MEETING AGENDA: ***CTB Innovation Subcommittee***

DATE: Tuesday, March 28, 2022

TIME: 8:30 a.m.

LOCATION: Virginia Department of Transportation
Central Office Old Highway Building Computer Lab,
1221 East Broad Street
Richmond, Virginia 23219

MEETING LEADER: Cathy McGhee, email: cathy.mcghee@vdot.virginia.gov, phone: 804-916-9508

AGENDA:

- Welcome
  Cathy McGhee, Chief Deputy Commissioner, VDOT

- Approval of December 2022 meeting minutes
  Cathy McGhee

- Safety Data Analysis for VDOT Highway Safety Improvement
  Mark Cole, Traffic Operations Division

- Public Comments

MEETING NOTES: ***CTB Innovation Subcommittee***

DATE: Tuesday, December 6, 2022

TIME: 11:00 a.m.

The meeting of the Commonwealth Transportation Board (CTB) Innovation Subcommittee was held at the Virginia Department of Transportation Central Office Old Highway Building Computer Lab, 1221 East Broad Street, Richmond, VA 23219. Director of Transportation Research and Innovation Cathy McGhee called the meeting to order at 11:00 a.m.

Present: Mr. Stant, Mr. Kasprowicz, Mr. Merrill, Mr. Fowlkes, Mr. Coleman, Mr. Lawson, and Mr. Laird.

Approval of October 2022 minutes – *The minutes from the October meeting were approved without comment.*

CAV Data Mapping Initiative – Hari Sripathi, Directory of the Office of Strategic Innovation at VTRC provided an overview of OSI's work to identify data needs for a variety of priority connected/automated vehicle applications and map those needs to existing data sources within VDOT or available from 3rd party vendors. The presentation is attached for reference. During Mr. Sripathi's presentation, several questions came up including:

- What is the magnitude of the data from a size perspective? (could be large but some processing at the source will reduce the size.)
- What are the top 5 applications of this work that drivers might see now? (traveler information, speed harmonization, eco arrival/departure at signals)
- With respect to bike/ped safety listed in the presentation, what work is underway as this is a significant issue. (A presentation on Smart Intersections will be planned for an upcoming meeting.)

Innovation Update – Mr. Sripathi also shared a short video on VDOT's Innovation Toolshed. Members asked how well information about sharing innovations is reaching field staff. Including information monthly or quarterly at AHQ safety meetings was offered as a possibility. Mr. Kasprowicz asked that staff work on establishing a recognition/incentive program to highlight employee suggested innovations and use the Governor's Transportation Conference as a venue for recognizing individuals. A question was also asked regarding the availability of a public portal for innovation suggestions.

During the Public Comment period Mr. Wittfield spoke to the following issues:

- Will the variable speed limit system on I-95 be deployed in other corridors, specifically on I-66 where it was previously deployed?
- Signage on I-66 is not sufficient. At Gainesville, signs regarding toll rates provide the rate for only the first segment. Signage for trucks/hazardous materials are not clear.
- There are bridge decks that require repair – specifically a bridge has exposed rebar.
- Traffic signals should be upgraded to allow for adaptive timing plans as opposed to fixed time plans.

ADJOURNMENT: The meeting adjourned at 12:00 p.m. on December 6, 2022.

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AGENDA:

- Welcome
  Cathy McGhee, Chief Deputy Commissioner, VDOT

- Approval of October 2022 meeting minutes
  Cathy McGhee

- CAV Data Mapping Initiative
  Hari Sripathi, Office of Strategic Innovation, VTRC

- Topics for future discussion
  Committee members

- Public Comments

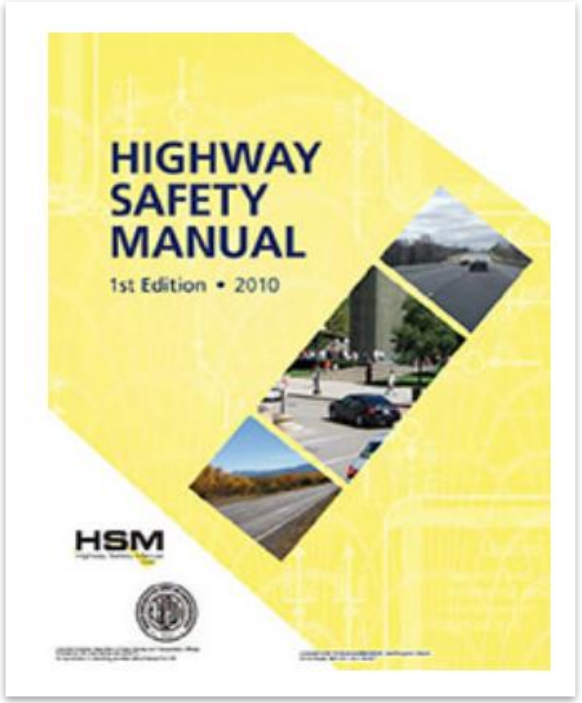
Safety Data Analysis
For VDOT Highway Safety Improvement

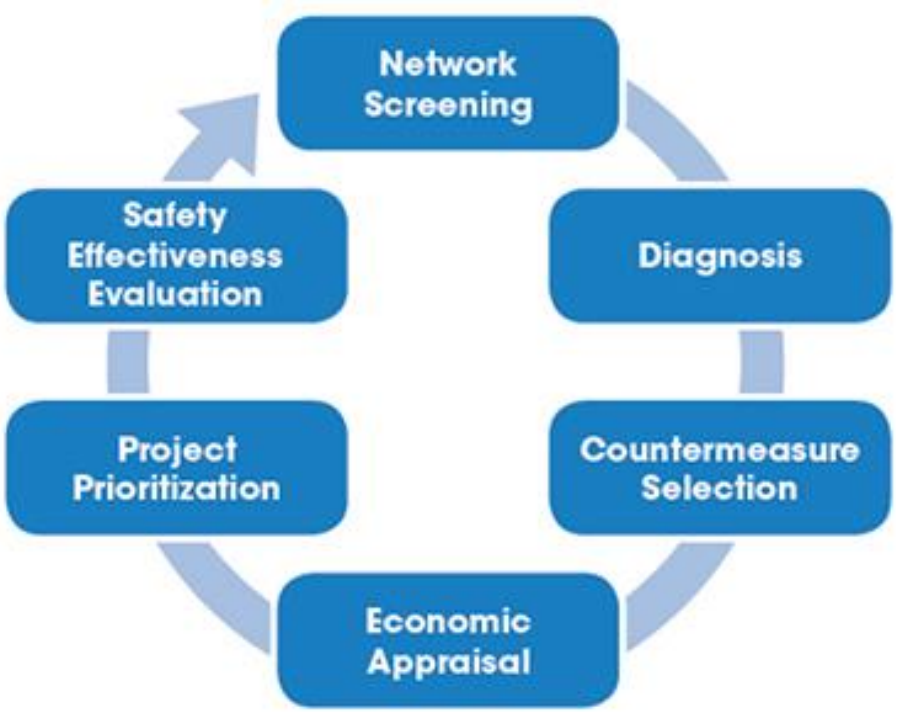
Mark Cole and Shan Di
Highway Safety Improvement Program(HSIP), Traffic Operations Division

