Appendix A

PRINCE WILLIAM COUNTY

Comprehensive Traffic Safety Action Plan

Towards Zero Planning Committee Kickoff

January 13, 2025

Agenda

- 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)

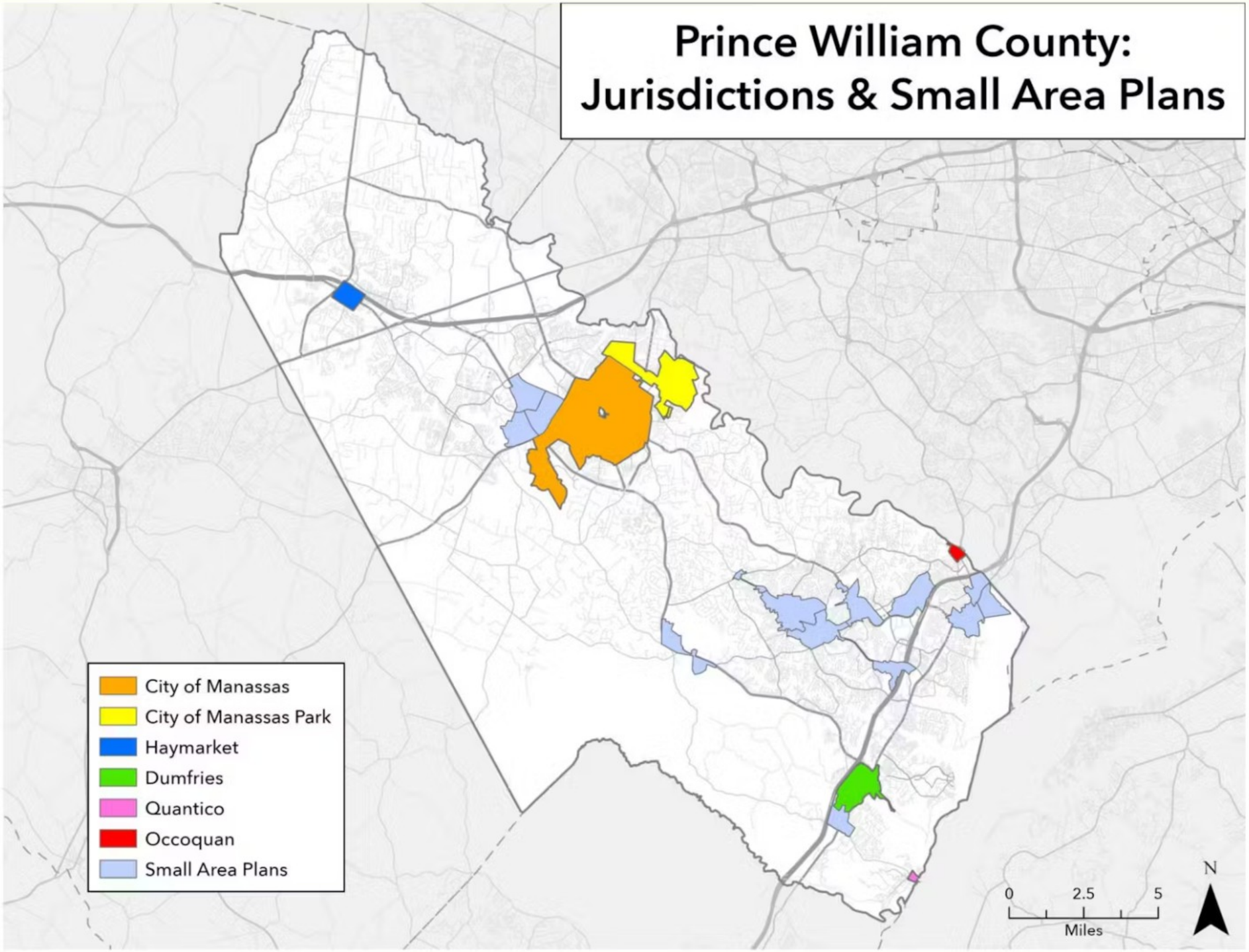
- Supplemented by **$218,000** match from Prince William County
- Supplemented by **$30,000** match from the City of Manassas Park
- **In total, $1.24M** in funds to support safer mobility in Prince William County

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
City of Manassas
City of Manassas Park
Haymarket
Dumfries
Quantico
Occoquan
Small Area Plans
0
2.5
5
Miles
N

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

- ✓ 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

Mentimeter

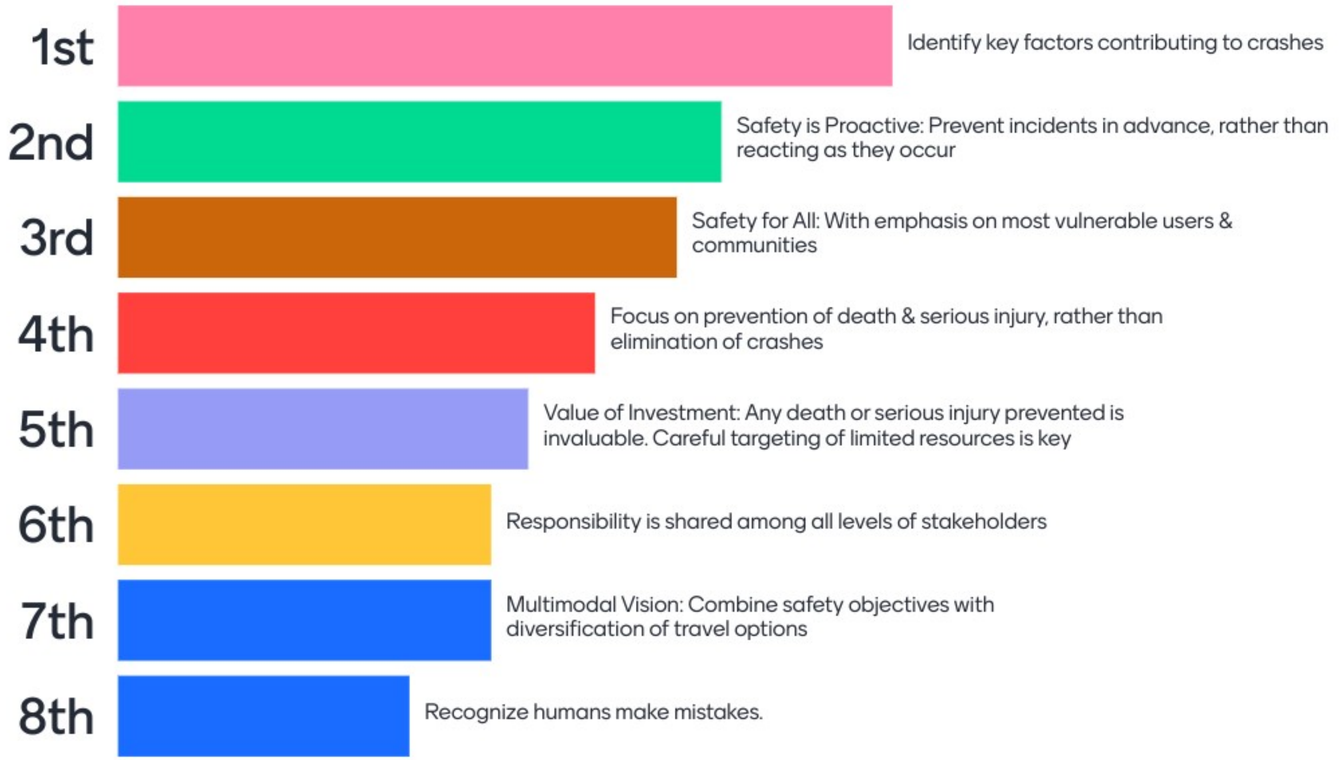
PRINCE WILLIAM COUNTY

14

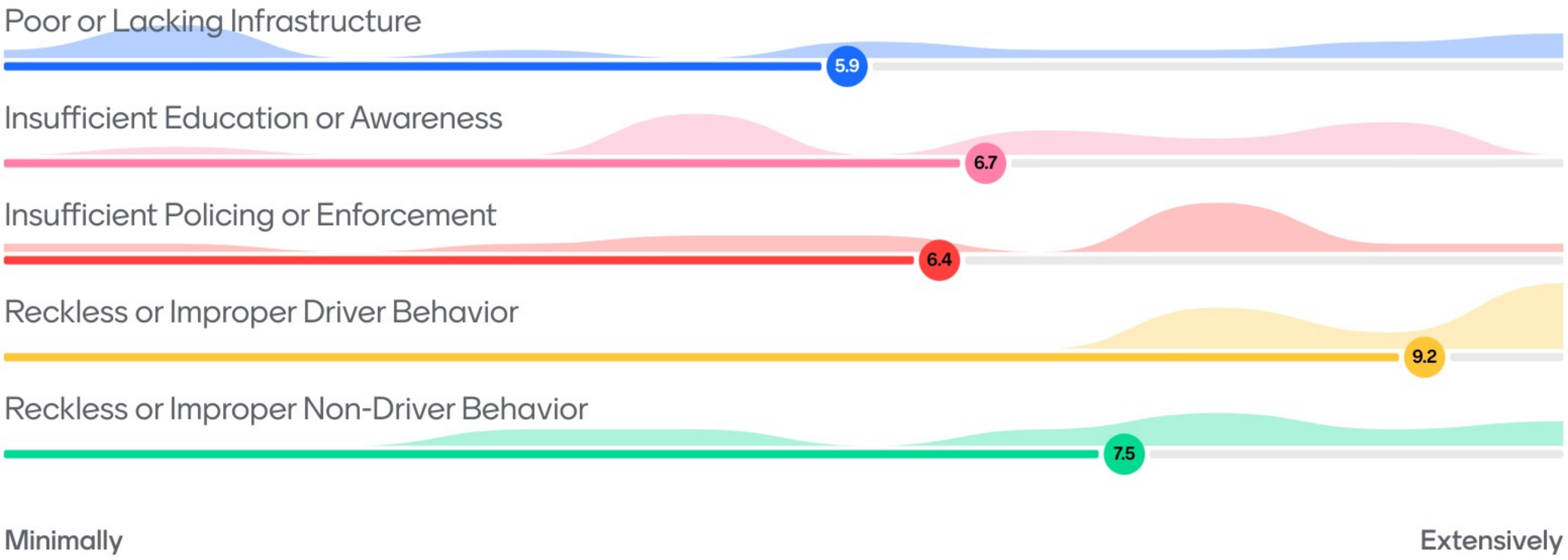
What key words or phrases best capture your vision for improved traffic safety in PWC?

34 responses

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



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



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

Project cost

Project feasibility

Equitable project distribution

Separation of uses

Network redundancy

Network connectivity

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!

Project Contacts

Richard Weinmann
Engineering Manager - Traffic Safety
703-792-8002
rweinmann@pwcgov.org

Kate Widness
Kimley-Horn
571-380-3960
katelyn.widness@kimley-horn.com

PRINCE WILLIAM COUNTY

Comprehensive Traffic Safety Action Plan

Towards Zero Planning Committee Meeting #2

March 12, 2025

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

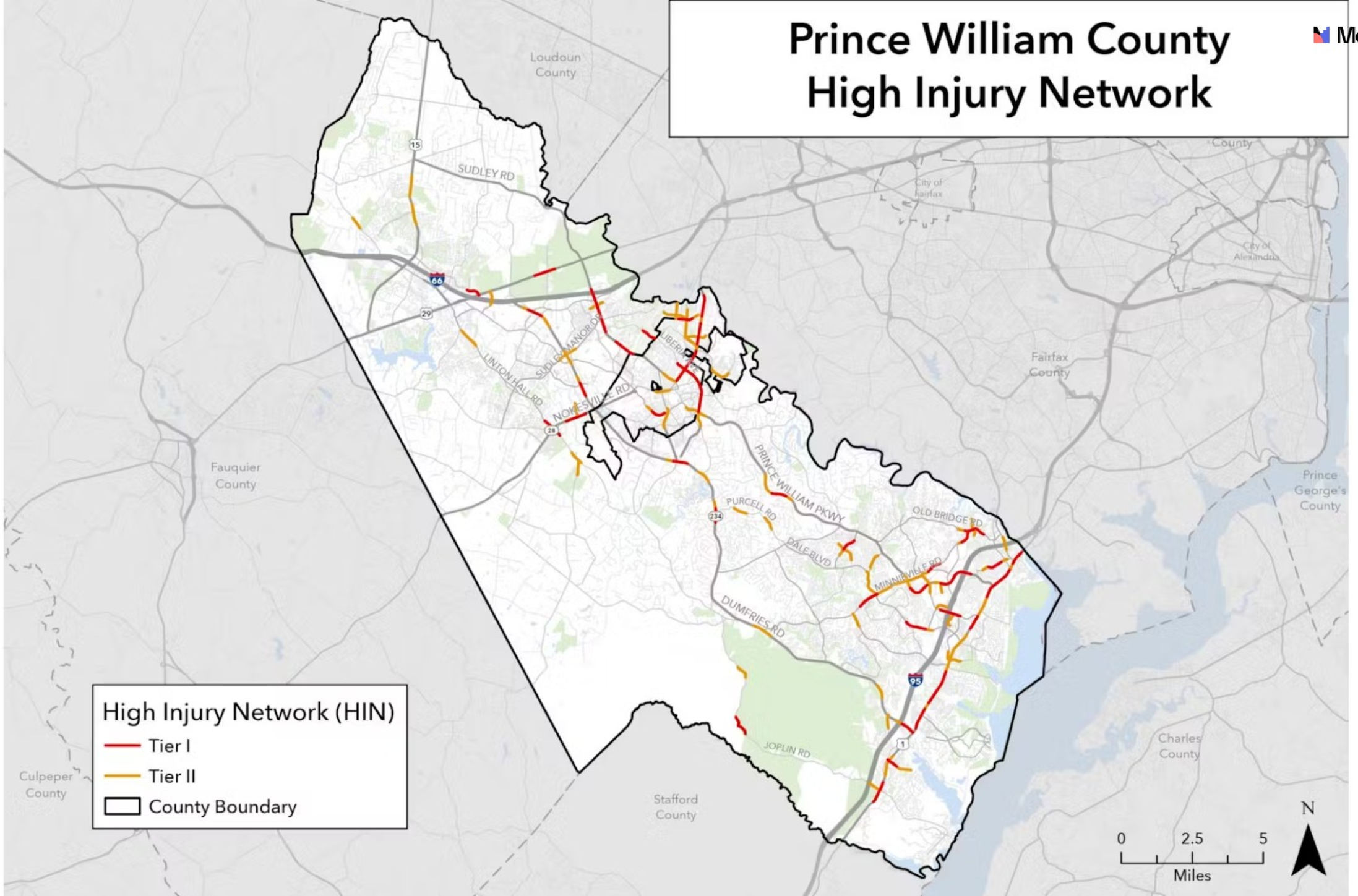
Highlights from Public Comment

- 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



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

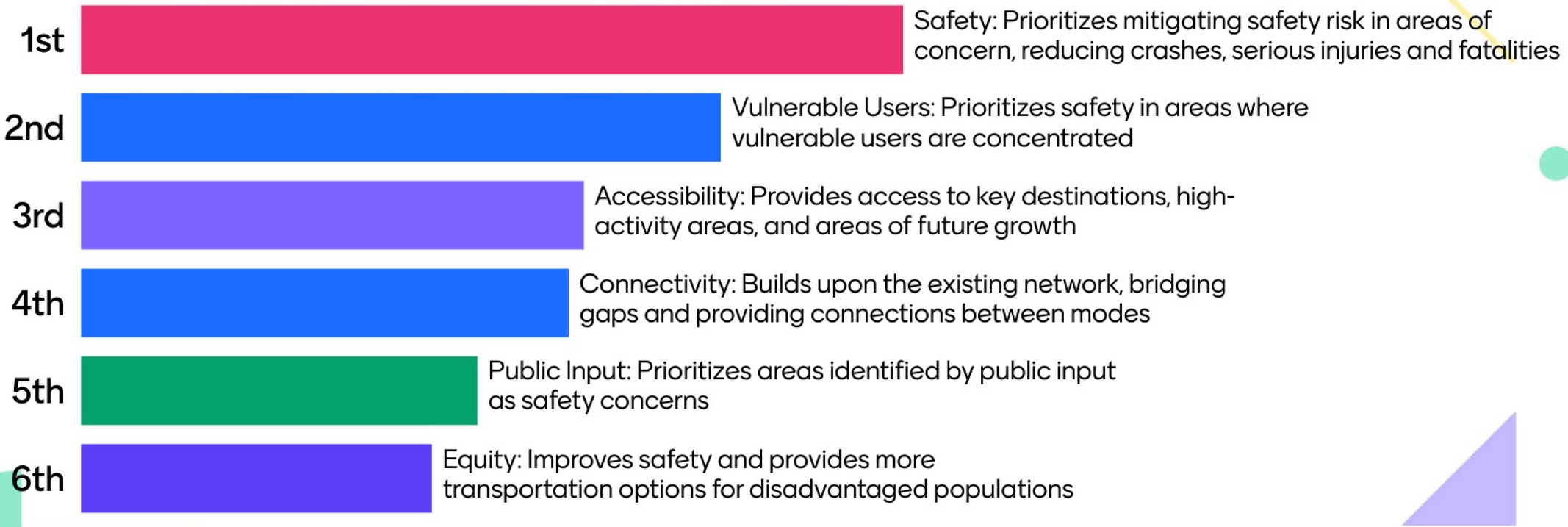
- Ex. Reduction in the average emergency medical response time

Interactive Questions

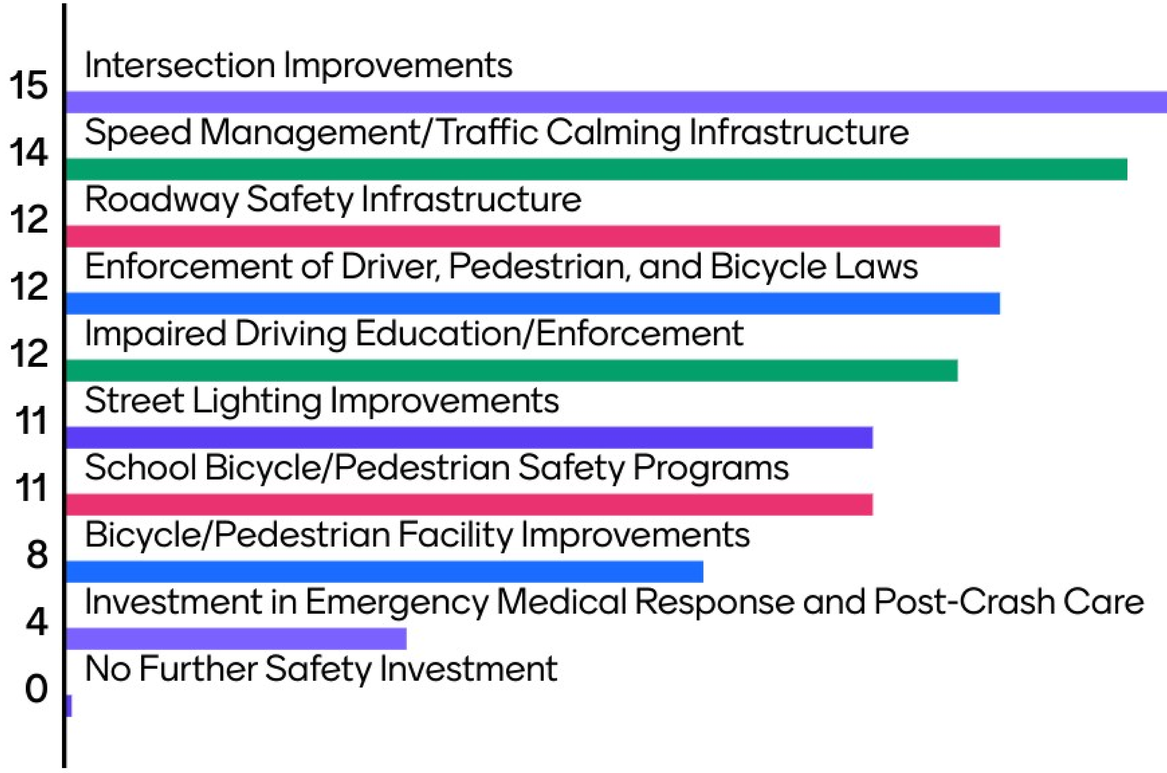
Mentimeter

PRINCE WILLIAM COUNTY

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



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



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

...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

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

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

...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.

