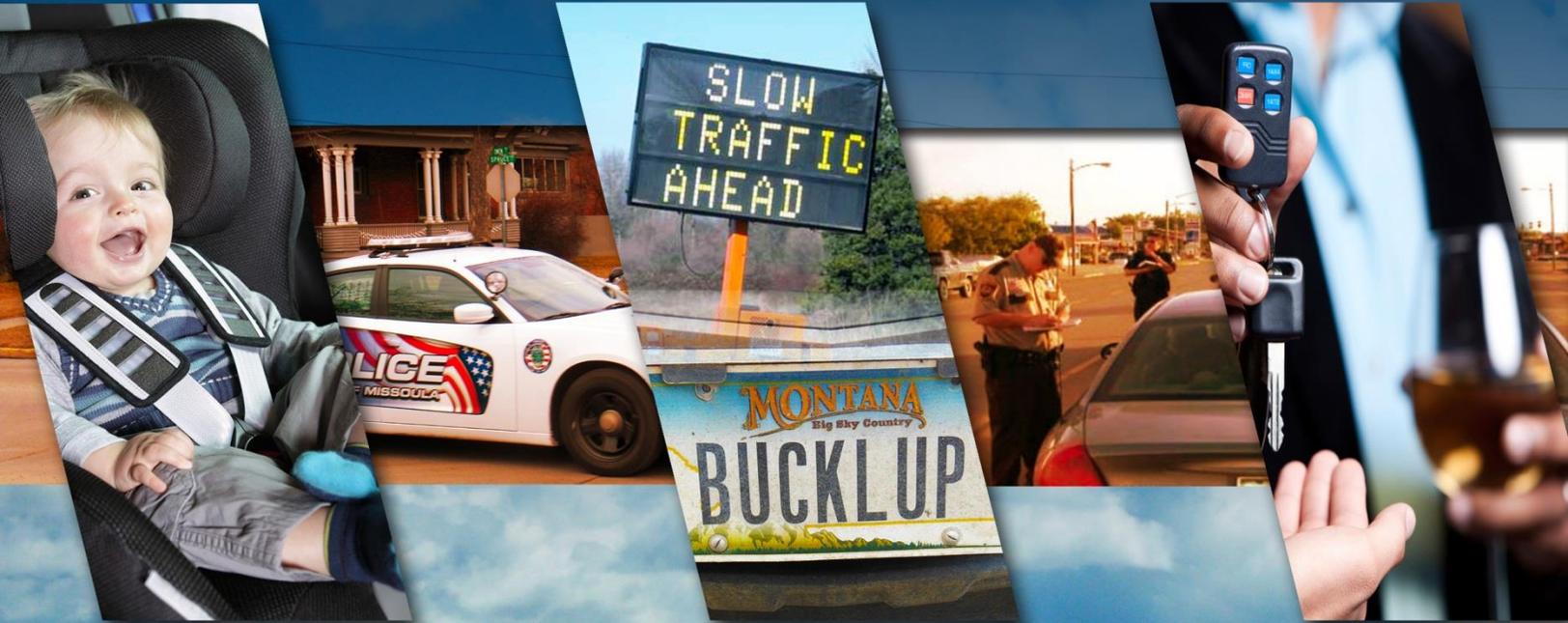


# Montana

## Comprehensive Highway Safety Plan





## Letter from Director Tooley

Montana is a state with unmatched natural beauty; featuring breathtaking mountains and wide open spaces, while offering a high quality of life to residents. As part of the Montana lifestyle, residents are accustomed to driving long distances to access jobs, shopping and recreation, which means people often log many miles on the roads during which they are exposed to the risk of a vehicle crash. Driving in rural areas far from medical care means that if a crash occurs, the impacts could be more severe as it may take hours before emergency crews are informed of the crash and can reach the victims and transport victims to the appropriate level of trauma care. In Montana, many lives are forever changed because a crash results in a fatality or a survivor requiring a lifetime of medical care. We need to change this cycle and prevent severe crashes from ever occurring.

The Montana Department of Transportation (MDT) is committed to providing a safe roadway system and partnering with our residents who use the roadways to ensure they make safe choices as they drive. We are committed to working with other safety partners in Montana to reach a day when no fatalities and no serious injuries occur on any public roadway - a **Vision of Zero**. The Montana Comprehensive Highway Safety Plan (CHSP) is our path moving forward to reaching Vision Zero. This plan uses a data-driven approach to focus on key safety problems and identifies where we need to direct resources to address those problems – to prevent and reduce the severity of crashes.

In my former position as Colonel of the Montana Highway Patrol, the need for increased focus on safety was made very real when I had to bury two colleagues due to a preventable problem: alcohol-related crashes. These deaths should never have occurred. We need to increase the focus on safe driver behavior so that it is a conscientious choice to never drive when impaired or to not drive or ride in a vehicle without buckling up.

The biggest challenge to reducing the number of fatalities and serious injuries on our roadways is in creating a culture of safety on our roadways in Montana. This plan will help establish a new mindset. Not one death or serious injury is acceptable. However, MDT is only one partner on this mission. Hundreds of individuals and safety partners across Montana representing expertise in engineering, enforcement, emergency medical service response, and education work toward this goal every day. We are all partners in safety. We are committed to continuing to work together, to work smarter, to increase the focus on the most significant safety problems, and to bring the numbers down. We will work to enhance safety through everyone who has a stake in this issue. This effort applies to every person who uses any public roadway in Montana, whether as a driver, passenger, bicyclist, pedestrian, motorcyclist, truck driver, or bus driver. We all have a role in this vision and it is MDT's privilege to lead the charge to ensure that no one else dies or is seriously injured on Montana's roadways. Together, we can reach our **Vision Zero**.

As the Governor's designee, I approve Montana's Comprehensive Highway Safety Plan.



**Mike Tooley, Director,  
Montana Department of Transportation**





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# Thank You to Highway Safety Partners

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## Safety Partners

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- City of Missoula-Planning MPO
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- Crow Nation
- Custer County Sheriff's Office/Buckle Up MT
- Dawson County Health Department/Buckle Up MT
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- Sleep Diagnostics Inc.

## Acronyms

**4 Es** – Engineering, Enforcement, Education, Emergency Medical Services

**AAA** – American Automobile Association

**AARP** – American Association of Retired Persons

**BAC** – Blood Alcohol Content

**CHSP** – Comprehensive Highway Safety Plan

**CMV** – Commercial Vehicle

**CPS** – Child Protection Seat

**CVSP** – Commercial Vehicle Safety Plan

**DOJ** – Department of Justice

**DOR** – Department of Revenue

**DPHHS** – Department of Public Health and Human Services

**DRE** – Drug Recognition Expert

**DUI** – Driving Under the Influence of drugs or alcohol

**EA** – Emphasis Area

**EMS** – Emergency Medical Services

**FHWA** – Federal Highway Administration

**GDL** – Graduated Driver's License

**HRRR** – High-Risk Rural Roads

**HSIP** – Highway Safety Improvement Program

**HSP** – Highway Safety Plan

**MAP-21** – Moving Ahead for Progress in the 21<sup>st</sup> Century

**MDT** – Montana Department of Transportation

**MHP** – Montana Highway Patrol

**MIP** – Minor in Possession

**MVD** – Motor Vehicle Division

**NHTSA** – National Highway Traffic Safety Administration

**RSA** – Road Safety Audit

**SAFETEA-LU** – Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users

**SHSP** – Strategic Highway Safety Plan

**SHTSS** – State Highway Traffic Safety Section

**SIMS** – Safety Information Management System

**STEP** – Selective Traffic Enforcement Program

**SOAR** – Safe on All Roads

**SWOT** – Strengths, Weaknesses, Opportunities, Threats

**TRCC** – Traffic Records Coordinating Committee

**VMT** – Vehicle Miles Traveled



## Executive Summary

The Comprehensive Highway Safety Plan (CHSP) is more than just a plan. It is the framework to engage residents and traffic safety advocates across Montana to one day meet the vision of zero fatalities and zero serious injuries on Montana's roads. Admittedly, this is a lofty vision, but behind every fatality or injury statistic is a person, plus family and friends forever affected by a crash.

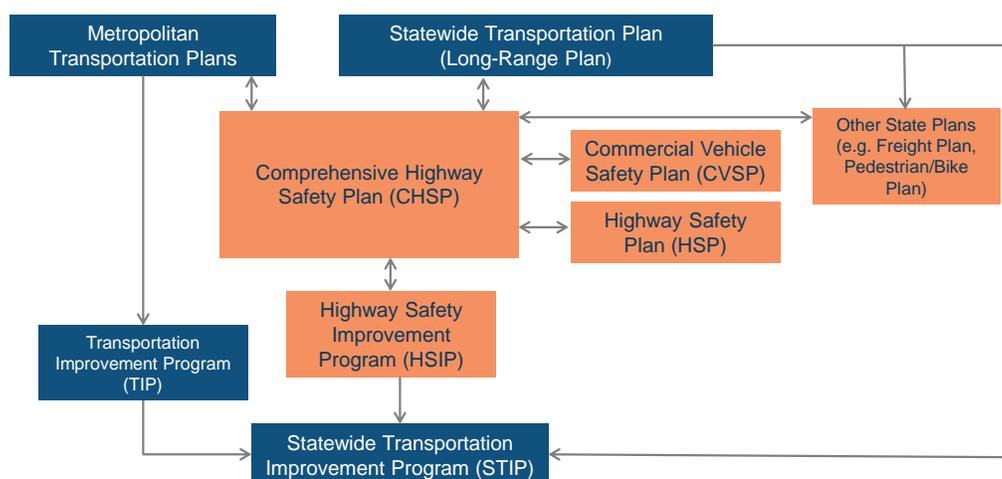
***“The vision for Montana is zero – zero fatalities and zero serious injuries – on any public roadway in the State.”***

*Mike Tooley, MDT Director*

The foundation of the CHSP is crash data, so it is important not to lose sight that each of these numbers represents real loss and suffering. This could be why so many Montanans are stepping forward to help reach Vision Zero. It is unacceptable for even one person to be killed or seriously injured on Montana's roads.

Crash data helps identify the top traffic safety problems in the State so that targeted approaches can be undertaken to save lives. The coordinated effort involves attacking safety problems with the 4 Es of safety – Engineering, Education, Enforcement, and Emergency Medical Services (EMS). The CHSP also coordinates with other safety plans, including the Highway Safety Improvement Program (HSIP), the Commercial Vehicle Safety Plan (CVSP), and the Highway Safety Plan (HSP).

**Figure ES.1 Relationship of Montana CHSP to Other Plans**



Montana developed its first CHSP in 2006 and amended it in 2010. In 2014, to comply with Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21), Montana's CHSP underwent an update. The CHSP is developed through a cooperative process involving local, state, federal, tribal, and private sector safety stakeholders. The Plan:

- Is data-driven;
- Establishes statewide goals and objectives; and
- Defines key emphasis areas to focus resources.

The CHSP facilitates collaboration among highway safety programs and partners. The plan aligns goals and leverages resources across agencies. Essentially, the plan brings together experts and advocates in the 4 Es of highway safety to define the strategies that will save lives and prevent injuries.

MAP-21 established special rules for High-Risk Rural Roads and related to drivers and pedestrians over age 65. Crashes in Montana did not meet the threshold that would call for specific actions in these categories, so the CHSP was not modified to meet these new requirements.

Updating the Plan involved an analysis of strengths, weaknesses, opportunities, and threats (SWOT) from the 2010 CHSP; crash data analysis; wide ranging outreach; review of state transportation plans to evaluate alignment with the CHSP; and meetings focused on specific crash issues. The 2015 plan includes data analysis, a vision, objectives, safety targets, Emphasis Areas, strategies and implementation steps, and defines evaluation. An Advisory Committee provided oversight, and multidisciplinary groups developed solutions and outcome measures for top safety problems.

Montana has made great strides in traffic safety since the 2006 CHSP was developed. Hundreds of partners have participated at the annual statewide Transportation Safety Meetings and Tribal Transportation Safety Summits. Six communities have developed transportation safety plans. Nonuse of child safety seats is now a primary offense. The number of Driving Under the Influence (DUI) courts increased. These are just a few of the many accomplishments. But the real proof is in the numbers: from 2007 to 2013 fatalities decreased 17 percent and serious injuries decreased 23 percent.

***We need to transform our culture, from a culture that accepts loss of life and limb as the price of mobility, to one in which elected officials, transportation professionals, and individual citizens expect safety, demand safety, and refuse to accept that an annual casualty count...is a fair price to pay for mobility.***

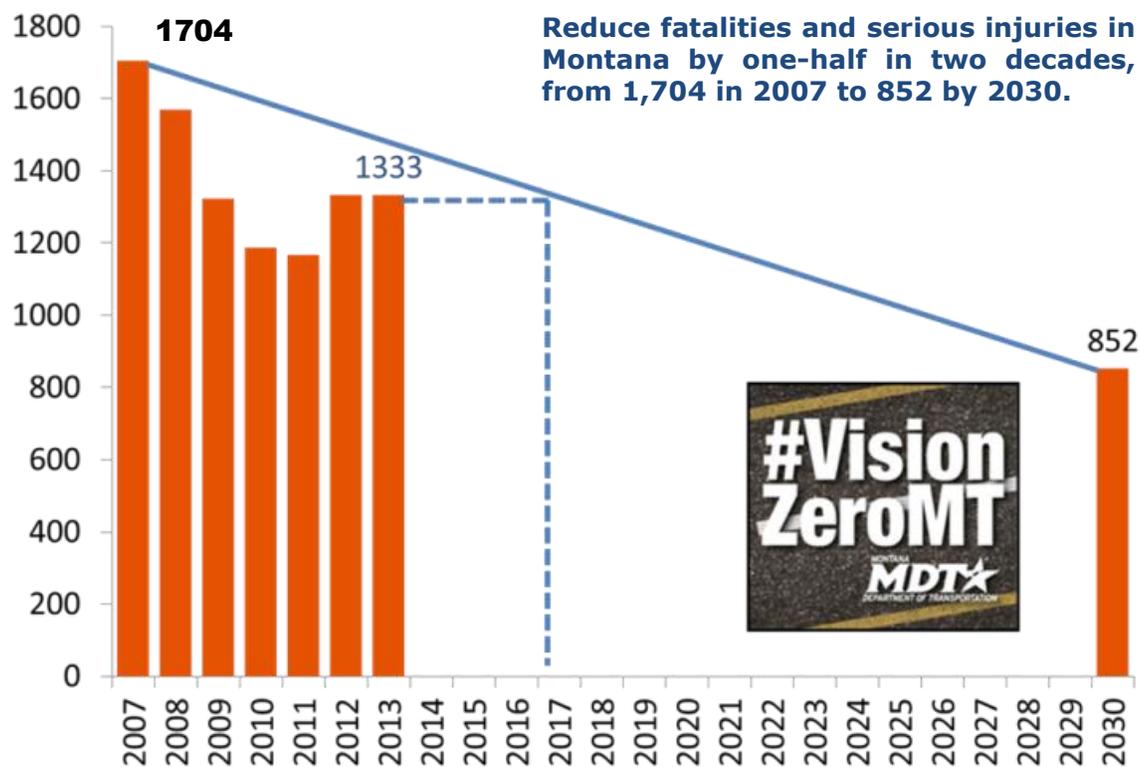
*Peter Kissinger, Director of AAA Foundation for Traffic Safety*

## Targets

In 2014, Montana committed to **Vision Zero** – a vision of zero fatalities and zero serious injuries on Montana’s roadways. The CHSP update maintains an interim goal of halving fatalities and serious injuries from 1,705 in 2007 to 852 in 2030 (Figure ES2). This Plan calls out four overarching safety targets for the four national performance measures established in MAP-21.

**Figure ES.2 Interim Safety Goal**

2007 to 2030



The safety targets established are:

- No more than 172 annual fatalities by 2020, which is an annual reduction of 2.7 percent (5 fewer fatalities per year);
- Fatality rate of no more than 1.28 fatalities per 100 million vehicle miles traveled (VMT) by 2020, a reduction of 4.3 percent per year;
- No more than 796 serious injuries by 2020, a 3.6 percent annual reduction; and
- Serious injury rate of 5.9 serious injuries per 100 million VMT, a reduction of 5.1 percent per year.

## Data-Driven Problem Identification

The key to achieving this long-term vision of zero fatalities and zero serious injuries is to focus resources on the most significant problems. Montanans will continue to advance a culture of traffic safety where death on the roadway is not tolerable. This culture includes each individual making good choices and travel safety a daily part of life.

Montana is committed to pursuing three key overarching strategy areas that will benefit all safety activities:

- Improve the accuracy, completeness, integration, timeliness, uniformity, and accessibility of data used in traffic safety analysis;
- Support the essential role of EMS in reducing the severity of injury outcomes and the technologies and systems necessary to advance collaboration with all safety partners; and
- Collaborate across agencies, organizations and with the public to improve the safety culture and promote the institutionalization of Vision Zero.

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.

On the following pages, data and strategies for each of the three Emphasis Areas are described.



## 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.

Intersections are the locations where the highest potential for conflict occurs, as vehicles, bicycles, and pedestrians cross paths. These crashes may occur at highway interchanges, signalized or stop-controlled intersections, or intersections without traffic control. Intersection crashes represent 13 percent of fatalities and 24 percent of serious injuries from 2004 to 2013.

The strategies identified to reduce roadway departure and intersection crashes and their severity are:

- Reduce and mitigate roadway departure crashes through data-driven problem identification and the use of best practices.
- Reduce and mitigate speed-related roadway departure and intersection crashes.
- Reduce roadway departure and intersection crashes through education.
- Reduce and mitigate intersection crashes through data-driven problem identification and the use of best practices.
- Support and increase enforcement of proper road use behaviors by all users in high-crash corridors and high-crash locations.
- Explore and implement best practices for reducing road departure, such as those related to distracted driving and fatigued driving, in addition to other behavioral factors.
- Improve the prosecution and adjudication of all roadway user violations.

## Impaired Driving Crashes

Impaired driving is defined as operating a vehicle while under the influence of drugs or alcohol. There has generally been greater focus on alcohol impairment, however, attention paid to drug impairment is increasing as awareness of impacts and methods for detection improve. Impaired driving crashes account for only eight percent of people involved in all crashes, but 47 percent of all fatalities and 29 percent of serious injuries. The strategies identified to address impaired driving crashes are:

- Reduce impaired driving through improved processes and regulations;
- Reduce impaired driving through enforcement;
- Reduce impaired road users through prevention education; and
- Continue to support and build collaborative partnerships to reduce impaired driving.

## Occupant Protection

Occupant protection refers to the use of a safety belt or child protection seat (CPS) by vehicle occupants. Seat belts offer the best chance for surviving or reducing the severity of injury in a crash. More than half, 54 percent of people who died in a Montana crash between 2004 and 2013, were not restrained, and 32 percent of those seriously injured were not restrained. Overall, more than a quarter of people do not consistently use a seat belt in Montana. Just 74 percent of Montanans wore seat belts in 2013, according to observational seat belt surveys. Although unrestrained fatalities and serious injuries have declined over the past 10 years, this decline has leveled off over the past five years (2009 to 2013). Improvement in seat belt use is imperative to achieve a goal of zero fatalities and zero serious injuries. The strategies for addressing nonuse of safety belts or child passenger seats are:

- Support policies, education, training, programs and activities that promote and increase seat belt and child safety seat use;
- Support enforcement of existing seat belt and child passenger safety laws;
- Continue to support and build collaborative partnerships to increase child occupant protection and seat belt use; and
- Evaluate the effectiveness of ongoing messaging, campaigns, and programs in promoting and/or increasing occupant protection use.

## Implementation

This plan is a map to saving lives on Montana's roads. Reaching Vision Zero calls for active engagement of safety partners at all levels, from agency leaders to their staff.