March 2023

Roadway Safety Management Process

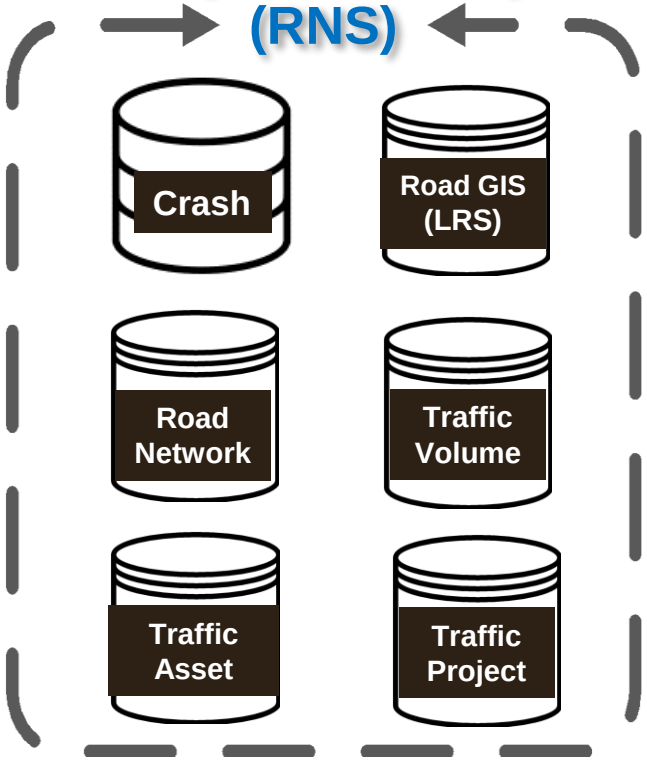
- Highway Safety Manual recommended best practice
- A process to continually improve highway safety infrastructure

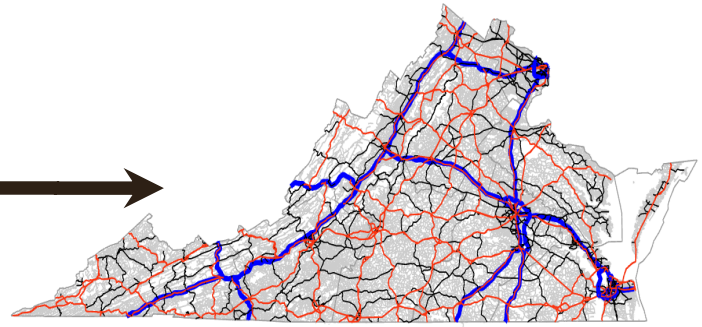




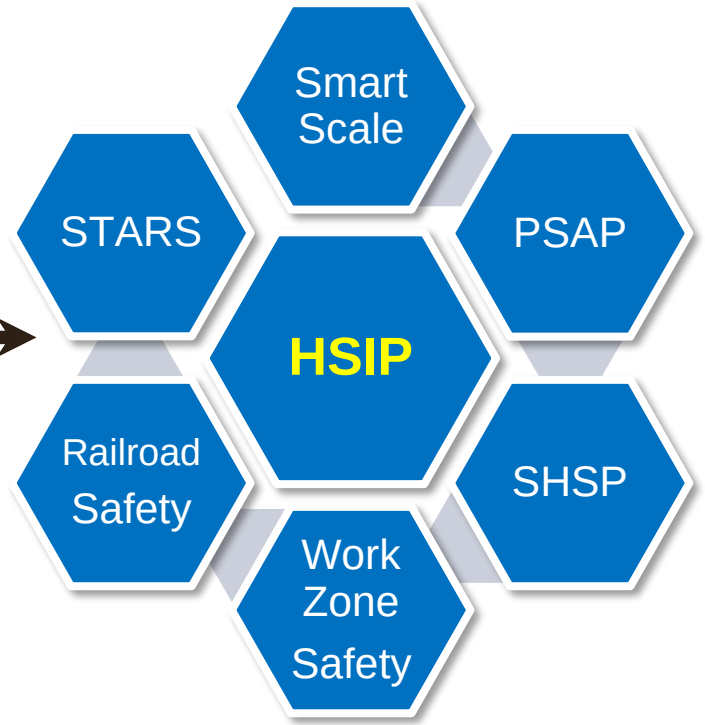
A Data-Driven Approach

VDOT
Roadway Network System (RNS)





Network Screening



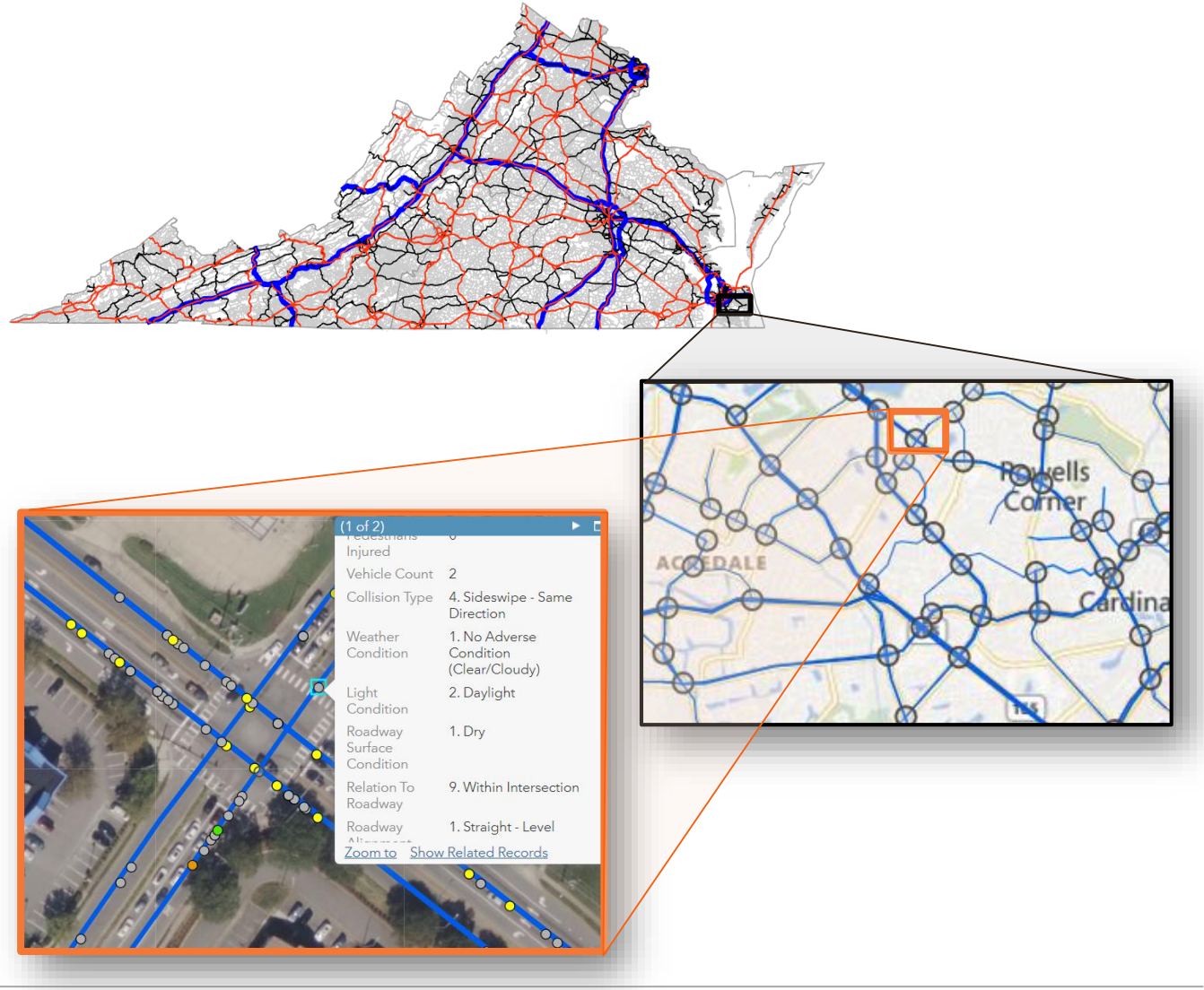
Return on Investment (ROI)