...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

...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

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

regulation of E-bikes

...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.

...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

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!

Project Contacts

Richard Weinmann
Engineering Manager - Traffic Safety
703-792-8002
rweinmann@pwcgov.org

Kate Widness
Kimley-Horn
571-380-3960
katelyn.widness@kimley-horn.com

Project Report

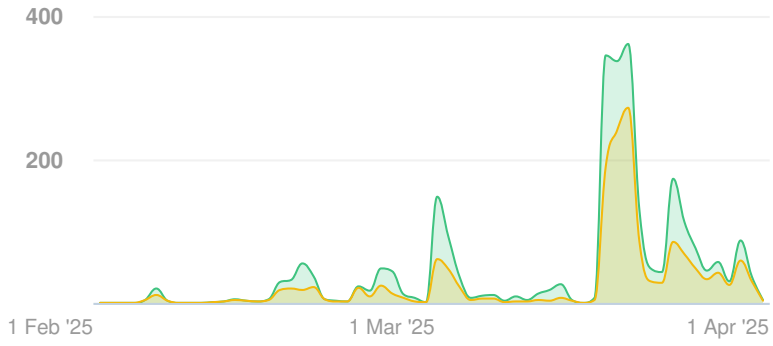
01 February 2025 - 01 April 2025

PWC Works

Comprehensive Traffic Safety Action Plan

GRANICUS

Visitors Summary



Pageviews Visitors

Highlights

TOTAL VISITS
1.7 k

MAX VISITORS PER DAY
272

NEW REGISTRATIONS
6

ENGAGED VISITORS
243

INFORMED VISITORS
510

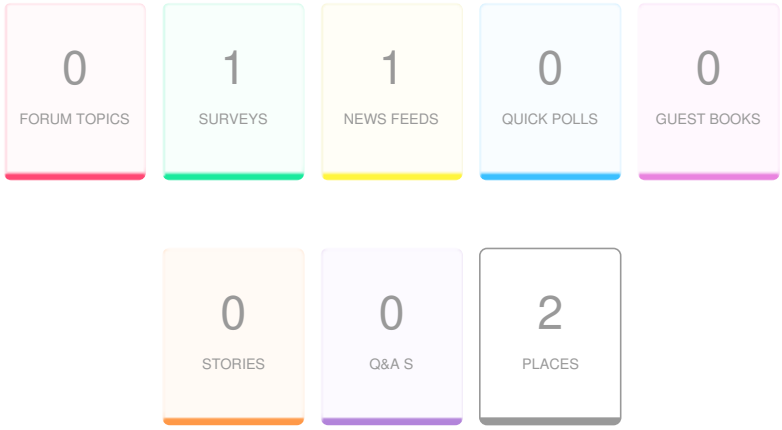
AWARE VISITORS
1.5 k

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



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 u sing 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 traffic 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 dangerous 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 enough 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 se e past the trees on the right side of the road making the intersection blind on the right si de. 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 wh en turning left off of vint hill. Only 2 vehicles go through before the light changes to yell ow. 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 neighborho od 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 develo ps more and more surrounding this road the more this bridge becomes a hazard. It's d angerous, as this road gives little to no room for error. Especially at night, drivers just h ave 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?reportin g=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 whe n 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 cr ossing over 234 to turn in or out of Falling Creek. We need yellow stripes on the the roa d 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 Pur cell 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?reportin g=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 pedestr ians 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?reportin g=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?reportin g=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 fairmou nt. Traffic is backed up every day due to this turn being opened. It's constantly congest ed and you should not be able to make a left turn there. This will prevent the pile up traf fic 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?reportin g=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 spee d and also pass in no passing zones. Please do something to slow this road down. Doi ng 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?reportin g=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?reportin g=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?reportin g=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?reportin g=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?reportin g=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 Sa ybrooke 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 con sider 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 liv ed here for over 10 years. I have literally lost count of the number of accidents at this in tersection. I have spoken to numerous responding officers and even VDOT about our c oncerns. 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 (o ne North of the Godwin intersection and one south of the Godwin intersection), cross tr affic 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 p oint, I can't recall any pedestrian incidents, but it is definitely a concern. Out homeowne rs asscoiation has approached VDOT about installing a 4-way stop, but we were not su ccessful. 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?reportin g=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 thro ugh a neighbor’s fence. One almost went through our fence as well. A four way stop w ould 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?reportin g=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 boun d car is moving past Godwin going south. As the two cars cross the auto at Godwin goi ng east can't see the north bound traffic. The same is true for the west bound Godwin c ar with the northbound lucasville car blocking the view of the southbound car as it com es 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?reportin g=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 bli nd spot in general. The curve has trees and a house that visual obstructs the sight of p otential oncoming, going traffic, and pedestrians (who walk in the middle of the curve b ecause 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 intersecti on it’s hard to see past the house and trees at times. Furthermore, I believe the side th at 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?reportin g=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?reportin g=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 police 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?reporting=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?reporting=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?reporting=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?reporting=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 turn onto Old Bridge Road.
Address: Exit 160, Woodbridge, VA, 22192, USA

http://pwcworks.pwcva.gov/traffice-safety-action-plan/maps/traffic-safety-map?reporting=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?reportin g=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?reportin g=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?reportin g=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?reportin g=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?reportin g=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 “wal k” 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?reportin g=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 conne cting the Potomac Club community to Stonebridge. With the current "turn on red" allow ance, many drivers fail to look to their right for pedestrians using the crosswalk. This cr eates 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 saf ety. This would help deter pedestrians from using an unmarked path and ensure a safe r 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?reportin g=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 conne cting the Potomac Club community to Stonebridge. With the current "turn on red" allow ance, many drivers fail to look to their right for pedestrians using the crosswalk. This cr eates 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 saf ety. This would help deter pedestrians from using an unmarked path and ensure a safe r 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?reportin g=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 t o 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?reportin g=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 th e 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?reportin g=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 boun d 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 rig ht 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 addresse d before someone breaks and ankle or wrecks on a bike because of this. Someone fro m the county needs to walk the lengtht of that side walk from Wellington to the end of t he 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 inter section. 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 plan ning/design efforts not started to widen US-1 between Cardinal Drive to VA-234? The V an 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 an d Port Potomac Ave. Why have planning/design efforts not started to widen US-1 betw een 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 w ho 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 thr u 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 lan e onto Powells Creek Blvd. The Van Buren extension will not provide any relief to this c ondition, 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?reportin g=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 im mediately install the traffic signal at this intersection. Northbound traffic volume on Rive r 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?reportin g=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 im mediately install the traffic signal at this intersection. Peak period traffic volume and fail ure 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?reportin g=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?reportin g=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 re ally cross one intersection to other since cars are speedy above 50 mph. We need som ething 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?reportin g=true#marker-127628

ENGAGEMENT TOOL: SURVEY TOOL

Comprehensive Traffic Safety Action Plan Survey

Visitors 757	Contributors 182	CONTRIBUTIONS 185

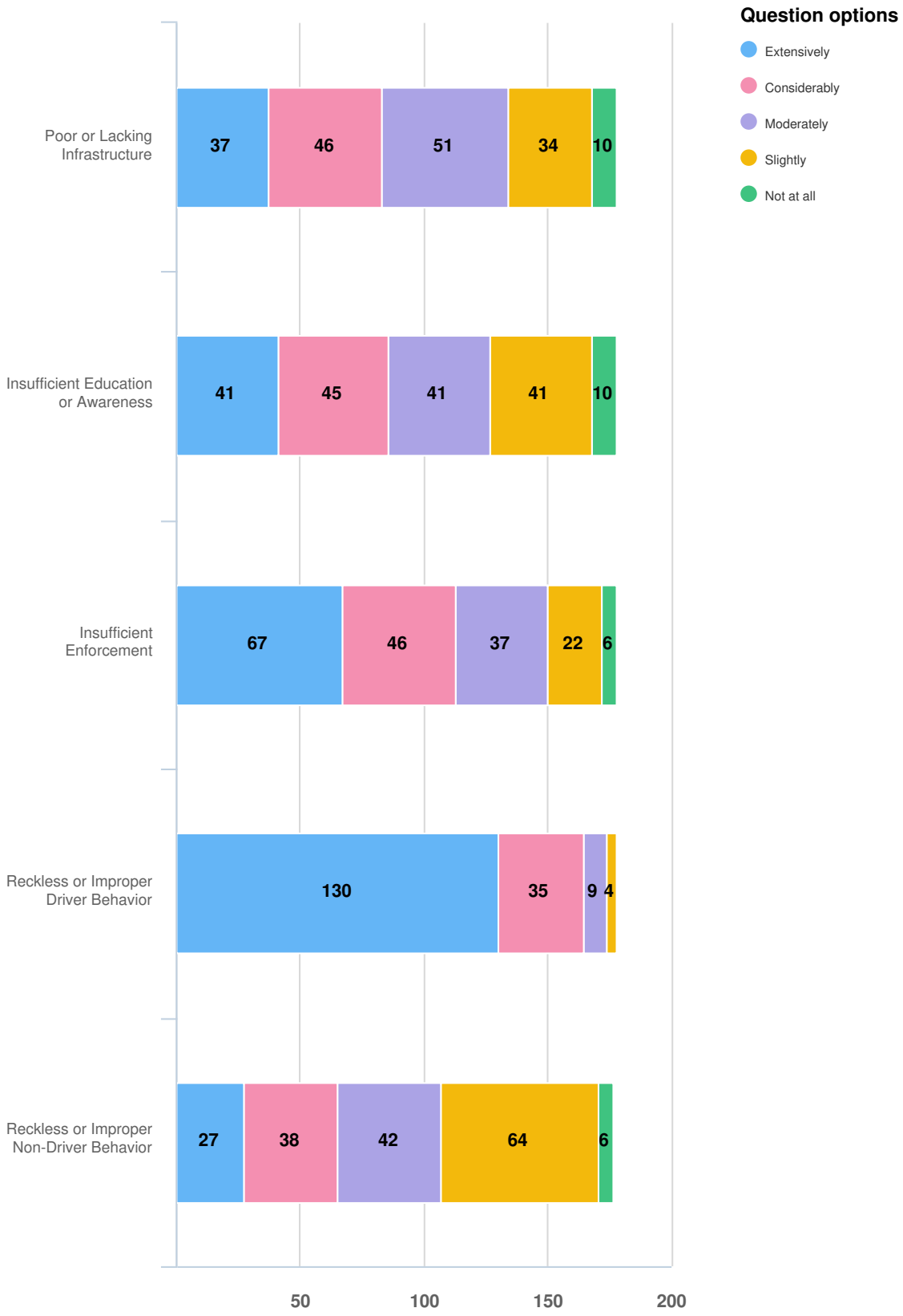
What themes for the Traffic Safety Action Plan are most important to you? Please rank 1-8, with 1 being the most important.

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, Suite 230
Reston, VA 20191
P 703.885.8970

TECHNICAL MEMORANDUM

August 5, 2024 Project# 28960.002

To: Richard Weinmann, Traffic Safety Engineering Branch Manager
Mahmoud Arafat, PhD Senior Traffic Engineer

From: Meredyth Sanders, Kittelson & Associates
Jesus Cuellar, Kittelson & Associates

RE: PWC Safety Action Plan – High Injury Network Approach

CRASH-BASED NETWORK SCREENING

This memorandum outlines the steps for performing a network screening safety evaluation of the County's intersections and streets, following the Highway Safety Manual's (HSM) Part B network screening process. The approach uses geolocated crash data, an input intersection feature class, and a street network feature class to calculate the equivalent property damage only (EPDO) performance measure for all input locations. This process assesses the relative safety performance of the locations based on reported crash history and identifies priority intersections and corridors, in line with best practices for safety evaluation using available data.

DATA UTILIZED

The analysis primarily used three data sources.

Crash Data

The project team obtained and analyzed five years of crash data from January 1, 2018, to December 31, 2022, for Prince William County (PWC), the City of Manassas, and the City of Manassas Park from Virginia's Department of Transportation (VDOT) Pathways for Planning. While standard practice calls for reviewing the most recent five years of crash data, this analysis includes 2018 through 2022 to account for two years of pre- and post-COVID-19 pandemic data, to understand the pandemic's impact on safety. Although the analysis does not include all crashes from the City of Manassas, PWC identified crashes along key corridors in the City of Manassas for inclusion. All crashes were then evaluated to remove collisions occurring on access-controlled facilities (i.e., I-66, I-95) and ramps, rest areas, private roads, and the Marine Corps Base Quantico. These crashes were removed because they fall beyond the County's jurisdiction. The final dataset includes 23,299 crashes.

Intersection Data

The project team created an intersection file using the processed roadway data, which includes intersections formed by public roads across the County. Initially, the team created a preliminary set of intersections by extracting points where public roadways crossed. The final intersection file removes duplicates and includes 15,654 intersections.

Roadway Data

The network screening analysis used VDOT's "LRS Route Master" feature class available through the VDOT Open Data Portal. This feature class 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. Where routes were noncontiguous (e.g., a valid physical gap exists because another route is the master), the project team separated them. They then created a linear reference system feature class with unique IDs for the roadway network. The final roadway file included approximately 2,000 miles of roadways.

SCREENING METHOD

Performance Measures

The equivalent property damage only (EPDO) performance measure was used to screen PWC's intersection and roadway network. This approach assigns weighting factors to crashes by 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 the severity of outcomes. The weighting factors, typically based on VDOT crash costs, were modified for this analysis to employ a three-tier system reflecting the societal costs of fatal and severe injury collisions versus non-severe injury collisions. Fatal and severe injuries are weighted equally, recognizing that the difference between severe injury and fatal crashes often depends on the individuals involved; thus, both types of crashes indicate priority locations for improvements. The weights are as follows:

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

Intersection Analysis Methodology

Reported crashes were first coded by severity. Crashes 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. When intersections were 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 of each severity by its associated weight and summing the results, using the following formula:

EPDO Score =
(fatal weight × # of fatal crashes) **+**
(suspected serious injury weight × # of suspected serious injury crashes) **+**
(moderate injury weight × # of moderate injury crashes) **+**
(minor injury weight × # of minor injury crashes) **+**
PDO crashes

The EPDO score was then annualized by dividing it by the five years of crash data used in the analysis. **Figure 1** illustrates the draft EPDO scores for intersections within the County.

Corridor Analysis Methodology (without Intersections)

Following the intersection analysis approach, crashes were first coded by severity. Crashes occurring more than 250 feet from an intersection were classified as segment-related crashes. These crashes were associated with the nearest roadway feature if they occurred within 100 feet of it. To measure crash history along roadways, the team conducted a sliding window analysis. This analysis 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 with a quarter-mile slide. This methodology helps identify roadway segments with the greatest potential for safety improvements.

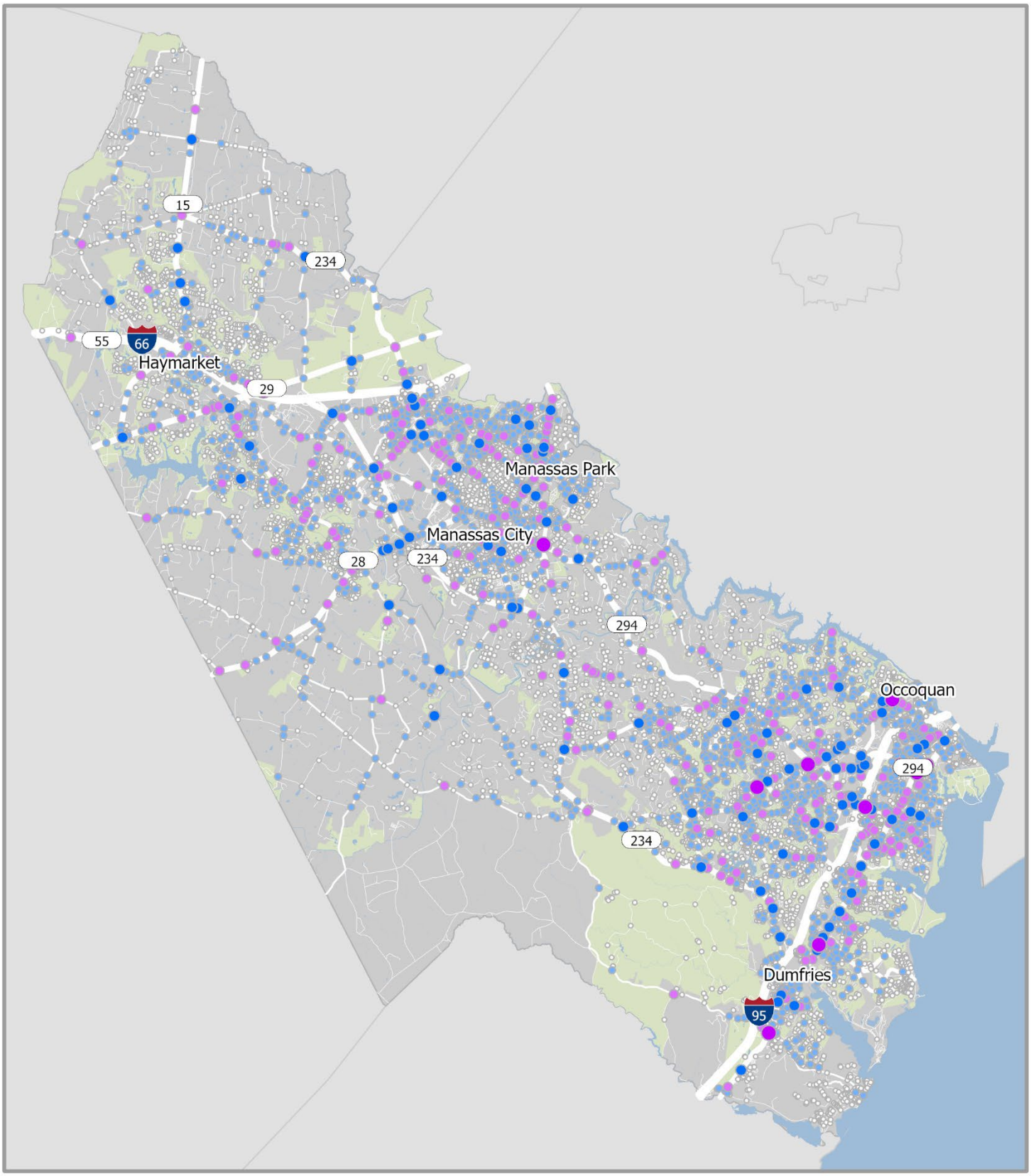
Similar to the intersection methodology, crashes are summarized by severity, and the totals are multiplied by the EPDO weights for roadway segments. The weighted crashes are then summed and annualized by dividing the score by the five years of crash data to generate an annualized EPDO score.

