

PEDESTRIAN SAFETY FACTORS & ACTIONS

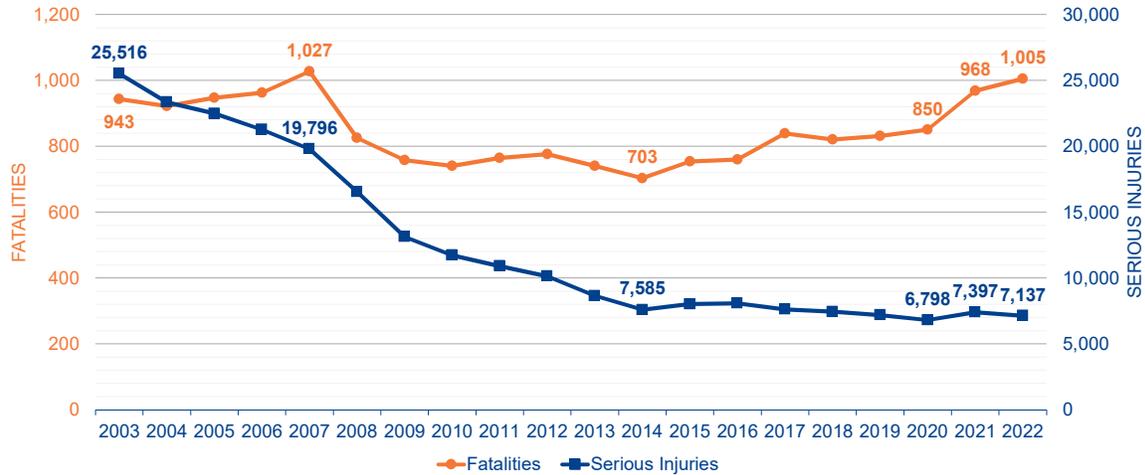
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November 2023

Overview

- **Provide briefing on efforts to combat the increasing total and pedestrian deaths and serious injuries on Virginia's roadways**
- **Provide awareness on:**
 - **Virginia's Strategic Highway Safety Plan related actions**
 - **Fatal and serious injury crash numbers and trends**
 - **Highway Safety Improvement Program related spending**

All Traffic Related Fatalities and Serious Injuries in VA



Strategic Highway Safety Plan: Actions to Improve Safety

Vision:

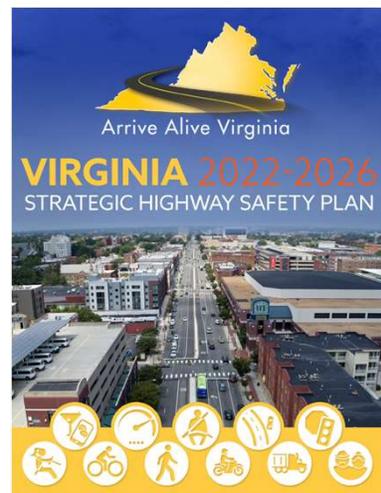
Virginia's vision is towards zero deaths and serious injuries from motor vehicle crashes so that all roadway users arrive safely at their destination.

Mission:

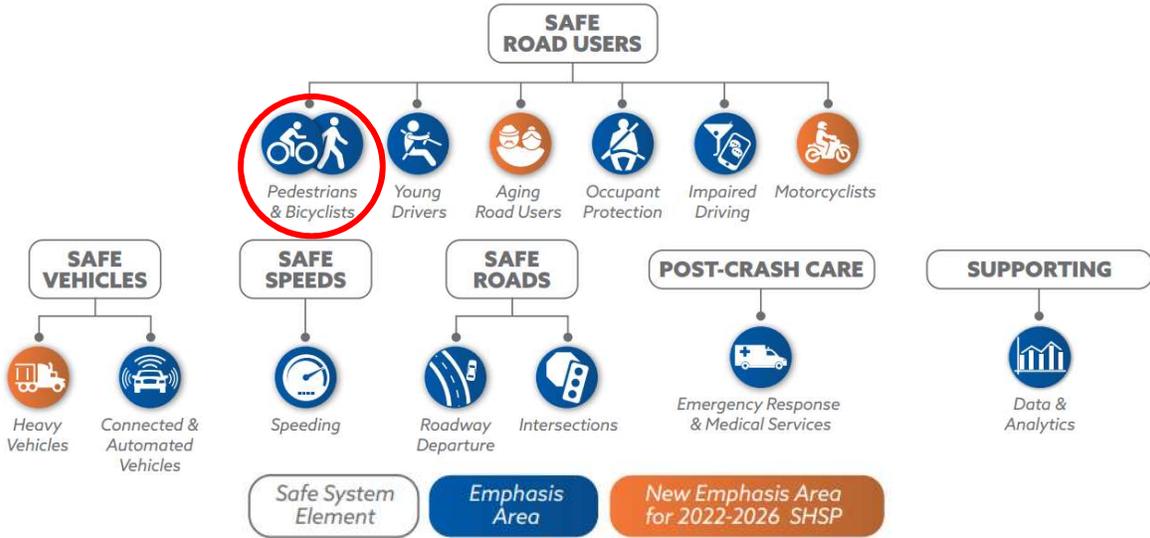
To fulfill the Vision through Safe System