Network Screening Process

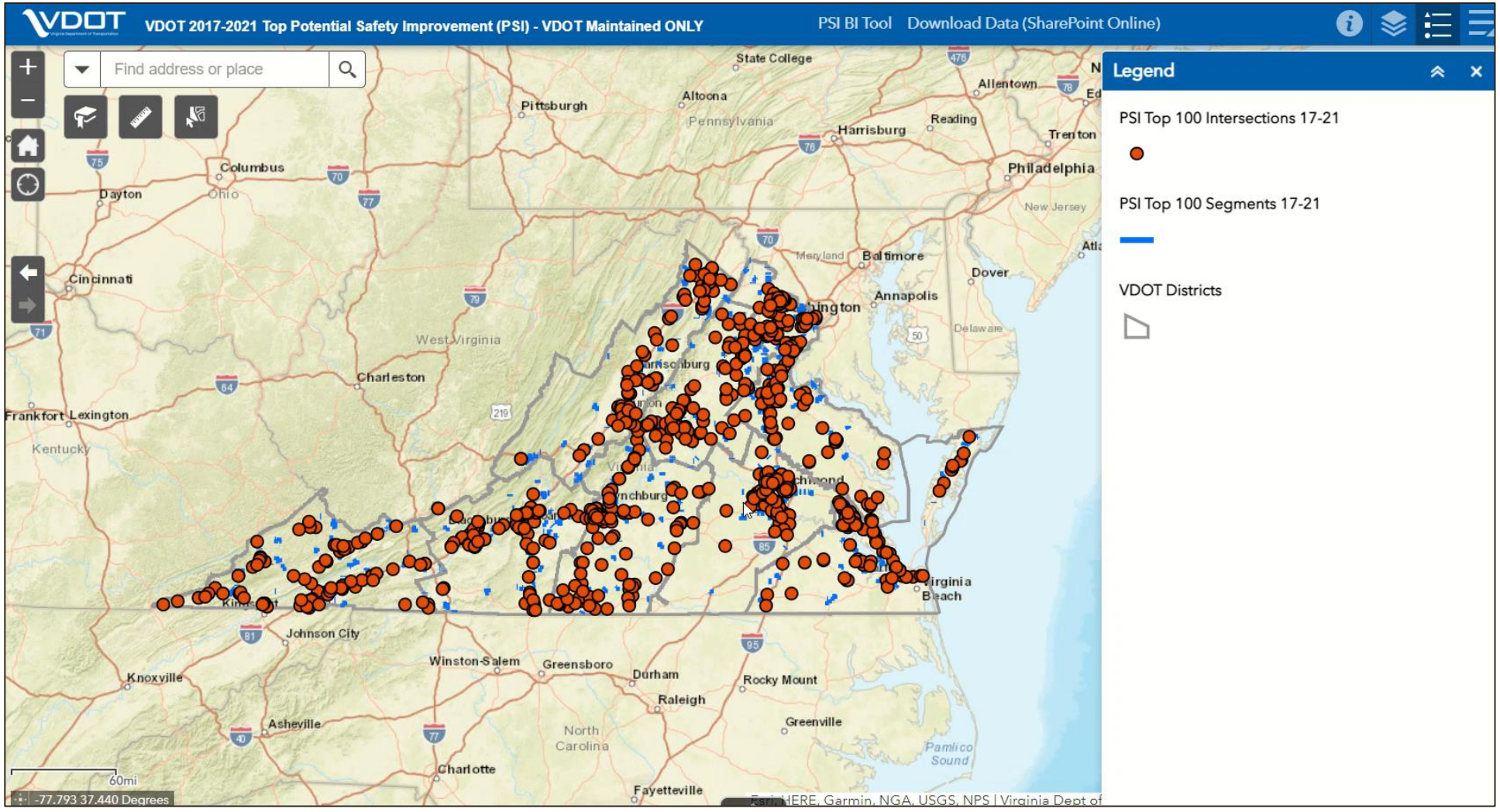
Total crashes reduction →	*Safety performance functions* →	Potential for Safety Improvement (PSI) Locations
Pedestrian safety →	*Pedestrian risk score* →	Pedestrian Safety Action Plan (PSAP)
Fatal & severe crashes, specific type of crashes →	*Severe crash risks* →	Systemic Infrastructure Plan

Potential for Safety Improvement (PSI)

- **Focus on long-term crash reduction**
- **Identifies roadway segments and intersections with worse performance compared to similar sites**
- **Safety analysis model based on**
  - crash data
  - traffic data
  - roadway types