Figure 2 illustrates the draft EPDO scores for corridors within the County.

Network-Wide Analysis Methodology

To evaluate the entire network, the project team treated crashes at intersections and corridor segments without distinction. Crashes were first coded by severity, and the EPDO score was calculated using the previously described methodologies. This integrated approach identifies high-priority locations for safety improvements across the entire network, addressing both intersections and roadway segments with significant safety concerns. The annualized EPDO score was obtained by dividing the total EPDO score by the five years of crash data, providing a clear and consistent measure of network-wide safety performance. This EPDO score serves as the preliminary High Injury Network (HIN) for the County's Safety Action Plan.

Figure 3 illustrates the draft High Injury Network for the County.



Annualized Equivalent Property Damage Only (EPDO) Score

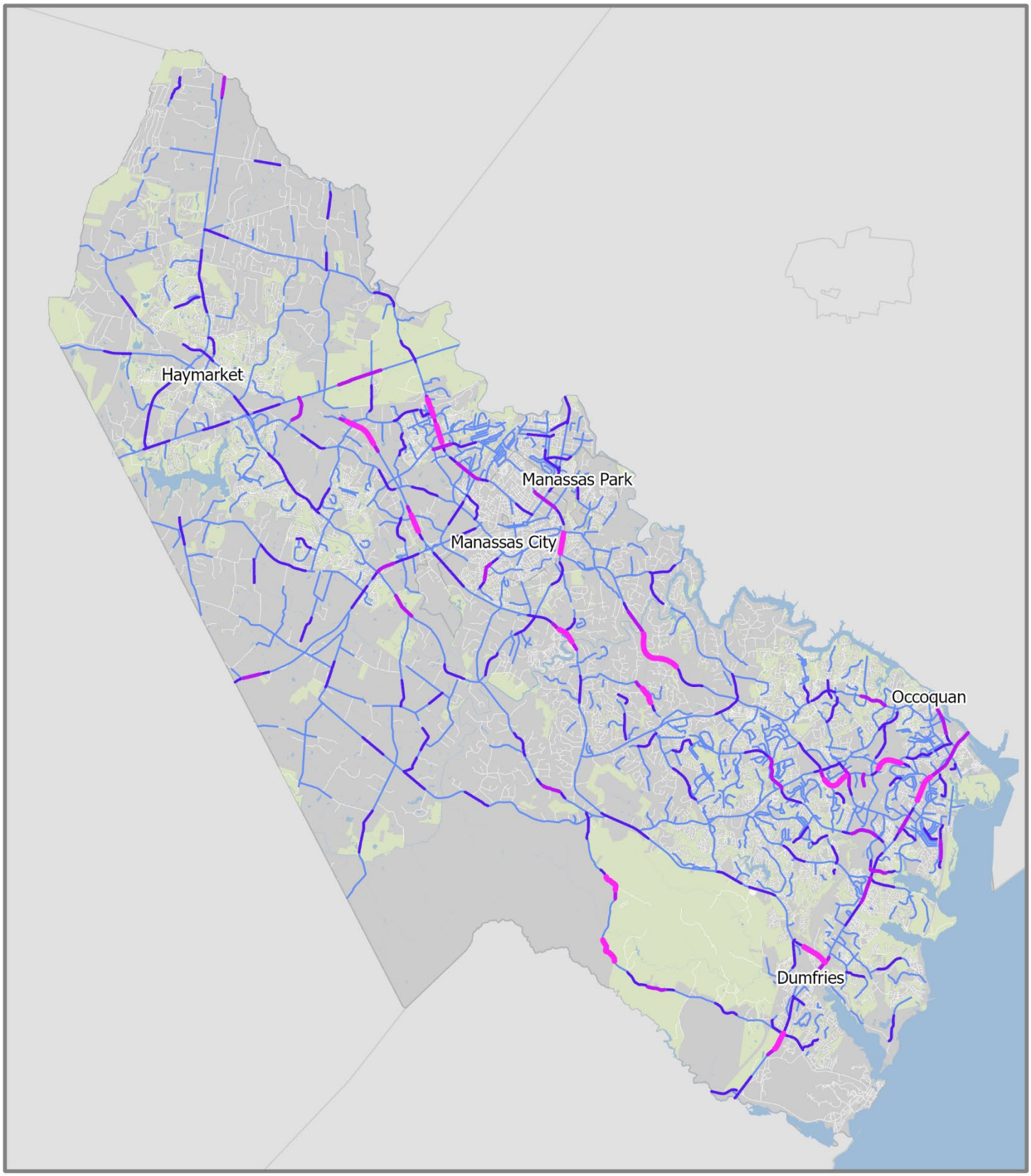
- No Reported Crashes
- 0.1 - 99.9
- 100-180
- 180 - 394
- Greater than 394

0 2 4 6 Miles

Figure 1

Intersection Analysis

Prince William County



Equivalent Property Damage Only (EPDO) Score

- No Reported Crashes
- 0.1 - 99.9
- 100 - 160
- 160.1 - 275
- Greater than 275

0 2 4 6 Miles

Figure 2

Segment Analysis

Prince William County

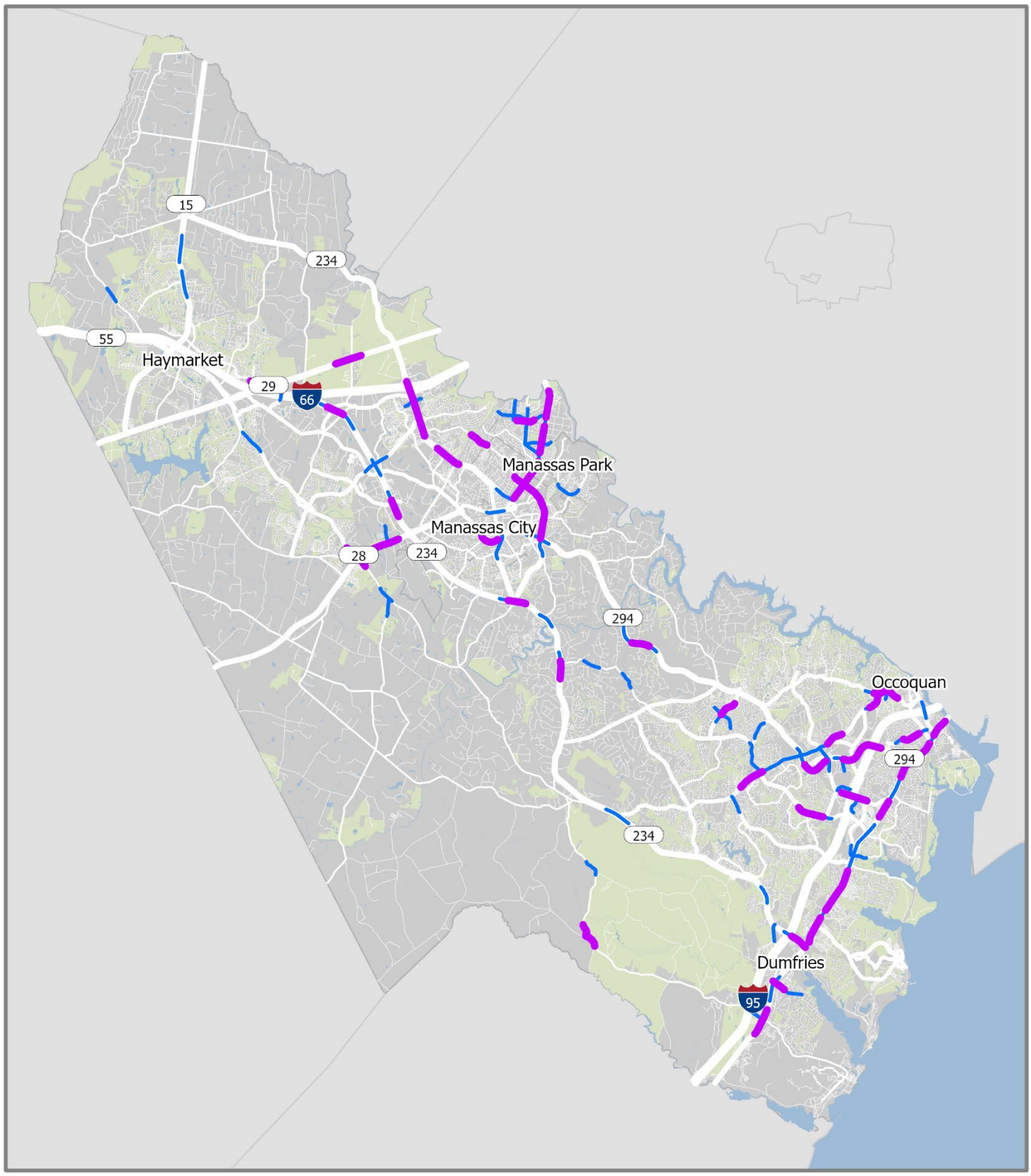


Figure 3

Crash-Based High Injury Network

Prince William County

Each Tier Represents 25% of Fatal and Severe Crashes

Next Steps

Kittelson will conduct a risk-based network screening to identify streets and intersections where crashes are more likely to occur. The team will also conduct an equity assessment using the latest national and regional datasets to identify High Injury Network intersections and corridors that are located within or frequently used by historically underserved communities. Prince William County staff will use the crash- and risk-based network screenings and equity assessment to finalize the county's High Injury Network. The High Injury Network will inform identification and development of systemic treatments and potential project locations.

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

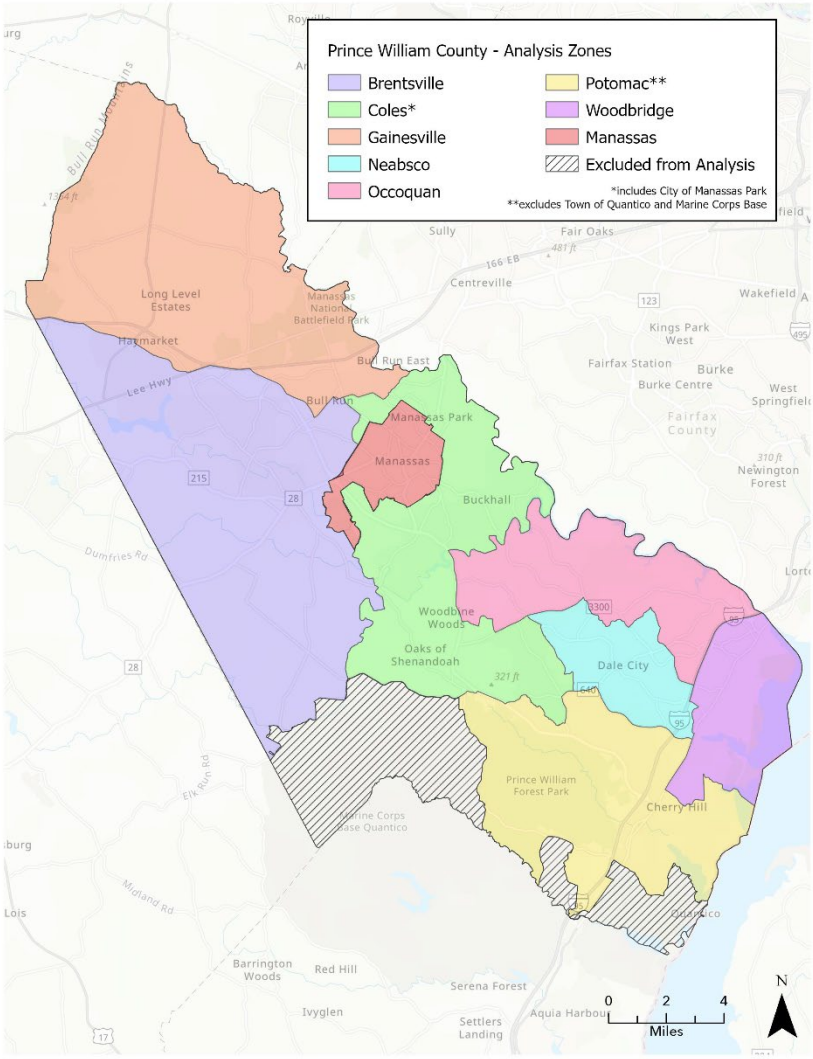
A summary table of the data used throughout this analysis is shown below in Figure 1:

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

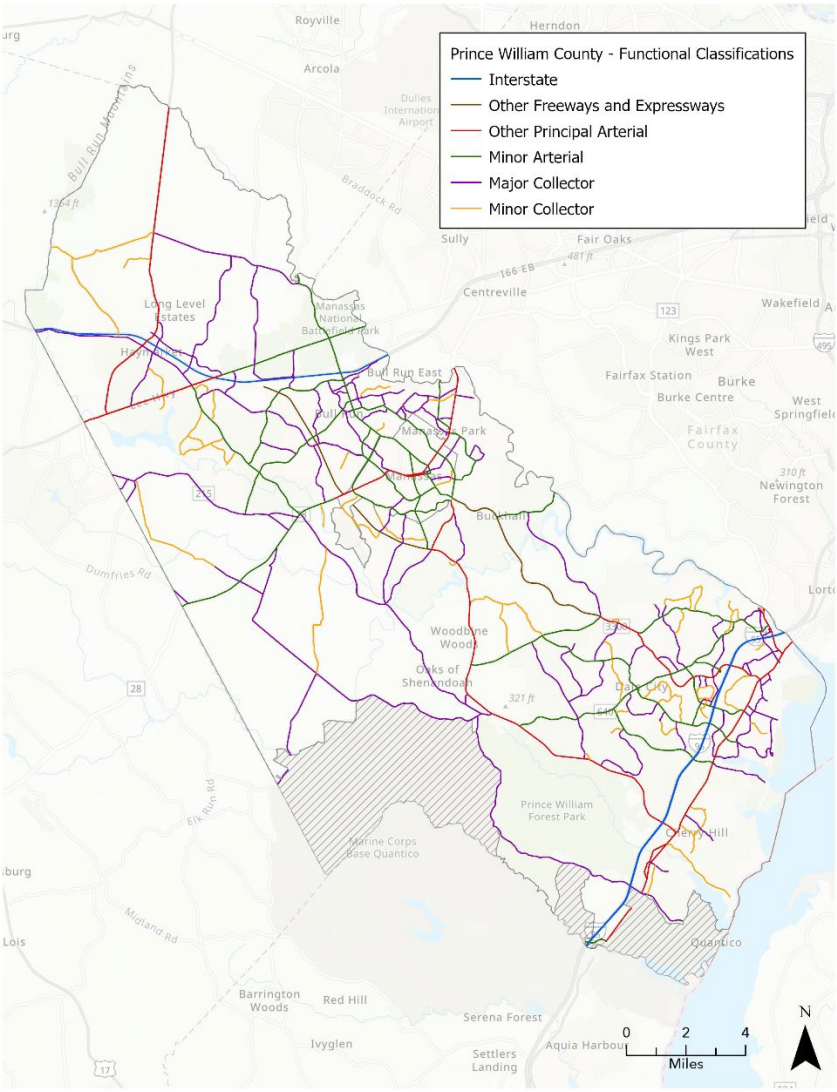


The next step of the data discovery process was to identify and map the roadways that would be analyzed for their existing and planned pedestrian and bicycle facilities. For the purpose of this analysis, only roadways under the following six selected functional classifications were:

- 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

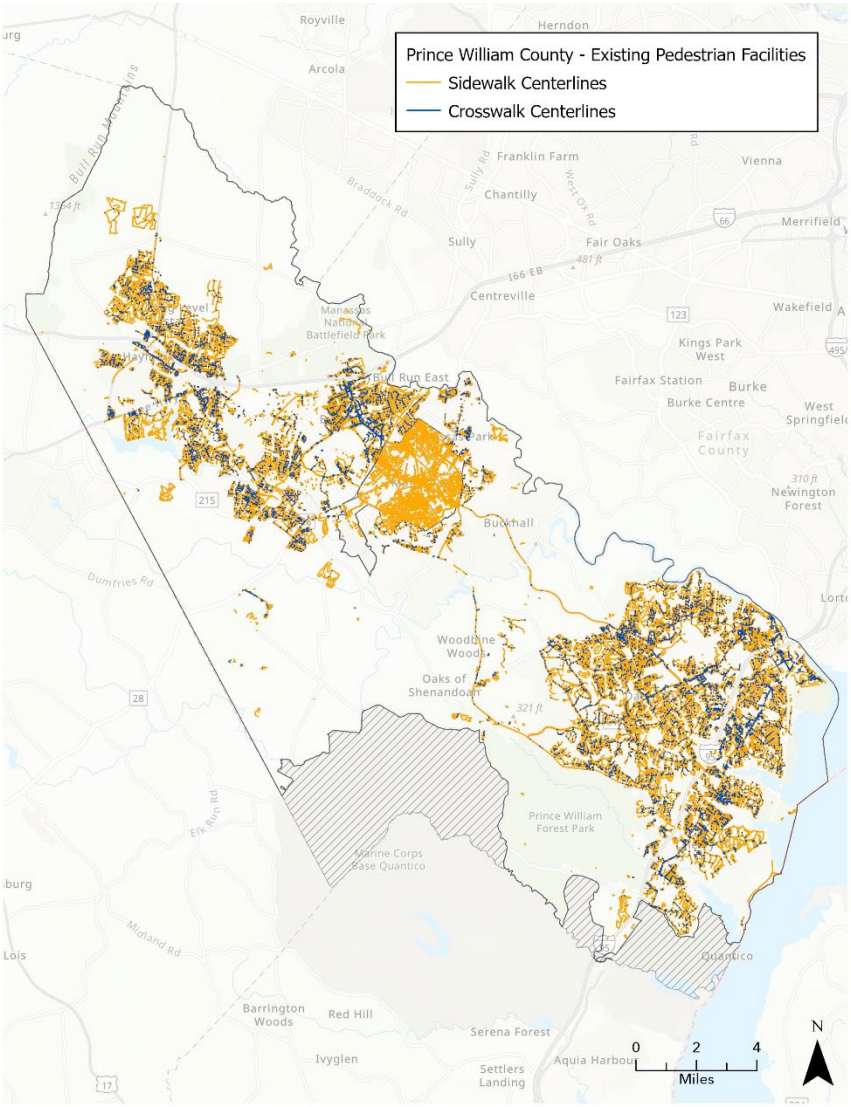
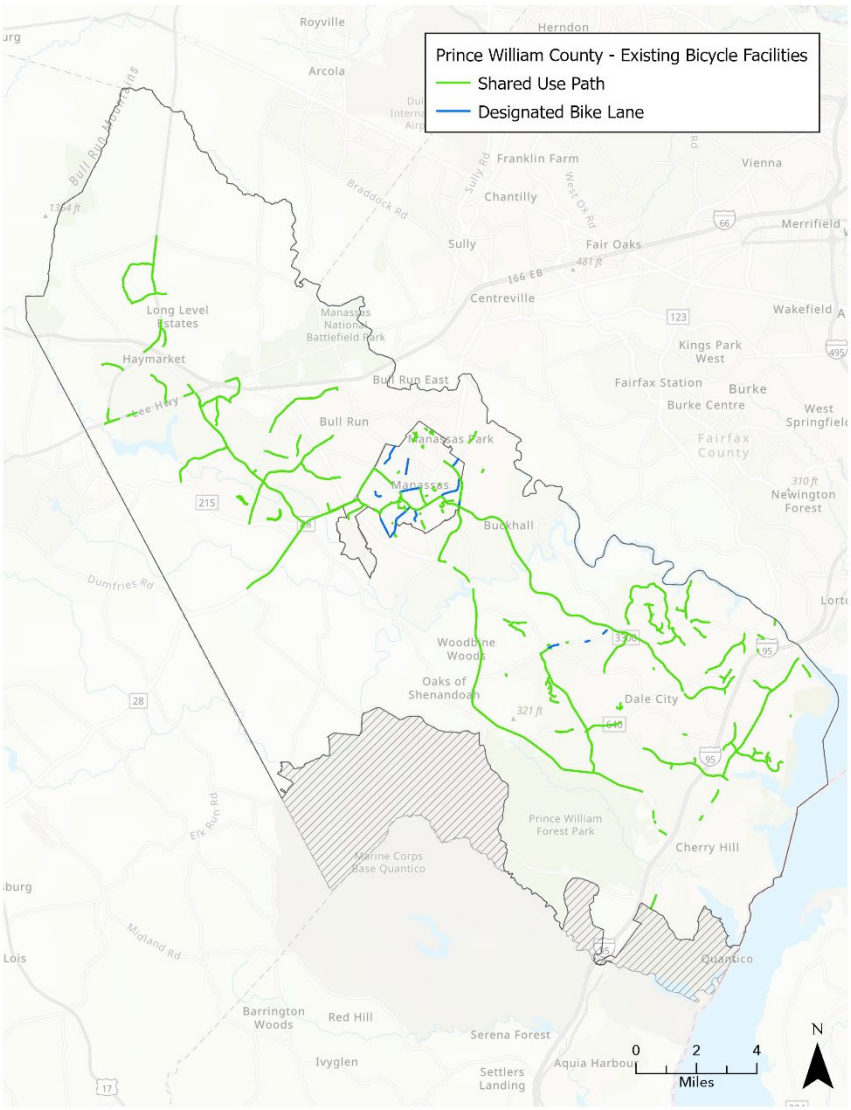


Figure 5: Existing bicycle facilities



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.

