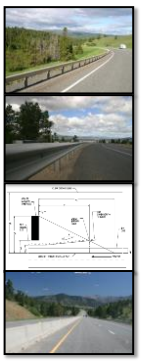
Session 1: Introduction and Pre-assessment



FAST Act Guardrail Safety Training

Highway Barrier Design Training

FHWA COTM: Will Longstreet
FHWA, Office of Safety
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KLS Engineering, LLC
(703) 858 1356

September 20th, 2018

American Road & Transportation Builders Association

KLS Engineering

MONTANA MDT DEPARTMENT OF TRANSPORTATION

Disclaimer

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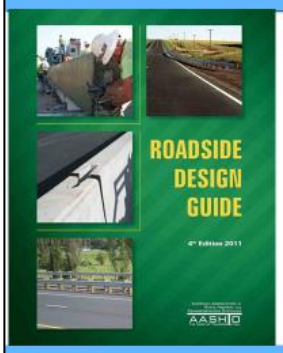
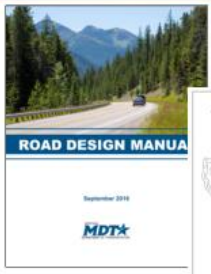
Guidance Presented





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Ground Rules

- Be on time
- Participate
- Restrict sidebar conversations
- Turn off cellphones

Objectives of Course

At the end of this 1-day session you will be able to:

- Identify when a traffic barrier is the best treatment to use at a specific site.
- Select a barrier that will adequately shield the identified hazard(s).
- Assess the topography of the site to provide for an optimal barrier system installation.

Course Overview

- Session One – Introduction and Pre-Assessment.
- Session Two – Clear Zone and Guidelines for Barrier Need.
- Session Three – Testing Requirements and Performance Characteristics of Common Barrier Systems.
- Session Four – Testing Requirements and Performance Characteristics of Common Terminals and Crash Cushions.

Course Overview (cont'd)

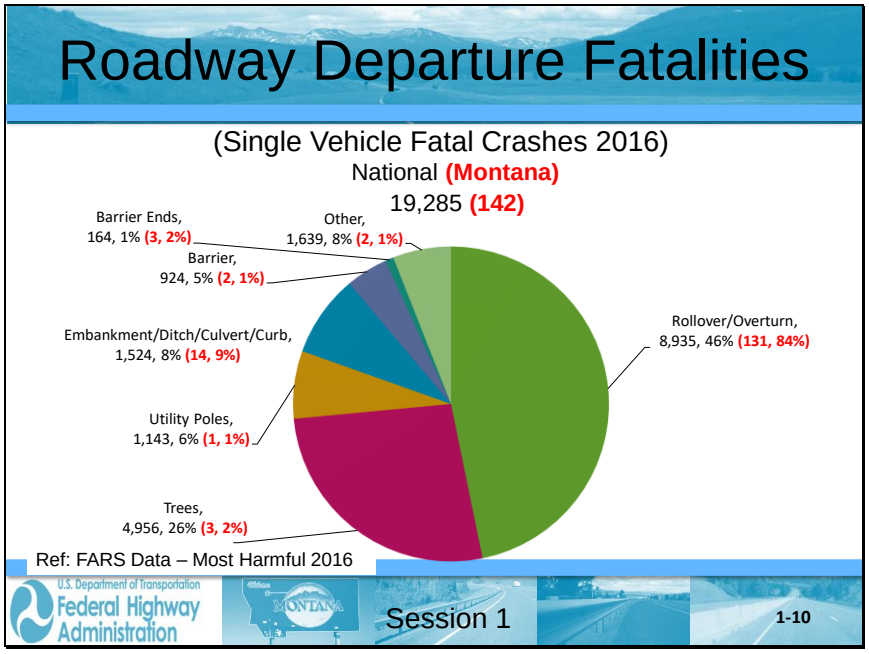
- Session Five – Design Principles
- Session Six – Length of Need and Special Considerations
- Session Seven – Design Workshop

Session 1:
Introduction and Pre-assessment

Session 1 Learning Outcomes

At the end of this session, you will be able to:

- Identify the primary Roadside Safety Concerns in Montana.
- Assess your current knowledge of Barrier Design Principles.