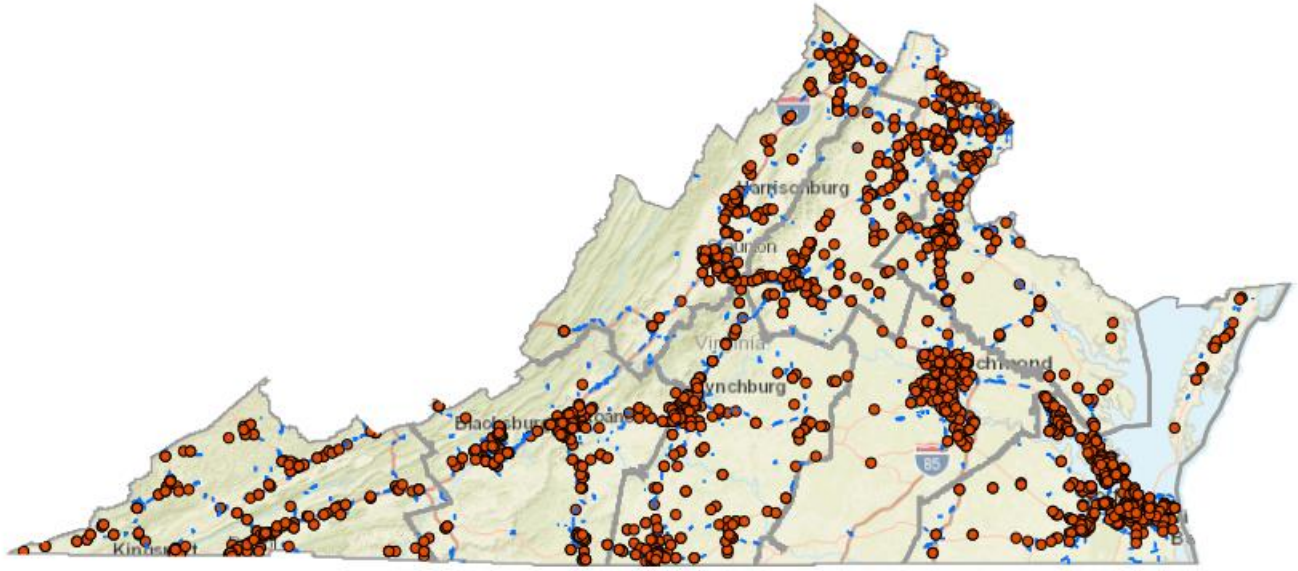


Top Potential Safety Improvement (PSI) Locations Map



bit.ly/VDOTPSIMap

PSI Top 100 Locations

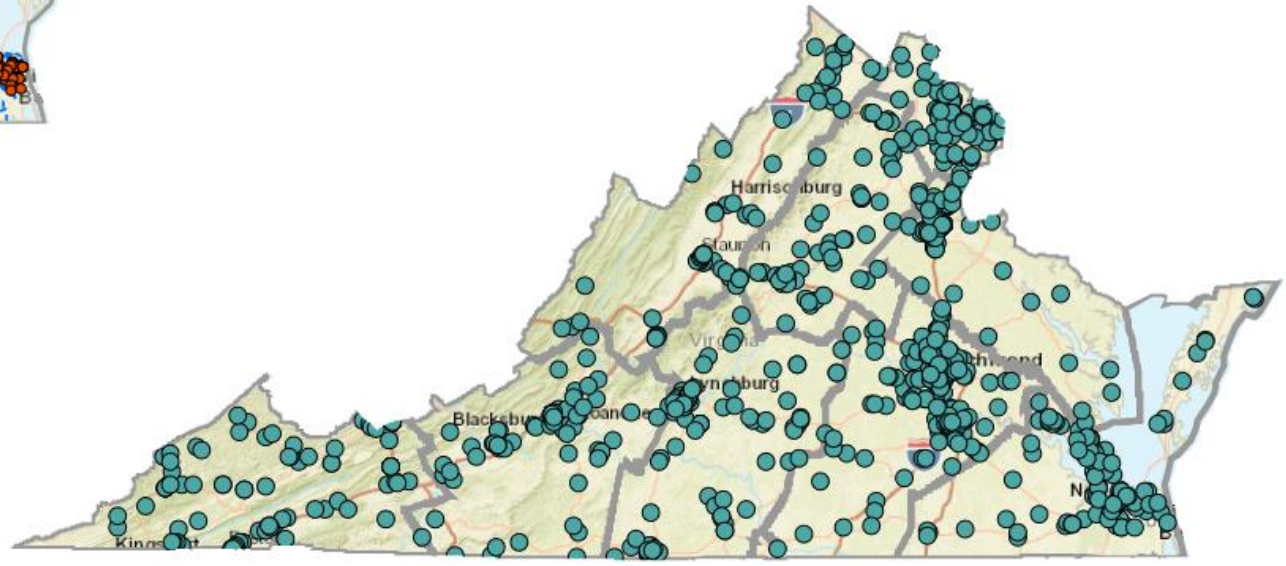


SYIP Approved Projects - Safety Related

PSI Top 100 Intersections

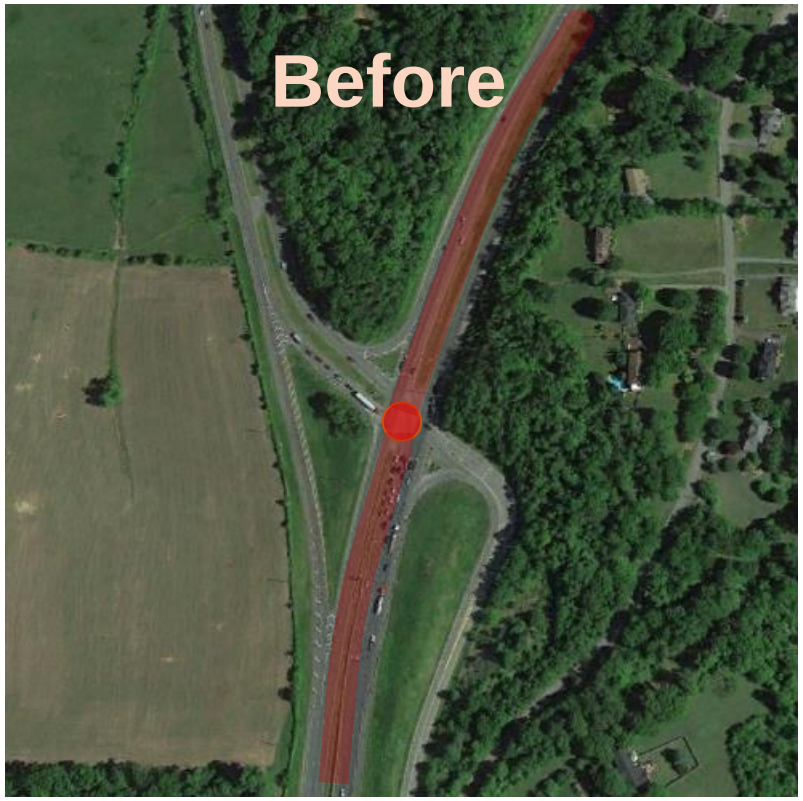
PSI Top 100 Segments

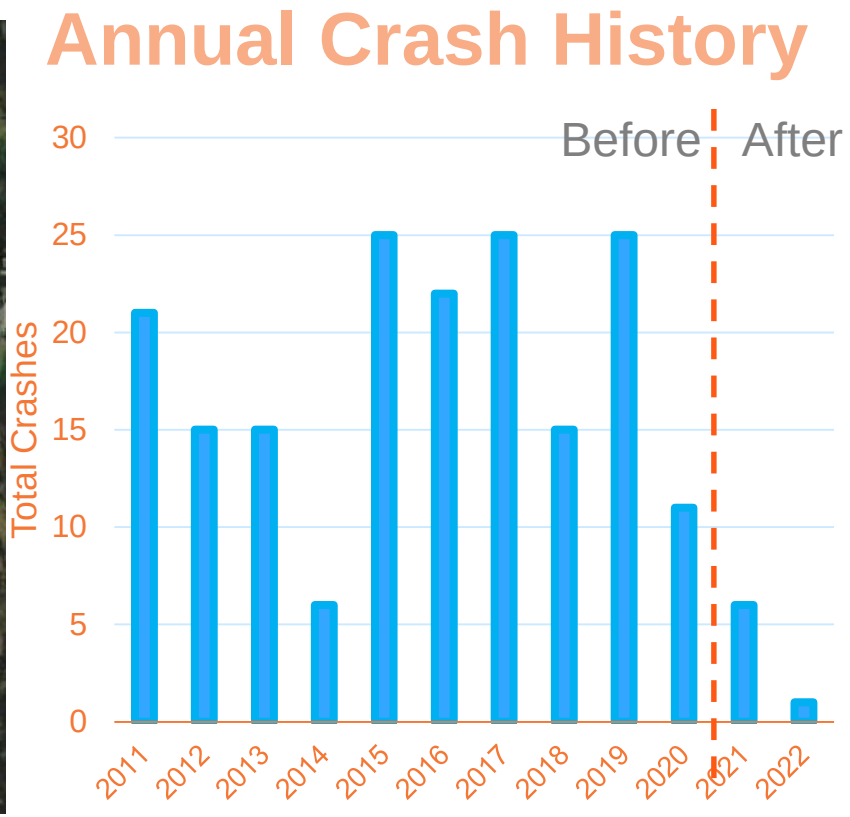
Six Year Improvement Projects (SYIP) Approved Projects - Safety Related



Example: Infrastructure Improvement at PSI Location

Culpeper District, Intersection US-29 @ US-17 Reconstruction



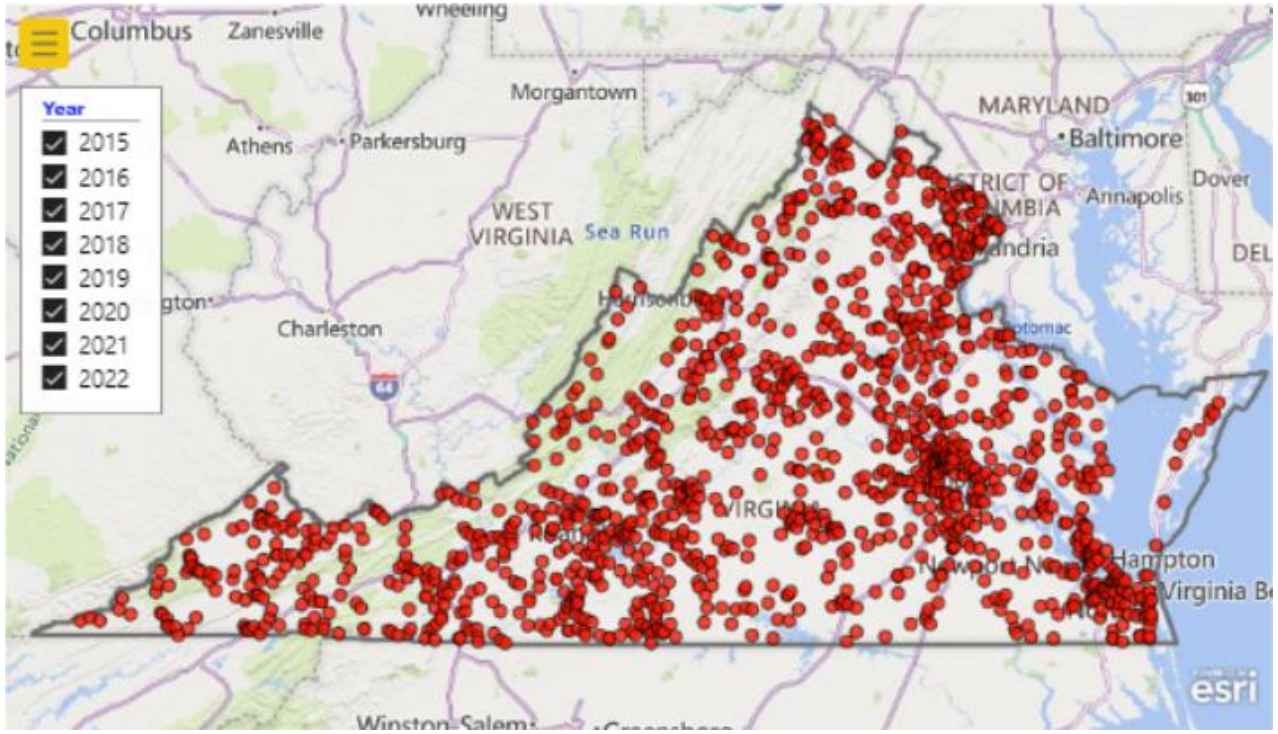


Smart Scale UPC 77384, with the purpose of this project as to implement a design which significantly reduces the number of rear end collisions, increases overall safety, reduces congestion and provides an appropriate linkage between multiple classifications of roadways.

