PRINCE WILLIAM COUNTY

11-A

# Traffic Safety Work Session

## May 10, 2022

# Highway Safety Comprehensive Framework

- **Education**:
  - Prevention specialists, communication professionals, educators and citizen advocacy groups
- **Enforcement**:
  - State and local law enforcement agencies
- **Engineering**:
  - Highway design, traffic, maintenance, operations and planning
  - Vehicle design and standards
- **Emergency response**:
  - First responders, paramedics, fire and rescue

# Roles and Responsibilities

## State Agencies

- **Virginia Department of Transportation (VDOT)**
  Operates and maintains all state-maintained road and right of way in the County
- **Virginia Department of Motor Vehicles**
  Regulates motor vehicles and vehicle standard in the state and highway safety initiatives

## County Agencies

- **Prince William County Department of Transportation (PWC DOT)**
  Facilitates and implements County transportation/mobility projects; reviews and inspects developer projects
- **Prince William County Police Department (PWC PD)**
  First responders and crash investigation; traffic and motor vehicle enforcement
- **Fire And Rescue**
  First responders and emergency incident management and response
- **Fire Marshal's Office**
  Code compliance and plan review – Fire Lanes

## Private Sector

- **Property Owners, Managers and Homeowner Associations**
  Maintain and operate private roads and facilities on private property in the County

# National and Statewide Trends

PRINCE WILLIAM COUNTY

## National [1]

| | Crashes | Fatalities | Death Rate | Fatality Rate |
|---|---|---|---|---|
| 2018 | 6,735,000 | 36,835 | 1.14 | NA |
| 2019 | 6,756,084 | 36,355 | 1.11 | NA |
| 2020 | 5,259,837 | 38,824 | 1.34 | NA |

## Virginia [2]

| | Crashes | Fatalities | Death Rate | Fatality Rate |
|---|---|---|---|---|
| 2018 | 131,848 | 819 | 0.94 | 0.14 |
| 2019 | 128,172 | 827 | 0.93 | 0.13 |
| 2020 | 105,600 | 847 | 1.14 | 0.14 |

## Prince William County [2]

| | Crashes | Fatalities | Death Rate | Fatality Rate |
|---|---|---|---|---|
| 2018 | 5,757 | 24 | NA | 0.08 |
| 2019 | 5,880 | 14 | NA | 0.04 |
| 2020 | 4,416 | 18 | NA | 0.06 |
| 2021 | 5,498 | 29 | NA | 0.09 [3] |

Death Rate = Fatalities per 100 million Miles Travelled
Fatality Rate = Fatalities per 1000 Licensed Drivers

[1] Stewart, T. (2022, March). *Overview of motor vehicle crashes in 2020* (Report No. DOT HS 813 266). NHTSA.

[2] https://www.dmv.virginia.gov/safety/#crash_data/crash_facts/index.asp

[3] Calculated 28 fatalities (2021) per 318,878 licensed drivers (2020)

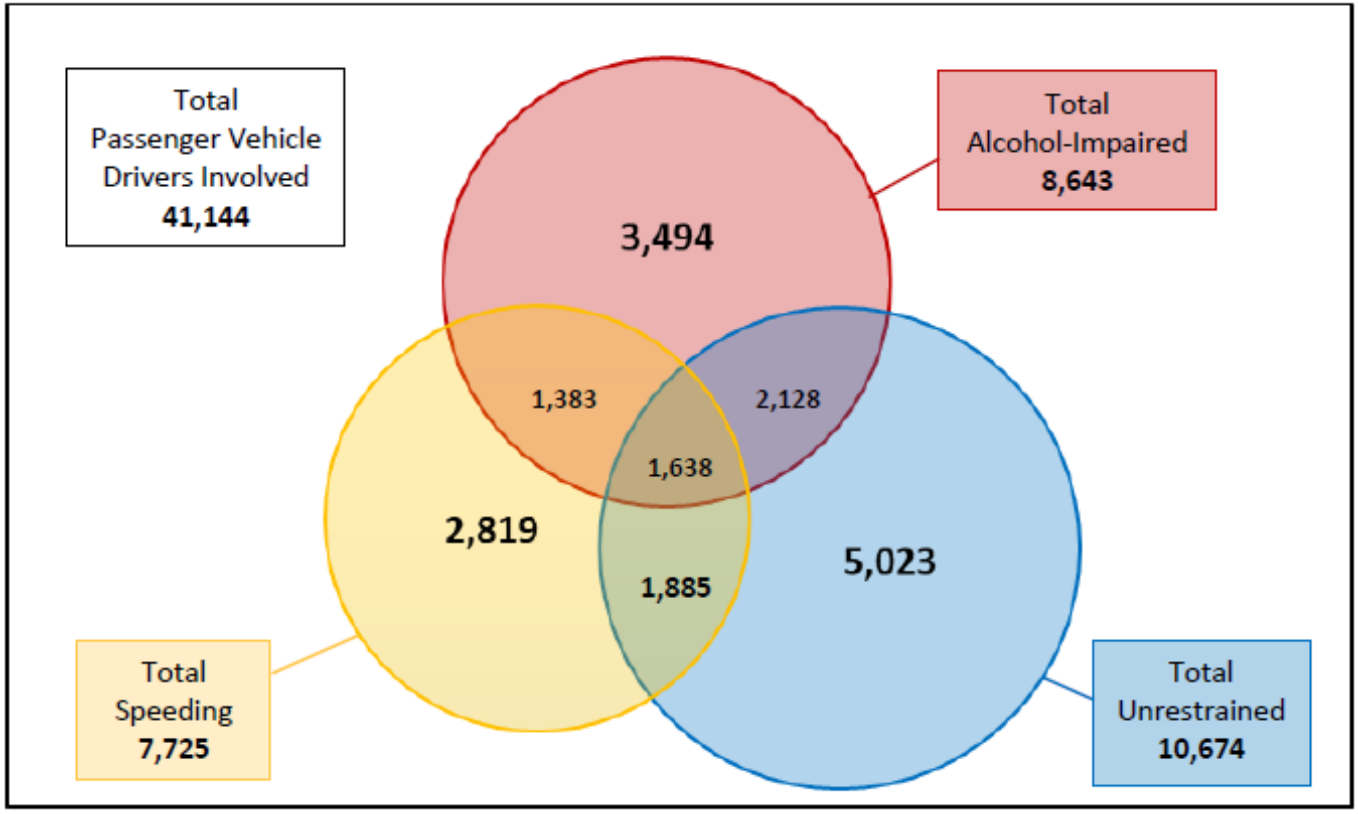
NHTSA NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