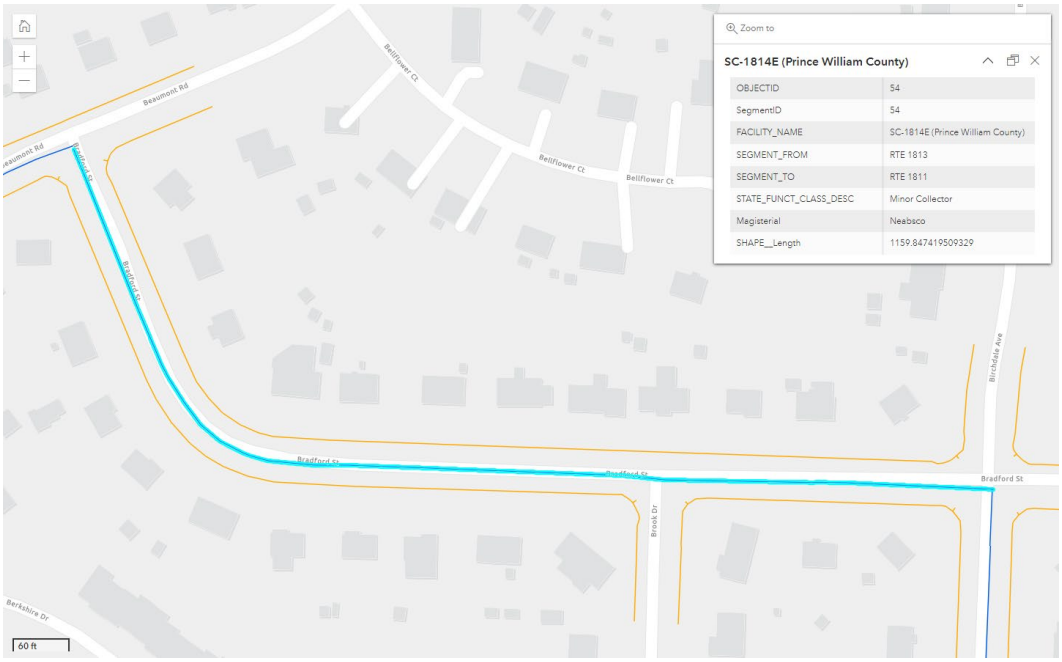
For the purposes of this cleanup, a spreadsheet was developed to track each roadway segment and any adjacent sidewalks, shared-use paths, bike lanes, or crosswalks. Each entry held information for a subsequent roadway segment, including:

- 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:

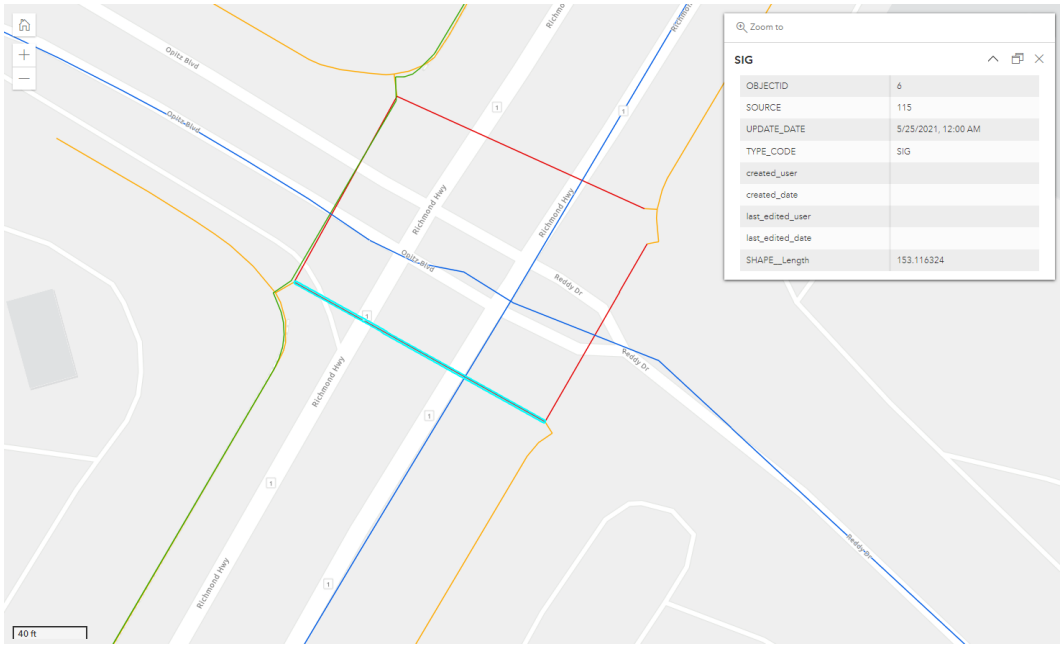
- SIG = Signal – A signal is found mounted to a pole near the crosswalk and typically includes electronic push buttons used by pedestrians to change traffic signal timing to accommodate pedestrian crossings.
- NOSIG = No Signal – A marked crosswalk with no associated signal.
- CONN = Connector – A connector 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)

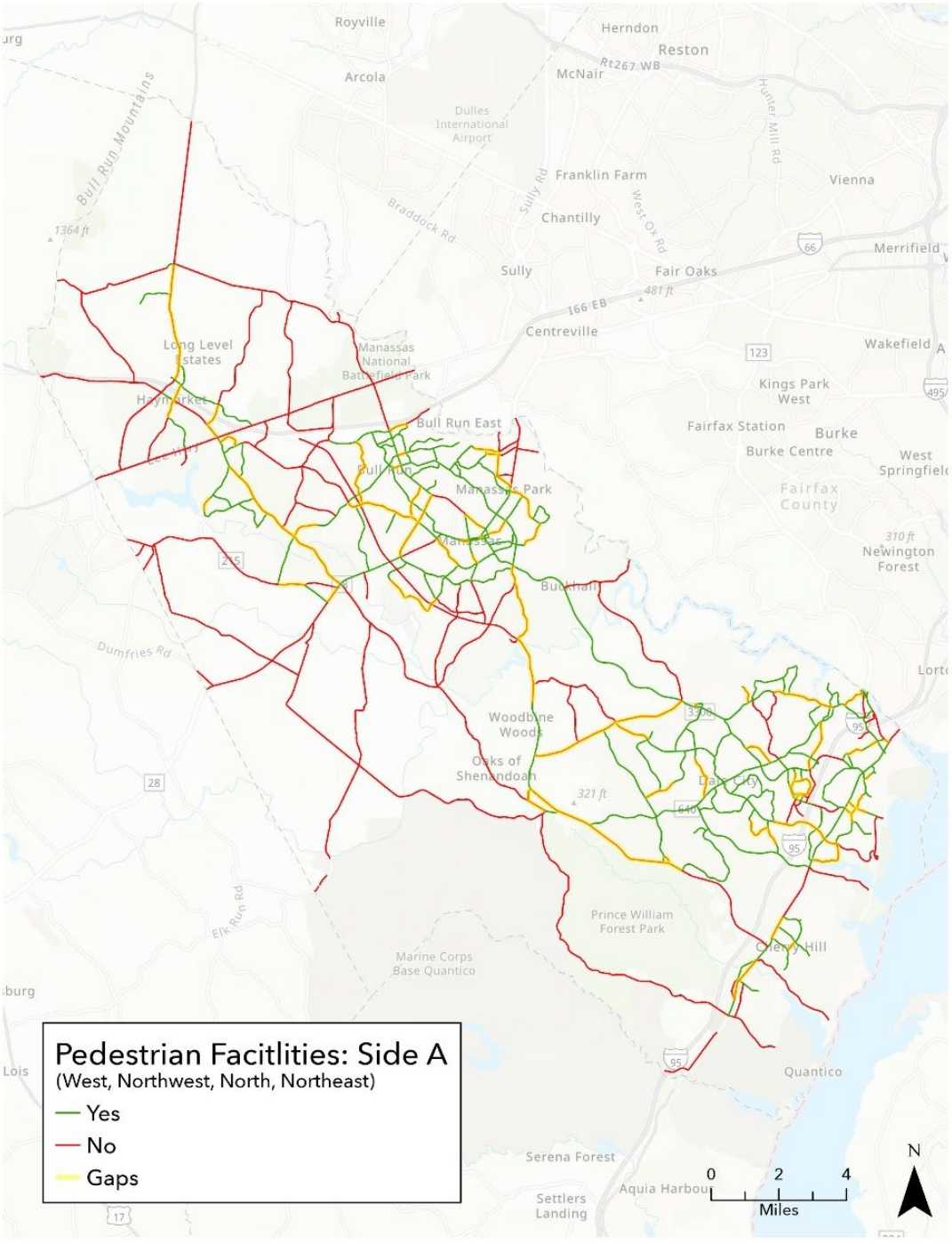


Figure 12: Pedestrian Facilities - Side B (East, Southeast, South, Southwest)

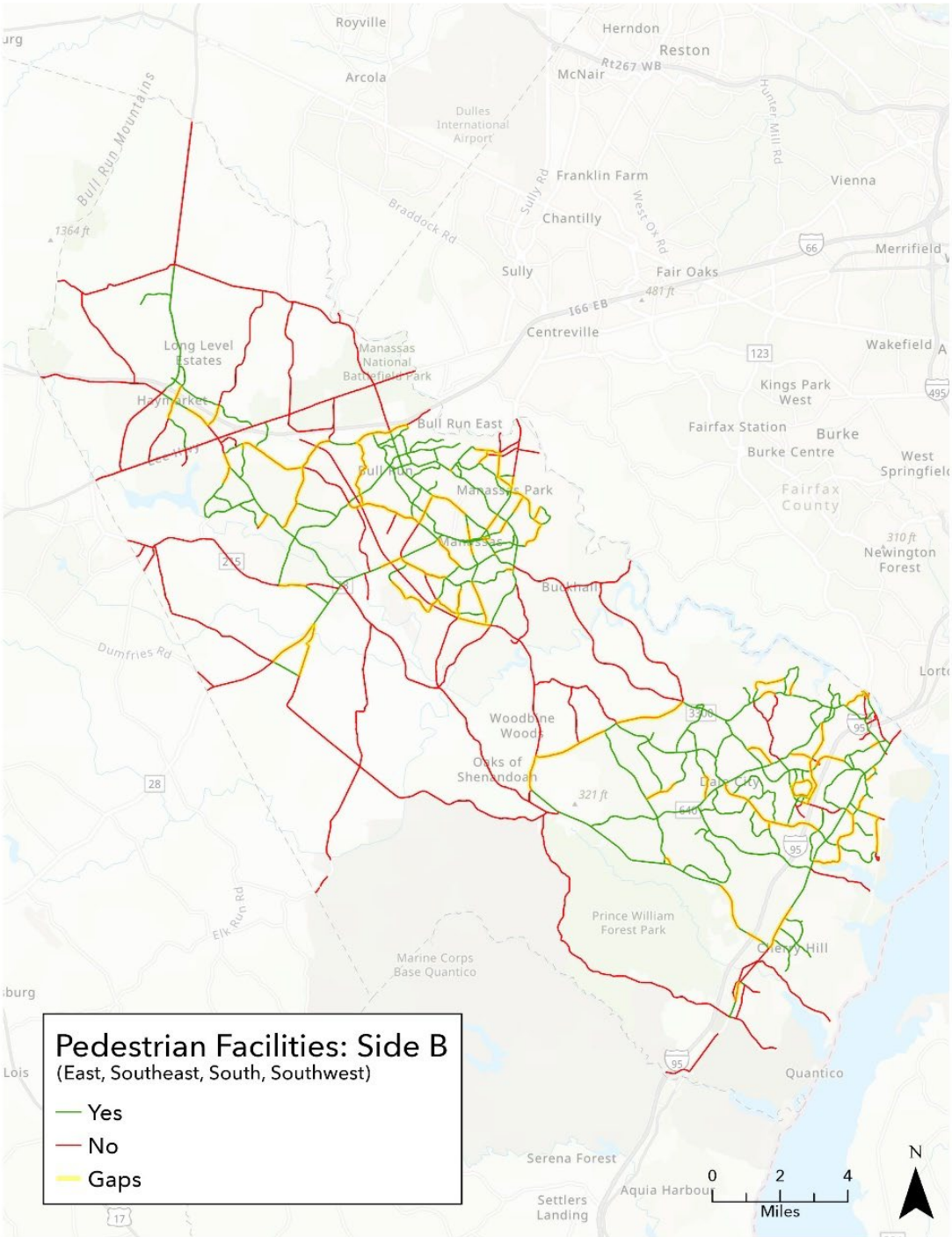


Figure 13: Bicycle Facilities/Gaps - Side A (West, Northwest, North, Northeast)

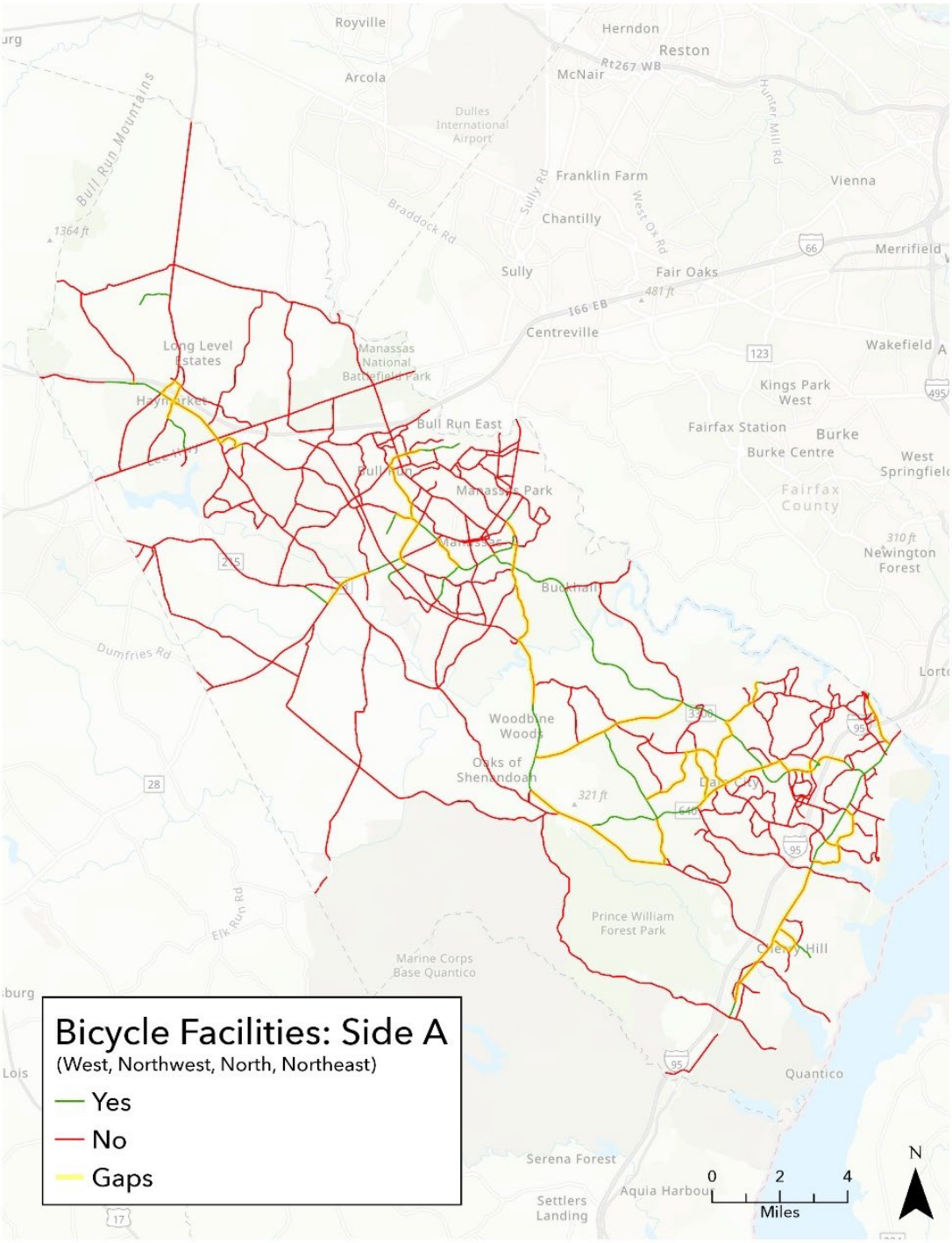
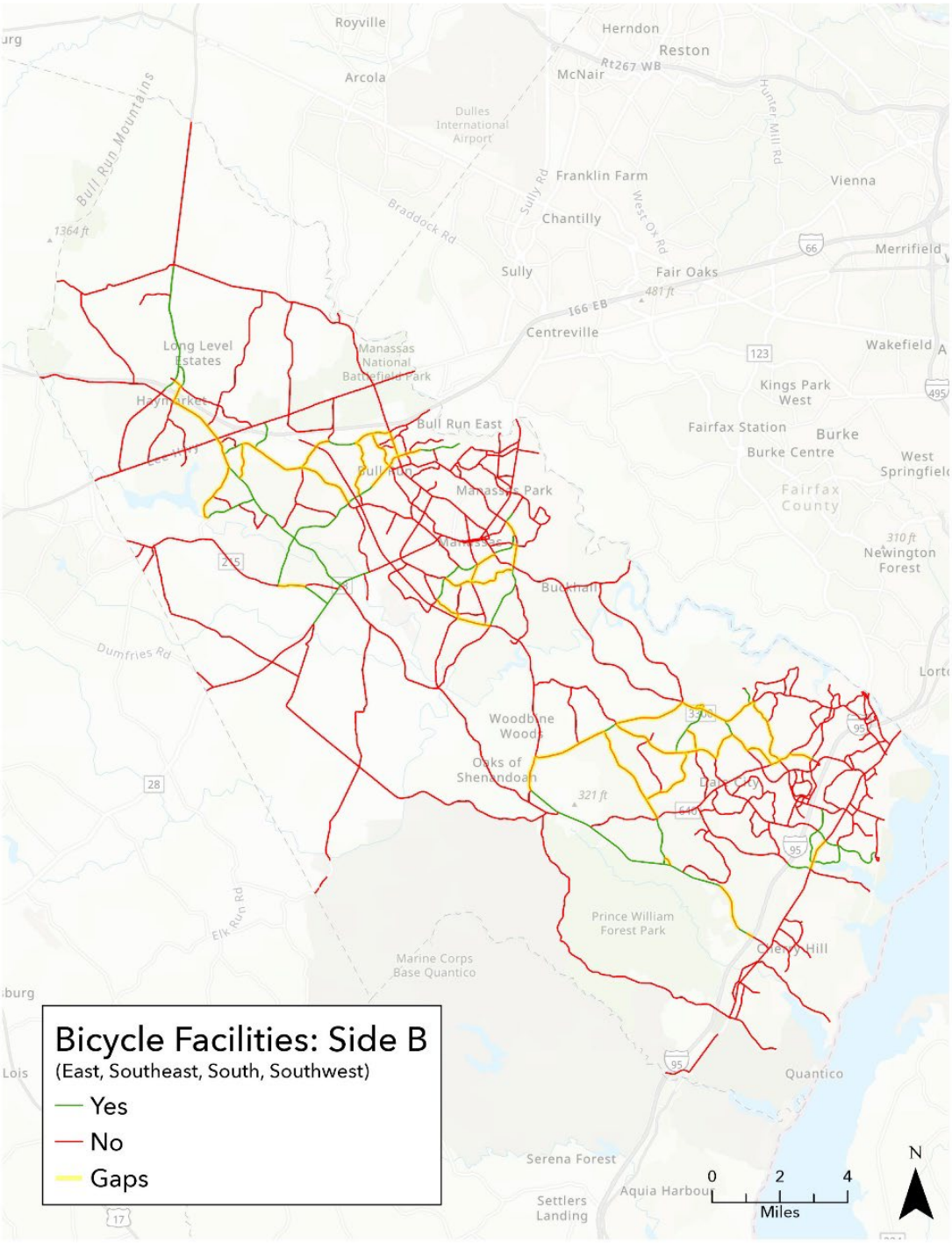