Roadway Departure Fatalities
(Single Vehicle Fatal Crashes 2016)
National (Montana)
19,285 (142)
Barrier Ends, 164, 1% (3, 2%)
Other, 1,639, 8% (2, 1%)
Barrier, 924, 5% (2, 1%)
Embankment/Ditch/Culvert/Curb, 1,524, 8% (14, 9%)
Rollover/Overturn, 8,935, 46% (131, 84%)
Utility Poles, 1,143, 6% (1, 1%)
Trees, 4,956, 26% (3, 2%)
Ref: FARS Data – Most Harmful 2016
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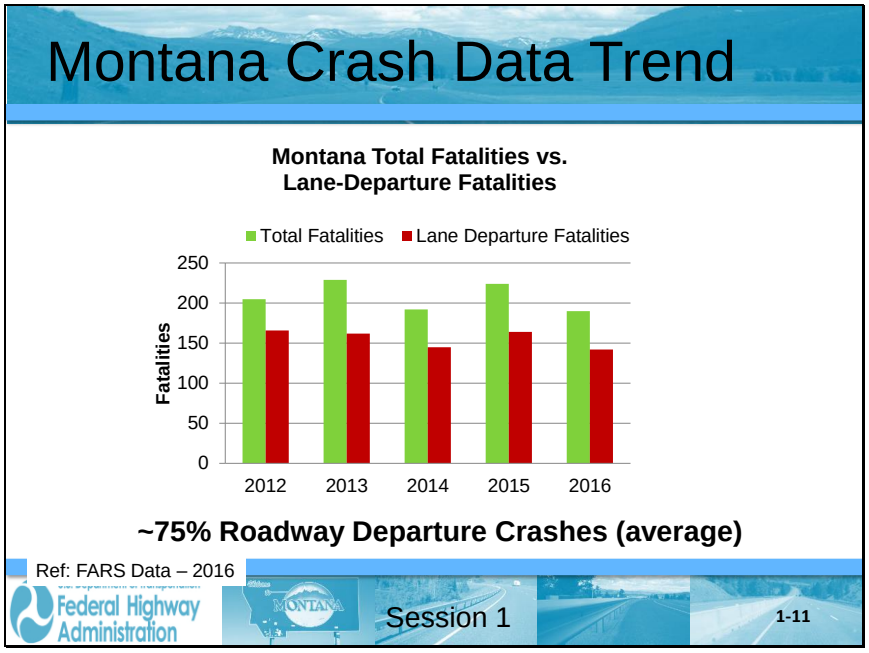
Montana Crash Data Trend
Montana Total Fatalities vs. Lane-Departure Fatalities
Total Fatalities
Lane Departure Fatalities
Fatalities
250
200
150
100
50
0
2012
2013
2014
2015
2016
~75% Roadway Departure Crashes (average)
Ref: FARS Data – 2016
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2016 Montana Roadside Fatalities

	FIRST HARMFUL	MOST HARMFUL
Rollover	98	131
Utility Poles	24	1
Embankment, Ditches, Curbs and Culverts	21	9
Guardrail Face/Ends	7	5
Trees	5	3
Traffic Sign Support	1	1

Ref: FARS Crash Data 2016

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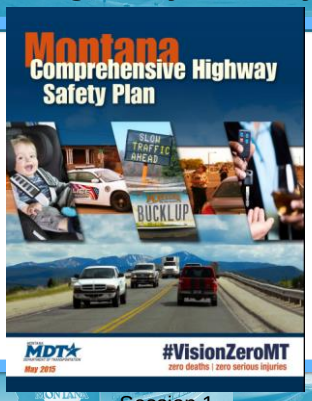
Strategic Highway Safety Plan