DMV Now Virginia Department of Motor Vehicles

# NHTSA - Overview of Motor Vehicle Crashes in 2020 – Behavioral Factors

PRINCE WILLIAM COUNTY

## Nationally 45% of fatal accidents involved at least one of these factors:




*Source: FARS 2020 ARF*

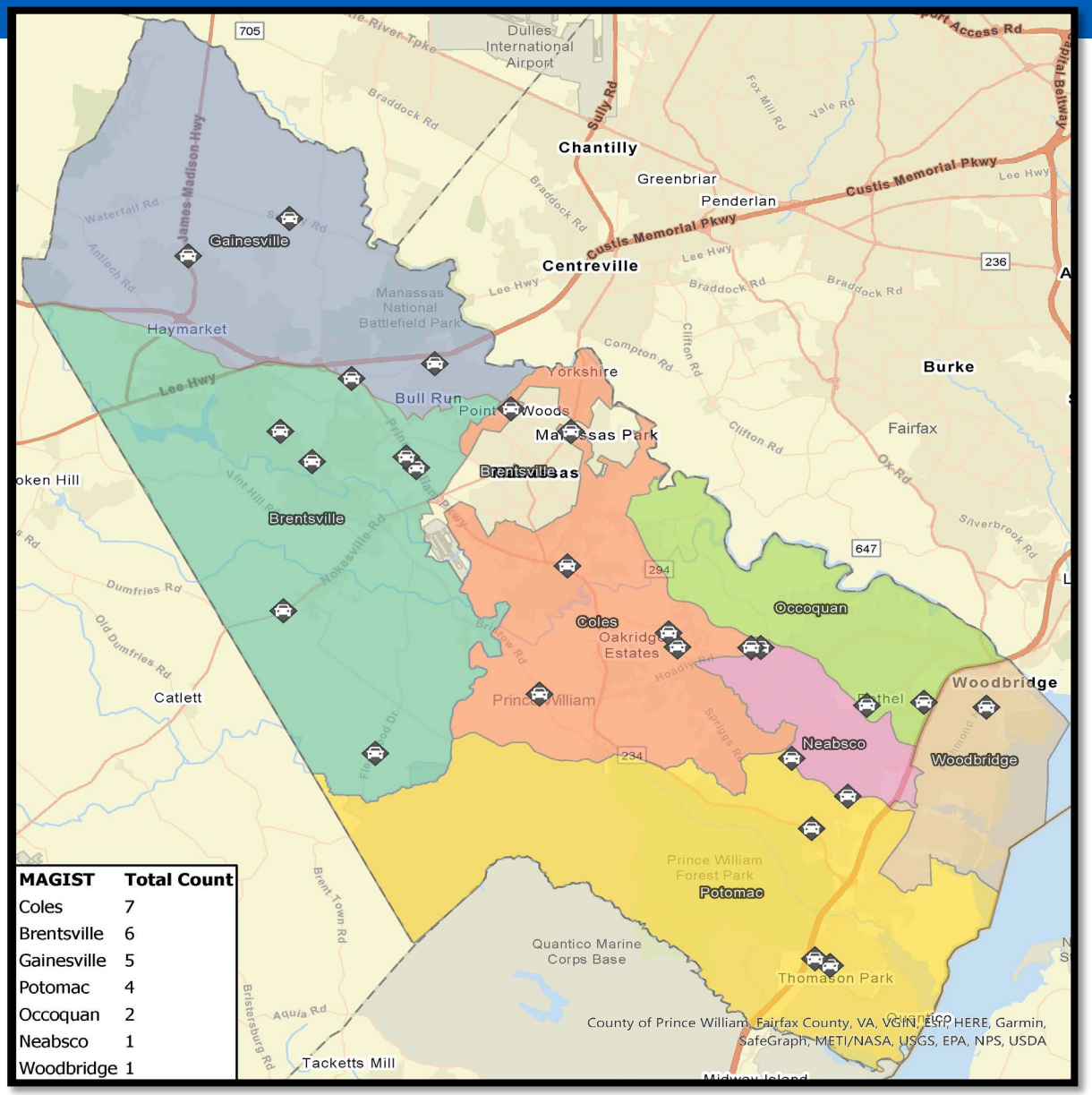
*Figure 7. Passenger Vehicle Drivers Involved in Fatal Crashes, by Speeding Involvement, Alcohol-Impaired Driving, and Restraint Use*

Stewart, T. (2022, March). *Overview of motor vehicle crashes in 2020* (Report No. DOT HS 813 266). NHTSA.

NHTSA NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

# Location of Traffic Fatalities (2021)

PRINCE WILLIAM COUNTY



# Public Education/Community Outreach Efforts (2021)

- **Social Media Announcements**
  **(approx. 200,000 followers on all platforms)**
  - Facebook Live / Driver Education and Safety Campaigns
  - 840 messages posted on Facebook, Twitter, Instagram, and YouTube
- **Media Releases**
  - 15 news releases to the media and public
- **Traffic Complaint Line**
  - 254 complaints received and addressed
- **Traffic Safety Webpage**
- **Public Education Campaigns (e.g., *Click it or Ticket, Drive Sober or Get Pulled Over, Street Smart)***

# Enforcement Efforts (2021)

- **Tracker Enforcement**
  - Problem areas monitored based on complaints
  - 508 hours monitored
  - 426 tickets issued
- **RIMP Enforcement (Roadway Incident Management Program)**
  - Most dangerous intersections monitored based on crash data
  - 7,179 hours monitored
  - 1,308 tickets issued
- **RADAR/LIDAR Enforcement**
  - 6,469 hours monitored
  - 7,024 tickets issued

# Grant Funded Programs (2021)

## DMV Grant Funded Enforcement / 4 Focus Areas:

- **Pedestrian/ Bicycle Safety**
  - *155 hours monitored / 8 Pedestrian and 1 bicycle violation, 310 violations
- **Speed**
  - Purchased 8 LIDAR / 8 RADAR units for enforcement
  - *603 hours monitored / 1,064 total violations cited, 783 for speeding
- **Alcohol**
  - *2,364 hours monitored / 109 arrest for DUI, 458 various citations, and 11 DUI checkpoints
- **Occupant Protection (Seatbelt / Child Safety)**
  - *597 hours monitored / 1,123 total violations cited, 174 for seatbelt/child restraint

# Enforcement Mitigation & Reduction Efforts

- PWC Traffic Safety Task Force
- Increased Visibility & Routine Enforcement in High Problem Areas
- Speed Signs & Trailers
- Increased Targeted/Selective Enforcement
- Researching PWC Public Education Campaign (PWCDOT)
- Traffic Studies (PWCDOT / VDOT)
  - Review Speed, Traffic Load, Environmental Conditions, Signage and Control Devices, etc.


# Prince William County
# Traffic Safety Engineering Branch

- **Part of the PWC Department of Transportation Planning and Programming Division**

- **Primary responsibilities:**
  - Prince William County Residential Traffic Management Program
  - Prince William County Streetlight Program
  - Respond to traffic, safety and transportation inquiries
  - Act as a liaison and coordinate between other agencies, departments and residents
  - Identify, initiate, facilitate and implement traffic safety improvement projects
  - Represent the County on traffic safety engineering matters

- **PWC Standards and Guides:**
  - Residential Traffic Management Guide
    - Describes the measures, processes, and criteria used for traffic calming on local residential roads in Prince William County
  - Prince William County Design and Construction Standards – Section 600 (DCSM)

# Private Roads

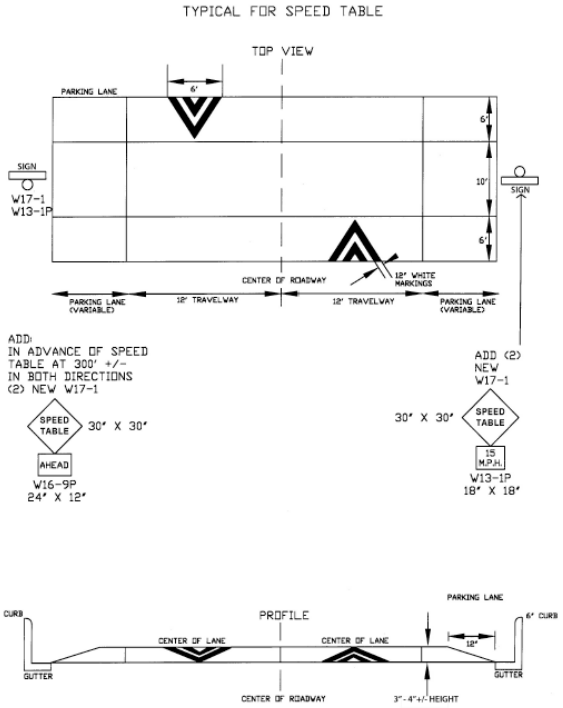
- Private roads are responsibility of property owner
- Roads must be designed and built to the Prince William County Design and Construction Standards Manual
- All traffic control devices must comply with the Federal Manual on Uniform Traffic Control Devices (MUTCD)
- All changes that impact traffic patterns and/or parking should be reviewed by the County
- Traffic calming can be implemented on private roads but requires review by County and must meet DCSM requirements, typically through a minor plan modification
- Fire Lanes are reviewed and enforced by the Fire Marshal's Office

