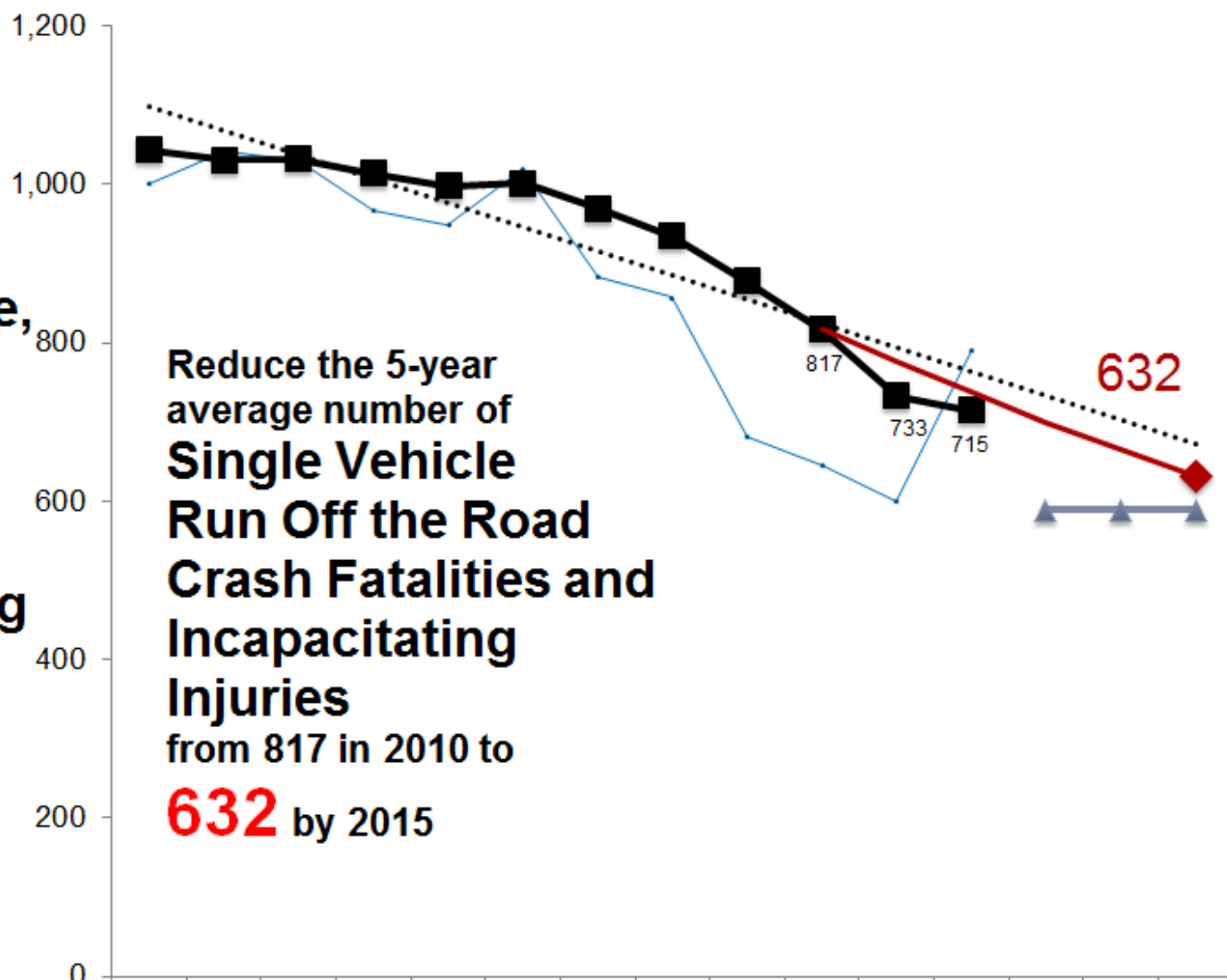


Road Departure Crashes & High Crash Corridors/High Crash Locations



October 17, 2013

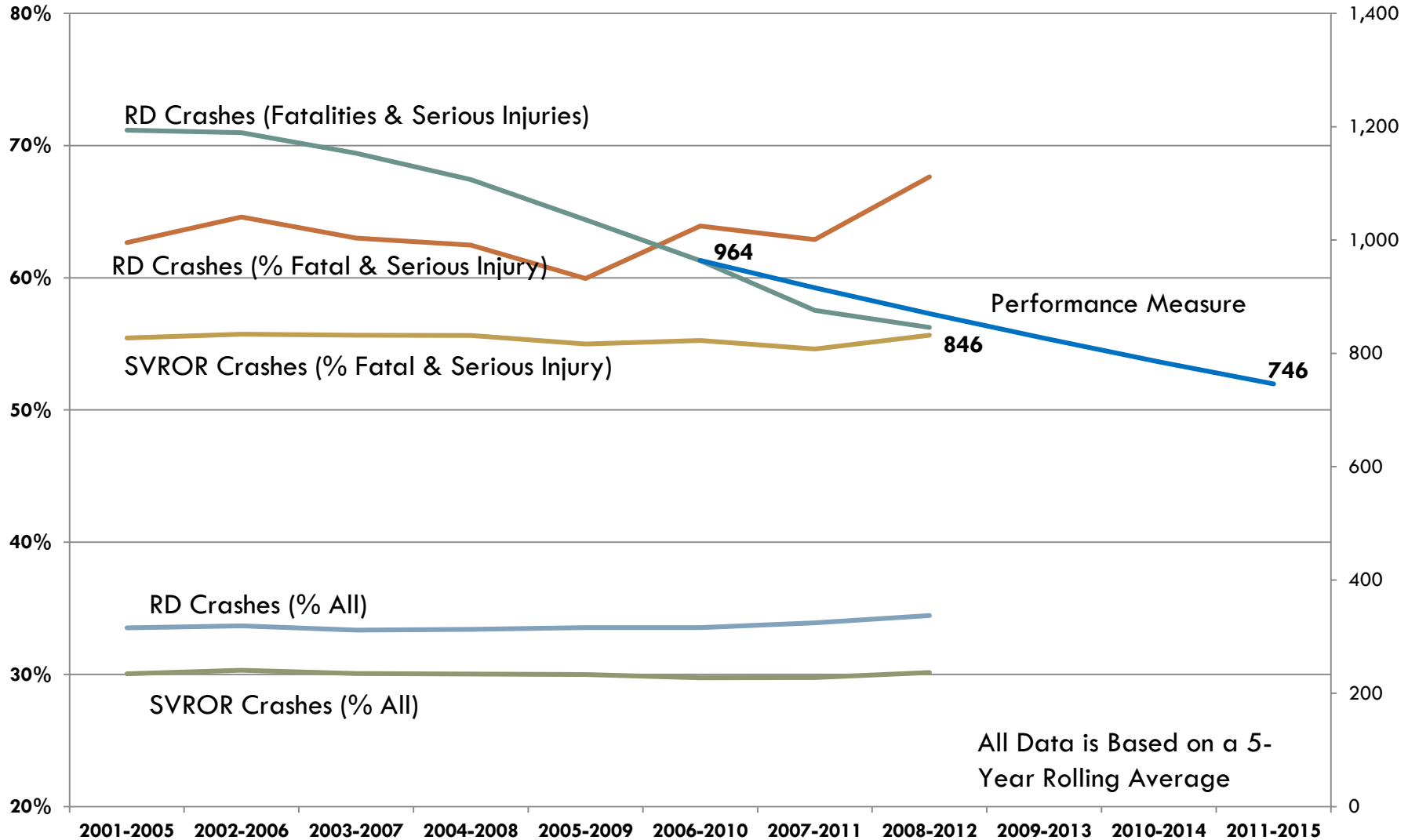
Single Vehicle, Run Off the Road Crash Fatalities and Incapacitating Injuries



	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
— Single Vehicle, Run-Off-the-Road Fatalities & Incapacitating Injuries	1,000	1,042	1,031	967	948	1,018	884	857	682	644	600	791			
■ 5-Year Average	1,043	1,031	1,032	1,014	998	1,001	970	935	878	817	733	715			
◆ Aggressive Target (-5.0% per year)										817	776	737	700	665	632
▲ Values to attain 2015 Target													589	589	589