Figure 14: Bicycle Facilities/Gaps - Side B (East, Southeast, South, Southwest)



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

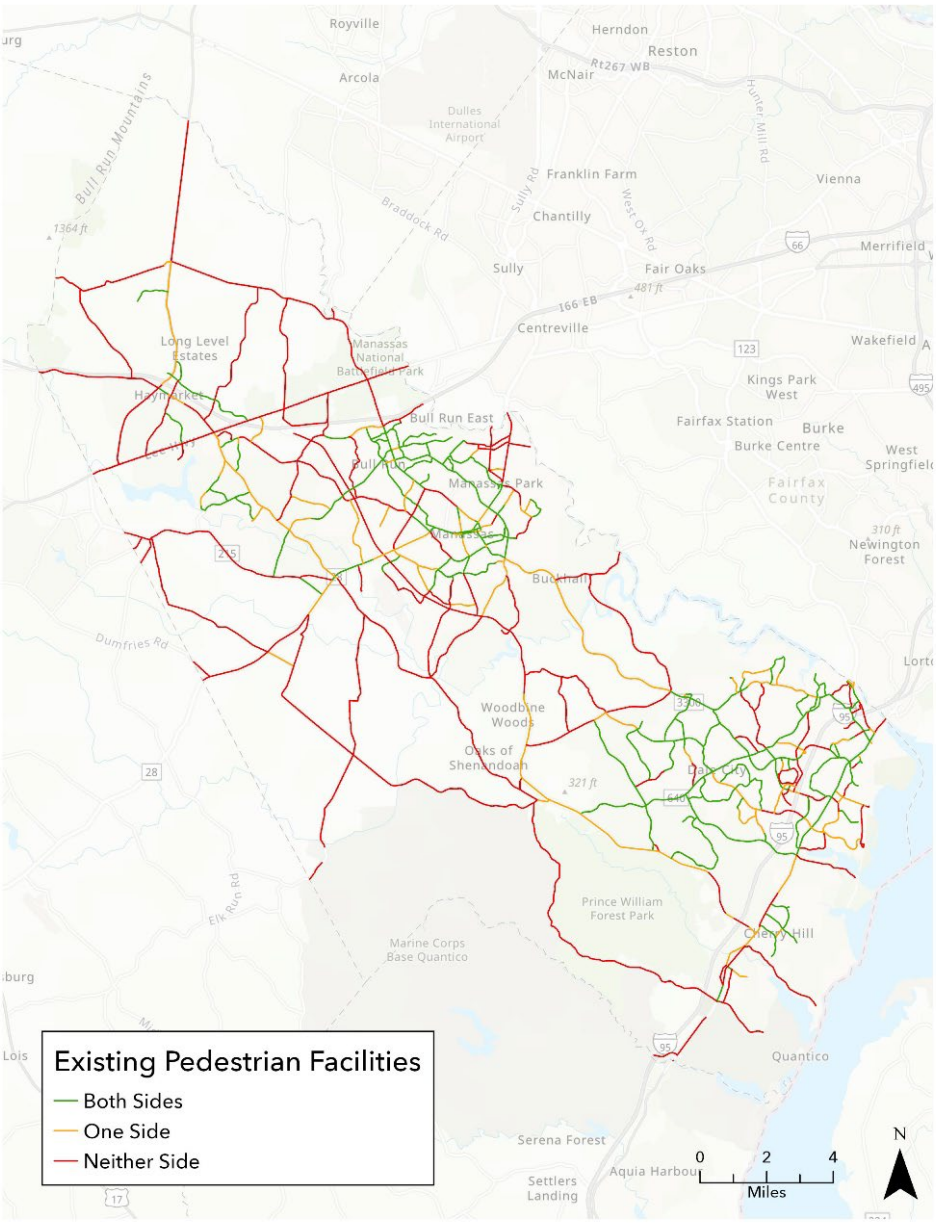
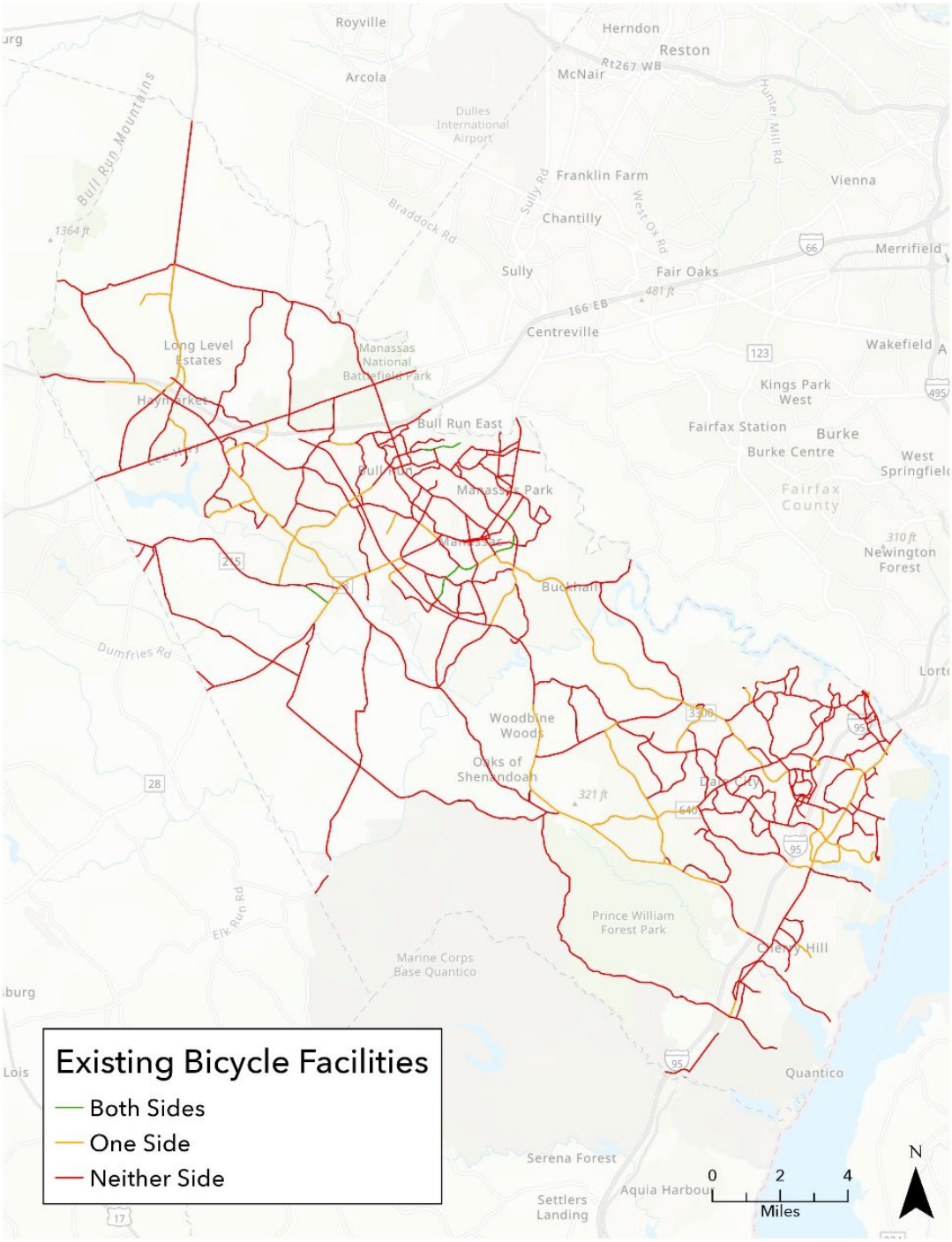


Figure 16: Existing bicycle facilities summary



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)

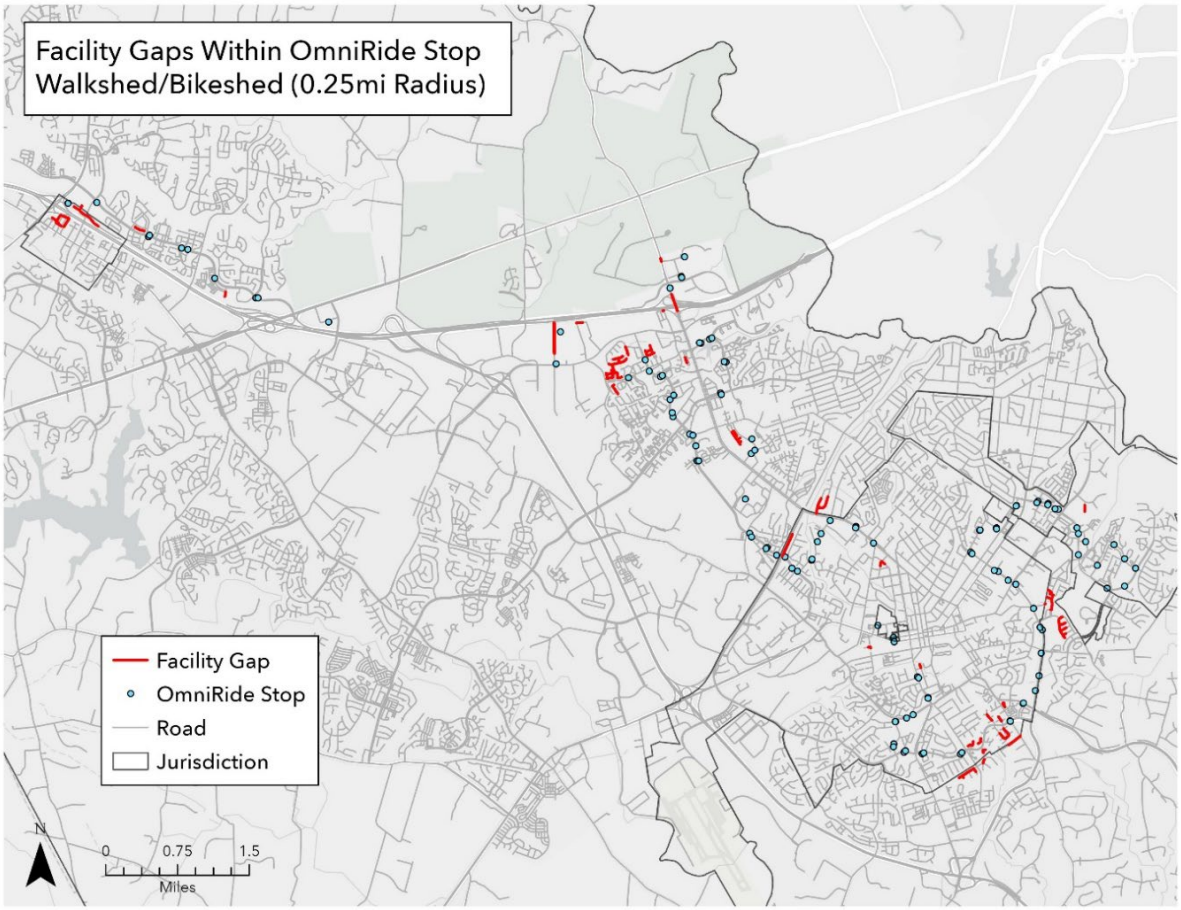
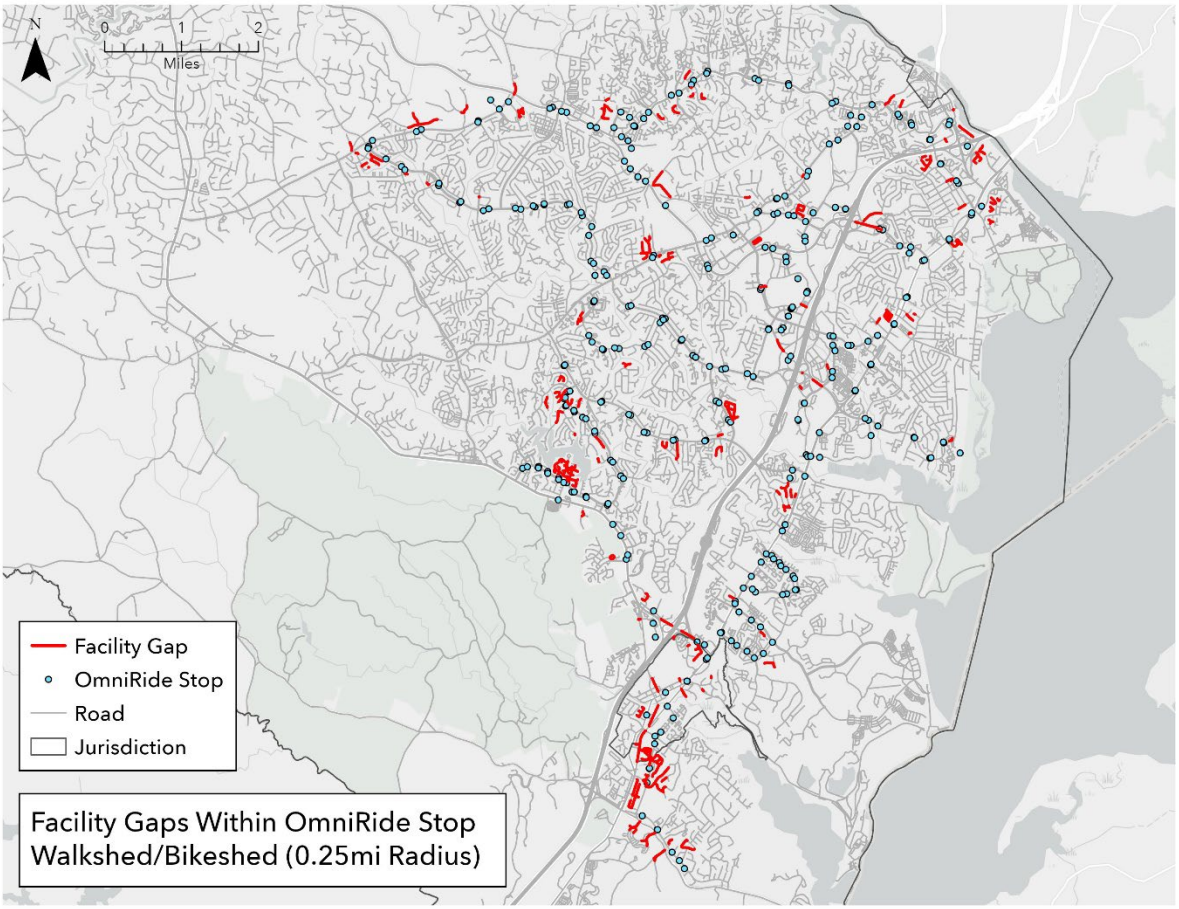


Figure 19: Bike/ped facility gaps within OmniRide stop walk/bikesheds (Area 2)



