

Virginia's HRRR Program

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Outline...

- ① Introduction HRRR
- ② VA Roadways and Crash Summary
- ③ Virginia's HRRR Program
- ④ Conclusion

High Risk Rural Roads

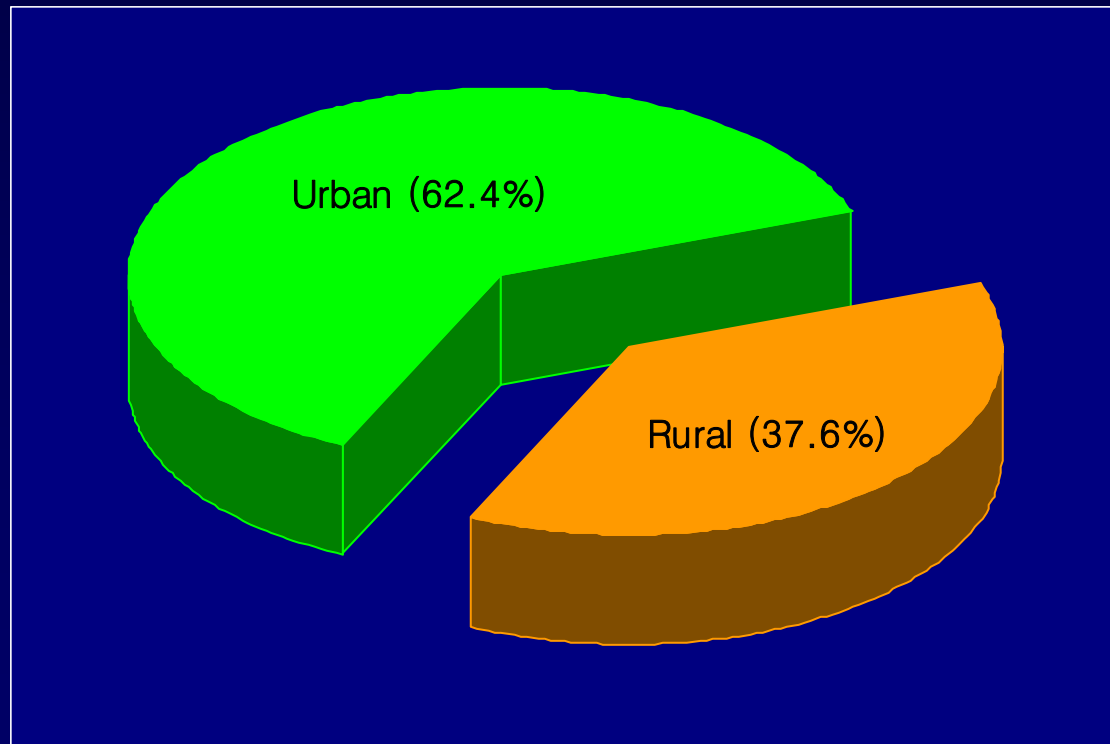
- For reducing traffic fatality and incapacitating injuries on rural roadways
- Eligible Roads per SAFETEA-LU
 - “..on roadway functionally classified as”
 - ***Rural Major Collector***
 - ***Rural Minor Collector***
 - ***Rural Local***