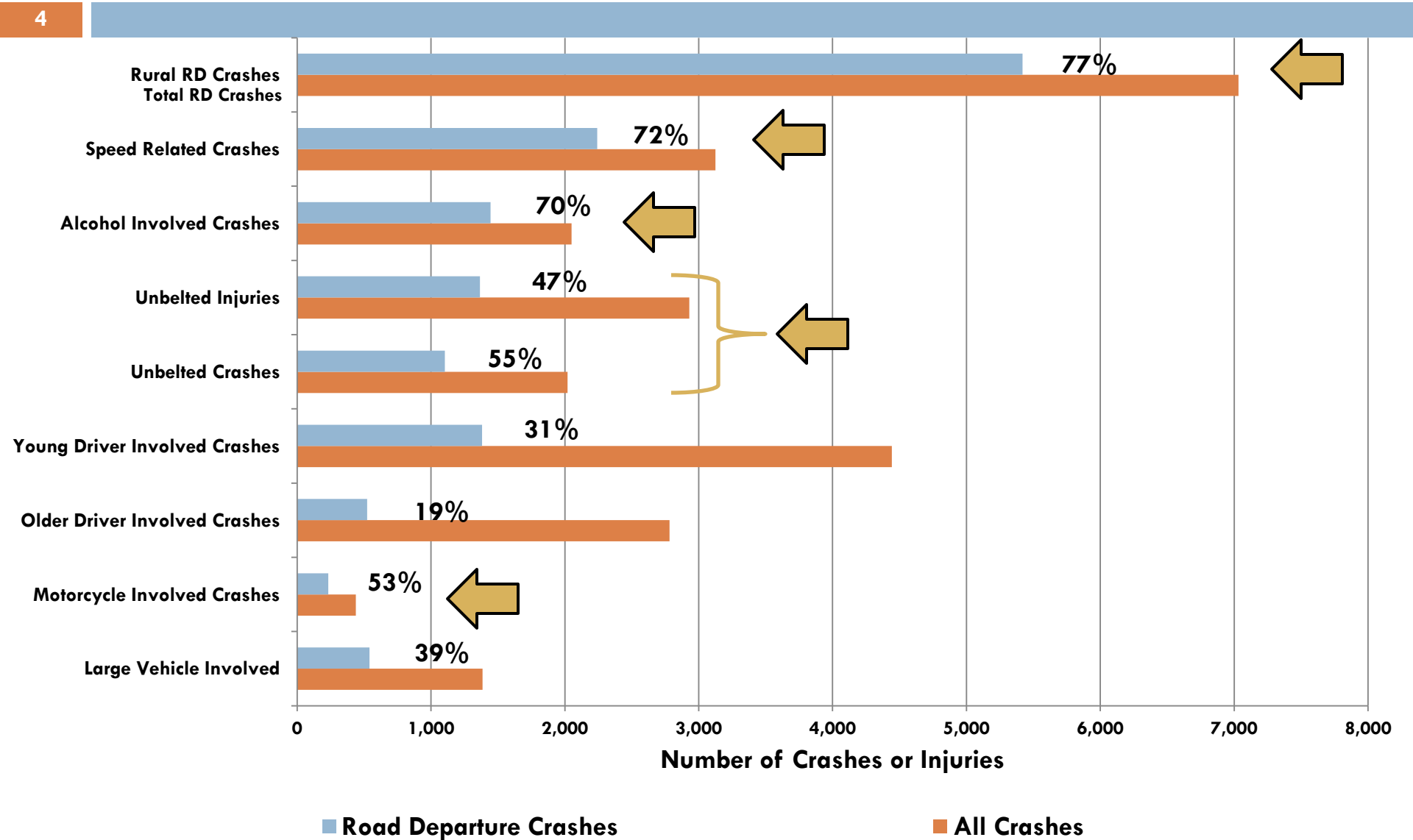
Road Departure Crashes vs. SVROR Crashes (2001-2012)

