

*Roadway Departure & Intersection Crashes
Purpose, Strategies, and Implementation Steps*

Montana Comprehensive Highway Safety Plan



MONTANA
MDT★
DEPARTMENT OF TRANSPORTATION
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#VisionZeroMT
zero deaths | zero serious injuries

Purpose, Strategies, and Implementation Steps

Based on the available crash data, partner input, effectiveness, FHWA's Nine Proven Countermeasures,¹ and consideration of feasibility, priority strategies and implementation steps to reduce roadway departure and intersection crashes are defined on the following pages.

1

Reduce and mitigate roadway departure crashes through data-driven problem identification and the use of best practices.

Purpose

Engineering countermeasures have proven to be very effective at reducing roadway departure crashes. In general, these treatments seek to keep the vehicle from leaving the roadway, or mitigate the impact of doing so. Countermeasures may be implemented in locations with a roadway departure crash history or where roadway departure risk factors are present. MDT's Roadway Departure Plan will use analysis to identify rural roadways with a higher than normal crash rate and define evidence-based strategies to address the issues. Based on input from local jurisdictions and tribes, on an ongoing basis MDT will continue to conduct analysis of locations identified as having safety issues and define potential infrastructure solutions. Road Safety Audits also will be conducted as appropriate to comprehensively evaluate safety issues from a multidisciplinary perspective. As research into proven effective best practices is ongoing, MDT will monitor the safety literature to identify potential technologies for application in Montana.

Implementation Steps

- Implement MDT's Roadway Departure Plan including systemic and hot spot treatments on rural state routes.
- Construct infrastructure improvements to mitigate road departure crashes, both on and off the state system. Examples include but are not limited to: shoulder rumble strips; centerline rumble strips; signage and delineation; wider shoulders; flatter slopes; high-friction surfacing; geometric improvements; intelligent transportation system solutions; variable message signing; clear zone improvements; and guardrail improvements.
- Evaluate new roadway departure prevention technologies on an ongoing basis for applicability to Montana's roadways.
- Conduct Road Safety Audits on corridors or locations identified as having safety issues and implement appropriate recommendations.

¹ <http://safety.fhwa.dot.gov/legislationandpolicy/policy/memo071008/npccacsc/>.

2

Reduce and mitigate speed-related roadway departure/intersection crashes

Purpose

The faster a vehicle is traveling when it crashes the greater the chance of a severe injury to the occupants, especially if they are not wearing a restraint. Montana is evaluating whether the current differential speed limit (different speed limits for cars and trucks) has a positive or negative safety impact. Once the results of that research are available MDT will evaluate potential recommendations for changes. The speed limits posted on the roadways are determined to be safe under normal conditions but drivers routinely exceed the limits and drive too fast during inclement weather. Speed enforcement should be targeted to areas where speeding is common and there is a history of severe crashes.

Implementation Steps

- Complete the “Safety Impact of Differential Speed Limits on Rural Two-Lane Highways in Montana” research study and consider implementation of appropriate recommendations.
- Support targeted enforcement based on demonstrated crash patterns and high-risk drivers.



3

Reduce roadway departure and intersection crashes through education

Purpose

To increase knowledge of safe driving practices and help prevent unsafe driving behavior, education and awareness campaigns are a critical piece of the safety puzzle. After obtaining their driver's license most people never obtain any continuing driver education. However, evidence-based skills training courses are available and drivers should be encouraged to refresh their skills. New types of infrastructure elements, signs, and striping are integrated on the roadway system as new research on technologies and safety outcomes becomes available, but most people only learn about these new elements as they encounter them on the roadway. Public education to inform people of how to navigate new types of roadway infrastructure will be conducted as needed. In addition, many times people know how they should be driving but choose to take risks, drive aggressively, or not fully focus on driving. It is a constant challenge to help people take seriously the true risk they expose themselves and others to when operating a vehicle on the roadway. Awareness programs must reach the right people with the right message to affect their behavior and research to help define those messages is needed.

Implementation Steps

- Enhance awareness of and encourage increased participation of evidence-based roadway user skills training.
- Research underlying beliefs and behaviors of high-risk groups to better understand them; develop and implement strategies by using the appropriate proven and innovative educational materials and outreach communication channels.
- Conduct public awareness and education about roadway conditions, operations and management strategies, such as yellow flashing signals, roundabouts, bicycle lanes, pedestrian signals, operations around EMS responders, and right-of-way rules at stop-controlled and uncontrolled intersections.
- Promote and support evidence-based teen peer-to-peer education and programs to address risky driving behavior, including the consequences of distracted driving, impaired driving, and not using seat belts, among others.