Multidisciplinary Emphasis Area Teams will meet regularly to put this plan into action. There will be continued engagement of the Advisory Committee to provide oversight and guidance. Additionally, an Executive Leadership Team comprised of agency executives is being formed to provide focused oversight on transportation safety.

## Evaluation

Annually, at the Transportation Safety Meeting, crash data will be analyzed and progress toward the four overarching safety targets and interim safety goal will be assessed. On an ongoing basis, safety partners will review progress on objectives established for each Emphasis Area. Each year the State will review fatalities on high-risk rural roads and fatalities and serious injuries per capita among older drivers and pedestrians assess if action is needed to comply with MAP-21.

As the numbers of fatalities and serious injuries decrease, the effort required will increase to reach Vision Zero. Ongoing evaluation will become increasingly important to ensure resources are directed appropriately. All safety partners will seek to ensure they are implementing effective programs and will conduct evaluation of programs that have not been formally evaluated previously. The results of those evaluations will feed into future refinement of safety programs to ensure the most effective use of resources and ultimately zero deaths and zero serious injuries on Montana's roads.

## 1.0 Overview

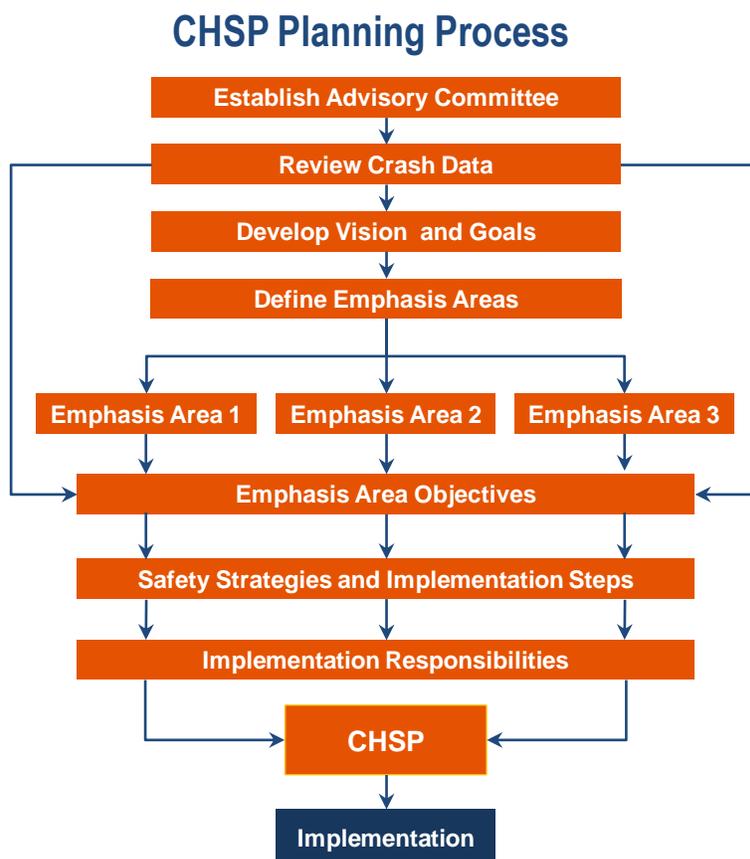
The Comprehensive Highway Safety Plan (CHSP) is a strategic document that identifies the top traffic safety problems on all of Montana's public roadways. The coordinated effort involves attacking safety problems with the 4 Es of safety – Engineering, Education, Enforcement, and Emergency Medical Services (EMS). The CHSP is coordinated with other safety plans, including the Highway Safety Improvement Program (HSIP), the Commercial Vehicle Safety Plan (CVSP) and the Highway Safety Plan (HSP).

Montana developed its first CHSP in 2006, amended it in 2010, and in 2014 began an update of the plan. Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21) requires states to have an updated Strategic Highway Safety Plan (SHSP) and that the process for its development adhere to that outlined in the legislation. These requirements include that it be data-driven, multidisciplinary, incorporate input from a range of partners, include measurable objectives, address all roadways users, and identify how progress will be evaluated.

The CHSP Purpose is defined as:

***Implement a collaborative process to reduce fatalities and serious injuries in Montana utilizing engineering, enforcement, education, and emergency response strategies. The CHSP will seek to focus resources strategically, where opportunities for safety improvements are greatest.***

Montana's update process involved an analysis of strengths, weaknesses, opportunities, and threats (SWOT) from the 2010 CHSP, crash data analysis, outreach to a wide range of partners via a Safety Summit, review of other agency transportation plans to evaluate alignment with the CHSP, and meetings focused on specific crash issues to define the strategies needed for continued progress.



## 1.1 MAP-21 Requirements

Development of the Comprehensive Highway Safety Plan was first required starting in 2005 under the Safe, Accountable, Flexible, Efficient Transportation Equity Act – A Legacy for Users (SAFETEA-LU), and the requirement was continued and strengthened under the MAP-21 transportation authorization of 2012. The plan is designed to provide a comprehensive framework for reducing fatalities and serious injuries on all public roads. The document identifies the major safety issues and needs and guides investment toward strategies that have the greatest potential to save lives and prevent injuries.

The CHSP must be developed through a cooperative process involving local, state, Federal, Tribal, and private-sector safety stakeholders. Invitees to participate in the Advisory Committee, safety summit, and Emphasis Area meetings included representatives from all of the required groups:

- Governors Highway Safety Representative;
- Metropolitan Planning Organizations;
- Representatives of major modes of transportation;
- State and local traffic enforcement officials;
- Highway-rail-grade crossing safety representative;
- Motor Carrier Service safety program;
- Motor vehicle administration agencies;
- County transportation officials;
- State representative of nonmotorized users; and
- Federal, state, Tribal, and local safety stakeholders.

The CHSP must be data-driven and establish statewide goals and objectives. Montana Department of Transportation (MDT) has set the four MAP-21-required safety performance measure targets via the CHSP process, including the coordination with the HSIP and HSP. However, the annual reporting requirement will be via the Highway Safety Improvement Program and Highway Safety Plan Annual Reports.

It is required that the most significant state safety problems be identified via data analysis and key Emphasis Areas be identified on which to focus resources. Montana conducted extensive analysis of crash data, including gaining detailed understanding of overlaps among crash factors, to define the emphasis areas in the CHSP.

Integration of partners with expertise in the 4 Es of highway safety is critical to defining multidisciplinary strategies for improvement. Montana included 4 E safety partners on the Advisory Committee, at the Annual Safety Meeting and during Emphasis Area meetings. The CHSP is intended to facilitate collaboration among highway safety programs and partners and to align goals and leverage resources across agencies. More detail about the process MDT has undertaken to develop the CHSP, which adheres to these requirements, is described in Section 3.0.

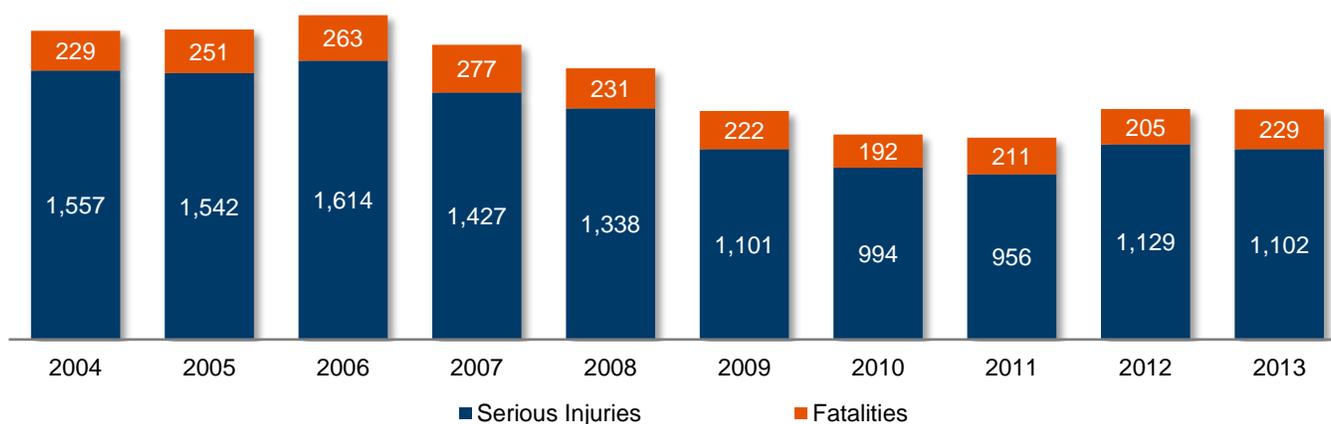
MAP-21 established a new High-Risk Rural Roads (HRRR) special rule under 23 USC 148(g), which requires a state to obligate a certain amount of funds on HRRRs if the fatality rate has increased during the past two years. The Montana definition of High-Risk Rural Roads is: any roadway functionally classified as a rural major or minor collector or a local road with significant safety risks. Per §23 USC 148(d)(2), MDT's definition of significant safety risk is "information gathered through means such as field reviews, safety assessments, road safety audits, and local knowledge and experience." Using information from observations in the field can identify high-risk locations that may not be identified through data analysis or by identifying roadway characteristics.

Additionally, MAP-21 includes a special rule (23 U.S.C. 148(g)(2)) related to drivers and pedestrians over 65: if statewide traffic fatalities and serious injuries per capita for these groups increases during the most recent two-year period for which data are available, the state must include in its SHSP strategies specifically to address those issues. MDT has not experienced increases for these measures for the two years ending in 2013 and 2012 so the CHSP did not require specific modifications.

## 1.2 State of Traffic Safety in Montana

Montana, like the United States overall, has achieved significant reductions in traffic-related fatalities and serious injuries over the past decade. Figure 1.1 shows fatalities and serious injuries are on a trajectory of decline, having decreased from a 10-year high of 276 fatalities in 2007 to 229 fatalities in 2013, with one year dipping below 200 fatalities (192 fatalities in 2010). Serious injuries also dipped below 1,000 in both 2010 and 2011, but increased in 2012 and remained above 1,000 in 2013. The data underscore just how unpredictable safety results can be, given the many factors that affect outcomes, some of which are within the State's control and some of which are not. Even when the best roadway engineering methods are implemented, the most competent emergency responders are on the job, and the most committed law enforcement are patrolling the roadways, factors such as the weather, increases in population and vehicle miles traveled (VMT), and risky behaviors can have a negative impact on the numbers. Continued vigilance is needed by specialists in the 4 Es to develop and implement approaches that will work. This includes identification of strong state policies that will impact safety culture and improve driver decisions on the road to continue to move Montana toward the vision of zero fatalities and zero serious injuries.

**Figure 1.1 Fatalities and Serious Injuries**  
2004 to 2013

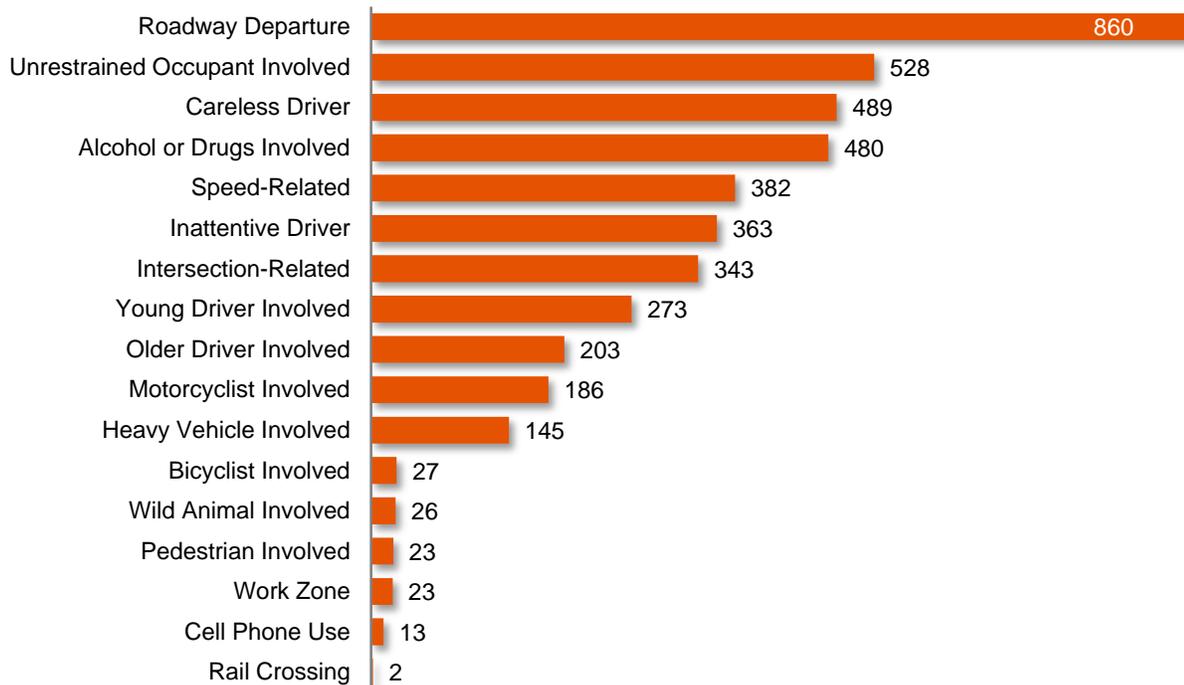


Source: MDT Safety Management System, 2004 to 2013, Problem ID FY 2013.

Each crash can involve multiple factors. That is, a person involved in a roadway departure crash also could be speeding, impaired and not wearing a seatbelt. Or a young driver could exhibit careless driving in a severe intersection crash. As shown in Figure 1.2, top crash factors resulting in fatalities and serious injuries include roadway departure, unrestrained occupants, careless driving and impaired driving (use of alcohol and/or drugs).



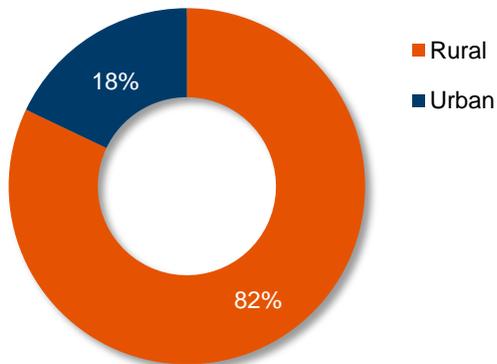
**Figure 1.2 Crash Factor Representation in Fatalities and Serious Injuries**  
*Annual Average, 2004 to 2013*



Source: MDT Safety Management System, 2004 to 2013, Problem ID FY 2013.

Montana is largely a rural state, which contributes to safety challenges in that crashes on rural roads often involve high speeds and result in severe injuries. While large numbers of crashes occur in urban areas also, these crashes tend to be less likely to result in fatalities or incapacitating injuries, partially due to lower speeds. Severe crashes in rural areas present particular challenges in the area of EMS. The vast majority (82 percent) of fatalities and serious injuries on Montana roadways occur in rural locations, as shown in Figure 1.3. Distances to medical care can be significant, which affects the amount of time until treatment can be provided and can affect the survivability of crashes. Therefore, to reduce loss of life and severe injury on the roadways, preventing crashes from occurring is truly critical in Montana.

**Figure 1.3 Fatalities and Serious Injuries by Urban and Rural Location**  
*2004 to 2013*



Source: MDT Safety Management System, 2004 to 2013, Problem ID FY 2013.

Note: Rural locations are defined as those outside a municipal boundary.

## 2.0 Vision and Goal Targets

The vision for safety on Montana's roadways is clear:  
**Vision Zero: zero fatalities and zero serious injuries.**



Achieving this vision will require successful implementation of the strategies in this plan. In addition, continued work is needed to institutionalize safety into agency and organizational practices, as well as general public perception, so that steps toward implementation of the vision are taken at every level by all agencies with a role in safety. MDT will continue to work with its safety partners to promote this ultimate vision by using the messaging and branding that was recently developed to build awareness. Safety partners will work together to seek broader adoption of strengthened policies, implementation of proven effective infrastructure countermeasures, and engagement by residents in making safe driving choices.

The 2010 CHSP established the goal to reduce fatalities and serious injuries by half from 2007 to 2030, as shown in Figure 2.1. Montana will retain this interim goal on the way to reaching Vision Zero.

MDT has set the four MAP-21-required safety performance measure targets via the CHSP process. This is intended to help align targets of the Highway Safety Improvement Program (HSIP) and the Highway Safety Plan (HSP) of MDT's Engineering and Rail, Transit and Planning Divisions.

The annual reporting requirement will be met via the HSIP and HSP programs Annual Reports. The final rule on safety performance measures had not been issued at the time of CHSP publication.

The Advisory Committee reviewed potential safety targets based on various approaches to establish a trend, considering trends in VMT, and population changes. For more information regarding the target-setting method used in the CHSP update process, please see Appendix C.

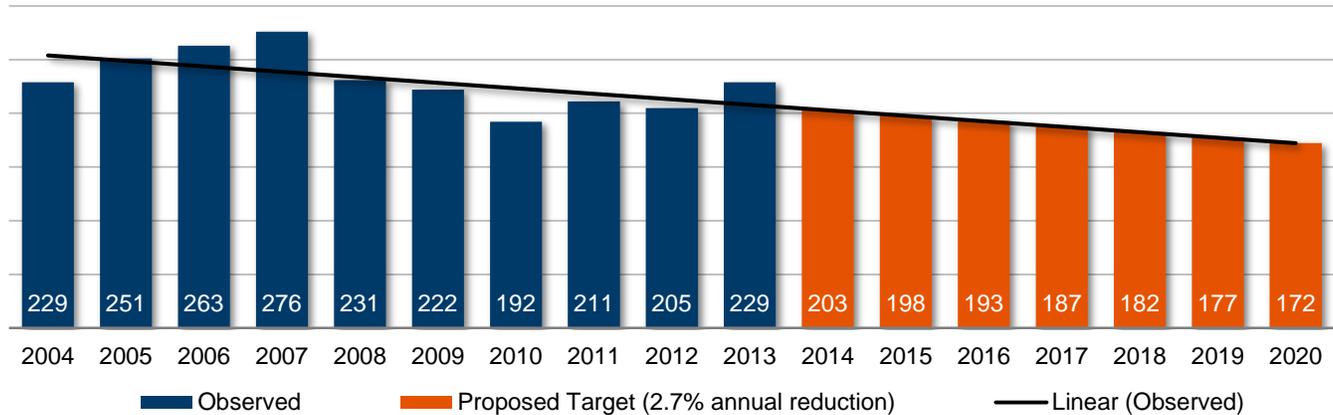
**Figure 2.1 Interim Safety Goal**  
 2007 to 2030



### Fatality Target

The Advisory Committee decided to develop a fatality target based on the trend over the most recent 10-year period (2004 to 2013), which equates to an average reduction of around five fatalities per year. Ten years was chosen as the basis for the trend in order to minimize the effect of random year-to-year fluctuations in fatalities. Continuing the linear trend line reduction beyond 2013 results in a 2014 baseline of 203 fatalities and a 2020 target of no more than 172 fatalities, as shown in Figure 2.2.