Virginia's Roads

Roadway Functional Class

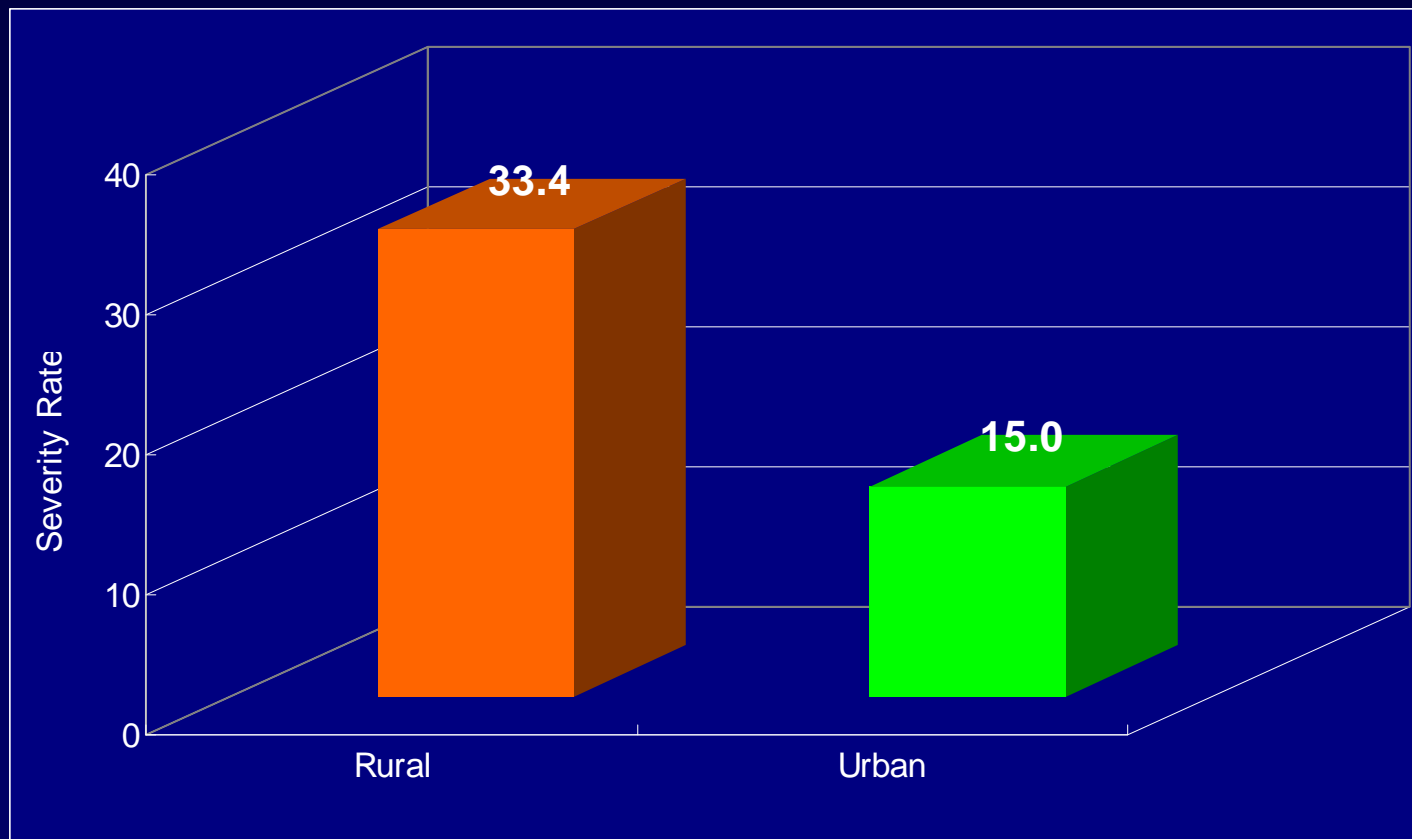
1	Rural Interstate
2	Rural Principal Arterial
3	Rural Minor Arterial
4	Rural Major Collector
5	Rural Minor Collector
6	Rural Local
A	Urban Interstate
B	Urban Freeway/Expressway
E	Urban Principal Arterial
H	Urban Minor Arterial
I	Urban Collector
J	Urban Local