4

Reduce and mitigate intersection crashes through data-driven problem identification and the use of best practices

Purpose

MDT's intersection safety plan will use analytical techniques to identify intersection types where specific crash patterns exist or where severe crashes are more likely to occur based on infrastructure characteristics and define potential solutions – addressing intersection safety in a proactive manner. Additionally, on an ongoing basis, using input on safety issues, all roadway jurisdictions will identify specific locations where improvements may be needed, conduct analysis, and define and implement solutions.

Implementation Steps

- Develop and implement an intersection safety plan.
- Construct infrastructure improvements to mitigate intersection-related crashes. Examples include but are not limited to: turn lanes; signal phasing/timing; flashing yellow arrows; retroreflective backplates on signals; sight distance improvements; roundabouts or other intersection control improvements; pedestrian improvements, including improvements at midblock crossings; bicycle improvements; signal coordination and timing improvements; enhanced/improved lighting; or enhanced/improved signing.



5

Support and increase enforcement of proper road use behaviors by all users in high-crash corridors and high-crash locations

Purpose

A primary way to change driver behavior is through enforcement of safe driving. The goal of issuing citations and fines to those who violate statutes and exhibit risky behavior is to change behavior. Data analysis and input from law enforcement is invaluable to identifying locations where enforcement is needed. Those locations also may be targeted for infrastructure upgrades to facilitate increased enforcement, such as LED lights on the back of traffic signals so law enforcement can clearly see the signal color from the other side of the intersection and enforce red-light running.

Implementation Steps

- Implement technologies and equipment to aid law enforcement in conducting enforcement.
- Implement and support targeted enforcement efforts to prevent intersection and roadway departure crashes.

6

Explore and implement best practices for reducing road departure, such as distracted driving and fatigued driving, in addition to other behavioral factors

Purpose

Behavior change may result from enforcement, education, or a response to infrastructure. For example, distracted or fatigued driving can be addressed through rumble strips that alert a driver (who might be talking on a cell phone or falling asleep) that they are leaving the travel lane; law enforcement could stop a vehicle for careless driving upon noting erratic movement on the roadway; or an education campaign might convince a driver that it is just not worth the risk to answer a call while driving or that they should pull over to rest when overly fatigued. New technology and research is continually emerging to address behavioral issues. With this strategy, Montana will continually monitor safety literature to evaluate emerging strategies with a proven safety benefit and consider implementation, if appropriate.

Implementation Steps

- Implementation steps to be determined as best practices are identified.

7

Improve the prosecution and adjudication of all roadway user violations

Purpose

Law enforcement resources are limited. When a citation is issued or an arrest made, the expectation is that the violator will pay a price for unsafe behavior. However, a case can result in dismissal for a variety of reasons, including poor collection of evidence, errors in the crash record, dismissal of a traffic infraction as part of a plea agreement involving multiple offenses, or inaccurate data in the court records system. To ensure that all participants in the process of adjudicating a traffic offense handle the case in the correct way so the violator receives the appropriate penalty, increased training is needed about key steps in the process, loopholes, and common errors. In this way every hour officers spend out on the road will be more efficient because more penalties will actually result from their work. Increased behavior change is likely to result.

Implementation Steps

- Increase education and training for law enforcement, prosecutors, and the judiciary to ensure consistent citing and adjudication of traffic offenses and consideration of alternative sentencing (i.e., safety education).



Roadway Departure and Intersection Crashes Implementation Partners

A wide range of safety partner agencies has been identified to support or provide leadership in implementing roadway departure and intersection crashes strategies.

<ul style="list-style-type: none">• AAA• AARP• Bike Walk Montana• Community Partners• Courts and Judges• Local Communities• Federal Highway Administration (FHWA)• Local (City, County, and Tribal) Law Enforcement• Local School Administrators• Montana Office of Public Instruction – Traffic Education• Department of Public Health and Human Services	<ul style="list-style-type: none">• Montana Behavioral Initiative• Montana Department of Labor and Industry - WorkSafeMT• Montana Department of Transportation – Engineering• Montana Department of Transportation -- Motor Carrier Services• Montana Department of Transportation – Planning Division• Montana Department of Transportation – State Highway Traffic Safety Section• Department of Justice – Montana Highway Patrol• Montana Motorcycle Rider Safety (MMRS)• Department of Justice – Montana State Crime Lab• Traffic Safety Resource Partners
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Roadway Departure and Intersection Crashes Objectives

Objectives for the Roadway Departure and Intersection Crashes Emphasis Area are defined as follows:

- Reduction in number of roadway departure crash fatalities;
- Reduction in roadway departure crash serious injuries;
- Reduction in number of intersection crash fatalities;
- Reduction in number of intersection serious injuries.