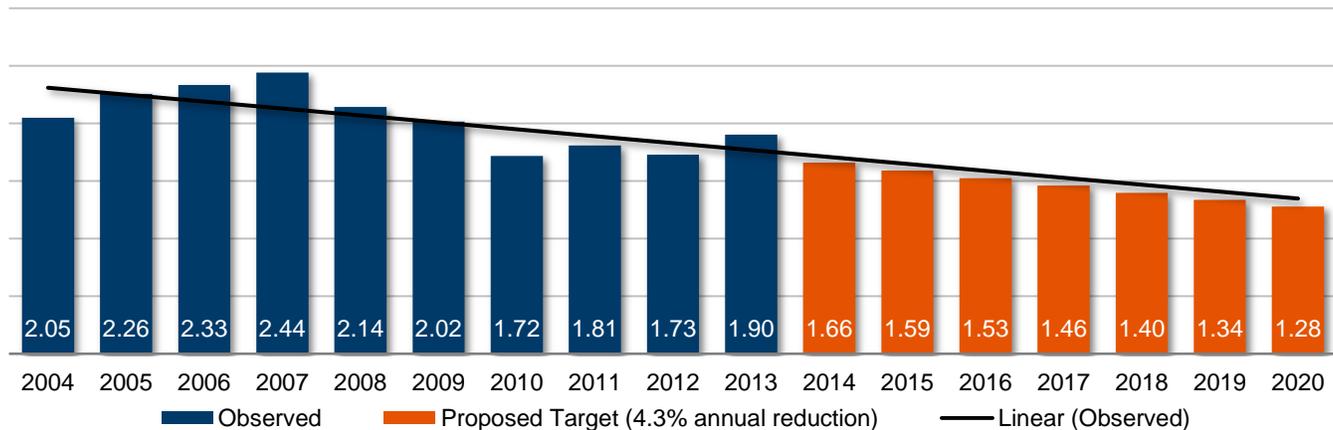
**Figure 2.2 Fatality Trend Analysis and Target Calculation**  
2004 to 2020



### Fatality Rate Target

For the fatality rate target – fatalities per 100 million VMT (100MVMT) – the fatality targets shown above were used along with annual VMT forecasts to calculate each individual year’s rate target. MDT forecasts an annual VMT increase of 1.6 percent. This calculation results in a rate target of no more than 1.28 fatalities per 100MVMT by 2020, as shown in Figure 2.3.

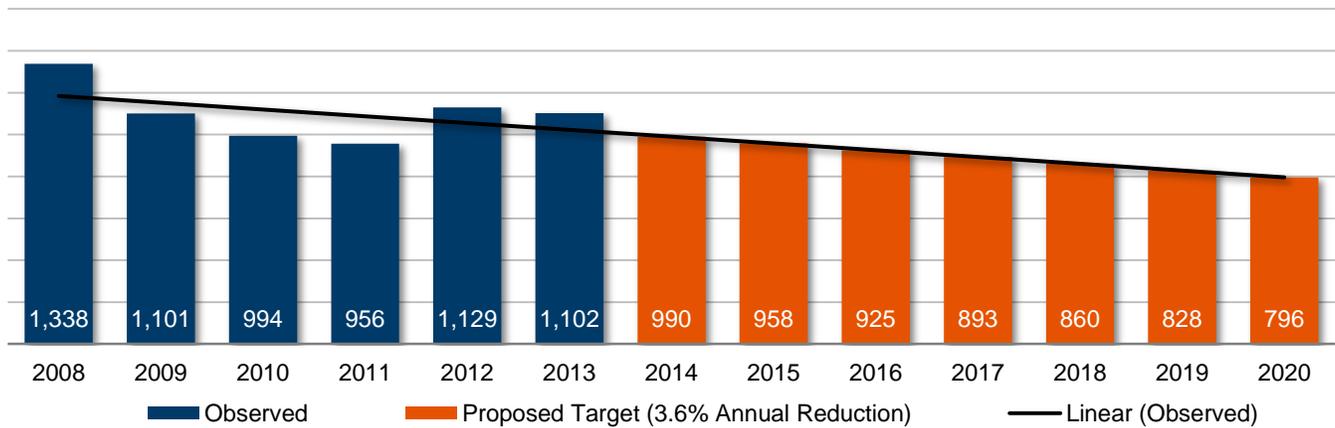
**Figure 2.3 Fatality Rate Trend Analysis and Target Calculation**  
2004 to 2020



### Serious Injury Target

For serious injuries, the 2020 target was developed based on the continuation of a six-year trend line (2008 to 2013). During that period, serious injuries declined by an average of 32 per year. Given the large numbers of serious injuries prior to 2008, development of a trendline using 10 years of data would have resulted in a very steep slope and establishment of an overly aggressive target. Therefore six years of data were used to develop the trend line and target. The trend was carried forward from a baseline calculation of 990 serious injuries in 2014 to a target of no more than 796 serious injuries by 2020 as shown in Figure 2.4.

**Figure 2.4 Serious Injury Trend Analysis and Target Calculation**  
2004 to 2020



### Serious Injury Rate Target

The serious injury rate target was developed using the serious injury target combined with annual VMT forecasts provided by MDT. This results in a target of no more than 5.9 serious injuries per 100MVT by 2020, as shown in Figure 2.5.

**Figure 2.5 Serious Injury Rate Trend Analysis and Target Calculation**  
2004 to 2020

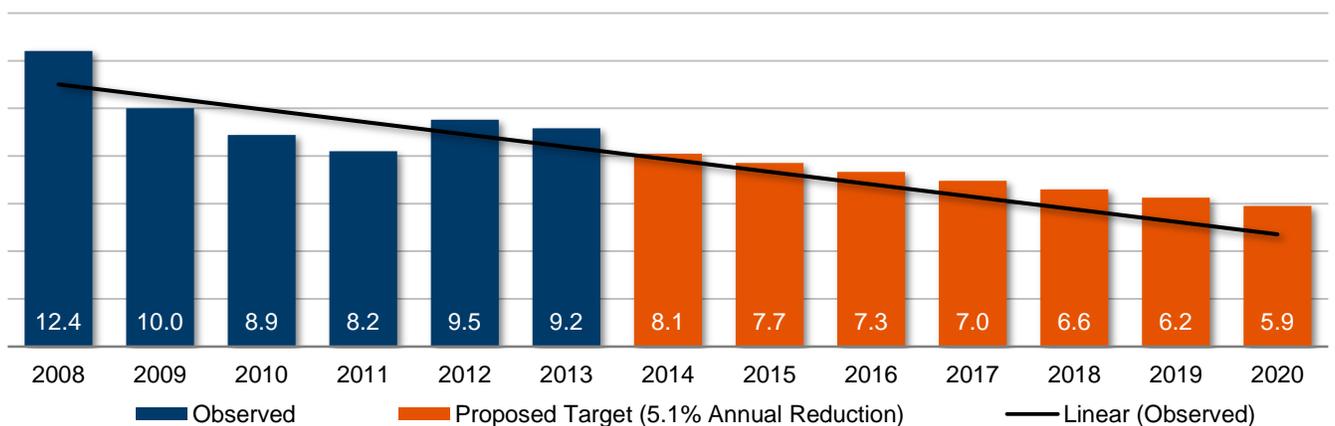


Table 2.1 summarizes the last year of actual data available (2013), the calculated 2014 baseline values, the 2020 target and what the target means in terms of annual reductions (number and percentage).

**Table 2.1 Fatality and Serious Injury Targets**

Performance Measure	2013 <sup>a</sup>	2014 Baseline Based on Historic Trend	2020 Target (annual)	Annual Reduction	Annual Reduction (%)
Fatalities	229	203	172	-5	-2.7%
Serious Injuries	1,102	990	796	-32	-3.6%
Fatality Rate	1.90	1.66	1.28	-0.06	-4.3%
Serious Injury Rate	9.2	8.1	5.9	-0.37	-5.1%

Source: CHSP Advisory Committee.

<sup>a</sup> 2013 was latest available data at the time of plan development.



## 3.0 Development Process

The 2015 update process presents an opportunity to reflect on progress achieved since the 2006 CHSP development, as well as to pinpoint the changes needed for continued progress toward the vision of zero fatalities and zero serious injuries. Achievement of improved roadway safety involves consideration of data analysis, organizational structures, business processes, collaboration, partner engagement, strategy implementation, and evaluation. The CHSP update process involved the following key activities:

- A strengths, weaknesses, opportunities, and threats (SWOT) analysis to determine what worked well during the last CHSP and what needs to change moving forward;
- Development of a multidisciplinary Advisory Committee to provide oversight and guidance throughout the process;
- Data analysis to define Emphasis Areas on which to focus resources and how to target safety strategies and implementation steps within the Emphasis Areas;
- Review of other state plans to ensure alignment with the CHSP;
- A day-long Safety Summit with a full range of 4 E safety partners from the state, communities, and tribes to confirm Emphasis Areas, goal, vision, and targets; and develop strategies and implementation steps for the Emphasis Areas; and
- Two rounds of Emphasis Area Team meetings to develop the plan, including to refine strategies and implementation steps, and develop the evaluation process.

The SWOT analysis involved a survey of all participants at the annual 2013 Transportation Safety Meeting as well as interviews with key safety partners to identify strengths and weaknesses of the previous CHSP and implementation process, and opportunities and threats moving forward. The results informed the 2015 CHSP update process and the final product. Examples from the analysis and how they informed the update are included in Table 3.1. The full SWOT results summary is located in Appendix B.



**Table 3.1 Select SWOT Results and Impact on Update Process**

Category	SWOT Finding	CHSP Approach
<i>Strength</i>	A large and diverse group of active and engaged stakeholders is in place.	Maintain and build upon engaged base of safety partners.
<i>Weakness</i>	Montana has a culture that has historically tolerated certain unsafe driving behaviors such as impaired driving and nonuse of seatbelts.	One of the three overarching strategies is culture change. CHSP implementation will leverage Vision Zero messaging.
<i>Opportunity</i>	The safety effort would be greatly strengthened by re-establishing an Executive Committee to ensure support by all agency leadership.	Establishment of an Executive Leadership Team is a recommendation for CHSP Implementation.
<i>Threat</i>	There is concern that Montana is too broad in its approach to safety. There is overlap of Emphasis Areas and strategies. This over extends staff and some partners and may not generate the best possible results in coordinating efforts to reduce crash fatalities and injuries.	The 2015 CHSP includes three Emphasis Areas focusing on four crash factors, a reduction from 12 Emphasis Areas in the previous document.



## 4.0 Safety Accomplishments

As part of this CHSP update, Montana documented an impressive list of accomplishments, including strengthened policies and legislation, new judicial processes, new data management systems and regional and Tribal safety plans. Some of the key safety accomplishments are listed below:

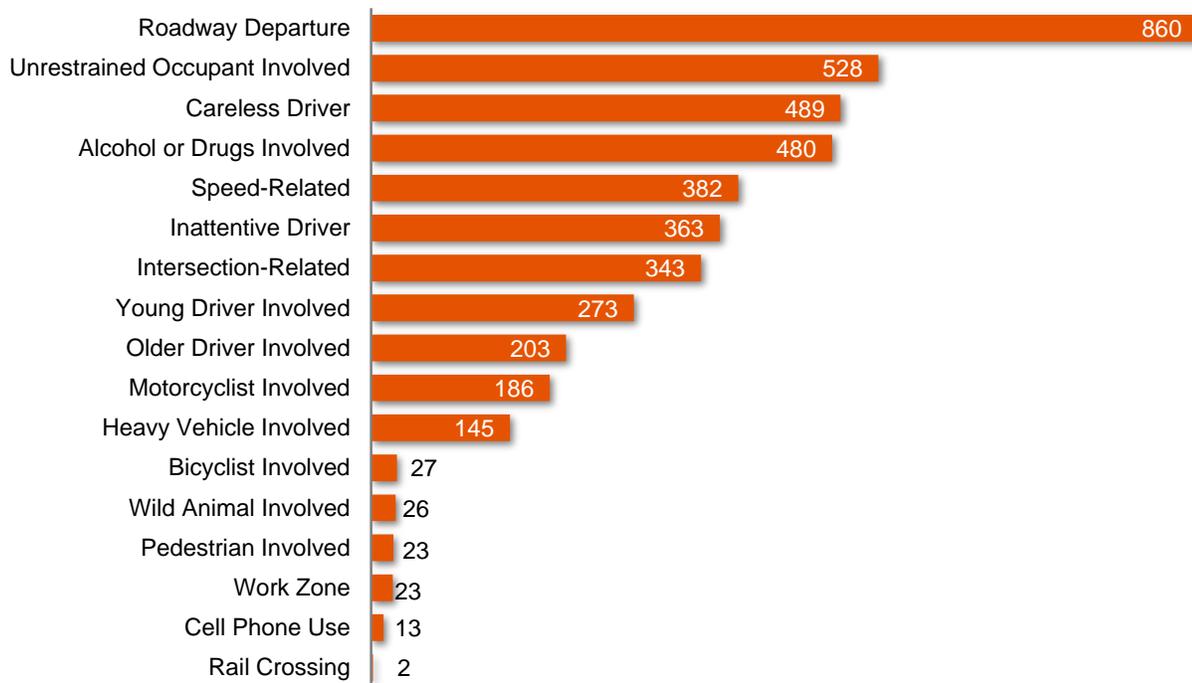
- Conducted annual transportation safety meetings and regularly scheduled Emphasis Area Team meetings from conception of 2006 CHSP development.
- Enacted primary child safety seat law (MCA 61.9.420).
- Enacted stronger penalties for blood alcohol content (BAC) test refusal (MCA 61.8.402).
- Enacted Alcohol Sales and Service training requirement (MCA 16.4.1001).
- Management of 13 active Buckle Up Montana Coalitions covering 35 counties.
- Added 7 DUI Courts and 5 Hybrid courts.
- Management of 30 DUI Task Forces representing 34 counties.
- Enacted per se law for marijuana (MCA 61.8. 411).
- Developed Road Safety Audit (RSA) Program and completed a RSA on each Tribal reservation.
- Developed a program to support Community Transportation Safety Plan development resulting in development of six plans (Butte-Silver Bow, Shelby-Toole County, Hamilton, Bozeman, Helena, and Missoula).
- Enhanced commercial motor vehicle (CMV) and driver inspection.
- Developed Safety on All Roads (SOAR) programs with designated tribal coordinators to support education programs to increase seatbelt use and reduce impaired driving.
- Completed four and initiated two tribal transportation safety plans.
- Enacted Graduated Driver Licensing (MCA 61-5-132 – 135).
- Conducted tribal Transportation Safety Summits in 2011, 2012, 2013, and 2014.
- Completed development of new Safety Information Management System software.
- Completed roadway departure implementation plan.
- Implemented Montana Highway Patrol (MHP) electronic crash database with most police departments in the State.
- Include GPS-based geolocation for all crash data.
- Enacted requirement that all parents attend the first driving education class so they are briefed on Graduated Driver Licensing and other safety topics (ARM 10.13.307).

## 5.0 Emphasis Area Identification Overview

Data analysis was central to identification of Emphasis Areas on which the plan would focus. Every crash has unique characteristics and most involve several factors. Crash factors include those related to infrastructure (i.e., intersections, roadway departure), populations (i.e., older or younger drivers), behaviors (i.e., restraint use, impaired driving, distracted driving), or modes/vehicles (i.e., motorcycles, pedestrians, bicyclists, trucks). The first step was to determine the extent to which specific Emphasis Areas were represented in crash data for the past decade. Top factors shown in Figure 5.1 include roadway departure, unrestrained occupants, careless driving and impaired driving.



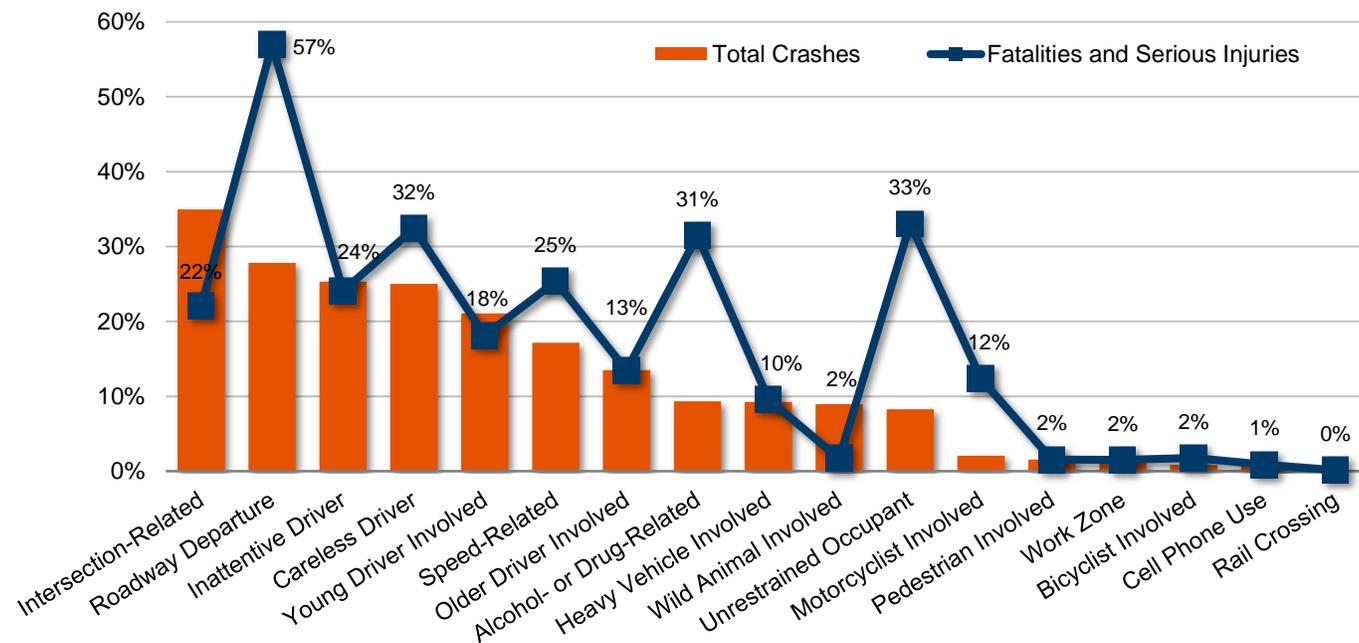
**Figure 5.1 Crash Factor Representation in Fatalities and Serious Injuries**  
*Annual Average, 2004 to 2013*



Source: MDT Safety Management System, 2004 to 2013, Problem ID FY 2013.

Figure 5.2 shows the prevalence of different crash types and the extent to which fatalities and serious injuries were involved for each crash type.

**Figure 5.2 Crash Factor Representation in Fatalities and Serious Injuries**  
2004 to 2013



Source: MDT Safety Management System, 2004 to 2013, Problem ID FY 2013.

Since most crashes involve multiple crash factors, a highly useful aspect of the analysis was understanding how the crash factors overlapped. For example, what percentage of fatalities and serious injuries involving impairment also involved nonuse of safety belts or roadway departure? Figure 5.3 shows how all the crash factors analyzed overlapped with each other; green shading represents lower percentages of co-involvement and red represents higher percentages. This enabled a comprehensive review of top issues, including the extent to which factors were co-involved. Broadly, this figure shows how common rural crashes, roadway departure, and unrestrained occupant fatalities and serious injuries are. In contrast, this figure shows that work zone, rail crossing, animal or bicycle involved crashes are relatively less frequent. More specifically, it shows – reading across the horizontal axis for “alcohol or drug involved” - that 67 percent of alcohol or drug-impaired fatalities and serious injuries also involved roadway departure and 57 percent of bicycle fatalities and serious injuries were at intersections.

It is important to keep in mind, however, that the number of fatalities and injuries represented by each percentage varies significantly depending on the factor in question. For example, in the roadway departure category motorcycle crashes represent only 11.5 percent of fatalities and serious injuries, but due to the large number of roadway departure crashes overall, this amounts to around 100 people killed or injured in this type of crash each year. By comparison, over half of work zone fatalities and serious injuries (52.9 percent) involve a roadway departure, but this only amounts to around 12 people killed or seriously injured annually.

