

# Virginia DOT's Active Traffic & Safety Management System

August 28, 2013



# *Problem*

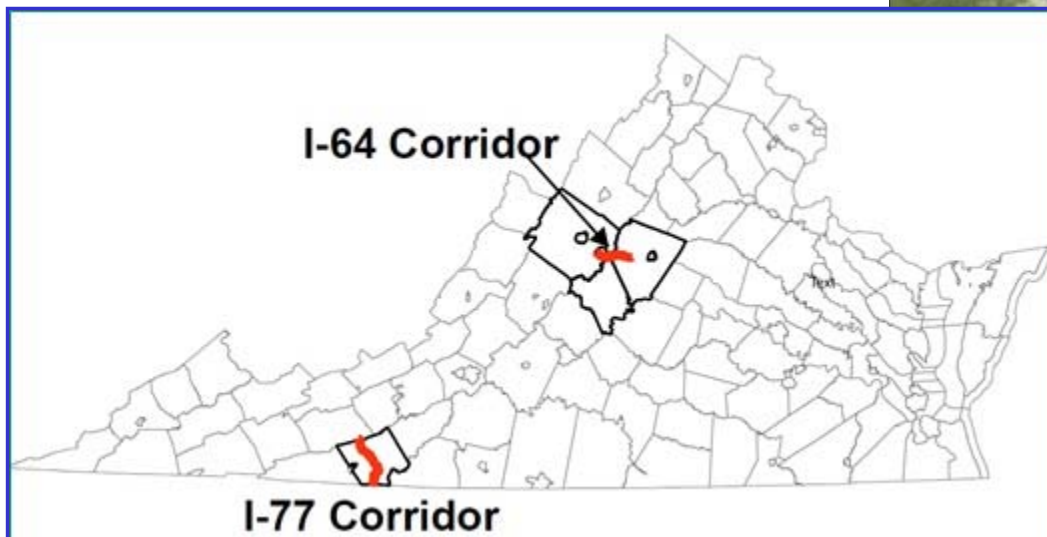
- **Problem: High percentage of multi-car crashes in low visibility conditions**