# Residential Traffic Management: Traffic Calming Plans - Physical Measures

- Process is described in the Residential Traffic Management Guide
- Plans are developed in cooperation with the community, County and State staff
- Funding is typically from Transportation Road Improvement Program (TRIP)
- Focuses on slowing traffic in communities where cut-through traffic is not a problem and without restricting access (left or right turn restrictions).
- Can help reduce speed within neighborhood
- To be eligible:
  - Must be a local residential street
  - 24-hour average speeds of 30 mph or greater in at least one direction
  - Daily traffic volume of between 600 – 4000 vehicles per day
  - Requires documented community support, typically a petition with 75% support
- Multiway stops are **NOT** used as a traffic calming measure
  - Used where volume of traffic on intersecting roads is approx. equal
  - Must be based on an engineering study

# Residential Traffic Management: Speed Tables & Raised Pedestrian Crosswalks


**Raised Pedestrian Crosswalk on West Longview Drive at Marumsco Hills Elementary School back entrance.**




**PWC Residential Traffic Management Guide**
Page 16

# Residential Traffic Management: Raised Intersection


**Figure 3.15.3. Raised Intersection in Residential Setting without Raised Crosswalks**
(Source: Google Street View)

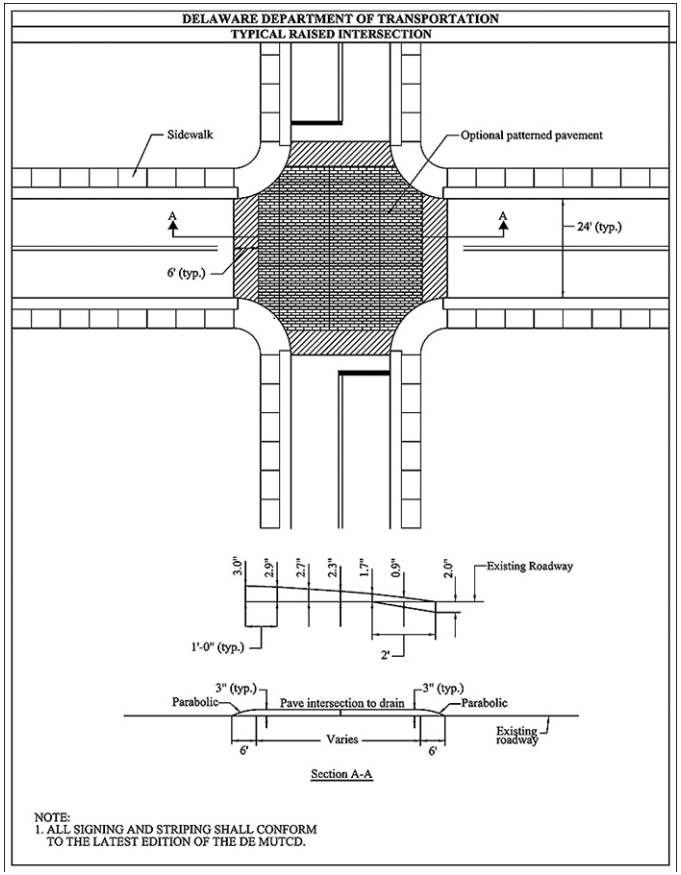



**Figure 3.15.5. Sample Design for Raised Intersection**
(Source: Delaware Department of Transportation)

# Residential Traffic Management: Median Island

**Figure 3.18.7. Small Median Islands at Intersection**
(Source: Scott Batson)

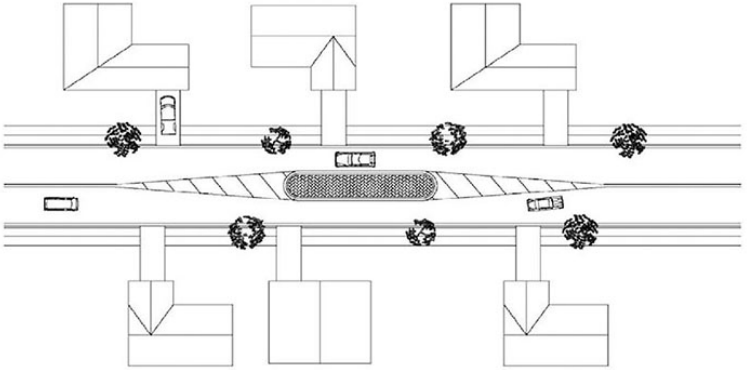


**Figure 3.18.1. Median Island Schematic**
(Source: Delaware Department of Transportation)

# Residential Traffic Management: Choker

**Figure 3.17.4. Choker in Suburban Residential Setting**
(Source: Scott Wainwright)

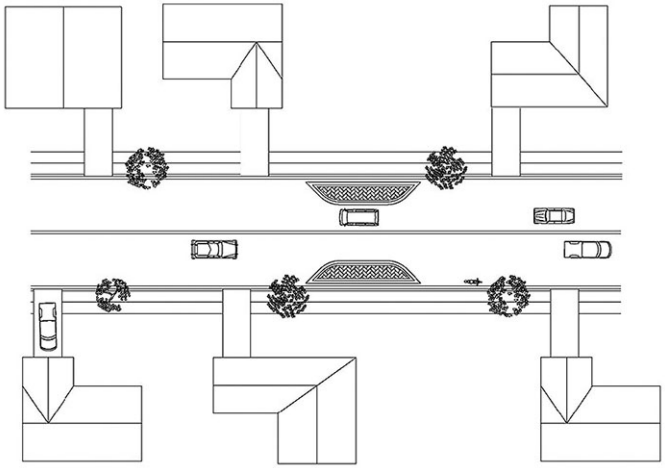