Collaboration with four Es of roadway safety – Education, Enforcement, Engineering, and Emergency response & medical services to achieve safe travel for a fifth E – Everyone.

<https://bit.ly/VA2026SHSP>

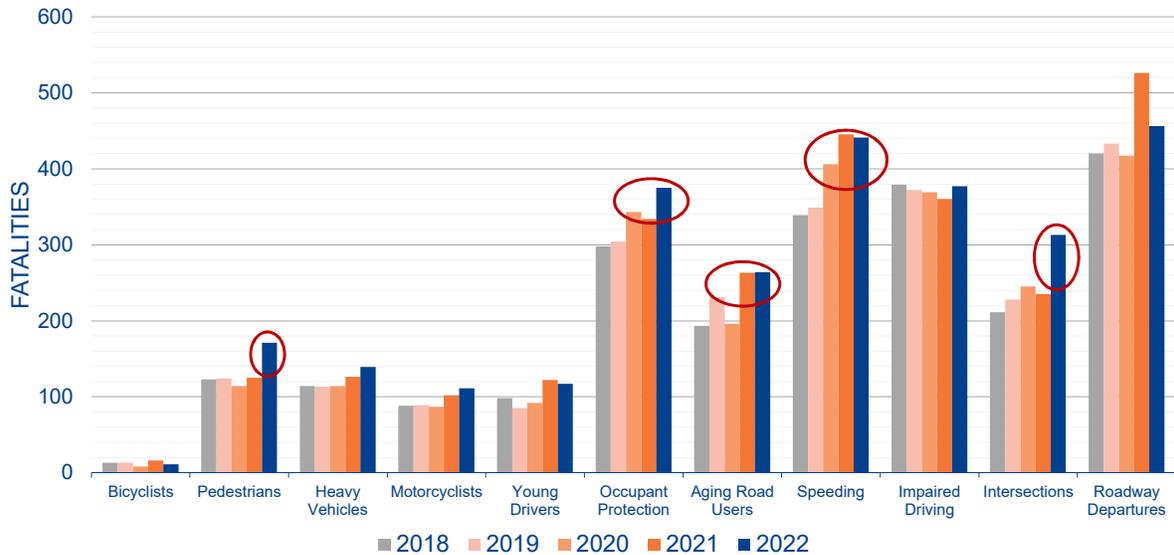


Strategic Highway Safety Plan (SHSP) Emphasis Areas



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2018-2022 Traffic Fatalities by SHSP Emphasis Area



Virginia Department of Transportation

Vulnerable Road Users

Vulnerable road user (VRU) describes those unprotected by an outside shield, as they sustain a greater risk of injury in any motor-vehicle collision.

Includes (but is not limited to): a pedestrian; a roadway worker; a person operating –

- a wheelchair or other personal mobility device;
- an electric scooter or similar;
- a bicycle or other non-motorized means of transportation.