- VA DVMT = 225 million miles
- VA Road Length = 72,676 miles



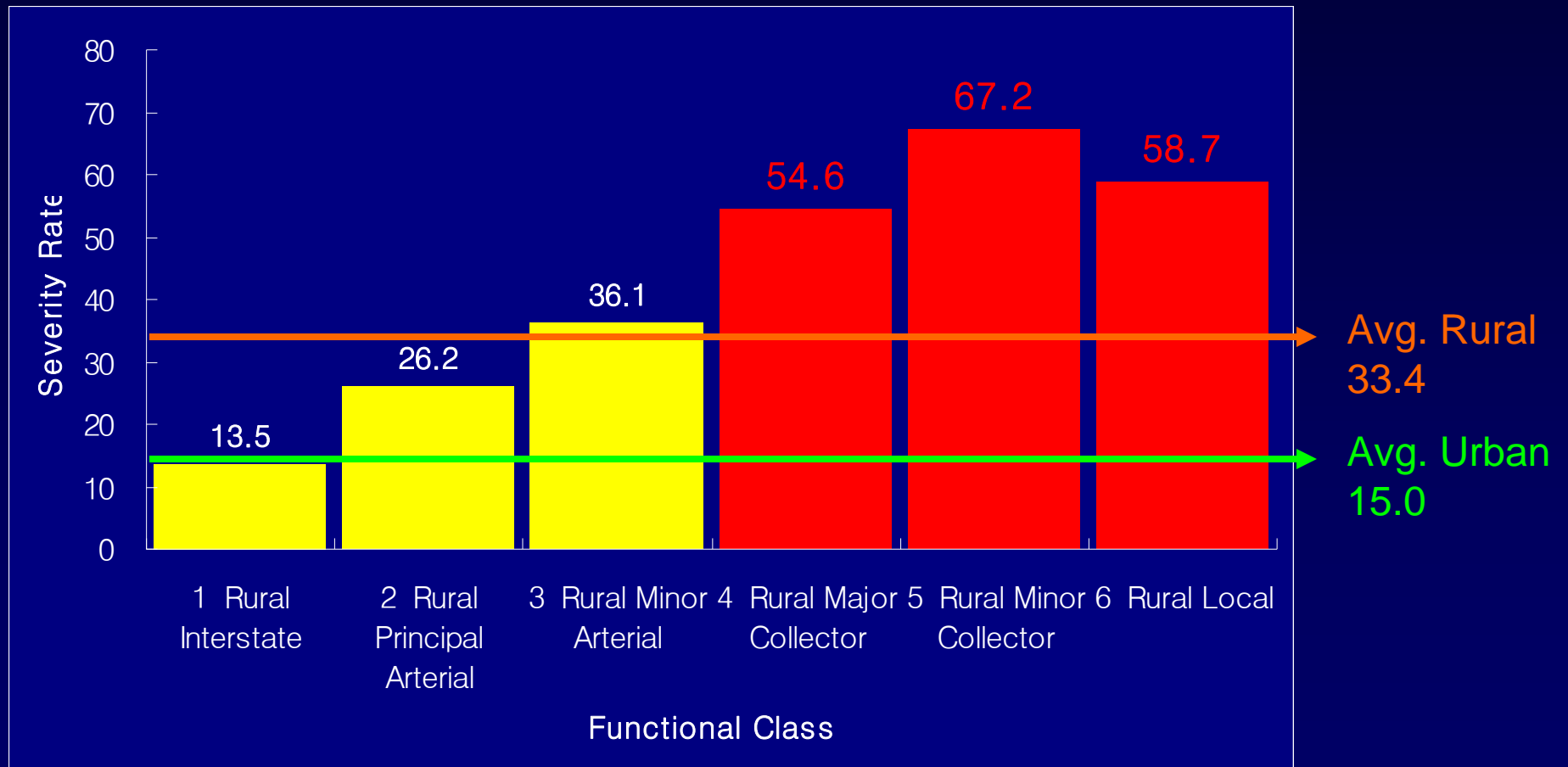
Virginia's Crash and Severity Rates

- Avg. Severity Rate
- Avg. Crash Rate



Based on 2003 – 2007 Crash

Virginia Rural Roads Severity Rate



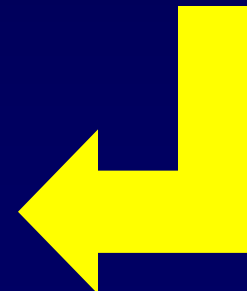
Virginia's HRRR Program

- FHWA funds \$2M / Yr
- Need to focus on hot spots to maximize benefit from the limited funds

Functional Class	Road Length (Miles)
Rural Major Collector	9,293
Rural Minor Collector	2,440
Rural Local	33,062
TOTAL	44,796

Based on 2007 Inventory

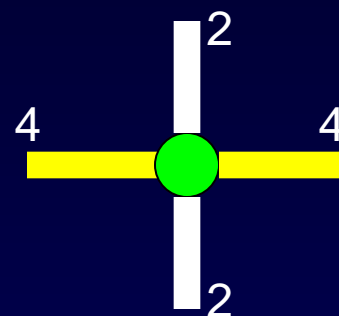
Roadways	Fatal or Incapacitating Injured People
Segment	19,665 (76.1%)
Intersection	6,161 (23.9%)



