PARTNERING IN VIRGINIA
Working to Drive Deaths and Serious Injuries
Towards Zero on Our Highways

Stephen W. Read, P.E.
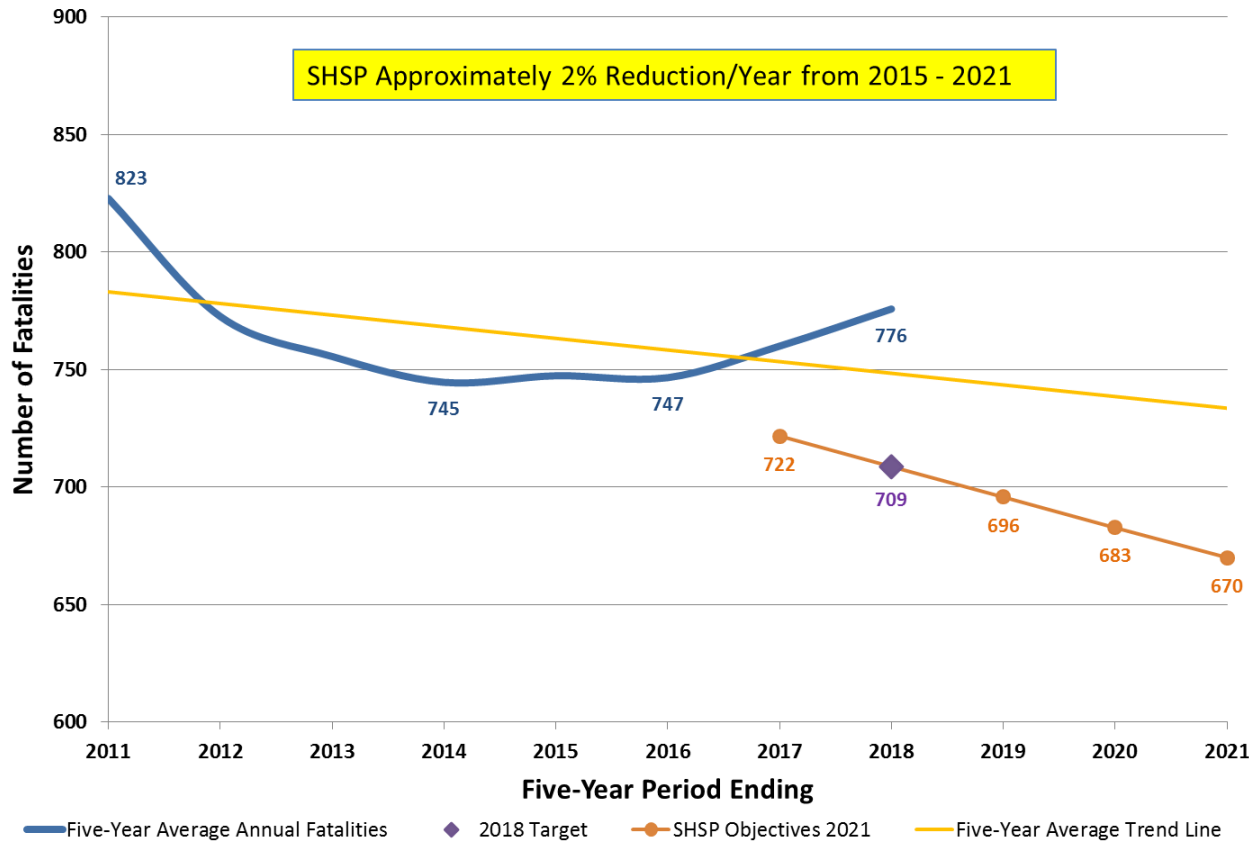
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Outline

