



Proactive Approach to Safety Funding

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Highway Safety Improvement Programs

Virginia's 2005-2010 Strategic Highway Safety Plan

- 119 strategies and details all safety efforts in Virginia from multiple perspectives
 - Transportation, Enforcement, Health, and Education
 - Human, Roadway, Data, and Planning
- **Goal:** 100 lives saved and 4,000 injuries prevented in 2010

Key Plan Elements

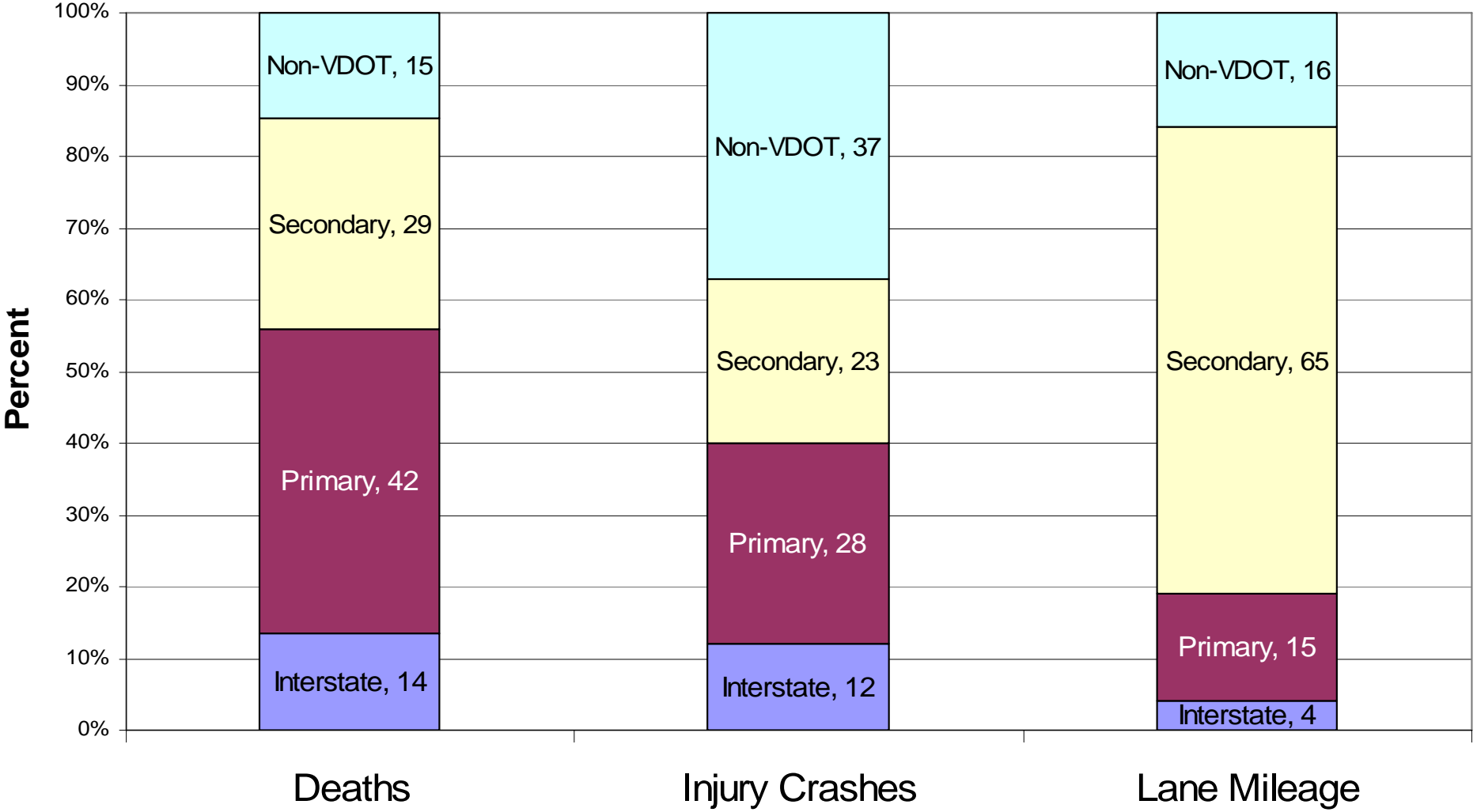
- Presents Transportation Safety as a health issue
- Emphasizes development of a safe driving culture
- Raises public awareness about dangerous driving behaviors
- Focuses on drivers that are:
 - Young
 - Aggressive
 - Impaired
 - Unbelted
- Recommends strengthened legislation, education, enforcement, & adjudication to change poor driving behavior