VRU Actions

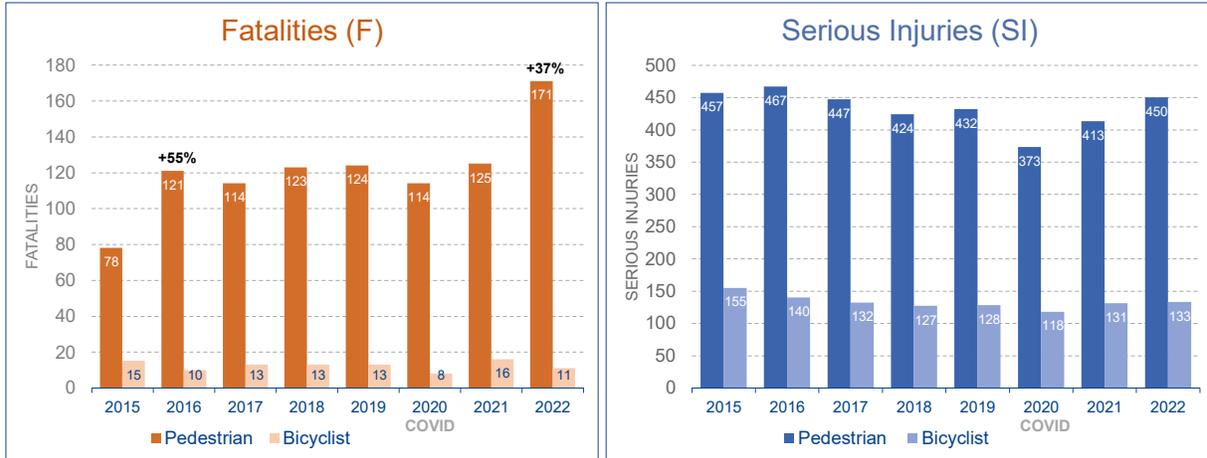
TABLE 5. BICYCLIST AND PEDESTRIAN STRATEGIES AND ACTIONS

	<p>Priority Strategy 1: Implement road improvements that ensure human mistakes and vulnerabilities do not result in serious injuries or fatalities.</p> <p>Revise design practices to emphasize context and target speed that reflects the needs of pedestrians and bicyclists. [Long Term]</p>
	<p>Priority Strategy 2: Adopt an approach that considers risk when prioritizing locations for safety improvements and programs.</p> <p>Update and enhance the Virginia Pedestrian Safety Action Plan (PSAP) biannually with VDH Health Opportunity Index and other transportation and social determinant for travel and risk considerations with potential travel demand inputs from recent research. Enhance the use of PSAP data and findings in project planning and development. Implement PSAP policy recommendations. [Ongoing]</p>
	<p>Priority Strategy 3: Recognize traffic safety as a public health issue and establish policies and programs that promote safe behavior and reduce crash severity outcomes.</p> <p>Investigate and share successful education and enforcement initiatives that positively impact knowledge and compliance with traffic laws by motorists, bicyclists, and pedestrians including speeding, impaired or distracted driving, and redlight crossing. [Ongoing]</p> <p>Recruit new and effective partners to ensure the pedestrian and bicycle programs are reaching diverse and underserved communities. [Ongoing]</p> <p>Promote the collaborative effort Prioritizing Active Transportation, Health, and Safety (PATHS), which includes VDOT, VDOT and DMV to better serve community needs and improve health outcomes by cross-sectoral sharing of knowledge, resources, and experience. [Ongoing]</p> <p>Continue the statewide DMV HSD pedestrian task force to assess and develop countermeasures to implement strategies and encourage existing coalitions to address pedestrian fatalities and serious injuries. [Ongoing]</p> <p>Provide outreach materials that are current and available from partners to advise and educate all road users on safe practices. This includes motorists when driving near and around pedestrians and bicyclists and facility use by bicyclists and pedestrians. [Ongoing]</p>
	<p>Priority Strategy 4: Develop and implement programs that provide education and awareness to high-risk road users.</p> <p>Conduct pedestrian and bicyclist safety training events. Provide outreach materials that are current and available from partners to advise and educate pedestrians and bicyclists about maintaining visibility and practicing safe pedestrian and bicyclist actions. [Ongoing]</p> <p>Develop or enhance and disseminate educational materials and videos to educate road users and law enforcement on compliance with traffic control devices, factors associated with pedestrian and bicyclist crashes, and the significance of speed on pedestrian and bicyclist injury severity. Promote pedestrian- and bicyclist-related laws in an easy-to-understand manner for each age and community. [Ongoing]</p> <p>Provide resources to schools, including Safe Routes to Schools, to educate students how to walk or bicycle safely in environments with traffic and other safety risks. [Ongoing]</p>
	<p>Priority Strategy 5: Implement innovative solutions and utilize current and emerging technologies.</p> <p>Collect and use pedestrian and bicyclist crash, volume, and infrastructure data to identify trends and gaps to improve safety. Continue data integration and sharing with partners and stakeholders. [Ongoing]</p> <p>Enhance and deploy policy guidance on road crossing design considerations for uncontrolled, unsignalized, and traffic signal-controlled intersections during maintenance and construction project planning and development. Consider and implement proven pedestrian and bicyclist countermeasures, new technologies, or innovative designs at higher-risk crossing locations. [Ongoing]</p>