3

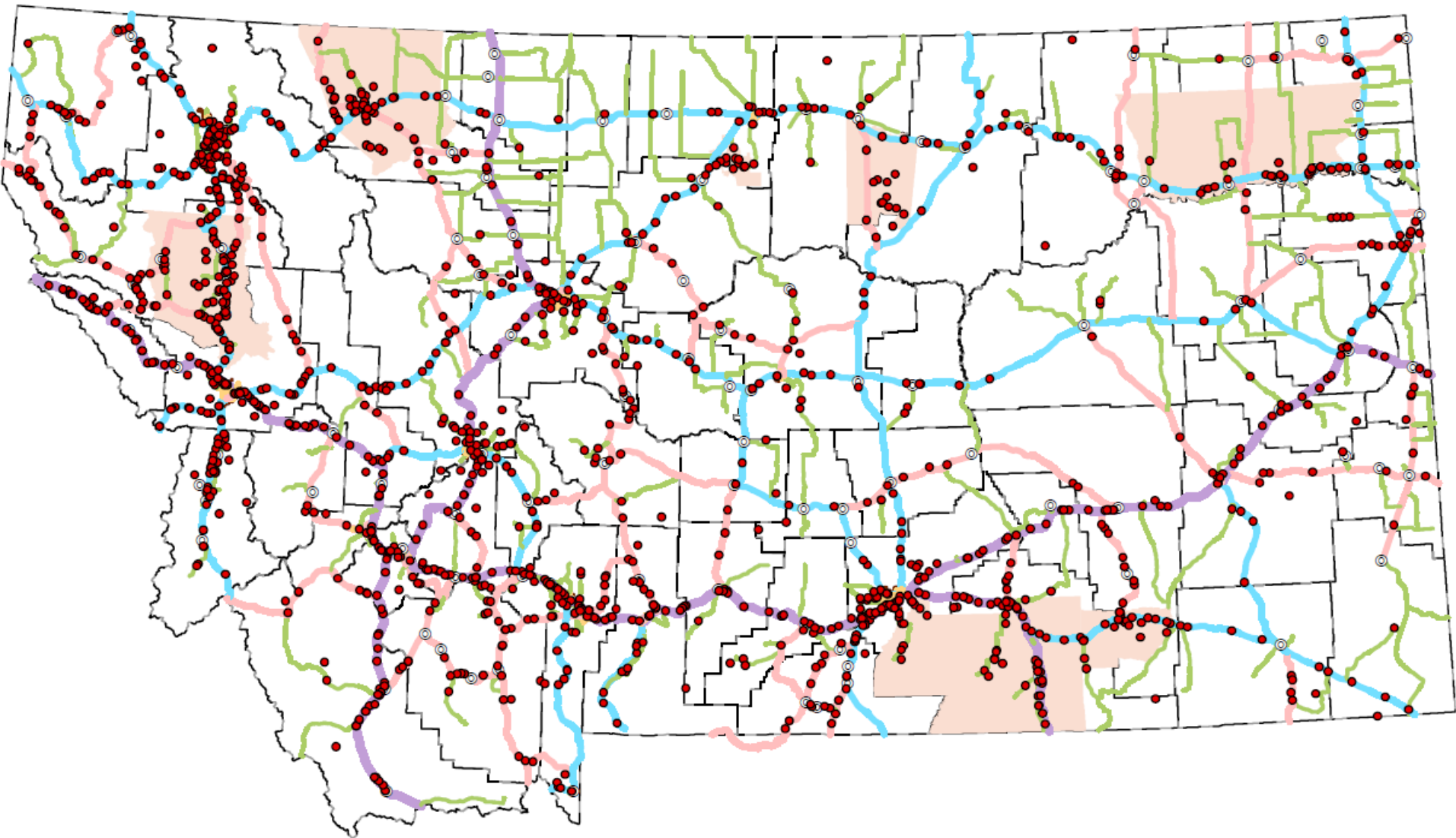


RD Crashes (2012)

4



2003-2012 Rural RD Fatal Crashes



RD Strategies

6

- RD-1: Review of Best Practices
 - ▣ Re-evaluated existing rumble strip policy (**Completed**).
 - ▣ Update design guidance for placement of curve warning signs per the current MUTCD (**Completed**).
 - ▣ Update design guidance to use Type IX fluorescent yellow sign sheeting for curve warning and pedestrian signs (**Completed**).

RD Strategies

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- RD-2: Explore Educational Opportunities Regarding RD Crashes
 - Roadway Departure Media Campaign HSIP Project
 - Utilized the flexibility in MAP-21 for funding non-infrastructure projects with HSIP funds.
 - Anticipating a year long media campaign to saturate the market.
 - **Research and evaluate work already completed then customize it for Montana!**

RD Strategies

8

North Dakota



Idaho

- Media Messages and Tools to Reduce Serious Single Vehicle Run-Off-the-Road Crashes Resulting from Impaired Driving (September 2012)

RD Strategies

9

Ohio



Roadway Departure Crashes

Stay Alive. Stay on the Road.



The Leading Cause of Traffic Deaths in Ohio

When a vehicle leaves the road, the results can be deadly. Roadway departure crashes often occur at high speeds. They happen when a vehicle crosses an edge or center line causing a head-on collision or sideswipe, or runs off the road and hits a fixed object like a tree or pole. Usually speed, poor weather conditions like rain or fog, or fatigue and alcohol play a role in the crash.

Roadway Departure Crash Outcomes Between 2006-2010

Fatalities	3,023
Injuries	126,204
TOTAL CRASHES	293,085

Roadway Departure Crashes – A Major Problem in Rural Areas

Nearly 65% of Ohio's roadway departure crashes take place in rural areas, and in the majority of cases, the car or truck crashed into a fixed object or a ditch. Records show that people tend to drive faster on rural roads. Without sidewalks or broad, graded shoulders, drivers have little room for error if they lose control. Overhead lighting is often poor, compounding problems when it is dark.

Every Move You Make – Keep it Safe

Every Move You Make is a statewide safety campaign designed to give you information to keep it safe on Ohio roadways. The goal is to reduce traffic fatalities five percent by 2015.

Visit www.everymove.ohio.gov for tips and safe driving information.

Did You Know?

Friday is the most common day for a roadway departure crash.