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

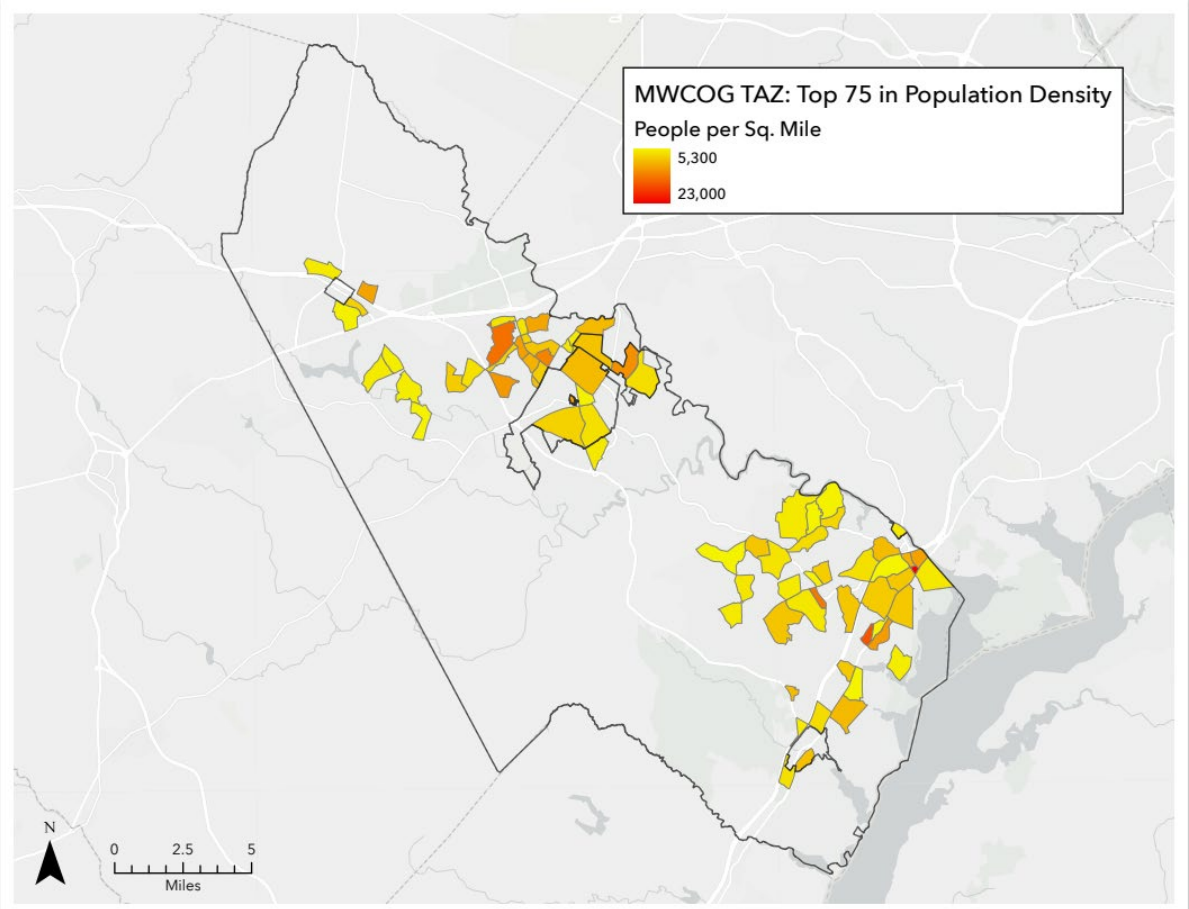


Figure 21: Top 75 TAZs in projected 2050 employment density

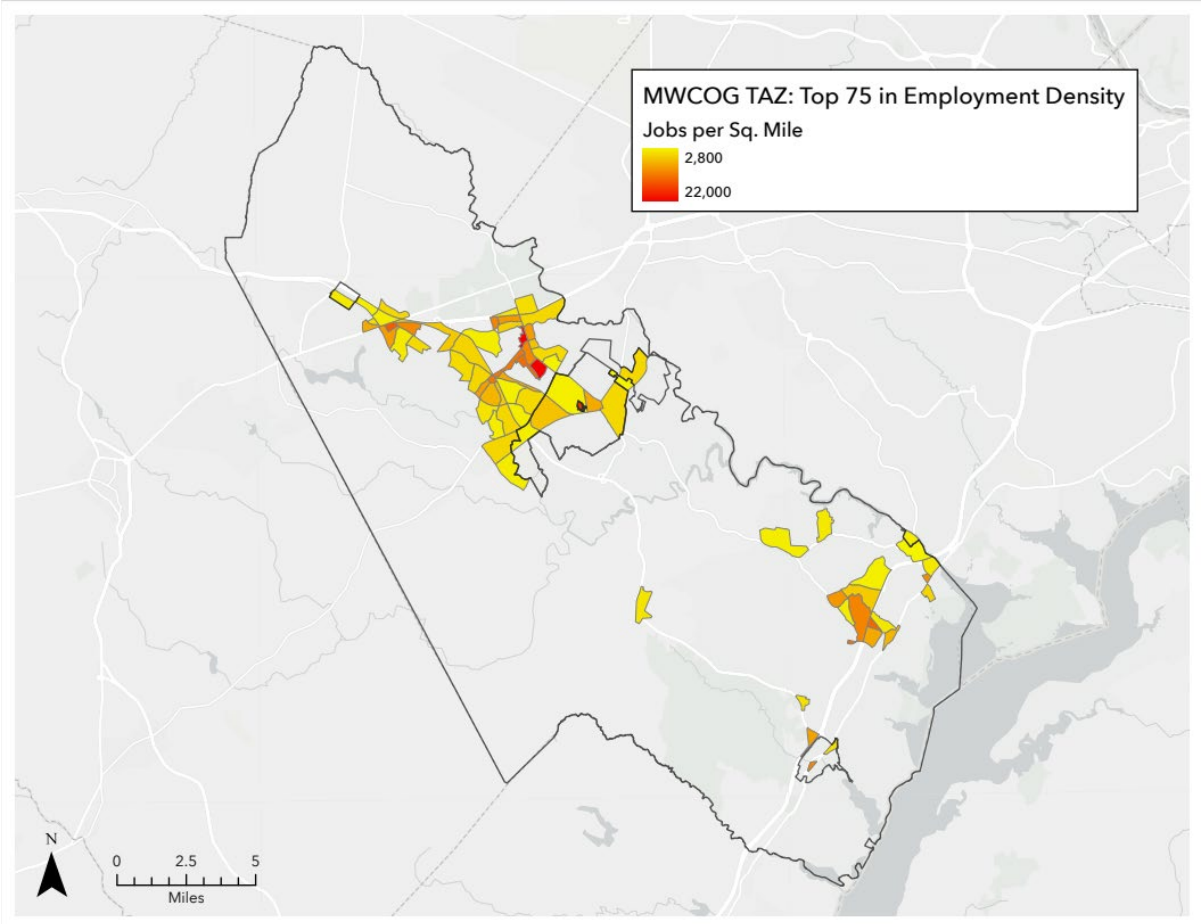


Figure 22: Top 75 TAZs in projected percent change in population density 2020-2050

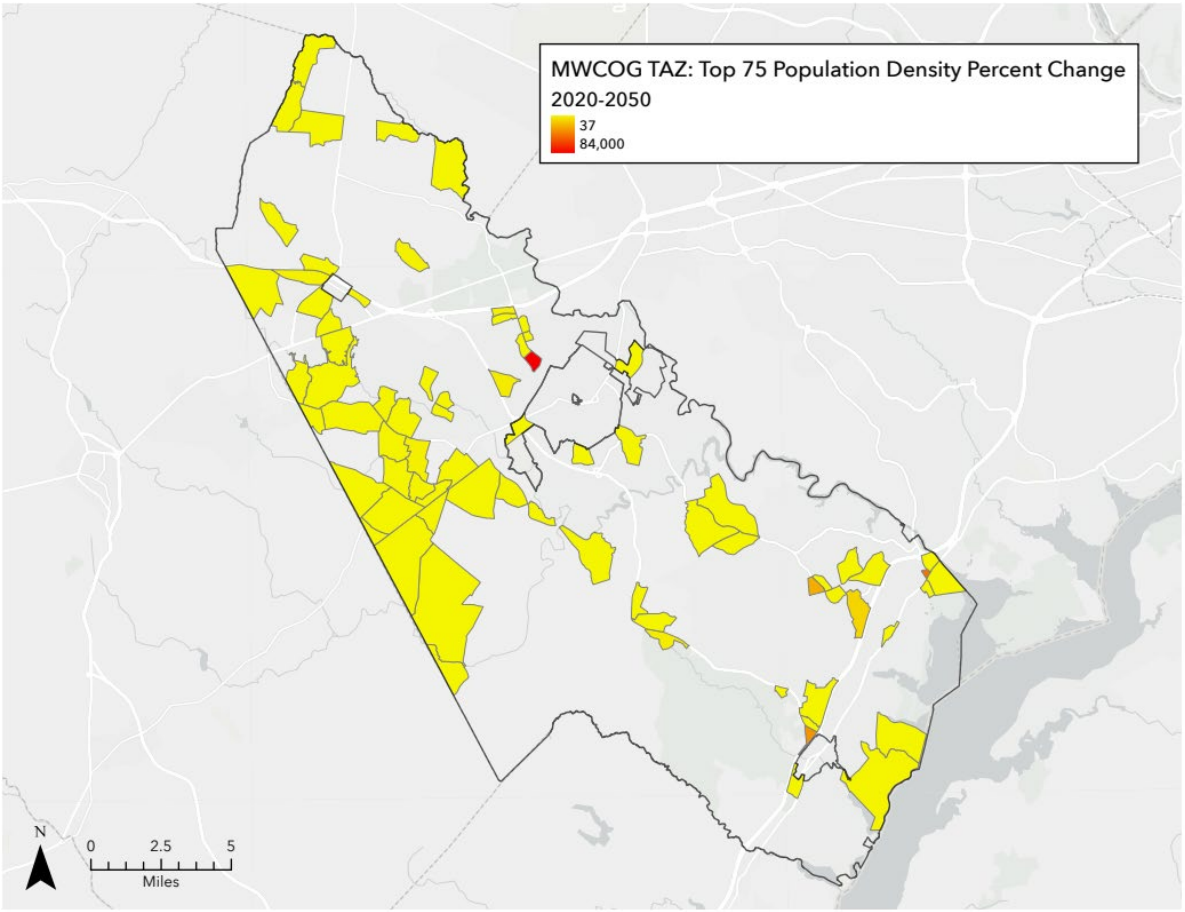
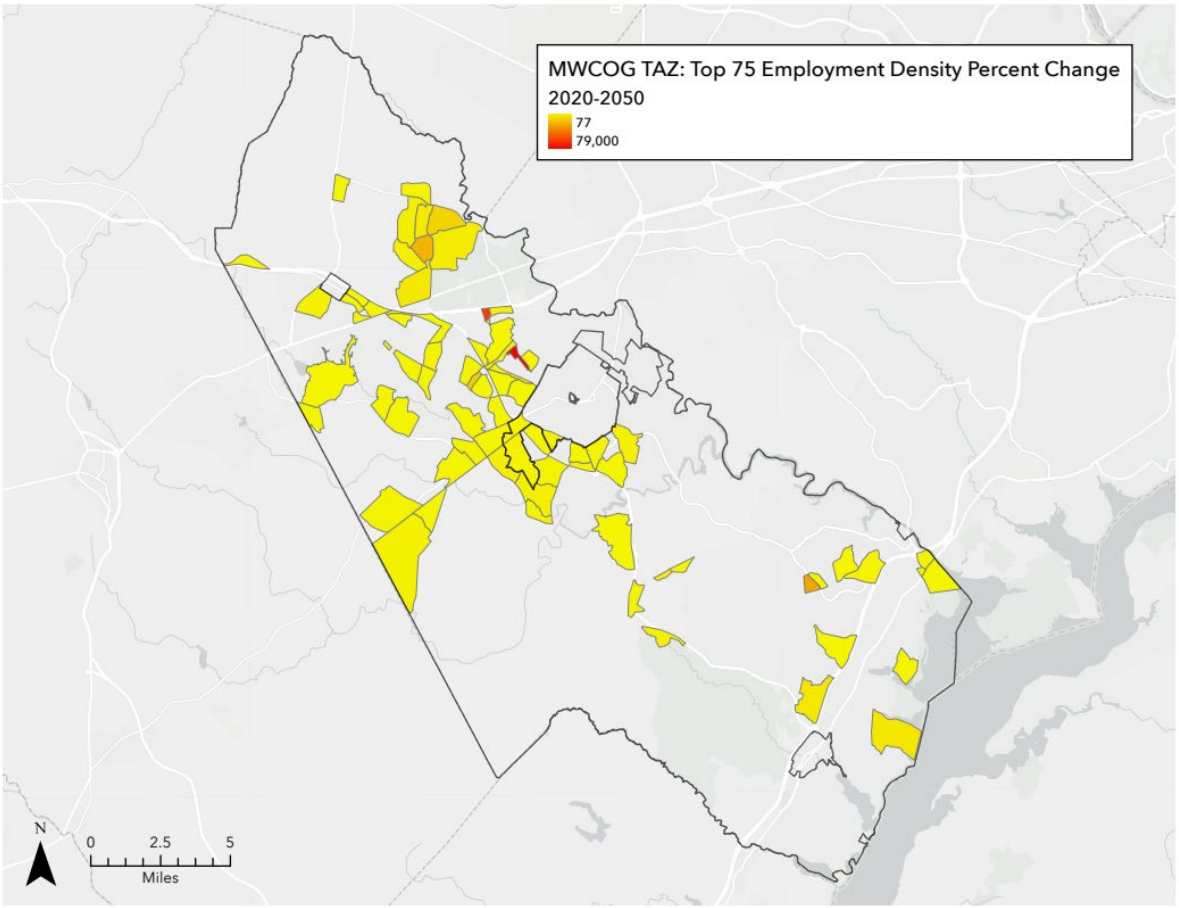


Figure 23: Top 75 TAZs in projected percent change in employment density 2020-2050



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

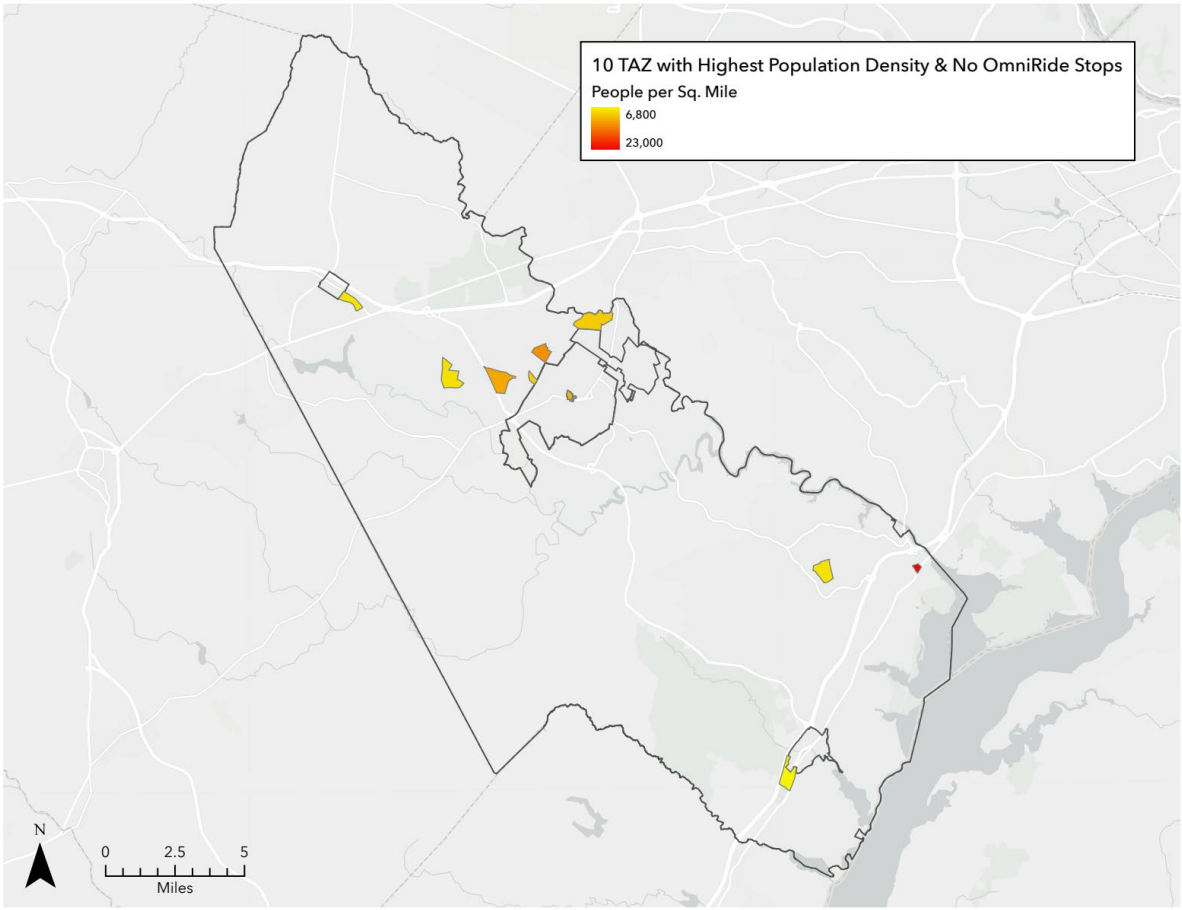


Figure 25: Top 10 TAZs with Highest Employment Density & No OmniRide Stops

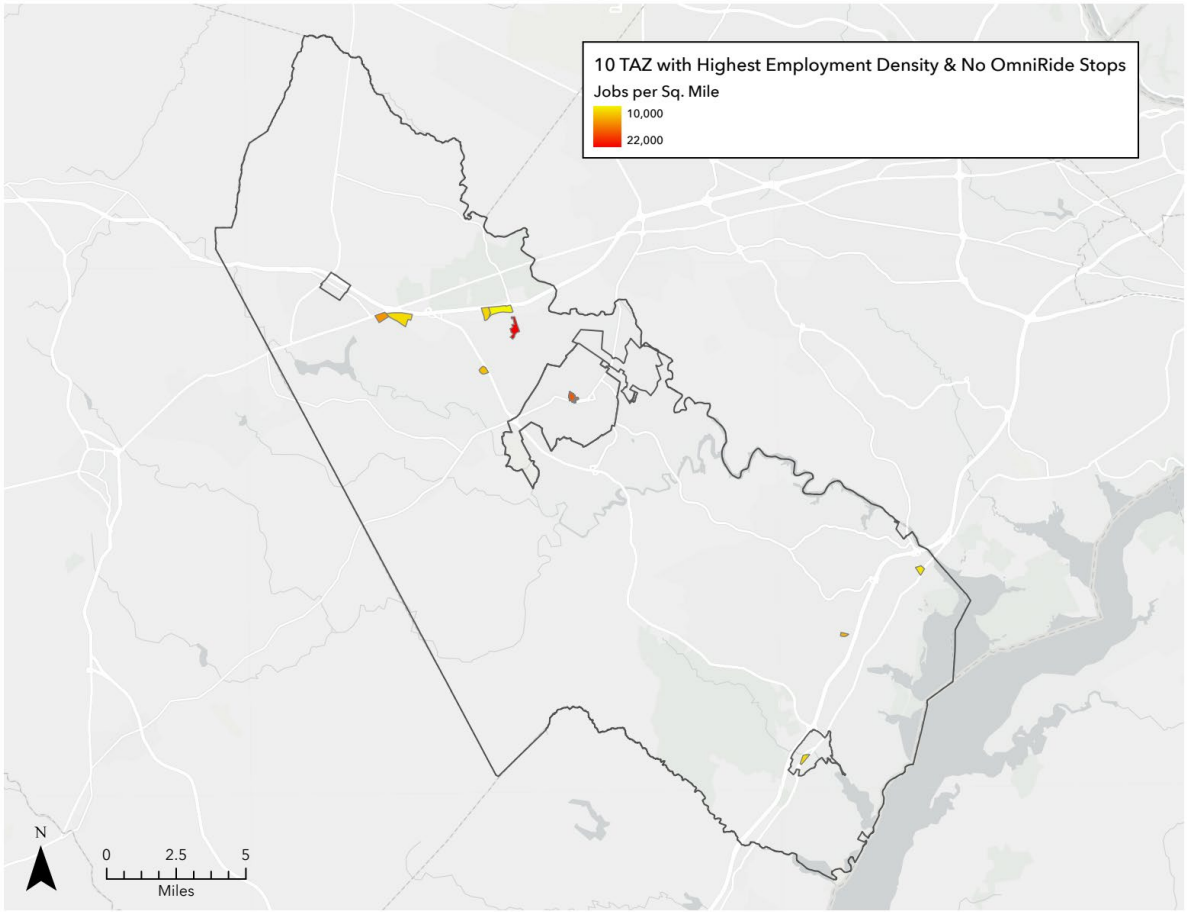


Figure 26: Top 10 TAZs with Highest Population Percent Change (2020-2050) & No OmniRide Stops