**Figure 3.17.1. Choker Schematic**
(Source: Delaware Department of Transportation)

# Residential Traffic Management: Corner/Curb Extension


**Figure 3.16.4. Corner Extension in Suburban Setting**
(Source: www.pedbikeimages.org / Michael Austin)

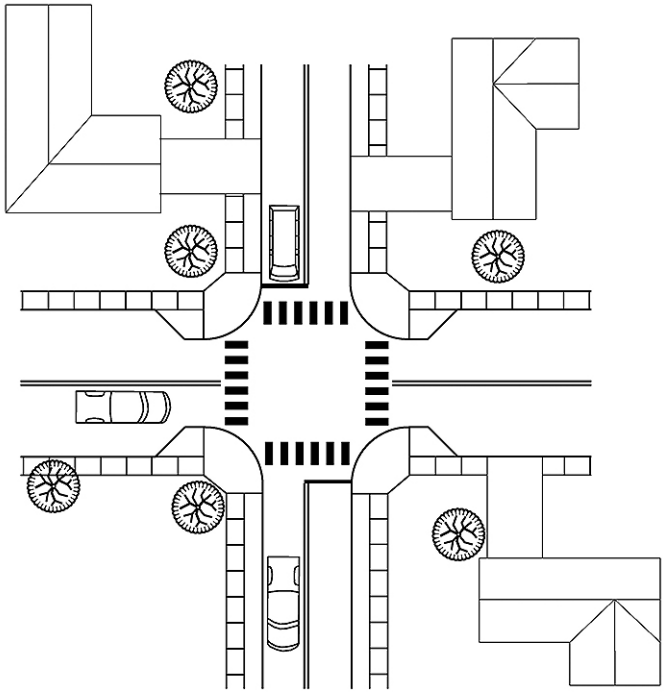


**Figure 3.16.1. Corner Extension Schematic**
(Source: Delaware Department of Transportation)

# Residential Traffic Management: Chicane

**Figure 3.5.4. Chicane Designed to Retain Drainage Features**
(Source: Google Street View)

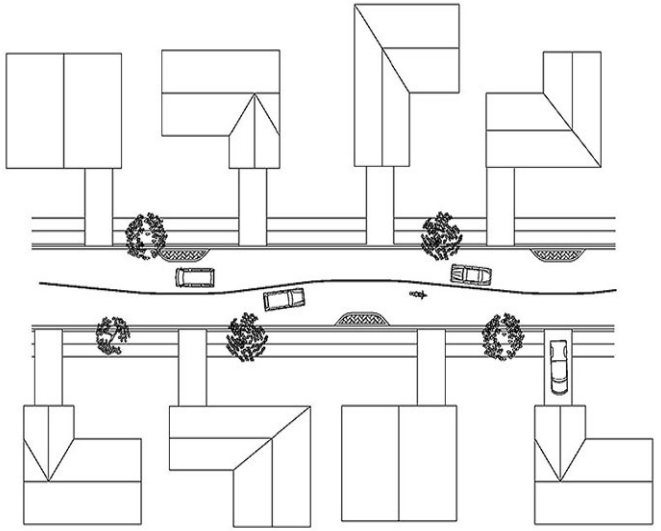


**Figure 3.5.1. Chicane Schematic**
(Source: Delaware Department of Transportation)

# Residential Traffic Management: Lateral Shift

**Figure 3.4.2. Lateral Shift with On-Street Parking**
(Source: Google Street View)

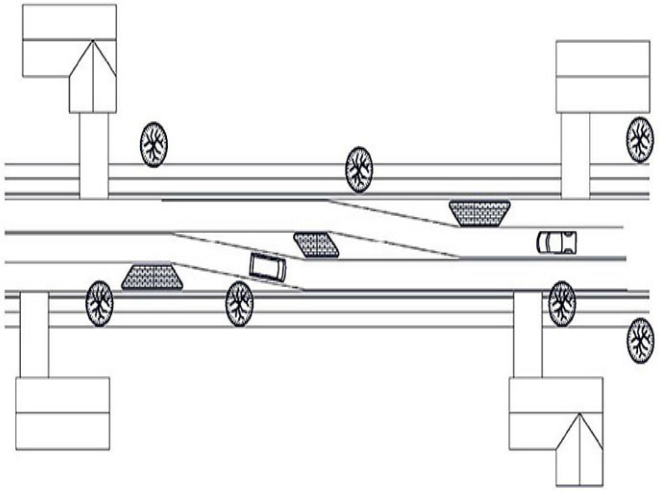


**Figure 3.4.1. Lateral Shift Schematic**
(Source: Delaware Department of Transportation)

# Residential Traffic Management: Mini-Roundabout


**Figure 3.8.4. Mini-Roundabout with Truck**
(Source: Ian Lockwood)

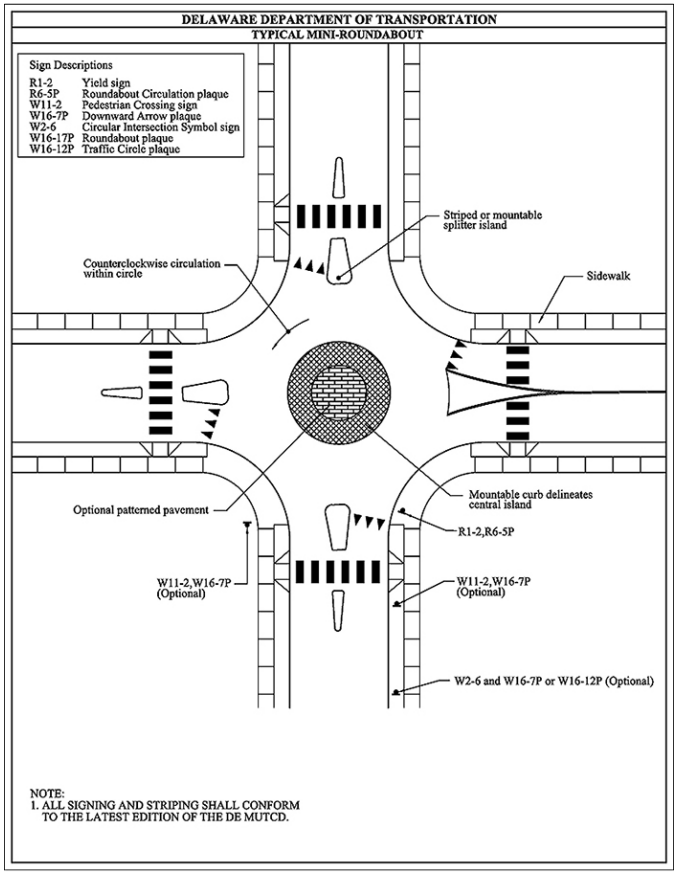



**Figure 3.8.5. Sample Design for Mini-Roundabout**
(Source: Delaware Department of Transportation)

# Residential Traffic Management: Lane Markings - Road Diet

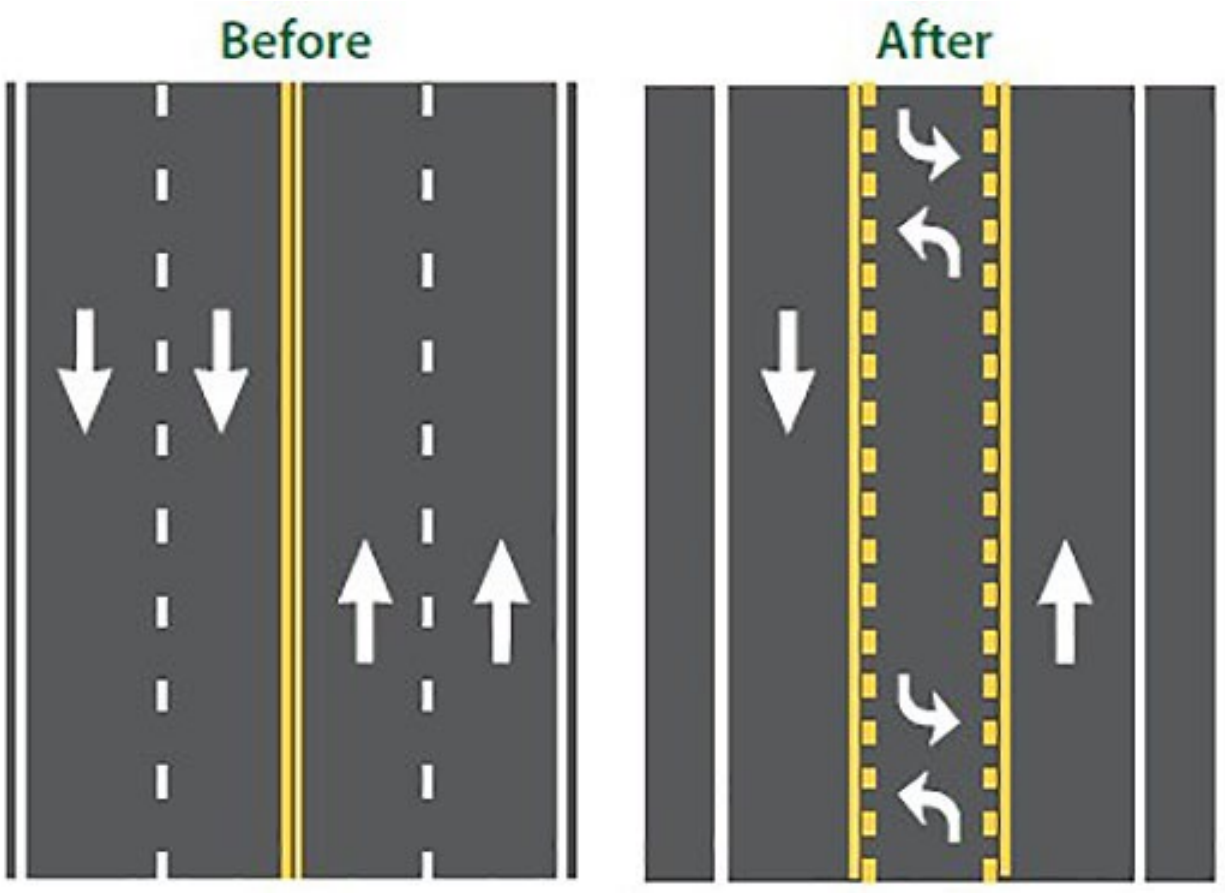



**Figure 3.20.1. Road Diet Schematic**
**(Source: FHWA Road Diet Information Guide)**

# Residential Traffic Management: Pole Mounted Speed Displays

**Following criteria must be met:**

- Roadway segment under consideration is a local/residential road or at a location of a change in roadway conditions
- No more than two lanes (one lane/travel direction)
- Posted speed limit of 35 mph or less
- Identified speeding problem or a safety-related location
- Average daily traffic of at least 1,000 vehicles/day
- A petition reflecting the support of at least 51% of impacted community
    - All residents immediately adjacent to the proposed sign location(s) must have no objection