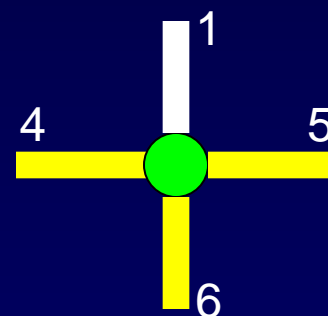
HRRR Intersection Identification

Functional Class

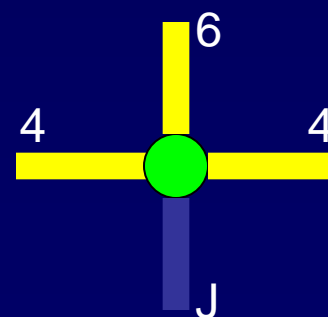
1. Rural Interstate
2. Rural Principle Arterial
3. Rural Minor Arterial
- 4. Rural Major Collector**
- 5. Rural Minor Collector**
- 6. Rural Local**
- A. Urban Interstate
- B. Urban Freeway/Expressway
- E. Urban Principle Arterial
- H. Urban Minor Arterial
- I. Urban Collector
- J. Urban Local



= 42 (Eligible)



= 41 (Eligible)



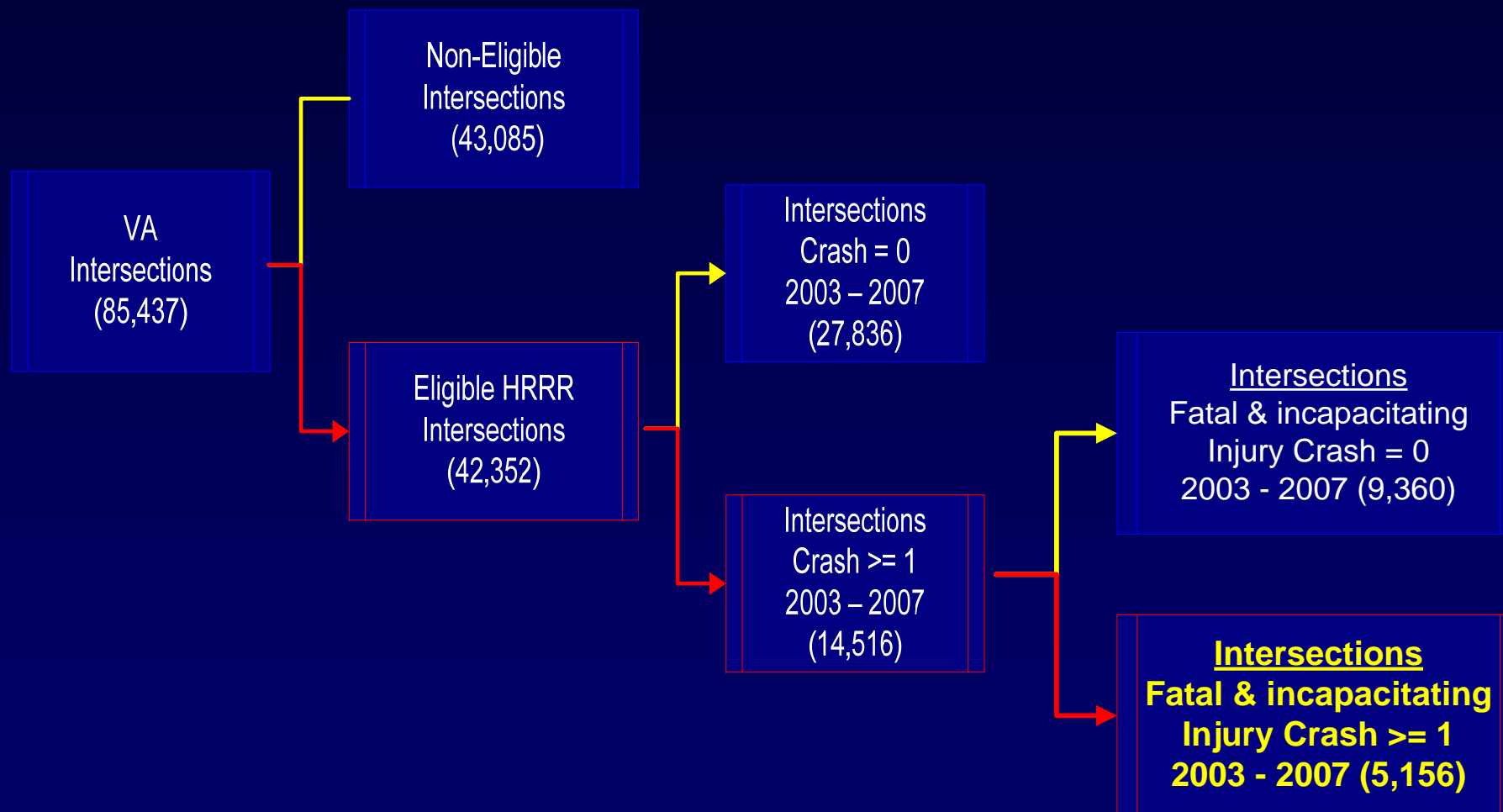
= 4J (Not Eligible)