Key Engineering Plan Elements

- Roadway Departures
 - Keep drivers on the roadway
 - Minimize consequences when they leave
- Intersection Safety
 - Congested Areas
 - All users - Bicycle and Pedestrian
- Incorporate Transportation Safety Planning into all levels of government
- Improve traffic records to be more accurate and timely

Deaths and Injuries by System

Deaths and Injury Crashes by System versus Lane Mileage



FHWA Safety Funding

(x \$1,000)

	Year	HSIP - Safety		STP - Penalty Transfer		STP- Safety	Total
		HES/HSP (1)	BPS (2)	Highway	Bike and Ped	H-RGC (3)	
TEA-21	FY 2003-04	\$8,710	\$1,243	\$3,700	\$5,000	\$8,710	\$27,363
	FY 2004-05	\$7,886	\$972	\$2,414	\$6,286	\$7,105	\$24,663
	FY 2005-06	\$14,230	\$2,702	\$3,000	\$5,700	\$7,325	\$32,957
SAFETEA-LU	FY 2006-07	\$45,901	\$5,100	\$1,638	\$5,556	\$5,029	\$63,224
	FY 2007-08	\$32,236	\$3,582	\$336	\$8,306	\$4,526	\$48,986
	FY 2008-09	\$31,642	\$3,269		\$8,700	\$4,500	\$48,111
	FY 2009-10	\$29,704	\$3,054		\$8,700	\$4,517	\$45,974
	Total	\$170,309	\$19,922	\$11,088	\$48,248	\$41,712	\$197,193

Notes:

1. Highway Safety Program (HSP) - Section 148
2. Bicycle and Pedestrian Safety - Section 148 Eligible.
3. Highway-Rail Grade Crossing - Section 130