**Three dead in 95-car pileup near Virginia, North Carolina state line**



# Corridors

- I-64 and I-77 Corridors

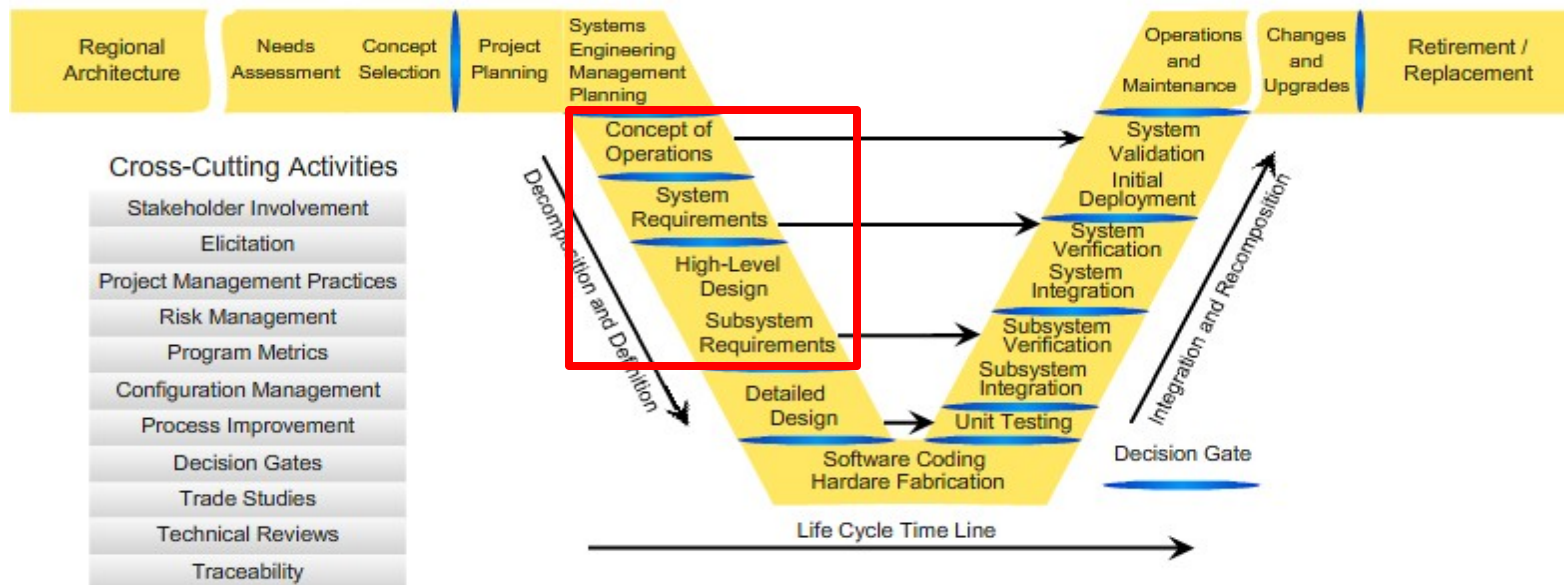


## *Previous Work*

- Report on reducing fog-related crashes in 2002 that identified several safety countermeasures
- Installed some safety countermeasures
- Safety analysis updates in 2006/2007 and in 2011/2012 to verify remaining countermeasures are valid