TIPS ON AVOIDING ROADWAY DEPARTURE CRASHES



BE SAFE on the Road

Reduce the Risk of a Roadway Departure Crash

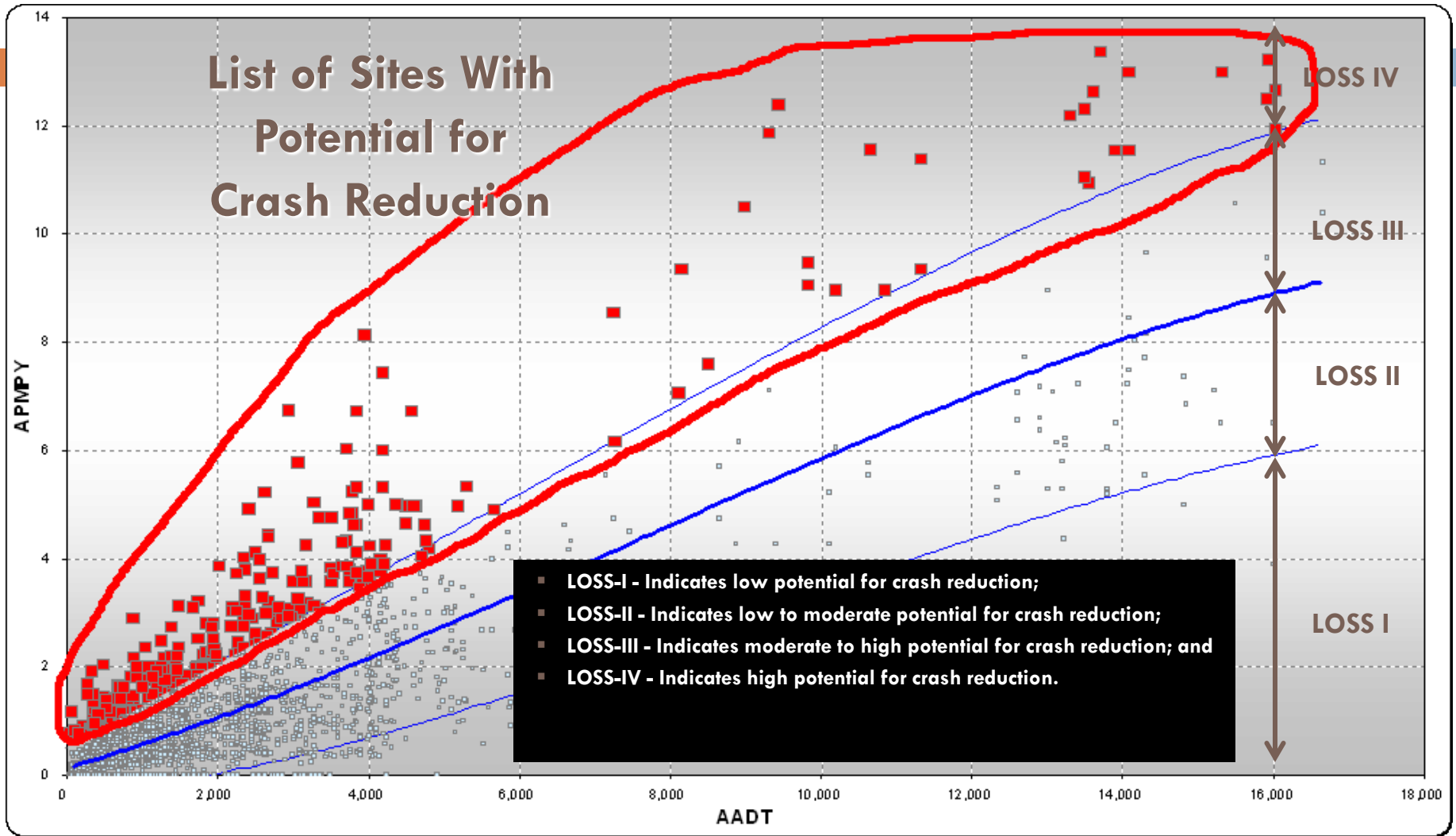
- 1. PAY ATTENTION AND STAY ALERT.** When traveling a long distance, or alone, stay alert and pay attention. Stop for a cup of coffee or caffeinated beverage. Turn down the music, put down the cell phone and eat your food later. If you find yourself dozing off, stop and take a rest.
- 2. DON'T DRINK AND DRIVE.** Alcohol slows your reaction time, among other things, and can impair your judgment. Plain and simple, don't drink and drive.
- 3. BE AWARE OF SHARP CURVES.** Be aware when you are entering a curve; slow your speed, and stay in your lane. Pay attention to signs that caution you about dangerous curves. They can save your life.
- 4. WATCH FOR SHOULDER DROP OFFS.** There is often a slight drop off at the edge of the road. If you veer off the road, don't panic and don't overcompensate by turning sharply on the steering wheel, slamming on the brakes or using the accelerator. The best course of action is to gradually steer back onto the road, gently straightening the steering wheel once the front tire is back on the pavement.
- 5. SLOW DOWN WHEN ROAD CONDITIONS ARE POOR.** Water, snow and ice can cause your vehicle to slip and slide off the road, or out of your lane. When the weather is bad, drive slower than usual, and brake lighter and longer.
- 6. OBEY PASSING REGULATIONS.** A solid yellow line means you do not have the proper sight distance to pass a vehicle. Don't second-guess the yellow line. It was put there by engineers who are experts in safety and road conditions. Don't pass when it isn't safe.
- 7. OBEY THE SPEED LIMIT.** Speeding decreases your ability to control your vehicle and correct driving errors. Look for yellow advisory signs that post reduced speeds, particularly when approaching a curve.
- 8. DRIVE WITH YOUR HIGH-BEAMS ON, WHEN NO TRAFFIC IS APPROACHING OR NO FOG IS PRESENT.** When it is dark, use your bright lights when no traffic is approaching. The high beams will light up the roadway and allow you to see what is ahead like animals, curves, slower cars, bicycles or pedestrians.