HRRR Intersection Category

HRRR ID	Description
41	Rural Major Collector - Rural Interstate
42	Rural Major Collector - Rural Principle Arterial
43	Rural Major Collector - Rural Minor Arterial
44	Rural Major Collector - Rural Major Collector
45	Rural Major Collector - Rural Minor Collector
46	Rural Major Collector - Rural Local
51	Rural Minor Collector - Rural Interstate
52	Rural Minor Collector - Rural Principle Arterial
53	Rural Minor Collector - Rural Minor Arterial
55	Rural Minor Collector - Rural Minor Collector
56	Rural Minor Collector - Rural Local
61	Rural Local - Rural Interstate
62	Rural Local - Rural Principle Arterial
63	Rural Local - Rural Minor Arterial
66	Rural Local - Rural Local

- Crash Data Analysis
 - 2003 – 2007 Crash Data
 - Intersection Related Crash Only (Offset \leq 250 ft)

Network Screening – Step 1



Network Screening – Step 2

Applied Threshold

- 1. Intersections have no Safety Improvement during last 24 and next 12 months*
- 2. Fatal & Incapacitating Crash Frequency ≥ 5 AND*
- 3. Fatal & Incapacitated Injured People ≥ 5 OR*
- 4. % of Fatal & Incapacitating Crash $\geq 40\%$*

