	0	1	0	0	1	0	0	Liberia Avenue	Oliver Court		
412	2	5	2	0	1	0	1	0	1	0	0	1	0	0	1	0	0	Liberia Avenue	Caribou Lane		
413	2	5	2	1	1	0	0	0	0	0	0	1	0	0	1	1	0	Lomond Drive	Clifton Street		
419	2	5	2	1	0	0	0	0	1	0	0	1	1	0	1	0	0	Fairview Avenue	Signal Hill Road		
424	2	5	2	1	0	0	0	0	1	0	0	1	0	0	1	0	1	Center Street	Fairview Avenue		
429	2	5	2	1	0	0	0	0	1	0	0	1	1	0	1	0	0	Prescott Avenue	Cherry Street		
452	2	5	2	0	0	0	0	0	1	1	0	1	0	0	1	0	1	Grant Avenue	Beauregard Avenue		
454	2	5	2	0	0	0	0	0	1	1	0	1	0	0	1	0	1	Grant Avenue	Portner Avenue		
463	3	5	2	1	0	0	1	1	0	0	0	0	0	0	2	0	0	Ashdale Circle	Dale Boulevard		
477	2	5	2	1	0	1	0	1	0	1	0	0	0	0	1	0	0	Centreville Road	Brooks Lane		
485	2	5	2	1	0	1	0	1	0	1	0	0	0	0	1	0	0	Centreville Road	Oak Lane		
494	2	5	2	1	1	0	0	0	1	0	0	1	0	0	1	0	0	Center Street	Wellington Road		
495	2	5	2	0	0	0	0	0	1	1	1	0	1	0	1	0	0	Nokesville Road	Godwin Drive		
496	3	5	2	1	0	0	0	0	0	1	1	0	0	0	2	0	0	Bristow Village Boulevard	Nokesville Road	Vint Hill Road	
507	2	5	2	1	0	0	1	0	1	0	0	1	0	0	1	0	0	South Grant Avenue	Hastings Drive		
509	2	5	2	0	0	0	1	0	1	0	0	0	2	0	1	0	0	Hastings Drive	Lucasville Road		
511	2	5	2	1	0	0	1	0	1	0	0	1	0	0	1	0	0	Hastings Drive	Waterbury Court	Foxborough Court	
515	2	5	2	1	0	0	1	0	1	0	0	1	0	0	1	0	0	Hastings Drive	Janja Court		
516	3	5	2	1	0	0	1	1	0	0	0	0	0	0	2	0	0	Richmond Highway	Pine Bluff Drive		
542	3	5	2	0	0	0	1	0	0	0	0	1	0	0	2	0	1	Troupe Street	Old Bridge Road		
544	2	5	2	1	0	0	1	0	1	0	0	1	0	0	1	0	0	Main Street	Hedgeman Street		
553	3	5	2	0	0	0	1	0	0	0	0	0	1	0	2	0	1	Old Bridge Road	Rockwood Lane	Westridge Drive	
555	2	5	2	0	0	0	1	0	0	0	0	1	2	0	1	0	0	Forest Grove Drive	Rippon Boulevard		
559	2	5	2	0	0	0	1	1	0	0	0	1	0	0	1	0	1	Kirkdale Drive	Dale Boulevard		
562	3	5	2	0	0	0	1	1	0	0	0	1	0	0	2	0	0	Dale Boulevard	Ridgefield Road		
571	3	5	2	0	0	0	1	0	0	0	0	1	0	0	2	1	0	Lutz Court	Shotwell Court		
572	3	5	2	0	0	0	1	0	0	0	0	1	0	0	2	1	0	Shotwell Court	Cardinal Drive	Waterway Drive	
573	3	5	2	0	0	0	1	0	0	0	0	1	0	0	2	1	0	Spring Branch Boulevard	Waterway Drive		
575	3	5	2	0	0	0	0	1	0	0	1	0	0	1	2	0	0	Heathcote Boulevard	Lee Highway		
578	2	5	2	0	0	0	0	0	0	0	0	1	0	1	1	1	1	Hoadly Road	Independence Drive	Bradford Lane	
580	2	5	2	0	0	0	0	0	1	1	1	0	0	0	1	0	1	Godwin Drive	Colonel Court	Gateway Court	
581	2	5	2	0	0	0	1	1	0	1	0	0	0	0	1	0	1	Apollo Drive	Hoadly Road		
589	2	5	2	1	1	0	0	0	1	0	0	1	0	0	1	0	0	Wellington Road	Amaryllis Avenue	Berkshire Street	
590	3	5	2	0	0	0	1	0	0	0	0	0	1	0	2	0	1	Titania Way	Old Bridge Road	Touchstone Circle	
592	2	5	2	0	0	0	1	0	1	0	0	1	0	0	1	0	1	Church Street	West Street		
599	3	5	2	0	0	0	1	1	0	0	0	0	0	0	2	0	1	Potomac Center Boulevard	Bridge View Drive		
600	3	5	2	1	1	0	0	0	0	0	0	1	0	0	2	0	0	Colchester Road	Walnut Street		
604	3	5	2	0	0	0	0	1	0	0	1	0	0	1	2	0	0	Pageland Lane	Lee Highway		
605	3	5	2	0	0	0	0	0	1	0	0	0	1	1	2	0	0	Poplar Street	Mill Street	Gordon Boulevard	
607	2	5	2	1	0	0	1	0	0	0	0	1	0	0	1	0	1	Richmond Highway	Diamondleaf Oak Drive		
614	3	5	2	0	0	0	1	0	0	0	0	0	1	0	2	0	1	Richmond Highway	Celestial Drive	American Eagle Boulevard	
618	3	5	2	1	0	0	1	1	0	0	0	0	0	0	2	0	0	Richmond Highway	Wayside Drive		
626	3	5	2	1	0	0	1	0	0	0	0	1	0	0	2	0	0	Colby Drive	Marline Court		
635	2	5	2	1	0	0	1	0	1	0	0	1	0	0	1	0	0	Main Street	Colonial Street		
636	2	5	2	1	0	0	1	0	1	0	0	1	0	0	1	0	0	Main Street	Duke Street		
645	2	5	2	0	0	0	1	0	1	0	0	1	0	0	1	0	1	Church Street	East Street		
646	2	5	2	0	0	0	1	0	1	0	0	1	0	0	1	0	1	Centreville Road	Church Street		
647	2	5	2	0	0	0	1	0	1	0	0	1	0	0	1	0	1	Church Street	Battle Court		
655	2	5	2	1	0	0	1	0	1	0	0	1	0	0	1	0	0	Main Street	Liberty Street		
658	2	5	2	0	0	0	0	0	1	1	1	0	0	0	1	0	1	Godwin Drive	Business Center Court		
666	2	5	2	0	0	0	0	1	1	0	1	0	0	1	1	0	0	Wellington Road	Godwin Drive		
667	2	5	2	1	0	0	0	0	1	0	0	1	1	0	1	0	0	Wellington Road	South Clark Place		
668	2	5	2	1	1	0	0	0	1	0	0	1	0	0	1	0	0	Wellington Road	Prince William Parkway		
669	2	5	2	1	1	0	0	0	1	0	0	1	0	0	1	0	0	Wellington Road	Wellington Road W On Ramp		
673	2	5	2	0	0	0	0	0	1	1	1	0	0	0	1	0	1	Godwin Drive	Godwin Court		
678	2	5	2	1	0	0	1	0	1	0	0	1	0	0	1	0	0	Main Street	Washington Street		
682	3	5	2	0	0	0	1	0	0	0	0	1	0	0	2	0	1	Old Bridge Road	All Saints Place	Cavalier Drive	
684	3	5	2	0	0	0	1	0	0	0	0	1	0	0	2	0	1	Old Bridge Road	Greenhouse View Lane		
685	3	5	2	0	0	0	0	0	0	0	1	0	1	1	2	0	0	Hoadly Road	Kahns Road		
692	2	5	2	1	1	0	1	0	0	0	0	0	0	0	1	0	1	Brady Lane	Balls Ford Road	Doane Drive	
694	2	5	2	1	1	0	0	1	0	0	0	0	0	0	1	0	1	Irongate Way	Sudley Road		
698	2	5	2	0	0	0	1	0	0	0	0	1	1	0	1	1	0	Redwing Drive	Cardinal Drive		
699	3	5	2	0	0	0	0	0	0	0	1	1	0	0	2	0	1	James Madison Highway	Snowhill Farm Lane	Waverly Farm Drive	
709	2	5	2	1	1	0	0	1	0	0	1	0	0	0	1	0	0	Balls Ford Road	Old Compton Road	Bethlehem Road	
719	2	5	2	0	0	0	1	1	0	1	1	0	0	0	1	0	0	Minnieville Road	Green Ash Loop		
722	2	5	2	1	0	1	0	1	0	1	0	0	0	0	1	0	0	Centreville Road	Rugby Road		
723	2	5	2	1	0	1	0	1	0	1	0	0	0	0	1	0	0	Centreville Road	Rugby Road		
729	2	5	2	1	0	0	1	1	0	0	0	0	0	0	1	0	1	Prince William Parkway	Ridgewood Center Drive		
732	2	5	2	1	0	0	1	1	0	0	0	0	0	0	1	0	1	Prince William Parkway	Black Forest		
733	2	5	2	1	0	0	1	1	0	0	0	0	0	0	1	0	1	Prince William Parkway	Black Forest	Reids Prospect Drive	
743	2	5	2	1	0	0	0	0	1	0	0	1	0	0	1	0	1	Center Street	Zebedee Street		
747	2	5	2	0	0	0	0	1	0	1	1	0	0	1	1	0	0	Dumfries Road	Godwin Drive		
756	2	5	2	1	0	0	1	0	1	0	0	1	0	0	1	0	0	Hastings Drive	Wimbledon Court	Racquet Circle	
757	2	5	2	1	0	0	1	0	1	0	0	1	0	0	1	0	0	Hastings Drive	Forest Hill Circle	Racquet Circle	
760	2	5	2	1	0	0	0	0	1	0	0	1	1	0	1	0	0	Fairview Avenue	Tudor Lane		
761	2	5	2	1	0	0	1	0	0	0	0	1	1	0	1	0	0	Blackburn Road	Rippon Boulevard		
762	3	5	2	0	0	0	1	1	0	0	0	1	0	0	2	0	0	Lindendale Road	Quate Lane	Dale Boulevard	
767	3	5	2	0	0	0	1	0	0	0	0	1	0	0	2	1	0	Nottingdale Drive	Nickleson Drive		
772	2	5	2	0	0	0	1	0	0	0	0	1	1	0	1	0	1	Oakwood Drive	Old Bridge Road		
773	3	5	2	0	0	0	1	0	0	0	0	1	0	0	2	0	1	Oakwood Drive	Old Bridge Road		
4	2	4	3	1	0	0	0	0	1	0	0	1	0	0	1	0	0	Quarry Road	Prescott Avenue		
5	2	4	3	0	0	0	0	0	1	0	0	1	0	0	1	0	1	Quarry Road	Zebedee Street		
6	2	4	3	0	0	0	0	0	1	0	0	1	0	0	1	0	1	Quarry Road	Fairview Avenue		
7	2	4	3	0	0	0	0	0	1	0	0	1	0	0	1	0	1	Centreville Road	Quarry Road		
14	2	4	3	0	0	0	0	0	0	0	1	0	0	1	1	0	1	Hansen Farm Road	Albertstone Circle		
16	2	4	3	1	0	0	0	0	0	1	1	0	0	0	1	0	0	Infantry Lane	Nokesville Road		
20	2	4	3	0	0	0	1	1	0	0	0	1	0	0	1	0	0	Keytone Road	Dale Boulevard		
29	3	4	3	0	0	0	0	0	0	1	0	0	0	0	2	0	1	Sudley Manor Drive	Victory Lakes Loop	Sanctuary Way	
34	2	4	3	0	0	0	0	0	0	0	1	0	0	1	1	0	1	Merrifield Garden Way	Hansen Farm Road		

36	2	4	3	0	0	0	1	0	1	0	0	1	0	0	1	0	0	Main Street	White Haven Drive		
41	2	4	3	0	1	0	0	0	1	0	0	1	0	0	1	0	0	Liberia Avenue	Cavalry Lane	Terrace View Court	
53	2	4	3	1	0	0	1	0	1	0	0	0	0	0	1	0	0	Hastings Drive	Market Street		
58	2	4	3	0	0	0	1	0	1	1	0	0	0	0	1	0	0	Sudley Road	Early Street		
61	3	4	3	0	0	0	1	0	0	0	0	0	0	0	2	0	1	Port Potomac Avenue	Richmond Highway		
62	2	4	3	0	0	0	0	1	0	0	1	0	0	1	1	0	0	Pw Prince William Off Ramp	Dumfries Road Pwc Off Ramp		
63	3	4	3	0	0	0	0	1	0	1	0	0	0	0	2	0	0	Lee Highway E Off Ramp	Linton Hall Road		
75	2	4	3	1	0	0	0	0	1	0	0	1	0	0	1	0	0	Wellington Road	Hutchison Lane		
80	3	4	3	1	0	0	0	0	0	0	1	0	0	0	2	0	0	Linton Hall Road	Bristow Center Drive		
89	2	4	3	1	0	0	0	0	0	0	1	0	0	0	1	0	1	Linton Hall Road	Open Meadow Lane		
90	3	4	3	1	0	0	0	0	0	0	1	0	0	0	2	0	0	Nokesville Road	Bristow Road		
97	3	4	3	0	0	0	0	1	0	1	0	0	0	0	2	0	0	Linton Hall Road	Whitney Road		
100	2	4	3	0	0	0	0	0	0	0	0	1	1	0	1	0	1	Linton Hall Road	Bridlewood Drive		
113	2	4	3	1	0	0	1	0	1	0	0	0	0	0	1	0	0	Dumfries Road	Manassas Mill Road		
123	2	4	3	0	0	0	1	0	1	0	0	1	0	0	1	0	0	Main Street	Lansing Court		
124	3	4	3	0	0	0	0	0	0	0	1	0	0	1	2	0	0	Coles Drive	Collinreid Court		
132	2	4	3	0	1	0	0	0	0	0	0	0	0	1	1	0	1	Brady Lane	Merritt Park Drive		
136	2	4	3	0	1	0	0	0	1	0	0	1	0	0	1	0	0	Liberia Avenue	Fairfax Street		
139	3	4	3	0	0	0	0	0	0	0	0	0	1	0	2	0	1	Old Carolina Road	James Madison Highway	Stepping Stone Drive	
162	3	4	3	0	0	0	0	0	0	0	1	0	0	1	2	0	0	Coles Drive	Mercury Avenue		
166	3	4	3	0	0	0	0	1	0	0	0	0	1	0	2	0	0	Dane Ridge Circle	Minnieville Road		
179	2	4	3	0	0	0	0	0	0	0	0	1	1	0	1	0	1	Falling Water Drive	Sudley Manor Drive		
180	2	4	3	0	0	0	0	0	0	0	0	1	0	0	1	1	1	Sudley Manor Drive	Carnoch Way	Darnick Court	
185	3	4	3	0	0	0	0	0	0	0	1	0	0	0	2	0	1	Wellington Road	Sudley Manor Drive		
206	2	4	3	1	0	0	0	0	1	0	0	1	0	0	1	0	0	Hastings Drive	Woodmont Court	Westwood Court	
223	2	4	3	0	0	0	0	0	1	0	0	1	1	0	1	0	0	Hastings Drive	Cloverhill Road		
224	2	4	3	1	0	0	0	0	1	0	0	1	0	0	1	0	0	Fairview Avenue	Wesley Avenue		
225	2	4	3	1	0	0	0	0	1	0	0	1	0	0	1	0	0	Wellington Road	Ellicott Lane		
242	3	4	3	0	0	0	1	0	0	0	0	0	0	0	2	0	1	Tassia Lane	Cardinal Drive	Donald Curtis Drive	
243	2	4	3	0	0	0	1	0	0	0	0	1	0	0	1	1	0	Knickerbocker Drive	Cardinal Drive	Dyers Road	
281	2	4	3	1	0	0	0	0	1	0	0	1	0	0	1	0	0	Dumfries Road	Milic Street	Donner Drive	
286	3	4	3	0	0	0	1	0	0	0	0	1	0	0	2	0	0	Benita Fitzgerald Drive	Cardinal Drive		
287	2	4	3	0	0	0	0	0	0	0	0	1	0	1	1	0	1	Tayloe Drive	Dumfries Road		
288	3	4	3	0	0	0	0	1	0	0	0	0	0	1	2	0	0	Prince William Parkway	Dumfries Road		
291	3	4	3	0	0	0	0	0	0	0	0	0	1	1	2	0	0	Prince William Parkway	Yates Ford Road		
292	3	4	3	0	0	0	0	0	0	0	0	0	1	1	2	0	0	Prince William Parkway	Crooked Knoll Way	Shallow Point Way	
295	3	4	3	0	0	0	0	0	0	1	0	0	0	1	2	0	0	Prince William Parkway	Fingerlake Way	Coloriver Road	
319	2	4	3	1	0	0	1	0	1	0	0	0	0	0	1	0	0	Main Street	Graham Court		
320	3	4	3	0	0	0	1	0	0	0	0	0	0	0	2	0	1	Cornice Place	Cricket Lane		
323	2	4	3	0	0	0	1	0	1	0	0	0	1	0	1	0	0	Manassas Drive	Andrew	Signal View Drive	
326	2	4	3	0	0	0	1	0	1	0	0	1	0	0	1	0	0	Manassas Drive	Walkers Station Drive	Railroad Avenue	
327	2	4	3	0	0	0	1	0	1	1	0	0	0	0	1	0	0	Manassas Drive	Overhill Drive		
331	3	4	3	1	0	0	1	0	0	0	0	0	0	0	2	0	0	River Ridge Boulevard	River Heritage Boulevard		
335	2	4	3	0	0	0	1	0	0	0	0	1	0	0	1	0	1	Dumfries Road	Prince William Forest Rv Campground		
340	2	4	3	1	0	0	1	1	0	0	0	0	0	0	1	0	0	Dumfries Road	Interstate Drive		
351	2	4	3	0	0	0	0	1	0	1	0	0	1	0	1	0	0	Dumfries Road	Talon Drive		
357	2	4	3	0	0	0	1	1	0	0	0	0	0	0	1	0	1	Sudley Road	Private Exit		
359	2	4	3	0	0	0	1	0	0	0	0	1	0	0	1	0	1	Dumfries Road	Pleasant Road		
365	2	4	3	0	0	0	1	0	0	0	0	0	0	1	1	0	1	Sudley Road	Campus Drive		
370	2	4	3	0	0	0	0	1	0	1	1	0	0	0	1	0	0	Colchester Park Drive	Dumfries Road		
380	2	4	3	1	0	0	0	0	1	0	0	1	0	0	1	0	0	Wellington Road	Garden Street		
382	2	4	3	1	0	0	0	0	1	0	0	0	0	1	1	0	0	Hastings Drive	Long Hill Court	Nantucket Court	
387	2	4	3	0	1	0	0	0	1	0	0	1	0	0	1	0	0	Liberia Avenue	Kirby Street		
401	2	4	3	0	1	0	0	0	1	0	0	1	0	0	1	0	0	Liberia Avenue	Traveller Street		
407	2	4	3	0	1	0	0	0	1	0	0	0	1	0	1	0	0	Liberia Avenue	Stonewall Road		
414	2	4	3	0	1	0	0	0	1	0	0	0	0	0	1	0	1	Liberia Avenue	Bayberry Avenue		
417	2	4	3	1	1	0	1	0	0	0	0	0	0	0	1	0	0	Balls Ford Road	Notes Drive	Century Park Drive	
422	3	4	3	0	0	0	0	0	0	0	0	1	0	0	2	0	1	Rehfield Court	Riverside Drive		
423	3	4	3	0	0	0	0	0	0	0	0	1	0	0	2	0	1	Spriggs Road	Riverside Drive		
427	2	4	3	1	0	0	0	0	1	0	0	1	0	0	1	0	0	Prescott Avenue	Church Street		
431	2	4	3	1	0	0	0	0	1	0	0	1	0	0	1	0	0	Center Street	Maple Street		
434	2	4	3	1	0	0	1	0	1	0	0	0	0	0	1	0	0	Dumfries Road	Hastings Drive		
444	2	4	3	1	0	0	1	0	1	0	0	0	0	0	1	0	0	Orchard Drive	Dumfries Road		
445	2	4	3	1	0	0	1	0	1	0	0	0	0	0	1	0	0	Winterset Drive	Dumfries Road		
464	2	4	3	0	0	0	1	1	0	0	0	0	1	0	1	0	0	Opal Lane	Dale Boulevard	Tango Lane	
471	2	4	3	1	0	0	1	0	1	0	0	0	0	0	1	0	0	Centreville Road	Reb Yank Drive		
480	3	4	3	1	0	0	0	0	0	0	1	0	0	0	2	0	0	Nokesville Road	Battalion Square		
490	2	4	3	0	0	0	0	0	1	0	0	1	0	0	1	0	1	Church Street	Zebedee Street		
491	2	4	3	0	0	0	0	0	0	1	1	0	0	1	1	0	0	Nokesville Road	Fitzwater Drive		
492	2	4	3	0	0	0	0	0	1	1	1	0	0	0	1	0	0	Pw W Nokesville E Off Ramp	Nokesville Road		
498	2	4	3	1	0	0	1	0	1	0	0	0	0	0	1	0	0	Centreville Road	Commerce Court		
505	2	4	3	1	0	0	1	0	1	0	0	0	0	0	1	0	0	Hastings Drive	Browning Court		
508	2	4	3	1	0	0	1	0	1	0	0	0	0	0	1	0	0	Hastings Drive	7Th Regiment Drive		
510	2	4	3	0	0	0	0	0	1	0	1	1	0	0	1	0	0	Hastings Drive	Shannon Lane		
512	2	4	3	0	0	0	0	0	1	0	1	1	0	0	1	0	0	Hastings Drive	Godwin Drive		
523	3	4	3	0	1	0	0	0	0	0	0	0	0	1	2	0	0	Brady Lane	Cushing Road		
547	3	4	3	0	0	0	0	1	0	0	0	0	0	0	2	0	1	John Marshall Highway	Trading Square	John James Way	
563	3	4	3	0	0	0	1	1	0	0	0	0	0	0	2	0	0	Dale Boulevard	Mapledale Avenue	Queensdale Drive	
577	3	4	3	0	0	0	0	0	0	0	0	1	0	0	2	0	1	Laurianne Terrace	Peggys Court	Katie Lynn Court	
591	2	4	3	1	1	0	1	0	0	0	0	0	0	0	1	0	0	Balls Ford Road	Mason King Court		
595	2	4	3	0	0	0	1	0	0	0	0	1	0	0	1	1	0	George Frye Circle	Cardinal Drive		
649	3	4	3	0	0	0	0	0	0	1	0	0	0	0	2	0	1	Old Linton Hall Road	Erie Court		
653	3	4	3	0	0	0	1	0	0	0	0	1	0	0	2	0	0	Old Bridge Road	Elysian Drive		
654	3	4	3	0	0	0	0	0	0	0	1	0	0	1	2	0	0	Hoadly Road	Spriggs Road	Chaddsford Terrace	
656	2	4	3	1	0	0	0	0	1	0	0	1	0	0	1	0	0	Wellington Road	Fairview Avenue		
657	2	4	3	0	0	0	0	0	0	1	1	0	0	1	1	0	0	Fitzwater Drive	Minute Lane		
660	2	4	3	1	0	0	1	0	1	0	0	0	0	0	1	0	0	Main Street	Canal Road		
664	2	4	3	0	0	0	1	0	0	0	0	1	0	0	1	1	0	Greenmount Drive	Cardinal Drive		
676	2	4	3	0	0	0	1	0	1	0	0	1	0	0	1	0	0	Main Street	Acts Lane		
690	2	4	3	1	0	0	0	0	1	0	0	1	0	0	1	0	0	Fairview Avenue	Richmond Highway		
691	3	4	3	0	0	0	1	0	0	0	0	0	1	0	2	0	0	Rolling Brook Drive	Old Bridge Road		
695	2	4	3	1	0	0	1	0	1	0	0	0	0	0	1	0	0	Dumfries Road	Barrington Park Circle		
696	2	4	3	1	0	0	1	0	1	0	0	0	0	0	1	0	0	Dumfries Road	Barrington Park Circle		
700	3	4	3	0	0	0	0	0	0	0	0	1	1	0	2	0	0	Lightner Road	James Madison Highway		
705	3	4	3	0	0	0	0	0	0	0	0	1	0	0	2	1	0	Dochart Sound Lane	Rannoch Forest Circle		