RD Strategies

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- RD-3: Roadway Departure Implementation Plan
 - MDT Selected a Consultant for Development of a MT RDIP including:
 - ❖ Predictive Tools - Montana-Specific Safety Performance Functions (SPF) & Level of Service of Safety (LOSS) Boundaries
 - ❖ Rural 2-Lane Highways in Mountainous Terrain
 - ❖ Rural 2-Lane Highways in Flat and Rolling Terrain
 - ❖ Rural 4-Lane Divided Highways in Mountainous Terrain
 - ❖ Rural 4-Lane Divided Highways in Flat and Rolling Terrain
 - ❖ Rural 4-Lane Interstate Freeways in Mountainous Terrain
 - ❖ Rural 4-Lane Interstate Freeways in Flat and Rolling Terrain
 - ❖ Urban 4-Lane Interstate

RD Strategies



RD Strategies

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- RD-4: Safety Management Software Upgrade
 - ▣ Safety Information Management System (SIMS)
 - ❖ Received approval of the business case in June 2012.
 - ❖ SIMS RFP Published September 9, 2013.
 - ❖ Final Vendor Selection and Contract Execution Anticipated by January 2014.
 - ❖ 6-9 months anticipated for implementation and user training.

Road Departure Emphasis Area

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Questions / Comments

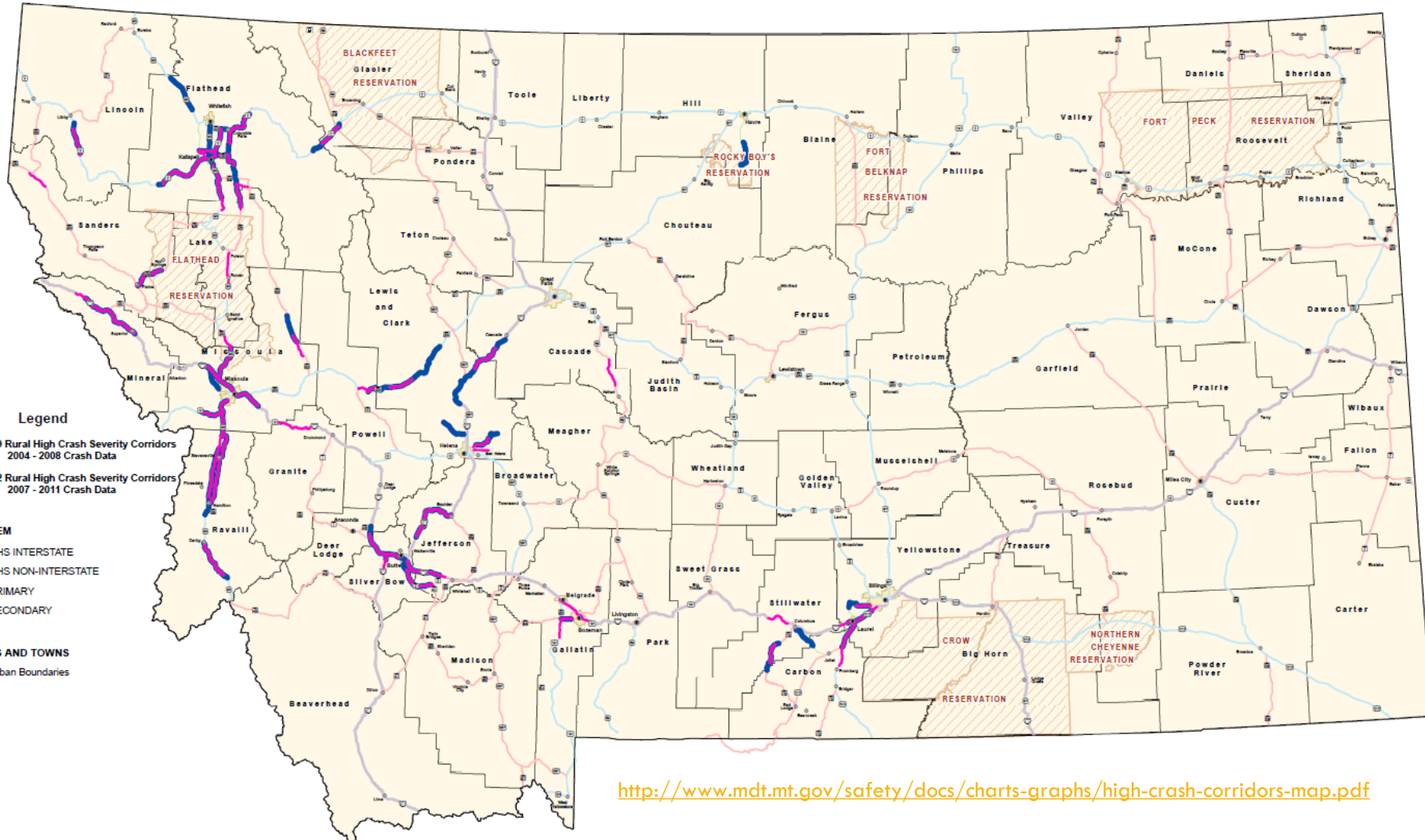
High-Crash Corridors/High Crash Locations