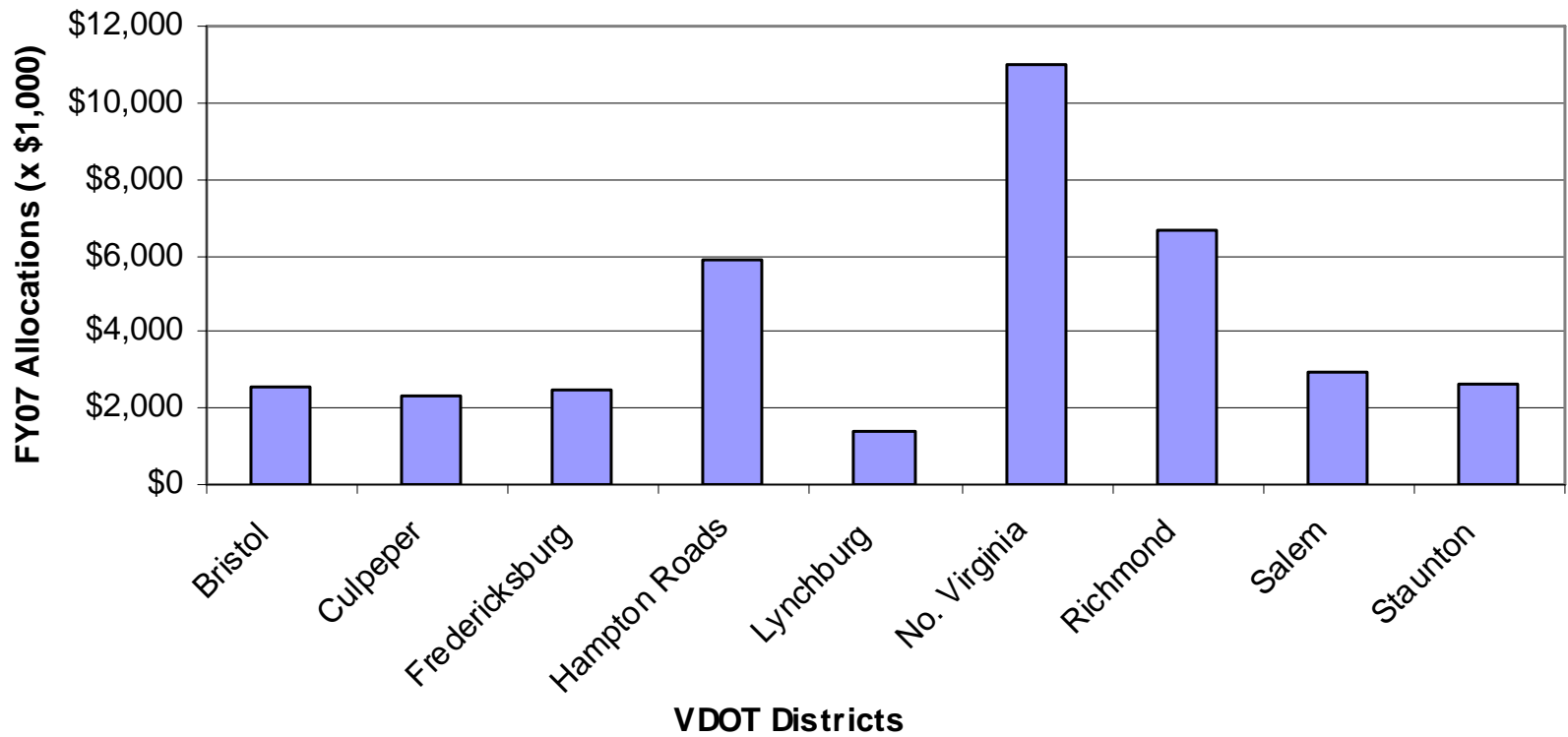
HSIP Funding of Proactive Safety Actions

- **FY 2007**
 - \$38M for improvements in high crash Primary and Interstate corridors (9 line items per district)
- **FY 2008**
 - \$20M for improvements in top 20 jurisdictions (10 cities and 10 counties with most deaths & injuries)
- **FY 2009***
 - \$15M to support Action Plan initiatives in each District
- **FY 2010***
 - \$12M to support Action Plan initiatives in each District