711	3	4	3	0	0	0	0	0	0	0	1	0	0	1	2	0	0	Dumfries Road	Lake Jackson Drive	Coles Drive	
717	3	4	3	0	0	0	0	0	0	0	0	1	1	0	2	0	0	Spriggs Road	Minnieville Road		
736	3	4	3	0	0	0	0	0	0	0	0	0	1	0	2	0	1	Dumfries Road	Purcell Road		
740	2	4	3	0	0	0	1	0	0	0	0	0	1	0	1	0	1	Fortuna Center Plaza	Dumfries Road		
742	2	4	3	1	0	0	0	0	1	0	0	1	0	0	1	0	0	Centreville Road	Sudley Road	Prescott Avenue	
750	2	4	3	0	0	0	0	0	1	0	0	1	0	0	1	0	1	Centreville Road	Zebedee Street		
754	2	4	3	0	0	0	0	0	1	0	0	1	0	0	1	0	1	Centreville Road	Maple Street		
755	2	4	3	0	0	0	0	0	1	0	0	1	0	0	1	0	1	Centreville Road	Maple Street		
758	2	4	3	0	0	0	0	0	1	0	1	1	0	0	1	0	0	Hastings Drive	Battlefield Drive		
763	3	4	3	0	0	0	1	1	0	0	0	0	0	0	2	0	0	Dale Boulevard	Hoadly Road		
766	3	4	3	0	0	0	1	1	0	0	0	0	0	0	2	0	0	Heritage Village Plaza	Heritage Hunt Drive	Heathcote Boulevard	
1	2	3	3	0	1	0	0	0	1	0	0	0	0	0	1	0	0	Liberia Avenue	Ivy Glen Court		
2	2	3	3	0	1	0	0	0	1	0	0	0	0	0	1	0	0	Liberia Avenue	Inkberry Court		
21	2	3	3	0	0	0	1	0	0	0	0	1	0	0	1	0	0	Luca Station Way	Old Bridge Road		
37	2	3	3	0	1	0	0	0	1	0	0	0	0	0	1	0	0	Liberia Avenue	Thornwood Lane		
44	2	3	3	0	0	0	0	0	0	1	0	0	0	0	1	0	1	Linton Hall Road	Loma Drive		
48	2	3	3	0	0	0	0	0	0	0	0	1	0	0	1	0	1	Devlin Road	Jennell Drive		
51	2	3	3	0	0	0	1	0	0	0	0	1	0	0	1	0	0	Choate Court	Cardinal Drive		
56	2	3	3	0	0	0	1	0	0	0	0	0	0	0	1	0	1	Richmond Highway	Helmsman Lane		
64	3	3	3	0	0	0	0	0	0	1	0	0	0	0	2	0	0	Lee Hy E Off Ramp	Lee Highway E Off Ramp		
69	2	3	3	0	0	0	1	0	0	0	0	0	0	0	1	0	1	Silent Tree Place	Cardinal Drive		
70	3	3	3	0	0	0	0	0	1	0	0	0	0	0	2	0	0	Gordon Boulevard	Commerce Court		
71	3	3	3	0	0	0	0	0	1	0	0	0	0	0	2	0	0	Gordon Boulevard	Commerce Court		
81	2	3	3	0	0	0	0	0	0	1	0	0	0	1	1	0	0	James Madison Highway	Logmill Road		
88	2	3	3	0	0	0	0	0	0	0	0	1	0	0	1	0	1	Linton Hall Road	Harness Shop Road		
91	2	3	3	1	0	0	0	0	0	0	1	0	0	0	1	0	0	Linton Hall Road	Rain Slicker Place		
94	3	3	3	0	0	0	0	0	0	0	0	1	0	0	2	0	0	Linton Hall Road	Worthington Drive		
109	2	3	3	0	0	0	1	1	0	0	0	0	0	0	1	0	0	Hoadly Road	Hoadly Run Road		
120	3	3	3	0	0	0	0	1	0	0	0	0	0	0	2	0	0	Minnieville Road	Estate Drive		
134	3	3	3	0	0	0	0	0	0	0	0	0	0	1	2	0	0	Prince William Parkway	Winding Brook Court		
137	2	3	3	0	0	0	0	0	0	0	1	0	0	1	1	0	0	Sudley Road	Gum Spring Road		
140	2	3	3	0	0	0	0	0	0	0	1	0	0	1	1	0	0	James Madison Highway	Waterfall Road	Sudley Road	
142	2	3	3	0	0	0	0	0	0	0	0	1	0	0	1	0	1	Gates Mill Drive	James Madison Highway		
161	2	3	3	0	0	0	1	0	1	0	0	0	0	0	1	0	0	Hastings Drive	Hendley Road	Magnolia Grove Drive	
168	2	3	3	0	0	0	0	0	0	0	0	1	0	0	1	0	1	Raging Water Drive	Sudley Manor Drive	Edmonston Drive	
169	3	3	3	0	0	0	0	0	0	0	1	0	0	0	2	0	0	University Boulevard	Sudley Manor Drive		
171	3	3	3	0	0	0	0	0	0	0	0	0	1	0	2	0	0	Braemar Village Plaza	Sudley Manor Drive	Merrimont Trace Circle	
173	2	3	3	0	0	0	0	0	0	0	0	1	0	0	1	1	0	Sudley Manor Drive	Orland Stone Drive	Noltland Castle Drive	
174	2	3	3	0	0	0	0	0	0	1	0	0	0	0	1	0	1	Sudley Manor Drive	Braemar Village Plaza	Devlins Grove Place	
177	2	3	3	0	0	0	0	0	0	0	0	1	0	0	1	0	1	Lake Baldwin Drive	Sudley Manor Drive		
184	2	3	3	0	0	0	0	0	0	0	0	1	0	0	1	1	0	Gentle Shade Drive	Sudley Manor Drive		
190	3	3	3	0	0	0	0	0	0	0	0	0	0	1	2	0	0	Yates Ford Road	Davis Ford Road	Evans Ford Road	
194	2	3	3	0	0	0	0	0	0	1	0	1	0	0	1	0	0	Devlin Road	University Boulevard		
252	3	3	3	0	0	0	1	0	0	0	0	0	0	0	2	0	0	Tacketts Mill Drive	Minnieville Road		
260	2	3	3	0	0	0	0	0	0	0	0	1	1	0	1	0	0	Minnieville Road	Harvest Moon		
263	3	3	3	0	0	0	0	0	0	0	0	0	1	0	2	0	0	Minnieville Road	Courtlandt Heights Road		
269	3	3	3	0	0	0	0	1	0	0	0	0	0	0	2	0	0	Cardinal Drive	Minnieville Road	Estate Drive	
276	2	3	3	0	0	0	0	0	1	0	0	0	0	0	1	0	1	Sudley Road	Main Street		
282	2	3	3	0	0	0	0	0	0	0	1	0	0	1	1	0	0	West Russell Road	Cid 15300008060		
315	3	3	3	0	0	0	0	0	0	0	0	0	0	1	2	0	0	Prince William Parkway	Scenic Pointe Place		
324	2	3	3	0	0	0	1	0	1	0	0	0	0	0	1	0	0	Manassas Drive	Digital Drive		
333	3	3	3	0	0	0	0	0	1	0	0	0	0	0	2	0	0	Jefferson Street	Washington Street		
342	2	3	3	0	0	0	0	0	0	0	0	1	0	1	1	0	0	Dumfries Road	Meadowgate Drive		
345	2	3	3	0	0	0	1	0	0	0	0	0	0	0	1	0	1	Stockbridge Drive	Dumfries Road		
350	2	3	3	0	0	0	0	0	0	0	0	1	0	1	1	0	0	Dumfries Road	Purcell Branch Court		
355	3	3	3	0	0	0	0	0	0	0	0	1	0	0	2	0	0	Dumfries Road	Warm Springs Lane		
360	2	3	3	0	0	0	0	0	0	0	0	0	0	1	1	0	1	Pinnacle Ridge Drive	Dumfries Road	Cobb Court	
361	2	3	3	0	0	0	0	0	0	0	0	1	0	0	1	0	1	Pebblewood Street	Dumfries Road		
362	2	3	3	0	0	0	0	0	0	0	0	1	0	1	1	0	0	Eclipse Drive	Dumfries Road		
369	2	3	3	0	0	0	0	0	0	0	0	0	0	1	1	0	1	Sudley Road	Lee Highway		
372	2	3	3	0	0	0	0	0	0	0	0	0	0	1	1	0	1	Falling Creek Drive	Dumfries Road		
390	2	3	3	0	1	0	0	0	1	0	0	0	0	0	1	0	0	Liberia Avenue	Willow Glen Court		
391	2	3	3	0	1	0	0	0	1	0	0	0	0	0	1	0	0	Liberia Avenue	Fernwood Court		
396	2	3	3	0	1	0	0	0	1	0	0	0	0	0	1	0	0	Liberia Avenue	Willowbrook Court		
398	2	3	3	0	1	0	0	0	1	0	0	0	0	0	1	0	0	Liberia Avenue	Landgreen Street		
400	2	3	3	0	1	0	0	0	1	0	0	0	0	0	1	0	0	Liberia Avenue	Piney Point Court		
406	2	3	3	0	1	0	0	0	1	0	0	0	0	0	1	0	0	Liberia Avenue	Buckeye Court		
418	2	3	3	0	0	0	1	1	0	0	0	0	0	0	1	0	0	Signal Hill Road	Janet Rose Court		
420	3	3	3	0	0	0	0	0	0	0	0	1	0	0	2	0	0	Signal Hill Road	Linden Wood Road	Signal View Drive	
426	2	3	3	0	0	0	0	0	1	0	0	0	0	0	1	0	1	Sudley Road	Weems Road	Ewell Street	
432	2	3	3	0	0	0	0	0	1	0	0	1	0	0	1	0	0	Wellington Road W On Ramp	Nokesville Road		
439	2	3	3	0	0	0	0	0	1	1	0	0	0	0	1	0	0	Stuart Avenue	Grant Avenue		
450	2	3	3	0	0	0	0	0	1	1	0	0	0	0	1	0	0	Grant Avenue	Robson Drive		
466	3	3	3	0	0	0	0	0	0	0	0	1	0	0	2	0	0	Liberty Hill Court	Spriggs Road		
467	3	3	3	0	0	0	0	0	0	0	0	1	0	0	2	0	0	Spriggs Road	Saint Charles Drive		
468	3	3	3	0	0	0	0	0	0	0	0	1	0	0	2	0	0	Saint Charles Drive	Saffron Lane		
470	2	3	3	0	0	0	0	0	1	0	0	0	0	0	1	0	1	Dean Drive	Nokesville Road		
476	2	3	3	1	0	0	0	0	1	0	0	0	0	0	1	0	0	Centreville Road	Key Commons Court		
481	2	3	3	1	0	0	0	0	1	0	0	0	0	0	1	0	0	Centreville Road	Weir Street		
486	2	3	3	1	0	0	0	0	1	0	0	0	0	0	1	0	0	Centreville Road	Carriage Lane		
499	2	3	3	1	0	0	0	0	0	0	1	0	0	0	1	0	0	Nokesville Road	Bristow Station Drive		
500	2	3	3	0	0	0	0	1	0	0	1	0	0	0	1	0	0	Nokesville Road	Pennsylvania Avenue		
501	2	3	3	0	0	0	0	0	1	0	0	1	0	0	1	0	0	Wellington Road W On Ramp	Nokesville Road		
514	2	3	3	0	0	0	1	0	1	0	0	0	0	0	1	0	0	Hastings Drive	Fountain Circle		
526	2	3	3	0	0	0	0	0	0	1	0	0	0	0	1	0	1	Ashleys Park Lane	Devlin Road		
534	2	3	3	0	0	0	1	0	0	0	0	0	1	0	1	0	0	Swan Way	Cardinal Drive		
543	2	3	3	0	0	0	0	0	0	0	1	0	0	0	1	0	1	Hansen Farm Road	Wellingford Drive		
550	2	3	3	0	0	0	0	0	0	0	0	0	0	1	1	0	1	Buckland Mill Road	Lee Highway		
551	2	3	3	0	0	0	1	1	0	0	0	0	0	0	1	0	0	Dale Boulevard	Trentdale Drive		
554	2	3	3	0	0	0	1	1	0	0	0	0	0	0	1	0	0	Dale Boulevard	Nassau Drive		
561	3	3	3	0	0	0	0	0	0	0	0	1	0	0	2	0	0	Spriggs Road	Fincastle Drive	Forest Park Drive	
565	3	3	3	0	0	0	0	0	0	0	0	1	0	0	2	0	0	Spriggs Road	Holly Forest Drive		
584	2	3	3	0	0	0	0	0	0	0	1	0	0	0	1	0	1	Pw Hansen Farm Off Ramp	Randolph Ridge Lane	Delinski Way	Hansen Farm Road
585	2	3	3	0	0	0	0	0	0	0	1	0	0	0	1	0	1	Wellington Road	Hansen Farm Road		
608	2	3	3	0	0	0	0	0	0	0	1	0	0	1	1	0	0	Richmond Highway	Locust Shade Drive		

617	2	3	3	0	0	0	1	0	0	0	0	0	0	0	1	0	1	Richmond Highway	Crest Drive		
625	2	3	3	0	0	0	0	0	0	0	1	0	0	1	1	0	0	Richmond Highway	West Russell Road		
627	3	3	3	0	0	0	1	0	0	0	0	0	0	0	2	0	0	Colby Drive	Old Bridge Road		
628	2	3	3	0	0	0	1	0	0	0	0	0	0	0	1	0	1	Old Bridge Road	Forest Hill Circle		
633	2	3	3	0	0	0	0	0	0	1	0	0	0	0	1	0	1	Devlin Road	Autumn Glory Lane		
642	3	3	3	0	0	0	0	0	0	0	1	0	0	0	2	0	0	Lee Highway	Webb Drive		
644	2	3	3	0	0	0	1	0	0	0	0	1	0	0	1	0	0	Cardinal Drive	Merrily Way		
648	2	3	3	0	0	0	1	0	0	0	0	0	0	0	1	0	1	Old Bridge Road	Old Bridge Ln		
651	2	3	3	0	0	0	1	0	1	0	0	0	0	0	1	0	0	Main Street	Tebbs Lane		
652	3	3	3	0	0	0	0	0	0	0	1	0	0	0	2	0	0	Lee Highway	Virginia Oaks Drive	Mcgraws Corner Drive	
662	2	3	3	0	0	0	1	0	0	0	0	1	0	0	1	0	0	Bushey Drive	Cardinal Drive	Beau Ridge Drive	
675	2	3	3	0	0	0	1	0	0	0	0	1	0	0	1	0	0	Wood Hollow Drive	Old Bridge Road		
687	2	3	3	0	0	0	0	1	0	0	1	0	0	0	1	0	0	Dumfries Road	Bradley Cemetery Way	Dumfries Road Pw On Ramp	
689	2	3	3	0	0	0	0	0	1	1	0	0	0	0	1	0	0	Sudley Road	Grant Avenue		
697	2	3	3	0	0	0	1	0	0	0	0	0	1	0	1	0	0	Redwing Drive	Cardinal Drive		
710	2	3	3	0	0	0	0	0	0	0	1	0	0	1	1	0	0	Dumfries Road	Smith Lane	Coles Drive	
720	2	3	3	0	0	0	0	0	0	0	1	0	0	1	1	0	0	Richmond Highway	Russel Road		
721	2	3	3	0	0	0	0	0	0	0	1	0	0	1	1	0	0	Richmond Highway	West Russell Road		
725	3	3	3	0	0	0	0	1	0	0	0	0	0	0	2	0	0	Nokesville Road	Piper Lane	Sowder Village Square	
734	3	3	3	0	0	0	0	0	0	1	0	0	0	0	2	0	0	Stonewall Shops Square	Lee Highway	Old Carolina Road	
737	3	3	3	0	0	0	0	0	0	0	0	1	0	0	2	0	0	Spriggs Road	Dumfries Road		
741	3	3	3	0	0	0	1	0	0	0	0	0	0	0	2	0	0	Dumfries Road	Fortuna Center Plaza		
759	2	3	3	0	0	0	0	0	1	0	0	1	0	0	1	0	0	Hastings Drive	Battlefield Drive		
10	2	2	3	0	0	0	0	0	0	0	0	1	0	0	1	0	0	Minnieville Road	Hunter Crest Road		
22	2	2	3	0	0	0	0	0	0	1	0	0	0	0	1	0	0	Lake Manassas Drive	Lee Highway		
24	2	2	3	0	0	0	0	0	0	0	0	1	0	0	1	0	0	Prince William Parkway	Tattersall Drive		
26	2	2	3	0	0	0	0	0	0	0	0	0	0	1	1	0	0	Yates Ford Road	Lowery Court		
27	2	2	3	0	0	0	0	0	0	0	0	0	0	1	1	0	0	Yates Ford Road	Wallwood Drive		
42	2	2	3	0	0	0	0	0	0	0	0	0	0	1	1	0	0	Yates Ford Road	Greystone Road		
54	2	2	3	0	0	0	1	0	0	0	0	0	0	0	1	0	0	Canary Court	Cardinal Drive		
65	2	2	3	0	0	0	0	0	0	0	1	0	0	0	1	0	0	Lee Highway E Off Ramp	Lee Highway		
79	2	2	3	0	0	0	0	0	0	1	0	0	0	0	1	0	0	James Madison Highway	Shady Oak Lane		
84	2	2	3	0	0	0	0	0	0	0	0	0	0	1	1	0	0	Lake Occoquan Drive	Yates Ford Road		
92	2	2	3	0	0	0	0	0	0	0	0	0	0	0	1	0	1	Maple Branch Lane	Linton Hall Road		
103	2	2	3	0	0	0	0	0	0	0	0	1	0	0	1	0	0	Linton Hall Road	Scottish Hunt Lane		
104	2	2	3	0	0	0	0	0	0	1	0	0	0	0	1	0	0	Linton Hall Road	Rilda Place		
107	2	2	3	0	0	0	0	0	0	0	0	1	0	0	1	0	0	Linton Hall Road	Victor Lane		
127	2	2	3	0	0	0	0	0	0	1	0	0	0	0	1	0	0	Hopewells Landing Drive	Lee Highway		
143	3	2	3	0	0	0	0	0	0	0	0	0	0	0	2	0	0	James Madison Highway	Madison Ridge Place		
147	2	2	3	0	0	0	0	0	0	0	1	0	0	0	1	0	0	James Madison Highway	Chimneys West Drive		
149	2	2	3	0	0	0	0	0	0	0	0	0	0	1	1	0	0	James Madison Highway	Loudoun Drive		
150	2	2	3	0	0	0	0	0	0	0	1	0	0	0	1	0	0	James Madison Highway	Thoroughfare Road		
153	3	2	3	0	0	0	0	0	0	0	0	0	0	0	2	0	0	Lee Highway	James Madison Highway	Arrowleaf Turn	
164	2	2	3	0	0	0	0	0	0	0	0	1	0	0	1	0	0	Prince William Parkway	Monocacy Way		
196	3	2	3	0	0	0	0	0	0	0	0	0	0	0	2	0	0	Baltusrol Boulevard	Lee Highway	Somerset Crossing Drive	
203	2	2	3	0	0	0	0	0	0	0	0	1	0	0	1	0	0	Devlin Road	Pike Branch Drive	Fog Light Way	
228	2	2	3	0	0	0	1	0	0	0	0	0	0	0	1	0	0	Bird Haven Way	Cardinal Drive	Bevanwood Drive	
261	3	2	3	0	0	0	0	0	0	0	0	0	0	0	2	0	0	Minnieville Road	General Washington Drive		
265	2	2	3	0	0	0	1	0	0	0	0	0	0	0	1	0	0	Minnieville Road	Tacketts Village Square		
271	2	2	3	0	0	0	0	0	0	0	0	1	0	0	1	0	0	Minnieville Road	Stratford Drive		
299	3	2	3	0	0	0	0	0	0	0	0	0	0	0	2	0	0	Prince William Parkway	Ellis Court		
300	3	2	3	0	0	0	0	0	0	0	0	0	0	0	2	0	0	Prince William Parkway	Larksong Court		
330	2	2	3	0	0	0	0	0	1	0	0	0	0	0	1	0	0	Sudley Road	Mathis Avenue		
348	2	2	3	0	0	0	0	0	0	0	0	0	0	1	1	0	0	Crossbow Drive	Dumfries Road	Landview Drive	
363	2	2	3	0	0	0	0	0	0	0	0	1	0	0	1	0	0	Forest Park Drive	Dumfries Road		
366	2	2	3	0	0	0	0	0	0	0	0	0	0	1	1	0	0	Dumfries Road	Ronald Road		
371	3	2	3	0	0	0	0	0	0	0	0	0	0	0	2	0	0	Carrs Brooke Way	Dumfries Road		
373	2	2	3	0	0	0	0	0	0	0	0	1	0	0	1	0	0	Dumfries Road	Nottingham Drive		
379	2	2	3	0	0	0	1	0	0	0	0	0	0	0	1	0	0	Cardinal Drive	Altomare Trace Way		
381	3	2	3	0	0	0	0	0	0	0	0	0	0	0	2	0	0	Tournament Drive	Dominion Valley Drive		
425	2	2	3	0	0	0	0	0	1	0	0	0	0	0	1	0	0	Sudley Road	Jackson Drive		
428	2	2	3	0	0	0	0	0	1	0	0	0	0	0	1	0	0	Sudley Road	Beauregard Avenue		
430	2	2	3	0	0	0	0	0	1	0	0	0	0	0	1	0	0	Sudley Road	Portner Avenue		
465	2	2	3	0	0	0	0	0	0	0	1	0	0	0	1	0	0	Hoadly Road	Opal Lane		
469	2	2	3	0	0	0	0	0	0	0	1	0	0	0	1	0	0	Nokesville Road	Golf Academy Drive		
483	2	2	3	0	0	0	0	0	0	0	1	0	0	0	1	0	0	Nokesville Road	Chapel Springs Road		
503	2	2	3	0	0	0	1	0	0	0	0	0	0	0	1	0	0	Roseberry Farm Drive	Signal View Drive		
506	2	2	3	0	0	0	0	0	1	0	0	0	0	0	1	0	0	Hastings Drive	Peachwood Drive	River Crest Road	
513	2	2	3	0	0	0	0	0	1	0	0	0	0	0	1	0	0	Hastings Drive	Waterford Drive		
524	2	2	3	0	0	0	0	0	0	0	0	0	0	1	1	0	0	Yates Ford Road	Souza Lane		
528	2	2	3	0	0	0	0	0	0	0	0	0	0	1	1	0	0	Yates Ford Road	Wisakon Trail		
529	2	2	3	0	0	0	0	0	0	0	0	0	0	1	1	0	0	Yates Ford Road	Mount Vernon Drive		
530	2	2	3	0	0	0	0	0	0	0	0	0	0	1	1	0	0	Yates Ford Road	Bear Creek Drive	Chinkapin Drive	
531	2	2	3	0	0	0	0	0	0	0	0	0	0	1	1	0	0	Yates Ford Road	Ethel Court		
532	2	2	3	0	0	0	0	0	0	0	0	0	0	1	1	0	0	Yates Ford Road	Yates Trail		
533	2	2	3	0	0	0	0	0	0	0	0	0	0	1	1	0	0	Yates Ford Road	Bent Tree Lane		
552	2	2	3	0	0	0	1	0	0	0	0	0	0	0	1	0	0	Trentdale Drive	Hoadly Road	Olivewood Drive	
570	2	2	3	0	0	0	0	0	0	0	0	1	0	0	1	0	0	Signal View Drive	Windchase Lane	Grayson Manor Drive	
634	2	2	3	0	0	0	0	0	1	0	0	0	0	0	1	0	0	Wellington Road	Ashton Avenue		
637	2	2	3	0	0	0	1	0	0	0	0	0	0	0	1	0	0	Weldin Drive	Cardinal Drive		
641	3	2	3	0	0	0	0	0	0	0	0	0	0	0	2	0	0	Cardinal Drive	Eastlawn Avenue		
643	2	2	3	0	0	0	0	0	0	1	0	0	0	0	1	0	0	Vint Hill Road	Rollins Ford Road		
661	2	2	3	0	0	0	1	0	0	0	0	0	0	0	1	0	0	Wertz Drive	Cardinal Drive	Hebden Drive	
663	2	2	3	0	0	0	1	0	0	0	0	0	0	0	1	0	0	Perch Branch Way	Cardinal Drive		
665	2	2	3	0	0	0	1	0	0	0	0	0	0	0	1	0	0	Cardinal Drive	Kelley Farm Court		
680	3	2	3	0	0	0	0	0	0	0	0	0	0	0	2	0	0	Lee Highway	Crescent Park Drive		
771	3	2	3	0	0	0	0	0	0	0	0	0	0	0	2	0	0	Eastlawn Avenue	Evansdale Road		
11	2	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	Utterback Lane	James Madison Highway		
46	2	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	Minnieville Road	Alps Drive		
52	2	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	Cardinal Drive	Stockholm Way		
55	2	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	Yolanda Lane	Minnieville Road		
116	2	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	Bobcat Court	Minnieville Road		
126	2	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	Minnieville Road	Steidel		
144	2	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	James Madison Highway	Roland Park Place		
148	2	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	James Madison Highway	Simmons Grove Drive		

151	2	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	James Madison Highway	Bull Run Estates Drive		
152	2	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	Crescent Park Drive	James Madison Highway		
154	2	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	Ingram Drive	James Madison Highway		
183	2	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	Sudley Manor Drive	Dunbarton Drive		
255	2	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	Minnieville Road	Running Cedar Lane	Running Cedar Lane	
259	2	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	Moonbeam Drive	Minnieville Road	January Court	
268	2	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	Statler Drive	Minnieville Road		
306	2	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	Prince William Parkway	Moonglow Court	Hudson Crest Drive	
337	2	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	Dumfries Road	Canova Drive		
339	2	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	Dumfries Road	Sinclair Mill Road		
341	2	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	Dumfries Road	Morningside Drive		
353	2	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	Dumfries Road	Toddsbury Lane		
356	2	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	Dumfries Road	Olympic Drive		
593	2	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	Cardinal Drive	Mendoza Lane		
681	2	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	Tysons Oaks Court	Lee Highway		
735	2	1	3	0	0	0	0	0	0	0	0	0	0	0	1	0	0	Stonewall Shops Square	Lee Highway		

Appendix F

Prince William County
Safety Countermeasures

DRAFT

August 2024

Table of Contents

PRINCE WILLIAM
VIRGINIA

SAFETY COUNTERMEASURES

USER GUIDE

This document represents the safety countermeasures portion of Prince William County's Comprehensive Traffic Safety Action Plan. The intent of this document is to provide candidate safety improvements that are recommended by the County to address safety challenges for a variety of road types and road users.

Each safety countermeasure includes the following:

- Description
- Roadway Type
- Area Type
- Applications (s)
- Approvals
- Sources for documented information

A primary safety focus area and secondary safety focus area is provided for each safety countermeasure.

SAFETY FOCUS AREA
Pedestrians/Bicyclists

SECONDARY SAFETY FOCUS AREA
Vehicles

Many of the countermeasures included in this Chapter have an associated Crash Modification Factor (CMF) as found in the *Federal Highway Administration Crash Modification Factors Clearinghouse*. A CMF is a multiplicative factor that indicates the proportion of crashes that would be expected after implementing a countermeasure. CMFs with a value less than 1.0 indicate an expected decrease in crashes. CMFs greater than 1.0 indicate an expected increase in crashes.

A Crash Reduction Factor (CRF) is another way of representing the expected effect of a countermeasure in terms of the percentage decrease in crashes. A CRF is equal to 100*(1-CMF).

SAFETY BENEFITS
High visibility crosswalks can reduce pedestrian crashes up to
40%

CMF	CRF
0.60	40

An Average Cost icon is provided for each safety countermeasure that corresponds to the following cost thresholds:

$	$$
$0-$5,000	$5,000-$15,000
$$$	**$$$$**
$15,000-$50,000	+$50,000

An Implementation Time icon is provided for each safety countermeasure that corresponds to the following timeline thresholds:

1-3 MONTHS
3-6 MONTHS
6+ MONTHS

An image is included for each safety countermeasure

HIGH VISIBILITY CROSSWALKS

DESCRIPTION[1]

High-visibility crosswalks enhance the safety of a pedestrian crosswalk by making crossings with wide longitudinal lines or a bar pair pattern. Poor lighting conditions, obstructions such as parked cars, and horizontal or vertical roadway curvature can reduce visibility at crosswalks, contributing to safety issues. High-visibility crosswalks use patterns (i.e., bar pairs, continental, ladder) that are visible to both the driver and pedestrian from farther away compared to traditional transverse line crosswalks. They aim to increase awareness of pedestrian crossings.

ROADWAY TYPE

Multi-lane roadways, roundabout approaches, mid-block pedestrian crossings, principal arterials, collectors, residential streets, and two-lane roadways.

AREA TYPE

- VDOT maintained roadways;
- Non-VDOT maintained roadways;
- Uncontrolled roadway approaches above 35 MPH;
- Roundabouts;
- A shared use path crossing an uncontrolled approach above 25 MPH;
- Warranted Pedestrian Hybrid Beacons; and,
- School routes or other locations with high-pedestrian activity.

APPLICATION (S)

High-visibility crosswalks should be considered at all midblock pedestrian crossings and uncontrolled intersections, especially at 3-leg and 4-leg intersections (signalized and unsignalized). Agencies should use materials such as inlay or thermoplastic tape, instead of paint or brick, for highly reflective crosswalk markings.

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

[1]Source: FHWA

SAFETY FOCUS AREA
Pedestrians/Bicyclists

SECONDARY SAFETY FOCUS AREA
Vehicles

SAFETY BENEFITS
High visibility crosswalks can reduce pedestrian crashes up to

40%

CMF	CRF
0.60	40

AVERAGE COST
$ $$ $$$ $$$$

IMPLEMENTATION TIME

For more information on the safety benefits of this countermeasure, please visit CMF Clearinghouse

For more information on implementation details of this countermeasure, please visit VDOT Bicycle and Pedestrian Treatments

RECTANGULAR RAPID FLASHING BEACON (RRFB)

DESCRIPTION[1]

Rectangular Rapid Flashing Beacon (RRFB) enhance pedestrian conspicuity and increase driver awareness at uncontrolled and marked crosswalks. Transportation agencies can install a pedestrian actuated Rectangular Rapid Flashing Beacon (RRFB) to accompany a pedestrian warning sign. RRFBs consist of two, rectangular-shaped yellow indications, each with a light-emitting diode (LED)-array-based light source. RRFBs flash with an alternating high frequency when activated to enhance conspicuity of pedestrians at the crossing to drivers.