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Performance Measure:

- ***Identify Sufficient Improvements to Encumber 100% of the Annual HSIP Funds.***
 - FFY 2013 MDT identified sufficient safety projects to utilize the HSIP funds.

Rural High Crash Severity Corridors



<http://www.mdt.mt.gov/safety/docs/charts-graphs/high-crash-corridors-map.pdf>

* Corridors were identified based on Montana Highway Patrol 2004 - 2008 and 2007 - 2011 crash records

PREPARED BY THE
STATE OF MONTANA
DEPARTMENT OF TRANSPORTATION
ROAD INVENTORY AND MAPPING SECTION
Created August 2012 in ArcGIS 10.0 using ArcMap. ESRI, Inc.
NAD 1983 StatePlane Montana FIPS 2800
Lambert Conformal Conic



High-Crash Corridors/High Crash Locations

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- HC-1: Safety Management Software Upgrade (**On-going**).

- HC-2: Review of Best Practices
 - ▣ Updated guidance for advanced warning flashers at signalized intersections (**Completed**).

 - ▣ Research Evaluating Safety Impacts of the Statutory Speed Differential on Rural 2-lane Roads in Montana (**On-going**).

 - ▣ MDT Maintenance developed guidelines for usage of the VMS's (**Completed**).



205 ROAD DEATHS
IN 2012
75% UNBUCKLED

High-Crash Corridors/High Crash Locations

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- HC-2: Review of Best Practices
 - Newline articles (March & September 2013) describing the HSIP and soliciting projects from local entities.

<http://www.mdt.mt.gov/publications/newsletters/newline.shtml>

MDT Seeks Safety Projects

SAFETY is a priority and MDT is interested in local agency proposals for the Highway Safety Improvement Program (HSIP). HSIP funds can be utilized on any public road for projects such as signing, striping, guardrail installation, slope flattening, and intersection improvements.

For more information, contact Kraig McLeod at 444-6256, or go to: http://www.mdt.mt.gov/publications/docs/forms/hsip_application.pdf.

Highway Safety Improvement Program

The Highway Safety Improvement Program (HSIP) is a federal program and an element of MDT's Comprehensive Highway Safety Plan (CHSP). The HSIP funds infrastructure-related highway safety improvements that contribute toward the goal of halving the number of fatal and serious injuries by 2030. Most of these improvements involve signing, striping, delineation, guardrail installation, slope flattening, intersection improvements, and roadway realignment.

The locations are generally identified by crash trends based on the number of crashes, crash rates, severity of crashes, or a combination of these factors. Improvements can also be identified based on the statewide crash issues identified in the Montana CHSP. An example would be installation of rumble strips or curve warning signs to address identified single-vehicle-run-off-the-road crash issue.

Citizens or local agencies can submit a location for consideration. Local road agencies will need to include a safety priority list, provide an accident analysis and traffic information (if available), and identify proposed improvements, including any site constraints (right-of-way acquisition, utility relocations, etc.). A local road agency may submit up to five locations annually. The deadline for submitting a location is the end of the calendar year for projects to be reviewed during the spring of the following year. An application is available on the MDT Internet site at http://www.mdt.mt.gov/publications/docs/forms/hsip_application.pdf.

After MDT receives the applications from local road agencies, the Safety Engineering Section prepares an annual list of priorities. MDT then develops a program for improvements subject to funding availability. The Transportation Commission approves the list of safety improvement projects.

For more information on the Highway Safety Improvement Program, contact Kraig McLeod at 444-6256 or kmcleod@mt.gov.

High-Crash Corridors/High Crash Locations

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- HC-3: High Crash Corridor Sign Evaluation (**On-going**).
 - ▣ Systemic Projects to Upgrade Horizontal Curve Warning Signs to New MUTCD Standards
 - ❖ Evaluating alternative contracting methods.
 - ❖ New guidance to use Type IX fluorescent yellow sheeting for all curve warning signs.
 - ❖ Missoula District curve sign upgrades likely completed in 2014.
 - ▣ Constructed experimental project with LED chevrons.