- 12 Actions implemented by all the E's of safety
- Many are ongoing activities we are working to improve over time
- Federal IIJA legislated a detailed VRU safety assessment with outreach and additional actions – under internal review for FHWA approval



Statewide VRU Fatalities (F) and Serious Injuries (SI)



VRU Injury Proportions (2018-2022)

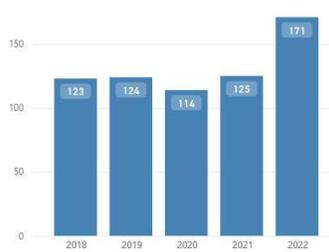
**About 1 in 3 pedestrians
and 1 in 4 bicyclists
hit by motorists were killed or seriously injured**

**On average, nearly 2 VRUs were killed or
seriously injured every day**

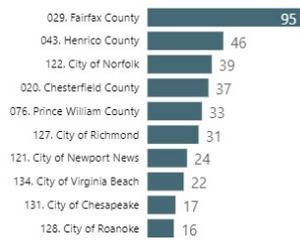
**VRU involved crashes are 1.7 percent of all
crashes, but are 16 percent of fatalities**

Focus: Pedestrian Crashes

2018 - 2022 Pedestrian Fatalities by Cities and Counties

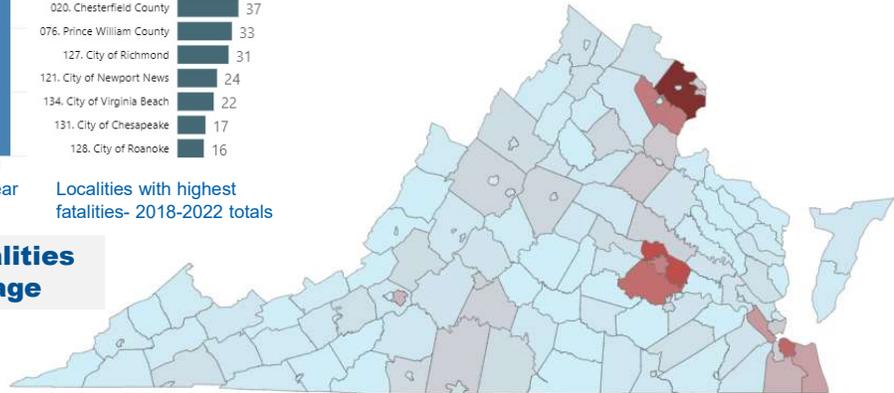


Statewide pedestrian fatalities by year



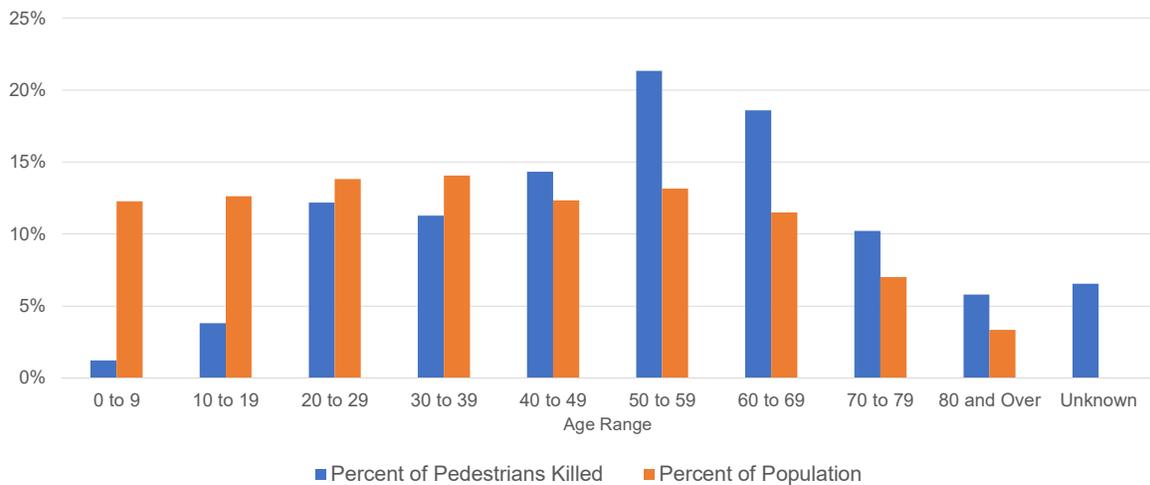
Localities with highest fatalities- 2018-2022 totals