**Figure 5.3 Emphasis Area Overlaps**  
*Percentage of Fatalities and Serious Injuries by Row, 2004 to 2013*

	Total	Urban	Rural	Native American	Intersection-Related	Roadway Departure	Work Zone	Rail Crossing	Wild Animal Involved	Speed-Related	Alcohol- or Drug-Related	Inattentive Driver	Careless Driver	Cell Phone Use	Unrestrained Occupant	Young Driver Involved	Older Driver Involved	Heavy Vehicle Involved	Motorcycle Involved	Pedestrian Involved	Bicycle Involved
<b>Total</b>	<b>100%</b>	<b>18.4%</b>	<b>81.6%</b>	<b>8.2%</b>	<b>22.0%</b>	<b>57.0%</b>	<b>2.0%</b>	<b>0.0%</b>	<b>2.0%</b>	<b>25.0%</b>	<b>31.0%</b>	<b>24.0%</b>	<b>32.0%</b>	<b>1.0%</b>	<b>33.0%</b>	<b>18.0%</b>	<b>13.0%</b>	<b>10.0%</b>	<b>12.0%</b>	<b>2.0%</b>	<b>2.0%</b>
<b>Urban</b>	100%	X	0.0%	1.9%	57.5%	13.7%	1.2%	0.0%	0.0%	14.4%	21.0%	22.1%	26.8%	0.5%	20.0%	22.8%	17.3%	7.6%	12.2%	15.1%	5.9%
<b>Rural</b>	100%	0.0%	X	9.7%	15.0%	66.0%	1.5%	0.2%	2.1%	27.3%	32.6%	24.1%	33.1%	1.0%	43.5%	17.4%	12.9%	9.9%	12.2%	2.7%	0.5%
<b>Native American</b>	100%	4.3%	95.7%	X	17.4%	65.7%	2.6%	0.1%	0.6%	31.3%	56.8%	29.1%	38.5%	0.6%	65.8%	26.1%	9.1%	6.6%	8.5%	2.0%	0.5%
<b>Intersection-Related</b>	100%	46.4%	53.6%	6.3%	X	0.0%	1.0%	0.0%	0.1%	13.9%	22.8%	30.0%	26.6%	0.8%	24.2%	26.1%	20.5%	10.9%	11.9%	6.1%	3.8%
<b>Roadway Departure</b>	100%	4.5%	95.5%	9.6%	0.0%	X	1.4%	0.1%	0.0%	31.9%	36.4%	22.1%	35.5%	0.9%	41.5%	16.0%	9.7%	7.2%	11.5%	0.6%	0.0%
<b>Work Zone</b>	100%	15.0%	85.0%	14.5%	15.9%	52.9%	X	0.0%	0.9%	26.0%	30.0%	28.6%	37.4%	0.0%	37.9%	12.8%	15.4%	17.6%	14.1%	1.3%	1.3%
<b>Rail Crossing</b>	100%	4.3%	95.7%	4.3%	0.0%	21.7%	0.0%	X	0.0%	8.7%	30.4%	39.1%	21.7%	4.3%	39.1%	13.0%	4.3%	21.7%	4.3%	8.7%	0.0%
<b>Wild Animal Involved</b>	100%	0.4%	99.6%	3.1%	0.8%	0.0%	0.8%	0.0%	X	4.3%	8.1%	3.5%	1.6%	0.0%	2.7%	3.1%	5.8%	3.9%	65.1%	0.0%	0.4%
<b>Speed-Related</b>	100%	10.7%	89.3%	10.3%	12.5%	71.8%	1.5%	0.1%	0.3%	X	38.5%	19.1%	35.3%	0.4%	49.3%	20.5%	7.7%	8.7%	10.8%	0.5%	0.2%
<b>Alcohol- or Drug-Related</b>	100%	13.3%	86.7%	15.0%	17.0%	67.0%	1.4%	0.1%	0.4%	32.0%	X	20.8%	42.4%	1.0%	56.0%	15.0%	5.3%	4.7%	7.6%	5.8%	0.5%
<b>Inattentive Driver</b>	100%	17.2%	82.8%	10.1%	28.9%	52.5%	1.8%	0.2%	0.2%	20.1%	27.2%	X	37.2%	1.2%	40.1%	21.8%	13.6%	10.4%	12.2%	1.2%	1.4%
<b>Careless Driver</b>	100%	15.5%	84.5%	9.9%	19.0%	62.6%	1.7%	0.1%	0.1%	27.6%	41.2%	27.6%	X	1.4%	48.5%	22.3%	10.2%	9.1%	9.1%	1.1%	0.7%
<b>Cell Phone Use</b>	100%	9.8%	90.2%	5.3%	21.2%	60.6%	0.0%	0.8%	0.0%	11.4%	34.8%	33.3%	50.8%	X	47.0%	21.2%	7.6%	10.6%	1.5%	3.8%	1.5%
<b>Unrestrained Occupant</b>	100%	9.4%	90.6%	13.8%	17.0%	72.0%	1.4%	0.2%	0.1%	33.0%	48.0%	24.3%	39.5%	1.0%	X	22.0%	9.7%	4.6%	0.8%	0.6%	0.1%
<b>Young Driver Involved</b>	100%	22.9%	77.1%	8.3%	32.1%	49.3%	1.0%	0.1%	0.3%	27.9%	24.3%	28.1%	38.8%	1.0%	48.1%	X	5.7%	5.8%	5.2%	3.2%	1.0%
<b>Older Driver Involved</b>	100%	23.3%	76.7%	5.4%	34.0%	40.2%	1.7%	0.0%	0.7%	14.1%	11.7%	23.5%	23.8%	0.5%	27.7%	7.6%	X	14.9%	10.1%	4.7%	1.1%
<b>Heavy Vehicle Involved</b>	100%	14.9%	85.1%	5.7%	26.2%	43.2%	2.8%	0.3%	0.7%	23.0%	15.5%	26.2%	30.8%	1.0%	19.1%	11.2%	21.5%	X	2.7%	1.3%	1.2%
<b>Motorcycle Involved</b>	100%	18.5%	81.5%	5.7%	21.9%	53.0%	1.7%	0.1%	9.0%	22.2%	19.3%	23.8%	24.0%	0.1%	2.5%	7.8%	11.3%	2.1%	X	0.1%	0.1%
<b>Pedestrian Involved</b>	100%	57.8%	42.2%	4.7%	29.5%	6.0%	0.6%	0.2%	0.0%	3.4%	32.3%	7.9%	10.1%	0.9%	6.6%	12.9%	12.0%	3.6%	0.2%	X	0.2%
<b>Bicycle Involved</b>	100%	74.8%	25.2%	2.6%	57.0%	1.5%	1.5%	0.0%	0.4%	3.3%	10.4%	23.7%	13.7%	0.7%	1.9%	14.1%	10.0%	6.7%	0.7%	0.7%	X

Source: MDT Safety Management System, 2004 to 2013, Problem ID FY 2013.

Based on the analysis shown above, three Emphasis Areas were selected for focus in the CHSP:

- Roadway Departure and Intersection Crashes;
- Impaired Driving Crashes; and
- Occupant Protection.

Distracted driving (careless, inattentive and cell phone use) also contributes to a large number of crashes. The Emphasis Area discussions resulted in the decision to address this issue within the strategies of the three Emphasis Areas identified above. Data analysis showed that 92 percent of fatalities and 91 percent of serious injuries involve one or more of these five factors: roadway departure, intersections, impaired driving, occupant protection, or distracted driving. Therefore, more concentrated focus on these areas should result in positive safety outcomes for multiple crash categories.

As Emphasis Area Teams undertake implementation steps, they will consider other information such as the high-risk demographic groups, time periods when most severe crashes occur, and high-crash locations to ensure efforts are targeted appropriately.

In addition to the identified Emphasis Areas, Montana is committed to pursuing three additional key overarching strategy areas that will benefit all safety activities, and help the state work toward its vision of zero fatalities and serious injuries. These areas are described below: Data, EMS, and Safety Culture.

## 5.1 Data

### *Improve the accuracy, completeness, integration, timeliness, uniformity, and accessibility of data used in traffic safety analysis*

The foundation of the CHSP is high-quality data. Montana has made a dramatic improvement in its data through two recent advances that will pay off in future years. The new Safety Information Management System (SIMS) updated in 2014 will enable more consistent and accurate data queries; allow for integration of crash data with roadway infrastructure, courts, driver licensing, and medical outcomes data; and enable local jurisdictions to complete their own safety data queries. Additionally, significant progress has been made in rolling out technology to enable inputting of electronic crash reports by law enforcement so data are more accurate and timely. Montana will continue to leverage the analysis capabilities available in the SIMS to evaluate progress. Ongoing efforts will work to link additional datasets to crash data to enable more precise analysis of the relationship between crashes and infrastructure characteristics as well as more accurate medical outcomes.

Like all states, Montana has a Traffic Records Coordinating Committee (TRCC) that provides oversight and seeks to advance the accuracy, timeliness and completeness of traffic and safety data. Several members of the CHSP Advisory Committee also sit on the TRCC and will provide ongoing coordination and progress reporting of data needs and updates.

## 5.2 EMS

### *Support the essential role of Emergency Medical Services in reducing the severity of injury outcomes and the technologies and systems necessary to advance collaboration with all safety partners*

Emergency Medical Services have particular complexities in a rural state like Montana. Technology must be used to maximum efficacy to stretch limited resources as far as possible in terms of detecting crashes, determining the right team to respond in a state with mostly volunteer EMS staff, identifying the right trauma center to which the patient should be transported, deciding on the manner of transport (ambulance or helicopter) and providing the right medical treatment. EMS involves a very complex process which affects all types of crashes. Continuous improvement of post crash EMS data will help inform future crash response and treatment methods.

## 5.3 Safety Culture

### *Collaborate across agencies, organizations and the public to increase the safety culture and promote the institutionalization of Vision Zero*

Vision Zero will not be achieved without a shift in safety culture in Montana. Too many people drive too fast, drive after drinking alcohol or using drugs, do not wear a seatbelt, or allow distractions to affect concentration on driving. Safety culture means not tolerating deaths and serious injuries on the roadways as simply the cost of getting around. It means that everyone accepts that crashes are not accidents – death and serious injury can be prevented. It means everyone with a role in safety makes it a priority to continuously improve the roadway system and change social norms around safe driving practices so that severe crashes do not occur. It means making sure all Montanans take very seriously the choices they make when operating a vehicle on the public roadway system and act responsibly for themselves, their families, and everyone else on the road. The consequences of not improving traffic safety in Montana are serious from a public health perspective, from an economic impact perspective, and from a social perspective. Increased focus on safety is necessary.

A second facet of safety culture is to ensure all citizens that safety is at the forefront of priorities by all agencies with a role in making improvements. This includes continually reevaluating business practices and procedures to ensure that safety is given adequate consideration and the latest evidence-based research is used throughout the full range of planning, communications, customer interface, construction, maintenance, data management, and policy efforts by all safety partner agencies. Montana's leadership must continually reinforce the importance of these efforts and embrace creative and effective methods to get closer to the vision of zero fatalities and serious injuries.



## 6.0 Emphasis Area Data and Strategies

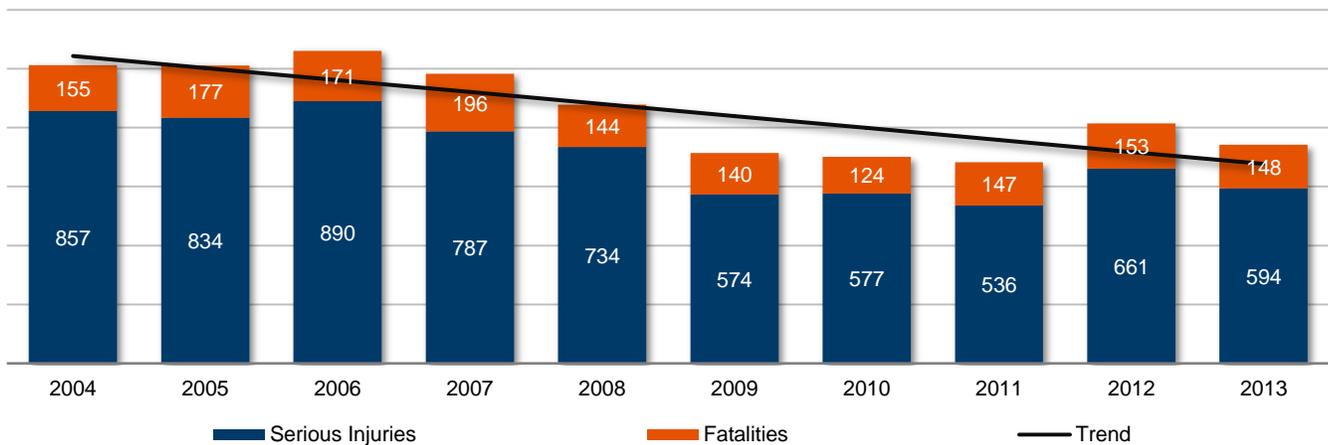
This section provides additional data about each of the Emphasis Areas, which helped to inform strategy development. The strategies that form the basis of the plan and the implementation steps are presented in each Emphasis Area section. It also is important to note that throughout the implementation of each Emphasis Area ongoing coordination will be needed on data improvements, EMS, and safety culture improvement.

### 6.1 Roadway Departure and Intersection Crashes Purpose, Strategies and Implementation Steps

#### Roadway Departure

Roadway departure crashes tend to be severe due to high speeds and rural locations. They account for about 20 percent of all people involved in crashes, but 67 percent of fatalities. Figure 6.1 shows roadway departure crash trends for the past decade.

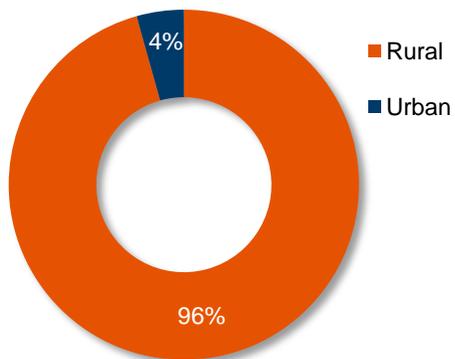
**Figure 6.1 Roadway Departure Fatality and Serious Injury Trend**  
2004 to 2013



Source: MDT Safety Management System, 2004 to 2013, Problem ID FY 2013.

The vast majority (96 percent) of roadway departure fatalities and serious injuries occur in rural areas, as shown in Figure 6.2.

**Figure 6.2 Roadway Departure Fatalities and Serious Injuries by Urban and Rural Area**  
2014 to 2013



Source: MDT Safety Management System, 2004 to 2013, Problem ID FY 2013.

The most common times for roadway departure fatalities and serious injuries are weekend evenings and early morning hours, as shown in Figure 6.3. Roadway departure crashes also often involve impairment.

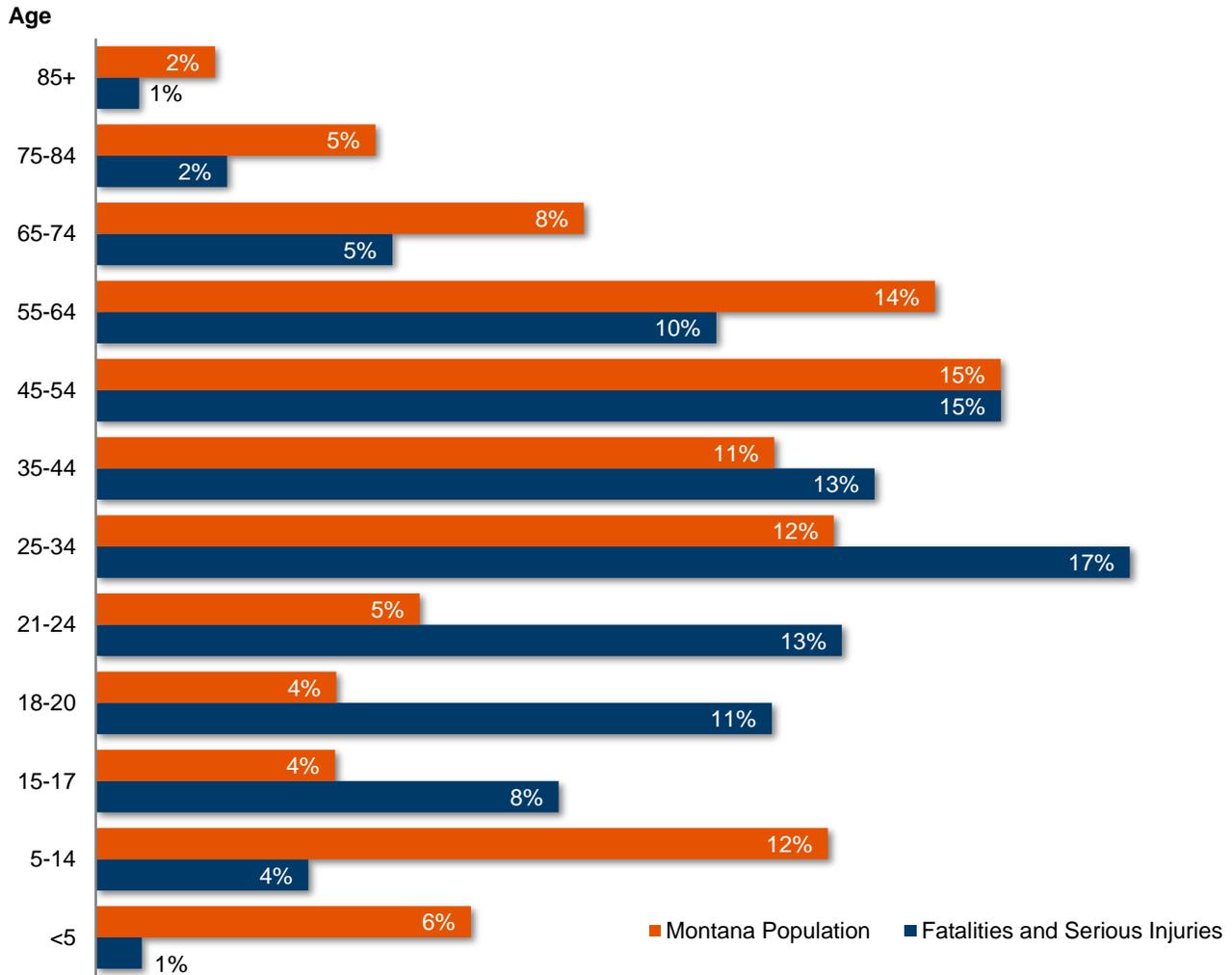
**Figure 6.3 Roadway Departure Fatalities and Serious Injuries by Day of Week and Time of Day**  
2004 to 2013

Time of Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
12am-3am	115	95	116	112	125	314	253
3am-6am	44	68	66	62	79	165	176
6am-9am	122	104	117	108	142	118	110
9am-12pm	125	121	133	112	100	157	134
12pm-3pm	162	128	127	125	174	227	214
3pm-6pm	193	189	195	184	197	270	273
6pm-9pm	172	160	181	162	228	255	196
9pm-12am	122	100	151	124	237	228	131

Source: MDT Safety Management System, 2004 to 2013, Problem ID FY 2013.

Roadway departure fatalities and severe injuries are overrepresented compared to the population among younger drivers (ages 15-34), as is shown in Figure 6.4.

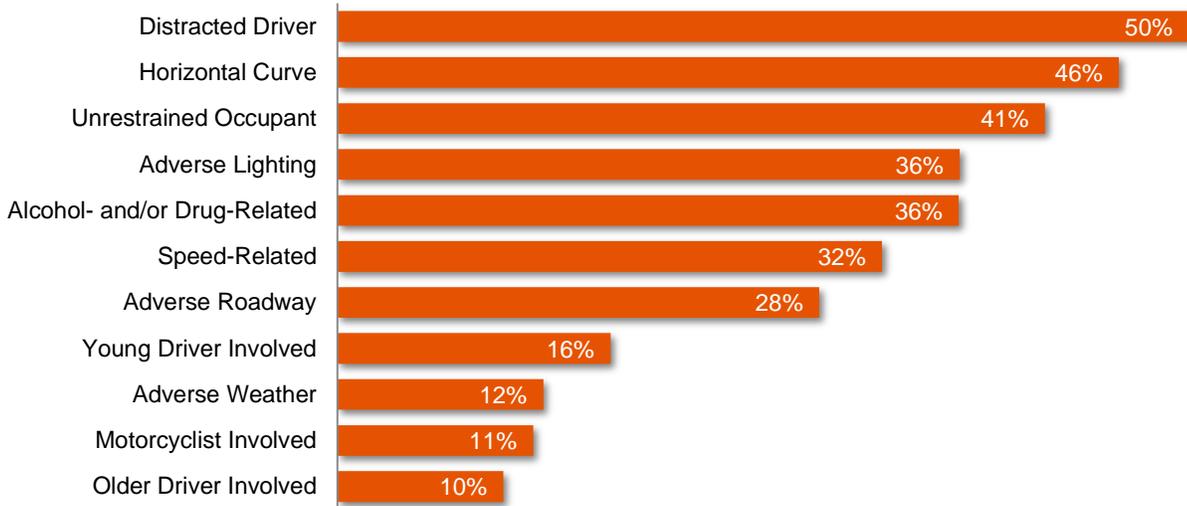
**Figure 6.4 Roadway Departure Fatalities and Serious Injuries by Age**  
2004 to 2013



Source: MDT Safety Management System, 2004 to 2013, Problem ID FY 2013.

