In Virginia…

- A highway crash occurs every 4 minutes.
- A person is injured in a highway crash every 8 minutes.
- An average of 2 people die every day in highway crashes.
VDOT’s Highway Safety Program

What we do:
• Identify & prioritize crash locations
• Determine safety improvement projects
• Fund & Deliver safety projects
• Track results/lessons learned
• Work Zone safety

Teamwork is Critical!
Traffic Engineering Division

State Traffic Engineer
Ray Khoury, PE

Highway Safety
Mark A. Cole, PE
- Crash Records
- Highway Safety Planning
- Work Zone Safety

Traffic Studies & Data Analysis
Mena Lockwood, PE
- Traffic Monitoring System
- Engineering Studies
- System Analysis
- Traffic Data Analysis

Traffic Devices & Administration
Vanloan Nguyen, PE
- Signal & Arterial Systems
- Electrical & Lighting
- Signs, Markings, Engineering
- Traffic Assets Management
- Statewide Signing Programs
- Resource Administration
Crash Statistics

- Total Crashes:
  - 2010: 115997
  - 2011: 120487
  - 2012: 123478
  - 2013: 121601
  - 2014: 120448

- VDOT:
  - 2010: 64%
  - 2011: 62%
  - 2012: 63%
  - 2013: 65%
  - 2014: 65%

- Injuries:
  - 2010: 36%
  - 2011: 38%
  - 2012: 37%
  - 2013: 35%
  - 2014: 35%
Virginia Highway Deaths & Serious Injuries
2005 - 2014

Deaths

Serious Injuries

2005 - 2014

Deaths

Serious Injuries
Virginia Highway Crash Types

**Total Crashes (%)**
- Rear End: 33%
- Sideswipe: 3%
- Overturned: 2.6%
- Angle: 2.1%
- Animal: 1.4%
- Ped/Bike: 8.5%
- Others: 19%

**Fatal Crashes (%)**
- Fixed Object Off Road: 44.8%
- Head On: 16.8%
- Others: 5.8%
- Others: 3.1%
- Others: 11%
- Others: 5.5%
- Others: 0.6%
- Others: 2.4%
2010 - 2014 Network Comparison

Lane Mileage
- VDOT: 84%
- Local: 16%

Crashes
- VDOT: 36%
- Local: 64%

Injuries
- VDOT: 37%
- Local: 62%

Deaths
- VDOT: 81%
- Local: 19%

DVMT
- VDOT: 82%
- Local: 18%
## Roadway Departure Crashes

<table>
<thead>
<tr>
<th>Owner</th>
<th>Fatal (K) RD %</th>
<th>Severe Injury (A) RD %</th>
<th>Visible Injury (B) RD %</th>
</tr>
</thead>
<tbody>
<tr>
<td>VDOT</td>
<td>70%</td>
<td>54%</td>
<td>45%</td>
</tr>
<tr>
<td>Locals</td>
<td>49%</td>
<td>28%</td>
<td>20%</td>
</tr>
</tbody>
</table>
Active Project Status
Highway Safety Project Inventory – All Projects

Active Projects By District*

- Bristol: 46
- Culpeper: 14
- Hampton Roads: 24
- Fredericksburg: 15
- Northern VA: 14
- Richmond: 18
- Salem: 11
- Staunton: 7
- Statewide: 30
- Total: 220

*Active means in preliminary engineering, right-of-way, or construction phases as of April, 2015

Active Projects By Phase*

- PE: 131
- Right-of-way: 77
- Construction: 12

Project Administration*

- VDOT: 145
- Local: 75

*Active means in preliminary engineering, right-of-way, or construction phases as of April, 2015
HSIP Program Inventory – Local Projects

Active Local Safety Projects By District*

- Bristol: 21
- Culpeper:
- Hampton Roads:
- Lynchburg: 6
- Fredericksburg: 4
- Northern VA: 12
- Richmond:
- Salem:
- Staunton: 1

Total: 75

Active Projects By Phase*

- PE: 13
- Right-of-way: 5
- Construction: 57

Schedule Status

- Up To Date: 39%
- Not Current: 61%

*Active means in preliminary engineering, right-of-way, or construction phases as of April, 2015.
% 24-Month HSIP Projects w/ No Late Phases

- Mar 2013: 77%
- Sep 2013: 82%
- Mar 2014: 90%
- Sep 2014: 86%
- Mar 2015: 93%

Safety Project Schedule Performance
### Local Safety Projects By Jurisdiction

#### Active Projects By Phase

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>PE</th>
<th>RW</th>
<th>CN</th>
<th>Total</th>
<th>% Schedules Up-to-date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hampton</td>
<td>1</td>
<td>1</td>
<td>11</td>
<td>12</td>
<td>92%</td>
</tr>
<tr>
<td>Richmond</td>
<td>1</td>
<td>1</td>
<td>10</td>
<td>12</td>
<td>8%</td>
</tr>
<tr>
<td>Henrico County</td>
<td>6</td>
<td></td>
<td>6</td>
<td>6</td>
<td>17%</td>
</tr>
<tr>
<td>Newport News</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>20%</td>
</tr>
<tr>
<td>Arlington County</td>
<td>4</td>
<td></td>
<td></td>
<td>4</td>
<td>100%</td>
</tr>
<tr>
<td>Prince William County</td>
<td></td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>75%</td>
</tr>
<tr>
<td>Bristol</td>
<td></td>
<td>3</td>
<td>3</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Chesapeake</td>
<td>3</td>
<td></td>
<td>3</td>
<td>67%</td>
<td></td>
</tr>
<tr>
<td>Norfolk</td>
<td></td>
<td>3</td>
<td>3</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>6</td>
<td></td>
<td>17</td>
<td>23</td>
<td>26%</td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td>13</td>
<td>5</td>
<td>57</td>
<td>75</td>
<td>39%</td>
</tr>
</tbody>
</table>