# Traffic Safety Improvement Projects

- Individual projects identified based on need
- Can be spot/intersection treatments or corridor/neighborhood wide projects
- Smaller projects typically funded using local funds (TRIP or proffers)
  - Small projects include: crosswalks, sidewalks & trails, intersection upgrades/modifications, street lighting, traffic control/safety improvements
- All Capital Improvements Projects include safety improvements
- Seek grants wherever possible
  - **Federal** (e.g., Safe Streets for All, Consolidated Rail Infrastructure & Safety Improvements (CRISI) )
  - **State** (e.g., HSIP, STARS Program, Transportation Alternatives Program, Safe Routes to Schools)
  - **Regional** (e.g., Commuter Choice, Regional Roadway Safety Program)

# Photo Enforcement

- 2020 – VA General Assembly allowed localities to install radar-based cameras for photo enforcement
- March 2021 - BOCS gave directive to do a feasibility study regarding photo enforcement for speeding in school zones and work zones and traffic signals
  - Traffic Safety Task Force is conducting study
  - Request for Information (RFI) closed April 26
  - Task force will work with vendors to:
    - Demonstrate the technology
    - Determine business case
    - Make recommendations to the BOCS this summer
  - Only collecting data during the study – no citations or personal info collected

# Traffic & Safety Committees, Work Groups & Initiatives

**MWCOG/TPB**
- Transportation Technical Committee
- Bicycle and Pedestrian Subcommittee
- Transportation Safety Committee
- Street Smart Safety Campaign
- Commuter Connections
- Regional Roadway Safety Program

**VDOT**
- Strategic Highway Safety Plan (Towards Zero Deaths)
- Pedestrian Safety Action Plan (PSAP)

**NVTA**
- Bus Rapid Transit Work Group
- Regional Jurisdiction and Agency Coordinating Committee (RJACC)
- Regional Multi-Modal Mobility Program (RM3P)

**PRTC & VRE**
- Bus Stop & Rail Station Improvements (Ped/Bike Connections, Commuter Parking Lot Access, Lighting)

**NVRC**
- Potomac Heritage National Scenic Trail
- Community/Military Partnerships

**DRPT**
- Enhanced Public Transportation Feasibility Technical Assistance Committee

# Resources - PWC

- **Prince William County Traffic Complaint Line**
  - (703) 792-5919
  - www.pwcva.gov/police

- **Prince William County Department of Transportation**
  - Richard Weinmann - Rweinmann@pwcgov.org
  - (703) 792-6825
  - www.pwcva.gov/transportation

# VDOT TRAFFIC SAFETY

Workshop Presentation for Prince William County Board of Supervisors

John Lynch; Richard Burke; Aleksandra Tuliszka; Jessica Paris

May 10, 2022

# VDOT Presenters

**John D. Lynch, P.E.**

- Northern Virginia District Engineer

**Richard Burke**

- Transportation and Land Use Director for Prince William County

**Aleksandra M. Tuliszka, P.E.**

- Assistant Transportation and Land Use Director for Prince William County

**Jessica Paris, P.E.**

- Traffic Engineering Program Manager of Project Development and Project Delivery

# Overview: VDOT's primary Function

- The Virginia Department of Transportation is responsible for building, maintaining, and operating the state's roads, bridges, and tunnels.
- VDOT's mission is to program, develop, operate, and manage the roadway network.
- Virginia has the third-largest state-maintained highway system in the country, after Texas and North Carolina.
- VDOT is responsible for managing more than 57,000 lane miles.
- Through the Commonwealth Transportation Board (CTB), VDOT provides funding for airports, seaports, rail, and public transportation.
- Most other states have limited or no involvement in "local" roads.

# Northern Virginia District Stats

- **Fairfax, Loudoun, Prince William, and Arlington* counties**
  - Arlington maintains own network (secondary roads)
- **Population:** 2.2 million
- **Commuter lots:** 24
- **Bridges/large culverts:** 2,147
- **Traffic signals:** 1,520
- **VDOT employees:** 900
- **18 maintenance headquarters**
  - (Arlington:1, Fairfax: 9, Loudoun: 4, Prince William: 4)

**Total lanes miles: 14,142**

- **Interstate:** 803
- **Primary:** 1,693
- **Secondary:** 11,571
- **Gravel:** 573
- **Frontage:** 75
- **Total subdivision streets:** 17,159

# Maintenance / Repaving Process

Aleksandra M. Tuliszka, P.E., Assistant Transportation and Land Use Director for Prince William County

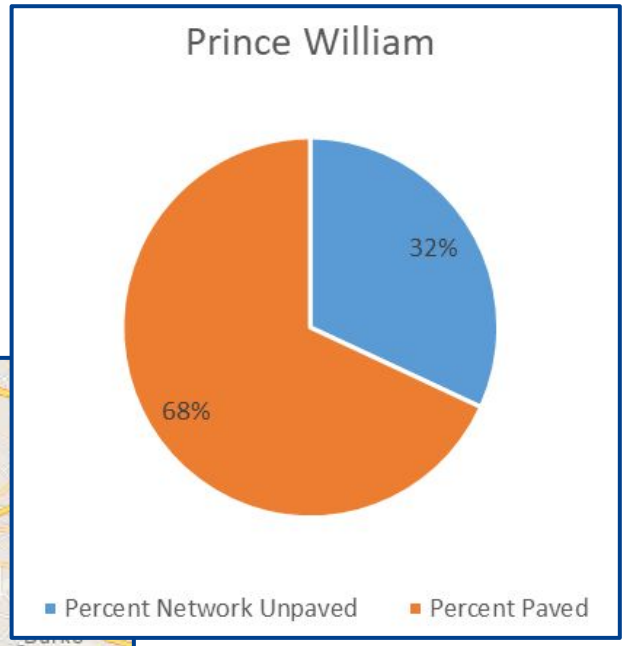
# VDOT Resources: Paving Apps

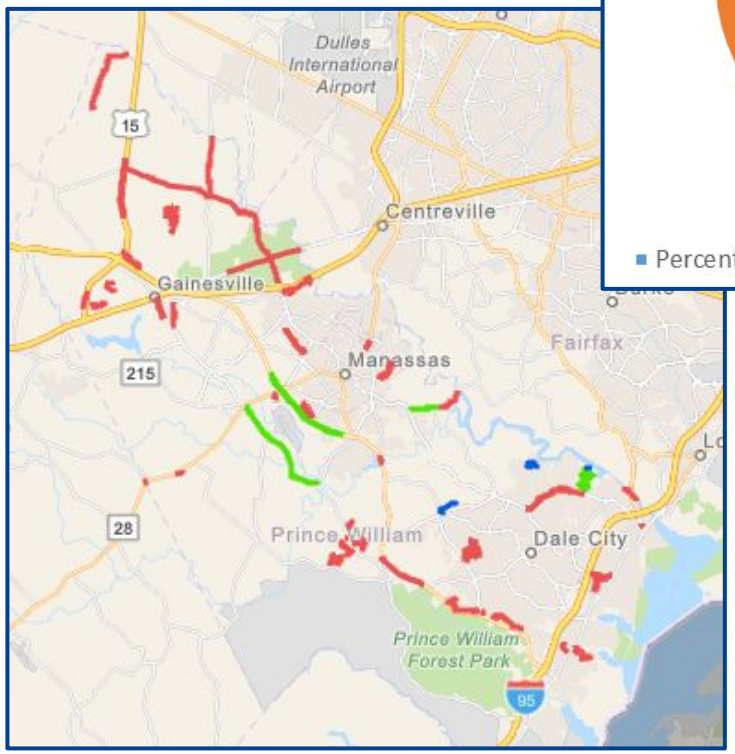
## Virginia Roads:
## https://www.virginiaroads.org/

## Paving program provides opportunity to make safety improvements:

- Shoulder wedge
- Rumble strips
- Pavement markings
- Crosswalks
- Lane reconfiguration

**NOVA Paving Progress 2013-2022**



# Systemic countermeasures installed with paving operations

- Maintenance is critical for safety; through partnership with PWC we identify changes to roadways to improve safety and operations.
- In 2022, we will install 139,000 linear feet of shoulder wedge and more than 23,200 linear feet of rumble strip in Prince William County.