As shown in Figure 6.5, the crash factors that are most frequently involved for roadway departure fatalities and serious injuries include distraction (careless, inattentive and cell phone use), crashes on horizontal curves and lack of restraint use.

**Figure 6.5 Roadway Departure Fatalities and Serious Injuries by Top Behavioral and Environmental Risk Factors**  
2004 to 2013

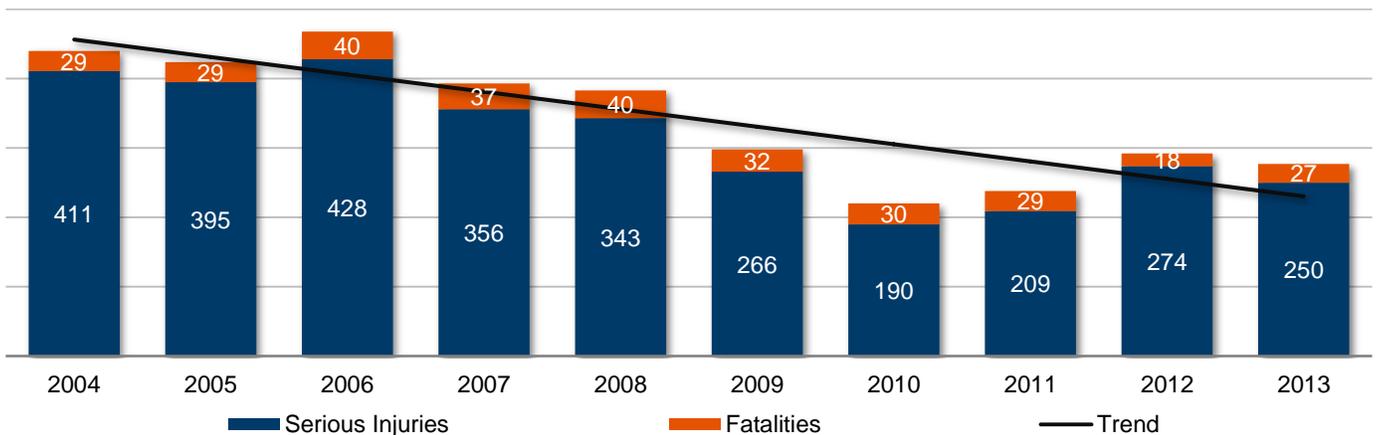


Source: MDT Safety Management System, Problem ID FY 2013.

### Intersections

Intersection crashes represented 13 percent of fatalities and 24 percent of serious injuries from 2004 to 2013. Figure 6.6 shows intersection-related fatality and serious injury crash trends.

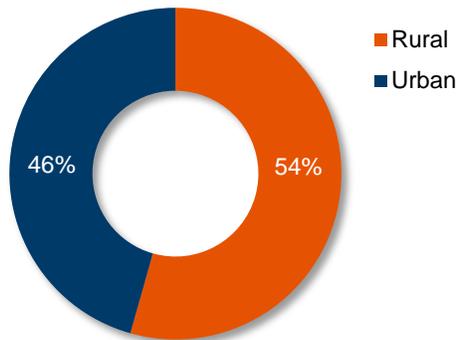
**Figure 6.6 Intersection Crashes Fatality and Serious Injury Trend**  
2004 to 2013



Source: MDT Safety Management System, 2004 to 2013, Problem ID FY 2013.

About half of Intersection fatalities and serious injuries occur in urban areas (Figure 6.7).

**Figure 6.7 Intersection Fatalities and Serious Injuries by Urban and Rural Area**  
2004 to 2013



Source: MDT Safety Management System, 2004-2013. Problem ID FY 2013.

Most intersection fatalities and serious injuries occur during the afternoon commute period, from 3 to 6 p.m., as shown in Figure 6.8.

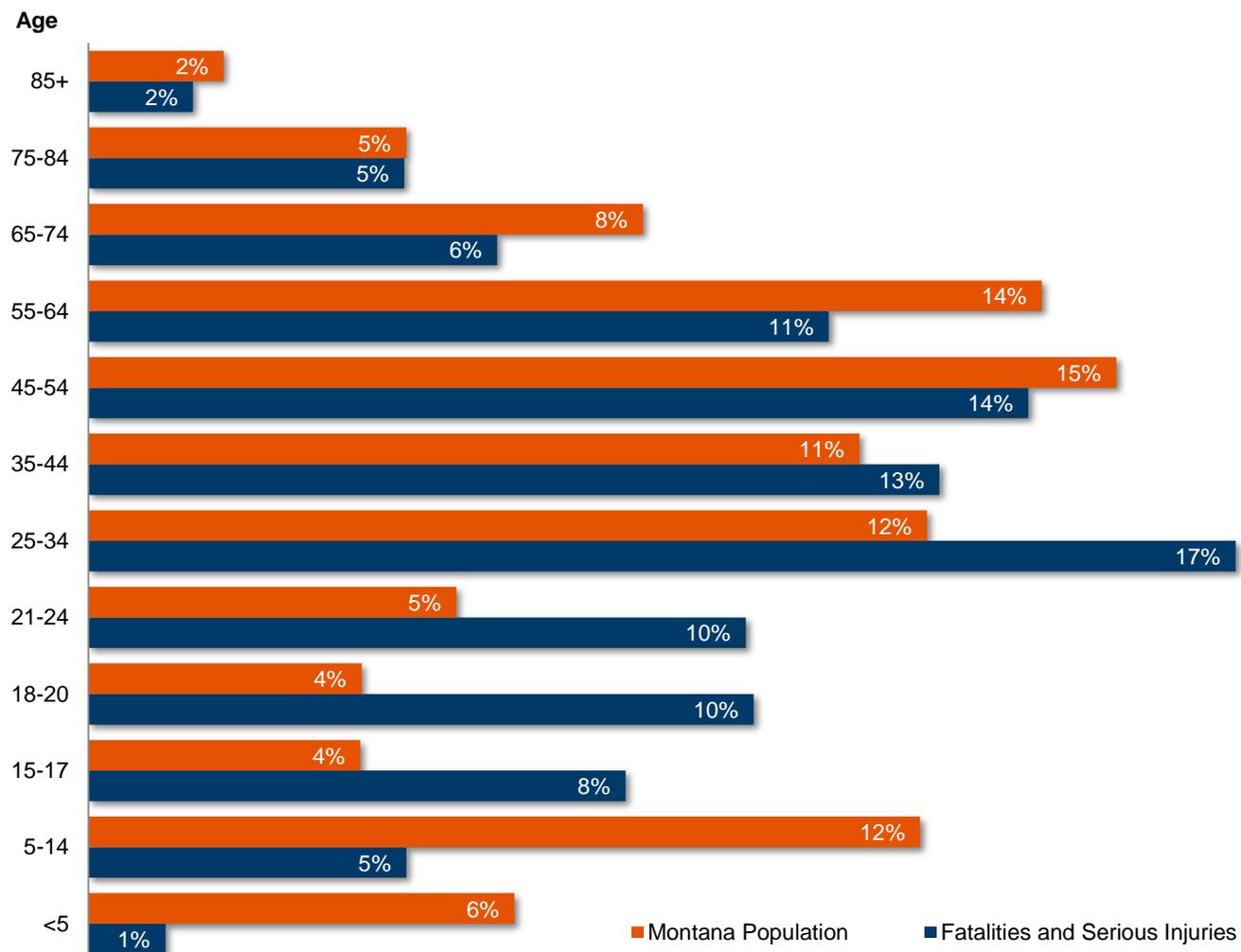
**Figure 6.8 Intersection Fatalities and Serious Injuries by Time of Day and Day of Week**  
2004 to 2013

Time of Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
12am-3am	17	19	21	20	29	78	64
3am-6am	6	6	12	15	10	13	19
6am-9am	53	58	66	56	39	19	28
9am-12pm	68	73	70	54	68	74	51
12pm-3pm	80	76	94	113	131	102	63
3pm-6pm	130	155	91	130	158	101	89
6pm-9pm	66	70	93	68	83	102	55
9pm-12am	25	23	37	35	60	63	34

Source: MDT Safety Management System, 2004 to 2013, Problem ID FY 2013.

Intersection fatalities and serious injuries are overrepresented relative to the population by drivers age 15-34, as shown in Figure 6.9.

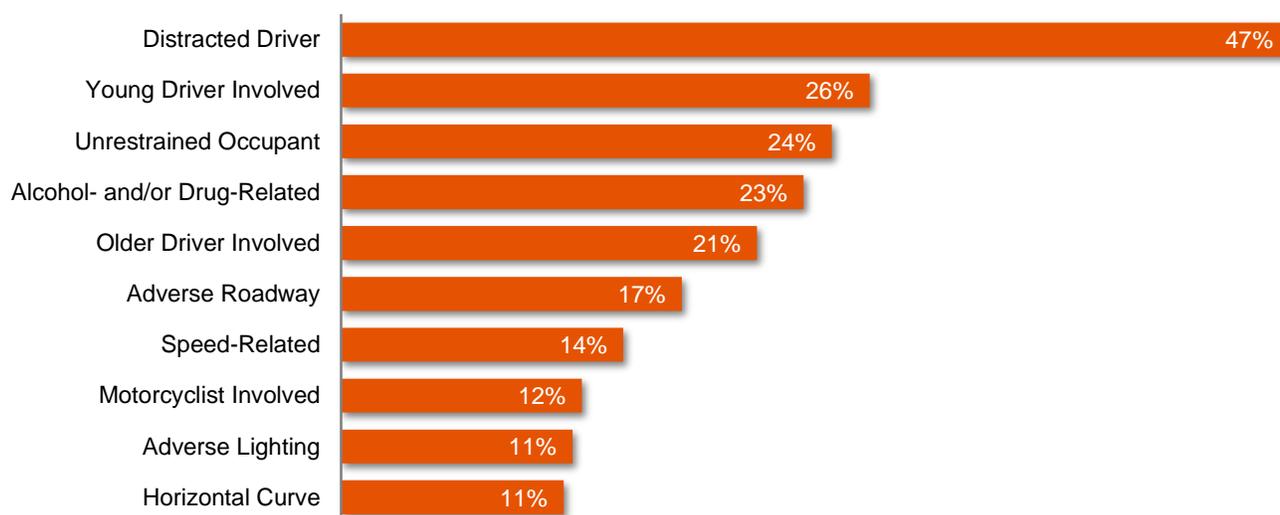
**Figure 6.9 Intersection Crashes by Age**  
2004 to 2013



Source: MDT Safety Management System, 2004 to 2013, Problem ID FY 2013.

By far the most common factor co-represented with intersection crashes is driver distraction, which contributes to nearly half of intersection fatalities and severe injuries, as shown in Figure 6.10.

**Figure 6.10 Intersection Fatalities and Serious Injuries by Top Behavioral and Environmental Risk Factors**  
2004 to 2013



Source: MDT Safety Management System, 2004-2013. Problem ID FY 2013.

### ***Purpose, Strategies, and Implementation Steps***

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

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

## 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.

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

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

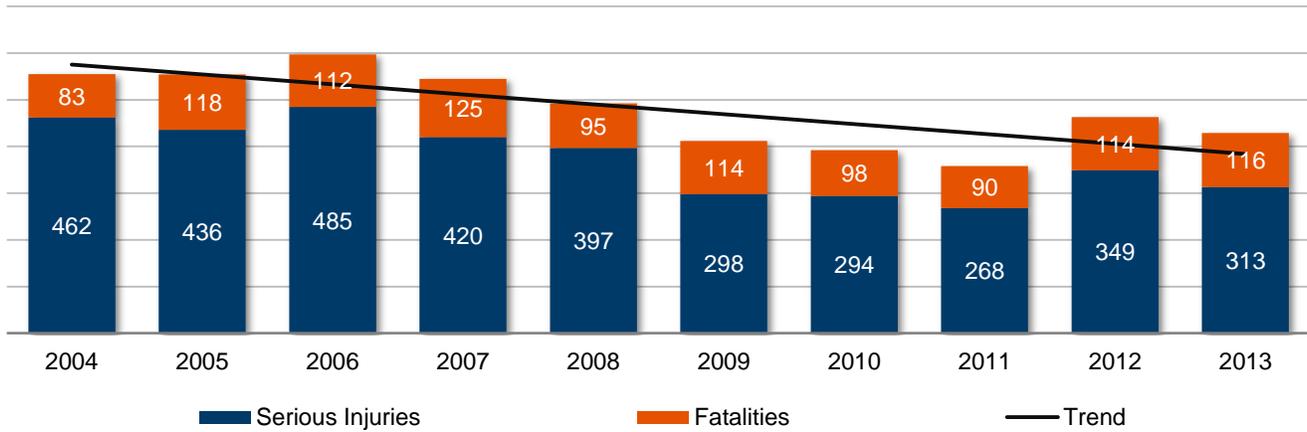
- Reduction in number of roadway departure crash fatalities;
- Reduction in roadway departure crash serious injuries;
- Reduction in number of intersection crash fatalities;
- Reduction in number of intersection serious injuries.

## 6.2 Impaired Driving Crashes Purpose, Strategies, and Implementation Steps

Impaired driving crashes account for only 8 percent of people involved in all crashes but 47 percent of all fatalities and 29 percent of serious injuries. As the blood alcohol concentration (BAC) level goes up in the human body, the physiological effects range from loss of judgment and altered mood to reduced muscle control and deteriorating reaction times. Regardless of which impairing substance a driver is using, the repercussions of impaired driving are a decline in visual functions and multitasking abilities, reduced concentration, impaired perception, and significantly reduced reaction time resulting in an inability to respond to changing conditions. In Montana, driving under the influence (DUI) is when the driver’s blood alcohol content (BAC) is 0.08 or higher. With regard to marijuana, in Montana impairment is defined as exceeding a 5ng/ml per se threshold for THC in blood for anyone operating a motor vehicle.

Trends for impaired driving are shown in Figure 6.11 for the past decade. Consistent with the overall trend, there has been a decline in fatalities and serious injuries over the past 10 years but an increase in the past two years.

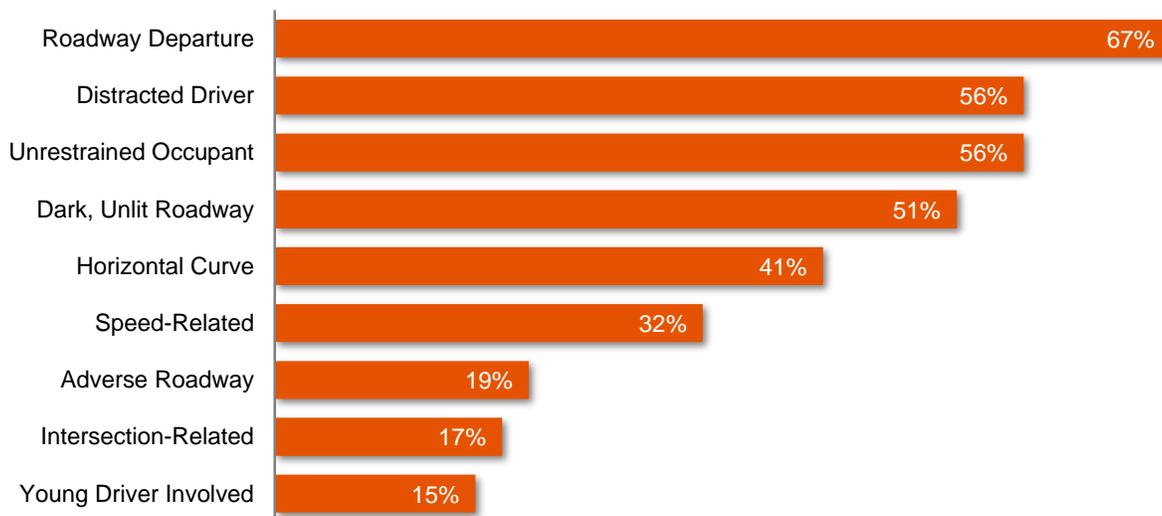
**Figure 6.11 Impaired Driving Fatality and Serious Injury Trend**  
2004 to 2013



Source MDT Safety Management System, 2004-2013. Problem ID FY 2013.

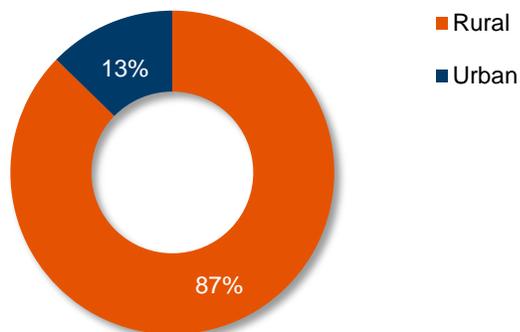
As shown in Figure 6.12, two thirds of impaired driving fatalities and serious injuries involve roadway departure. More than half of impaired driving fatalities and serious injuries involve distraction, lack of occupant projection, and unlighted conditions.

**Figure 6.12 Impaired Driving Fatalities and Serious Injuries by Top Behavioral and Environmental Risk Factors**  
2004 to 2013



Like crash patterns overall, impaired driving crashes fatalities and serious injuries occur largely in rural areas, as shown in Figure 6.13.

**Figure 6.13 Impaired Driving Fatalities and Serious Injuries by Urban and Rural Area**  
2004 to 2013



Source: MDT Safety Management System, 2004-2013. Problem ID FY 2013.

As shown in Figure 6.14, the largest concentrations of impaired driving fatalities and serious injuries are Friday and Saturday evenings into the early morning hours.