1. Recent Safety Outcomes and 2020 Targets

2. Virginia's Local Safety Efforts

3. Virginia's National Safety Engagement

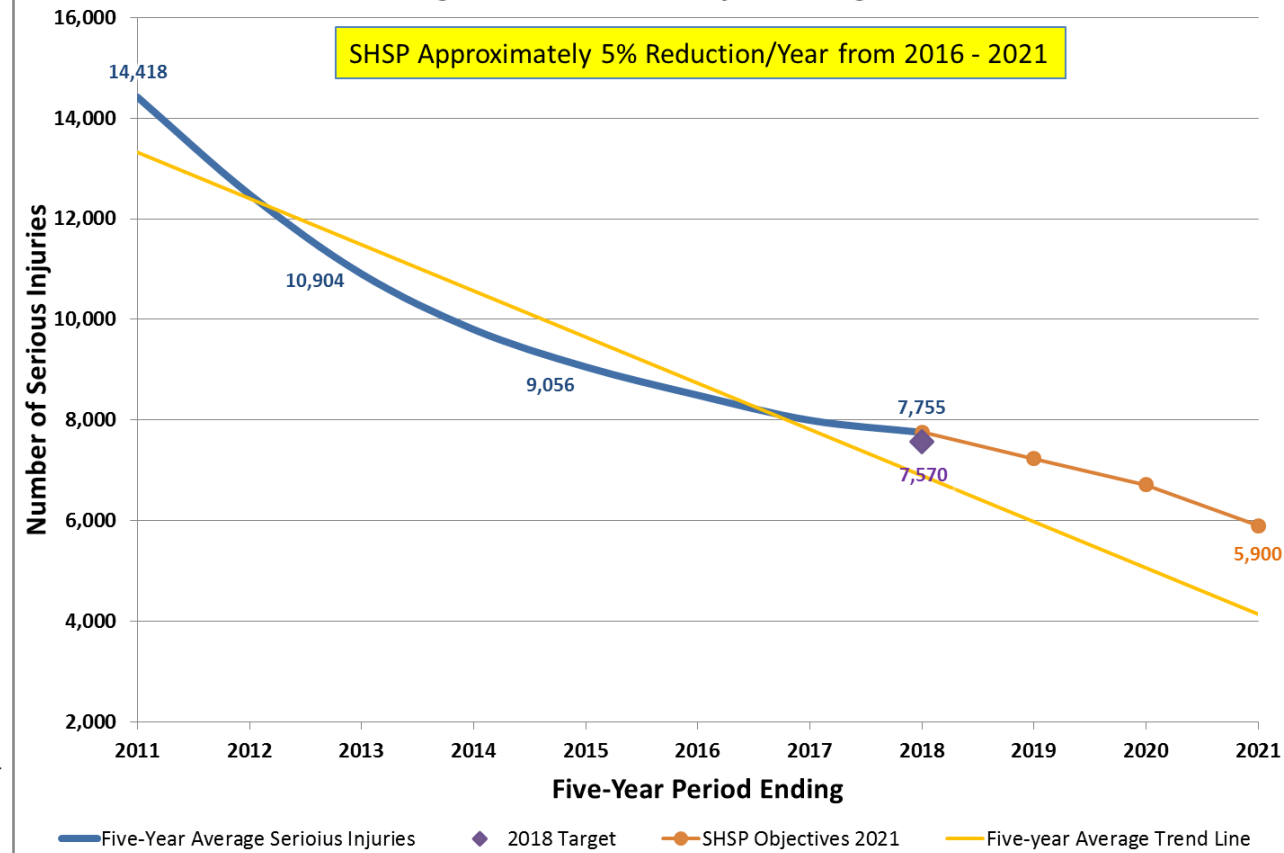# Virginia Severe Crash Outcomes – 2018 Targets

Virginia 2018 Fatalities Target

SHSP Approximately 2% Reduction/Year from 2015 - 2021

- 823
- 745
- 747
- 776
- 722
- 709
- 696
- 683
- 670

Number of Fatalities / Five-Year Period Ending

Legend: Five-Year Average Annual Fatalities · 2018 Target · SHSP Objectives 2021 · Five-Year Average Trend Line