657 Total

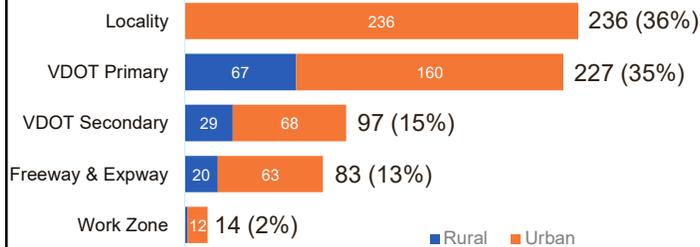


132 pedestrian fatalities per year on average

Who: Pedestrian Fatalities by Age



Where: Summary by System and Area Type



Note: Work zone-related crashes are NOT included (total 643) for remaining analyses



18% are rural roadway fatalities

82% are urban roadway fatalities



63% are on VDOT roadways



36-39% of pedestrians were drunk or drugged in Urban areas



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Where: Non-Freeway System Facility Contexts

	% Share of Pedestrian Fatalities*	% of Fatalities on Arterials
Urban Locality	42%	75%
Urban VDOT	41%	88%
Rural VDOT	17%	62%



On urban roads
50% are within 500ft of a Bus Stop
26% are within 150ft of a Bus Stop



Arterials account for **30%** of rural and **33%** of urban VMT on non-limited access roadways, but **80%** of all fatalities took place on arterials

* Excludes limited access and work zone data **2022 data

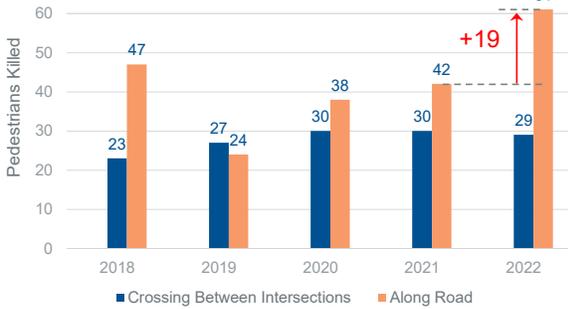


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What: Pedestrian Fatality Action Trend

Between Intersections 45%

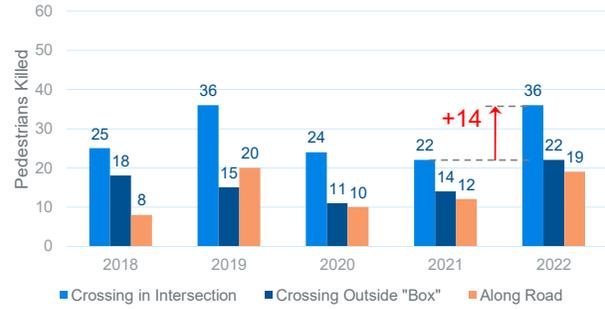


40%
are crossing



80%
happened at night

At Intersections 55%



"At intersection" is within 150 feet, so some are crossing outside of intersection "box" defined by roadway edge extensions.



76%
are crossing



70%
happened at night



Demographics Where Pedestrian Crashes Occur

Social Vulnerability

The degree to which a community exhibits certain social conditions, including high poverty, low percentage of vehicle access, age cohorts

The demographic estimates and socio-economic data presented in the following charts are based on the American Community Survey (ACS) data from the years 2016 to 2020.