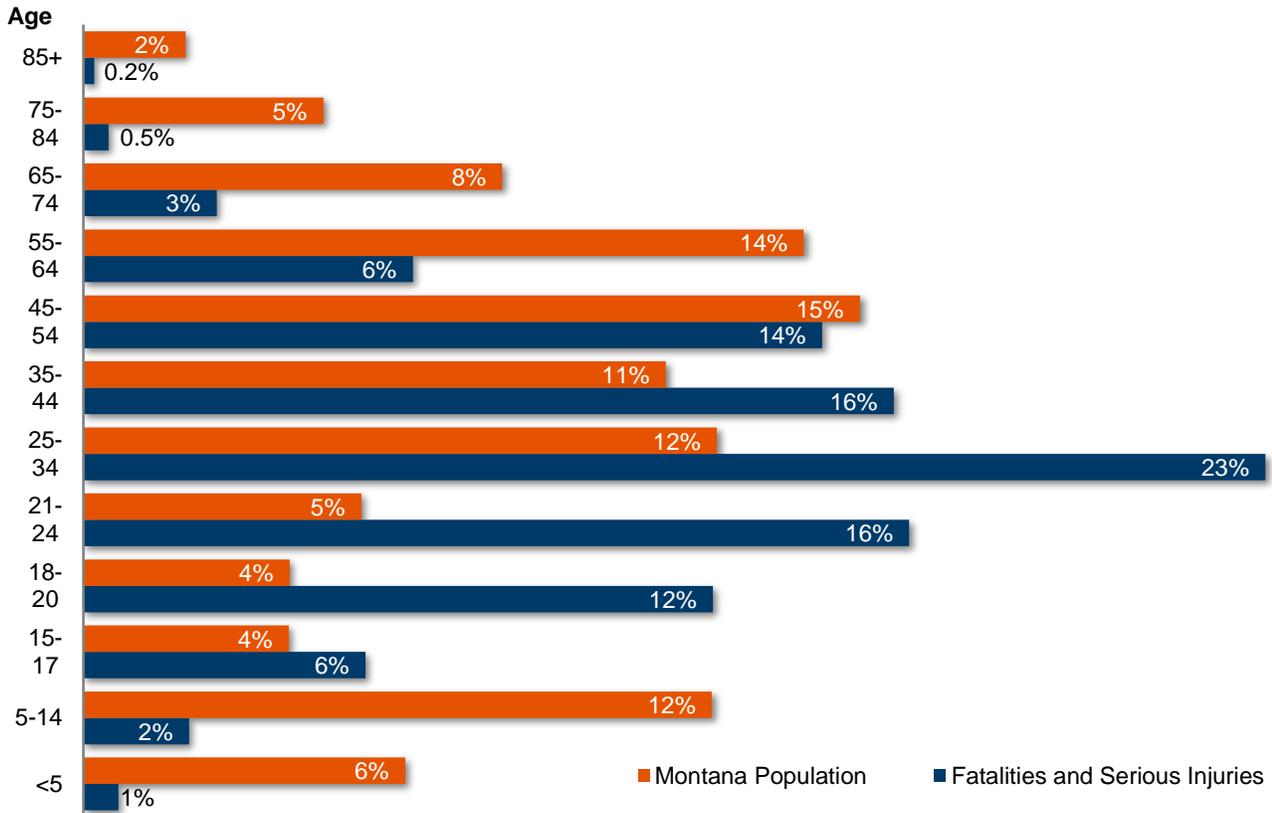
**Figure 6.14 Impaired Driving Fatalities and Serious Injuries by Time of Day and Day of Week**  
2004 to 2013

Time of Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
12am-3am	92	99	110	113	125	350	269
3am-6am	25	34	44	43	42	137	137
6am-9am	7	10	26	18	33	47	31
9am-12pm	26	10	18	21	19	44	39
12pm-3pm	28	20	34	34	48	61	55
3pm-6pm	47	57	66	85	93	121	102
6pm-9pm	115	84	107	105	156	182	120
9pm-12am	103	92	120	110	215	221	100

Source: MDT Safety Management System, 2004 to 2013, Problem ID FY 2013.

Figure 6.15 represents all persons who are seriously injured or die in a crash involving an impaired driver. Younger age groups are overrepresented compared to the population in impaired driving fatalities and serious injuries, It is particularly concerning that 18 percent of impaired driving fatalities and serious injuries involve persons ages 15-20, under the legal drinking age.

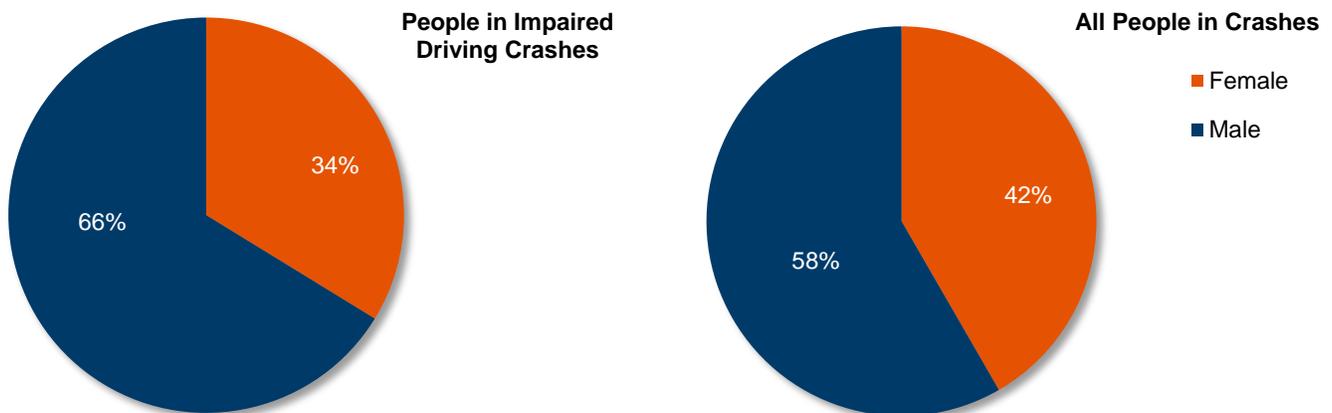
**Figure 6.15 Impaired Driving Fatalities and Serious Injuries by Age**  
2004 to 2013



Source: MDT Safety Management System, 2004-2013. Problem ID FY 2013.

Two thirds of impaired driving fatalities and serious injuries involve males, a higher proportion than for crashes overall, as shown in Figure 6.16.

**Figure 6.16 Impaired Driving Fatalities and Serious Injuries by Gender**  
2004 to 2013



Source: MDT Safety Management System, 2004-2013. Problem ID FY 2013.

## ***Purpose, Strategies, and Implementation Steps***

Based on the available crash data, partner input, effectiveness data (including review of Countermeasures That Work<sup>2</sup>) and consideration of feasibility, priority strategies and implementation steps to reduce impaired driving fatalities and serious injuries are defined below.

1

### ***Reduce impaired driving through improved processes and regulations***

#### **Purpose**

Having the right regulations in place and ensuring they are effectively implemented has a large impact on whether impaired driving is prevented, impaired drivers are caught, and their cases are properly adjudicated so they do not repeat their offense. For example, a statewide social host law would help prevent private gatherings where alcohol is knowingly served to minors by an adult. Additionally, while there is a law requiring mandatory training of alcohol sellers and servers, compliance is not comprehensively enforced, and often servers at special events are not trained, so increased awareness of the training requirement is needed. In order to be able to conduct sobriety checkpoints, which are a proven effective deterrent to impaired driving, this technique needs to be codified in state statute.

#### **Implementation Steps**

- Support stronger impaired driving laws that increase penalties and/or arrest rates, including those focusing on repeat offenders.
- Support efforts to reduce the over-service of alcohol by expanding the awareness and support of continued mandatory alcohol sales and service training, including special events training and state permitting of alcohol servers and sellers. Research and implement methods for tracking participation and compliance.
- Support efforts to develop local and a statewide social host law.
- Support efforts to allow sobriety checkpoints in statute.

<sup>2</sup> <http://www.ghsa.org/html/publications/countermeasures.html>.

## 2

## Reduce impaired driving through enforcement

### Purpose

Aggressive ongoing enforcement is key to getting impaired drivers off the road. Impaired driving includes use of drugs as well as alcohol, and specific training is available to help officers recognize drug-impaired drivers: Drug Recognition Expert. It is critical to ensure sufficient training programs are available and the numbers of officers trained is maintained. To ensure enforcement of impaired driving is conducted in the most effective way possible, it is critical to maintain law enforcement liaison positions, which manage and coordinate impaired driving law enforcement campaigns with state and local law enforcement agencies.

### Implementation Steps

- Sustain Drug Recognition Expert (DRE) and related training, and increase collaboration between DREs and law enforcement agencies.
- Support targeted enforcement based on demonstrated crash patterns and/or high-risk drivers (i.e., Selective Traffic Enforcement Program).
- Support local and state law enforcement efforts that include, but are not limited to, High-Visibility Enforcement.
- Sustain Law Enforcement Liaison program
- Support and encourage law enforcement agencies to enforce the criminal violation of the seller or server of over-service of alcohol, and report the violation of alcohol over service to the Department of Revenue (DOR) for administrative action on the liquor license holder.
- Identify and support implementation of existing or new alcohol and drug detection technologies.

## 3

## Reduce impaired road users through prevention education

### Purpose

Preventing people from making the unsafe choice to drive while impaired is the ultimate goal. Public education campaigns are a centerpiece of DUI prevention activities but they must involve messages that resonate with the people who are most at risk of choosing to drive impaired. Therefore, increased research into underlying beliefs and behaviors is necessary so messages can be crafted that will effectively influence people to change their behavior and stop driving impaired. This effort may involve developing “social norming” messages that communicate how the majority of Montanans are NOT driving impaired and that the culture of the state does not tolerate that behavior.

### Implementation Steps

- Monitor the impact of marijuana legalization on roadway crashes and countermeasures in peer states.
- Develop public education campaigns on a range of impaired driving topics.
- 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.



## 4

## Continue to support and build collaborative partnerships to reduce impaired driving

### Purpose

Reduction of impaired driving requires extensive collaboration to ensure cases are handled appropriately from the time a driver is stopped on the road through the court system and ensuring sanctions are effectively administered. To provide oversight and ensure all these elements are continuously improved and coordinated, establishment of a statewide DUI Task Force will be useful. To make sure the right evidence is collected in the field and procedures are followed so that DUI and Minor in Possession (MIP) cases can be prosecuted effectively, training is needed for the individuals involved at each phase. Repeat offenders are a significant problem, and while proven effective strategies exist to keep them off the road, these strategies must be implemented consistently.

### Implementation Steps

- Increase the number of drug and alcohol courts and provide training to judges and court personnel.
- Increase proven effective training for law enforcement, judges and prosecutors to ensure consistent adjudication of all traffic offenses, including impaired driving violations.
- Support development of a statewide DUI Task Force.
- Increase usage of the 24/7 DUI monitoring program and other programs to prevent repeat offenses (i.e., ignition interlock).
- Support increase of crime lab resources to improve crime lab capacity and speed, including the number of toxicologists and equipment to process DUI test samples and measure other drugs.
- Support increased compliance with mandatory alcohol/drug treatment, and an increase in alcohol and drug abuse treatment options, to prevent repeat DUI offenses.
- Support and promote training for criminal justice professionals and medical staff regarding best practices and legal requirements on topics such as BAC draws.
- Improve MIP (minor-in-possession) processes in Montana (i.e., consistent management of cases in Youth Court and Criminal Justice Court) based on best practices. Improve data reporting to court partner agencies, such as alcohol education and intervention.

A wide range of safety partner agencies has been identified to support or provide leadership in implementing impaired driving crashes strategies.

### ***Impaired Driving Crashes Implementation Partners***

<ul style="list-style-type: none"><li>• Colleges and Universities</li><li>• Common Sense Coalition</li><li>• Courts and Judges</li><li>• DUI Task Forces</li><li>• Local (City, County, and Tribal) Law Enforcement Agencies</li><li>• Local Communities and Businesses</li><li>• City-County Health Departments</li><li>• MHP Law Enforcement Liaisons</li><li>• Montana Department of Labor and Industry</li><li>• Montana County Attorney Association</li><li>• Montana Department of Public Health and Human Service – Addictive and Mental Disorders</li><li>• Montana Department of Public Health and Human Services – Injury Prevention</li><li>• Montana Department of Public Health and Human Services – Prevention Resources</li><li>• Montana Department of Revenue – Liquor Control</li></ul>	<ul style="list-style-type: none"><li>• Montana Department of Labor and Industry – WorkSafeMT</li><li>• Montana Department of Transportation – Motor Carrier Services</li><li>• Montana Department of Transportation – Planning</li><li>• Montana Department of Transportation – State Highway Traffic Safety Section</li><li>• Montana Office of Public Instruction – Traffic Education</li><li>• Montana Sheriff and Peace Officers Association</li><li>• Montana State Crime Lab – Department of Justice</li><li>• Office of Court Administrators</li><li>• Registered Alcohol Sales and Service Trainers</li><li>• Safe on All Roads (SOAR)</li><li>• Montana Tavern Association</li><li>• Traffic Safety Resource Partners</li></ul>
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### ***Impaired Driving Crashes Emphasis Area Objectives***

Objective Measures for the Impaired Driving Crashes Emphasis Area are defined as follows:

- Reduction in number of impaired driving fatalities; and
- Reduction in number of impaired driving serious injuries.

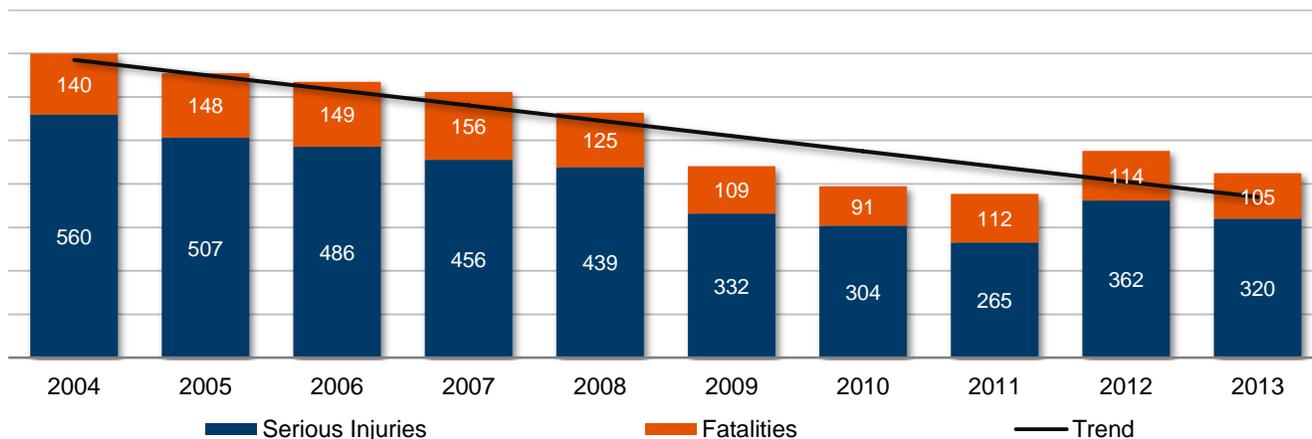
### 6.3 Occupant Protection Purpose, Strategies and Implementation Steps

A safety belt, when worn properly, is the single most effective way to save lives and reduce injuries in crashes. Safety belts keep motorists in their seats during a crash and spread the crash forces across the stronger parts of the upper body. Restraint systems are designed to keep occupants inside the vehicle where there is greater protection against bodily injury. Restraints also can prevent injuries in the event of a secondary collision. Occupant protection includes other safety protection devices and restraints, including child safety seats and booster seats that have proven to be highly effective in preventing child deaths and injuries in traffic-related crashes. Unrestrained occupants are significantly overrepresented in fatal and serious injury crashes: compared to all people in crashes, they are almost six times more likely to suffer a fatal or serious injury when involved in a crash. Over half of all passenger vehicle occupants killed in a crash from 2004 through 2013 were not wearing a seat belt.



Significant progress was made in reducing unrestrained fatalities and serious injuries between 2004 and 2009. However, since 2009, little progress has been made in that a similar number of unrestrained fatalities was experienced in 2013 as in 2009, and fatalities were even higher in 2011 and 2012 (Figure 6.17). Serious injuries have been lower during the past five years compared to the previous five years.

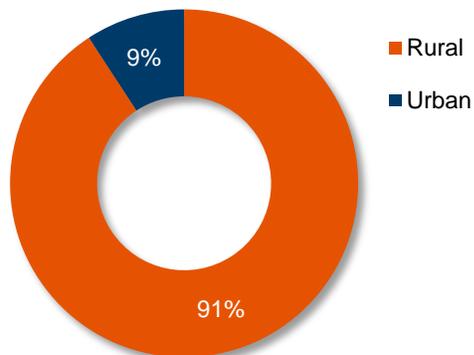
**Figure 6.17 Unrestrained Occupant Fatality and Serious Injury Trends**  
2004 to 2013



Source: MDT Safety Management System, 2004-2013. Problem ID FY 2013.

The vast majority (91 percent) of unrestrained fatalities and serious injuries occur in rural areas, as shown in Figure 6.18. Speeds are generally higher in rural areas and crashes are likely to be more severe.

**Figure 6.18 Unrestrained Occupant Fatalities and Serious Injuries by Urban and Rural Area**  
2004 to 2013



Source: MDT Safety Management System, 2004-2013. Problem ID FY 2013.

Unbelted fatalities and serious injuries are concentrated on the weekends in the evenings and early morning hours, as shown in Figure 6.19. Nonuse of seatbelts is often associated with other risky behaviors such as impaired driving as people who tend to do risky things often take several risks at once.

**Figure 6.19 Unrestrained Occupant Fatalities and Serious Injuries by Time of Day and Day of Week**  
2004 to 2013

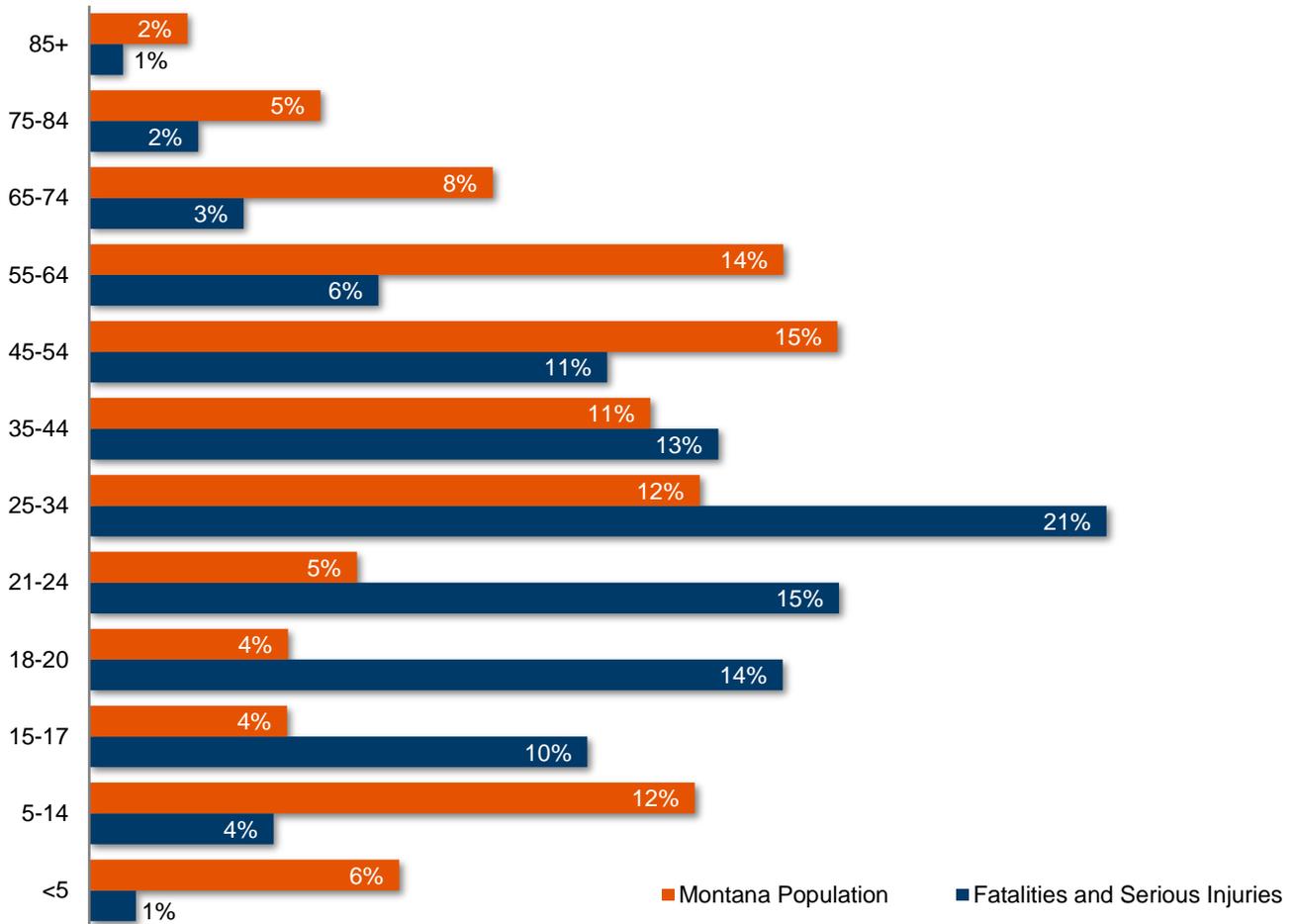
Time of Day	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
12am-3am	82	68	97	89	115	254	198
3am-6am	30	41	36	44	38	118	132
6am-9am	65	53	77	53	81	66	62
9am-12pm	65	46	52	52	42	60	55
12pm-3pm	69	58	55	63	74	97	82
3pm-6pm	84	117	92	131	115	121	106
6pm-9pm	90	83	109	93	129	145	116
9pm-12am	91	68	107	88	163	172	92

Source: MDT Safety Management System, 2004-2013. Problem ID FY 2013.