* Urban (City) and VDOT maintained roadways eligible

District-wide Proactive HSIP on Primary and Interstate

FY07 HSIP Funding For High Crash Safety Corridors



Prioritize High Crash Corridors

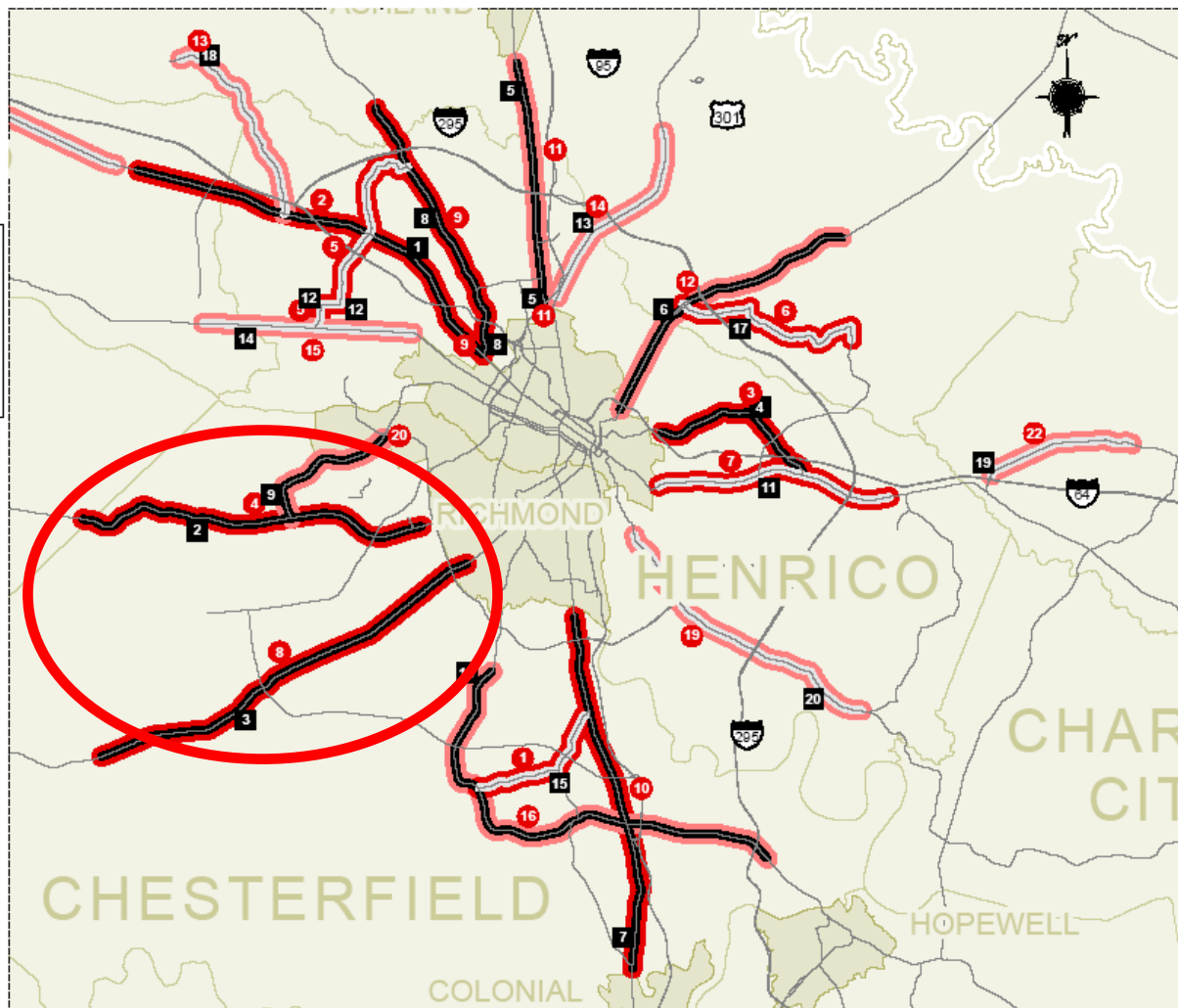
RICHMOND DISTRICT (inset) Highway Safety Corridor Candidate Segments US Highway & VA Primary System



* Crash Rate per 100M VMT above district average with 99% confidence.
** Density Rate based on fatal & injury crashes per mile.

**Focus on corridors
with highest death
+ injury densities**

**Allocated \$38M
HSIP funds for
RSA treatments**



Ranked for STARs&RTE Detailed Analysis

Legend

Intersection Crashes between 2004 - 2006

Total Fatalities

- 1
- 2
- 3

Total Fatalities & Injuries

- 3 - 8 (75%)
- 9 - 12 (15% - 25%)
- 13 - 20 (5% - 15%)
- 21 - 38 (1% - 5%)
- 39 - 57 (>1%)