Virginia 2018 Serious Injuries Targets

SHSP Approximately 5% Reduction/Year from 2016 - 2021

- 14,418
- 10,904
- 9,056
- 7,755
- 7,570
- 5,900

Number of Serious Injuries / Five-Year Period Ending

Legend: Five-Year Average Serioius Injuries · 2018 Target · SHSP Objectives 2021 · Five-year Average Trend Line

VDOT

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2020 Targets: Analyze External Factors Influence

The development of the predictive model included three steps:

1. Statistical model development and calibration to establish baseline conditions

2. Model validation (2018 data)

3. Forecast external risk factors for 2019 and 2020 measure predictions

Safety Measure (by District & Month) **=** **Exposure** (Vehicle Miles) **X** **External Risk Factors** (by District and Month)
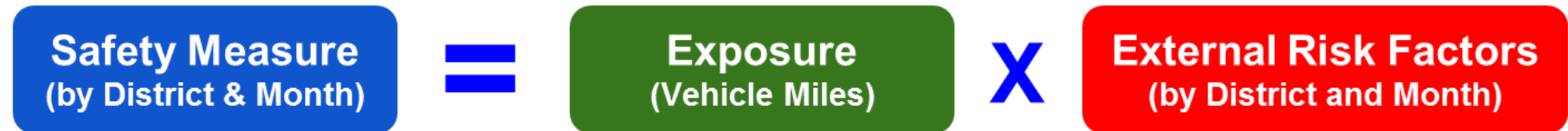
Baseline Safety Prediction Models

Assessed models for Fatalities and Serious Injuries using the following external factors

Social Economic Data

- District Annual Total Population
- Annual Labor Force
- Annual Unemployed
- Median Household Income
- Statewide Annual GDP
- Statewide Annual Alcohol consumption
- Liquor Licenses by Type
- ABC Stores – Gallons Sold
- Average Gas Price

Veh. Miles Travelled

- Urban and Rural VMT

Transportation Spending

- VDOT Infrastructure Programs
- DMV HSO Behavioral Spending

Weather

- Average Precipitation
- Average Snowfall

Findings from Fatality Model

Increases fatal crashes -

- District VMT growth
- Increasing local functional class percent of VMT
- Increasing young population (15-24)
- Increasing aging population (75 plus)

Decreases fatal crashes-

- Increased Highway 3R Spending
- Increased Emergency/Incident Management Spending
- Increased Total Behavioral Program Spending

Findings from Serious Injury Model

Increases serious injury crashes -

- District VMT growth
- Increasing local functional class percent of VMT
- Increasing aging population (75 plus)

Decreases serious injury crashes-

- Increased Roadway Maintenance Spending
- Increasing Average Snowfall in Month

Findings from Bike/Ped Model

Increases severe crashes -

- District VMT growth
- Increasing local functional class percent of VMT
- Increasing young population (15-24 years)
- Liquor Licenses