# Systems Engineering Process

Phase -1	Phase 0	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Interfacing with Planning and the Regional Architecture	Concept Exploration and Benefits Analysis	Project Planning and Concept of Operations Development	System Definition and Design	System Development and Implementation	Validation, Operations and Maintenance, Changes & Upgrades	System Retirement / Replacement



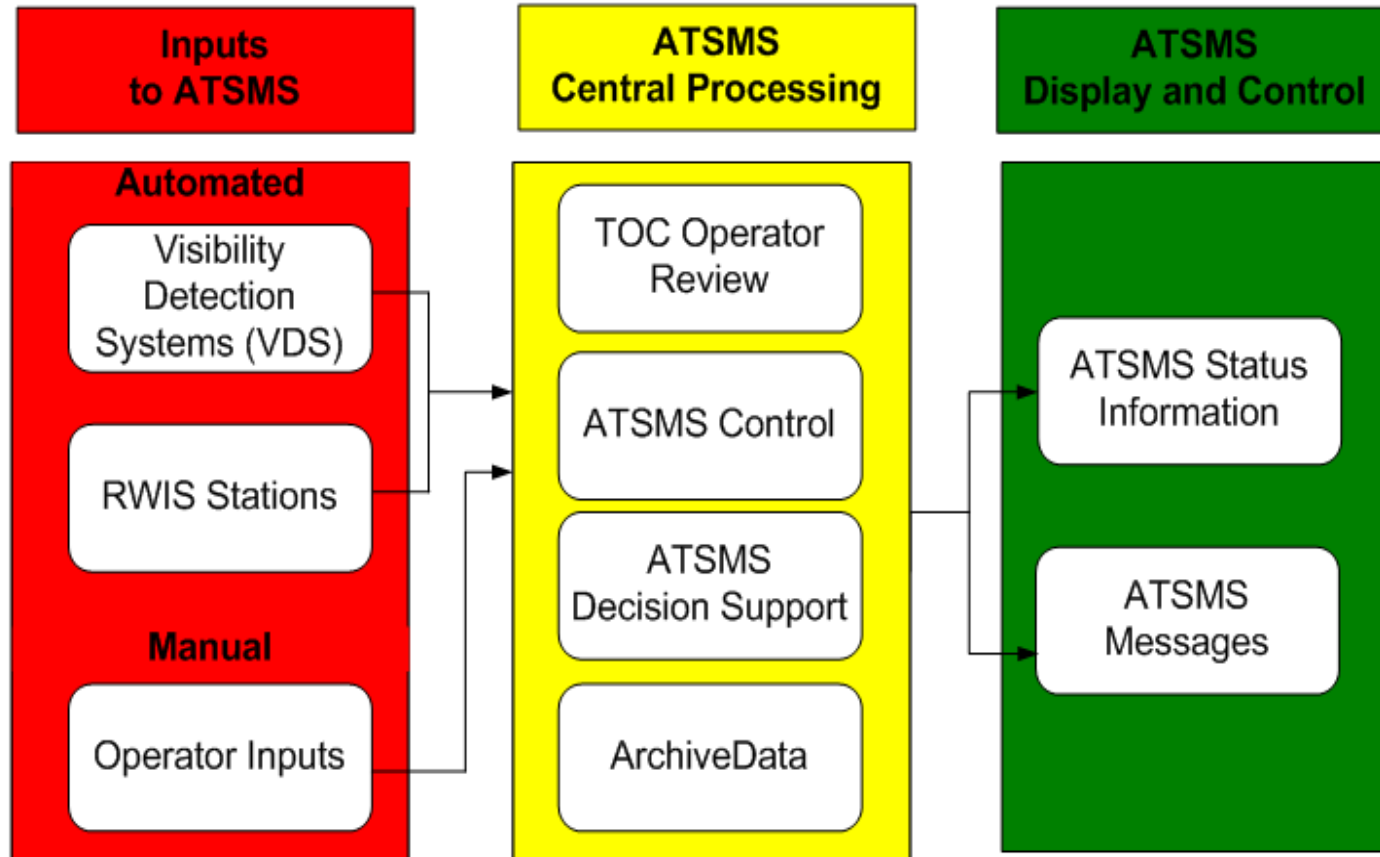
Source: FHWA Systems Engineering Guidebook for ITS