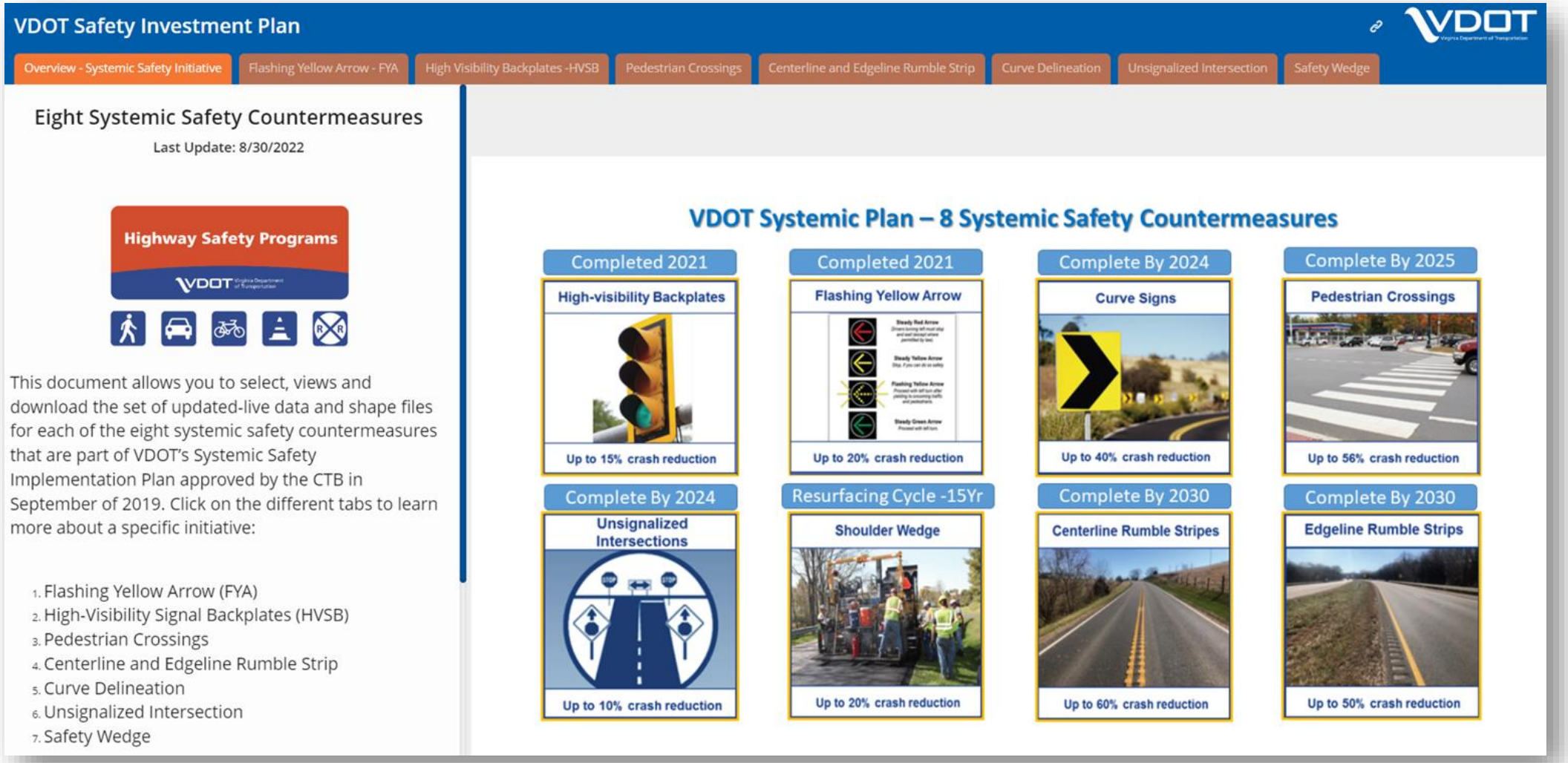
Systemic Investment Plan

- **Focuses on severe crashes widely dispersed over road network**
- **Apply low-cost countermeasures to treat specific crash types**
- **Wider benefit/greater return on investment with more targeted safety improvements**