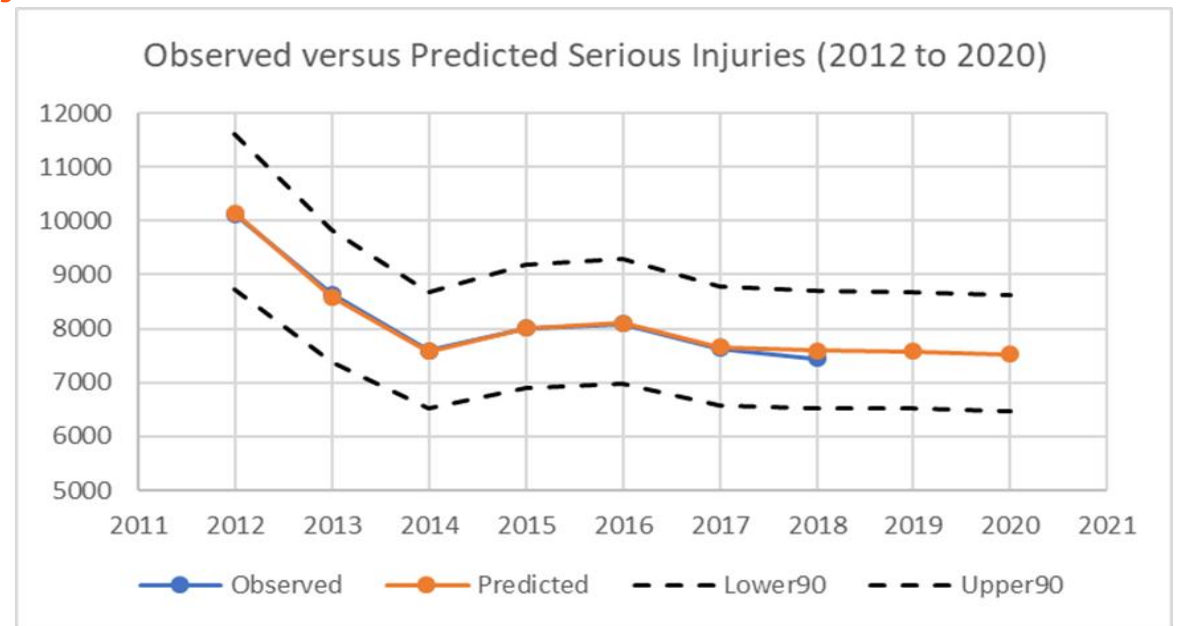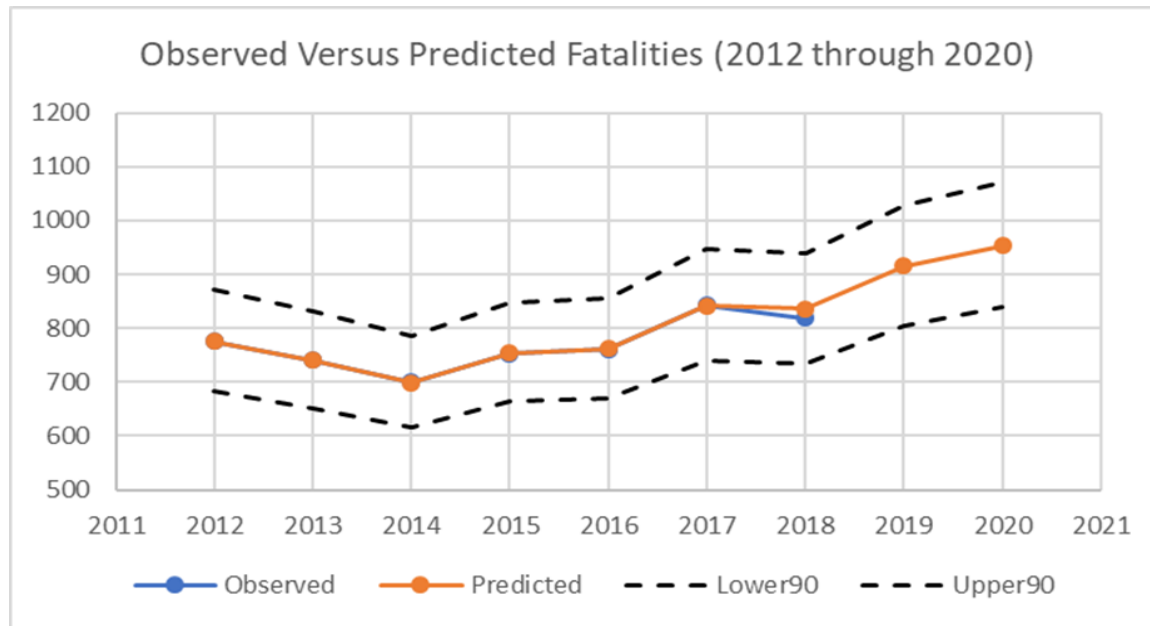**Decreases severe crashes-**