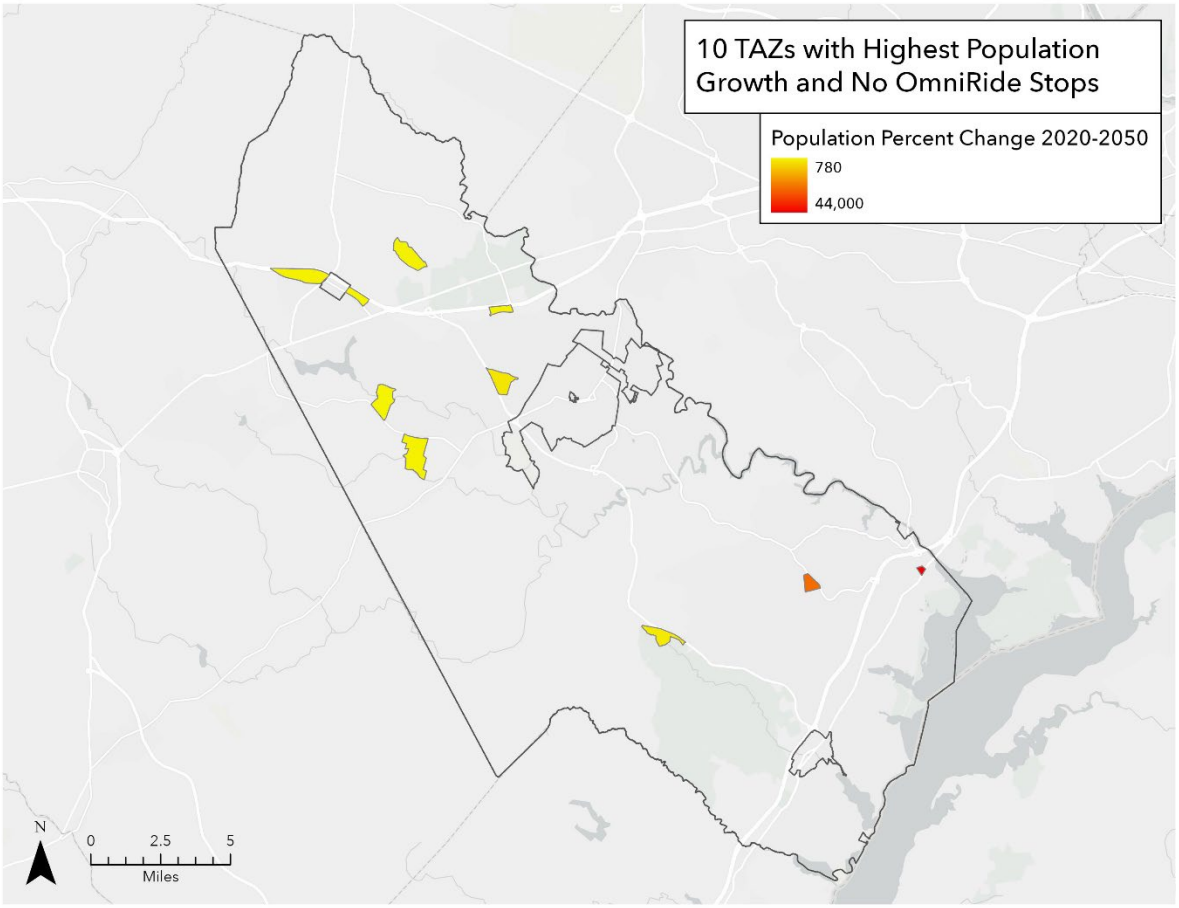
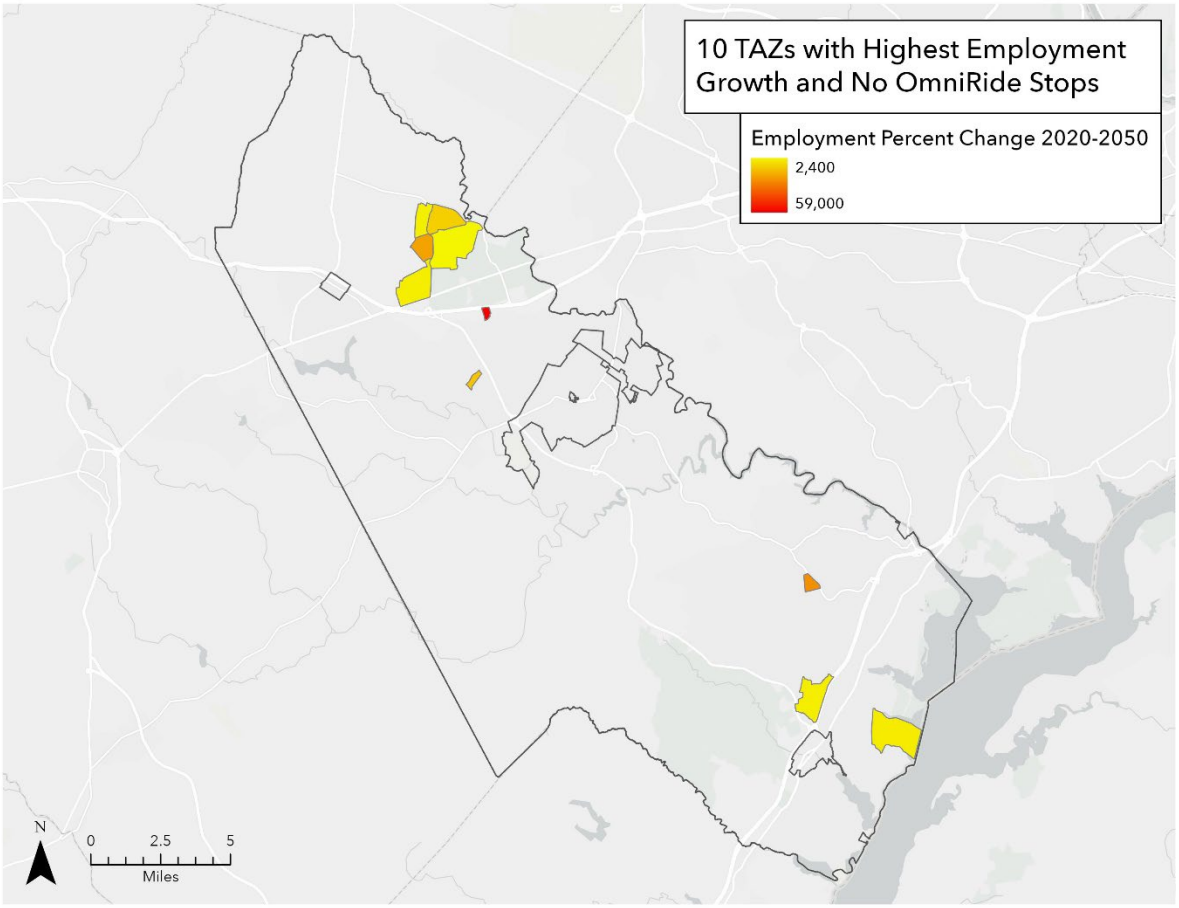


Figure 27: Top 10 TAZs with Highest Employment Percent Change (2020-2050) & No OmniRide Stops



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

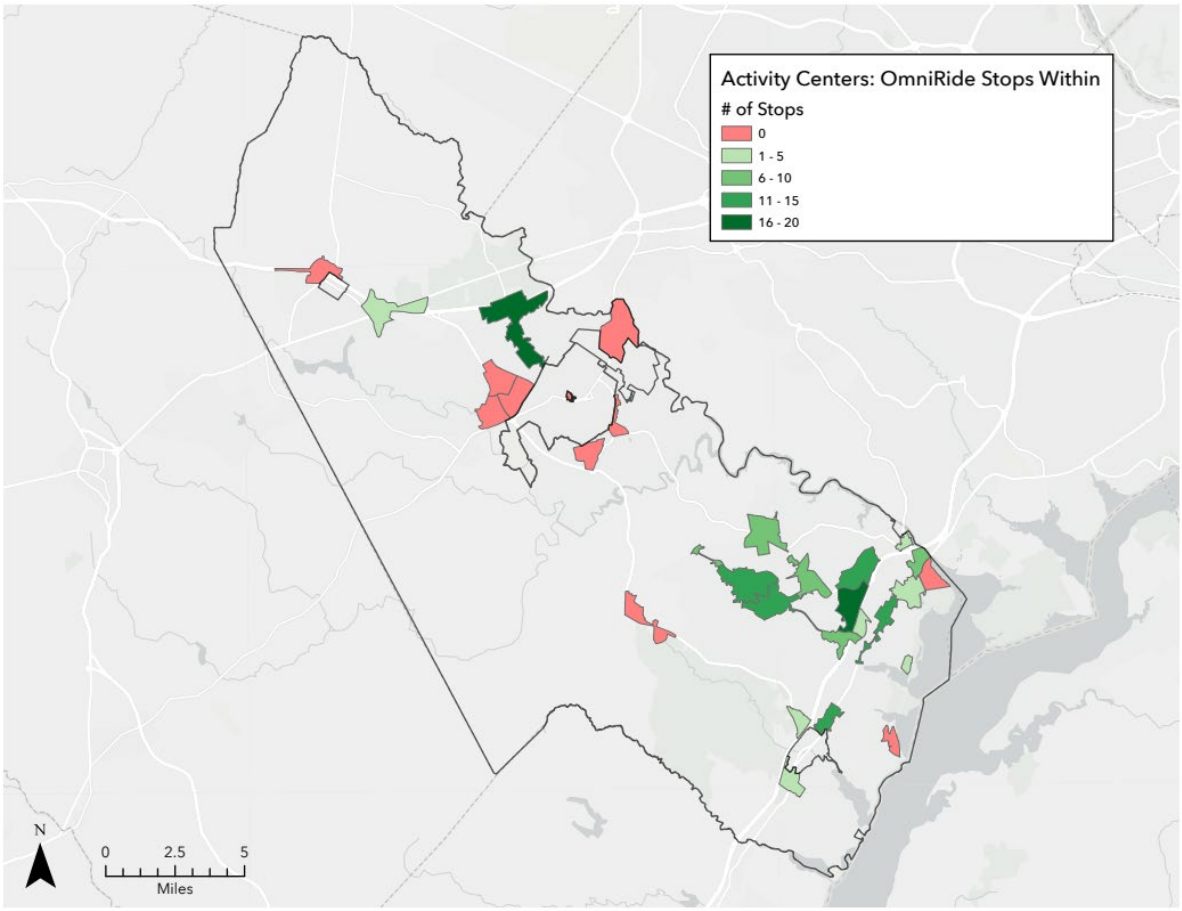


Figure 29: Number of OmniRide stops within 1/4 mile of activity centers

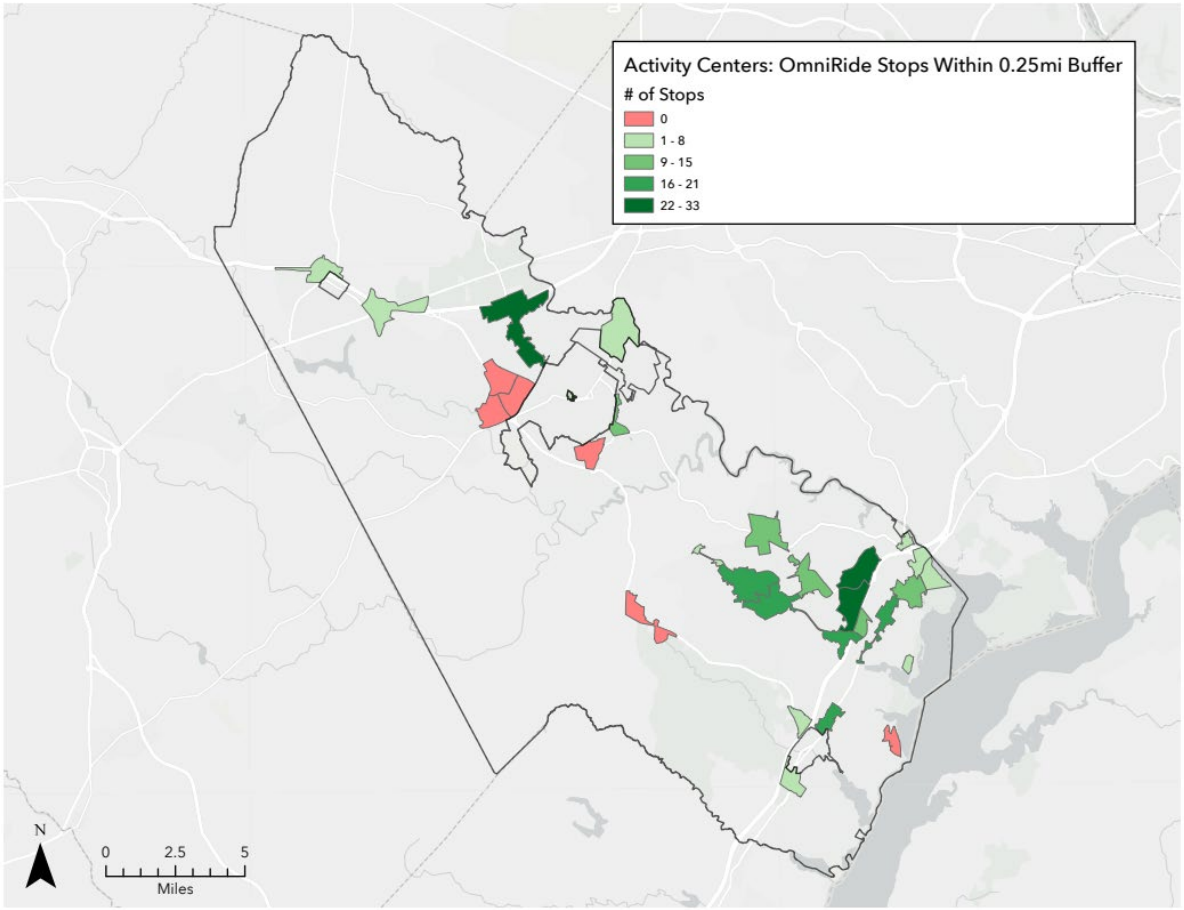
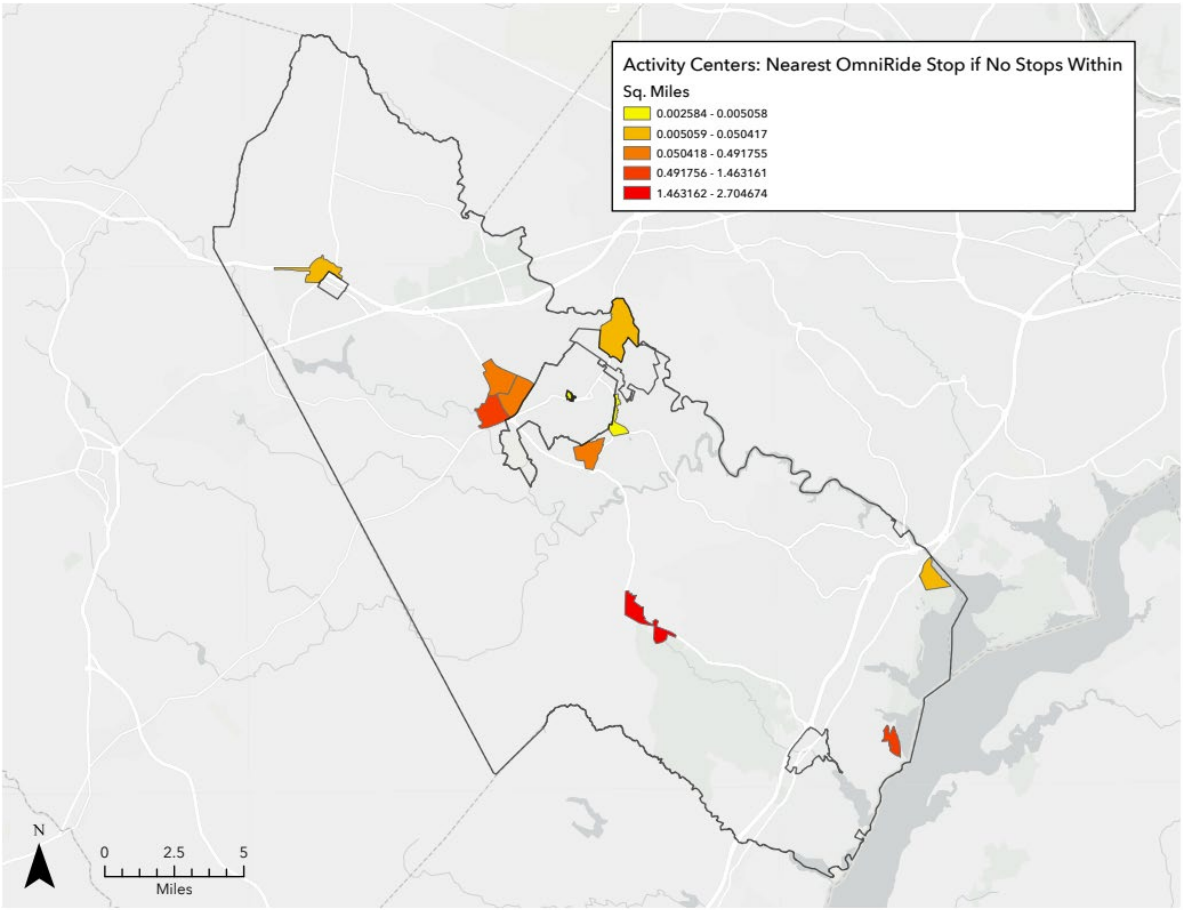


