

# American Traffic Safety Services Association

## High Friction Surfacing

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(Chair of ATSSA's High  
Friction Surfacing Council)



# What is a High Friction Surface?



- $F_N \geq 65$
- Aggregate with resistance to polishing

# Aggregates That Meet High Friction



**Calcined Bauxite**

# High Friction Polymer Binders



# Why Install High Friction Surfacing?

## Different Friction Demand



# Current Safety Countermeasures

## Signs, Markings, Microsurfacing



# Horizontal Curve HFS Installation

## Well-Designed Intersections



# Why High Friction Surfacing?

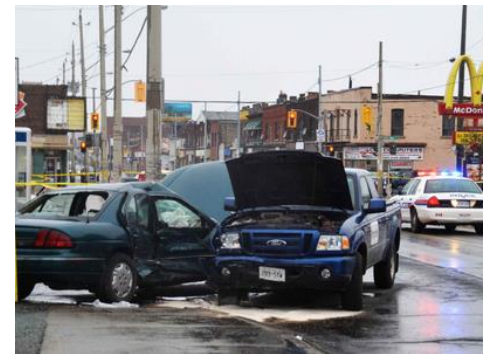
**FARS 2010**

All fatal crashes: 30,296



## Fatal Crash Percentages

Horizontal Curves & Intersections  
(Roughly 50%)





# Speed Mitigation



# Skid related crashes are determined by many factors:

- Road Geometry
- Driver Actions
- Weather Conditions
- Traffic Characteristics
- Vehicle Speeds



# Can Pavement Characteristics Improve Safety at Intersections and Curves?



# Where Can High Friction Surfaces Benefit Roadway Safety?

1. Horizontal curves
2. Approach to intersections

When the pavement has:

- a) low friction
- b) marginal friction effected by weather
- c) Friction values not compatible with approach speeds and geometrics

# High Friction Surfacing – Curves/Intersections Results

Bellevue, Wash: **45** crashes, **four** rollovers

Oldham County, KY: 8/1/07 thru 8/1/09: **59** Crashes  
**One** Fatal and **23** Injury crashes

Pennsylvania SR 611: 1997 thru 2006: **22** crashes

# Intersection/Curve: Bellevue, Washington



# Provide Skid Resistant Pavement Surfaces

Intersection/Curve: Bellevue, Wash.

Installation of a HFS surface on a horizontal curve. Prior to the installation, this location had **45** accidents.



Installation by Hand

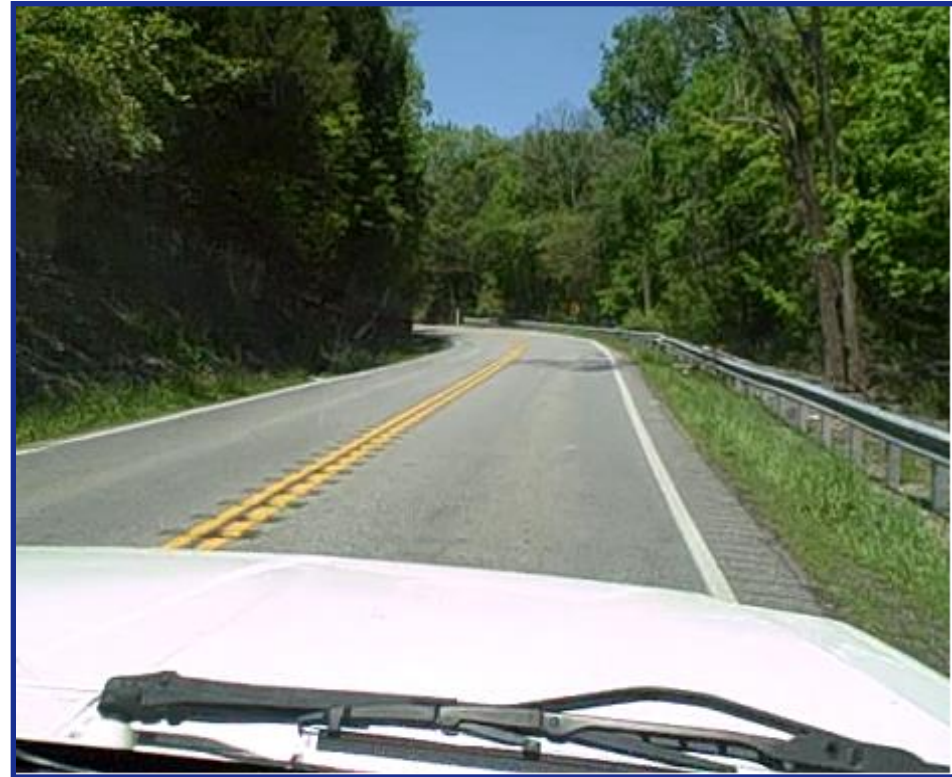
# Rural Curve - Bridge Hill – Oldham County, KY 22