Ages 15-44 are overrepresented in terms of unrestrained fatalities and serious injuries, as shown in Figure 6.20. The percentage of unrestrained fatalities among those 15-17, 18-20, and 21-24 is two to three times the share of population in those age ranges.

**Figure 6.20 Unrestrained Passenger Vehicle Occupant Fatalities and Serious Injuries by Age**

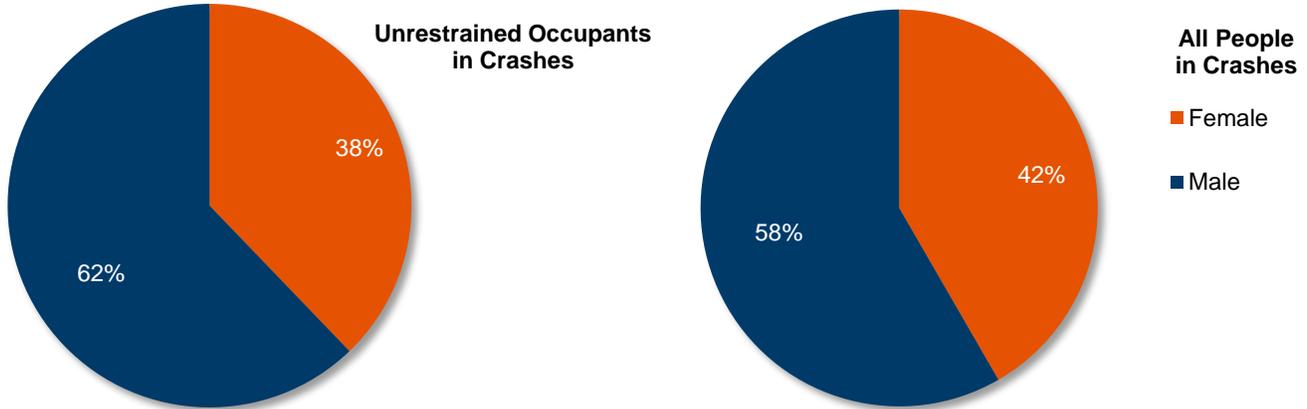
**Occupant Age**



Source: MDT Safety Management System, 2004-2013. Problem ID FY 2013.

Males represent a greater proportion of unrestrained fatalities and serious injuries than females, as shown in Figure 6.21. The gender balance of people in unrestrained severe crashes is similar to that for crashes overall.

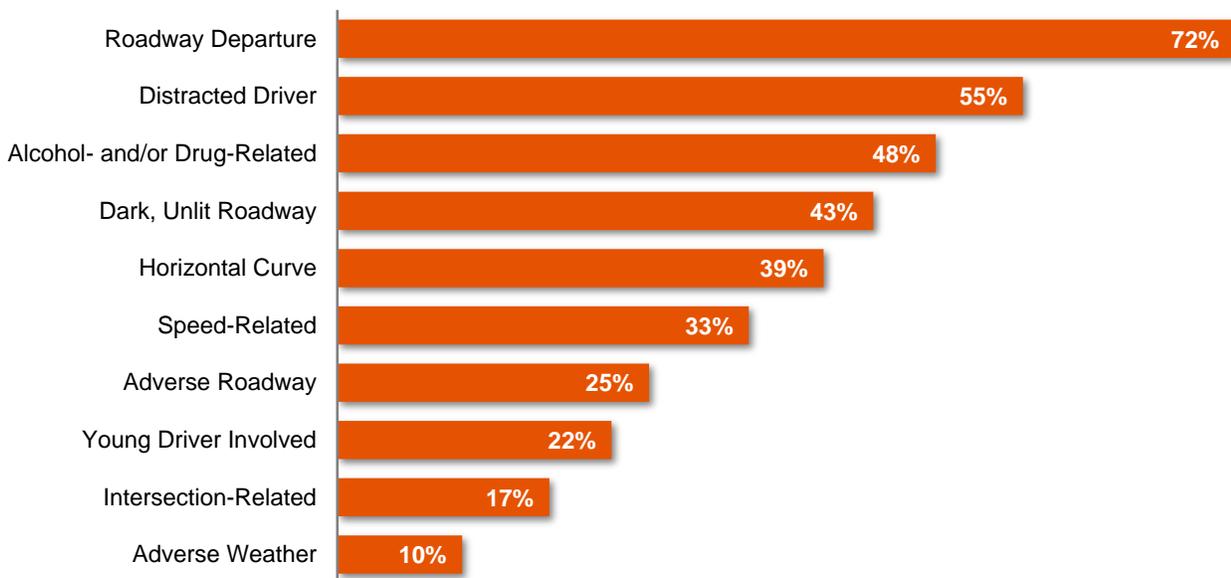
**Figure 6.21 Unrestrained Occupant Fatalities and Serious Injuries by Gender**  
2004 to 2013



Source: MDT Safety Management System, 2004-2013. Problem ID FY 2013.

As shown in Figure 6.22, nearly three quarters (72 percent) of unrestrained fatalities and serious injuries also involved roadway departure. Understandably the consequences of these crashes are severe as speeds are likely high and without the safety protection of a restraint, vehicle occupants sustain severe injuries.

**Figure 6.22 Unrestrained Occupant Fatalities and Serious Injuries by Top Behavioral and Environmental Risk Factors**  
2004 to 2013



Source: MDT Safety Management System, 2004-2013. Problem ID FY 2013.

## Occupant Protection Purpose, Strategies, and Implementation Steps

Based on the available crash data, partner input, effectiveness (including review of *Countermeasures that Work*), and consideration of feasibility, priority strategies, and action steps are defined below.

1

### *Support policies, education, training, programs, and activities that promote and increase seat belt and child safety seat use*

#### Purpose

Use of a safety belt has the potential to turn a severe crash into one that results in a less severe injury or from which the passengers walk away unharmed. The key is to get people to wear seat belts every time they get in a vehicle. Virtually everyone knows that they should wear a seatbelt. The question is how to change the behavior of the more than 20 percent of the population that does not buckle up. Adoption of a primary safety belt law so law enforcement can stop drivers for that offense alone would make a significant difference in belt use rates, based on data from other states that have undergone this change. In Montana, passage of a primary safety belt law could save 20 to 30 lives each year. Increasing the penalty for a citation to \$100 or more would communicate that Montana takes nonuse of a restraint seriously. New educational materials will need to communicate effective messages that will reach the right population and can change behavior. Partnering with employers to influence their employees to wear safety belts make sense as that is a way to reach large numbers of people and employers can influence their employees, particularly regarding policies for driving on the job.

#### Implementation Steps

- Support enhancement and implementation of mandatory minor (under 18 years of age) occupant protection laws per best practices and GDL requirements.
- Support efforts from safety partners and stakeholders to implement a primary seatbelt law.
- Support increasing the current seat belt penalty of \$20 to be consistent with the \$100 penalty for the child passenger safety restraint law.
- Promote local jurisdictional adoption of a primary seat belt ordinance if appropriate.
- Encourage state agencies and employers to coordinate and implement workplace traffic safety policies to include seat belt use and other traffic safety measures. Develop a state Network of Employers for Traffic Safety (NETS) or similar public-private partnership focused on traffic safety.
- 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.
- Develop child passenger safety educational materials with updated and consistent information.
- Sustain and strengthen the National Child Passenger Safety Certification Training Program with increased focus on high-risk populations.

2

*Support enforcement of existing seat belt and child passenger safety laws*

**Purpose**

The Montana Seatbelt Use Act requires the use of seatbelts by the driver and each occupant of a vehicle. State law also requires child safety restraint systems for children under the age of 6 and weighing less than 60 pounds. However, law enforcement may issue a citation for restraint nonuse only when the driver has been stopped for another reason. Issuance of increased citations for seat belt nonuse can change behavior. To ensure proper adjudication of safety belt offenses, it is important that all parties with a role in the process be properly trained. In addition, alternative sentencing that would result in improved behavior change should be considered.

**Implementation Steps**

- Increase education and training for law enforcement, prosecutors, and the judiciary to ensure consistent citing and adjudication of occupant protection offenses and consideration of alternative sentencing (i.e., safety education).
- Support targeted enforcement based on demonstrated crash patterns and high-risk drivers.

3

*Continue to support and build collaborative partnerships to increase seat belt use*

**Purpose**

Because young drivers and passengers have low seat belt use rates, outreach programs should be enhanced and developed to focus on changing behavior of young people. A change now has the potential to save many years of productive life ahead by avoiding severe injury in a crash. Partnering with institutions where people already have a relationship offers the potential for more efficient and effective programs.

**Implementation Steps**

- Develop public and private partnerships (i.e., elementary, high school, and colleges) to develop and disseminate information and educational programs regarding unsafe driving behaviors.

## 4

## Evaluate the effectiveness of ongoing messages, campaigns, and programs in promoting and/or increasing occupant protection use

### Purpose

Educational campaigns have been used in Montana for many years with the objective of increasing seat belt use. However, for the past five years belt use rates have not only stalled but increased slightly. Montana needs to take a hard look at the messages being used to reach high-risk populations and make changes where needed to affect behavior change and get seat belt use rates to increase.

### Implementation Steps

- To be determined once current campaigns have been evaluated.

## Occupant Protection Implementation Partners

A wide range of safety partner agencies has been identified to support or provide leadership in implementing occupant protection strategies.

<ul style="list-style-type: none"> <li>• Buckle Up Montana Coordinators</li> <li>• Child Passenger Seat instructors and technicians</li> <li>• Local Community and Businesses</li> <li>• Courts and Judges</li> <li>• Local School Administrators</li> <li>• City-County Health Departments</li> <li>• Local (City, County, and Tribal) Law Enforcement</li> <li>• Montana Department of Labor and Industry – WorkSafeMT</li> <li>• Montana Department of Public Health and Human Services - Injury Prevention</li> </ul>	<ul style="list-style-type: none"> <li>• Department of Justice – Montana Highway Patrol Montana</li> <li>• Office of Public Instruction - Traffic Education</li> <li>• Montana Department of Transportation – Planning Division</li> <li>• Montana Department of Transportation – Motor Carrier Services</li> <li>• Montana Department of Transportation – State Highway Traffic Safety Section</li> <li>• Safe on All Roads (SOAR)</li> <li>• Traffic Safety Resource Partners</li> </ul>
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## Occupant Protection Objectives

Objectives for the Occupant Protection Emphasis Area are defined as follows and will be tracked annually:

- Reduction in number of unrestrained occupant fatalities.
- Reduction in number of unrestrained occupant serious injuries.

## 7.0 Implementation

The 2015 update process provided an opportunity to analyze the most current 10 years of crash data and to identify Montana's transportation safety issues. The process defined new priorities based on crash data trends and defined new strategies needed to keep Montana on track to reduce fatalities and severe injuries on Montana's public roads. The 2015 CHSP, including detailed strategies and potential safety partners, provides a roadmap for effective implementation to reach the vision of zero fatalities and zero serious injuries on Montana roadways. To effectively implement this plan, reach targets, and continue to institutionalize **VisionZeroMT**, it will be important to engage people at all levels of leadership from a wide range of safety partner agencies and organizations to continue to collaborate, communicate and coordinate efforts.

An effective implementation structure will involve engagement of an Executive Leadership Team comprised of agency directors with a role in increasing safety, as shown in Figure 7.1. Executive Leadership Team members can prioritize and institutionalize safety and Vision Zero within their own agencies. They can commit revenue, personnel and technical resources to implement statewide initiatives. Though their leadership they can identify and remove barriers within and between agencies to achieve Vision Zero. As they develop their own agency plans and policies Executive Leadership Team members can incorporate common safety strategies and initiatives to support statewide collaboration.

Continued reinforcement of safety as a first priority by a broad range of agency leaders will help to strengthen how safety is addressed through day-to-day business practices and further institutionalize safety. The Executive Leadership Team should meet one to two times per year to provide direction on areas of high priority.

The multidisciplinary Advisory Committee that contributed to the development of this plan is well versed in the Emphasis Areas strategies. As such, Advisory Committee members are key to providing continued technical guidance to Emphasis Area Teams on implementation of the CHSP. The Advisory Committee should continue to meet regularly as a central body to oversee progress by all Emphasis Area Teams, provide a forum for coordination between Emphasis Area Teams, track results, and provide guidance when challenges arise. An important aspect of their role will be providing oversight to ensure Emphasis Area teams evaluate the effectiveness of strategies and implementation steps to ensure they are contributing to decreases in fatalities and serious injuries.

The Advisory Committee also will provide a forum for ensuring continuous consideration is given to the overarching strategies. Members of this group will identify when issues need to be elevated to the Executive Leadership Team for a decision.

Implementation via an Emphasis Area Team structure will allow dedicated focus on each of the top crash factors. Each Emphasis Area Team will be led by a champion with strong knowledge of the issues and the ability to coordinate, lead and document Team meetings. Emphasis Area Team leaders will seek input from specialists or the Advisory Committee as needed to overcome any barriers and move implementation forward.

Each Emphasis Area Team will be comprised of multidisciplinary members representing the 4 Es. It will be critical during the implementation phase that Emphasis Area participants have a clear understanding of their role as a partner. Each participant in the Emphasis Area Team will be asked to identify the implementation steps to which his or her agency can contribute either in a leadership or supportive role. For those implementation steps that an individual member volunteers to lead, he or she will take responsibility for working with other appropriate groups, leveraging resources, and communicating with partners to put that step into practice, as well as reporting back to the Emphasis Area Team.

Those who work closely with particular risk groups (i.e., demographic groups) can play an important role in the Emphasis Areas where data show increased focus on those groups is necessary. As needed Emphasis Area Teams can develop subcommittees to focus on specific facets of implementation. For example, a subcommittee might focus primarily on enforcement-related aspects of impaired driving; however it will be critical also to maintain mechanisms for 4 E coordination within each Emphasis Area Team.

**Figure 7.1 CHSP Implementation Structure**



As the plan is implemented, Emphasis Area Teams, with oversight from the Executive Leadership Team and the Advisory Committee, will manage the implementation process and track progress in each of the Emphasis Areas; evaluate the effectiveness of strategies and action steps to ensure they are contributing to reduced fatalities and serious injuries; identify barriers or problems to implementation; provide regular updates on safety-related campaigns, initiatives, training, and programs; provide guidance on future programs and activities; and coordinate with those working on overarching areas (data, EMS and safety culture).

CHSP implementation reporting will be an important part of the process, to document whether strategies are having the intended effects. Reporting may be enhanced through the improved documentation of Emphasis Area status meetings. Emphasis Area Team meetings will be structured to enable remote participation via phone or webinar connections. This will ensure the engagement of partners throughout the state, including Tribal representatives. The Emphasis Area Team meeting documentation should be consistently provided to the CHSP coordinator to ensure ongoing centralized tracking of CHSP implementation and progress. Continued and increased coordination with local jurisdictions is necessary to fully implement the plan. Six communities have developed Community Transportation Safety Plans, and implementation on the local level will benefit the state safety outcomes overall. Additionally, communications and partnerships with local and county elected officials, police chiefs and other leaders at the local level will result in customized and more effective implementation of safety programs and will contribute to effecting safety culture change by increasing safety awareness and changing driver behavior across Montana.



## 8.0 Evaluation

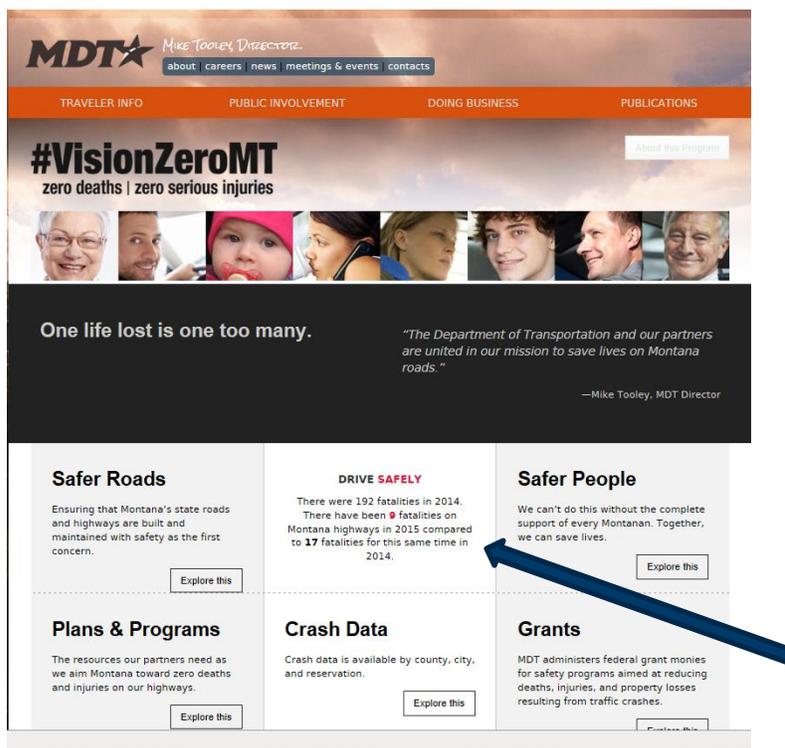
In addition to the safety targets, objectives have been defined at the Emphasis Area level. Emphasis Areas will be tracked on an ongoing basis.

The CHSP Program Coordinator will work closely with Emphasis Area Team leaders to track whether strategies are being implemented as planned. Each year the extent to which implementation steps have been fully completed will be documented. Progress on implementation will be reported at the Annual Transportation Safety Meeting as well as at Executive Leadership Team and Advisory Committee meetings.

Annually, overall tracking of statewide fatality and serious injury data will be documented and assessed at the annual Transportation Safety Meeting. This presentation of crash data and progress toward targets at the annual Transportation Safety Meeting will serve as the primary effort to evaluate whether implementation of the CHSP is generating the desired results in terms of reductions in fatalities, fatality rate, serious injuries and serious injury rate and progress toward targets. Progress on reduction of fatalities and serious injuries by Emphasis Area will also be reviewed to determine whether the strategies implemented are generating the desired results.

MDT will continue to track current fatalities in correlation to the safety target via the dashboard on the MDT website, as shown below (see Figure 8.1). Future coordinated reporting may be useful to track fatalities and serious injuries by Emphasis Area on the dashboard.