ROADWAY TYPE

Multi-lane roadways, roundabout approaches, mid-block pedestrian crossings, principal arterials, collectors, residential streets, two-lane roadways.

AREA TYPE

- VDOT maintained roadways;
- Non-VDOT maintained roadways;
- Uncontrolled roadway approaches above 35 MPH;
- Roundabouts;
- A shared use path crossing an uncontrolled approach above 25 MPH;
- Warranted Pedestrian Hybrid Beacons; and,
- School routes or other locations with high-pedestrian activity.

APPLICATION (S)

RRFP should be considered at all midblock pedestrian crossings and uncontrolled intersections, especially at 3-leg and 4-leg intersections (signalized and unsignalized). RRFBs can also be installed at uncontrolled mid-block roadway approaches with high pedestrian volumes, typically above 20 pedestrians an hour for any one hour and for middle or elementary school routes where 10 pedestrians per hour are expected.

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

[1]Source: FHWA

SAFETY FOCUS AREA
Pedestrians/Bicyclists

SECONDARY SAFETY FOCUS AREA
Intersections

SAFETY BENEFITS
RRFBs can reduce pedestrian crashes up to

47%

CMF	CRF
0.53	47

AVERAGE COST
$ $$ $$$ $$$$

IMPLEMENTATION TIME

For more information on the safety benefits of this countermeasure, please visit CMF Clearinghouse

For more information on implementation details of this countermeasure, please visit VDOT Bicycle and Pedestrian Treatments

PEDESTRIAN HYBRID BEACON (PHB)

DESCRIPTION[1]

The pedestrian hybrid beacon (PHB) is a traffic control device designed to help pedestrians safely cross higher-speed roadways at midblock crossings and uncontrolled intersections. The beacon head consists of two red lenses above a single yellow lens. The lenses remain "dark" until a pedestrian desiring to cross the street pushes the call button to activate the beacon, which then initiates a yellow to red lighting sequence consisting of flashing and steady lights that directs motorists to slow and come to a stop and provides the right-of-way to the pedestrian to safely cross the roadway before going dark again.

ROADWAY TYPE

PHBs are intended for installation at midblock locations but can be installed at intersections. These devices have been successfully used at school crossings, parks, senior centers, and other pedestrian crossings on multilane streets.

AREA TYPE

- VDOT maintained roadways;
- Non-VDOT maintained roadways;
- Uncontrolled mid-block multi-lane roadway approaches with high pedestrian volumes, typically above 20 pedestrians an hour;
- Roadways with more than 9,000 vehicles per day; and,
- Roadways with speeds equal or greater than 40 MPH.

APPLICATION (S)

The PHB is often considered for installation at locations where pedestrians need to cross and vehicle speeds or volumes are high, but traffic signal warrants are not met. These devices have been successfully used at school crossings, parks, senior centers, and other pedestrian crossings on multilane streets. PHBs are typically installed at the side of the road or on mast arms over midblock pedestrian crossings.

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

SAFETY FOCUS AREA

Pedestrians

SECONDARY SAFETY FOCUS AREA

Intersections

SAFETY BENEFITS

PHBs can reduce pedestrian crashes up to

55%

CMF	CRF
0.45	55

AVERAGE COST

$ $$ $$$ **$$$$**

IMPLEMENTATION TIME

For more information on the safety benefits of this countermeasure, please visit [CMF Clearinghouse]

For more information on implementation details of this countermeasure, please visit [VDOT Bicycle and Pedestrian Treatments]

[1]Source: FHWA

PEDESTRIAN MEDIAN REFUGE

DESCRIPTION[1]

A pedestrian median refuge island is a median with a refuge area that is intended to help protect pedestrians who are crossing a multilane road. This countermeasure is sometimes referred to as a crossing island, refuge island, or pedestrian island. The presence of a pedestrian refuge island at a midblock location or intersection allows pedestrians to focus on one direction of traffic at a time as they cross and gives them a place to wait for an adequate gap in oncoming traffic before finishing the second phase of a crossing.

ROADWAY TYPE

Install on multilane pedestrian crossing with prior condition of a One-Stage-At-Grade Crossing.

AREA TYPE

- VDOT maintained roadways;
- Non-VDOT maintained roadways;
- Uncontrolled mid-block crosswalks with multi-lane roadway approaches;
- Where the pavement width from edge-of-travel way to edge-of-travel way exceeds 36 feet;
- Roadways with more than 9,000 vehicles per day;
- Treatment option for uncontrolled pedestrian crossings on 3-lane or 2-lane roads that have high vehicle speeds or volumes; and,
- Roadways with speeds equal or greater than 35 miles per hour.

APPLICATION (S)

The design must accommodate pedestrians with disabilities. Islands should be at least 4 feet wide (preferably 8 feet) and of adequate length to allow the anticipated number of pedestrians to stand and wait for gaps in traffic before crossing. The cut-through must include detectable warnings if island width is at least 6 feet.

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

[1]Source: FHWA

SAFETY FOCUS AREA
Pedestrians

SECONDARY SAFETY FOCUS AREA
Intersections

SAFETY BENEFITS
Pedestrian Median Refuge can reduce pedestrian crashes up to

46%

CMF	CRF
0.54	46

AVERAGE COST
$ **$$** $$$ $$$$

IMPLEMENTATION TIME

For more information on the safety benefits of this countermeasure, please visit [CMF Clearinghouse]

For more information on implementation details of this countermeasure, please visit [VDOT Bicycle and Pedestrian Treatments]

CURB EXTENSIONS

DESCRIPTION[1]

A curb extension, also referred to as bulb-outs, extends the sidewalk or curb line out into the parking lane, which reduces the effective street width. Curb extensions must not extend into travel lanes and should not extend across bicycle lanes.

ROADWAY TYPE

Multi-lane roadways where there is an on-street parking lane and where transit and bicyclists would be traveling outside the curb edge for the length of the street, principal arterials, collectors, residential streets, two-lane roadways

AREA TYPE

- VDOT maintained roadways;
- Non-VDOT maintained roadways;
- Signalized intersections;
- Where mid-block crosswalks are present; and,
- School routes or other locations with high-pedestrian activity.

APPLICATION (S)

Curb extensions are installed on most roadways and intersections where on street parking exists or planned. Typically implemented with a pedestrian crossing, however, can be considered in applications such as curb management, transit stops, and traffic calming. Curb extensions should be avoided at intersections with high heavy vehicle percentages or right-turn volumes. Curb extensions should not extend more than 6 feet from the curb.

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

[1]Source: FHWA

[2]CMF/CRF includes installation of pedestrian crossing (signed and marked with curb ramps and extension). Curb Extensions are not listed in the CMF Clearinghouse.

SAFETY FOCUS AREA

Pedestrians

SECONDARY SAFETY FOCUS AREA

Intersections

SAFETY BENEFITS

Curb extensions can reduce pedestrian crashes up to

37%[2]

CMF	CRF
0.63	37

AVERAGE COST

$ **$$** $$$ $$$$

IMPLEMENTATION TIME

For more information on the safety benefits of this countermeasure, please visit [CMF Clearinghouse]

For more information on implementation details of this countermeasure, please visit [FHWA Safety Countermeasures]

SPEED TABLE

DESCRIPTION[1]

A speed table is a raised area placed across the roadway designed to physically limit the speed at which a vehicle can traverse it. Like a speed hump, it extends across the travel way. Unlike a speed hump, a speed table has a long flat top (typically, 10 feet) to accommodate the entire wheelbase of most passenger cars. The longer longitudinal depth in the direction of travel enables comfortable and safe vehicle operating speeds that are faster than for a speed hump.

ROADWAY TYPE

Speed tables may be used in residential areas on local streets or collector streets.

AREA TYPE

- Speed tables are placed at mid-block typically on a single-lane one-way or two-lane two-way street.

APPLICATION (S)

- Must include warning signs with appropriate pavement markings.
- Generally not appropriate for a primary emergency vehicle route or street that provides access to a hospital or emergency medical services.
- Can create potential drainage problems, impacts snow removal operations, increases noise and maintenance costs - especially with repaving.
- Speed tables should not be applied on streets wider than 50 feet. On two-way streets, speed tables may be applied in both directions.
- Speed tables shall be accompanied by a sign warning drivers (MUTCD W17-1).“
- Appropriate location for a crosswalk; in traffic calming terms, a crosswalk on a speed table is called a raised crosswalk.

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

[1]Source: FHWA

[2]CMF/CRF includes installation of a pedestrian crossing on a raised crosswalk (a crosswalk on a speed table). Speed Tables are not listed in the CMF Clearinghouse.

SAFETY FOCUS AREA

Roadway Corridor

SECONDARY SAFETY FOCUS AREA

Speed Management

SAFETY BENEFITS

Speed tables can reduce pedestrian crashes up to

30%[2]

CMF	CRF
0.70	30

AVERAGE COST

$ **$$** $$$ $$$$

IMPLEMENTATION TIME

For more information on the safety benefits of this countermeasure, please visit [FHWA Toolbox of Countermeasures and Their Potential Effectiveness]

For more information on implementation details of this countermeasure, please visit [FHWA Speed Management Safety]

RAISED MEDIAN ISLAND

DESCRIPTION[1]

Raised concrete or landscaped island constructed in the middle of a roadway to narrow or give the appearance of narrowing vehicle travel lanes and thus reduces driving speeds. These raised islands separate pedestrians from motor vehicles at intersections or mid-block locations.

ROADWAY TYPE

Multi-lane roadways, principal arterials, and on most roadways where pavement width exists to accommodate the existing number of travel lanes and parking.

AREA TYPE

- VDOT maintained roadways;
- Non-VDOT maintained roadways; and,
- Useful on high volume, high speed roads.

APPLICATION (S)

- Raised medians are usually considered on roadways with speeds equal or greater than 45 MPH and volumes over 7,000 vehicles per day.
- Engineering judgement should dictate if a median enhances safety or streetscape.
- Any lane reduction or parking removal should be evaluated by a traffic engineering study in accordance with the VDOT TOSAM.

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

SAFETY FOCUS AREA

Roadway Corridor

SECONDARY SAFETY FOCUS AREA

Pedestrians/Bicyclists

SAFETY BENEFITS

Raised median islands can reduce crashes up to

25%

CMF	CRF
0.75	25

AVERAGE COST

$ $$ $$$ **$$$$**

IMPLEMENTATION TIME

For more information on the safety benefits of this countermeasure, please visit [FHWA Toolbox of Countermeasures and Their Potential Effectiveness]

For more information on implementation details of this countermeasure, please visit [FHWA Speed Management Safety]

[1]Source: Prince William County Legacy Roadway Program

RAISED INTERSECTION

DESCRIPTION[1]

A raised intersection is a flat, raised area covering an entire intersection with ramps on all approaches. It is essentially a speed table that covers an entire intersection, including the crosswalks. The purpose of a raised intersection is to slow vehicle traffic through the intersection and to improve safety for pedestrians. It has the advantage of calming two streets at once.

ROADWAY TYPE

A raised intersection is especially applicable in a dense urban area. Appropriate for the intersection of collector, local, and residential subdivision streets. A typical installation is at an all-way stop-controlled intersection with a large volume of street-crossing pedestrians.

AREA TYPE

- Placed at an intersection;
- Appropriate if there are existing crosswalks on all four legs of the intersection or if crosswalks are warranted;
- Can be a T-intersection or multi-leg intersection;
- Could be acceptable on a low-speed arterial in a downtown business district with significant pedestrian activity; and,
- Maximum speed limit of 30 MPH.

APPLICATION (S)

A raised intersection must follow VDOT's and Prince William County's Residential Guide to Traffic Calming. Other considerations are:

- Only install raised intersections at non signalized intersections.
- Avoid areas with high density of driveways or drainage structures.
- Typically only installed on roadways with speeds less than 25 MPH and volumes less than 4,000 vehicles per day.

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

[1]Source: FHWA Safety Countermeasures

[2]Raised Intersections are not listed in the CMF Clearinghouse.

SAFETY FOCUS AREA

Intersections

SECONDARY SAFETY FOCUS AREA

Pedestrians/Bicyclists

SAFETY BENEFITS[2]

Raised intersections create a safe, slow-speed crossing and public space at minor intersections and reinforce slow speeds to encourage motorists to yield to pedestrians at the crosswalk.

AVERAGE COST

$ $$ $$$ **$$$$**

IMPLEMENTATION TIME

For more information on implementation details of this countermeasure, please visit [NACTO Urban Street Design Guide]

HIGH FRICTION SURFACE TREATMENT (HFST)

DESCRIPTION[1]

High friction surface treatment is a layer of durable, anti-abrasion, and polish-resistant aggregate over a thermosetting polymer resin binder that locks the aggregate in place to restore or enhance friction and skid resistance. High friction surface treatments (HFST) are pavement treatments that dramatically and immediately reduce crashes, injuries, and fatalities associated with friction demand issues, such as a reduction in pavement friction during wet conditions, and/or a high friction demand due to vehicle speed and/or roadway geometrics.

ROADWAY TYPE

- High volume intersection approaches;
- Interchange ramps;
- Bridges; and.
- Selected segments of interstate alignments.

AREA TYPE

Install on locations such as sharp horizontal curves and where vehicles may brake excessively, pavement surfaces may become prematurely polished, thereby reducing the available pavement friction.

APPLICATION (S)

HFST should be applied in locations with increased friction demand.

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

[1]Source: FHWA

SAFETY FOCUS AREA
Roadway Corridor

SECONDARY SAFETY FOCUS AREA
Roadway Departure

SAFETY BENEFITS
HFSTs can reduce crashes up to
24%

CMF	CRF
0.76	24

AVERAGE COST
$ **$$** $$$ $$$$

IMPLEMENTATION TIME

For more information on the safety benefits of this countermeasure, please visit [CMF Clearinghouse]

For more information on implementation details of this countermeasure, please visit [FHWA Pavement Friction]

ENHANCED DELINEATION FOR HORIZONTAL CURVES

DESCRIPTION[1]

Enhanced delineation at horizontal curves includes a variety of potential strategies that can be implemented in advance of or within curves, in combination, or individually. Potential strategies include pavement markings (standard or wider), in-lane curve warning pavement markings, retroreflective strips on sign posts, delineators, chevron sign,; enhanced conspicuity (larger, fluorescent, and/or retroreflective signs), dynamic curve warnings (including speed radar feedback signs), and sequential dynamic chevrons.

ROADWAY TYPE

Horizontal curves—where data indicates a higher risk for roadway departure fatalities and serious injuries.

AREA TYPE

The curves are identified by a combination of traffic volume and roadway curvature. The treatments are based on the type of roadway and the speed differential between the roadway's posted or statutory speed limit and the horizontal curve's advisory speed.[2]

APPLICATION (S)

- Once MUTCD requirements and recommendations have been met, an incremental approach is often beneficial to avoid excessive cost.
- Slopes of 1V:4H or flatter are considered recoverable (i.e., drivers can retain control of a vehicle by slowing or stopping). Slopes between 1V:3H and 1V:4H are generally considered traversable, but non-recoverable (i.e., errant vehicle will continue to the bottom of the slope).
- Adding or widening shoulders gives drivers more recovery area to regain control in the event of a roadway departure.

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

[1]Source: FHWA

[2]VHSIP Proactive Systemic Initiatives for VDOT-Maintained Roads: Curve Signage

SAFETY FOCUS AREA

Vehicles

SECONDARY SAFETY FOCUS AREA

Roadway Departure

SAFETY BENEFITS

Research has shown that enhanced curve delineation for horizontal curves can reduce crashes, particularly those resulting in fatal or injuries or those in low-visibility settings. The CMF Clearinghouse has a variety of Crash Modification Factors listed depending on the type of potential strategy used.

AVERAGE COST

$ $$ $$$ $$$$

IMPLEMENTATION TIME

For more information on the safety benefits of this countermeasure, please visit [CMF Clearinghouse]

For more information on implementation details of this countermeasure, please visit [FHWA Proven Safety Countermeasures]

LONGITUDINAL RUMBLE STRIPS AND STRIPES ON TWO-LANE ROADS

DESCRIPTION[1]

Longitudinal rumble strips are milled or raised elements on the pavement intended to alert drivers through vibration and sound that their vehicle has left the travel lane. Rumble stripes are edge line or center line rumble strips where the pavement marking is placed over the rumble strip. This can increase the visibility and durability of the pavement marking during wet and/or nighttime conditions, and can improve the durability of the marking on roads during snowplowing.

ROADWAY TYPE

Rumble Strip(e)s are appropriate for new rural freeway, expressway, arterial, collector, and local roadway segments that are being constructed or for existing roadways, particularly those being resurfaced or reconstructed, with adequate pavement condition for mill in place installation.[2]

AREA TYPE

- VDOT maintained roadways;
- Non-VDOT maintained roadways; and,
- Higher-speed routes with higher traffic volumes.

APPLICATION (S)

- Install on roadways where there is a history of roadway departure crashes.
- When evaluating travel lanes and paved shoulders for the application of centerline and/or shoulder Rumble Strip(e)s, the following items in VDOT IIM-LD-212.7 and IIM-TE-368.1 shall be considered.

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

[1]Source: FHWA
[2]VDOT IIM-LD-212.7 and IIM-TE-368.1

SAFETY FOCUS AREA
Vehicles

SECONDARY SAFETY FOCUS AREA
Roadway Departure

SAFETY BENEFITS

Centre line Rumble Strips can reduce head-on fatal and injury crashes on two-lane rural roads by

44-64%

Shoulder Rumble Strips can reduce single vehicle, run-off-road fatal and injury crashes on two-lane rural roads by

13-51%

CENTERLINE RUMBLE STRIPS

CMF	CRF
0.36-0.56	44-64

SHOULDER RUMBLE STRIPS

CMF	CRF
0.49-0.87	13-51

AVERAGE COST

$ **$$** $$$ $$$$

IMPLANTATION TIME

For more information on the implementation and safety benefits of this countermeasure, please visit [FHWA Proven Safety Countermeasures]

WIDER EDGE LINES

DESCRIPTION[1]

Wider edge lines enhance the visibility of travel lane boundaries compared to traditional edge lines. Edge lines are considered "wider" when the marking width is increased from the minimum normal line width of 4 inches to the maximum normal line width of 6 inches.

ROADWAY TYPE

Freeways, multilane divided and undivided highways, two-lane highways in both urban and rural areas. Wider edge lines are most effective in reducing crashes on rural two-lane highways, especially for single-vehicle crashes

AREA TYPE

- VDOT maintained roadways; and,
- Non-VDOT maintained roadways.

APPLICATION (S)

- Agencies should consider implementing a systemic approach to wider edge line installation-based roadway departure crash risk factors such as pavement and shoulder widths, presence of curves, traffic volumes, and history of nighttime crashes.
- Wider edge lines can be implemented using existing equipment during maintenance procedures like re-striping and resurfacing, with the only cost increase being the additional material.

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

[1]Source: FHWA

SAFETY FOCUS AREA
Vehicles

SECONDARY SAFETY FOCUS AREA
Roadway Departure

SAFETY BENEFITS
Wider Edge Lines can reduce crashes up to

37%

CMF	CRF
0.63	37

AVERAGE COST
$ **$$** $$$ $$$$

IMPLEMENTATION TIME

For more information on the safety benefits of this countermeasure, please visit [CMF Clearinghouse]

For more information on implementation details of this countermeasure, please visit [FHWA Proven Safety Countermeasures]

VARIABLE SPEED LIMITS

DESCRIPTION[1]

Selecting appropriate speed limits on roadways is important in maintaining a safe and efficient transportation network. Speed limits are established with an engineering study based on inputs like traffic volumes, operating speeds, roadway characteristics, and crash history. However, conditions on the roadway are susceptible to change in a short amount of time (e.g., congestion, crashes, weather). Drivers typically determine their operating speeds under normal weather conditions on a straight roadway section with good pavement quality and adequate sight distances. If ideal conditions do not exist and the roadway does not meet the driver's expectations, there is a greater chance that a driver error could result in a crash. Providing variable speeds limits (VSLs) capable of adapting to changing circumstances could reduce crash frequency and severity.

ROADWAY TYPE

Freeways, multi-lane roadways, and principal arterials.

AREA TYPE

Freeways or roads experiencing frequent congestion and areas susceptible to adverse weather. Particularly effective on urban and rural freeways and high-speed arterials with posted speed limits greater than 40 MPH.

APPLICATION (S)

- Often implemented as part of Active Traffic Management (ATM) plans or incorporated into existing Road Weather Information Systems.
- When used with ATM, VSLs can mitigate rear-end, sideswipe, and other crashes on high-speed roadways.
- May be implemented as a regulatory and/or an advisory system.
- Can be applied to an entire roadway segment or individual lanes.

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

[1]Source: FHWA

SAFETY FOCUS AREA

Vehicles

SECONDARY SAFETY FOCUS AREA

Speed Management

SAFETY BENEFITS

Variable speed limits can reduce total crashes up to

8%

CMF	CRF
0.92	8

AVERAGE COST

$ $$ $$$ **$$$$**

IMPLEMENTATION TIME

For more information on the safety benefits of this countermeasure, please visit [CMF Clearinghouse]

For more information on implementation details of this countermeasure, please visit [FHWA Proven Safety Countermeasures]

SPEED LIMIT OPTIMIZATION/ IMPLEMENTATION OF LOCALITY SPEED LIMIT REDUCTIONS

DESCRIPTION[1]

A speed limit study can be initiated in response to a public request for a speed limit review, as a result of network screening (for crash prone locations), or for any other reason. A general study area is identified through the initial request or data analysis. The study area can then be divided into homogeneous sections for analysis. A homogeneous section is one where the roadside development is consistent (residential vs. commercial; type and frequency of businesses and driveways, etc.) and the roadway features are consistent (lane widths, medians, shoulders, surface roughness, curvature, intersection spacing, etc.).

ROADWAY TYPE

Multi-lane roadways, principal arterials, collectors, and residential streets.

AREA TYPE

- VDOT maintained roadways; and,
- Non-VDOT maintained roadways.

APPLICATION (S)

Speed zoning studies are conducted to evaluate safety issues and identify appropriate speed limits for specific roadway segments. If traffic counts are between 600 and 4,000 vehicles per day, and average speeds are 5 MPH above posted speed limits or greater, PWCDOT will submit data to VDOT for consideration and begin working with the community to create a traffic calming plan.[2]

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

[1]Source: FHWA
[2]Reducing Speed in Your Neighborhood – Prince William County

SAFETY FOCUS AREA
Roadway Corridor

SECONDARY SAFETY FOCUS AREA
Speed Management

SAFETY BENEFITS

Research has shown that Speed Limit Optimization/Implementation of Locality Speed Limit Reductions can be effective for crash prone locations. The CMF Clearinghouse has a variety of Crash Modification Factors listed depending on the reduction in speed limit.

AVERAGE COST

$ $$ **$$$** $$$$

IMPLEMENTATION TIME

For more information on the safety benefits of this countermeasure, please visit [CMF Clearinghouse]

For more information on implementation details of this countermeasure, please visit [FHWA Speed Management Safety]

LEADING PEDESTRIAN INTERVAL

DESCRIPTION[1]

A leading pedestrian interval (LPI) gives pedestrians the opportunity to enter the crosswalk at an intersection 3-7 seconds before vehicles are given a green indication. Pedestrians can better establish their presence in the crosswalk before vehicles have priority to turn right or left.

ROADWAY TYPE

Signalized Intersections

AREA TYPE

- VDOT maintained roadways;
- Non-VDOT maintained roadways; and,
- School routes or other locations with high-pedestrian activity.

APPLICATION (S)

Use LPIs at intersections where heavy turning traffic comes into conflict with crossing pedestrians during the permissive phase of the signal cycle. LPIs are typically applied where both pedestrian volumes and turning volumes are high enough to warrant an additional dedicated interval for pedestrian-only traffic.[2] LPIs may be prioritized where the visibility of a crosswalk is limited or restricted. General examples are geometry, location of stopped vehicles, vegetation, and streetside features.

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

SAFETY FOCUS AREA

Pedestrians/Bicyclists

SECONDARY SAFETY FOCUS AREA

Intersections

SAFETY BENEFITS

Leading Pedestrian Interval can reduce pedestrian-vehicle related crashes up to

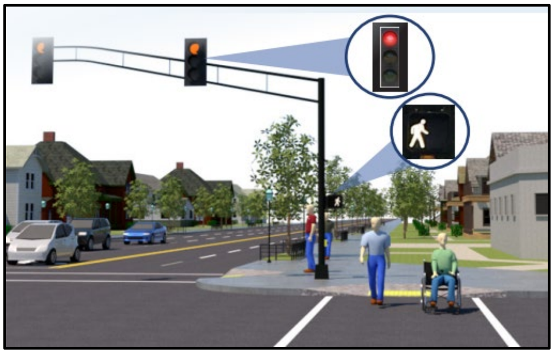
19%

CMF	CRF
0.81	19

AVERAGE COST

$ $$ $$$ $$$$

IMPLANTATION TIME



For more information on the safety benefits of this countermeasure, please visit [CMF Clearinghouse]

For more information on implementation details of this countermeasure, please visit [FHWA Leading Pedestrian Interval (LPI)]

[1]Source: FHWA
[2]NACTO Urban Street Design Guide – Leading Pedestrian Interval

ROUNDABOUTS

DESCRIPTION[1]

The modern roundabout is an intersection with a circular configuration that safely and efficiently moves traffic. Roundabouts feature channelized, curved approaches that reduce vehicle speed, entry yield control that gives right-of-way to circulating traffic, and counterclockwise flow around a central island that minimizes conflict points. The net result of lower speeds and reduced conflicts at roundabouts is an environment where crashes that cause injury or fatality are substantially reduced.

ROADWAY TYPE

Roundabouts can replace signals, two-way stop controls, and all-way stop controls.

AREA TYPE

- VDOT maintained roadways; and,
- Non-VDOT maintained roadways;

APPLICATION (S)

Roundabouts can be implemented in both urban and rural areas under a wide range of traffic conditions. Roundabouts are an effective option for managing speed and transitioning traffic from high-speed to low-speed environments, such as freeway interchange ramp terminals, and rural intersections along high-speed roads. Roundabouts should be considered at intersections:

- With heavy left-turn traffic or with similar traffic volumes on each leg;
- With crashes involving conflicting through and left-turn vehicles;
- With limited room for storing vehicles; and,
- Where there are limited nearby driveways.

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

SAFETY FOCUS AREA

Intersections

SECONDARY SAFETY FOCUS AREA

Vehicles, Pedestrians, Bicyclists

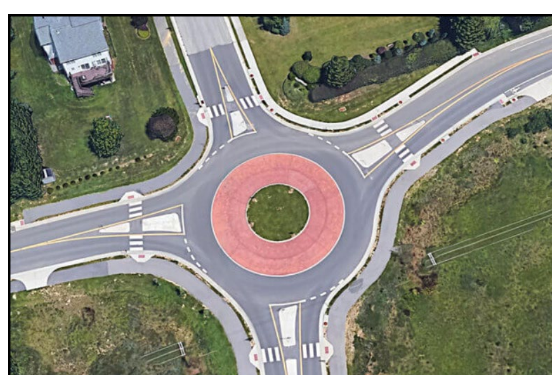
SAFETY BENEFITS

Research has shown that installing a roundabout can improve safety by reducing the number of conflict points. The CMF Clearinghouse has a variety of Crash Modification Factors listed depending on the prior condition of the intersection (stop-controlled, signal-controlled) as well as the type of roundabout installed (single-lane or multi-lane).