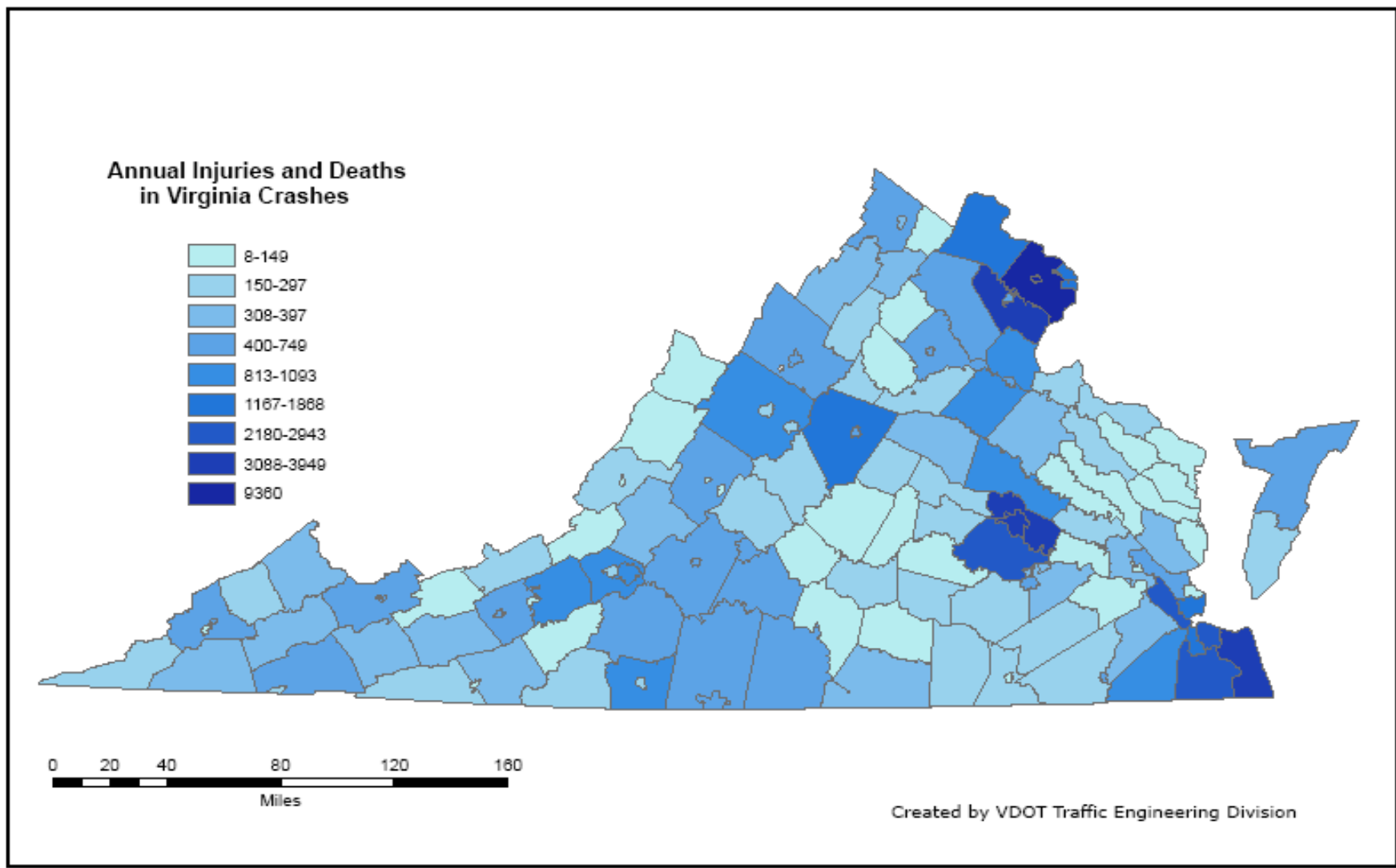
Interstate
 Primary
 Other

Highway Safety Corridors with LOS D,E, & F
 Highway Safety Corridors

Systems Operations Regions
 Virginia Jurisdictions
 Virginia Major Water Bodies
 Virginia Jurisdictions