Shoulder Wedge

Centerline and Edge Line Rumble Strip

# How Are Road Selected for Paving?

## Some Factors that Affect Paving Selections:

- Pavement condition
- Traffic volume
- Whole neighborhoods versus paving main streets only
- Economies of scale/mobilization costs
- Feedback from the elected officials, the public, and maintenance crews

# Traffic Engineering / Safety Project Delivery

Jessica Paris, P.E.

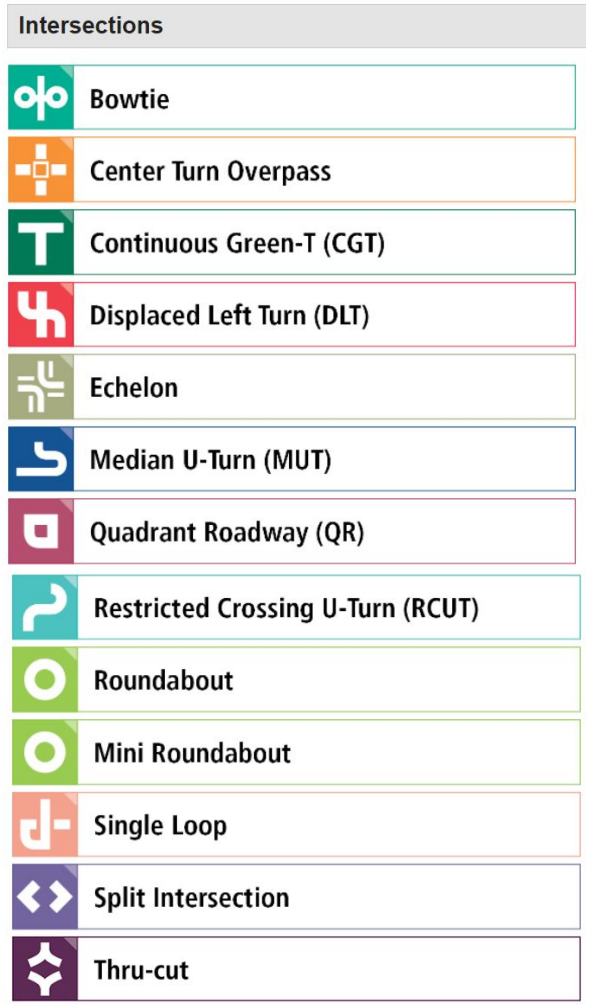
# Traffic Engineering Responsive Assistance

- **Customer Service Center**
  - 1-800-FOR-ROAD (1-800-367-7623)
  - https://my.vdot.virginia.gov/
- **Evaluate and respond promptly**
  - Enhance safety and operations
  - Updates to signs, signals, pavement markings, guardrail, and other quick, effective solutions
- **Support County's local roadway programs (e.g., traffic calming)**

# Intersections

- **Many tools in the toolbox to improve intersection efficiency and safety**
- **Traditional traffic signals are not a "cure all" for operational and safety challenges**
  - Intersections considered in a broader context of overall corridor mobility
  - Traditional signalized intersections typically have greater crash risk than innovative intersection configurations
- **Innovative intersections**
  - https://virginiadot.org/innovativeintersections/

VJuST
VDOT Junction Screening Tool



# Virginia's Strategic Highway Safety Plan – Arrive Alive


**The SHSP identifies and supports behaviors and attitudes that promote a positive safety culture and provide solutions for Virginia's most serious traffic safety problems.**

## Eight Emphasis Areas

## Essential Areas to Meet Goals/Objectives

https://www.virginiadot.org/info/hwysafetyplan.asp

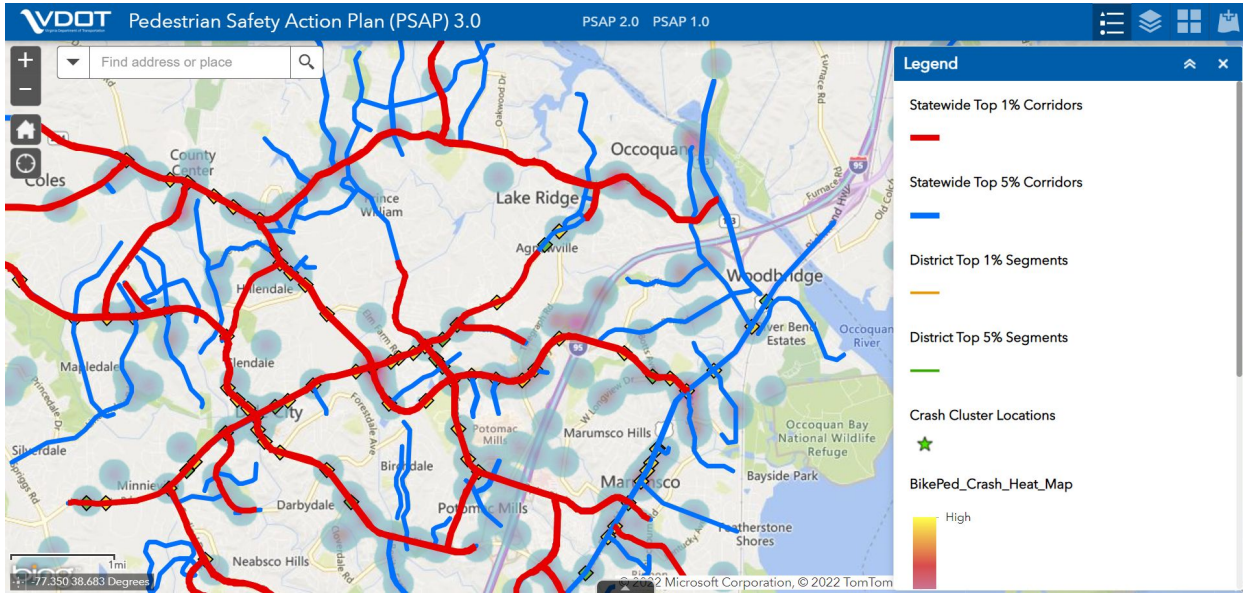
# Highway Safety Corridors

- **Designated segments of interstate**
  - Higher than expected crash rates and crash severity, including injuries and fatalities
- **Interagency effort to identify corridors, including public comment period**
  - Virginia State Police
  - Department of Motor Vehicles
  - VDOT
- **Higher fines**