AVERAGE COST

$ $$ $$$ **$$$$**

IMPLEMENTATION TIME



For more information on the safety benefits of this countermeasure, please visit [CMF Clearinghouse]

For more information on implementation details of this countermeasure, please visit [FHWA Proven Safety Countermeasures]

[1]Source: FHWA

INTERSECTION LIGHTING

DESCRIPTION[1]

Adequate lighting (i.e., at or above minimum acceptable standards) is based on research recommending horizontal and vertical illuminance levels to provide safety benefits to all users of the roadway environment. Adequate lighting can also provide benefits in terms of personal security for pedestrians, wheelchair and other mobility device users, bicyclists, and transit users as they travel along and across roadways.

ROADWAY TYPE

Intersections, multi-lane roadways, roundabout approaches, principal arterials, collectors, residential streets, two-lane roadways, and pedestrian crossings.

AREA TYPE

- VDOT maintained roadways;
- Non-VDOT maintained roadways; and,
- Locations with high-pedestrian activity.

APPLICATION (S)

Agencies should consider providing lighting to intersections based on factors such as a history of crashes at nighttime, traffic volume, the volume of non-motorized users, the presence of crosswalks and raised medians, and the presence of transit stops and boarding volumes. Agencies can equitably engage with underserved communities to determine where and how new and improved lighting can most benefit the community by considering their priorities, including eliminating crash disparities, connecting to essential neighborhood services, improving active transportation routes, and promoting personal safety.[1]

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

[1]Source: FHWA

SAFETY FOCUS AREA

Intersections

SECONDARY SAFETY FOCUS AREA

Vehicles, Pedestrians, Bicyclists

SAFETY BENEFITS

Intersection Lighting can reduce nighttime crashes up to

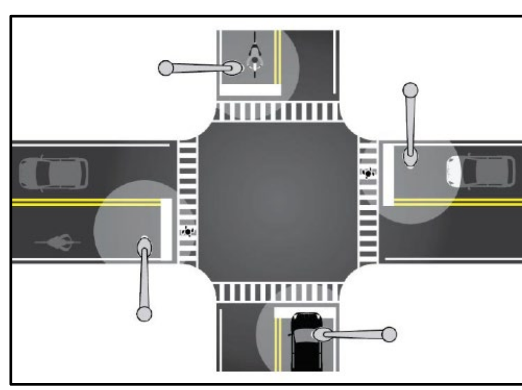
20%

CMF	CRF
0.80	20

AVERAGE COST

\$ \$\$ \$\$\$ **\$\$\$\$**

IMPLEMENTATION TIME



For more information on the safety benefits of this countermeasure, please visit [CMF Clearinghouse]

For more information on implementation details of this countermeasure, please visit [FHWA Proven Safety Countermeasures]

AUTOMATIC GATES AT RAILROAD (RR) CROSSINGS

DESCRIPTION[1]

An automatic gate serves as a barrier across the highway when a train is approaching or occupying the crossing. In a normal sequence of operation, the flashing-light signals and the lights on the gate arm in its normal upright position are activated upon the detection or approach of a train. The MUTCD standard in Section 8C.04 requires that the gate arm should start its downward motion not less than 3 seconds after the signal lights start to operate, should reach its horizontal position before the arrival of the train, and should remain in that position while the train occupies the crossing. When the train clears the crossing, and no other train is approaching, the gate arm should ascend to its upright position normally in no more than 12 seconds, after which the flashing-lights and the lights on the gate arm should cease operation.

ROADWAY TYPE

Installed at railroad crossings.

AREA TYPE

- VDOT maintained roadways that intersect with railroad crossings; and,
- Non-VDOT maintained roadways that intersect with railroad crossings.

APPLICATION (S)

The gate is combined with a standard flashing-light signal that provide additional warning before the arm starts to descend, while the gate arm is across the highway, and until the gate arm ascends to clearance.

APPROVALS

A highway-rail crossing project involves a minimum of two parties: the State and the railroad. If the crossing is not on the State highway system, an agreement with the county or municipality having maintenance and enforcement jurisdiction over the road will usually be required.

[1]Source: FHWA

SAFETY FOCUS AREA

Railroad Crossings

SECONDARY SAFETY FOCUS AREA

Vehicles

SAFETY BENEFITS

Automatic Gates at Railroad Crossings can reduce crashes up to

67%

CMF	CRF
0.33	67

AVERAGE COST

$ $$ $$$ **$$$$**

IMPLEMENTATION TIME

For more information on the safety benefits of this countermeasure, please visit [CMF Clearinghouse]

For more information on implementation details of this countermeasure, please visit [FHWA Railway Highway Crossing Program]

ROAD DIET

DESCRIPTION[1]

A Road Diet, or roadway reconfiguration, can improve safety, calm traffic, provide better mobility and access for all road users, and enhance overall quality of life. A Road Diet typically involves converting an existing four-lane undivided roadway to a three-lane roadway consisting of two through lanes and a center two-way left-turn lane (TWLTL). Road Diets reallocate roadway space within the existing footprint, eliminating the need for additional right-of-way, lengthy environmental studies, complex design plans, and expensive construction. Moreover, Road Diets are one of the least expensive solutions for accommodating additional modes such as bicycles or transit vehicles.

ROADWAY TYPE

Multi-lane roadways and principal arterials that are in constrained urban or suburban settings.

AREA TYPE

- VDOT maintained roadways;
- Non-VDOT maintained roadways; and,
- Typically implemented on a roadway with a current and future average daily traffic of 25,000 or less.

APPLICATION (S)

- If there is a need to provide a two-way left-turn lane.
- Fewer lanes for pedestrians to cross.
- Opportunity to install pedestrian refuge islands, bicycle lanes, on-street parking, or transit stops.
- Implements traffic calming and more consistent speeds.
- Provides for a more community-focused, Complete Streets environment that better accommodates the needs of all road users.

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

[1]Source: FHWA

SAFETY FOCUS AREA

Intersections

SECONDARY SAFETY FOCUS AREA

Pedestrians and Bicyclists

SAFETY BENEFITS

Road Diet can reduce total crashes

19%

CMF	CRF
0.81	19

AVERAGE COST

$ $$ **$$$** $$$$

IMPLANTATION TIME

For more information on the safety benefits of this countermeasure, please visit [CMF Clearinghouse]

For more information on implementation details of this countermeasure, please visit [FHWA Proven Safety Countermeasures]

SHARED USE PATHS

DESCRIPTION[1]

Shared use paths are facilities that are meant solely for pedestrians and non-motorized vehicles such as. Some shared use paths allow equestrian users. Motorized vehicles are typically prohibited (except for maintenance vehicles). Shared use paths are intended for use by bicyclists and pedestrians of all abilities, and therefore are typically relatively level and use a relatively smooth surface such as asphalt or fine aggregate. Shared use paths are physically separated from motor vehicle traffic. Shared use paths may or may not be aligned parallel to the highway, and if they are parallel to the highway may be in or out of the highway right-of-way. Shared use paths are designed for two-way travel and are typically 10 feet wide. Shared use paths serve as an extension of the multimodal network for pedestrians and bicyclists.

ROADWAY TYPE

Shared use paths are physically separated from the road.

AREA TYPE

Shared use paths are located within or outside of the roadway right-of-way, and can be found in parks, greenways, open spaces, and more.

APPLICATION (S)

- Shared use-paths can be installed along most roadway alignments where there are favorable grades, where right-of-way is wide, or where limited utilities are present.
- Shared use paths are typically 10 feet wide.
- Shared use paths are a more desirable facility type than a sidewalk or bike lane along higher speed or high-volume roads, particularly where the frequency of intersections or driveway access is limited.

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

[1]Source: FHWA

SAFETY FOCUS AREA
Pedestrians and Bicyclists

SECONDARY SAFETY FOCUS AREA
Vehicles

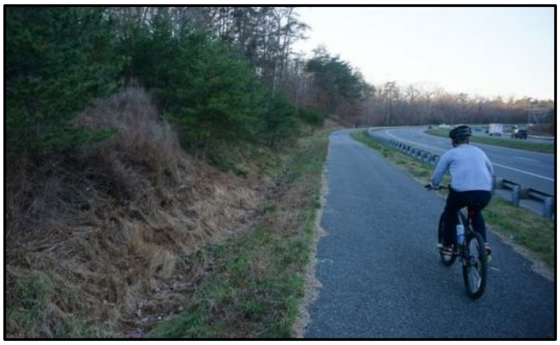
SAFETY BENEFITS
Shared Use Paths can reduce pedestrian and bicycle crashes up to

25%

CMF	CRF
0.75	25

AVERAGE COST
$ $$ **$$$** $$$$

IMPLANTATION TIME



For more information on the safety benefits of this countermeasure, please visit [CMF Clearinghouse]

For more information on implementation details of this countermeasure, please visit [VDOT Bicycle and Pedestrian Treatments]

LEFT-TURN SIGNAL TYPE CHANGES

DESCRIPTION[1]

Left turns represent perhaps the riskiest and most disruptive movements in the operation of a signalized intersection. As a result, safe and efficient left-turn operation is a critical component of any signalized intersection. Selection of left-turn phasing can have a significant impact on the safety, level of delay, and throughput of an intersection. The *VDOT Guidance for Determination of Left-Turn Phasing Mode* may be used to document left-turn phasing Engineering Assessments in a consistent and comprehensive manner. The assessments work collaboratively with the guidance document to first evaluate the major left-turn phasing factors for each approach and then collectively at the intersection level.

ROADWAY TYPE

Signalized intersections on multi-lane roadways, principal arterials, collectors, and residential streets.

AREA TYPE

- VDOT maintained roadways; and,
- Non-VDOT maintained roadways

APPLICATION (S)

Left-turn signal phasing can be adjusted to potentially reduce excessive queuing and delays at intersections and therefore, could potentially reduce aggressive driving behaviors. Left-turn signal phasing can also help to prioritize pedestrian and bicyclist movements at intersections with high pedestrian and bicycle activity.

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

SAFETY FOCUS AREA

Intersections

SECONDARY SAFETY FOCUS AREA

Pedestrians/Bicyclists

SAFETY BENEFITS

Research has shown that left-turn signal type changes can reduce the number crashes. The CMF Clearinghouse has a variety of Crash Modification Factors listed depending on the left-turn signal type change and the prior condition of the left-turn phasing.

AVERAGE COST

$ $$ **$$$** $$$$

IMPLEMENTATION TIME

For more information on the safety benefits of this countermeasure, please visit [CMF Clearinghouse]

For more information on assessments details of this countermeasure, please visit [VDOT Guidance for Determination and Documentation of Left-Turn Phasing Mode]

[1]Source: *VDOT Guidance for Determination of Left-Turn Phasing Mode*

SYSTEMIC LOW-COST COUNTERMEASURES AT STOP-CONTROLLED INTERSECTIONS

DESCRIPTION[1]

This systemic approach to intersection safety involves deploying a package of multiple low-cost countermeasures, including enhanced signing and pavement markings, at many stop-controlled intersections within a jurisdiction. These countermeasures increase driver awareness and recognition of the intersections and potential conflicts.

ROADWAY TYPE

Stop-controlled intersections on residential streets and two-lane roadways.

AREA TYPE

- VDOT maintained roadways; and,
- Non-VDOT maintained roadways;

APPLICATION (S)

On the Through Approach:

- Doubled-up (left and right), oversized advance intersection warning signs, with supplemental street name plaques (can also include flashing beacon).
- Retroreflective sheeting on signpost and enhanced pavement markings that delineate through lane edge lines.

On the Stop Approach:

- Doubled-up (left and right), oversized advance "Stop Ahead" intersection warning signs (can also include flashing beacon).
- Doubled-up (left and right), oversized Stop signs.
- Properly placed stop bar and removal of vegetation, parking, or obstructions that limit sight distance.
- Double arrow warning sign at stem of T-intersections.

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

[1]Source: FHWA

SAFETY FOCUS AREA

Intersections

SECONDARY SAFETY FOCUS AREA

Roadway Corridor

SAFETY BENEFITS

According to FHWA, the safety benefits include:

- **10%** reduction of fatal and injury crashes at all locations/types/areas.
- **15%** reduction of nighttime crashes at all locations/types/areas.
- **27%** reduction of fatal and injury crashes at rural intersections.
- **19%** reduction of fatal and injury crashes at two-lane by two-lane intersections.

AVERAGE COST

$ **$$** $$$ $$$$

IMPLEMENTATION TIME

For more information on the safety benefits of this countermeasure, please visit [CMF Clearinghouse]

For more information on implementation details of this countermeasure, please visit [FHWA Proven Safety Countermeasures]

AUTOMATED SPEED ENFORCEMENT

DESCRIPTION[1]

Automated Speed Enforcement (also known as speed cameras) is a technological tool for enforcing the legal speed limit. Speed cameras may be fixed or portable, and are placed along the roadway to automatically record speed limit violations. After a sworn law-enforcement officer affirms the violation, a speeding citation is mailed to the owner, lessee, or renter of the vehicle as determined by the license plate.

ROADWAY TYPE

Multi-lane roadways, principal arterials, collectors, residential streets, and two-lane roadways.

AREA TYPE

VDOT maintained roadways; and,
Non-VDOT maintained roadways;

APPLICATION (S)

Agencies should conduct a network analysis of speeding-related crashes to identify locations to implement Automated Speed Enforcement. The analysis can include scope (e.g., widespread, localized), location types (e.g., urban/suburban/rural, work zones, residential, school zones), roadway types (e.g., expressways, arterials, local streets), times of day, and road users most affected by speed-related crashes (e.g., pedestrians, bicyclists). Automated Speed Enforcement can be deployed as:

- Fixed units—a single, stationary camera targeting one location.
- Point-to-Point (P2P) units—multiple cameras to capture average speed over a certain distance.
- Mobile units—a portable camera, generally in a vehicle or trailer.

APPROVALS

- Specific locations authorized by Virginia State law and Prince William County Codes.

[1]Source: City of Alexandria Speed Camera Safety Program

SECONDARY SAFETY FOCUS AREA

Speed Management

SAFETY FOCUS AREA

Vehicles

SAFETY BENEFITS

Automated Speed Enforcement can reduce crashes up to

54%

CMF	CRF
0.46	54

AVERAGE COST

$ $$ **$$$** $$$$

IMPLEMENTATION TIME

For more information on the safety benefits of this countermeasure, please visit [CMF Clearinghouse]

For more information on implementation details of this countermeasure, please visit [FHWA Speed Safety Cameras]

PLASTIC INLAID MARKERS (PIMS)

DESCRIPTION[1]

Pavement markers are used to supplement many skip, gore, and center longitudinal pavement markings. Pavement markers have been consistently demonstrated to be an effective method of ensuring the driver's ability to discern travel lane placement at night, particularly during inclement weather, with a good safety benefit/cost ratio. PIMs consist of a plastic holder (sometimes referred to as "cradle" or "lens cradle") which is epoxied into a recessed groove cut into the pavement.

ROADWAY TYPE

Freeways, multi-lane roadways, and principal arterials.

AREA TYPE

- VDOT maintained roadways; and,
- Non-VDOT maintained roadways.

APPLICATION (S)

Per the VDOT IIM TE-393:

- PIMs are not recommended for roadways with ADTs below the "should use" and "may use" thresholds listed in the Virginia Supplement to MUTCD, unless supported by an engineering study. The presence of existing cast iron SRPMs on the road does not in and of itself justify installation of PIMs on the replacement contract.
- PIMs may be installed on new bridge decks only when all of the following criteria in the VDOT IIM TE-393 is met.
- With rare exceptions, markers should never be used to supplement edge lines.
- When identified for use, PIMs may be installed in existing or new concrete pavements.
- When identified for use, PIMs may be installed in new asphalt pavements.

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

[1]Source: VDOT IIM TE-393

SAFETY FOCUS AREA

Vehicles

SECONDARY SAFETY FOCUS AREA

Roadway Corridor

SAFETY BENEFITS

Plastic Inlaid Pavement Markers can reduce crashes up to

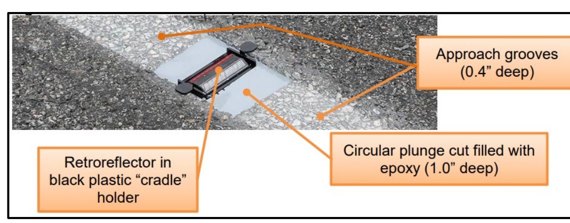
28%

CMF	CRF
0.72	28

AVERAGE COST

$ $$ $$$ $$$$

IMPLEMENTATION TIME



For more information on the safety benefits of this countermeasure, please visit [CMF Clearinghouse]

For more information on implementation details of this countermeasure, please visit [VDOT IIM TE-393]

DOUBLE SOLID WHITE LINES APPROACHING CROSSWALK ON MULTI-LANE ROAD (NO-PASSING)

DESCRIPTION[1]

Pavement marking treatment to include double solid white-lane lines approaching marked crosswalk to indicate a no-passing zone.

ROADWAY TYPE

Multi-lane roadways, roadways near mid-block pedestrian crossings, principal arterials, collectors, residential streets, and two-lane roadways.

AREA TYPE

- VDOT maintained roadways;
- Non-VDOT maintained roadways; and,
- School routes or other locations with high-pedestrian activity.

APPLICATION (S)

Install in areas with high pedestrian activity, new crosswalks, the need to enhance existing crosswalks. In addition to pedestrian activity, agencies should consider speed on the major street, and volumes on both the major and the minor street when installing double white lines approaching a crosswalk on multi-lane road (no-passing).

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

SAFETY FOCUS AREA

Pedestrians/Bicyclists

SECONDARY SAFETY FOCUS AREA

Intersections

SAFETY BENEFITS

The CMF Clearinghouse does not currently have a Crash Modification Factor in relation to providing double solid white lines approaching a crosswalk on a multi-lane road to indicate a no-passing zone. However, there are safety benefits for pedestrians by eliminating the chance for drivers to approach the crosswalk unexpectedly during a passing maneuver.

AVERAGE COST

$ $$ $$$ $$$$

IMPLEMENTATION TIME

For more information on implementation details of this countermeasure, please visit [DMV Section 2: Signals, Signs and Pavement Markings]

[1]Source: Virginia Driver's Manual

ADVANCED INTERSECTION WARNING SIGNS WITH STREET NAME PLAQUE

DESCRIPTION[1]

Advanced intersection warning signs can help alert drivers to the presence of an intersection ahead. Signs can be placed with sufficient distance prior to the intersection to allow drivers to perceive and react. They can also be installed on both sides of the roadway to solicit greater awareness.

ROADWAY TYPE

Intersections on multi-lane roadways, principal arterials, collectors, and residential streets.

AREA TYPE

- VDOT maintained roadways;
- Non-VDOT maintained roadways;
- Intersections with high-crash rates; and,
- Stop-controlled intersections in rural areas.

APPLICATION (S)

Advanced intersection warning signs can be applied on single through lane, high-crash, stop-controlled intersections in both rural and urban areas. They may also be applied on multi-lane roadways with intersections having high-crash rates. At intersections on the through approach, agencies should doubled up (left and right), oversized advance intersection warning signs, with street name sign plaques and can be accompanied with enhanced pavement markings that delineate through lane edge lines. On the stop approach, include doubled up (left and right), oversized advance “Stop Ahead” intersection warning signs.

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

[1]Source: FHWA

SAFETY FOCUS AREA

Intersections

SECONDARY SAFETY FOCUS AREA

Vehicles

SAFETY BENEFITS

Advanced Intersection Warning Signs with Street Name Plaque can reduce crashes up to

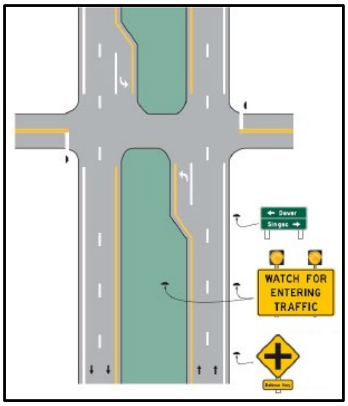
2%

CMF	CRF
0.98	2

AVERAGE COST

$ $$ $$$ $$$$

IMPLEMENTATION TIME



For more information on the safety benefits of this countermeasure, please visit [CMF Clearinghouse]

For more information on implementation details of this countermeasure, please visit [FHWA Manual for Selecting Safety Improvements on High Risk Rural Roads]

MEDIAN AND EDGE FENCES

DESCRIPTION[1]

Median fencing is designed to prohibit pedestrians from crossing outside of crosswalks. This enhances pedestrian safety by discouraging dangerous mid-block crossings. Median fencing should be used to direct pedestrians to safe crossing areas, preventing them from accessing areas of the road outside of designated crossings.

ROADWAY TYPE

Multi-lane roadways, mid-block pedestrian crossings, principal arterials, collectors, and local streets.

AREA TYPE

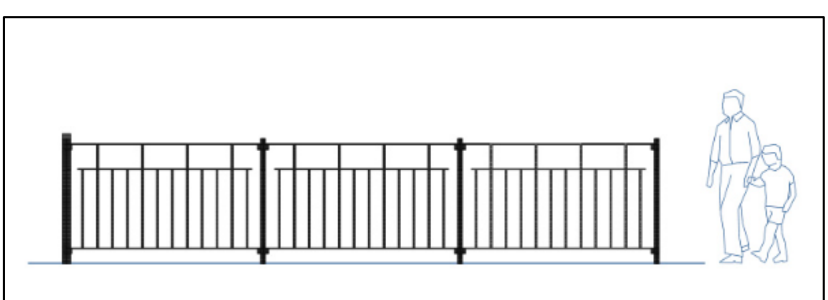
- VDOT maintained roadways;
- Non-VDOT maintained roadways;
- High volume roadways and locations in heavy commercial areas; and,
- Locations with high-pedestrian activity.

APPLICATION (S)

Median fencing when applied consistently to an area, can reduce traffic speeds. When applied at intersection approaches, pedestrian safety is enhanced by reducing potential vehicle movements and conflicts, particularly left turns. Some manufactures design their fencing with panels that collapse as a whole panel when impacted to minimize the detachment of individual elements.

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.



[1]Source: Road Safety Toolkit

SAFETY FOCUS AREA

Pedestrians

SECONDARY SAFETY FOCUS AREA

Intersections

SAFETY BENEFITS

Median Fencing can reduce vehicle/pedestrian crashes up to

13%

CMF	CRF
0.87	13

AVERAGE COST

$ $$ $$$ $$$$

IMPLEMENTATION TIME

Median Fencing in Ocean City, Maryland

For more information on the safety benefits of this countermeasure, please visit CMF Clearinghouse

For more information on implementation details of this countermeasure, please visit WGE Group Road Products **and** Alternatives to Pedestrian Fencing in Urban Street Design

POLE MOUNTED SPEED DISPLAY (PMSD)

DESCRIPTION[1]

Pole Mounted Speed Display (PMSD) signs are installed to provide a real-time, dynamic display of a driver's vehicular speed. These signs are installed in conjunction with regulatory speed limit (R2-1) or advisory speed signs in order to provide drivers with immediate confirmation of their actual speed in relation to the posted speed limit or advisory speed. Equipment used must meet VDOT specifications and criteria.

ROADWAY TYPE

Principal arterials, collectors, and residential streets.

AREA TYPE

- VDOT maintained roadways – must meet requirements outlined in TE-374.1:
  - The roadway is residential and/or pedestrian oriented with no more than two lanes (one lane per travel direction) with a posted speed limit of 40 MPH or less where the 85th percentile speed exceeds the posted speed limit by at least 10 MPH for the travel direction(s) and time period of concern or;
  - Other non-residential locations deemed appropriate by the Regional Traffic Engineer such as to encourage compliance for advisory speed conditions.
- Non-VDOT maintained roadways

APPLICATION (S)

Installed on roadways with crashes due to excessive speeding. PMSD shall be installed beneath standard speed limit signs and be permanent at locations with a documented speeding problem. Requires a minimum line of sight to have sufficient time to measure and display the approaching vehicle's speed.

APPROVALS

- Authorized for use on VDOT roadways – The Regional Traffic Engineer or designee shall approve the PMSD signs to be used as well as the intended installation and placement.

[1]Source: FHWA

SAFETY FOCUS AREA
Speed Management

SECONDARY SAFETY FOCUS AREA
Roadway Corridor

SAFETY BENEFITS

PMSD can reduce crashes up to
5%

CMF	CRF
0.95	5

AVERAGE COST

$ **$$** $$$ $$$$

IMPLEMENTATION TIME

For more information on the safety benefits of this countermeasure, please visit [CMF Clearinghouse]

For more information on implementation details of this countermeasure, please visit [VDOT TE-374.1]

WIDEN SHOULDER WIDTH

DESCRIPTION[1]

Widening shoulders on roadways can be a traffic-calming measure that can improve safety, efficiency, and capacity. It can also create space for bicycle lanes, left-turn lanes, and sidewalks. Shoulder widening can be done by reducing the width of lanes and repainting shoulder and median markings. Shoulders are a safety feature because they provide space that allows drivers to get out of the travel lane and avoid crashes. This feature is particularly important in horizontal curves where vehicles typically use more of the travel lane than in straight sections. By widening the shoulders or providing a shoulder where one previously did not exist, drivers have more recovery area to regain control in the event of a roadway departure.

ROADWAY TYPE

Freeways, multi-lane roadways, principal arterials, collectors, and rural roadways.

AREA TYPE

- VDOT maintained roadways; and,
- Non-VDOT maintained roadways.

APPLICATION (S)

- Install along roadways in need of a stable recovery area for vehicles and on high-speed roadways, shoulders improve capacity by increasing driver comfort.
- Shoulder widening on urban freeways provide more width for crash avoidance, storage of disabled vehicles, maintenance activities, and enforcement.
- Shoulder widening on rural arterials improve bicycle accommodation and reduce risky passing maneuvers.
- Improves stopping sight distance at horizontal curves by providing an offset to objects such as barrier and bridge piers.

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

[1]Source: FHWA

SAFETY FOCUS AREA

Roadway Corridor

SECONDARY SAFETY FOCUS AREA

Vehicles

SAFETY BENEFITS

Research has shown that shoulder widening can reduce the severity of crashes, particularly those resulting from a roadway departure. The CMF Clearinghouse has a variety of Crash Modification Factors listed depending on the amount of widening and the prior conditions of the shoulder.

AVERAGE COST

$ $$ **$$$** $$$$

IMPLEMENTATION TIME

For more information on the safety benefits of this countermeasure, please visit [CMF Clearinghouse]

For more information on implementation details of this countermeasure, please visit [FHWA Shoulder Width]

RESTRICTED CROSSING U-TURN (RCUT) / ACCESS MANAGEMENT

DESCRIPTION[1]

The RCUT intersection modifies the direct left-turn and through movements from cross-street approaches. Minor road traffic makes a right turn followed by a U-turn at a designated location—either signalized or unsignalized—to continue in the desired direction. Access management refers to the design, application, and control of entry and exit points along a roadway. This includes intersections with other roads and driveways that serve adjacent properties. Thoughtful access management along a corridor can simultaneously enhance safety for all modes, facilitate walking and biking, and reduce trip delay and congestion.

ROADWAY TYPE

Median divided highways and at intersections with heavy through and / or left-turn traffic volumes on the major street, with low through and left-turn traffic volumes on the side street, and with three or four legs.

AREA TYPE

An RCUT is suitable for isolated rural, high-speed locations to urban and suburban high-volume, multimodal corridors.

APPLICATION (S)

An RCUT is suitable for a wide variety of locations and circumstances:

- As form of stop- or yield-control at minor road intersections along rural, high-speed, four-lane divided highways.
- As an alternative to signalization to maintain the integrity of the major highway as a through route.
- As a corridor treatment along signalized routes to minimize travel times, while maximizing capacity and managing traffic speed.
- As an interim alternative to constructing a full, grade-separated interchange.