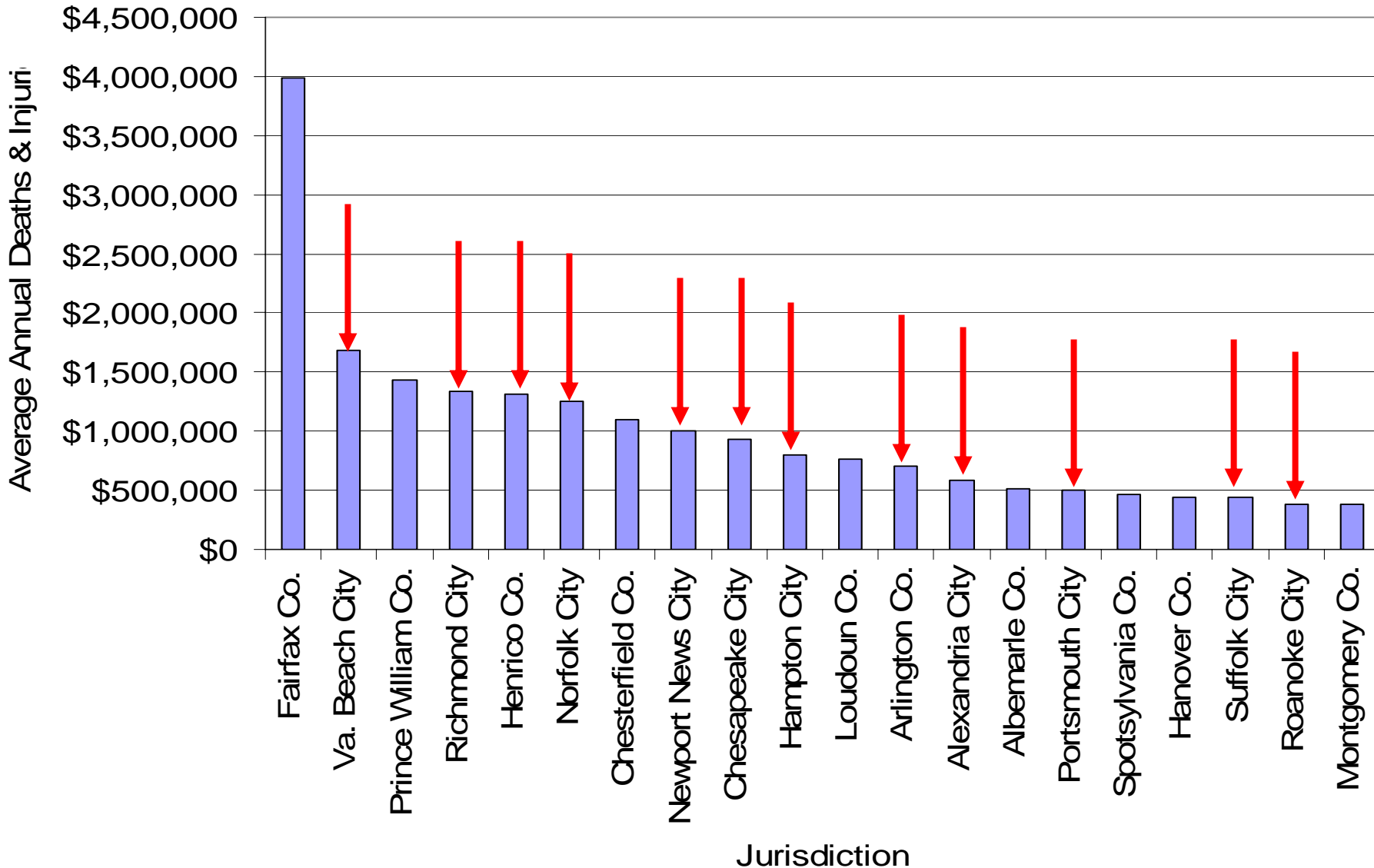
Strategic Plan Deaths & Injuries by Jurisdiction



Top Localities for Injury and Death (2001-05 Annual Average)

• Fairfax	9,360	• Loudon	1,802
• Virginia Beach	3,949	• Arlington	1,653
• Prince William	3,360	• Alexandria	1,380
• Richmond	3,126	• Albemarle	1,194
• Henrico	3,088	• Portsmouth	1,167
• Norfolk	2,943	• Spotsylvania	1,093
• Chesterfield	2,570	• Hanover	1,025
• Newport News	2,357	• Suffolk	1,025
• Chesapeake	2,180	• Roanoke	908
• Hampton	1,868	• Montgomery	905

Proactive HSIP Funding by Jurisdiction (\$20M)



Virginia's Proactive Funding Approach for Safety Project Development

Proactive HSIP Guidelines

1. **Transportation Safety Planning (TSP)** - Conduct **safety planning** to identify the high severe crash locations within a known high severe crash jurisdiction or corridor
2. **Roadway Safety Assessment** - Perform a **detailed crash analysis** and safety assessment review for candidate countermeasure development
3. **HSIP Funding** - Submit **roadway safety assessment** report and benefit-cost analysis for proposed improvements to VDOT's Highway Safety Improvement Program
4. **Implement Project - Execute** approved improvement projects in a timely manner
5. **Evaluate Effectiveness** - Track project completion and **report crash experience** after three years from completion

Transportation Safety Planning: Top Severe Crash Density List

- Locally maintained jurisdictions must provide a listing of the top high severe crash intersections (and segments if known) indicating crash severity.
- This information will be used to generate the required annual top 5% high crash location report to FHWA. The high crash location information is generated by HSIP staff for VDOT maintained jurisdictions.