VRU Vulnerability Investigated

Socioeconomic Status	Household Characteristics	Racial & Ethnic Minority Status	Housing Type & Transportation
Below 150% Poverty Line	Aged 65 & Older	Hispanic or Latino (of any race), Black and African American, American Indian and Alaska Native, Asian, Native Hawaiian and Other Pacific Islander, Two or More Races, Other Races	No Vehicle
Unemployed	Aged 17 & Younger		
No High School Diploma	Civilian with a Disability		
No Health Insurance			



Poverty Level: Pedestrian Crashes

- Pedestrian crashes were 17% higher in areas with a larger population in poverty compared to the statewide average.
- F+SI pedestrian crashes were 28% higher in areas with a larger population in poverty compared to the statewide average.
- Overall, pedestrian crashes and F+SI Ped crashes are over-represented in areas with a larger population in poverty.

Pedestrian Crashes by Population in Poverty
Population in Poverty Compared to VA Average Above Below



F+SI Pedestrian Crashes by Population in Poverty

Population in Poverty Compared to VA Average Above Below



Population in Poverty is defined as the percentage of persons in an area (Census tract) living at or below 150% of the federal poverty line threshold established for several federal health coverage policies. Crashes in each Census tract are assessed by whether the Census tract is above or below the statewide average of Population in Poverty.

Population with Disability: Pedestrian Crashes

- Pedestrian crashes were 2 times more frequent where the relative percentage of people with disability is above statewide average.
- F+SI pedestrian crashes were 3 times more frequent in areas where the relative percentage of people with disability is above statewide average.
- Overall, pedestrian crashes are over-represented in areas with higher disability rate.

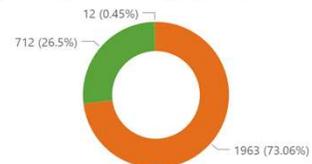
Pedestrian Crashes by Population With a Disability

Disability Rate Compared to VA Average Above Below Unknown



F+SI Pedestrian Crashes by Population With a Disability

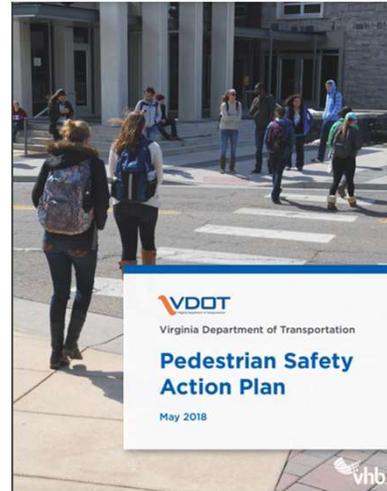
Disability Rate Compared to VA Average Above Below Unknown



Population with Disability is defined as the percentage of persons in an area (Census tract) with a disability. Crashes in each Census tract are assessed by whether the Census tract is above or below the statewide percentage of population with a disability.

Tools: Pedestrian and Bicyclist Safety Action Plan

- Predictive geospatial analysis to determine which road segments have the greatest propensity and risk for VRU travel (bicyclists were added in Version 3)
- Focus on VRU safety with VDOT Policy Recommendations
- VRU safety infrastructure countermeasure toolbox

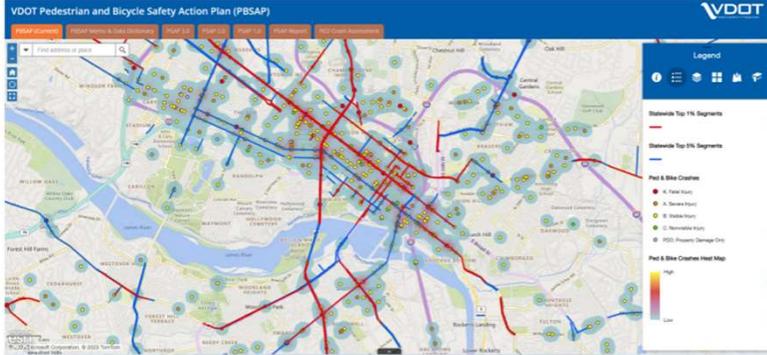


2019 National Roadway Safety Award

Tools: PBSAP - Priority Corridor Criteria

- Zero-vehicle households
- Health Opportunity Index (HOI)
- Population density
- Employment density
- Transit access
- Proximity to parks and schools
- Annual average daily traffic (AADT)
- Road geometry (# lanes)
- Posted speed limit
- VRU crash history