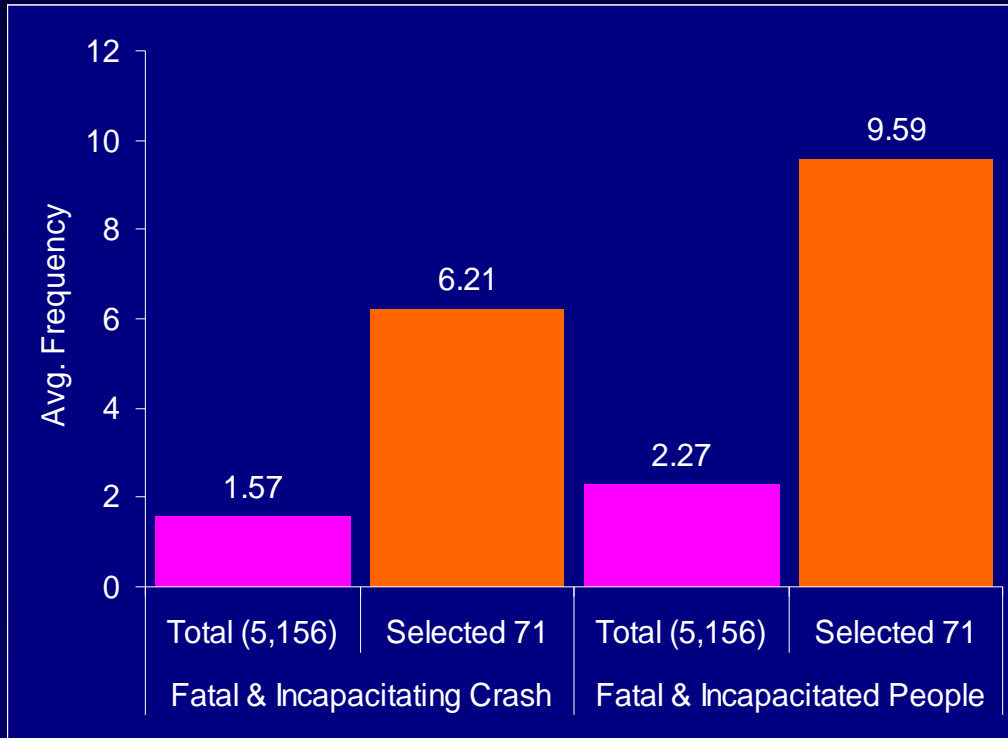
Measured by

- 1. Crash Frequency (CF)*
- 2. Crash Rate (CR)*
- 3. Severity (people) Frequency (SF)*
- 4. Severity (people) Rate (SR)*

Final Rank by

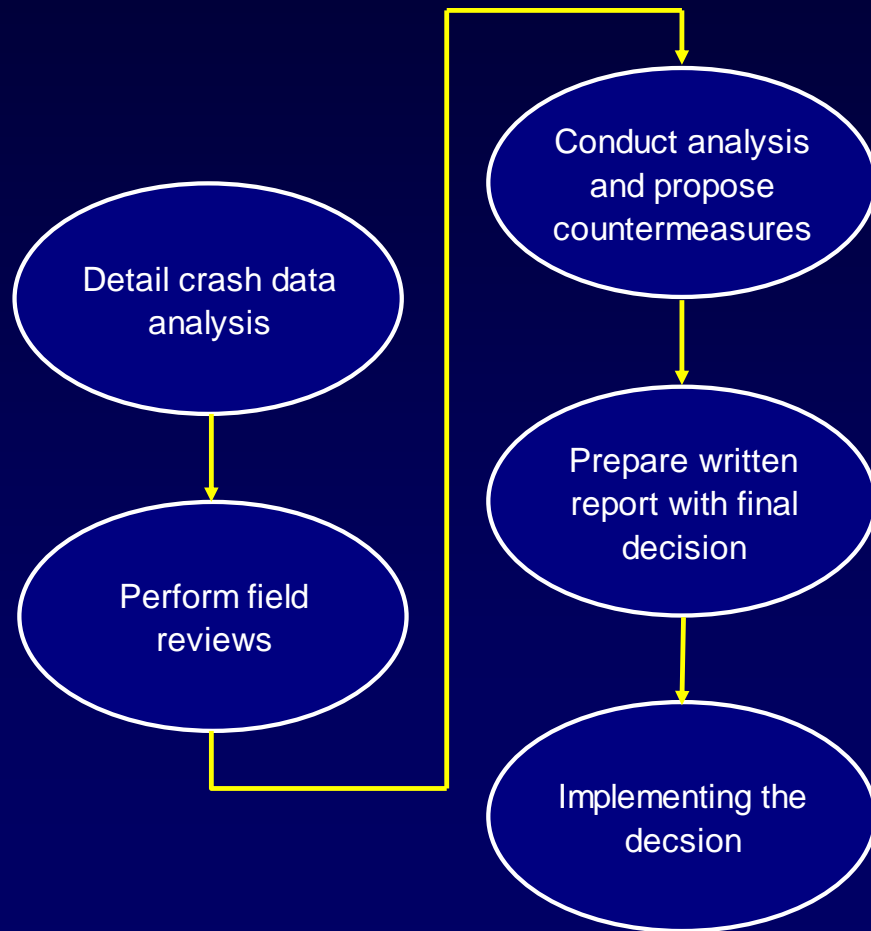
$$FR = \frac{\text{Rank}(CF) + \text{Rank}(CR) + \text{Rank}(SF) + \text{Rank}(SR)}{4}$$

Identified 71 Severe Crash Intersections for HRRR Program



District	# of Intersections	%
1 Bristol	6	8.5
2 Salem	12	16.9
3 Lynchburg	14	19.7
4 Richmond	4	5.6
5 Hampton Roads	13	18.3
6 Fredericksburg	12	16.9
7 Culpeper	6	8.5
8 Staunton	4	5.6
9 NOVA	0	0.0
TOTAL	71	100.0