*Based on schedule information available in project pool through 4/16/2015*
Funding for New Projects
Locally Administered Safety Projects

• In 2009, VDOT stopped funding local safety projects
  ➢ Project Delivery concerns

• Locally Administered Safety Project Status:
  ➢ 74 active project representing $45M in safety funds
  ➢ 77% of active projects in construction
  ➢ All active projects scheduled for completion within 18 months

• VDOT plans to resume funding for locally administered safety projects in FY2017 and will implement new qualification criteria to ensure localities are prepared to deliver safety projects

Come TOMORROW to Hear more details!!!
What will a successful project proposal look like?
LAP HSIP Successful Projects

What We Know:

• Highway Safety Funding is very limited.
• Severe crashes are spread out across our roadway network

As a result, we must:

• Select projects based on data-driven approach
• Take advantage of low cost solutions that can be deployed at many locations (We call these SYSTEMIC projects)

For Example …
### Traditional Intersection Project
- Rebuild Intersection
  - Move curb
  - Add capacity
  - Rebuild/replace signal
  - Some R/W required
- Typical Cost: $2-4 Million
- Typical Schedule: 2-4 years
- Typical crash reduction
  - 10-15 crashes/year

### Systemic Intersection Project
- Deploy flashing yellow arrow at 25 intersections
- Approximate Cost: $500K
- Approx. Schedule: 1 year
- Expected crash Reduction
  - 36% of all left turn angle collisions
  - Approximately 90 crashes/year
Systemic Projects – Flashing Yellow Arrow

**Estimated Cost:**
$20K/intersection

**Estimated Crash Reduction:**
36% of left turn angle crashes

**Estimated Schedule:**
about a year
Systemic Projects – Retroreflective Traffic Signal Backplates

Estimated Cost:
→ $5-7K/intersection
   (much less if doing other work)

Estimated Crash Reduction:
→ 15% of all intersection crashes

Estimated Schedule:
→ less than a year

Other Notes:
FHWA’s proven safety countermeasure
Systemic Projects – Road Diets

Estimated Cost:
→ $20-30K/mile for pavement marking changes

Estimated Crash Reduction:
→ 20-47 % of all crashes
→ particularly rear end, angle, and sideswipe crashes
→ risk reduction for peds and bikes

Estimated Schedule:
→ less than a year if coordinated with resurfacing

Other Notes:
FHWA proven safety countermeasure
Systemic Projects – Signal Timing

Elements:
• Cycle length, split, Offset, Yellow and Red Clearance intervals, pedestrian clearance interval, pedestrian phase selection.

Estimated Cost:
→ $5K/intersection

Estimated Crash Reduction:
→ 20-33 % of all crashes

Estimated Schedule:
→ less than a year
Systemic Projects – Ped Refuge Islands

Estimated Cost:
→ $20-30K/location if no R/W needed

Estimated Crash Reduction:
→ 40-45% of all crashes

Estimated Schedule:
→ 1-2 years

Other Notes:
FHWA proven safety countermeasure
Systemic Projects – Other Ped/Bike Projects

Element w/ Estimated Cost:

- **Ped countdown Signals**
  - $1200/Each

- **Rectangular Rapid Flashing Beacon**
  - $30-40K per location

- **HAWK Signal**
  - $90-120K per location
  - FHWA Proven Safety Countermeasure

- **High-Visibility Crosswalk**
  - $5-10K/intersection

- **Green Bike Lanes in conflict areas**
  - $20/square foot
Systemic Projects – Curve Delineation

Estimated Cost: $5K/location

Estimated Crash Reduction: 30-50% of all crashes

Estimated Schedule: less than 1 year

Other Notes: FHWA proven safety countermeasure
Systemic Projects – Rumble Strips

Estimated Cost:
- $7K/mile – center line RS
- $12K/mile – shoulder RS

Estimated Crash Reduction:
- 44-64% - center line RS
- 36% - shoulder RS

Estimated Schedule:
- less than 1 year

Other Notes:
- FHWA proven safety countermeasure
Tools to Help You
New Highway Safety Info OutsideVDOT Page

New page that allows VDOT to share highway safety information with local and consultant partners to include:

- Crash Data
- HSIP Project Information
- Work Zone Safety Information

Need to fill out two IT forms to gain access.

For access, contact Mark Cole at:
(804) 786-4196
Mark.Cole@VDOT.Virginia.gov
Tableau Crash Tool

- Allows customized filtering and mapping of crash data
- Available on OutsideVDOT
- Requires Free Tableau Reader software

Contact Tracy Turpin at:
(804) 786-6610
Tracy.Turpin@VDOT.Virginia.gov
Tableau Safety Project Tracking Tool

- Allows status tracking and mapping of safety projects
- Available on OutsideVDOT
- Requires Free Tableau Reader software
- Can be used to verify your project status in VDOT project management system

Contact Tracy Turpin at:
(804) 786-6610
Tracy.Turpin@VDOT.Virginia.gov
New HSIP Implementation Guidelines

Available by June 1, 2015 on
• VDOT External Website
• Highway Safety Outside VDOT page

Significant changes to Chapter 6 which pertains to Locally-administered safety projects.

- Funding eligibility criteria
- Submittal schedule

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Questions?

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