Distribution of Fatal Roadway Departure Crashes on Curves over Years

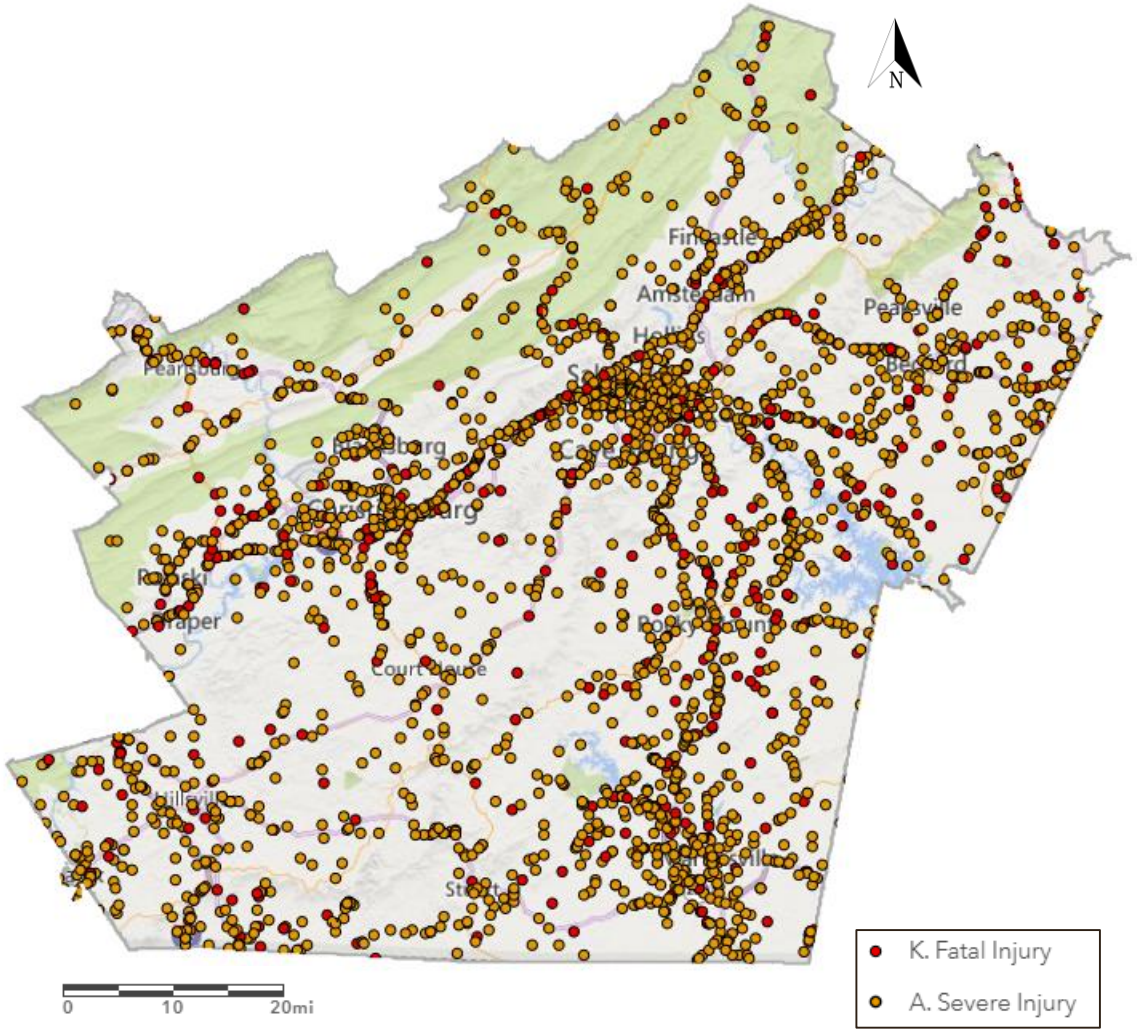


Systemic Plan Project Tracking Tool

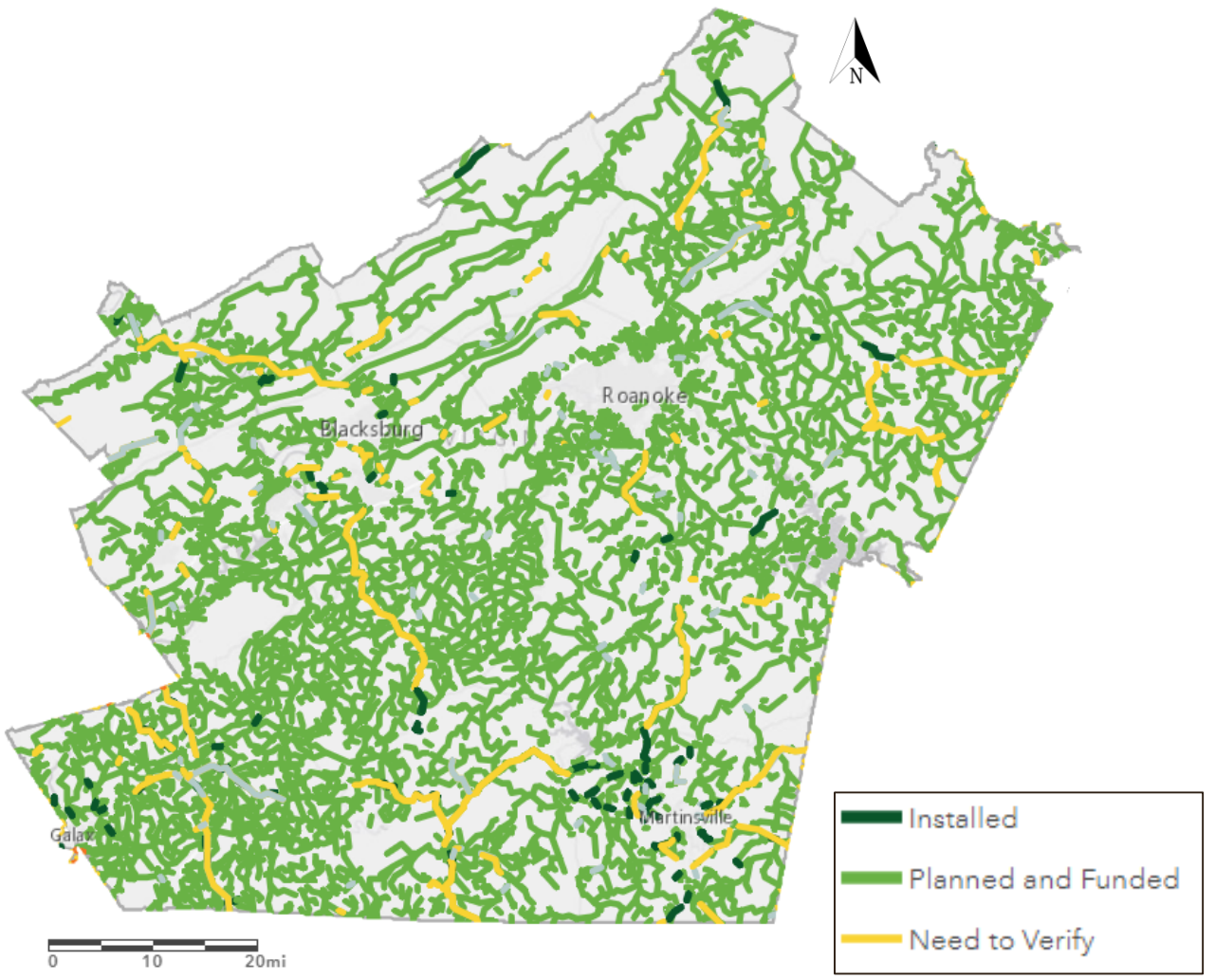


bit.ly/VDOTHSIPInvestmentPlanMap

Fatal & Severe Road Departure Crashes
Salem District



Curve, Shoulder Wedge and Rumble Strip Projects
Salem District



New Virginia Highway Safety Program Infrastructure Investment Plan - FY 2022 - 2027

Local Systemic Projects

Flashing Yellow
High-Visibility Backplates
Pedestrian Crossings
Curve Signage
Unsignalized Intersections
Road Diets

$60M Investment

Expanded Flashing Yellow Arrow

$13.5M - Up to 195 locations

New VDOT Pedestrian Crossings

$20M - Up to 200 locations

2-lane Rural Roads

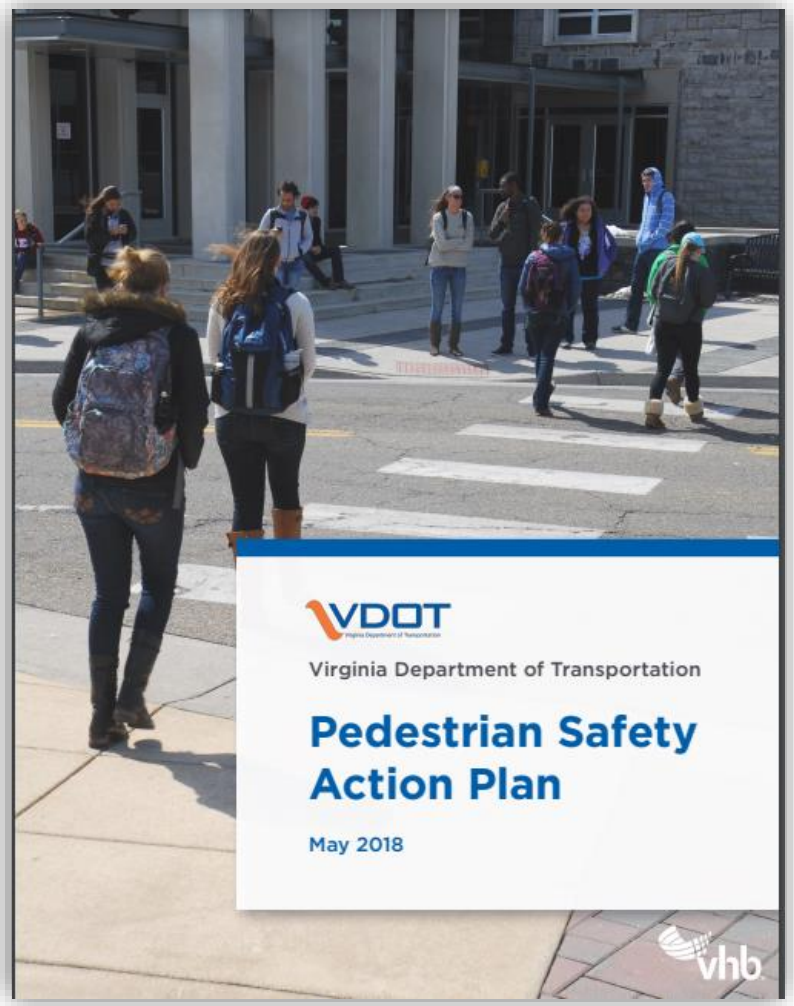
$150M - Up to 200 miles
Up to 50% crash reduction

Spot Projects

$144M Investment

Pedestrian Safety Action Plan (PSAP)

- Focus on pedestrian safety with VDOT Policy Recommendations
- Predictive safety analysis to determine which specific road locations pose the greatest risk for pedestrians
- Pedestrian safety countermeasure toolbox
- PSAP map that shows locations with highest risk for vulnerable users