# Pedestrian Safety Action Plan (PSAP)

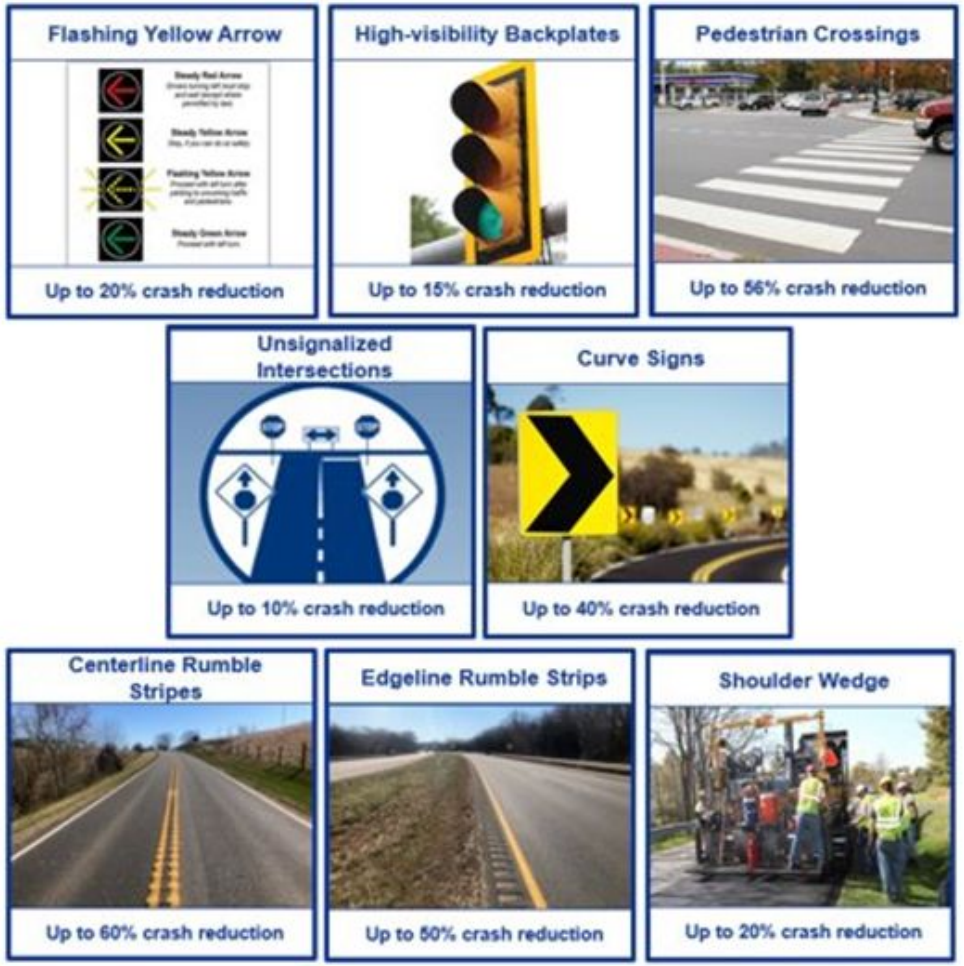
## Program goals

- **Better understand pedestrian safety concerns and countermeasures**
- **Consider policy and practice changes to promote pedestrian safety**
- **Identify Highway Safety Improvements Program (HSIP) pedestrian projects**
- **Map**: bit.ly/VDOTPSAP
- **Report**: bit.ly/3835XJv



# HSIP Systemic Safety Improvements (SSI)

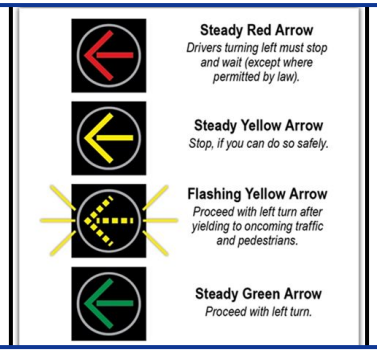
- **Systemic safety project benefits**
  - Improve safety by installing lower-cost, high-return countermeasures at many locations on the road that have similar risk factors
  - All initiatives are FHWA proven safety countermeasures
  - https://safety.fhwa.dot.gov/provencountermeasures/
  - In Virginia, expected to be up to 9 times more effective at reducing fatalities and serious injuries per HSIP dollar compared to spot improvement projects
- **Original HSIP systemic safety plan**
  - https://www.virginiadot.org/business/resources/HSIP/Systemic_Safety_Implementation_Plan.pdf



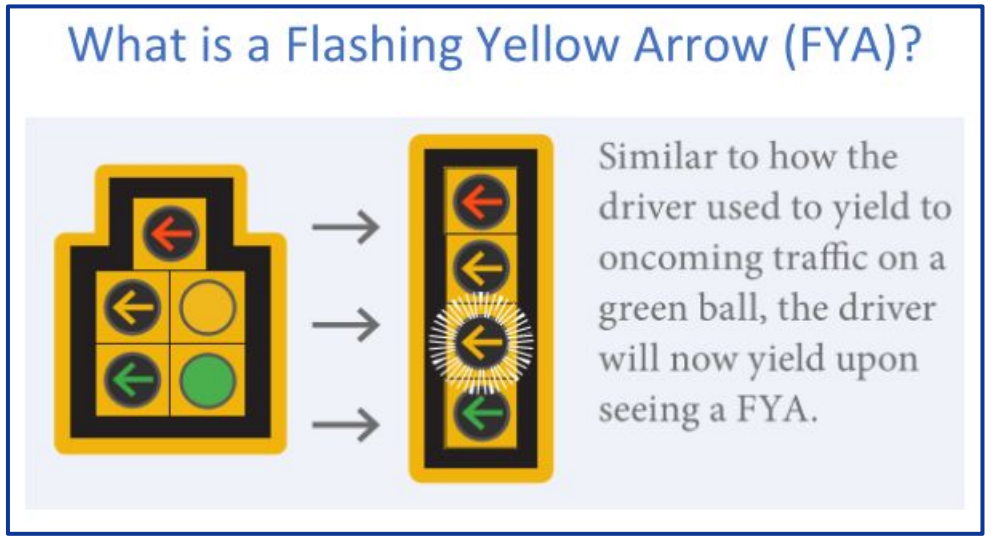
# HSIP Systemic Safety Improvements: Flashing Yellow Arrow

- Upgrade left turn traffic signals
- FYA more readily understood by drivers
- Up to 20% crash reduction
  - Benefit cost ratio – 12.6

**Flashing Yellow Arrow**




**Up to 20% crash reduction**




**Progress in Prince William County**

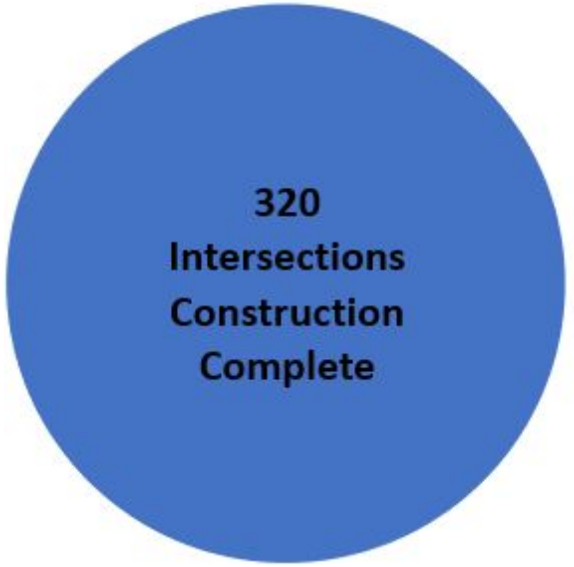
# HSIP Systemic Safety Improvements: High Visibility Signal Backplates

- Upgrade signal backplates
- Retroreflective border
- Enhanced signal visibility
  - Benefit Cost Ratio – 9.0

**High-visibility Backplates**

**Up to 15% crash reduction**

**Progress in Prince William County**



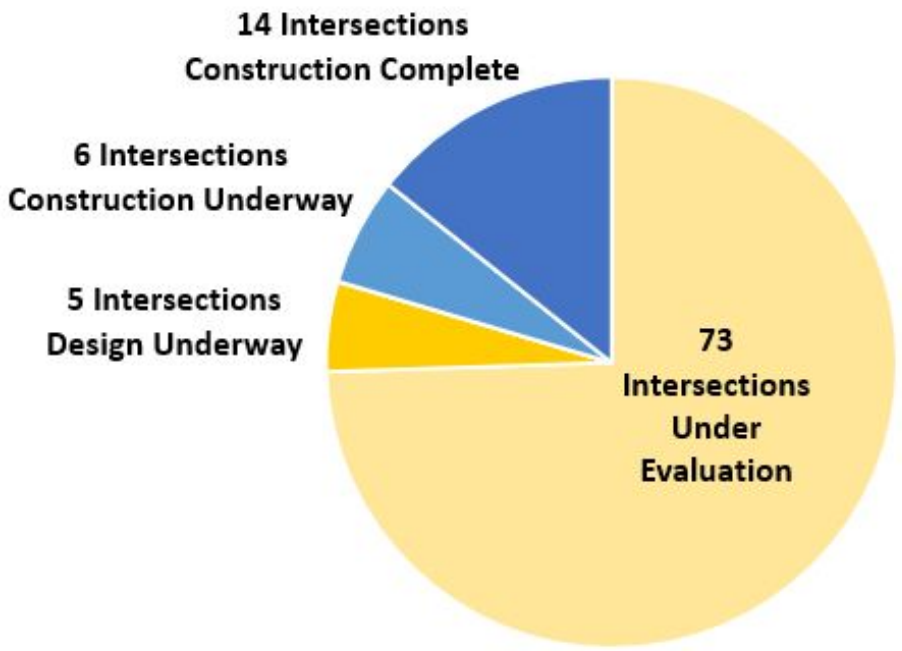
# HSIP Systemic Safety Improvements: Signalized Pedestrian Crossings