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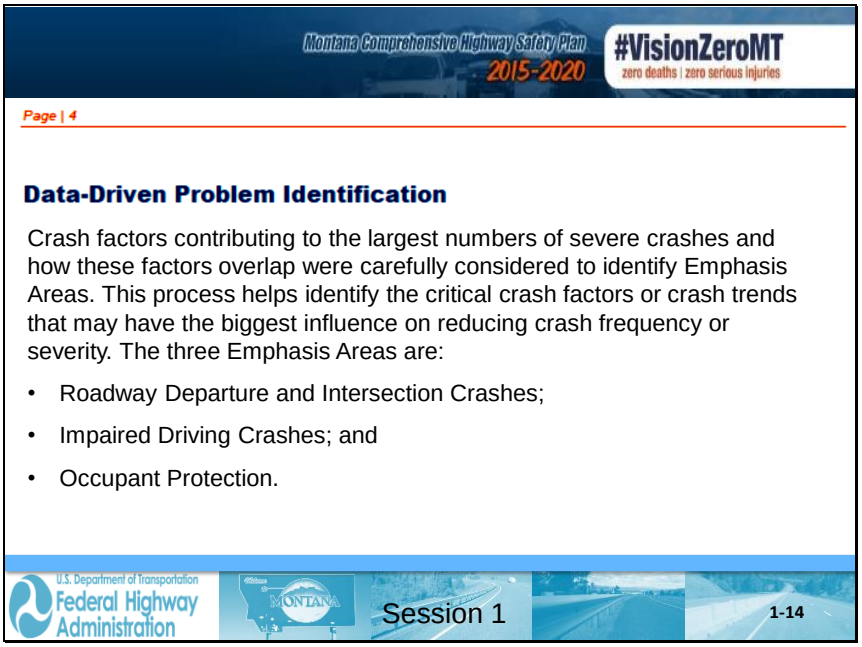
Montana Comprehensive Highway Safety Plan
2015-2020
#VisionZeroMT
zero deaths | zero serious injuries
Page | 4
Data-Driven Problem Identification
Crash factors contributing to the largest numbers of severe crashes and how these factors overlap were carefully considered to identify Emphasis Areas. This process helps identify the critical crash factors or crash trends that may have the biggest influence on reducing crash frequency or severity. The three Emphasis Areas are:
• Roadway Departure and Intersection Crashes;
• Impaired Driving Crashes; and
• Occupant Protection.
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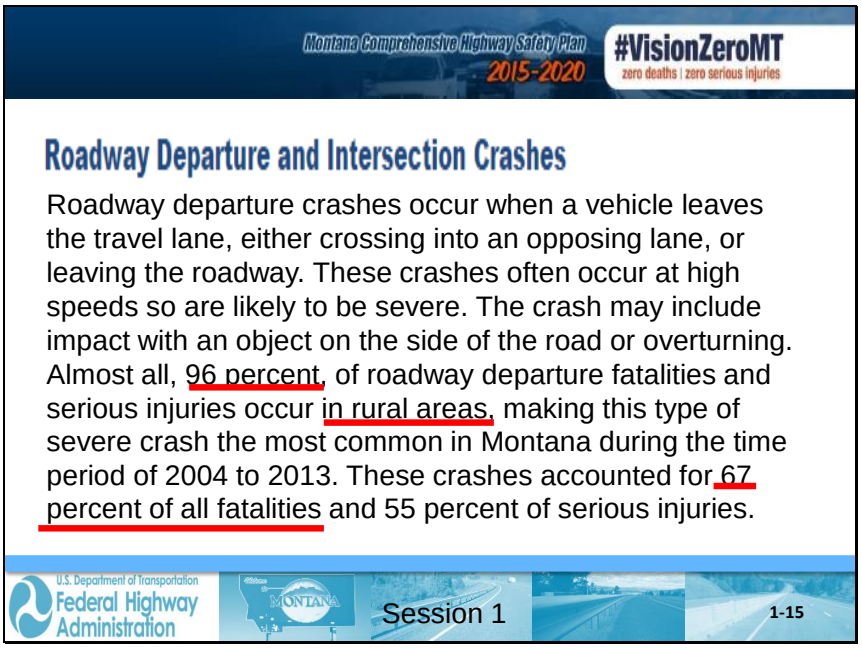
Montana Comprehensive Highway Safety Plan
2015-2020
#VisionZeroMT
zero deaths | zero serious injuries
Roadway Departure and Intersection Crashes
Roadway departure crashes occur when a vehicle leaves the travel lane, either crossing into an opposing lane, or leaving the roadway. These crashes often occur at high speeds so are likely to be severe. The crash may include impact with an object on the side of the road or overturning. Almost all, 96 percent, of roadway departure fatalities and serious injuries occur in rural areas, making this type of severe crash the most common in Montana during the time period of 2004 to 2013. These crashes accounted for 67 percent of all fatalities and 55 percent of serious injuries.
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Real World Crashes
Video Clip
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Federal Highway Administration
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Real World Crashes
U.S. Department of Transportation
Federal Highway Administration
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Need for Training

Potential consequences of poorly designed barrier systems include:

- Systems may not function as designed.
- Crash severities may be increased.

Need for Training

The next 11 slides show locations where barrier was installed. For each photo, decide at a glance whether you believe it to be:

1. Good example,
2. Bad example, or
3. Cannot decide without more information.

We will discuss these slides in further detail in later applicable sessions, so please record and save your responses.

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Nice 6:1 slope
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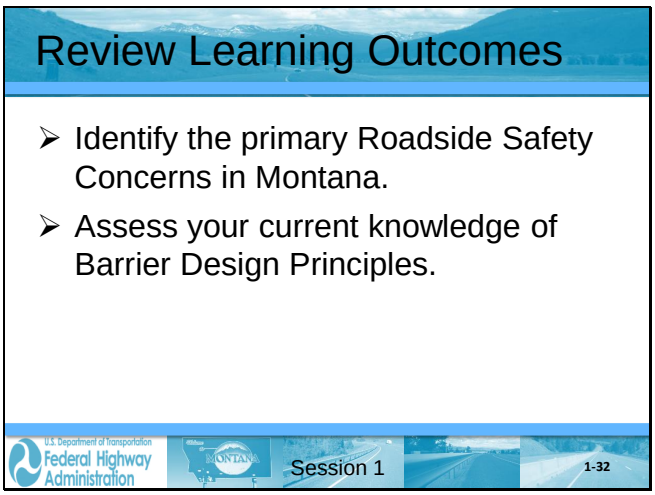
Review Learning Outcomes
Identify the primary Roadside Safety Concerns in Montana.
Assess your current knowledge of Barrier Design Principles.
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