APPROVALS

- Authorized for use on VDOT roadways; and,
- Requires engineering plans and VDOT design approval.

[1]Source: FHWA

SAFETY FOCUS AREA
Vehicles

SECONDARY SAFETY FOCUS AREA
Intersections

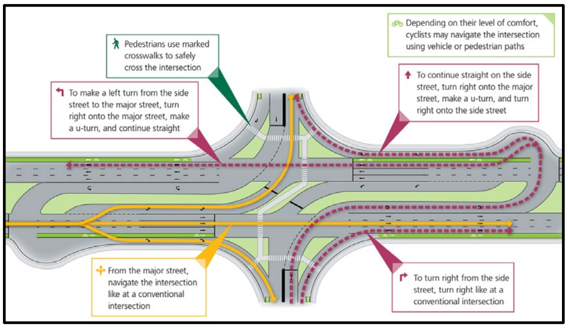
SAFETY BENEFITS

Research has shown that installing an RCUT can improve safety by reducing the number of conflict points and crashes. The CMF Clearinghouse has a variety of Crash Modification Factors listed depending on the prior condition of the corridor or intersection (unsignalized or signalized).

AVERAGE COST

$ $$ $$$ **$$$$**

IMPLEMENTATION TIME



For more information on the safety benefits of this countermeasure, please visit [CMF Clearinghouse]

For more information on implementation details of this countermeasure, please visit [FHWA RCUT]

Prince William County
Summary of Additional Key Safety Countermeasures

Safety Countermeasure	Overview	Focus Area	Application	Effectiveness	Roadway Type	Installation Guidelines
Raised Crosswalks	Elevates crosswalks to improve safety by slowing down vehicles and increasing pedestrian visibility.	**Primary:** Pedestrians/Bicyclists **Secondary:** Intersections	**New Installations:** For new crossings **Upgrades:** Convert existing crosswalks, especially in areas with incidents	**CMF:** 0.7 **CRF:** 30%	Mid-block crossings	**Location:** Mid-block only, avoid intersections. Avoid areas with high driveway or drainage density. **Conditions:** Roads with speed < 30 MPH and < 9,000 vehicles/day. Not suitable for truck, emergency, or arterial routes
Smart Lighting	Smart lighting uses adaptive lighting systems to enhance visibility and safety.	**Primary:** Pedestrians/Bicyclists **Secondary:** Intersections, Nighttime Safety	**New Installations:** Implement in high-risk areas or corridors **Upgrades:** Enhance existing lighting infrastructure, particularly in poorly lit areas	**CMF:** 0.56 **CRF:** 44%	Suitable for urban streets, pedestrian-heavy areas, and intersections	**Location:** Prioritize areas with high pedestrian activity and poor lighting. **Conditions:** Effective in areas with high nighttime traffic. Consider energy efficiency and maintenance requirements.
Mini Roundabouts	Compact circular intersections that improve traffic flow and reduce collision points by requiring vehicles to yield and navigate around a central island.	**Primary:** Intersections **Secondary:** Traffic Calming	**New Installations:** Implement at low-traffic intersections **Upgrades:** Replace stop-controlled intersections in suitable areas	**CMF:** 0.56 **CRF:** 44%	Intersection with Minor-Road Stop Control	**Location:** Install in low-speed areas with sufficient space for a circular layout. **Conditions:** Ideal for intersections with traffic volumes below 10,000 vehicles/day.
Bike Lanes	Dedicated road spaces for bicyclists, designed to enhance safety by separating cyclists from vehicle traffic and reducing conflicts.	**Primary:** Bicyclist Safety **Secondary:** Traffic Calming and Urban Mobility	**New Installations:** Implement on roads with high bicyclist traffic **Upgrades:** Add to existing roads lacking safe bicycling infrastructure	**CMF:** 0.51 **CRF:** 49%	Urban streets, high-traffic areas, school zones	**Location:** Prioritize streets with high cyclist activity. **Conditions:** Ensure clear markings and physical separation where possible. Not suitable for high-speed or heavy vehicle routes.
Sidewalks	Sidewalks provide safe, dedicated walking spaces for pedestrians, separating them from vehicle traffic to reduce pedestrian-vehicle conflicts.	**Primary:** Pedestrian Safety **Secondary:** Urban Mobility	**New Installations:** Implement in pedestrian-heavy areas **Upgrades:** Add or widen sidewalks in areas with high pedestrian traffic	**CMF:** 0.12 **CRF:** 88%	Urban and suburban streets, school zones	**Location:** Prioritize areas with high pedestrian activity. Walkable shoulders should also be considered along both sides of rural highways when routinely used by pedestrians **Conditions:** Ensure proper drainage and accessibility for all users, including those with disabilities.
Dedicated Left- and Right-Turn Lanes at Intersections	Auxiliary turn lanes—either for left turns or right turns—provide physical separation between turning traffic that is slowing or stopped and adjacent through traffic at approaches to intersections.	**Primary:** Intersection Safety **Secondary:** Traffic Flow Improvement	**New Installations:** Add to high-traffic intersections **Upgrades:** Retrofit existing intersections to reduce delays and collisions	Varies based on implementation and location	Urban and suburban intersections	**Location:** Install where high turning volumes or frequent turning-related crashes occur. **Conditions:** Ensure adequate lane width and visibility.
Roadside Design Improvements at Curves	Roadside design improvements to provide for a safe recovery and roadside design improvements to reduce crash severity.	**Primary:** Vehicles **Secondary:** Road Departure	**New Installations:** Implement on roads with sharp curves **Upgrades:** Improve existing curves with high crash rates	Varies based on implementation and location	Rural roads, high-speed roads.	**Location:** Prioritize curves with a history of crashes where data indicates a higher risk for roadway departure fatalities and serious injuries. **Conditions:** Consider clear zones, barriers, and signage improvements.
Traffic signal	Traffic signals control vehicle and pedestrian movements at intersections, reducing conflict points and improving safety by regulating traffic flow.	**Primary:** Intersection Safety, Vehicles **Secondary:** Pedestrian Safety	**New Installations:** Add signals at high-traffic intersections **Upgrades**: Modernize or optimize existing signals for better flow	**CMF:** 0.56 **CRF:** 44%	Urban intersections, school zones	**Location:** Install at intersections with high traffic volumes or crash rates. **Conditions:** Ensure proper signal timing and visibility for all road users.
Red-light cameras	Red-light cameras automatically enforce red-light violations, deterring risky driving behaviors and reducing the likelihood of crashes at signalized intersections	**Primary:** Intersection **Secondary:** Traffic Law Enforcement,	**New Installations:** Install at high-risk intersections **Upgrades:** Add to intersections with a history of red-light running	**CMF:** 0.75 **CRF:** 25%	Urban and suburban signalized intersections	**Location:** Prioritize intersections with high crash rates due to red-light running. **Conditions:** Ensure signage informs drivers of camera enforcement.
Two-Way Left-Turn Lanes in rural two lane roads	Two-way left-turn lanes on rural two-lane roads reduce collisions by providing a dedicated space for vehicles to turn left, avoiding conflicts with through traffic.	**Primary:** Rural Road Safety **Secondary:** Traffic Flow Improvement	**New Installations:** Add to rural roads with frequent left turns **Upgrades:** Retrofit existing roads to reduce turn-related crashes	**CMF:** 0.797 **CRF:** 20.3%	Two-Lane Undivided Highway	**Location:** Install where frequent left turns are made, particularly at access points or intersections. **Conditions:** Ensure adequate road width and visibility.
Replace 8-inch red signal heads with 12-inch	Replacing 8-inch red signal heads with 12-inch ones improves visibility for drivers, particularly in adverse weather conditions, reducing the likelihood of red-light violations.	**Primary:** Intersection Safety **Secondary:** Traffic Signal Visibility	**New Installations:** Use 12-inch heads in all new signal installations **Upgrades:** Retrofit existing signals to improve visibility	**CMF:** 0.97 **CRF:** 3%	Urban and suburban intersections	**Location:** Prioritize intersections with visibility issues or high violation rates. **Conditions:** Ensure uniformity in signal size across the intersection.
Pedestrian Countdown Timer	Pedestrian countdown timers display the remaining time for pedestrians to safely cross the street, reducing the risk of entering the crosswalk during unsafe intervals.	**Primary:** Pedestrian **Secondary:** Intersection	**New Installations:** Install at busy pedestrian intersections **Upgrades:** Add to existing signalized crossings to enhance safety,	**CMF:** 0.3 **CRF:** 70%	Intersections, school zones	**Location:** Prioritize areas with high pedestrian traffic. **Conditions:** Ensure clear visibility and synchronization with traffic signals.
Widen Median Width	Widening medians increases the separation between opposing traffic lanes, reducing the likelihood of head-on collisions and providing a safer refuge for turning vehicles.	**Primary:** Roadway **Secondary:** Intersection	**New Installations:** Widen medians on new multi-lane roads **Upgrades:** Retrofit existing roads with narrow medians or high crash rates	Varies based on implementation and location	Multi-lane roads, divided highways	**Location:** Prioritize roads with high-speed traffic or frequent median-related crashes. **Conditions:** Ensure sufficient space for the wider median without compromising lane width.
All-Way Stop Control	All-way stop control at intersections improves safety by ensuring that all approaching traffic must stop, reducing the risk of collisions, particularly at lower-speed intersections.	**Primary:** Intersection **Secondary:** Traffic Calming	**New Installations:** Use at intersections with balanced traffic volumes **Upgrades:** Replace yield or two-way stop controls in high-crash areas	**CMF:** 0.319 **CRF:** 68.1%	Low-speed urban and suburban intersections	**Location:** Install where traffic volumes are similar on all approaches. **Conditions:** Ensure clear signage and visibility of stop signs.
Fully Boxed Crosswalk (Crossings on each Intersection Approach)	Fully boxed crosswalks provide pedestrian crossings on all approaches of an intersection, reducing the need for pedestrians to walk out of their way and increasing overall pedestrian safety.	**Primary:** Pedestrian **Secondary:** Intersection	**New Installations:** Implement at busy intersections in pedestrian-heavy areas **Upgrades:** Add crossings to intersections lacking pedestrian facilities	Varies based on implementation and location	Intersections	**Location:** Prioritize intersections with high pedestrian volumes. **Conditions:** Ensure crosswalks are clearly marked and accessible to all users.
Chicanes	Chicanes are a series of alternating curb extensions or lane shifts that slow down vehicles by requiring them to navigate a winding path, effectively calming traffic in residential or low-speed areas.	**Primary:** Traffic Calming **Secondary:** Residential Safety	**New Installations:** Implement on residential streets with speeding issues **Upgrades:** Retrofit existing straight roads where speeding is a problem	Reduces vehicle speeds	Residential streets, low-speed urban areas	**Location:** Use on straight sections of road where speeding is common. **Conditions**: Ensure sufficient space for emergency vehicles to pass.

Safety Countermeasure	Overview	Focus Area	Application	Effectiveness	Roadway Type	Installation Guidelines
Diverters	Diverters are barriers that prevent certain traffic movements (e.g., through traffic or specific turns), helping to reduce cut-through traffic in residential areas and improve neighborhood safety.	**Primary:** Traffic Management **Secondary:** Residential Safety	**New Installations:** Implement in residential areas with high cut-through traffic **Upgrades:** Add to existing roads where traffic management is needed	Reduces vehicle speeds	Residential neighborhoods, low-traffic areas	**Location:** Install at intersections or mid-block locations to redirect traffic. **Conditions:** Ensure alternative routes are available for diverted traffic.
Flashing Lights to Railroad (RR) Crossings with Signs	Flashing lights at railroad crossings, combined with warning signs, alert drivers to approaching trains, enhancing safety by reducing the likelihood of collisions between vehicles and trains.	**Primary:** Railroad Crossing Safety **Secondary:** Vehicle	**New Installations:** Install at unprotected railroad crossings **Upgrades:** Enhance existing crossings with additional safety measures	**CMF:** 0.23 **CRF:** 77%	Railroad crossings in urban, suburban, and rural areas	**Location:** Prioritize crossings with a history of near-misses or accidents. **Conditions:** Ensure visibility of flashing lights and proper sign placement.
Increase Turn Lane Lengths	Increasing the length of turn lanes allows more vehicles to queue without blocking through traffic, improving intersection efficiency and reducing rear-end collisions.	**Primary:** Intersection **Secondary:** Roadway Corridor	**New Installations:** Add to new intersections in high-traffic areas **Upgrades:** Extend turn lanes at existing intersections where queues spill into through lanes	**CMF:** 0.85 **CRF:** 15%	High-traffic urban and suburban intersections	**Location:** Prioritize intersections with frequent queuing issues. **Conditions:** Ensure adequate road width for extended lanes.
Narrow Travel Lanes	Narrowing travel lanes can reduce vehicle speeds, increase driver attentiveness, and provide additional space for other uses such as bike lanes or wider sidewalks, enhancing overall road safety.	**Primary:** Roadway Corridor **Secondary:** Speed Management	**New Installations:** Implement on roads undergoing redesign **Upgrades:** Narrow lanes in areas with speeding issues to improve safety	Varies based on implementation and location	Urban streets, residential areas	**Location:** Use in areas where speeding is a concern. **Conditions:** Ensure the narrowed lanes still accommodate the expected vehicle types.

Appendix G

Appendix H

Prince William County
Residential Traffic Management Guide

2020

Introduction

Prince William County (PWC) and the Virginia Department of Transportation (VDOT) each have specific responsibilities related to traffic in residential communities. Both are partners in the administration of these policies and procedures.

County Transportation staff encourages developers to incorporate the enclosed traffic management techniques into their strategies for street designs within development plans.

The Prince William County Traffic Management Guide is updated periodically as policies are developed and adopted.

All of these policies and procedures are subject to change by VDOT and/or Prince William County. Please refer to the specific policy sections in this guide for details.

For questions on any of the enclosed policies please contact Richard Weinmann at 703-792-8002, or email RWeinmann@pwcgov.org, or contact the Prince William County Department of Transportation at 703-792-6825.

Acronyms Listing

BOCS	Board of County Supervisors
CTB	Commonwealth Transportation Board
DTE	District Traffic Engineer
FHWA	Federal Highway Administration
HOA	Homeowners Association
MUTCD	Manual on Uniform Traffic Control Devices
NOVA	Northern Virginia
PMSD	Pole Mounted Speed Display
PWC	Prince William County
PWPD	Prince William County Police Department
PWC DOT	Prince William County Department of Transportation
TRIP	Transportation Road Improvement Program
VDOT	Virginia Department of Transportation
PMSD	Pole Mounted Speed Display

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Policy Summaries

The Prince William County/VDOT Residential Traffic Management Guide includes:

- Residential Traffic Calming Policy
- Pole Mounted Speed Display (PMSD) Policy
- Cut-Through Traffic Policy
- Through Truck Restriction Policy
- Additional Fines for Speeding Policy
- Watch for Children Signing Policy
- Policy for the County Ordinance 13-320.1 on the Restriction of Watercraft, Boat Trailers, Motor Homes and Camping Trailers
- Prince William County Parking Restrictions Policy
- Prince William County Code - Sec. 13-320. General Parking Prohibitions

Residential Traffic Calming Policy

Traffic calming plans are developed in cooperation with the community, County and state staff. Funding is from the Transportation Road Improvement Program (TRIP) until these funds are depleted. Residential traffic calming focuses on slowing traffic in communities where cut-through traffic is not a problem. When most of the traffic volumes and speeding is generated from within the neighborhood, residential traffic calming can implement measures to reduce speeds. As with all options available in this residential traffic management guide, established criteria must be met for roads to be eligible including recording 24-hour average speeds of 30 mph or greater in at least one direction and a daily traffic volume of between 600 – 4000 vehicles per day. Residential traffic calming focuses on slowing traffic without restricting access (left or right turn restrictions). Traffic calming devices are typically separated by at least 1,000 feet between each measure.

Techniques for traffic calming in Prince William County may include:

1. Speed Tables
2. Raised Crosswalks
3. Crosswalk Refuges/Raised Median Islands
4. Chokers
5. Chicanes
6. Traffic Circles and Roundabouts
7. Additional Fines for Speeding
8. Pavement Marking/Lane Narrowing
9. Pole Mounted Speed Displays

Pole Mounted Speed Display (PMSD) Policy

This program allows for the use of a Pole Mounted Speed Display (PMSD) when conditions are such that conventional adopted traffic calming measures may not be applicable. The average daily traffic volume should exceed 1,000 vehicles per day and the devices can be considered on roads with posted speed limits above 25 mph. In all cases, the street must have a documented traffic speeding problem and community support for the PMSD.

Cut-Through Traffic Policy

In 1989, the Commonwealth Transportation Board (CTB) identified and addressed cut-through traffic problems on secondary roadways in Virginia in the original Cut-Through Policy and Procedures Manual. Residential cut-through traffic involves vehicles that pass through a specific residential area without at least one trip end within the area. This cut-through traffic uses the local residential street system rather than the secondary road system intended for through traffic.

Cut-through traffic measures available include those listed under traffic calming with the addition of imposing access restrictions (left and right turn prohibitions). These measures are intended to make alternate routes more desirable. Funding for cut-through traffic measures is a VDOT responsibility.

Through-Truck Restriction Policy

This program restricts through-truck traffic on any part of a secondary roadway designated as a local or collector road that is residential in nature, if a reasonable alternate route is available. The restriction is not applicable to trucks passing through a specific residential area that make at least one trip end within the area such as trucks making deliveries or trash service.

Additional Fines for Speeding Policy

This policy can be considered on state-maintained roads that have a documented speeding problem. Motorists can be penalized up to $200 above regular fines for speeding on designated roads. This legislation went into effect in July 1996 and requires at least 51% support from the residents of the road in question. In lieu of an individual street within a community having the additional fines, it is recommended that interested communities should pursue having their entire neighborhood considered for the program. Documented support is discussed in the policy details.

Watch for Children Signing Policy

Signs may be installed to alert motorists that children may be nearby. Residential roads that meet criteria are eligible. Individual streets and cul-de-sacs are not recommended for this signing program. Entrances to communities where the signs can encompass an entire neighborhood are encouraged. Requests associated with disabled persons are reviewed on a case-by-case basis by VDOT. In communities with homeowner's associations, the "watch for children" sign locations require the HOA's approval.

Documented Community Support - Petitions

Petition areas are developed in coordination between Prince William County Department of Transportation (PWC DOT) staff and the appropriate Supervisor's office. All petitions received must have dated signatures and petition language on each page submitted. They are valid for a period of (12) months and will be verified by PWC DOT staff to ensure compliance of the required percentages. One signature per household by a resident 18 years of age or older is required and signatures of renters are accepted. In certain instances, documented community support in the form of a resolution from the homeowner's association or board of directors supporting the proposed measure can be accepted in lieu of a petition.

Traffic Calming Flowchart

Citizens contact the District Supervisors office or PWC DOT directly requesting traffic calming

↓

Eligible road(s) scheduled and speed studies conducted
(4 - 24 weeks)

↓

Speed studies reviewed by PWC DOT, then forwarded
to VDOT with criteria eligibility for review
(3 weeks)

↓

VDOT evaluates the data to confirm eligibility for traffic calming measures and notifies PWC DOT
(3 weeks)

↓

Recommendations forwarded to the District Supervisor for review and prioritization
(3 weeks)

↓

Plan developed by the community, homeowner associations, supervisors
office, PWC DOT, PWPD, Department of Fire/Rescue, and VDOT
(4 - 6 weeks)

↓

Petition of at least 75% of residents in favor of the plan is necessary to move forward
(2 - 3 weeks to prepare) - Community has 1 year to complete the petition

↓

Road(s) posted 2 weeks for public comments, comments compiled
and forwarded to District Supervisor for consideration
(3 - 4 weeks)

↓

Public hearing authorized, held and approved
(12 -16 weeks)

↓

Funding identified, accounts established and funds approved and transferred
(approximately 3 - 6 weeks)

↓

Contractors notified and scheduled once purchase orders are approved
(1 week)

↓

Plan implemented, devices installed
(2 - 8 weeks)

Residential Traffic Calming Policy

The Residential Traffic Calming Program focuses on slowing vehicles on local residential streets where "cut-through traffic" is not a problem. Traffic calming devices that can currently be incorporated into a traffic calming plan are as follows:

Physical Measures

1. Speed Tables
2. Raised Crosswalks
3. Raised Median Islands
4. Chokers
5. Chicanes
6. Traffic Circles and Roundabouts

Non- Physical Measures

7. Additional Fines for Speeding
8. Pavement Marking/Lane Narrowing
9. Pole Mounted Speed Displays

There shall be no more than four physical traffic calming devices on any emergency response route and no devices on designated primary response routes (excluding non-physical measures). This will be addressed on a case-by-case basis and coordinated with the Prince William County Department of Fire and Rescue to determine response routes during the development of any traffic calming plan. Physical traffic calming devices are typically placed at least 1,000 feet apart, need to be seen from at least 350 feet in advance of the device and must be at least 200 feet from the nearest intersection. All established criteria must be met, guidelines followed, and funding identified for a project to be implemented.

1. Support Data Requirements

The Board of County Supervisors must forward a formal request/resolution to VDOT requesting a traffic-calming project along with the following information:

- Petition with signatures – identified community support
- Street functional classification
- Average daily traffic volumes
- Average speeds
- Description of petition area
- Description of impacted areas

This support data provided by the County should verify that all requirements below are met. Typically, the appropriate County Supervisor's office provides the petition forms to the citizens whom in turn solicit the community support.

a. **Eligible streets**: Local residential streets with posted speed limits of 25 MPH can be considered for traffic calming. A local residential street provides direct access to abutting residences (driveways) and provides mobility within the neighborhood. Traffic on these streets is expected to be entering or exiting residences.

   Certain residential collector streets, although classified as collector roads may have the characteristics of local residential streets. These streets may be considered for traffic calming measures if they meet the established criteria.

   All of the following criteria shall be met for consideration of traffic calming measures:

   - 25 MPH posted speed limit
   - Two lane roadways
   - Have a documented speeding problem (24-hours average speed of 30 mph or more)
   - Average daily traffic of 600 – 4,000 vehicles per day
   - Identified community support for the traffic calming plan

b. **Documented speeding problem**: The recorded average speed should be at least 30 mph in any one direction to qualify on a road posted at 25 mph (at least 5 mph over the speed limit). This should be reflected in the speed studies conducted by County staff. Due to limited County resources speed studies can be conducted up to two times every 5 years with at least one year between studies for a specific road or community. Speed studies are typically conducted on Tuesdays, Wednesdays, and Thursdays. Samples are collected over a 48-hour period, on non-holiday weeks and when weather permits.

c. **Petition for traffic calming**: At least 75% of the total occupied households in the identified impacted area must sign a petition requesting traffic calming (one signature per household, which can be a renter). The petition area encompasses residences on the proposed street section under study, and all streets that have access to it. The County, in cooperation with the appropriate Supervisor's office will define the petition area. The impacted area typically includes the surrounding collector or arterial roads but should be defined by the County. The petition should not be circulated until it is verified that the street(s) in question meet the eligibility requirements. PWC DOT will verify that the petition is valid and forward to the VDOT District Traffic Engineer with the other necessary data.

   Petition areas are developed in coordination between PWC DOT staff and the appropriate Supervisor's office. All petitions received must have dated signatures and petition language on each page submitted. They are valid for period of (12) months and will be verified by PWC DOT staff to ensure compliance of the required percentages. In certain instances, documented community support in the form of a resolution from the homeowner's association or board of directors supporting the proposed measure can be accepted in lieu of a petition. In unique situations where it is unsafe to solicit support door to door, alternative methods of identified community support can be considered.

2. Traffic Calming Plan Development

A local traffic calming committee should be formed to develop the traffic-calming plan. It should include representatives from the petition area, impacted area, homeowner associations, the Board of County Supervisors, PWC DOT staff, Police, Fire/Rescue, VDOT, and other interested parties. Because the impact of traffic calming measures will extend beyond the petition area, it is important to involve representatives from the entire vicinity.

The appropriate County Supervisor and homeowner's association are responsible for scheduling and facilitating meetings. County staff will provide technical support and advise the community of the potential advantages and disadvantages of calming measures. Educating participants about residential traffic management and traffic calming is important to a successful program. The proposed plan should be presented to citizens at a public meeting or by a petition, so the Board of County Supervisors can assess whether community support exists.

3. Approval and Implementation

The appropriate County Supervisor and VDOT must jointly approve the final plan and method of implementation. The final plan funding (which is typically through the Transportation and Road Improvement Program - TRIP) is a special fund outside traditional allocations that can be used for projects such as traffic calming. If TRIP funding is not available, then County safety funds can be considered.

4. Evaluation

After a reasonable period, a follow-up evaluation can be performed to determine if the calming measures are effective. This is typically done at least 6 months after the devices have been installed so the motoring public can become accustomed to them and adjust their driving habits accordingly. After evaluation, the County recommends removing any traffic calming devices, then funding for the removal should come from the same funding sources as implementation. Additionally, if an unforeseen safety problem develops, VDOT may decide to remove the traffic calming devices.

Traffic Calming Measures

Community awareness and education is an important first step. Residents should be made aware of speeding concerns and reminded about the importance of safe driving in their neighborhood. VDOT and PWC DOT staff are available to speak to homeowner associations about traffic calming measures. They can help raise community awareness about advantages, disadvantages, costs, and funding options.

Enforcement is traditionally the primary means of addressing speeding problems. Local police officers monitor and enforce the posted speed limit. Enforcement efforts should be undertaken as much as possible prior to implementing traffic calming measures.

Physical devices available are designed to reduce speed by creating vertical and horizontal shifts in the roadway or travel lanes. Non-physical devices such as pavement markings to narrow travel lanes and additional fines for speeding are low-cost measures that do not physically restrict driver maneuvers. In addition, a program called Pole Mounted Speed Displays (PMSD) is now an option.

Alternative actions need to be considered when traffic volumes on the study street are less than 600 vehicles per day or exceed 4000 vehicles per day. The roadway network in the area should be examined to identify potential improvements on major routes that may provide relief to the study street.

Traffic Volumes and Traffic Calming Measures

Traffic volumes on the residential street will determine the appropriate traffic calming measures which are as follows:

- Fewer than 600 vehicles per day
    - Education and Enforcement.
    - No physical traffic calming measures.

- 600 - 4,000 vehicles per day
    - Education and Enforcement.
    - All traffic calming measures can be considered.

- More than 4,000 vehicles per day
    - Education and Enforcement.
    - Alternative actions only.
    - No physical traffic calming measures.

Roads Not in the State Maintenance System

This Traffic Calming policy can be applicable to roads that have not been accepted into the state maintenance system. These roads, which are intended to be taken into the VDOT system, can follow the identical procedures as if the roads were in the system. The exception is that, in lieu of the Board of County Supervisors resolution requesting VDOT to install traffic calming measures, the request is made to the developer.

Private Roads

Traffic calming measures can also be implemented on private roads. Before the traffic calming measures can be implemented, the property owner, property manager or homeowners' association must submit a plan showing the proposed traffic calming measures to Prince William County for revision. This typically involves a minor plan revision, and the plan can be submitted at the Plan Intake Counter in the Development Services Building, 5 County Complex Court, Prince William County, VA 22192. The traffic calming measures must meet all standards and requirements described in the Prince William County Design and Construction Manual (DCSM). All costs associated with traffic calming on private roads is the responsibility of the property owner or community that owns, operates and maintains the private road being considered. PWC DOT staff are available to work with communities and property owners/managers to offer guidance and technical assistance in the development of traffic calming plans on private roads.