Figure 30: Nearest OmniRide stop if none existing within activity centers



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

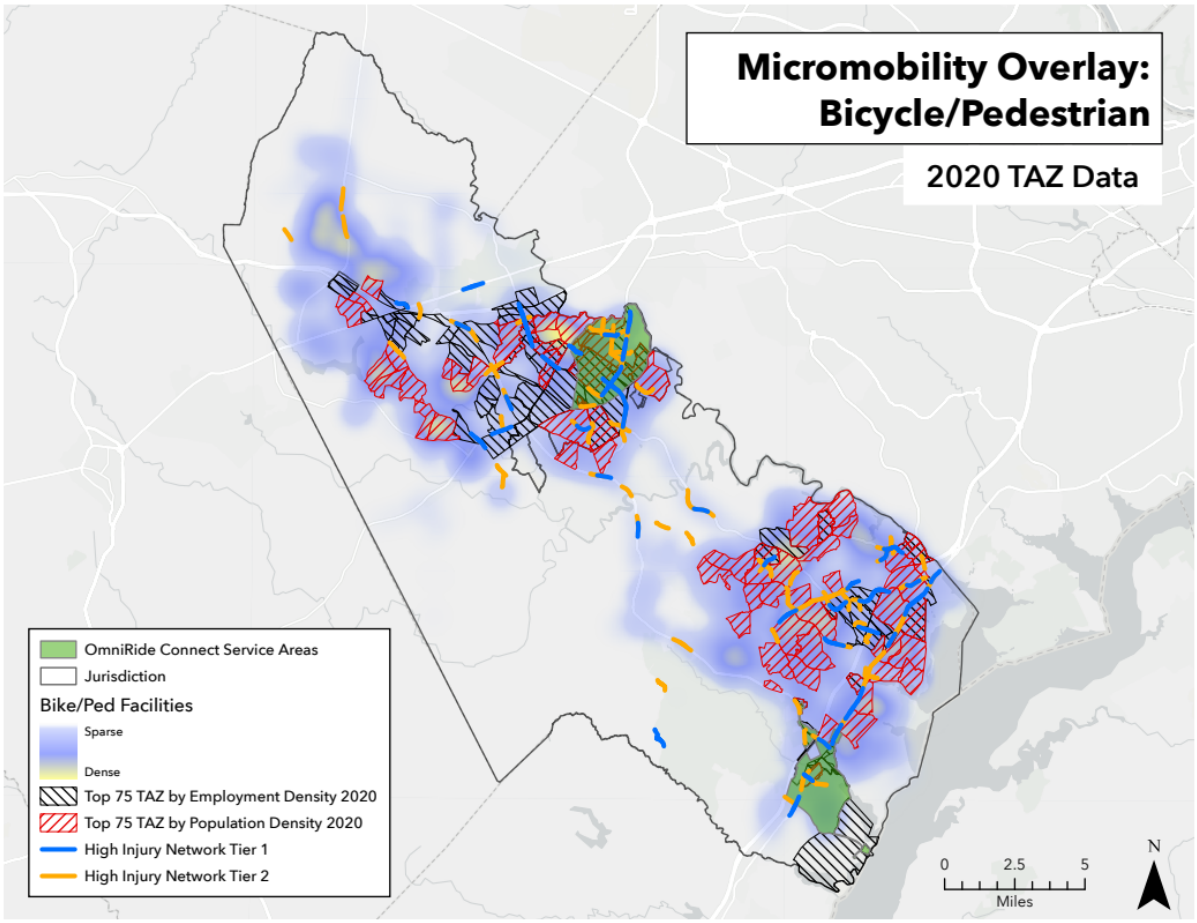


Figure 32: Micromobility overlay with 2020 TAZ data and transit heat map

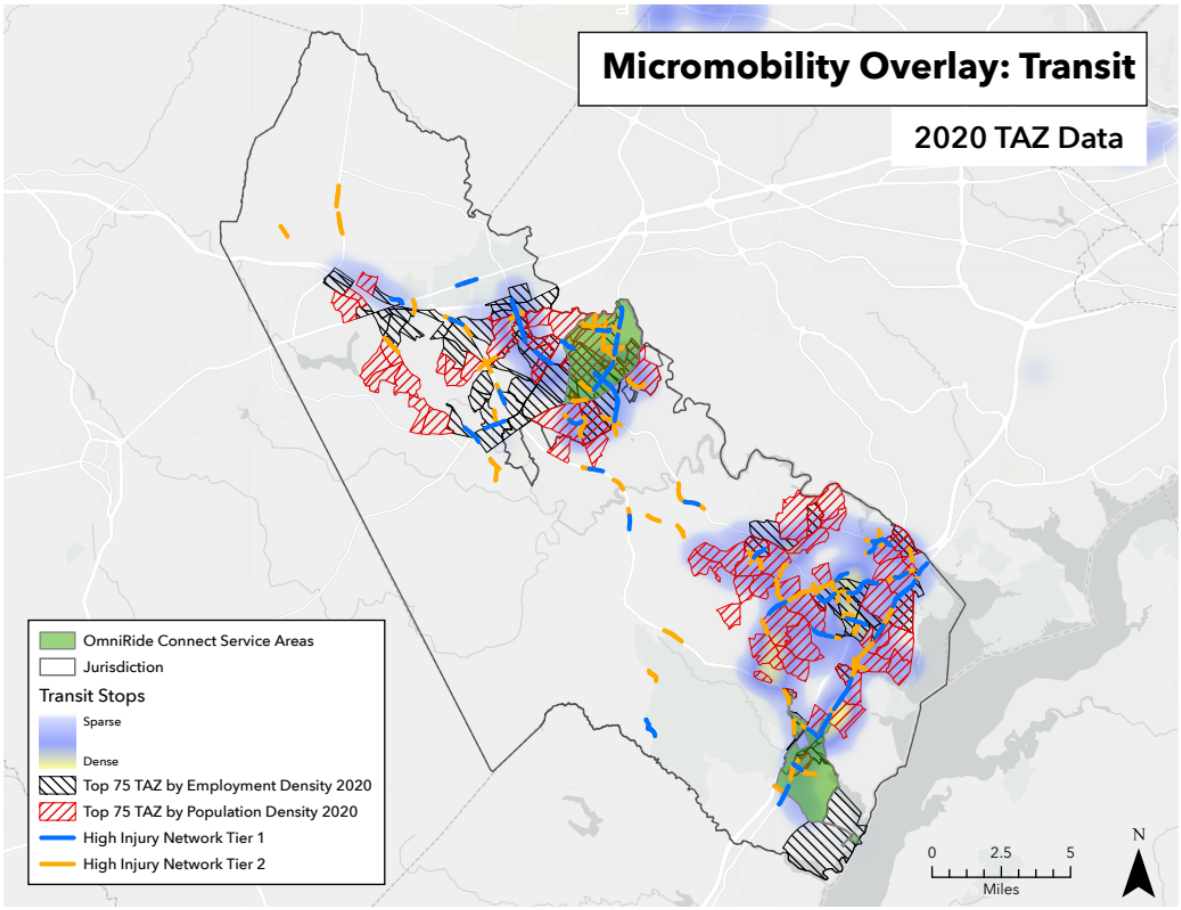


Figure 33: Micromobility overlay with 2030 TAZ data and bicycle/pedestrian heat map

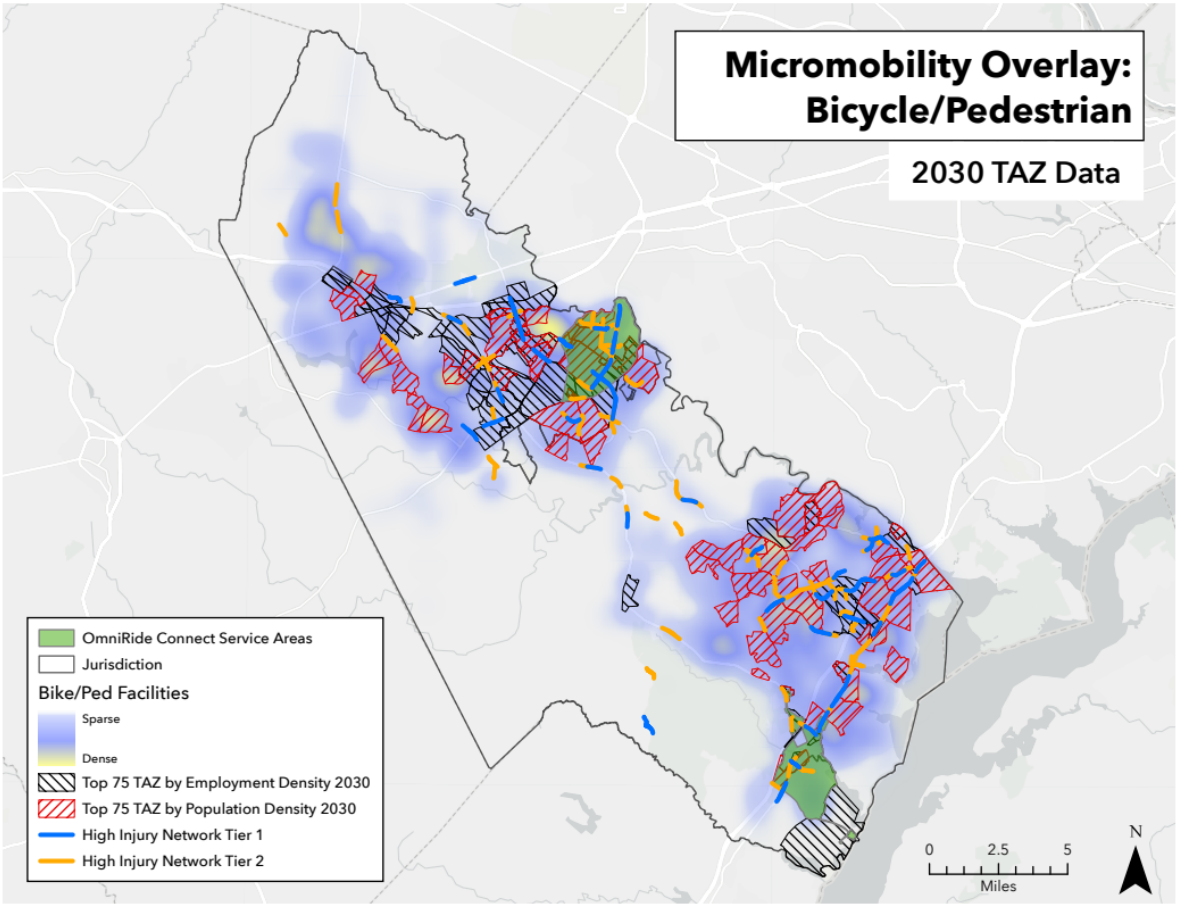
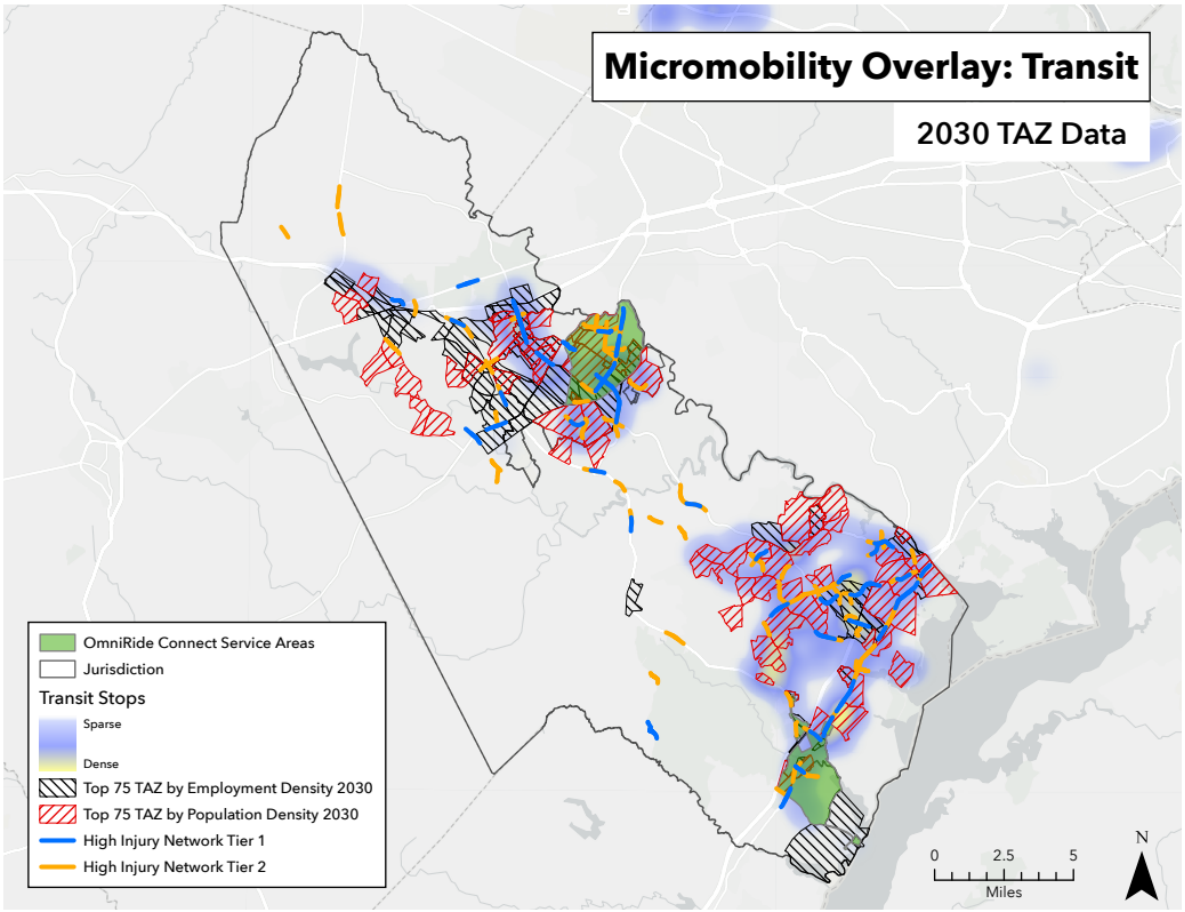


Figure 34: Micromobility overlay with 2030 TAZ data and transit heat map



Appendix E

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.

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

CMF 0.60

CRF 40

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).

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

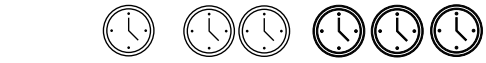
55%

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.

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

[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.

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.

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

[1]Source: FHWA

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

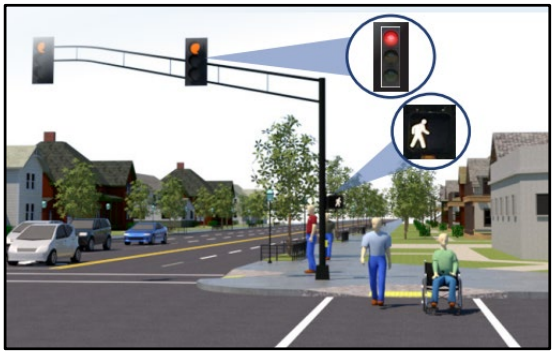
19%

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.

[1]Source: FHWA

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

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.

SAFETY FOCUS AREA

Intersections

SECONDARY SAFETY FOCUS AREA

Vehicles, Pedestrians, Bicyclists

SAFETY BENEFITS

Intersection Lighting can reduce nighttime crashes up to

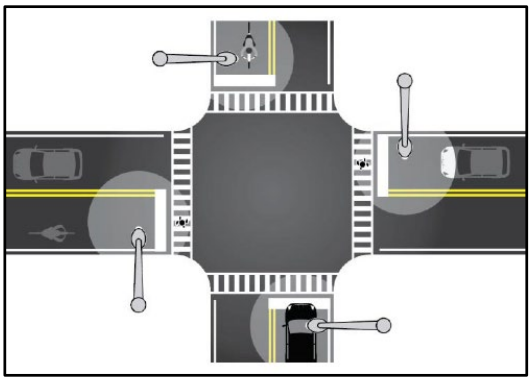
20%

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

[1]Source: FHWA

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

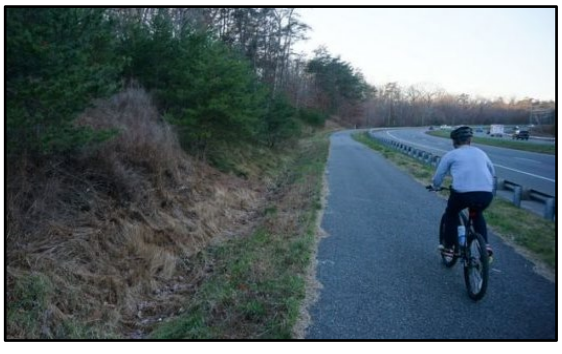
25%

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.

[1]Source: *VDOT Guidance for Determination of Left-Turn Phasing Mode*

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

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

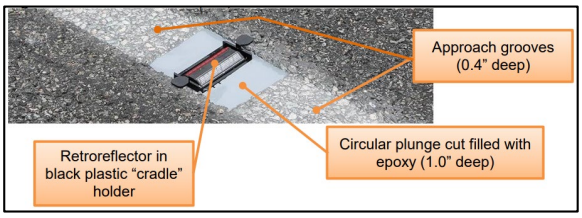
28%

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.

[1]Source: Virginia Driver's Manual

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

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

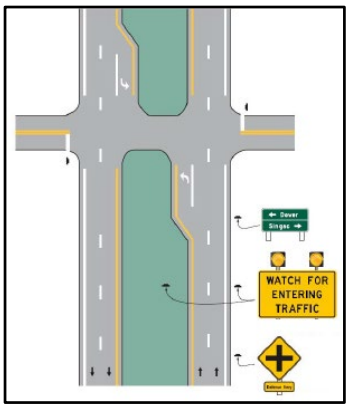
2%

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

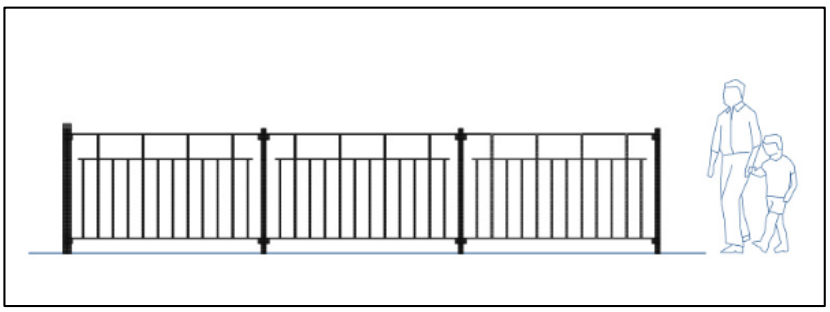
- VDOT maintained roadways;
- Non-VDOT maintained roadways;
- High volume roadways and locations in heavy commercial areas; and,
- Locations with high-pedestrian activity.

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

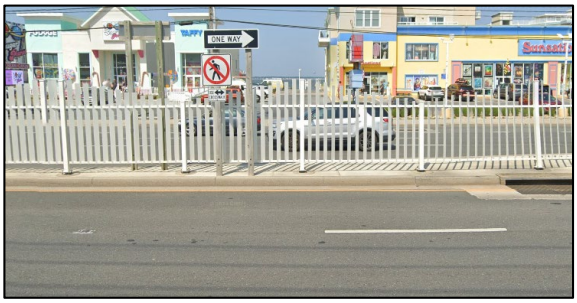
13%

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

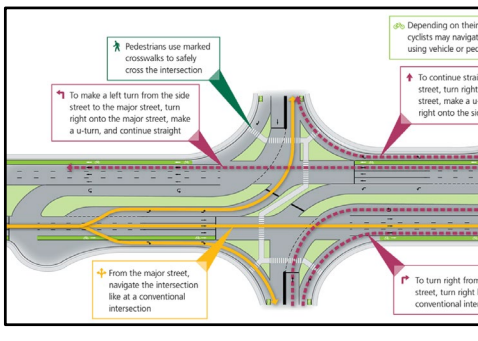
SAFETY BENEFITS

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.

Prince William County
Summary of Additional Key Safety Countermeasures

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.