One Fatal  
23 Injury Crashes





# Bridge Hill - Oldham County, KY 22



# June 26, 2008 Oldham Era

## Rain Increases Danger on KY. 22



Crews work to clear the roadway after a head-on collision during rush hour Friday on KY- 22 at Bridge Hill. The crash left four people injured. Another crash took place Sunday afternoon.

## Bridge Hill - Oldham County, KY 22

# Since HFS Installation

Oldham County, KY 22,  
8/1/07 thru 8/1/09: 59 total crashes  
1 Fatal and 23 Injury crashes

**5 crashes since**

As of April 10, 2012

# Pennsylvania SR 611

1997 thru 2006: **22** crashes

“**Three** Deaths  
and **Four**  
Injuries in  
eight years...”



# Pennsylvania SR 611



1:00 pm install complete  
& 60% power swept



11:15 am almost 200 sy  
completed

# Since Installation – Zero Crashes



# ATSSA's High Friction Surfacing Council

ATSSA Board Approved: April 2012



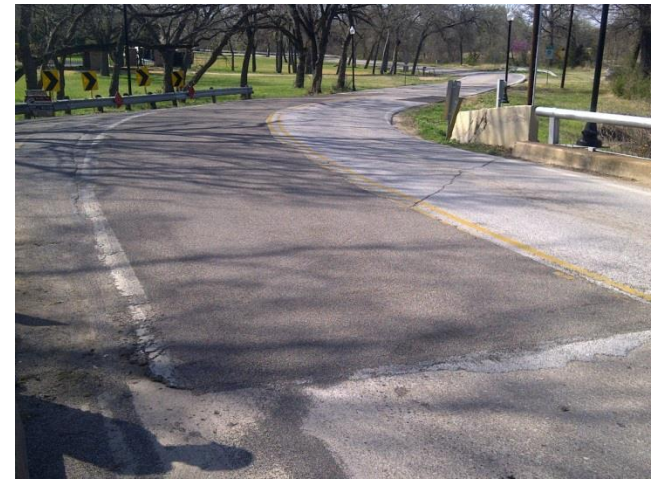
# NTPEP Test Deck (Late Summer 2012)

- NTPEP Test Deck Installation – Summer 2012
- AASHTO SOM – Joint Committee (HFS Specification)
- FHWA Every Day Counts Initiative
- ATSSA HFS Booklet
- ATSSA HFS Installer & Inspection Training & Video
- ATSSA Website: [highfrictionsurface.net](http://highfrictionsurface.net)



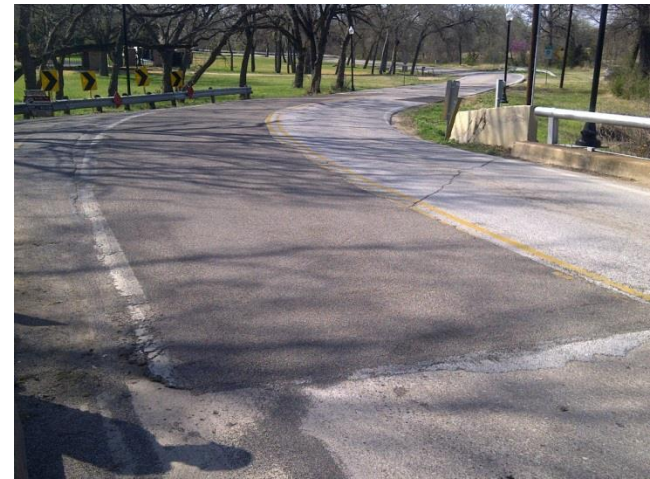
# What's Next

- **Enhanced Friction Specification**  
(Granite, Flint, etc.)
- **Color Lane Surface Specification**  
(Purple, Red & Green)



# Policy Initiatives

- **Amend HSIP Friction Language**
- **Pavement Friction Management Program**
- **Data Collection Eligibility – Friction**



# Finding HFS Locations

- Horizontal Curves – A New Method for Identifying At-Risk Locations for Safety Investment (Howard Preston)
- Horizontal Curve Identification and Evaluation, September 2012
- SHRP 2 Naturalistic Driving Study & Utah Safety Initiative (ESRI & AAA Foundation)



Questions?