Ranked Intersection Listing

- **Minimum Submittal** – *Top 50 intersection locations with most deaths and injuries from crashes*

Jurisdiction Severe Crash Intersections														
Int_No	Major_Route_Name	Minor_Route_Name	Traffic_Control	Approach_Legs	Year	PDO_Crashes	Inj_Crashes	Fatal_Crashes	Total_Crashes	People_Injured	People_Killed	PI+PK_Rank	Tot_Crash_Rank	Recer_Improv
123	Main Street	Washington Avenue	Sig	4	2004							1	7	ped sign: in 2006
					2005									
					2006									
					Total									
124	Main Street	Adams Avenue	Sig	4	2004							2	1	
					2005									
					2006									
					Total									
125	Main Street	Jefferson Avenue	Sig	4	2004							3	3	
					2005									
					2006									
					Total									
126	Main Street	Madison Avenue	Sig	4	2004							4	2	
					2005									
					2006									
					Total									
127	Main Street	Monroe Avenue	Sig	4	2004							5	5	
					2005									
					2006									
					Total									

Detailed Crash Analysis & Roadway Safety Assessments

- **Minimum Submittal** – *Location/corridor specific RSA detailing the crash history, existing conditions and proposed countermeasures*
1. Conduct crash analysis and Roadway Safety Assessments on the critical locations following VDOT's guidelines
 2. Identify a range of short, medium and long term safety countermeasures

Safety Improvements Funded

The RSA steps that will be used to develop HSIP projects are:

- Conduct a detailed crash data analysis for the location
- Select a multidisciplinary RSA team
- Review crash data and related information with RSA team
- Perform field review under various conditions as crash data details
- Review information gathered to conduct safety evaluation and propose countermeasures
- Report findings and recommendations
- Present recommended countermeasures and HSIP application for approval

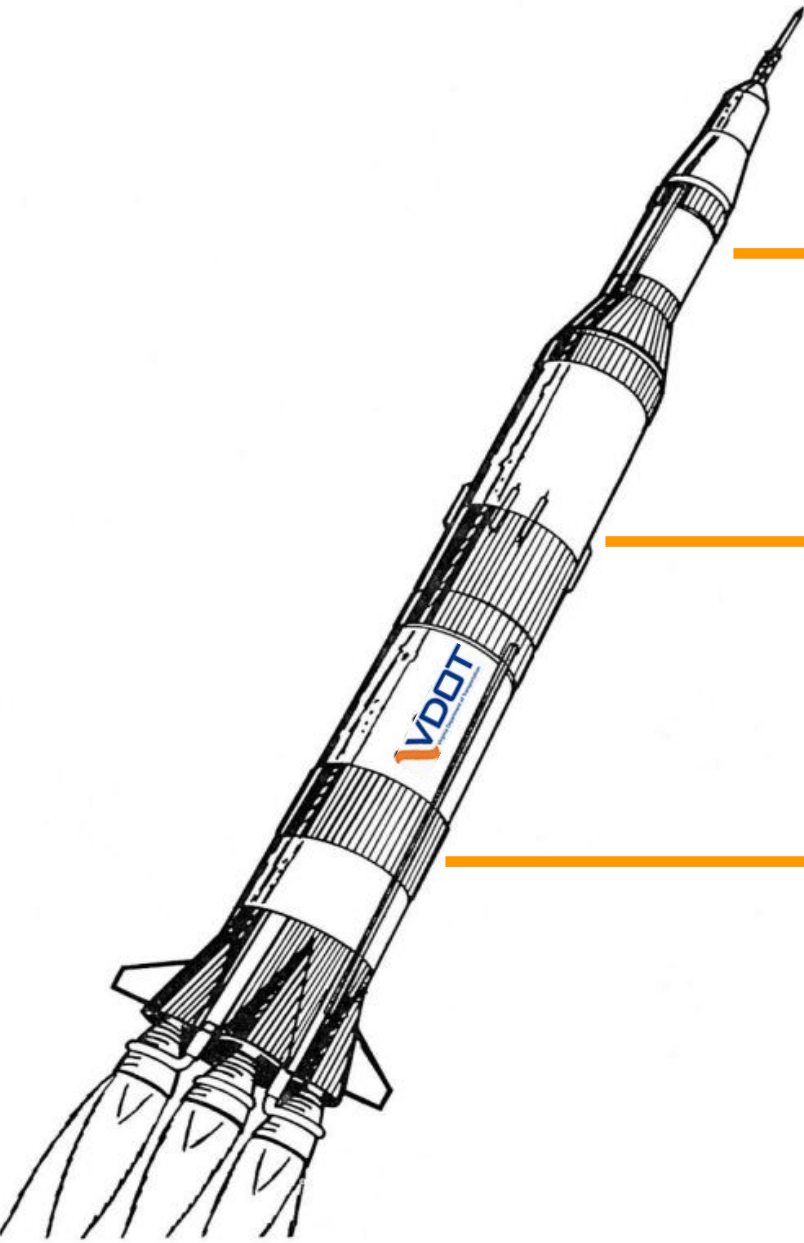
RSA eligible for HSIP funds – set up PE project for studies and design of improvements