Tools: PBSAP Statewide Top Priority Corridors Map



- Used to define VTrans VRU needs for SMART SCALE projects
- Used to prioritize VRU Safety Improvement Program

Virginia Highway Safety Improvement Program Investment Strategy

- Focus on severe crashes dispersed over road network (top 1% of PBSAP)
- Apply low-cost countermeasures
- Wider benefit with more targeted return on investment

Original VDOT Systemic Infrastructure Plan
8 Proven Safety Countermeasures



Service Area / Fund Source	FY2024	FY2025	FY2026	FY2027	FY2028	FY2029	Total
VA Safety Funds							
Federal	\$96,853	\$107,914	\$110,237	\$112,609	\$115,032	\$117,508	\$660,154
State	1,296	20,816	27,072	27,480	28,701	35,826	141,191
VA Safety Funds Total	\$98,150	\$128,730	\$137,309	\$140,089	\$143,733	\$153,334	\$801,345

HSIP Pedestrian Safety Infrastructure Projects

Fall 2019 – Systemic Pedestrian Crossings, Phase 1

- \$34 million approved for pedestrian crossings at traffic signals
- 2025 completion date

December 2021 – Systemic Pedestrian Crossings, Phase 2

- \$20 million for up to 200 crossings
- 2028 completion date

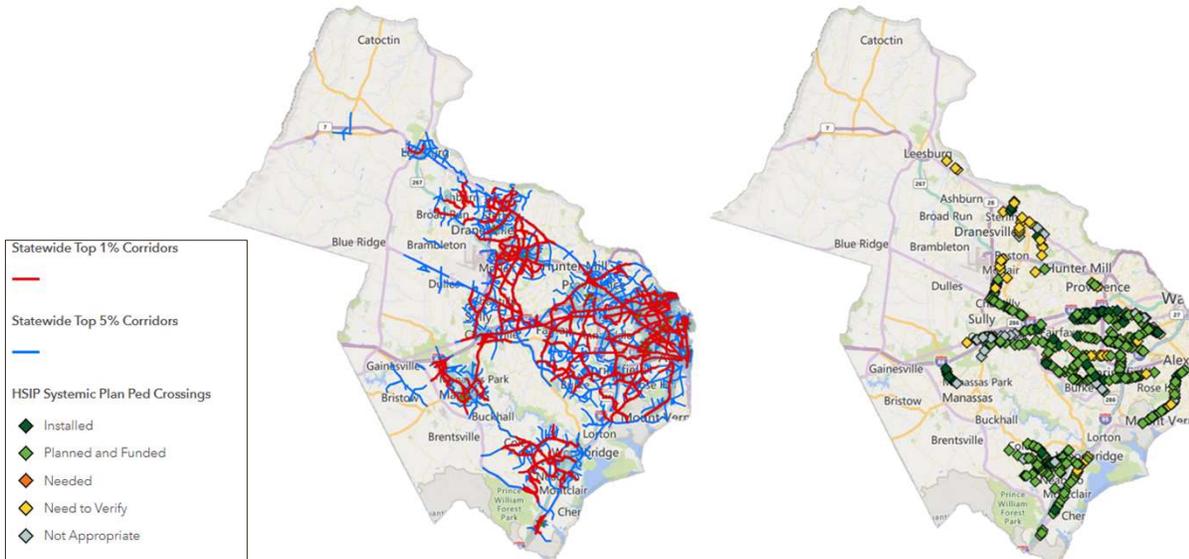
February 2023 – Locality Systemic Funding

- Pedestrian projects ~\$40M



**PSAP V3 Top Priority Corridors
Northern Virginia District**

**HSIP Pedestrian Crossing Systemic Plan
Northern Virginia District**



Example Safety Improvements

Mid-block Pedestrian Hybrid Beacon -
Serving school area and bus stops



Mid-block Rapid Flashing Beacon -
With bicycle lanes serving homes near US1



Example Richmond Improvements

Pedestrian Signals and ADA Features



10+ Miles of Road Reconfigurations -
With bicycle lanes on 3 corridors



Questions and Discussion
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