- Increasing Roadway Construction Spending
- Increasing rural functional class percent of VMT
- Increasing Non-motorized Behavioral Program
- Increasing gas price
- Increasing Average Snowfall in Month

Baseline Predictions

2020 Model Predictions

- Fatalities = **954**

- Serious Injuries = **7,520**

- Bike/Ped Fatalities + Serious Injuries = **714**

2020 Data-Driven Targets: Inc. Project Benefits

Combined the baseline predictions with the expected SMART SCALE and HSIP project benefits to establish data-driven targets

Description	Fatalities	Fatality Rate	Serious Injuries	Serious Injury Rate	Ped/Bike Fatalities + Serious Injuries
2020 Baseline Model Prediction	954	1.08	7,520	8.52	714
Expected Project Reductions	- 3.6	-	- 47.4	-	- 3.4
Final 2020 Targets	**950**	**1.07**	**7,473**	**8.45**	**711**
2019 Targets	**840**	**0.94**	**7,689**	**8.75**	**714**

Virginia's Local Safety Partnership Efforts

Infrastructure (Engineering)- More systemic treatments

Intersections:

- Signal Systems – adaptive retiming and preparing for CAV
- Visibility – advance warning and naming, reflective back plates, flashing yellow arrow, enhanced signing and marking, lighting

Bicycle and Pedestrian (Ped Safety Action Plan):

- Warning and crossing signing and marking
- Pedestrian signals, leading pedestrian interval and flashers
- Speed Limit setting

Roadway Departure

- Delineation – curve warning signs, improved marking materials and width
- Recovery – rumble strips, pavement wedge, fixed object removal

Virginia's Local Safety Partnership Efforts

Infrastructure- Multi-modal SMART SCALE, Maintenance & Developer Projects

Intersections:

- Innovative Designs– reduce conflicts and speed
- Access Management – consolidate and interconnect
- Transit /TDM – incorporate into design and adjacent sites

Bicycle and Pedestrian :

- Master and site planning for land-use and non-motorized accommodations
- Adding accommodations and ADA accessibility

Corridors:

- User context sensitive – modes, design for target speed, roadside
- Update infrastructure – traffic control devices, guardrail, pavement friction, shoulders

Virginia's Local Safety Partnership Efforts

Enforcement, Education, and Emergency Response – Collaboration, Committees and Coalitions

Safety Plans:

- Jurisdictional or Regional (e.g., NVTA) – issues, locations, and actions

4-Es Working Together:

- Form local Safety Committee, such as Blue Ridge Transportation Safety Board
- Incorporate Enf, Edu, and ER into safety assessments, e.g., Roanoke Co Police
- Consider crime and traffic safety enforcement collaboration
- Engage Regional DUI Task Force
- Include public health initiatives

Coalitions:

- Use social media with safety partners – VDOT/DMV, Drive Smart, AAA, WRAP
- Promote safety campaigns with business partners
- Consider highway safety in school curriculums
- Coalesce on common sense legislation

Virginia's National Safety Engagement

Research, development and education

FHWA:

- Pooled Funds to study treatment effectiveness (expected crash reductions)
- Provide input and support Every Day Counts safety initiatives (treatments that work)
- Organize and participate in peer exchanges and training
- Liaison for VA research findings, national publications and web content

Trans. Research Board / Nat'l Cooperative Hwy. Research Program:

- Submit research problem statements
- Engage in committee efforts and research reviews
- Learn from international best practices

American Assoc. of State Hwy. Transportation Officials:

- Safety Subcommittees – TZD, Data and Analysis, Publications and Methods
- Annual coordination and collaboration meetings
- Leading update and additions to Highway Safety Manual methods for safety planning and project assessment

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