- Goals Identified with stakeholders
  - Both Corridors: Improve traveler safety
  - Additional for I-64 : Improve operational efficiency
- Identified objectives for goals and MOEs



- System will be activated for:
  - Low visibility
  - High Winds (I-77 Corridor)
  - Pavement conditions (I-64 Corridor)
  - Traffic crashes
  - Construction

# Processing System





# System Layout

## I-77 Corridor Components

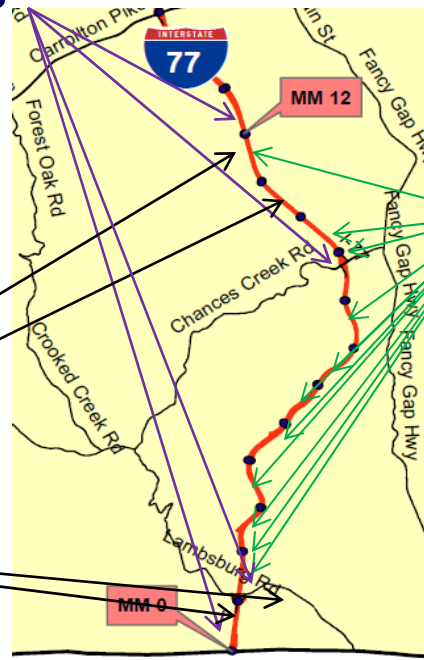
- Corridor Entry Signs



- VSL & CCTV



- DMS



- Detectors

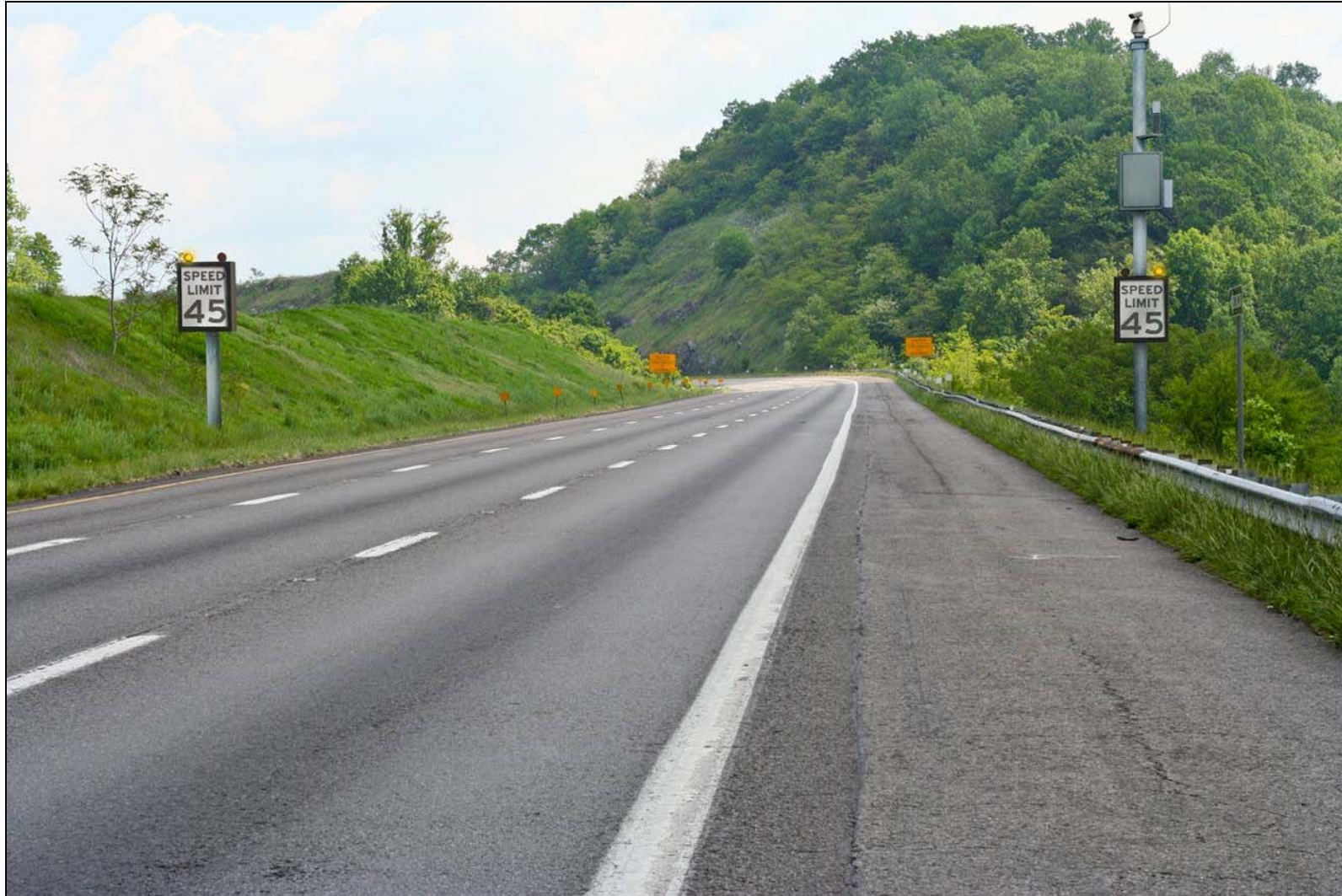
- Visibility
- Wind
- Pavement Conditions
- Vehicle Speed

# Corridor Entry Signs





# *Variable Speed Limit Signs*



# *Variable Speed Limit Sign*

## Features

- Full matrix
- Full color
- Flashers to alert motorists



## *Determining Speed Limit*

- Considerations
  - Gradual reductions in speed
  - Normalizing speed between 2 separate events on corridor
  - Stagger thresholds for increasing/decreasing speed limits
  - Conditions that affect both directions of travel
  - Use safest speed if multiple triggers in an area

- System sends alerts to Virginia State Police
- Intent is to alert drivers - not intended to enforce reduced speeds in unsafe conditions

# *Environmental Inputs*





## *Next Steps*

- VDOT will be pursuing this as a design-build
- I-77 will initially have VSL
- I-64 will add VSL in a later phase

***Thank You!***

# **Questions?**

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