Physical Traffic Calming Devices

1. Speed Tables

Description: A raised hump in the roadway with a 10-foot flat top, extending across the road at right angles to the traffic. The PWC adopted speed table is identical to a raised crosswalk with the difference being the signs and pedestrian ramps. The specifications are a 6 foot approach to a height of approximately +/- 3” - 4” with a 10 foot flat top and 6 foot decline back down to road level.

Placement: Spacing should be approximately at least 1,000 feet, clearly visible for at least 350 feet, placed at least 200 feet from intersections and include warning signs with appropriate pavement markings.

Advantage: Reduces speeds.

Disadvantages: Increases emergency response times, slows emergency vehicles and buses, creates potential drainage problems, impacts snow removal operations, increases noise and increases maintenance costs – especially with repaving.

Estimated cost: $9,000 - $12,000 per speed table.

2. Raised Crosswalks

Description: A raised hump in the roadway with a 10-foot flat top, extending across the road at right angles to the direction of traffic flow. The specifications are a 6 foot approach to a height of +/- 3” – 4” with a 10 foot flat top and 6 foot decline back down to road level. Identical to a speed table with pedestrian ramps, signs and markings.

Placement: Spacing should be approximately 500 – 1,000 feet, clearly visible for at least 350 feet and installed where a significant number of pedestrians cross the roadway. These should include advance-warning signs and appropriate pavement markings.

Advantages: Reduces speeds, provides improved visibility and pedestrian safety.

Disadvantages: Increases emergency response times and slows emergency vehicles and buses, creates potential drainage problems, increases noise, and increases maintenance costs.

Estimated cost: $10,000 - $20,000 per raised crosswalk.

3. Crosswalk Refuges/Raised Median Islands

Description: A raised median in the middle of the roadway with a cut provided for the crosswalk. Advance warning signing/pavement marking must be installed.

Placement: Where a significant number of pedestrians cross the roadway.

Advantages: Reduces speeds and increases safety for pedestrians.

Disadvantages: Increases maintenance costs, sometimes eliminates parking space near the device.

Estimated costs: $10,000 - $20,000 per crosswalk refuge.

4. Chokers

Description: A physical constriction built at the curbside of the roadway to reduce the width of the travel lane; the roadway must be at least 30 feet from curb to curb. Advance warning signing/pavement marking can be installed.

Placement: Normal turning radii should be accommodated with advance warning signs and pavement markings.

Advantages: Reduces speeds, provides parking protection and shortens pedestrian crossing distance

Disadvantages: Potential drainage problems, maintenance costs, sometimes eliminates parking space near the device.

Estimated cost: $9,000 - $15,000 per pair.

5. Chicanes

Description: Alternating constrictions built curbside to create a bend in the formerly straight street, forcing vehicles to negotiate the narrower street in a snake-like fashion.

Placement: Should accommodate normal turning radii, sets are to be placed 400-600 feet apart, feature advance warning signing/pavement marking and used only on roadways divided with a median.

Advantages: Reduces speeds, provides parking protection and shortens pedestrian crossing time and distance.

Disadvantages: Limited to divided roadways, creates potential drainage problems, and increases maintenance cost; sometimes eliminates parking space near the device.

Estimated cost: $10,000 - $20,000 per set.

6. Traffic Circles and Roundabouts

Description: Elevated area in the middle of an intersection that provides circular and counterclockwise traffic flow.

Placement: Street grades approaching the intersection should not exceed 10 percent. entrances should be a minimum of 100 feet away on all approaches for traffic circles. This can be reduced for mini-roundabout type devices.

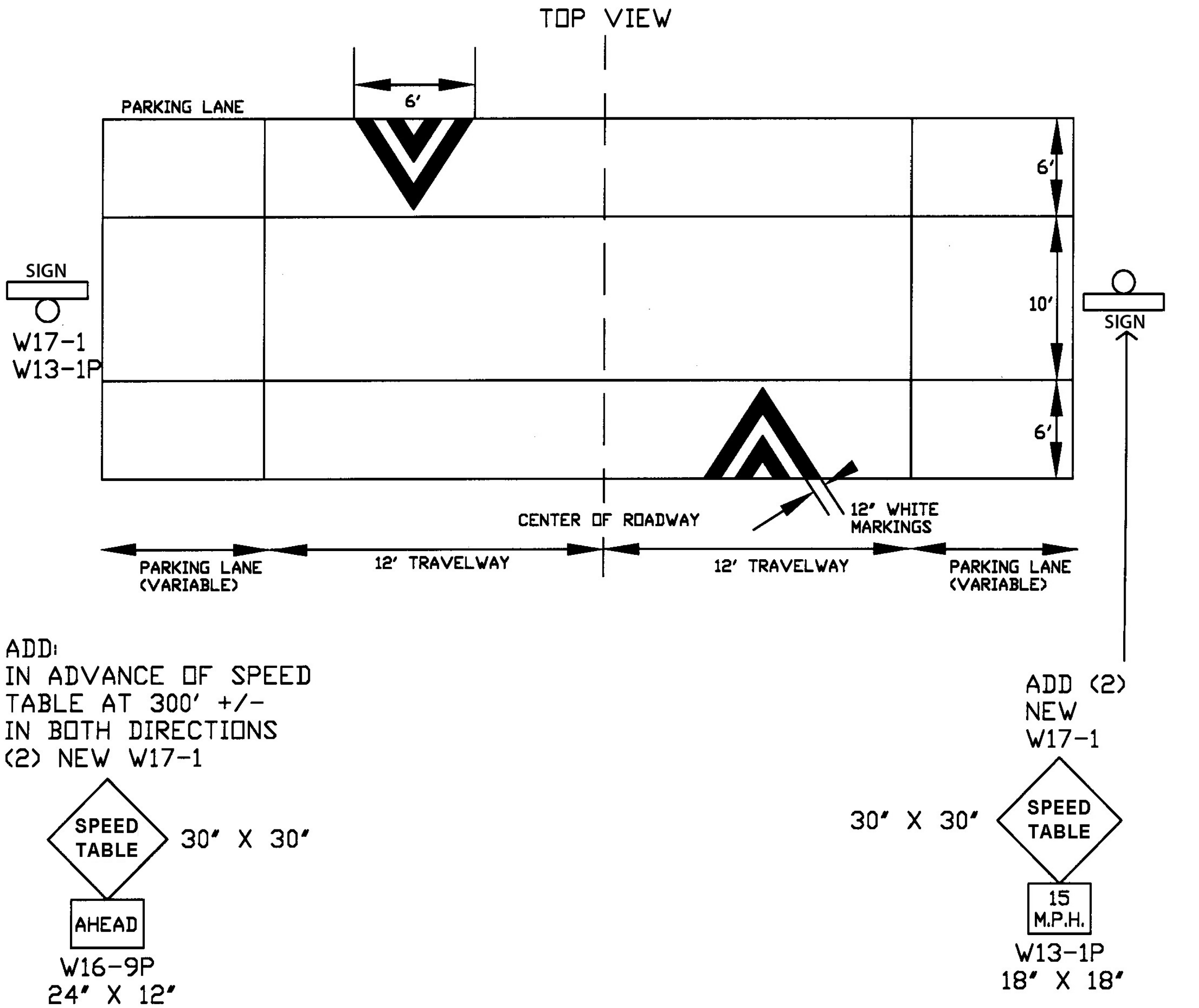
Design: *VDOT has adopted the FHWA 2000 Roundabouts Information Guide for the installation of roundabouts.*

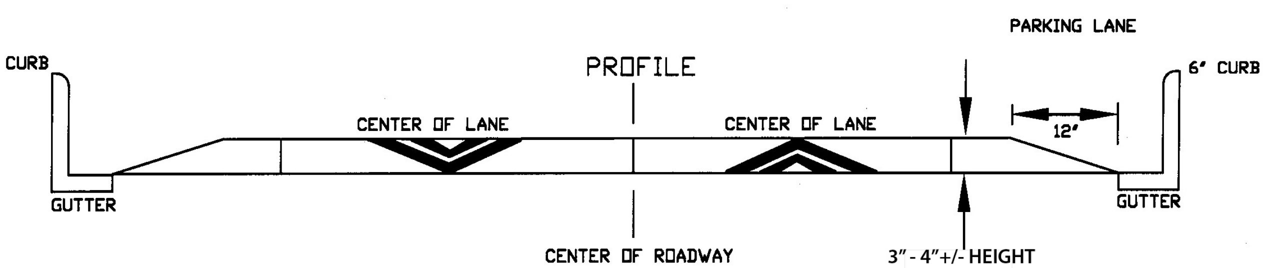
Advantages: Reduces speed, mitigates left-turn accidents, increases aesthetics and can reduce accidents associated with multiway stops. Can also improve traffic flow through the intersection.

Disadvantages: Reduces parking spaces, often requires additional right-of-way and can impact drainage structures. Typically requires relocating pedestrian crossing locations.

Estimated cost: $15,000 - $250,000+ per circle/roundabout.

TYPICAL FOR SPEED TABLE





Non-Physical Traffic Calming Devices

7. Additional Fines for Speeding

Description: Signs indicating there is the potential of an additional $200 fine for speeding on designated streets or areas.

Placement: Below posted speed limit signs.

Advantages: Drivers are made aware that there is the potential of up to an additional $200 fine for speeding in designated areas, low cost, only impacts drivers caught exceeding the posted speed limit.

Disadvantages: No physical means of making vehicles slow down and requires periodic enforcement.

8. Pavement Marking/Lane Narrowing

Description: Change in the roadway width or alignment to create a narrowing or shift in the travel lane resulting in a reduction of speed.

Placement: Varies on a case-by-case basis.

Advantages: Slightly reduces speeds.

Disadvantages: Can be expensive and eradication of markings scars the pavement. Effectiveness is typically nominal.

9. Pole Mounted Speed Display (PMSD)

Description: Speed display feedback sign that informs the motorists of their current operating speed digitally in addition to a static posted speed limit sign. Equipment used must meet VDOT specifications and criteria.

Placement: PMSD shall be installed beneath standard speed limit signs and be permanent at locations with a documented speeding problem. Requires a minimum line of sight to have sufficient time to measure and display the approaching vehicle's speed.

Advantages: These non-physical devices are ideal in situations where conventional traffic calming measures may not be an option.

Disadvantages: Cost and ongoing equipment maintenance. Effectiveness is most prevalent in situations where there is a change in posted speed limit or road condition. They are less effective deeper in residential neighborhoods. They are targets for vandalism.

Estimated cost: $7,000 per unit.

Pole Mounted Speed Display (PMSD) Policy

Pole Mounted Speed Display (PMSD) signs provide a real-time, dynamic display of a driver's vehicular speed and are well-suited for situations when conditions are such that other adopted traffic calming measures are not applicable.

These signs are installed in conjunction with regulatory speed limit (R2- l) or advisory speed signs in order to provide drivers with immediate confirmation of their actual speed in relation to the posted speed limit or advisory speed and have been successful in Prince William County under our pilot program.

PMSD signs are permanently installed with a concrete base where a long-term need is identified. Portable speed trailers and temporary speed display signs are similar to PMSD signs; however, since they are much more portable, their use is less prescriptive. Portable temporary units can be requested through the Prince William County Police Department as part of their speed enforcement initiatives.

Pole Mounted Speed Display Locations

To be considered for a PMSD, the following criteria must be met:

- The roadway segment under consideration is a *local/residential road or at a location of a change in roadway conditions (for example speed limit change or approach to a significant hazard such as a curve).
- No more than two lanes (one lane per travel direction).
- Posted speed limit of 35 mph or less.
- Have an identified speeding problem or a safety-related location (accidents).
- Average daily traffic of at least 1,000 vehicles per day.
- Community support for the device(s) consisting of a petition reflecting the support of at least 51% of the impacted community. In addition, all residents immediately adjacent to the proposed sign location(s) must have no objection.

*A local residential street provides direct access to abutting residences (driveways) and provides mobility within the neighborhood. Traffic on these streets is expected to be entering or exiting residences.

Safety-Related Locations

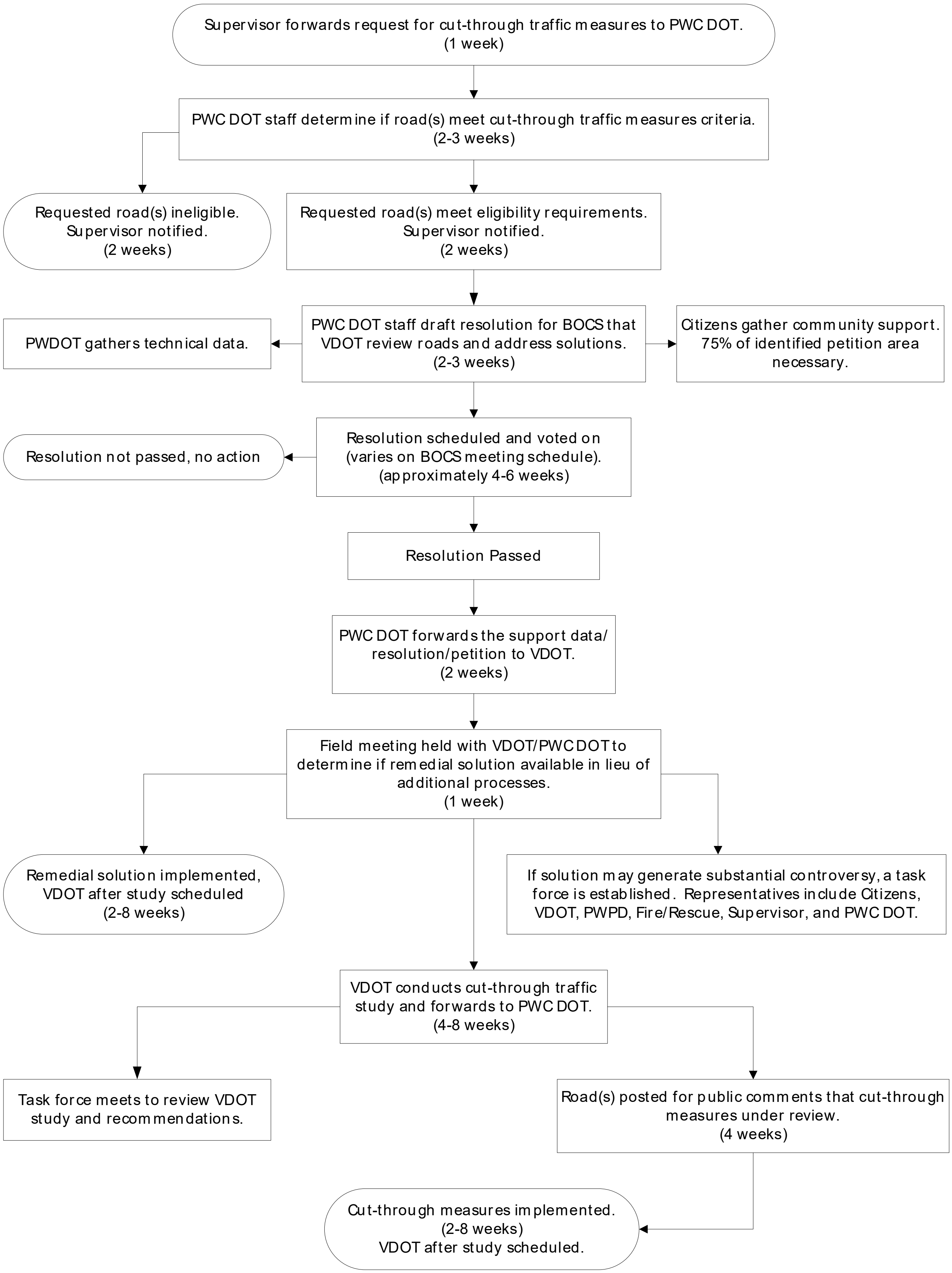
Other non-residential locations deemed appropriate by the VDOT Regional Traffic Engineer such as to encourage compliance with advisory speed conditions or to address locations with identified speed or pedestrian related safety concerns can be considered for a PMSD. For safety-related concern locations, a PMSD can be considered on multilane roads and roads with posted speed limits above 35 mph.

All PMSD signs require VDOT approval and are installed within state right-of-way under a VDOT permit.

Factors to consider when selecting a suitable PMSD location for both residential traffic calming and pedestrian or safety-related situations include but are not limited to:

- road geometrics
- line of sight considerations
- overhead tree canopy - in order for sunlight to charge the solar panels
- overhead utilities
- other factors that may impact the PMSD performance

Cut-Through Traffic Policy Flowchart



Cut-Through Traffic Policy

General

This policy identifies the specific responsibilities and requirements of VDOT and Prince William County regarding cut-through traffic on local residential streets. Measures available are identical to those used for traffic calming with the addition of turn restrictions, which can also be included in a cut-through traffic plan.

Eligible streets: Local residential streets with posted speed limits of 25 MPH can be considered for traffic calming. A local residential street provides direct access to abutting residences (driveways) and provides mobility within the neighborhood. Traffic on these streets is expected to be entering or exiting residences.

All of the following criteria shall be met for consideration of cut-through measures:

- 25 MPH posted speed limit
- Two-lane roadway
- Do not serve as primary access to any significant commercial or industrial sites
- Have a documented speeding problem
- Average daily traffic of 600 – 4000 vehicles per day
- Identified community support for the traffic calming plan

Certain residential collector streets, although classified as collector roads may have the characteristics of local residential streets. These streets may be considered for traffic calming measures if they meet the established criteria.

Definitions

Residential Cut-Through Traffic: Traffic passing through a specific residential area without stopping or without at least one trip end within the area. Cut-through traffic uses local residential streets rather than the local collector street system intended for through traffic.

Local Residential Streets: Streets within a neighborhood that provide direct access to abutting land uses and mobility within that locality. These are functionally classified by VDOT and generally must have driveways.

Primary Use Area: is the area which contains all the local residential streets within a community that may be affected by changes to the candidate street(s) for Residential cut-through traffic or by a change to any street that provides access to that community.

Responsibilities

County Responsibilities

The County is responsible for Initiating the residential cut-through traffic measures.

- Identification of the problem of residential cut-through traffic is done through resolution by the County Board of Supervisors requesting VDOT to review and address possible solutions. This request is submitted to VDOT Traffic Engineering, with the following support data compiled by County staff:

- Functional classification of the street(s) in question as a local residential street and its relationship to the comprehensive plan.

- Identification of the primary use area including all streets accessed primarily by using the study street(s) and associated roadway networks. The information will include the functional classification and relationship to the comprehensive plan for all streets in the primary use area.

- Verification by the County that cut-through traffic on the local residential street to be studied is 40% or more of the total one-hour single directional volume, with a minimum of 150 cut-through trips occurring in one hour in one direction. Acceptable planning techniques may be used to determine the amount of cut-through traffic. A description of the technique used should be provided to VDOT along with the vehicle volume data. Speed studies are typically conducted on Tuesdays, Wednesdays and Thursdays. Samples are collected over a 48-hour period, on non-holiday weeks and when weather permits.

- Verification by the County that the petition outlining the perceived problem area is signed by at least 75% of the total occupied households within the primary use area.

- Identification of alternate routes for through traffic if travel is restricted on the street(s) in question.

If these support data requirements are not met, the process is terminated.

VDOT Responsibilities

VDOT is responsible for completing a study of the roadway network identified in the formal request from the County. They will conduct this study in four phases:

1. VDOT Traffic Engineering will review and submit the adopted resolution along with any recommendations to the District Administrator.

2. When the County submits a study request to VDOT, a field meeting should be held between the County and VDOT staff. If a simple solution can be agreed upon at this meeting, an initial study or public hearings may not be necessary. VDOT should implement the solution, conduct an after-study and modify as needed. A task force should be established if the solution recommended is expected to generate a great deal of public interest or to significantly impact access and traffic circulation. The task force should include representatives from VDOT, Prince William County staff and residents.

3. As directed by the District Administrator, the District Traffic Engineer will conduct the necessary studies and evaluate the County's request. The District Traffic Engineer's study may include:

    - Detailed traffic counts on existing affected streets and potentially affected streets.
    - Intersection analysis on the proposed alternative route(s). Residential cut-through traffic measures can only be implemented if the alternate routes are acceptable.
    - Identification of potential adverse safety impacts.
    - Identification of the geometrics of the existing facilities in light of the traffic analysis.
    - Speed analysis of the affected streets.
    - Pedestrian circulation and safety analysis in the study area.

4. After conducting the traffic studies, the District Traffic Engineer will provide the District Administrator with findings and recommendations. These recommendations will provide alternatives for reducing residential cut-through traffic. It will include any sketches or diagrams necessary to implement the alternatives, as well as the impact of each alternative on the existing roadway network. The District Administrator will determine the appropriate alternatives.

If the County and the District Administrator fail to agree on the remedial measures to be implemented, the Board of County Supervisors may appeal to the Commonwealth Transportation Commissioner. The Commonwealth Transportation Commissioner will analyze all the supporting data and render a binding decision.

Joint Responsibilities

After receiving VDOT findings and recommendations, Prince William County will ask for comments from appropriate local agencies such as the Fire and Rescue Association, Police, and School Transportation.

VDOT and Prince William County will hold a public hearing to gain citizen input on the VDOT findings and recommendations. Advance notice of the public hearing must be provided by VDOT, including the following notice requirements:

- A notice placed by VDOT in a County newspaper once a week for at least two successive weeks.
- Notice posted by the County of the proposed hearing at the front door of the courthouse 10 days prior to the hearing.
- Signs placed by VDOT on the affected street(s) with a contact who can answer questions concerning the findings or recommendations.

The County will furnish a summary and transcript of the public hearing, and an approved resolution to VDOT.

Implementation

Remedial measures to minimize the residential cut through situation must be implemented in the following sequence:

- VDOT notifies the County and media of the action to be taken with a proposed date for implementation.

- Signs will be placed on the affected streets with the name and telephone number to call for more information about the pending action.

- VDOT will implement the remedial measures, some of which may be temporary to evaluate their effectiveness.

Evaluation

Remedial measures will be evaluated based on:

- The District Traffic Engineer will re-study the roadway network and convey their findings and recommendations to the District Administrator. This occurs after the remedial measures have been in place between 1 and 6 months.

- The District Administrator will review the District Traffic Engineer's report and provide information to the County.

- If it is determined that the implemented remedial measures are an appropriate action, the County will identify the source of any needed funding for permanent construction if necessary.

If it is determined that the implemented remedial measures are not appropriate, VDOT may terminate such measures and consider alternate measures. The District Administrator will notify the County on the next steps.

If the County does not agree with the remedial measures, it may appeal to the Commonwealth Transportation Commissioner. The Commonwealth Transportation Commissioner will analyze all the supporting data and render a binding decision.

Funding

Remedial measures utilized on approved local residential streets can be fully-funded with state secondary road funds with concurrence of the Board of County Supervisors or alternate measures.

Roads Not in the State Maintenance System

This Cut-Through Traffic policy can be applicable to roads that have not been accepted into the state maintenance system. These roads, which are intended to be taken into the VDOT system, can follow the identical procedures as if the roads were in the system. The exception is that, in lieu of the Board of County Supervisors resolution requesting VDOT to install cut-through traffic measures, the request is made to the developer.

Private Roads

Cut-through traffic calming measures can also be implemented on private roads. Before the cut-through traffic calming measures can be implemented the property owner, property manager or homeowners' association must submit a plan showing the proposed cut through traffic calming measures to Prince William County for revision. This typically involves a minor plan revision and the plan can be submitted at the Plan Intake Counter in the Development Services Building, 5 County Complex Court, Prince William County, VA 22192. The cut-through traffic calming measures must meet all standards and requirements described in the Prince William County Design and Construction Manual (DCSM). All costs associated with cut-through traffic calming on private roads is the responsibility of the property owner or community that owns, operates and maintains the private road being considered. PWC DOT staff are available to work with communities and property owners/managers to offer guidance and technical assistance in the development of cut-through traffic calming plans on private roads.

Local Residential Streets Not Meeting the Residential Cut-Through Traffic Support Data Requirements

Collector Roads

Some roads, although officially classified as a collector, function more like local streets where remedial measures may be appropriate. Further, VDOT recognizes that each County may have unique needs. It is difficult for VDOT to apply a statewide policy to meet these unique needs. VDOT will therefore cooperate with the County if a collector road requires remedial measures. The classification may be overlooked in the requirements. VDOT and the County will seek an agreement about remedial measures and the amount of VDOT funding participation (up to 50% of the cost) prior to any individual study being conducted.

Local Residential Streets Not Meeting Support Data Requirements

For local residential streets not meeting the support data requirements (such as insufficient cut-through traffic), VDOT will cooperate with the County if the County desires to pursue a more aggressive program.

An agreement must be reached between the County and VDOT as to the types of remedial measures and the amount of funding participation (up to 50% of the cost) before any individual study is conducted.

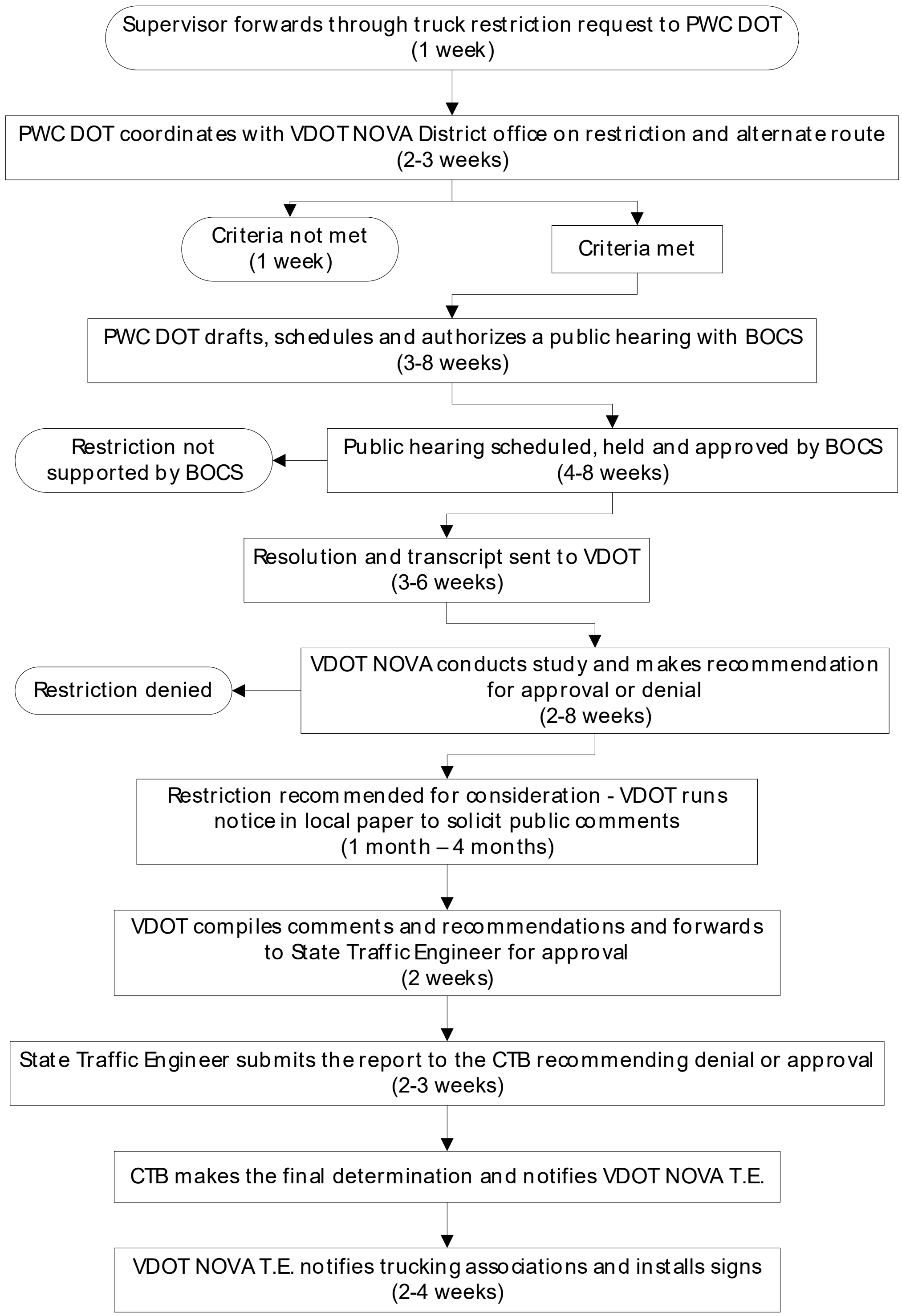
Memorandum of Understanding

Prior to implementation of remedial measures on individual collector roads and local roads not meeting the residential cut-through traffic support data requirements, a Memorandum of Understanding or Memorandum of Agreement shall be negotiated and agreed upon between the County and the VDOT District Administrator.