RSA for Improvement Safety

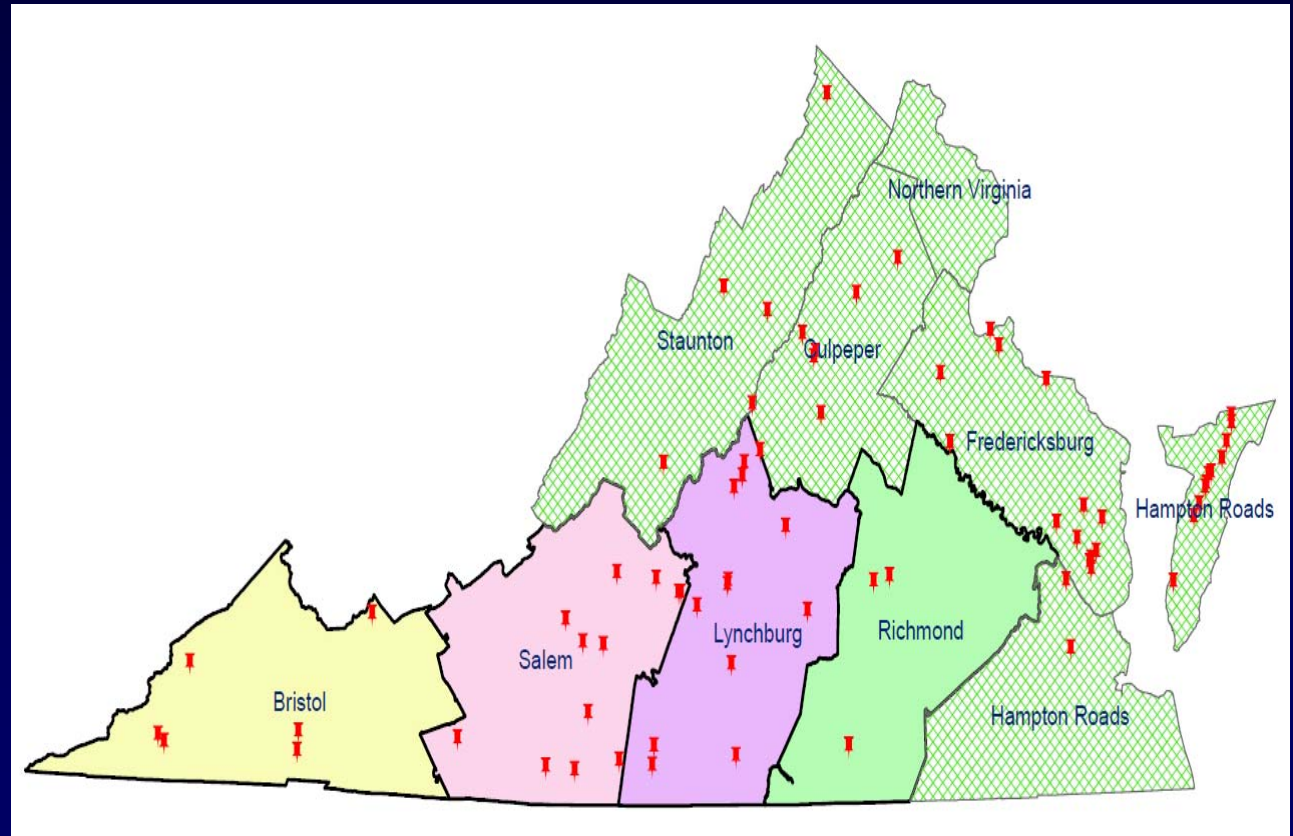


Countermeasures

- Short-term
- Intermediate
- Long-term

Current Status

- 71 Intersections to be reviewed
 - 35 intersections are finalizing countermeasures
 - 36 intersections are reviewing countermeasures



Conclusion

- Rural roadways have higher severity than urban.
- Most of State DOTs are struggling to identify eligible locations for implementing HRRR program.
- VDOT proposes a systematic approach to conduct HRRR program, especially for intersections, to use the funds.
- Implementing examined countermeasures at the 71 intersections would reduce severity and improve safety on rural roadways.

Questions?