SAFETY PERFORMANCE MEASURES

- Performance management connects the Highway Safety Improvement Program (HSIP) and Highway Safety Plan (HSP) to the Strategic Highway Safety Plan (SHSP).

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>State Target</th>
<th>MP0 Target</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Target Reported in HSIP Annual Report for FHWA</td>
<td>Target Reported in Highway Safety Plan for NHTSA</td>
</tr>
<tr>
<td>Number of Fatalities</td>
<td>281.6</td>
<td>281.6</td>
</tr>
<tr>
<td>Rate of Fatalities per 100 Million VMT</td>
<td>1.37</td>
<td>1.37</td>
</tr>
<tr>
<td>Number of Serious Injuries</td>
<td>1341.0</td>
<td>1341.0</td>
</tr>
<tr>
<td>Rate of Serious Injuries per 100 Million VMT</td>
<td>6.327</td>
<td>Not required</td>
</tr>
<tr>
<td>Number of Non-motorized Fatalities and Non-motorized Serious Injuries</td>
<td>94.1</td>
<td>Not required</td>
</tr>
</tbody>
</table>
2016 Fatalities - 269
2017 Fatalities – 303
ROADSIDE DESIGN IMPROVEMENTS AT CURVES

Provide Safe Recovery
Clear zone
Slope flattening
Adding or widening shoulders

Reduce Severity
Cable barrier
Guardrail
Concrete barrier

Source: Fatality Analysis Reporting System (FARS)
FHWA HQ adjusted its formula to account for many smaller states whose data warranted focus state status but was high enough statistically to compete with larger states.

**West Virginia Implementation**

- Focus area measures incorporated into the updated 2017 SHSP
- IDIQ Contracts – Cable barrier and Guardrail
ENHANCED DELINEATION AND FRICTION FOR HORIZONTAL CURVES

Enhance Delineation
- Pavement markings
- Post-mounted delineation
- Larger signs and signs with enhanced retroreflectivity
- Dynamic advance curve warning signs and sequential curve signs

Increased Pavement Friction
- Sharp curves
- Inadequate cross-slope design
- Wet conditions
- Polished roadway surfaces
- Driving speeds in excess of the curve advisory speed

Enhanced Delineation and Friction for Horizontal Curves
SAFETY BENEFITS:
- Chevron Signs
  - 25% Reduction in nighttime crashes
- 16% Reduction in non-intersection fatal and injury crashes

High Friction Surface Treatment
- 52% Reduction in wet road crashes
- 24% Reduction in curve crashes

Source: CMF Clearinghouse, CMF IDs 2439 and 2439
HIGH FRICTION SURFACE TREATMENT

State DOT HFST Status
(as of 6/01/2016)

- No curves
- One curve
- 2 – 10 curves
- 10 – 50 curves
- More than 50 curves

☆ Active implementation
☆ Over 100 curves in place
WEST VIRGINIA STATE WIDE IMPLEMENTATION

**Median Barrier**
- 8% of All Fatalities on Divided Highways Are Due to Head-On Crashes

**SAFETY BENEFITS:**
- Median Barriers Installed on Rural Four-Lane Freeways 97%
- Reduction in cross-median crashes

1. Fatality Analysis Reporting System (FARS)
2. NCHRP Report 764, Median Cross-Section Design for Rural Divided Highways

**Longitudinal Rumble Strips and Stripes**
- **SAFETY BENEFITS:**
  - Center Line Rumble Strips 44-64%
  - Head-on, opposite-direction, and sideswipe fatal and injury crashes
  - Shoulder Rumble Strips 13-51%
  - Single vehicle, run-off-road fatal and injury crashes

Source: NCHRP Report 641, Guidance for the Design and Application of Shoulder and Centerline Rumble Strips

**SafetyEdgeSM**
- **SAFETY BENEFIT:**
  - 11%
  - Reduction in fatal and injury crashes

Source: Safety Effects of the SafetyEdgeSM FMVSS-201-17-044

**Roundabouts**
- Two-Way Stop-Controlled Intersection to a Roundabout
- **SAFETY BENEFIT:**
  - 82%
  - Reduction in severe crashes

Source: Highway Safety Manual

- Signalized Intersection to a Roundabout
- **SAFETY BENEFIT:**
  - 78%
  - Reduction in severe crashes

Source: Highway Safety Manual
USLIMITS2 is a free, web-based tool designed to help practitioners assess and establish safe, reasonable, and consistent speed limits for specific segments of roadway. It is applicable to all types of facilities, from rural and local roads and residential streets to urban freeways.

A local road safety plan (LRSP) provides a framework for identifying, analyzing, and prioritizing roadway safety improvements on local roads. The LRSP development process and content are tailored to local issues and needs. The process results in a prioritized list of issues, risks, actions, and improvements that can be used to reduce fatalities and serious injuries on the local road network.
LOCAL LEVEL IMPLEMENTATION

A **median** is the area between opposing lanes of traffic, excluding turn lanes. Medians in urban and suburban areas can be defined by pavement markings, raised medians, or islands to separate motorized and non-motorized road users.

A **pedestrian crossing island** (or refuge area) is a raised island, located between opposing traffic lanes at intersection or midblock locations, which separate crossing pedestrians from motor vehicles.

**Potential Locations**
- Mid-block areas
- Approaches to multi-lane intersections
- Areas near transit stops or other pedestrian-focused sites
STATE/LOCAL LEVEL IMPLEMENTATION

Walkways

- SAFETY BENEFITS:
  - Sidewalks: 65-80%
    Reduction in crashes involving pedestrians walking along roadways
  - Paved Shoulders: 71%
    Reduction in crashes involving pedestrians walking along roadways

Source: [pedbikeimages.org/Burden](pedbikeimages.org/Burden)

Source: Desktop Reference for Crash Reduction Factors, FHWA-SA-08-011, Table 11.

Road Safety Audits

A road safety audit is a proactive formal safety performance examination of an existing or future road or intersection by an independent and multi-disciplinary team.

SAFETY BENEFIT:

- 10-60%
  Reduction in total crashes

Source: Road Safety Audit: An Evaluation of RSA Programs and Projects, FHWA-SA-12-007; and FHWA Road Safety Audit Guidelines, FHWA-SA-08-08.

Road Diets (Roadway Reconfiguration)

A "Road Diet," or roadway reconfiguration, can improve safety, calm traffic, provide better mobility and access for all road users, and enhance overall quality of life.

SAFETY BENEFIT:

- 4-Lane → 3-Lane
  - Road Diet Conversions: 19-47%
    Reduction in total crashes

Source: Evaluation of Lane Reduction "Road Diet" Measures on Crashes, FHWA-HRT-10-052.

Leading Pedestrian Intervals

SAFETY BENEFIT:

- 60%
  Reduction in pedestrian-vehicle crashes at intersections

Source: [pedbikeimages.org/Burden](pedbikeimages.org/Burden)
Shaneka Owens
Email: Shaneka.Owens@dot.gov
Phone Number: 304-347-5473

https://safety.fhwa.dot.gov/provencountermeasures

https://safety.fhwa.dot.gov/uslimits/

https://safety.fhwa.dot.gov/local_rural/
THANK YOU