Allowable Remedial Measures

Traffic control techniques must conform to national standard practices for the type of road where the proposed remedial measures are to be placed. An example of a technique that cannot be used is the installation of multi-way stops on a collector road or on a Fire/Rescue primary response route.

Through Truck Restriction Flowchart



Through Truck Restrictions Policy

Procedures for Considering Requests for Restricting Through-Trucks on Secondary Highways

The County must take the following steps to restrict through-traffic on secondary roads as required by Section § 46.2-809. Regulation of truck traffic on primary and secondary highways of the Code of Virginia:

1. Hold a legally advertised public hearing, which must include:

    - A public notice with a description of the route(s) of the proposed through-truck restriction and alternate route(s) with the same termini. A copy of all public notices must be provided with this request.
    - A transcript of the hearing must be provided with the request to restrict through-trucks.
    - A copy of the adopted resolution describing the proposed through-truck restriction and a description of the alternative route with termini must be provided with the request.
    - Prince William County must include in the resolution that it will have the proposed restriction enforced by the appropriate local law enforcement agency.
    - A failure on the part of the County to comply with the above will result in the return of the request to the County for compliance.

2. The County must make a formal request through VDOT, certifying that it has met all the requirements noted in item #1. VDOT, upon acceptance of the truck restriction request will forward it to the District Traffic Engineer requesting consideration of the restriction, which will entail a study to be completed by the NOVA District Traffic Engineering staff.

3. The District Traffic Engineer will evaluate the following data:

   A. The functional classification for the routes(s) proposed for the restrictions and for the route(s) proposed as an alternative.

   B. A traffic engineering study to include:

      - Traffic volumes by vehicle type and date(s) for the route(s) proposed for restriction and the proposed alternative routes.
      - A 12-hour origin/destination study of all trucks on the route(s) proposed for restriction by date.
      - The number and percentage of "through-trucks" on the route(s) proposed for restriction by date.
      - Comparison of driving runs on the routes proposed for restriction and alternate route(s) to indicate travel time/distance penalties or savings.
      - An inventory of roadway characteristics and geometrics for the route(s) proposed for restriction and the alternate route(s).

4. The District Traffic Engineer will secure and evaluate all available accident data for the route(s) proposed for restriction and the alternate route(s).

5. Following receipt of all requested data and information, the District Traffic Engineer will conduct a traffic and engineering study of the restriction request. This report will warrant action in one or more of the following categories:

   - Publish a public notice of the proposed restriction requesting written comment only.
   - Publish a public notice of the proposed restriction and advise of VDOT's willingness to hold a public hearing if requested.
   - Publish a public notice of the time and place of a public hearing on the proposed restriction.

   If a public hearing is required, VDOT will hold the hearing in accordance with established procedures.

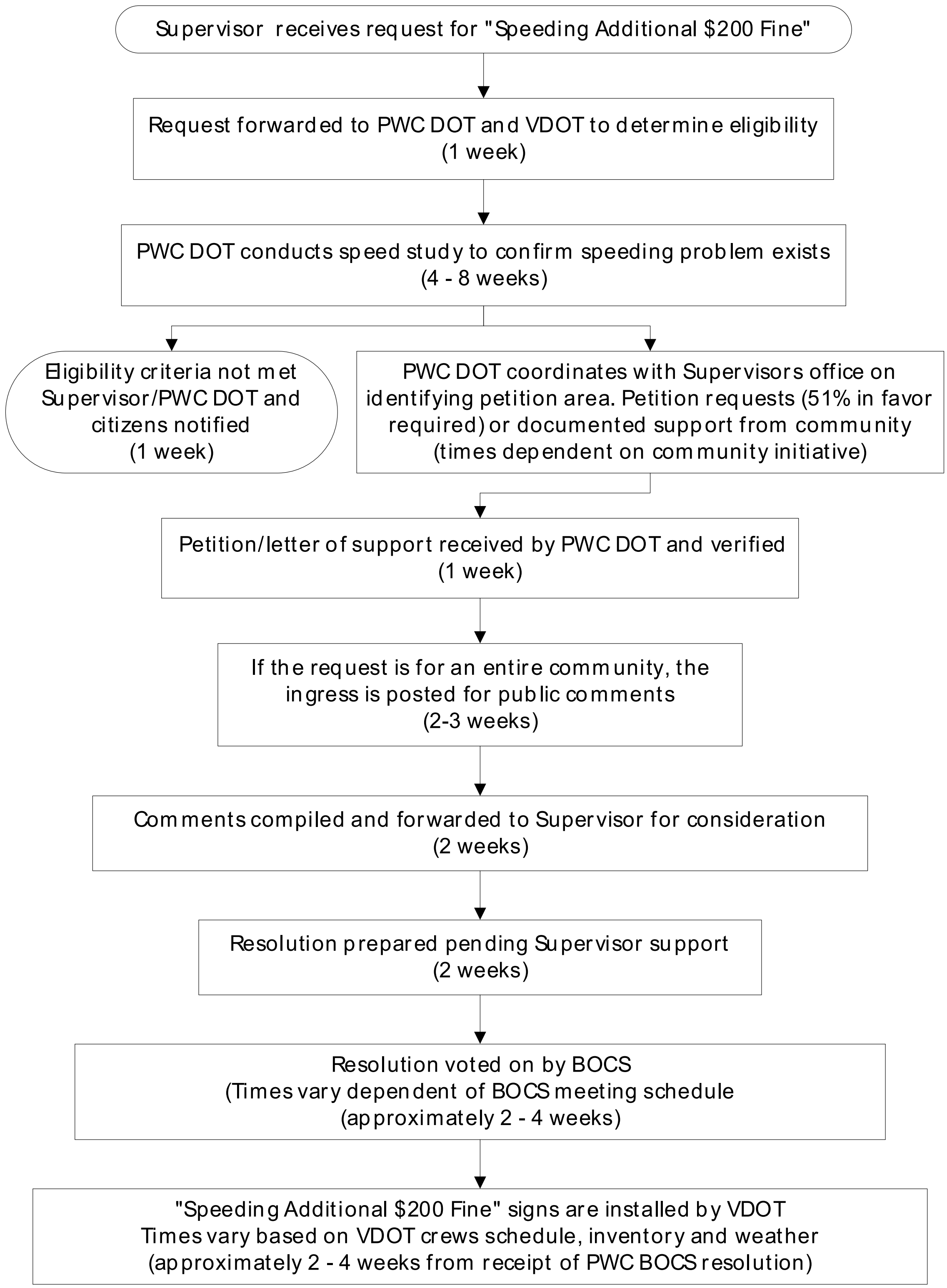
   In conjunction with the publishing of the public notice, signs will be erected at each end of the proposed restricted routes advising of the proposed restriction and listing an address for the public to send comments. The signs will be placed for a period of thirty (30) days. A copy of the public notice will be sent to the Virginia Trucking Association for distribution to the trucking industry and other interested parties.

6. The District will draft a report, with their recommendation and all pertinent materials (i.e. transcript of public hearing, if held, copy of published public notice, and any written or oral comments received). This report will be sent to the local Commonwealth Transportation Board (CTB) Member for comments and approval. Once approved, the report is then forwarded to the State Traffic Engineer.

7. The State Traffic Engineer will review all data and material in addition to the District Traffic Engineer's recommendation. A report will be prepared and submitted to the Commissioner of the Commonwealth Transportation Board (CTB) recommending approval or denial of the proposed restriction.

8. Following approval from the Commonwealth Transportation Board (CTB), the District Traffic Engineer may notify the Virginia Trucking Association and will install signs on the route(s).

Additional Fines for Speeding Flowchart



Additional Fines for Speeding Policy

Background

Roads designated as having the $200 fine in addition to normally imposed fines for speeding are posted as such below the existing speed limit signs. County and state staff found that once an individual street within a community had their road designated for the additional fines, other streets within the same neighborhood requested the signs to be installed as well. This required VDOT to post additional speed limit 25 MPH and additional fines for speeding signs. As communities became proliferated with these signs, we realized it would be more practical to have the entire community support the additional fines. Hence, it could be posted at the entry points of the neighborhoods where the existing speed limit signs are. The addition of the signs typically takes place beneath existing speed limit signs but will be reviewed on a case-by-case basis to determine if additional speed limit signs are necessary to clarify the designated area. An entire community can be subject to the additional fines for speeding without posting the individual streets within the community. For these reasons, we encourage that the neighborhoods become involved in designating additional fines for speeding for entire communities.

Purpose

The purpose of this policy is to address the issue of vehicles exceeding the posted speed limit on local residential and collector streets that have residential characteristics.

Petition for Speeding Additional $200 Fine

At least 51% of the total occupied households in the impacted area must sign a petition requesting the additional fines for speeding. The petition area encompasses residences on the proposed study street section, and all streets that have access to it. Petition areas are developed in coordination between PWC DOT staff and the appropriate Supervisor’s office. All petitions received must have dated signatures and will be valid for (12) months. These petitions will be verified by PWC DOT staff to ensure compliance of the required percentages. Typically, the appropriate District Supervisor's office handles providing the petition to interested citizens to gather support. Once received, the Supervisor's office forwards the petition to the PWC DOT for verification. The County will verify that the petition is valid and draft a resolution for the County Board of Supervisors requesting VDOT to impose the additional fines.

Based on the size of the community in question, the requirement for a petition may not be practical. In those cases, a resolution from the homeowner’s association, board of directors or similar support can be used instead of a petition. This will be reviewed on a case-by-case basis and coordinated by County staff. If an entire community is requested for the additional fines, PWC DOT will post the entry points for public comments. These comments are compiled and forwarded to the appropriate County Supervisor for consideration.

CTB Policy

It is the Commonwealth Transportation Board's (CTB) policy that VDOT, upon a formal request from Prince William County, install these signs on local residential and collector streets. These streets must have a posted speed limit of 35 mph or less and be part of the VDOT system (no private roads are eligible for this policy). This policy is also not applicable to highways in the state primary system (roads with route numbers 600 and below).

The warning signs advise motorists of an additional fine up to $200 above other penalties provided by law, for exceeding the posted speed limit in certain designated residential districts.

Definitions

The following definitions apply to this policy:

- "**Local Residential Streets**" are roadways built as part of a residential development or a roadway where residential development has taken place resulting in a neighborhood or community resembling a residential development. Further, a local residential street must have residential units facing the street and provide driveway connections or curbside parking for a majority of the residential units.

- "**Collector Streets and Roads**" are roads exhibiting the residential characteristics listed for local residential streets as well as serving traffic movements between residential areas and major roadways.

- "**Residence District**" means the area bordering a road, not part of a business district, where 75% or more of the property along a distance of 300 feet or more on either side of the road is occupied by dwellings and land improved for dwelling purposes.

Criteria

To qualify for sign installation, a road(s) shall meet the following criteria:

- Documented speeding problem per the traffic calming requirements
- Meet the definitions of a local or residential street
- Have a posted speed limit of 35 miles per hour or less
- Gained community support
- Accepted into the state system (no private roads)

Responsibilities

County Responsibility

To initiate these procedures, Prince William County shall first request that VDOT conduct a review of the road(s) in question to verify eligibility. If criteria are met, the County will request by resolution that VDOT install the appropriate signs as stipulated.

This request shall be submitted to VDOT in the form of a resolution, along with the following support data:

1. Identification of the neighborhood or specific road(s) where signs are requested.

2. Confirmation that the road(s) meet the definitions of local and collector streets as listed in this section definition.

3. Notification that a speeding problem exists and that the requested increased penalty has community support.

VDOT Responsibility

It is the responsibility of VDOT to review the requested road(s) in question to verify eligibility requirements. Then, to provide, install and maintain the signs once the resolution is received. The following procedure will be observed:

1. VDOT Traffic Engineering receives the request and confirms eligibility with PWC DOT.

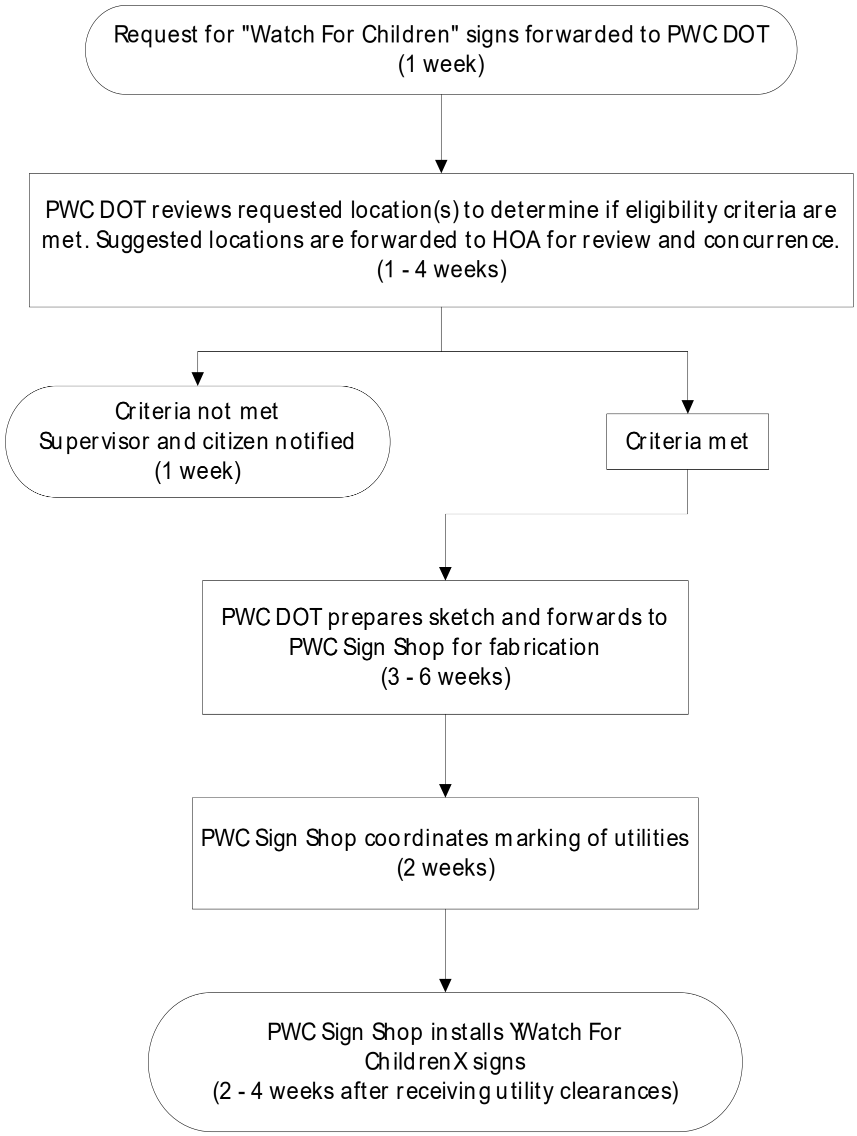
2. VDOT, upon receipt of the adopted resolution and support data, will review the package and forward it to the District Traffic Engineer.

3. The District Traffic Engineer will review, reconfirm eligibility and forward a sketch to the VDOT Traffic Field Operations for sign installation. VDOT Traffic Engineering staff will inform County staff when the signs are installed.

4. Sign installation under this policy will typically take place within 60 days of the date the resolution is approved and received by the District Traffic Engineer.

5. The District Traffic Engineer or their representative will notify the VDOT Traffic Engineering Central Office of the location and date of installation of the signs so that records can be kept at their facility.

Watch For Children Flowchart



Watch for Children Signing Policy

Introduction

On July 1997, the Commonwealth Transportation Board (CTB) adopted this policy. In the 2012 General Assembly, HB 914 was passed to amend the Code of Virginia, which became effective July 1, 2012. The amended code provides that the County or town may install and maintain "Watch for Children" warning signs (W15-V1) at certain locations through an agreement with the Commissioner and that the County or town will pay for the associated purchase, installation and maintenance costs. The amended section deleted previous language stipulating the source of funding to be used by the County for such signs.

Installation and Maintenance of Certain Signs in Counties and Towns

The governing body of any County or town may enter into an agreement with the Commissioner allowing the County or town to install and maintain, at locations specified in such agreement, signs alerting motorists that children may be at play nearby. This Agreement for the Installation and Maintenance of Watch for Children Signs was approved on December 6, 2012. The cost of the signs and their installation shall be paid by the County.

"**Persons with Disability**" warning signs are installed and maintained by VDOT. Requests for "Persons with Disability" signs should be made directly to VDOT. PWC DOT staff can assist members of the community with the submitting these requests to VDOT.

We do not recommend posting individual streets with these signs since demographics constantly change (families). The result would be inherent disregard for the signs since they would be posted on every street in every community and there would be budgetary constraints of installing these indiscriminately countywide. With this in mind, it is recommended these signs be installed at entry points to communities.

Process

Prince William County may install and maintain these signs. The following process has been established:

1. PWC DOT reviews the requested road(s) to determine if eligibility requirements are met.

2. After the review, the PWC DOT provides a sketch recommending the sign placement.

3. The source of funding for the installation of the signs is identified from:

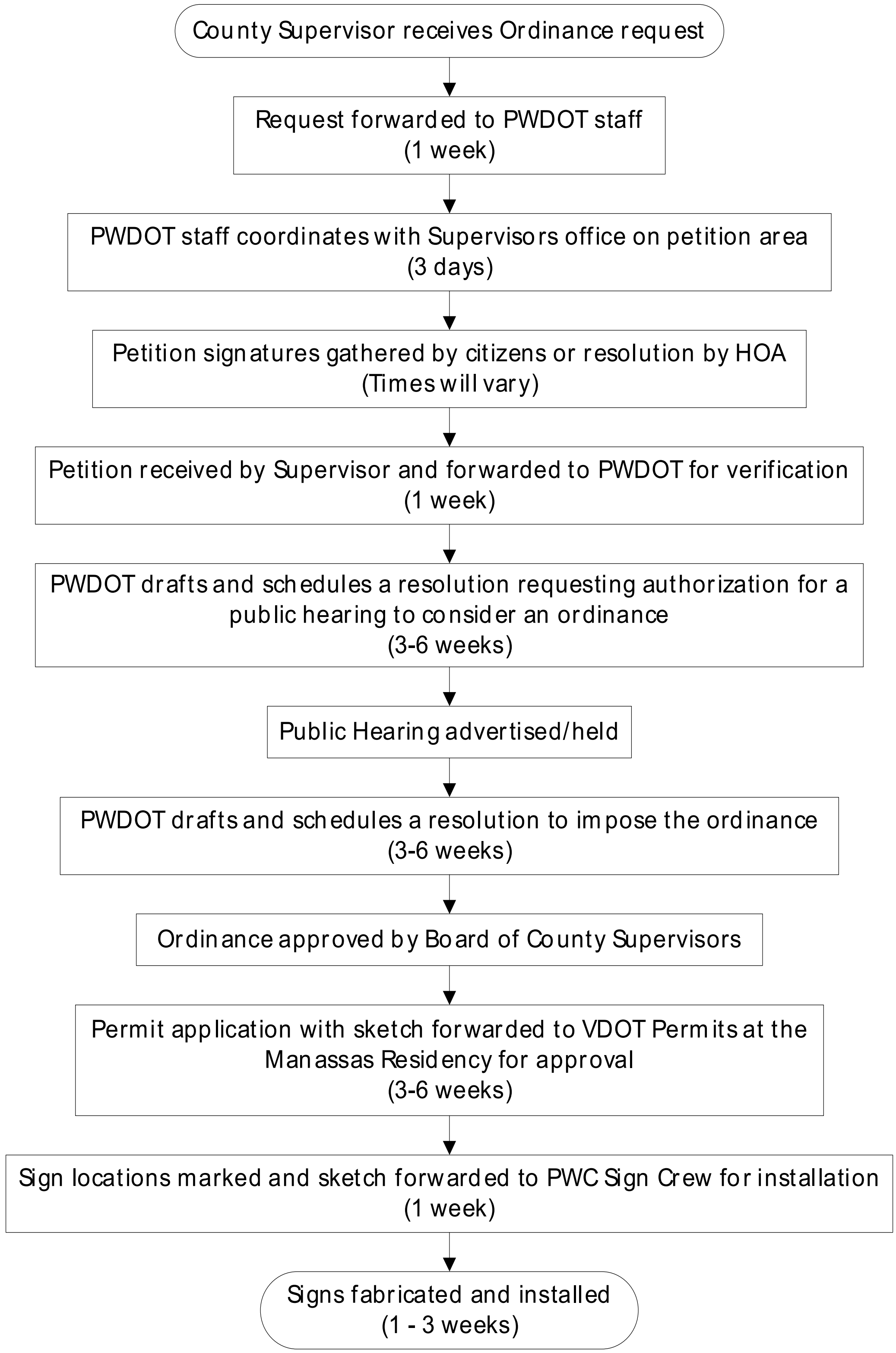
    a. country Traffic Safety Sign Budget; or
    b. direct contributions/grants made for such purpose to the governing body; or
    c. other sources provided by Prince William County.

4. Generally, "WATCH FOR CHILDREN" signs are installed only on secondary roads within residential areas at entry points of communities.

5. Under a countywide VDOT permit, PWC DOT will install the “Watch for Children” sign(s).

All signs installed by PWC DOT under this policy will be designed in accordance with VDOT acceptable standards.

PWC County Ordinance 13.320.1 Restriction of Watercraft, Boat Trailers, Motor Homes and Camping Trailers Flowchart



Policy for the County Ordinance 13-320.1 on the Restriction of Watercraft, Boat Trailers, Motor Homes and Camping Trailers

Policy Overview

According to 13-320.1 of the Prince William County Code, the Board of County Supervisors (BOCS) can establish restricted parking areas for any or all of the following: watercraft, boat trailers, motor homes and camping trailers. This policy establishes the process by which citizens can seek the assistance of the Prince William County Department of Transportation in making requests for the establishment of restricted parking areas to the BOCS.

Entire communities, as well as sections of roads, can be considered as restricted parking areas given identified community support exists. The roads under consideration must be part of the VDOT secondary road system (accepted by VDOT) to be eligible for this ordinance.

Community Support

A petition with at least 51% of the identified households in support of the proposed restriction is necessary. Petition areas and affected households will be identified by PWC DOT staff in cooperation with the appropriate County Supervisor's office. The petition should identify the area and the extent of the restriction sought and should be submitted in the format provided by the PWC DOT. Requests can be made from homeowners' associations provided the request is accompanied by an approved resolution from the association asking for the establishment of the restricted parking area. This resolution had to have been adopted at a meeting of the association of which all members received notice in accordance with the association's bylaws, that a quorum of membership defined in the association's bylaws was present and voted on the resolution. This information must be included in the requesting association's resolution. A map shall also be attached from the requesting association reflecting the roads within the community to be covered under the ordinance.

Steps

The first step is for the requesting community representative to meet with PWC DOT staff to determine the state-maintained streets requested for the ordinance and confirm the terminus of the association's boundaries. This conformation is the responsibility of the requesting HOA and should be reflected in their resolution.

After the conclusion of the meeting, PWC DOT staff will draft an Authorization for Public Hearing that shall be scheduled once the HOA petition or resolution is received through the appropriate County Supervisor's Office. **Prior to any community formally considering this ordinance, they are strongly encouraged to coordinate with PWC DOT staff on the text of their resolution.**

Section 13-320.1 requires that all requests for the establishment of restricted parking areas for watercraft, boat trailers, motor homes and camping trailers go through the public hearing process. If, following the public hearing, the BOCS establishes the requested restricted parking area, PWC DOT will conduct field reviews to mark proposed sign locations in accordance with the resolution adopted by the BOCS.
Once sign locations are marked, the PWC DOT will forward a sketch with the resolution to the Virginia Department of Transportation (VDOT) for review and approval of the placement of the signs. Once approved, the signs will be installed by County forces on state right-of-way under permit.

Signs should be posted at the entry points to the community, or at the beginning and end of the restricted parking area if less than an entire community is designated. Sign wording shall be a standard format and will be modified on a case-by-case basis, if necessary, to most accurately notify the public of the existence and nature of the parking restriction adopted by the BOCS.

Code of Virginia

§ 46.2-1222.1. Regulation or prohibition of parking of certain vehicles in certain counties and towns.

A. The Counties of Arlington, Fairfax, Hanover, Stafford, and Prince William and the Towns of Blackstone, Clifton, Herndon, Leesburg, and Vienna may by ordinance regulate or prohibit the parking on any public highway in such county or town of any or all of the following: (i) watercraft; (ii) boat trailers; (iii) motor homes, as defined in § 46.2-100; and (iv) camping trailers, as defined in § 46.2-100.

B. In addition to commercial vehicles defined in § 46.2-1224, any such county or town may also, by ordinance, regulate or prohibit the parking on any public highway in any residence district as defined in § 46.2-100 any or all of the following: (i) any trailer or semitrailer, regardless of whether such trailer or semitrailer is attached to another vehicle; (ii) any vehicle with three or more axles; (iii) any vehicle that has a gross vehicle weight rating of 12,000 or more pounds; (iv) any vehicle designed to transport 16 or more passengers including the driver; and (v) any vehicle of any size that is being used in the transportation of hazardous materials as defined in § 46.2-341.4. The provisions of any such ordinance shall not apply to (i) any commercial vehicle when taking on or discharging passengers or when temporarily parked pursuant to the performance of work or service at a particular location or (ii) utility generators located on trailers and being used to power network facilities during a loss of commercial power.

County Ordinance 13-320.1

Sec. 13-320.1. Designation of watercraft, boat trailer, motor home, and camping trailer "restricted parking" zones.

(A) Restricted parking. No watercraft, boat trailer, motor home (as defined in section 46.2-100 Code of Virginia), or camping trailer (as defined in section 46.2-100 Code of Virginia), shall be parked upon any part of the secondary road system within any restricted area set forth in subsection (C) herein, 10 days or later after notice is given pursuant to subsection (B) herein. However, a watercraft, boat trailer, or motor home may be parked within a restricted area after the expiration of the 10-day period for up to 72 hours while such watercraft, boat trailer, or motor home is being serviced.

(B) Notice of restricted parking. The Chief of Police, or his designee, shall place a notice upon every watercraft, boat trailer, motor home (as defined in section 46.2-100 Code of Virginia), or camping trailer (as defined in section 46.2-100 Code of Virginia), parked upon any part of the secondary road system within any restricted area set forth in subsection (C) herein. The notice shall state that such vehicle is parked on a secondary road within a restricted area, such vehicle is prohibited from parking on any part of the secondary road system within any restricted area, that maps of the restricted areas are available for inspection at the Department of Public Works, and that such vehicle must be removed from all parts of the secondary road system in all restricted areas within 10 days.