Project Categories

Short-term	1. Roadway maintenance and operations related treatments that can be implemented within a few months
Intermediate	2. HSIP allocation eligible projects with minimal impacts that can be implemented in one or two years, such as: <ul style="list-style-type: none"> a. Guardrail b. Traffic Signs c. Traffic Signals & ITS d. Pavement Marking e. Roadway Lighting f. Roadside Safety including pedestrian facilities g. Shoulder Improvement including turn lane modifications h. Rumble Strips
Long-term	3. Construction projects with more environmental and right-of-way impacts that require three or more years for project development. These may be submitted as annual HSIP application or funded with other capital improvement funds.



Prioritize Improvements



Stage III (36+ months)
TIP with ROW

Stage II (12-36 months)
HSIP / CMAQ / TE Projects with no ROW

Stage I (0-12 months)
Signal Optimization / Maintenance Fix

Fuel =
Crash Analysis / RSA
Turning Movement Counts / Traffic Signal Model

Quick HSIP Application

[//www.virginiadot.org/business/ted_app_pro.asp](http://www.virginiadot.org/business/ted_app_pro.asp)

- Document Benefit to Cost (B/C) ratios for proposed countermeasures with known crash reduction factors or provide a risk reduction narrative for those unknown, such as bike and pedestrian improvements.
- Submit Roadway Safety Assessment report with application to VDOT requesting location specific safety improvement projects
- VDOT-TED reviews for approval-Programming generates child UPC

Project Development

1. **Submit RSA** report memo **and HSIP application** Benefit/Cost spreadsheets to HSIPProgram@VirginiaDOT.org
2. **HSIP staff review** will approve, suggest revisions or deny proposed safety improvement scope and funding allocation within two weeks
3. The regional or jurisdiction traffic engineer who proposed the project and the VDOT district PE and Local Assistance will be notified that a **new approved project** will be developed
4. HSIP staff will forward District PE and/or Local Assistance staff information needed to **generate new (child) project in Six-Year Plan Project Pool** and submit form(s) to Programming division to transfer funds from the parent project
5. VDOT District PE or Local Assistance requests Programming Division for **TIP/STIP action**, preferably an adjustment not an amendment, depending on the expected impacts, and then authorization for each phase of the project.

Build Safety Improvement and Evaluate Effectiveness

- Construct Safety Improvement and record completion date
- Three years later, report before and after crash statistics to VDOT for evaluation of effectiveness of countermeasure.