2019 National Roadway Safety Awards

PSAP - Priority Corridor Criteria

- Annual average daily traffic (AADT)
- Zero-vehicle households
- Health Opportunity Index (HOI)
- Transit access
- Population density
- Employment density
- Pedestrian crash history
- Posted speed limit
- Proximity to a school
- Proximity to a park
- Roadway geometry
- Urban/rural context

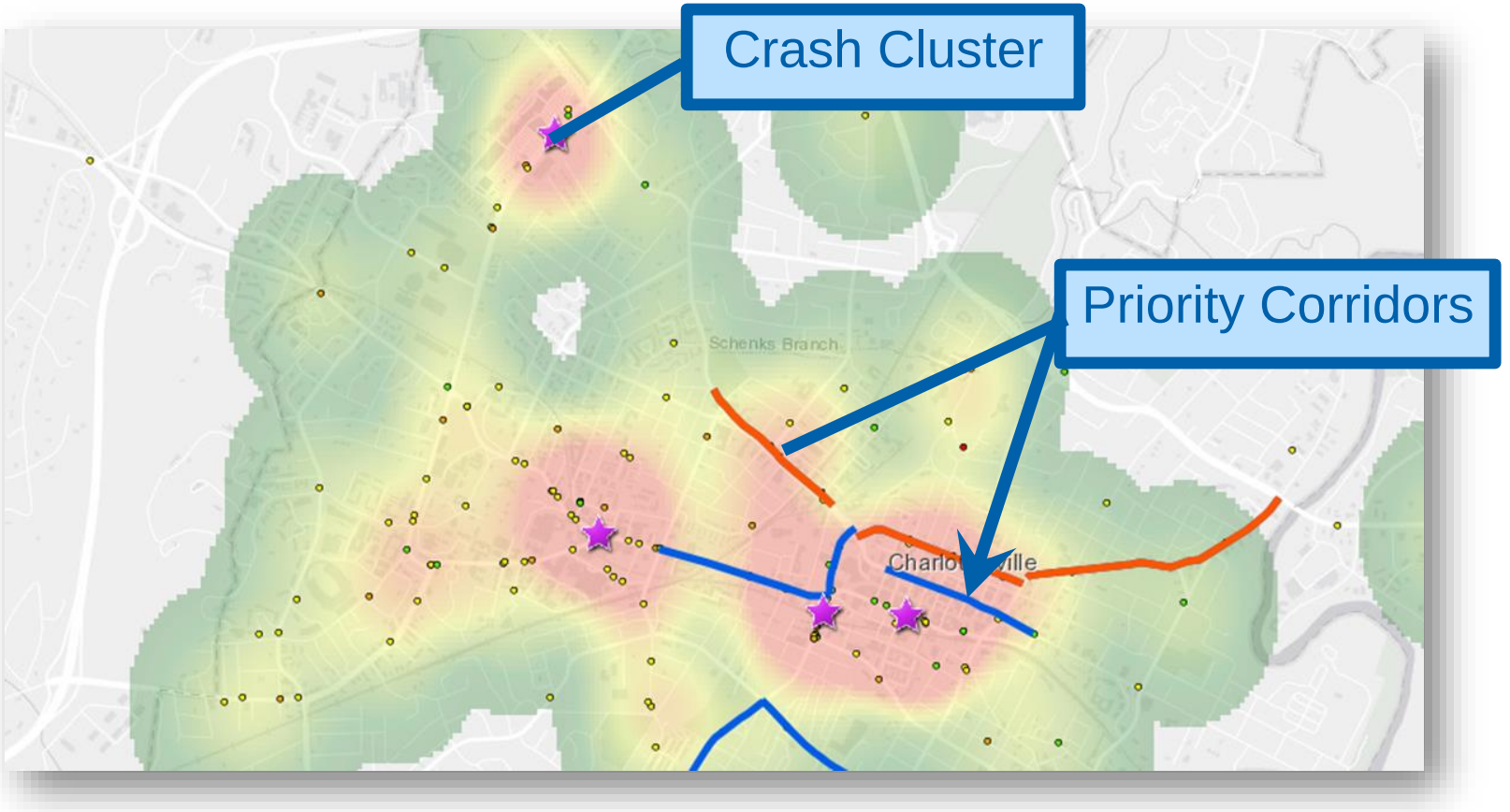
PSAP Crash Clusters and Priority Corridors

Crash Clusters

- Density map of actual crash locations
- Look back

Priority Corridors

- Top ranked corridors based on scoring criteria indicating pedestrian presence or risk
- Predictive



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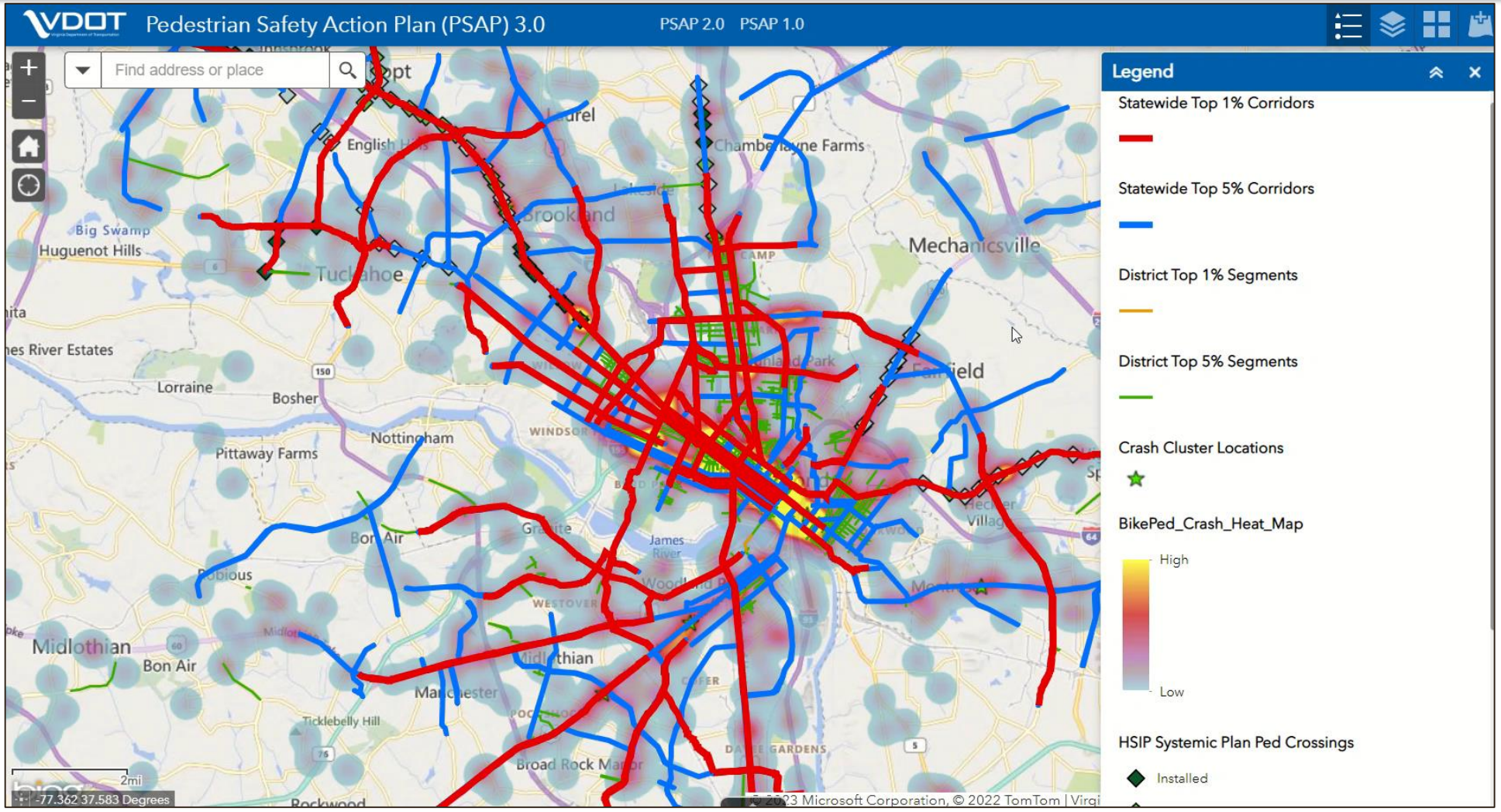
PSAP 3 Statewide Top Priority Corridors Map