(C) Restricted areas described.

(1) The following areas constitute restricted areas subject to the provisions of this section:

(a) All that area of the county that lies to the south and east of a line beginning at the intersection of Cedar Run creek and the Prince William County boundary, then east along Cedar Run to the intersection of Cedar Run and Aden Road, then east along Aden Road to the intersection of Aden Road and Bristow Road, then north west along Bristow Road to the intersection of Bristow Road and Independent Hill Drive, then north along Independent Hill Drive to the intersection of Independent Hill Drive and Route 234, then south along Route 234 to the intersection of Route 234 and Minnieville Road, then east along Minnieville Road to the intersection of Minnieville Road and Spriggs Road, then south along Spriggs Road to the intersection of Spriggs Road and Hoadly Road, then east along Hoadly Road to the intersection of Hoadly Road and Prince William Parkway, then north along Davis Ford Road to the intersection of Davis Ford Road and Asdee Lane, then east along Asdee Lane to the intersection of Asdee Lane and Beaver Dam Run, then northeast along Beaver Dam Run to the center of the Occoquan Reservoir and to the Prince William County boundary. The Riverfalls Subdivision shall be included within the restricted area. The entirety of the aforementioned roads and highways are within the restricted area. All the incorporated towns, the Quantico Marine Corps Base, and the Prince William Forest Park are expressly excluded from the restricted area.

(b) any restricted area created by ordinance prior to March 21, 2006.

(c) any restricted area created pursuant to subsection (d).

(2) The director of the department of public works, or his designee, shall maintain maps of all restricted areas set forth herein, and shall make such maps available for public inspection upon request.

(D) Petition to create restricted area.

(1) The Board of County Supervisors may designate areas for restricted parking for watercraft, boat trailers, motor homes and camping trailers upon any part of the secondary road system within the county if it deems appropriate, upon

(a) receipt of a petition addressed to the supervisor representing that magisterial district and signed by a majority of the residents and/or owners of affected property and

(b) after a public hearing.

(2) For the purposes of this subsection (D) "a majority of the residents and/or owners of affected property" shall mean:

(a) The owners or residents of least fifty-one percent (51%) of properties with frontage on, immediately adjacent to, or within five hundred (500) feet of a road or any portion thereof proposed as a restricted parking area. The owners or residents of properties which do not have frontage, or are not immediately adjacent to such a road cannot be included in the computation unless their primary motor vehicle egress from that property is over a road or portion of a road proposed as a restricted parking area; or

(b) A property owners' association having the power to enforce covenants on properties meeting the description set forth in subsection (D)(2)(a); above. A written request from such a property owners' association shall be construed as the petition of the owners of all properties under the control of the association meeting the description set forth in subsection (D)(2)(a) above, provided the request is accompanied by an approved resolution of the association authorizing the association's board of directors to request establishment of a restricted parking area; reciting the terms and conditions of the parking restriction to be sought;

stating that the resolution was adopted at a general meeting of the association of which all members received notice in accordance with the association's bylaws, that a quorum of the membership as defined in the bylaws was present and voting on the resolution, that the notice of the meeting included notice that the association would consider requesting the establishment of a restricted parking zone and the terms of the requested restrictions, and that the meeting was held in conformance with any and all other requirements of the association's bylaws. The resolution must be certified by the secretary of the property owners' association.

(3) Each designation shall include the reason for the restriction, a description of the area in which parking is restricted and the terms of such restriction.

(E) The provisions of sections 13-335, 13-343, 13-344 and 13-345 shall apply in the enforcement of this section. (No. 97-20, 2-18-97; No. 01-46, 6-19-01, effective 7-1-01; No. 02-47, 6-4-02; No. 02-116, 12-17-02; No. 06-36, 3-21-06)
State law reference--Authority for above section, Code of Virginia, §§ 46.2-1220, 46.2-1222.1.

If a resolution is forwarded to the Department of Transportation in lieu of a petition, it must contain the following:

A property owners' association having the power to enforce covenants on properties meeting the description set forth in subsection (b)(i); above. A written request from such a property owners' association shall be construed as the petition of the owners of all properties under the control of the association meeting the description set forth in subsection (b)(1) above, provided the request is accompanied by **an approved resolution of the association authorizing the association's board of directors to request establishment of a restricted parking area; reciting the terms and conditions of the parking restriction to be sought; stating that the resolution was adopted at a general meeting of the association of which all members received notice in accordance with the association's bylaws, that a quorum of the membership as defined in the bylaws was present and voting on the resolution, that the notice of the meeting included notice that the association would consider requesting the establishment of a restricted parking zone and the terms of the requested restrictions, and that the meeting was held in conformance with any and all other requirements of the association's bylaws. The resolution must be certified by the secretary of the property owners' association.**

(c) Each designation shall include the reason for the restriction, a description of the area in which parking is restricted and the terms of such restriction. Notwithstanding any restriction, a trailer connected to a motor vehicle designed for pulling such trailer, and not otherwise prohibited from parking by section 13-327 of the county code, may park within a restricted area for up to seventy-two (72) hours.

Associations are strongly encouraged to forward their draft resolutions to County staff prior to soliciting community comments to ensure compliance with requirements.

Sample Petition

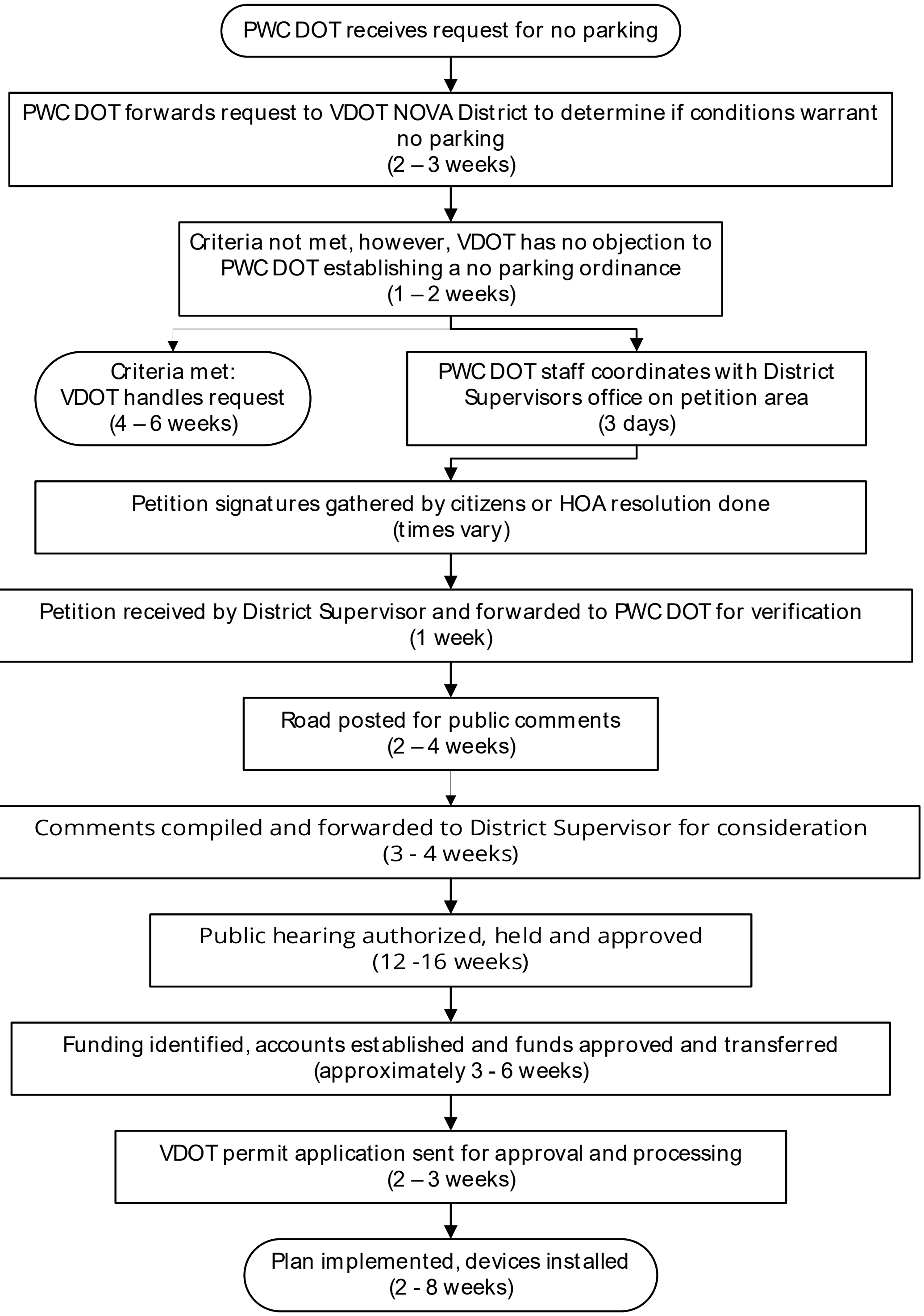
Petition in Support of Consideration to Restrict Parking of Watercraft, Boat Trailers, Motor Homes and Camping Trailers

Today's Date

We the undersigned are familiar with the Ordinance and definitions thereof and do hereby support the designation of ______________________________________ as an area in which the parking of watercraft, boat trailers, motor homes and camping trailers is prohibited. Any trailer connected to a motor vehicle designed for pulling such, and not otherwise prohibited from parking by section 13-327 of the County code, may park within a restricted area for up to seventy-two (72) hours for the purposes of loading/unloading and maintenance.

Name	Address	Signature

Parking Restrictions Flowchart



Prince William County Parking Restrictions Policy

General

Prince William County occasionally receives requests for no parking. Primarily, the requests are based on roadway widths and concerns that emergency response times may be impacted due to a constricted roadway as a result of on-street parking. The determination if a roadway is wide enough to accommodate on street parking and provide adequate access for emergency vehicles is made during the plan review process. However, there have been cases where response times have been impacted due to on-street parking after the roads are completed and the developer has been released from their bond commitments. In these instances, the protocol should be as follows:

If the road is private (maintained by a homeowner's association (HOA) or entity other than the Virginia Department of Transportation - VDOT), County staff can order and review site plans to render an opinion of whether the area in question was intended for parking. The Department of Fire and Rescue can provide an opinion if requested or the Fire Marshal can review for fire lanes.

If the road is maintained by VDOT, then a request is made to VDOT Traffic Engineering to determine if conditions warrant no parking. The primary reasons for VDOT to restrict parking are:

- Safety issues (sight distance obstruction for stopped or turning vehicles)
- Capacity adversely affected (normal traffic flow inhibited by parked vehicles)

There are occasional requests for "permit parking" for residents only. The County does not have a permit parking program or the resources available to regulate parking on state-maintained roads.

Appeals to PWC DOT

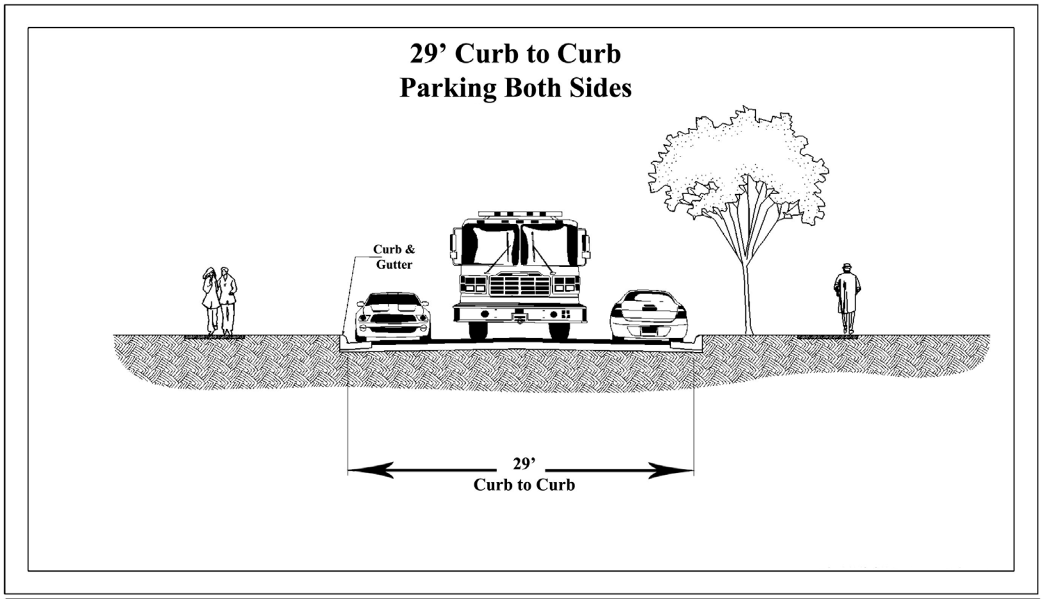
There have been occasions where VDOT has responded that they do not see the need to justify no parking; however, they have no objection to Prince William County installing no parking signs on state right-of-way under a permit/ordinance. In these instances, the requesting entity can appeal to PWC DOT who will coordinate with the appropriate County Supervisor's office and assist in developing and implementing a plan.

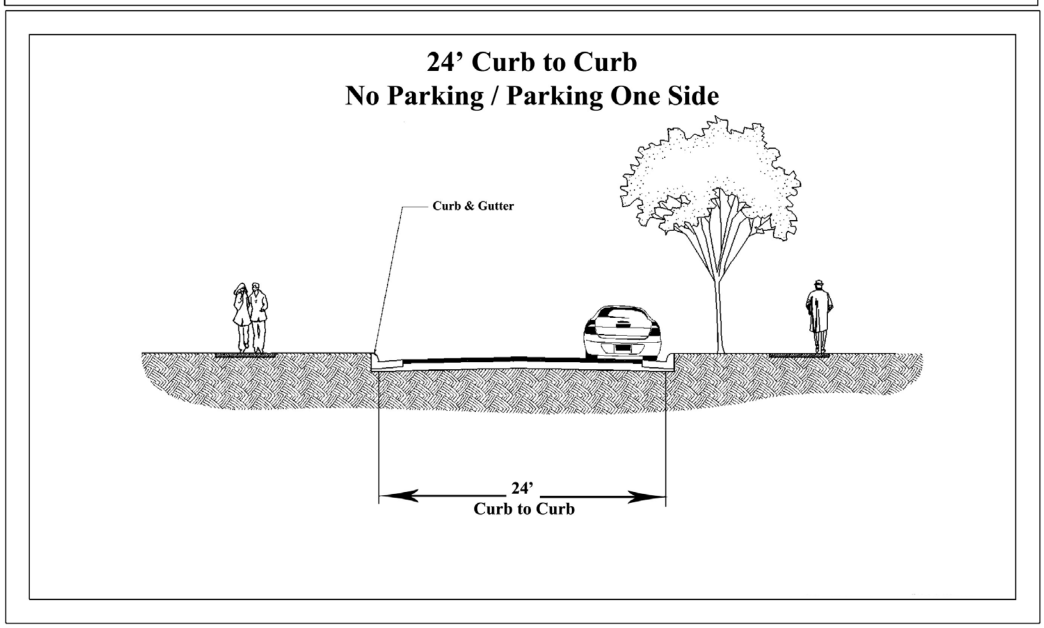
An ordinance is required for the County to install any no parking signs on state-maintained roads. Any ordinance requires a public hearing. Upon the Board of County Supervisors adopting the resolution, PWC DOT will install the signs in question (per MUTCD standards) and develop an agreement that the requesting entity should be responsible for the signs maintenance.

A typical travel lane is 12 feet wide and a typical parking lane is 8 feet wide. In order to maintain at least one clear travel lane and two parking lanes at least 29 feet of roadway is necessary. PWC DOT practice for existing roads that are relatively straight is that parking restrictions could be considered if a residential street is less than 29 feet wide. Roads that are 29' or greater in width should be able to accommodate on-street parking and allow for unimpeded access, pending motorists use due caution in the event of two vehicles meeting simultaneously.

However, since roads aren't always straight, the radius of a curve can be restrictive to large wheelbase vehicles. Regardless of whether a road is 29 feet wide or greater, in cases where there are substantial curves, parking restrictions should be reviewed on a case-by-case basis to ensure emergency response access.

Existing Condition Guidelines		
Width to Curb	One-Way Traffic	Two-Way Traffic
29' +	Parking on both sides	Parking on both sides
24' to 28'	Parking on one side	Parking on one side
21' to 23'	Parking on one side	No parking
20' or less	No parking	No parking





Communities and HOAs who request parking restrictions other than for safety and capacity reasons must do the following:

- The HOA should hold a meeting with the community to discuss the request and send PWC DOT a formal resolution that officially makes the request to prohibit parking (PWC DOT can provide a sample to be used as a template).
- In instances where there is no HOA, the requesting persons can coordinate with PWC DOT staff on a petition. Before PWC DOT can consider the request, the petition must show that at least 75% of those in the affected area agree with the requested parking restrictions.

Once PWC DOT has received the resolution or petition, County staff will then post the area for public comments for approximately two weeks. This allows any citizens that were not in attendance of the HOA meeting, or did not sign the petition, the opportunity to comment.

PWC DOT will then compile the community's comments and forward them to the appropriate County Supervisor for an official recommendation from their office based on the community input. If recommended, a public hearing will be scheduled and a resolution to implement the no parking ordinance will be drafted for the Board of County Supervisors consideration.

Parking Restrictions for Certain Types of Vehicles

§ 46.2-1222.1. of the Code of Virginia states that Prince William County may by ordinance regulate or prohibit the parking on any public highway in such county or town of any or all of the following: (i) **watercraft**; (ii) **boat trailers**; (iii) **motor homes**, as defined in § 46.2-100; and (iv) **camping trailers**, as defined in § 46.2-100. Individual districts (areas) have been established prohibiting these types of vehicles. In addition, Prince William County Code Section 13-327 states that commercial vehicles are prohibited from parking in any residence district countywide. The definition of commercial vehicles includes **any trailer**.

In addition, commercial vehicles are:

Any solid waste collection vehicle, tractor truck or tractor truck/semitrailer or tractor truck/trailer combination, dump truck, concrete mixer truck, towing and recovery vehicle with a registered gross weight of 12,000 pounds or more, and any heavy construction equipment, whether located on the highway or on a truck, trailer or semitrailer.

Company trucks (i.e., vans with company logos) are not considered commercial vehicles and can park on state-maintained roadways in any residence district.

A residence district means the territory contiguous to a highway, not comprising a business district, where 75 percent or more of the property abutting such highway, on either side of the highway, for a distance of 300 feet or more along the highway consists of land improved for dwelling purposes.

Parking Restrictions on Private Roads Open to Public Use

On private roads open to public use, the HOA or entity responsible for the roadway maintenance is also responsible for the signing and pavement markings. The designation of no parking on private roads is at the discretion of the maintaining entity. Enforcement of these no parking regulations (towing) is also handled by the responsible entity.

The Prince William County Police Department can be requested to perform enforcement of no parking areas on private property pending the signing and markings are in accordance with the Manual of Uniform Traffic Control Devices (MUTCD), which are federal standards adopted by the Commonwealth of Virginia. The signing and markings must be in accordance with adopted federal standards to be considered enforceable. The police cannot be expected to enforce regulations imposed by an HOA that are not in conformance with the MUTCD. "No cut-through traffic" signs, for example, cannot be enforced; however, properly posted 25 MPH speed limit an no parking can be enforced if properly posted by the standard type signs listed in the MUTCD.

No Parking - Roads Under Developer Control

In order for an HOA to designate no parking areas on private streets, the developer must be released from their bond or have an approved set of plans reflecting the no parking designation. If the developer is not released from their bond, then a plan revision would be necessary and must go through the approval process to designate no parking areas. Once the developer is off of bond, the HOA or responsible entity has the authority to regulate parking on private streets as they deem necessary.

HOA Covenants

The County and State have no involvement in covenants, which are private contracts, and neither VDOT nor the County would enforce them in any respect. VDOT enforces State laws, and the County enforces County ordinances.

Prince William County Code - Sec. 13-320. General Parking Prohibitions

(a) No person shall park a vehicle, except when necessary to avoid other traffic or in compliance with the directions of a police officer or traffic control device, in any of the following places:

(1) On a sidewalk.
(2) Within an intersection.
(3) In front of a public or private driveway.
(4) Within 15 feet of a fire hydrant.
(5) On a crosswalk.
(6) Within 20 feet of a crosswalk at an intersection; provided that, where there is no crosswalk at an intersection, no person shall park a vehicle within 20 feet from the intersection of curb lines or, if none, within 15 feet of the intersection of property lines.
(7) Within 30 feet of any flashing beacon, stop sign or traffic control signal located at the side of a roadway.
(8) Between a safety zone and the adjacent curb or within 30 feet of points on the curb immediately opposite the ends of a safety zone, unless a different length is indicated by official signs or markings.
(9) Within 50 feet of the nearest rail of a railroad grade crossing.
(10) Within 15 feet of the driveway entrance to any fire station and, on the side of a street opposite the entrance to any fire station, within 75 feet of the entrance, when properly signposted.
(11) Alongside or opposite any street excavation or obstruction, when such parking would obstruct traffic.
(12) On the roadway side of any vehicle parked at the edge or curb of a street or so as to leave more than two feet between the vehicle and the edge or curb, measured at the nearest point of the vehicle to the curb or edge.
(13) Upon any bridge or other elevated structure upon a highway or within a tunnel.
(14) At any place where official signs prohibit parking.

(b) Law enforcement officers may move motor vehicles to any place they may deem expedient without regard to the provisions of this section, when in the performance of their lawful duties.
(Code 1965, § 12.1-138)

References

Code of Virginia 46.2-878.2 *Installation of Signs Advising of Maximum Penalty for Exceeding Posted Maximum Speed Limit in Certain Residence Districts.*

Prince William County Tracker Directive 01-58, *Enforceability of Posted Two-Hundred Dollar Fine Signs.*

Prince William County Fire and Rescue Association resolution 01-41 *Traffic Calming Device Location Criteria.*

Prince William County Fire and Rescue Association resolution 01-43 *Non-Physical and Physical Traffic Calming Devices.*

Prince William County Fire and Rescue Association resolution 01-44 *Limitation of Traffic Calming Devices.*

Prince William County Fire and Rescue Association resolution 02-15 *Support of the 2002 Residential Traffic Management Guide Draft.*

VDOT *Cut Through Traffic Policy* 5/10/91

Commonwealth Transportation Board *Through Truck Restrictions* 11/2013

VDOT Residential Traffic Management Guide - Pilot Program 1/98 - 12/99,
October 1997

VDOT Traffic Calming Guide for Local Residential Streets – 11/2017

VDOT Subdivision Street Design Guide

Amendment to the Code of Virginia 33.1-210.2 "*Signs Alerting Motorists that Children may be at Play Nearby*". 1997

Code of Virginia § 33.1-210.2. *Installation and maintenance of certain signs in counties and towns.*

Code of Virginia § 46.2-1222.1 *Regulation or prohibition of parking of certain vehicles in certain counties.*

Code of Virginia § 46.2-1222.1 *Definitions.*

Prince William County Code § 13-327 *Limitation on parking commercial vehicles in residence districts.*

Prince William County Code § 13-320 *Restricted Parking Areas.*

U.S. Federal Highway Administration *Manual on Uniform Traffic Control Devices*

Appendix I

Appendix J

Project Name	Funding Source	Budget ($)	Stage	End date
Route 234 Bicycle and Pedestrian Facility Over I-95	Regional Funding	12,000,000	Future	FY28
Route 234 Sudley Manor Drive Interchange	Regional Funding	1,000,000	Design	Spring 2025 (FY25) start
Intersection Improvements at Prince William Parkway and University Boulevard (Quadrant Roadway Intersection)	Regional and Local Funding	29,713,000	Construction	December 2024 (FY25)
Balls Ford Interchange Project	State Funding	109,089,857	Completed	Summer 2023 (FY24)
Small Scale Intersection Improvements and School Zone Automated Enforcement	Local Funding and VDOT	NA	Completed	Feb-24
Brentsville Road Interchange at the Parkway	Regional and Local Funding	54,967,752	Completed	July 2024 (FY25)
Fraley Boulevard Widening: Route 1 (Brady's Hill Road to Route 234)	Regional Funding	49,146,232	ROW	Spring 2031 (FY31)
Fuller Road/ Fuller Heights Improvement Project	Federal and Local Funding	10,379,047	Completed	March 2024 (FY24)
Hoadly Road STARS study in Prince William County	VDOT	NA	Study	Mid-2026
Kline Property Development	Developer	NA	Study	NA
Neabsco Mills Road (Route 1 to Dale Boulevard)	Federal, State, and Local Funding	34,303,640	Completed	July 2024 (FY24)
Route 123 & Old Bridge Road Intersection Improvement	Federal and Local Funding	6,068,403	Design	Spring 2025 (FY25) start
Realignment of Prince William Parkway at Old Bridge Road	Federal Funding	35,487,806	Construction	Fall 2028 (FY29)
Prince William Parkway Sidewalk (Northside of Prince William Parkway Summerland Drive to the Horner Road Commuter Lot) Project	Federal Funding	5,797,415	Design	TBD
NV04: Route 294 - Prince William Parkway	VDOT	NA	Study	Jul-22
Minnieville Road-Prince William Parkway Interchange	Local Funding	80,235,252	Construction	Spring 2028 (FY28)
Route 1 (Featherstone to Marys Way)	Federal, State, and Local Funding	111,423,174	Completed	October 2023 (FY24)
Route 28 innovative intersections in Prince William County and the City of Manassas Park	VDOT	NA	Design	Spring 2028
Route 28 Phase III (Linton Hall Road to Pennsylvania Avenue)	Regional and Local Funding	40,004,467	Completed	Jan-23
Route 1 Study from Neabsco/Cardinal to 234	Local Funding	TBD	Study	Fall 2026
Potomac Shores Development Jughandle	Developer	NA	Construction	NA
Van Buren Road Environmental Study and Design	Local Funding	10,000,000	Design	Summer 2027
I-95 and Route 123 interchange improvements in Prince William County	VDOT	NA	Construction	Late 2028
NV03: US 29 - Lee Highway	VDOT	NA	Study	Jul-22
Small Scale Intersection Improvements and Red Light Automated Enforcement	Local Funding and VDOT	NA	Construction	Dec-25
Prince William Parkway and Clover Hill Road Interchange	Regional Funding	3,040,000	Design	Winter 2026 (FY26)
Graham Park Road Sidewalk Project: 25C17003	federal, regional, and local funding	4,597,158	Design	Spring 2025 (FY25) start
Stockbridge Drive- 234 Signal Project Design	Federal Funding	978,120	Construction	Fall 2025 (FY26)
Talon Drive- 234 Signal Project Design	Federal Funding	770,773	Construction	Fall 2025 (FY26)
Dale Boulevard/Rippon Boulevard STARS study in Prince William County	VDOT	NA	Study	Fall 2024
Red Light Automated Enforcement	Local Funding	NA	Construction	Summer 2025
Red Light Automated Enforcement	Local Funding	NA	Construction	Summer 2025
OBR - Minnieville Study	Local Funding	NA	Study	Spring 2026
Neabsco-Potomac Commuter Parking Garage	Federal, State, and Local Funding	54,672,001	Construction	Spring 2025 (FY25)
Route 234 Business (Sudley Road) STARS Study	VDOT	NA	Study	Spring 2022
Heathcote Boulevard	Local Funding and VDOT	NA	Construction	Dec-25
95 Express Lanes/Opitz Boulevard Ramp in Prince William County	VDOT	69,700,000	Completed	Feb-25