Virginia Puts Award-Winning Plan Into Action to Improve Pedestrian Safety

KEY ELEMENTS:

Systemic Safety Analysis

Project Development

The dispersed nature of pedestrian crashes often means that pedestrian safety countermeasures are installed in response to pedestrian crashes, rather than regularly installed in locations with factors that contribute to high pedestrian crash risk. The Virginia Department of Transportation (VDOT) combined hot spot and systemic analysis to proactively identify locations with high risk and known crash problems for their Pedestrian Safety Action Plan (PSAP).[1] In 2020, VDOT updated the PSAP with more recent crash and risk factor datam generating new priority corridors and crash clusters.

CRASH-BASED AND SYSTEMIC ANALYSIS

During both the original 2018 PSAP and as part of the 2020 PSAP update, VDOT performed a crash cluster, or hot spot analysis, using the most recent 5 years of pedestrian crash data. Clusters were analyzed by crash type, density, and severity.

> "Our PSAP is activating a strategy for safer travel by identifying locations where pedestrian safety is at risk and then funding safety improvements at those locations based on data-driven safety analysis."
>
> – Stephen Brich, P.E., VDOT Commissioner

During the 2018 PSAP and 2020 update, VDOT performed a systemic analysis of the road network to identify corridors with higher association with selected crash risk factors. Priority corridors were identified using a series of weighted criteria, for which reliable statewide data was available. The key criteria considered are listed below. The most heavily weighted criteria under the 2020 methodology were traffic volumes, households with zero-vehicle ownership, transit proximity, and the State's Health Opportunity Index (HOI).

- Population and employment density.
- Urban or rural context.
- HOI.
- Vehicle ownership levels by household.
- Vehicle traffic volumes.
- Posted speed limits.
- Roadway configuraton.
- Proximity to schools and parks.
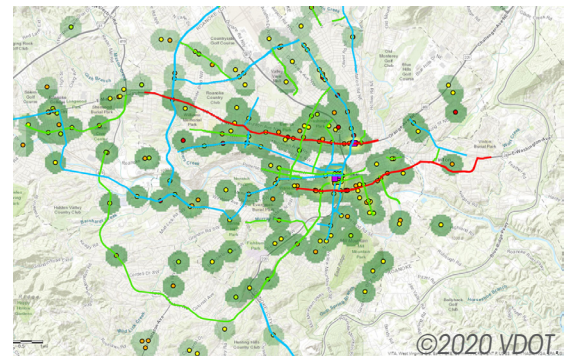- Pedestrian crashes.
- Transit route proximity.

Figure 1. Graphic. Map showing priority corridors, crashes, and crash clusters in Roanoke, Virginia.[2]

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INTEGRATING THE VIRGINIA HOI

The Virginia HOI was first developed in 2012 but later updated to include 13 indicators based on social determinants of health. VDOT conducted a spatial analysis of the HOI to understand the extent to which pedestrian crashes were associated with areas with a low HOI. VDOT found a strong association between pedestrian crash history and low HOI, prompting VDOT to place high weight on the HOI as a risk factor for the PSAP corridors.

COUNTERMEASURE SELECTION

As part of the 2018 PSAP, VDOT considered statewide and national guidance, such as the FHWA Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations, to identify potential countermeasures for PSAP corridors and crash cluster sites. Countermeasures described on "cut sheets" developed for a subset of priority sites included treatments such as Pedestrian Hybrid Beacons (PHBs), refuge islands, and curb extensions.
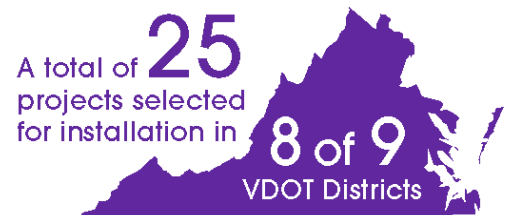
RESULTS

VDOT posted the 2018 and 2020 PSAP crash cluster and priority corridor sites to an online map. VDOT adds priority for projects located on PSAP corridors and crash cluster sites. In 2019, announced funding for new projects located on PSAP sites, encouraging local agencies to collaborate with VDOT Districts to develop competitive pedestrian safety projects.

VDOT received 59 project submittals after announcing the HSIP funding and hosting a series of workshops to explain the PSAP process. VDOT selected and delivered 25 initial projects worth $8 million in 2019 and early 2020. FHWA and the Roadway Safety Foundation recognized VDOT's PSAP as an award winning plan under the Program Planning, Development, and Evaluation Category.[3,4]

VDOT received **59** candidate PSAP project submittals... ...valued at more **$43M** within weeks of the funding announcement

VDOT staff evaluated the candidate projects and, in November 2018, announced the award of **$8M** of Section 154 funding to PSAP projects

A total of **25** projects selected for installation in **8 of 9** VDOT Districts

Funding requested ranged between: **$40K** per project → **$1.5M** per project

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References

[1] PSAP: http://www.virginiadot.org/business/resources/VDOT_PSAP_Report_052118_with_Appendix_A_B_C.pdf

[2] Webmap: https://www.arcgis.com/home/item.html?id=ae073e60495948deafc34d08812dfb20

[3] Award: 2019 Noteworthy Practices Guides: https://safety.fhwa.dot.gov/roadwaysafetyawards/2019/20200116_Noteworthy%20Guide-508%20Compliant.pdf

[4] FHWA Accelerating Planning and Project Delivery award: https://collaboration.fhwa.dot.gov/dot/fhwa/TPEA/_layouts/mobile/dispform.aspx?List=8151a10d%2Dcb00%2D4bad%2Db37d%2Dfd1ea0c26f35&View=f372676a%2D4a36%2D4098%2D98e2%2Dd1d1d-962b3ad&ID=49