- Install signalized pedestrian crossings
- Accessible Pedestrian Signal upgrades
- On PSAP Phase 1 corridors
  - Benefit Cost Ratio – 8.9

**Pedestrian Crossings**

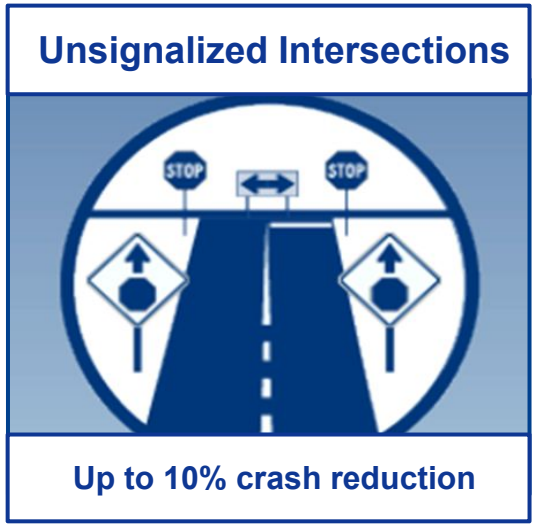
**Up to 56% crash reduction**

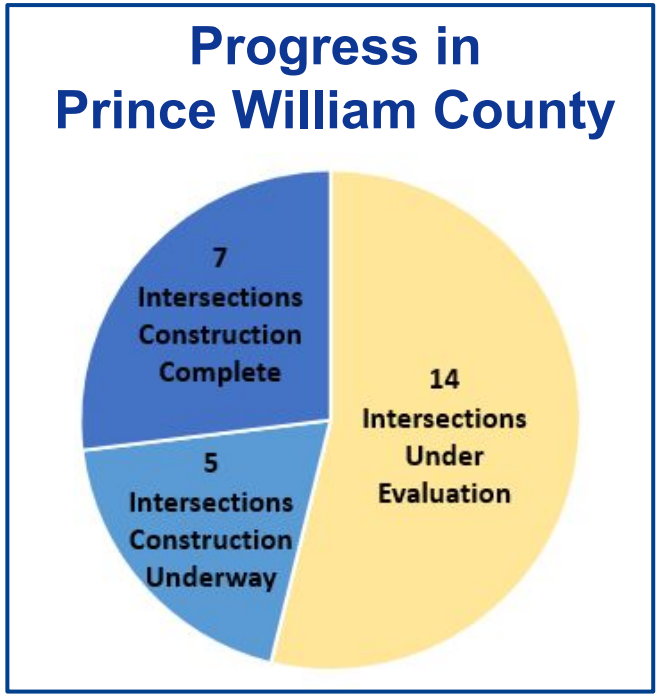
**Progress in Prince William County**



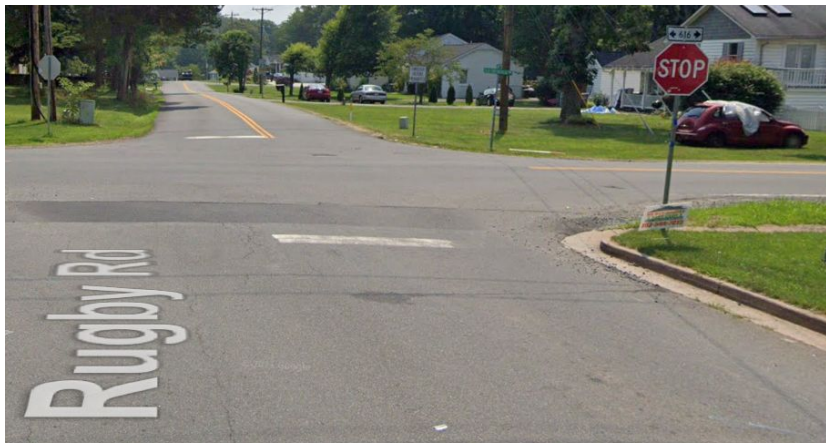
# HSIP Systemic Safety Improvements: Unsignalized Intersections

- Install traffic control devices
- Low-cost and easily implementable
- Signs and markings
  - Benefit cost ratio – 1.3




Before




After

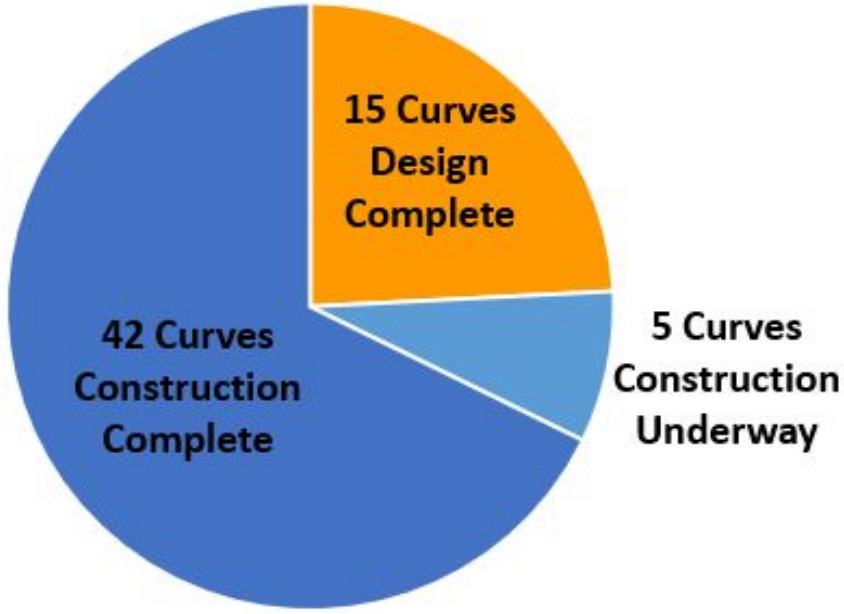
# HSIP Systemic Safety Improvements: Curve Warning

- Install curve delineation treatments
- Curve warning signs
- Chevron alignment signs
  - Benefit-Cost Ratio – 1.7

**Curve Signs**

Up to 40% crash reduction

**Progress in Prince William County**



# HSIP Systemic Safety Improvements: Rumble Strips

- **Install rumble strips or stripes (RS)**
- **Centerline and/or edgeline**
- **Benefit Cost Ratio**
  - Centerline on Primary Roads – 40.0
  - Edgeline on Primary Roads – 29.8

**Centerline Rumble Stripes**

**Up to 60% crash reduction**

**Edgeline Rumble Strips**

**Up to 50% crash reduction**

## Progress in Prince William County

Centerline RS


Edgeline RS

# Virginia Roads Traffic Engineering Apps

- **Virginia Roads**
  - https://www.virginiaroads.org/
  - VDOT Safety Investment Plan
  - Speed Limits
  - Virginia Crashes
  - Virginia Traffic Volume Map






VDOT
Virginia Department of Transportation

# Questions & Discussion

Prince William County Traffic Complaint Line

**(703) 792-5919**

Virginia Department of Transportation – Report A Problem

**1-800- FOR-ROAD (1-800-367-7623)**

https://www.virginiadot.org/

Prince William County Department of Transportation

Richard Weinmann - **Rweinmann@pwcgov.org**

**(703) 792-8002** (Direct)

(703) 792-6825 (Department)