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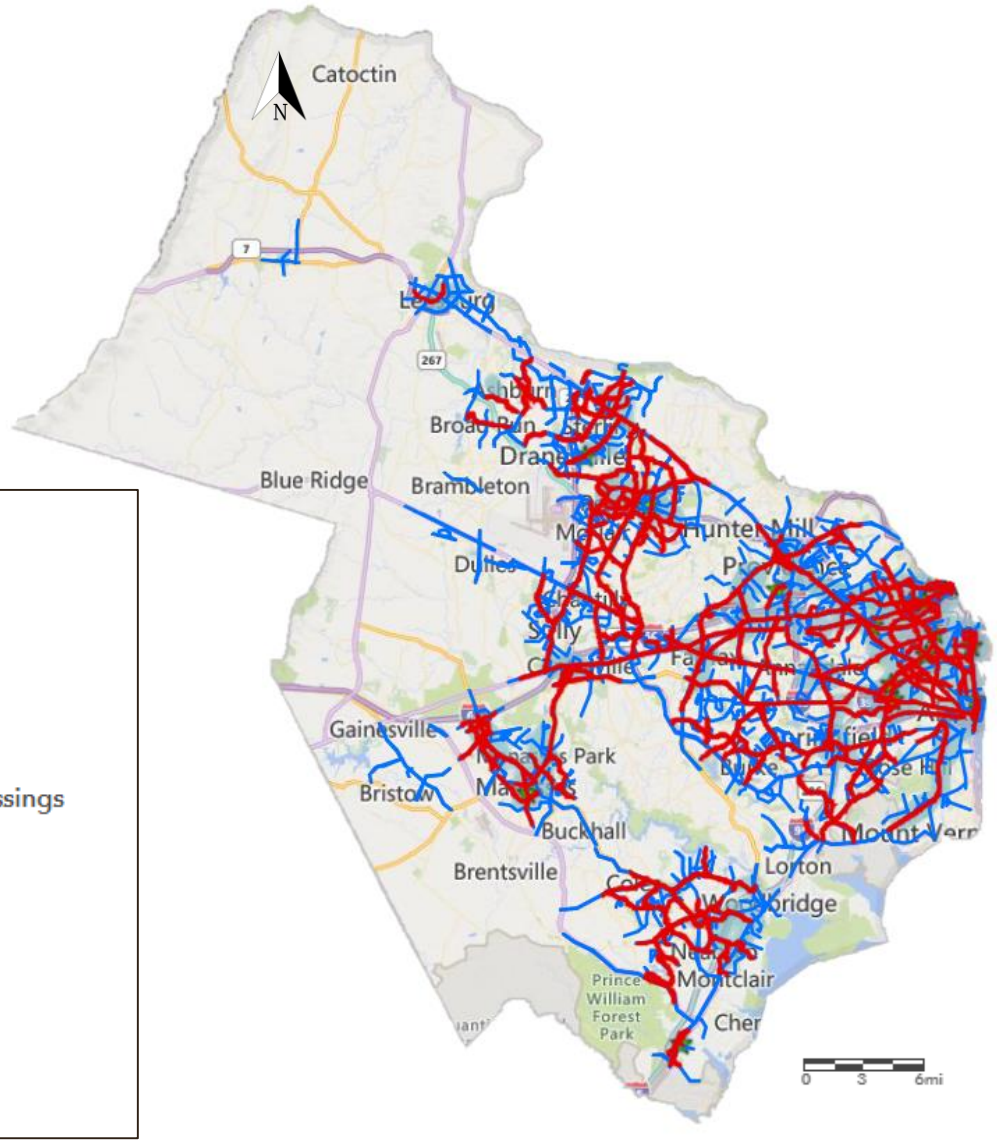
PSAP Top Priority Corridors
Northern Virginia District



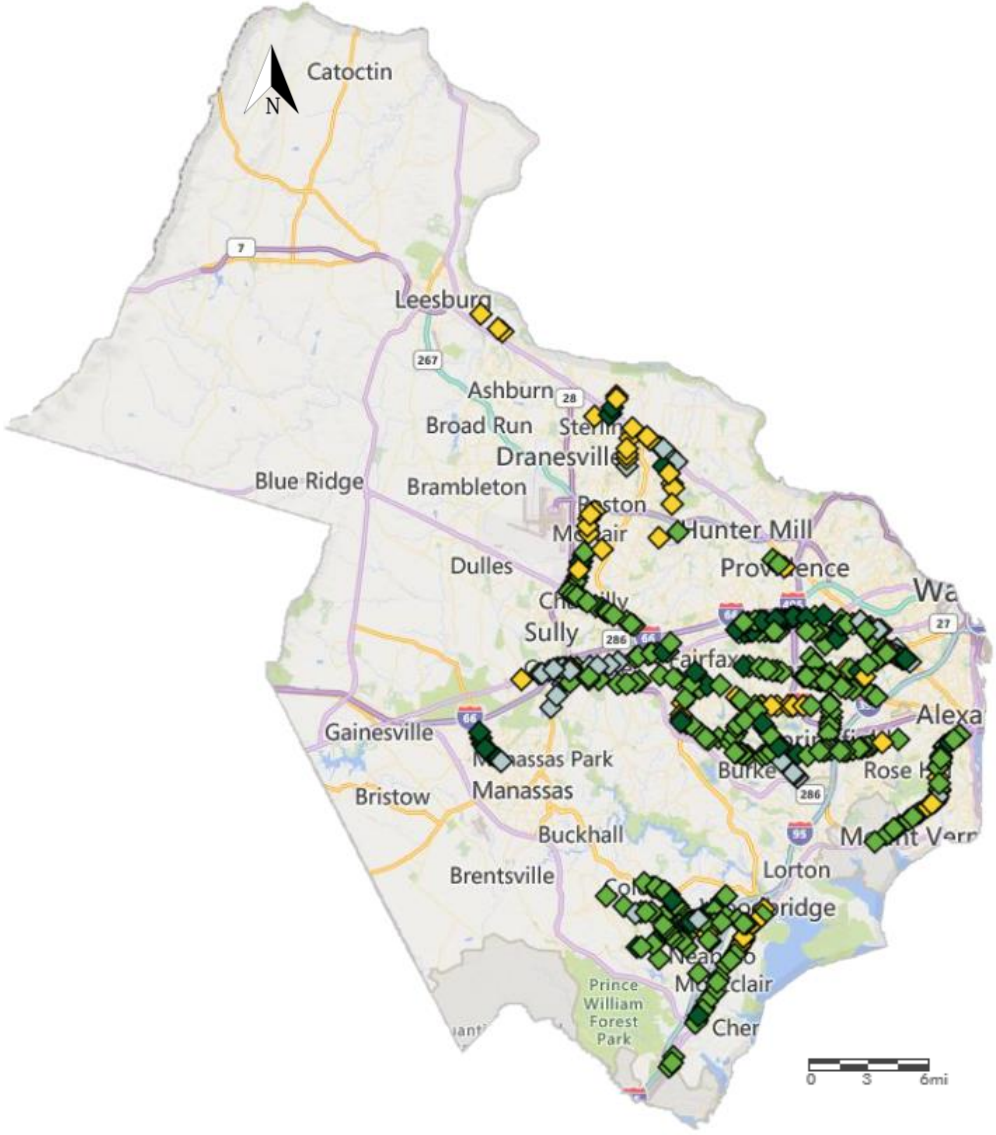
Statewide Top 1% Corridors

Statewide Top 5% Corridors

HSIP Systemic Plan Ped Crossings

- Installed
- Planned and Funded
- Needed
- Need to Verify
- Not Appropriate

HSIP Pedestrian Crossing Systemic Plan
Northern Virginia District



Safety Data Analysis for VDOT Highway Safety Improvement

Questions?