High-Crash Corridors/High Crash Locations

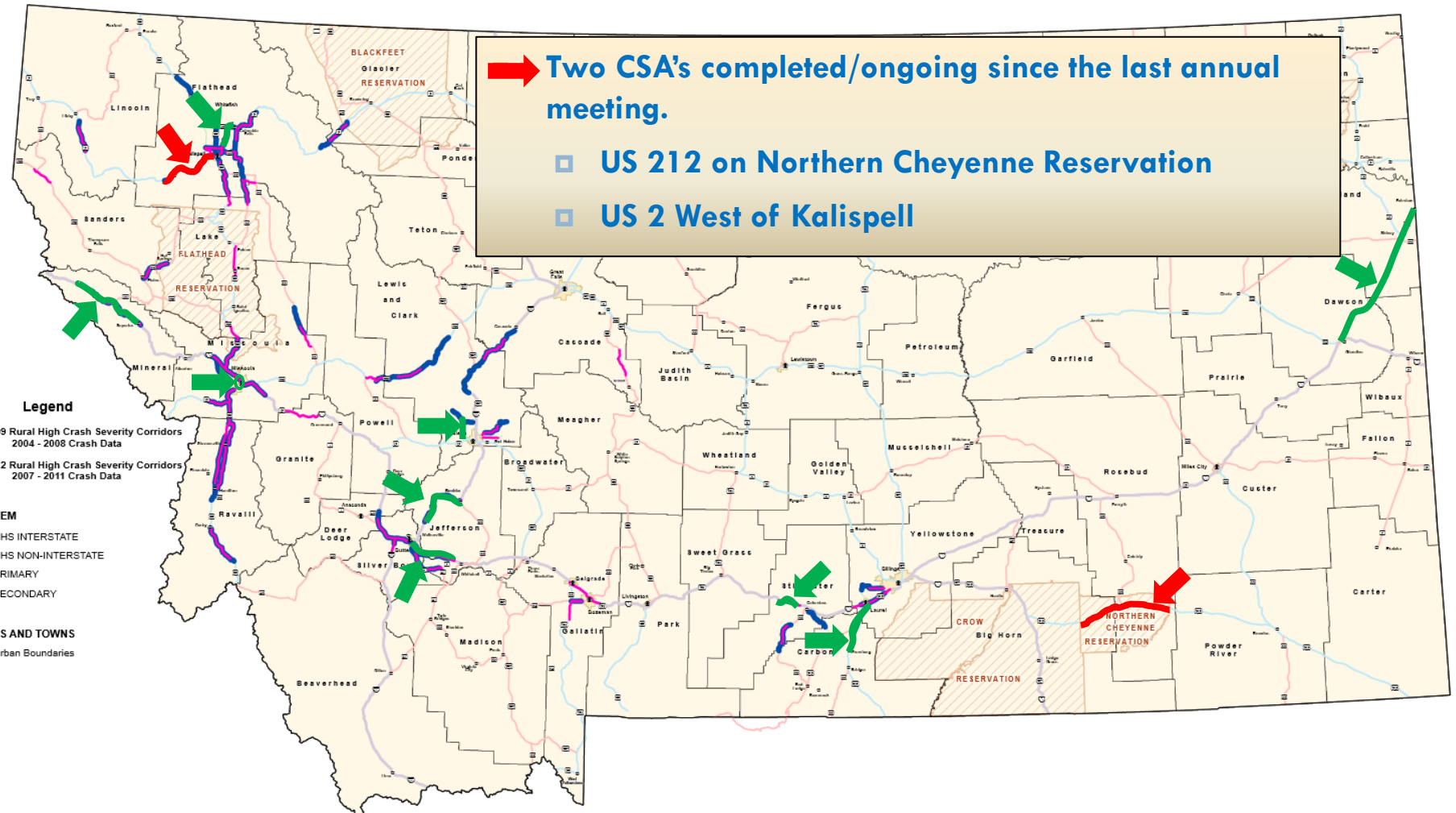
20

- HC-4: Implement and Evaluate Corridor Safety Audit Process (**On-going**).

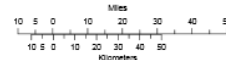


Historical and Ongoing CSA's:

2009 and 2012 Rural High Crash Severity Corridors



* Corridors were identified based on Montana Highway Patrol 2004 - 2008 and 2007 - 2011 crash records



Example of CSA Rec's:

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- Driver Behavior Recommendations:
 - ▣ Increase impaired driving education.
 - ▣ Explore opportunities to expand law enforcement collaboration and jurisdiction.
 - ▣ Support Buckle Up Coalition Coordinator.

- Engineering Recommendations:
 - ▣ Passing area ahead signs.
 - ▣ Centerline rumble strips.
 - ▣ Roundabout.

HCC/HCL Emphasis Area

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Questions / Comments