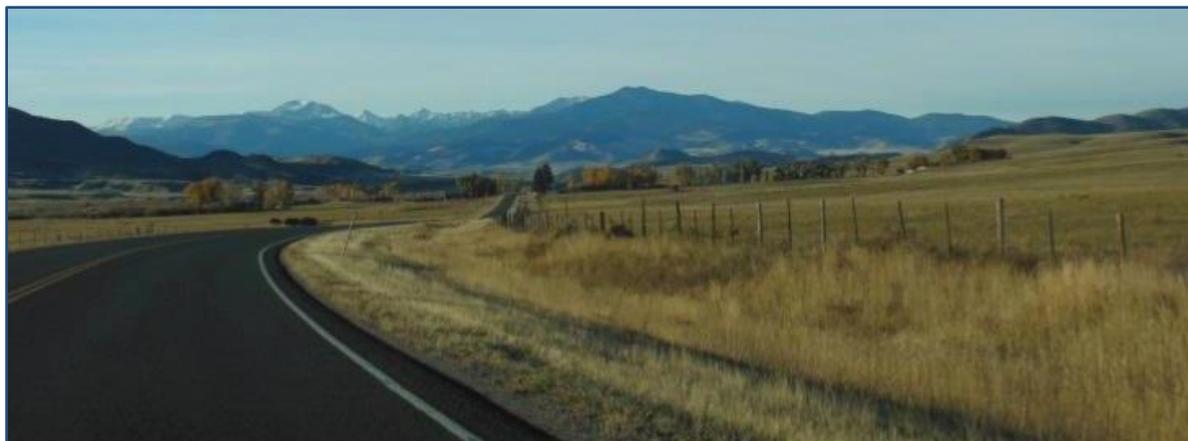
Figure 8.1 MDT Vision Zero Web Site



Source: MDT Vision Zero Web Site. <http://www.mdt.mt.gov/visionzero/>.

Evaluation of the effectiveness of individual programs also is a critical aspect of successful CHSP implementation. As the numbers go down, and it takes even more focus to reduce each additional fatality and serious injury, it will be important to understand which programs are working and which are not as effective. Ideally, every project should include some form of evaluation, even if it is an effort that has been conducted before. For education and awareness projects, surveys can be conducted to document self-reported changes to behavior as a result of the campaign. Statewide surveys such as the Youth Risk Behavior Survey are conducted regularly and trends in self reported behavior related to driving can be tracked as an indicator of whether programs are working. This information will be used to influence future programming decisions so that only the most effective programs are continued.

Leaders and supporters working to implement steps within an Emphasis Area will continue to work with the Traffic Records Coordinating Committee and other agencies to improve data and to ensure needed data is available. Leaders of each implementation step will provide input on data needed to inform effectiveness evaluation. Ongoing work also will be needed to ensure progress is being made with regard to improving EMS systems, improving emergency response times, and improving the quality of medical care. In terms of safety culture, evaluation could include the extent of use of the Vision Zero messaging and branding by a range of state agencies and participation by Executive Leadership Team members in meetings.





# Appendix A

## Glossary

### *Injury Severity*

**Fatality:** A fatal injury that results from a motor vehicle crash, excluding cases where the individual died of other causes immediately prior to a crash.

**Serious/Incapacitating injury:** An injury classified as incapacitating by the reporting officer, which means that it prevents the person from walking, driving, or normally continuing the activities the person was capable of performing before the injury occurred.

### *Crash Severity*

**Fatal crash:** A crash in which at least one individual was killed.

**Incapacitating Injury Crash:** Any injury crash, other than a fatal crash, that results in one or more incapacitating injuries.

**Property Damage Only Crash:** Any noninjury crash in which damage to the property of a person exceeds \$1,000.

**Severe crash:** A crash resulting in at least one death or serious/incapacitating injury.

**Minor injury:** An injury classified as a nonincapacitating or of unknown severity by the reporting officer.

### *Crash-Related Emphasis Areas*

**Alcohol- and/or drug-related crash:** Any crash where at least one driver, pedestrian, or bicyclist involved in the crash was determined to have had a BAC of 0.01g/dL or higher OR if the reporting officer indicated on the crash report that there is evidence of alcohol and/or drugs present. This does not necessarily mean that the driver was tested for alcohol and/or drugs and also does not imply that the crash was attributable to alcohol or drugs.

**Bicycle involved:** A crash involving one or more bicyclists (does not imply the bicyclist was at fault).

**Careless driver:** A crash with at least one driver-related contributing circumstance being careless driving.

**Cell phone use:** A crash with at least one driver-related contributing circumstance being cell phone use.

**Distracted Driving:** A crash with a driver-related contributing circumstance, including inattentive, careless and/or cell phone use.

**Heavy vehicle:** A vehicle classified as a van, bus, large truck, motorhome, ambulance, fire truck, tow truck, farm vehicle, or construction vehicle.

**Inattentive driver:** A crash with at least one driver-related contributing circumstance being 'inattentive driving.'

**Intersection-related:** A crash occurring at or near an intersection, according to the reporting officer.

**Motorcycle involved:** A crash involving one or more motorcycles or mopeds (does not imply motorcyclist was at fault).

**Motorcyclist:** Any person riding on a motorcycle (or moped), including the motorcycle rider (operator) and any passengers.

**Older driver:** A driver 65 years or older (does not imply the older driver was at fault).

**Passenger vehicle:** A vehicle classified as a car, pickup truck, minivan, or sport utility vehicle.

**Passenger vehicle occupant:** A driver or passenger of a 'passenger vehicle' (car, pickup truck, minivan, or sport utility vehicle).

**Pedestrian involved:** A crash involving one or more pedestrians (does not imply the pedestrian was at fault).

**Roadway departure:** A crash categorized as one of the following types: sideswipe (opposite direction), head-on, roll over, or fixed object; at a location other than an intersection, driveway, or interchange.

**Rural:** A location outside city limits, according to the reporting officer.

**Speed-related:** A crash with at least one driver-related contributing circumstance being 'exceeded stated speed limit' or 'too fast for conditions'.

**Unrestrained:** A vehicle occupant not using or improperly using vehicle restraints, including lap belt, shoulder belt, automatic belt, or child seats.

**Urban:** A location within city limits, according to the reporting officer.

**Work zone:** A crash that occurred in a construction, maintenance, utility, or other designated work area.

**Young driver:** A driver between the ages of 14 and 20 (does not imply the young driver was at fault).

## Appendix B

### Strengths, Weaknesses, Opportunities and Threats Summary

#### Strengths

- The Annual Meeting enables partnerships, collaboration, and networking and sustains momentum in safety activities.
- Montana has maintained a good level of implementation activity with most emphasis area teams continuing to meet regularly.
- There is a large and diverse group of active and engaged stakeholders.
- The State Highway Traffic Safety Section (SHTSS) has initiated a process of formally scoring grant applications to ensure the most effective programs are funded moving forward. Projects managed by the SHTSS are a core component of implementing the CHSP, so a more effective process in selecting these projects will ensure continuous improvement and focus on results.
- The strategies in the Annual Element are tracked and reported in a very thorough and comprehensive manner.

#### Weaknesses

- Montana has a culture that has historically tolerated certain unsafe driving behaviors such as impaired driving and nonuse of seatbelts.
- There is a lack of legislative awareness and involvement in the CHSP.
- The flexibility of the implementation process and reporting may need to be improved. For example, the structure of Emphasis Area teams and meeting processes may need to be reviewed and be customized further to each team's needs. New methods for reporting may need to be explored.
- Prosecution data are not easily accessible; it is difficult to determine which judicial education and law enforcement programs are improving outcomes.

#### Opportunities

- The safety effort would be greatly strengthened by re-establishing an Executive Committee to ensure support by all agency leadership.
- It is important that evaluation be a central part of safety efforts, to make sure the programs being implemented are really having an impact on reducing fatalities and injuries.
- MDT is evaluating how engineering policies align with Vision Zero.
- A new safety managements system is under development, which will improve crash data for analysis and integration of multiple datasets.
- Director Tooley strongly supports data-driven decisions and provides strong safety leadership with the roll out of the Vision Zero message. An opportunity exists for Vision Zero to serve as overarching branding to communicate about safety to wide range of Montana agencies and the public.
- Messaging for education and outreach needs to be carefully crafted to hit on the right values and actually change behavior, building upon lessons learned in the public health arena.
- Interviewed enforcement members voiced that conducting multijurisdictional enforcement campaigns (county, city, state) and saturation patrols would be very effective. This would allow different agencies to work together and could be very beneficial for cross-agency training.
- New approaches to making legislative changes should be considered. A potential idea is to develop a Traffic Safety Act – a plan for addressing multiple safety law opportunities. Legislators could be asked to approve Vision Zero.

#### Threats

- There is a need to avoid the CHSP simply documenting what people already are doing. Now there is overemphasis on reporting. The process is having limited success in advancing new activities.
- There is concern that Montana is too broad in its approach to safety. There is overlap of emphasis areas and strategies. This over extends staff and some partners and may not generate the best possible results in coordinating efforts to reduce crash fatalities and injuries.
- It will be important in selecting the emphasis areas not to limit the future ability to address emerging issues.



# Appendix C

## Performance Measures Target Setting Methods

As described in Section 2.0 of the CHSP, MDT has set the four MAP-21-required safety performance measure targets via the CHSP process. This is intended to help align targets of programs, including the HSIP and the HSP. This appendix provides additional detail on the target setting process used in the update process.

### *Forecasting Method*

There are a number of possible forecasting methods that could be used to develop safety targets. FHWA's "Safety Target Setting Final Report" outlines a framework for target setting.<sup>3</sup> The first step is to use historic data to obtain a sense for the underlying trend in the target data, and to apply this trend forward to develop a target. Consideration of population and travel trends may be used to adjust the trend line as appropriate.

Among technical approaches to safety target setting, the use of a linear forecast is the most common approach.<sup>4</sup> Using the linear method, the slope of the forecasting line is based on an ordinary least squares regression (OLS) of fatalities by year. The resulting trend line represents the best fit of a linear model on the available data. The OLS approach was used to forecast fatalities and serious injuries for the CHSP.

Safety target-setting is complicated by random variation in safety outcomes year to year, as well as many factors beyond the control of government agencies and other safety stakeholders. Additionally, use of different historic periods to establish the baseline for the future projection can generate different results.

### *Fatalities Target*

The trend line for the establishment of the fatality target was based on the most recent 10-year period for which data were available (2004 to 2013). Ten years was chosen as the basis for the trend in order to minimize the potential impact of random year-to-year fluctuations in fatalities. Since Montana has a relatively small number of fatalities, using a shorter timeframe, such as the most recent five-year period, would have significantly altered the slope of the trend line.

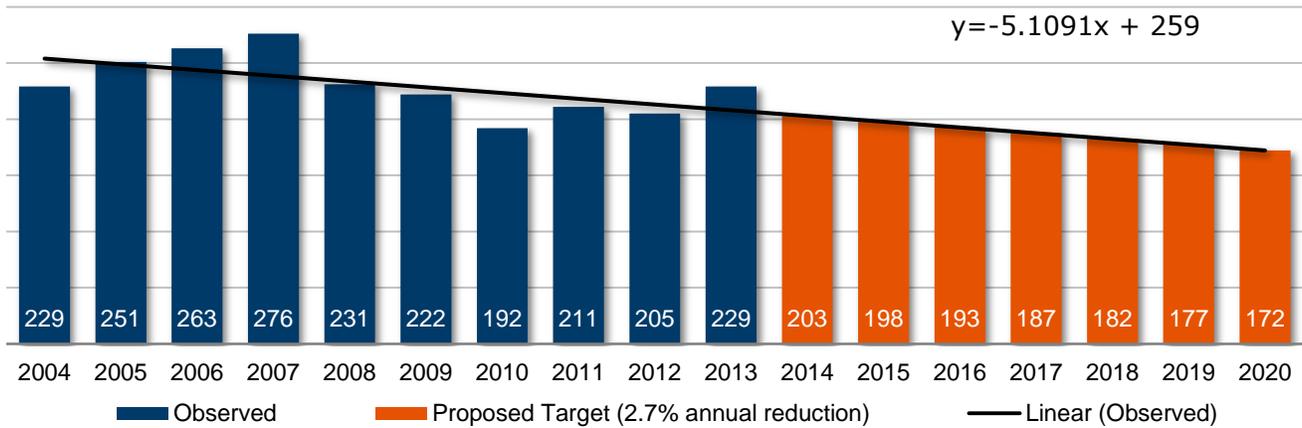
The 2004 to 2013 trend line equates to an average reduction in fatalities of around five per year. Continuing the linear reduction beyond 2013 results in a 2014 baseline of 203 fatalities and a 2020 fatality target of no more than 172, as shown in Figure C.1. In order to reduce fatalities from the 2013 level (229) to meet the 2014 baseline (203), a significant reduction is needed; however it seems likely that the 2013 fatality total was unusually high.

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<sup>3</sup> <http://safety.fhwa.dot.gov/hsip/tpm/docs/safetyfinalrpt.pdf>

<sup>4</sup> <http://safety.fhwa.dot.gov/hsip/tpm/docs/compendium.pdf>

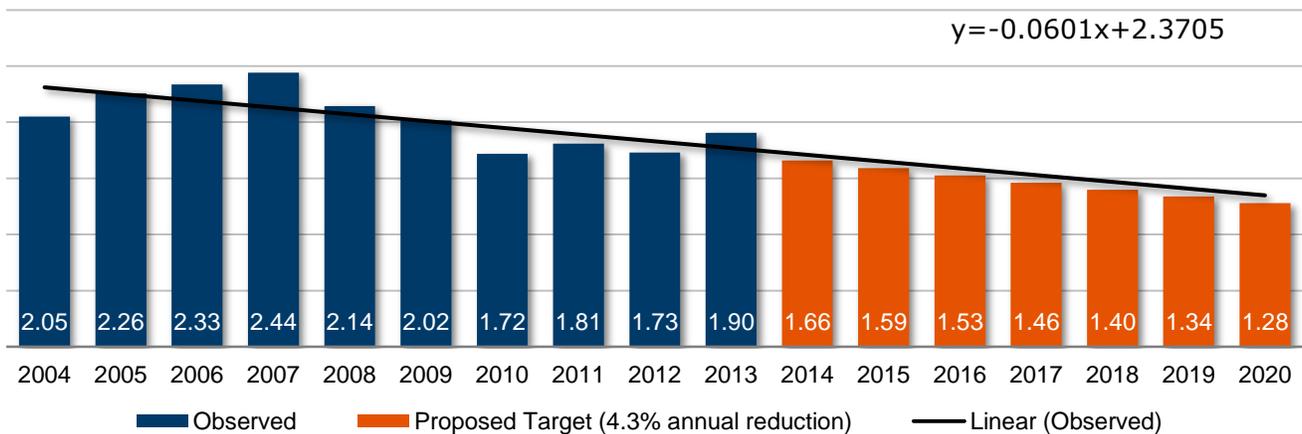
**Figure C.1 Fatality Trend Analysis and Target Calculation**  
2004-2020



**Fatality Rate Target**

To develop the fatality rate target, the fatality targets shown above were compared to MDT’s VMT forecasts, which were provided on a yearly basis. The VMT forecasts indicate a predicted annual increase of 1.6 percent per year. Taking into account the projected decrease in fatalities and increasing VMT, this results in a target fatality rate of 1.28 fatalities per 100MVT by 2020 as shown in Figure C.2. On a percentage basis, this amounts to an average annual reduction of 4.3 percent.

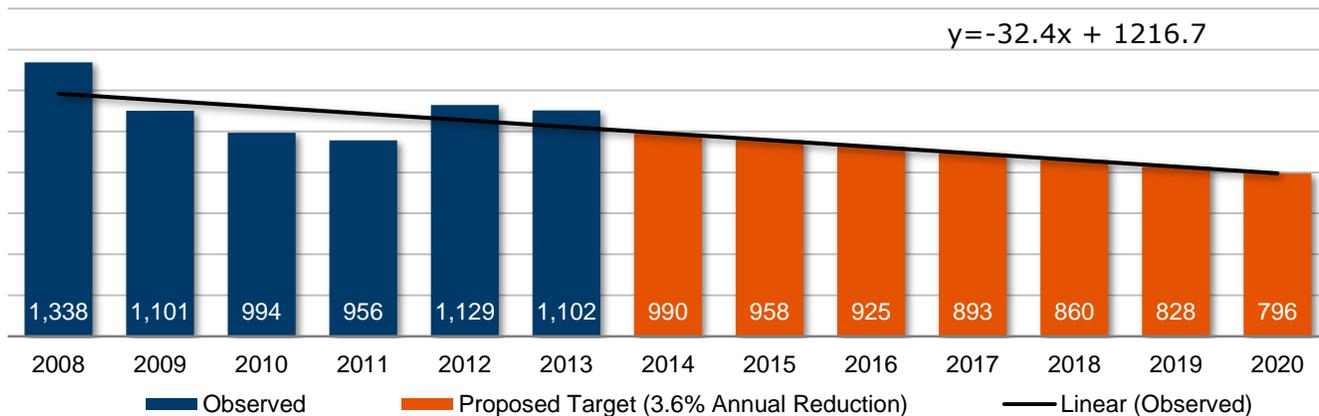
**Figure C.2 Fatality Rate Trend Analysis and Target Calculation**  
2004-2020



**Serious Injuries Target**

The target-setting approach used for serious injuries was similar to that for fatalities, but was based on 6 years of data (2008 to 2013) rather than 10. Prior to the most recent 6 years of data, serious injury numbers were significantly higher, including 10 years of data in the trend line calculation resulted in too steep of a slope for the trend line and a target that was too aggressive. With six years of data the trend line and resulting target was more reasonable, so this range of data was used to calculate the final target. During the 2008 to 2013 timeframe, serious injuries declined by an average of 32 per year. This annual reduction trend was carried forward from a baseline calculation of 990 serious injuries in 2014 to 796 by 2020 as shown in Figure C.3.

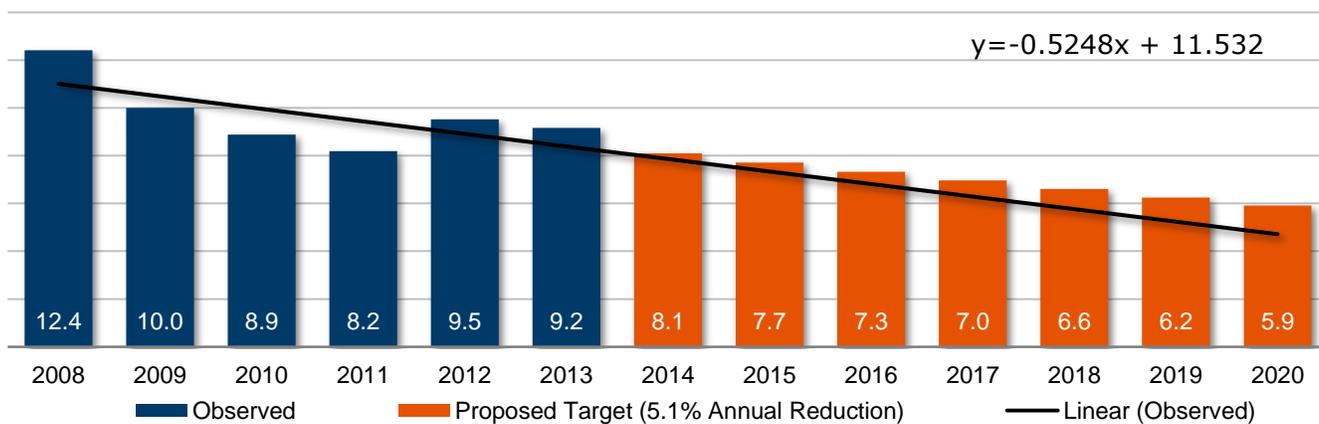
**Figure C.3 Serious Injury Trend Analysis and Target Calculation**  
2004-2020



**Serious Injury Rate Target**

Like the fatality rate target, the serious injury rate target was developed by comparing the serious injury target to annual VMT forecasts provided by MDT. This results in a target of 5.9 serious injuries per 100MVT by 2020, as shown in Figure C.4.

**Figure C.4 Serious Injury Rate Trend Analysis and Target Calculation**  
2004-2020



# #VisionZeroMT

zero deaths | zero serious injuries

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(406) 444-9229 (voice) or 1-800-335-7592 (TDD)  
Montana Relay – 711  
P. O. Box 201001  
2701 Prospect Avenue  
Helena, MT 59620-1001

Office Hours: Monday-Friday 8:00 am – 5:00 p.m.

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