

# **Emphasis Area #7. High-Crash Corridors/ High-Crash Locations**

**Champion:** Kraig McLeod (MDT- Engineering)

**Objective:** Establish a Process to Reduce Crashes, Injury Crashes, and Fatal Crashes in Identified High-Crash Corridors and Locations.

## **Performance Measures:**

- Average annual number of crashes in identified high-crash corridors/locations
- Annual severity rate of crashes in identified high-crash corridors/locations.

Various locations on Montana's roadways experience higher than typical crash and/or crash severity rates. In developing the Comprehensive Highway Safety Plan (CHSP), the Traffic and Safety Bureau (TSB) in conjunction with the State Highway Traffic Safety Office (MDT-SHTSO) identified the most dangerous highway corridors on the national and state road system in Montana. The purpose of this effort was to identify the State's most significant high-crash corridors and to then conduct an analysis of crash data to identify the predominant factors contributing to crashes in these locations. This information was then used to support the identification of specific countermeasures that could be applied these corridors.

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# **High-Crash Corridors/High-Crash Locations**

## *Current Programs and Strategies*

## Priority – Identify High-Crash Corridors/Locations and Implement Countermeasures

| Strat. No.         | Current Strategies  | Reference Document  | Funding Agency   | Implementing Agency              | Overview of Actions  |
|--------------------|---|---|--|----------------------------------|--|
| <b>Education</b>   |   |   |  |                                  |  |
| 1.                 | Montana Driver/ In-Vehicle Education/ Advanced Driving Program  | <a href="http://www.opi.mt.gov/drive/Index.htm">http://www.opi.mt.gov/drive/Index.htm</a><br>OPI, Division of Health Enhancement and Safety Program Descriptions 2004 | Funding from user fees (no appropriation, program approved by legislature each year) | OPI                              | DR.I.V.E. workshop is designed to enhance driver risk management skills, using behind-the-wheel training to increase risk awareness and to enhance the participants' behaviors to better manage ordinary and critical driving situations. The One-Day Workshop is for first-time participants. The Half-Day "Refresher" Workshop is for those individuals who have completed the One-Day Workshop and wish to refresh and enhance their driver risk management skills. |
| 2.                 | Conduct Public Safety Forums  |   | MDT  | Director's Office/ MDT- Planning | Public forums to discuss and educate the public on engineering, education, enforcement, and EMS elements of safety in specific locations or corridors.   |
| 3.                 | <b>High-Risk Corridor Inspection and Enforcement</b><br>Educate CMV and non-CMV drivers of the consequences of driving unsafely in the vicinity of CMV's through effective enforcement and distribution of educational materials at the roadside. |   | MDT-MCS  | MDT-MCS                          | Through Montana's Operation "Safe Driver," MCS Inspectors and MCS and MHP enforcement conducted driver vehicle inspections of CMV drivers, observing and enforcing traffic violations of vehicles operating in the vicinity of CMVs and providing information to drivers regarding driving safely in the vicinity of other CMVs. MCS plans to continue these operations on "high-risk" corridors.  |
| <b>Enforcement</b> |   |   |  |                                  |  |
| 4.                 | Special Traffic Enforcement Programs (STEP)   | HSP 2008  | MDT-SHTSO  | Law Enforcement                  | Sustained overtime activities for law enforcement to conduct speed enforcement – coverage to 85 percent of statewide population areas – agencies to submit plans to MDT-SHTSO for sustained and mobilization enforcement activities.   |
| 5.                 | Special Traffic Enforcement Program (STEP) focusing on impaired-driving enforcement – including Safety Spot Checks  | HSP 2008  | MDT-SHTSO  | Police and Sheriff Agencies, MHP | Funds sustained overtime impaired-driving enforcement and overtime patrols during national impaired-driving mobilizations. MDT-SHTSO will actively recruit more law enforcement agencies to participate in STEP overtime.<br>MHP will commit to conducting safety spot checks in strategic areas through the State.<br>MHP can use stops to address seat belt usage violations and speed enforcement, as well.   |
| 6.                 | Montana Highway Patrol – Regular Enforcement Activities   |   | MDT-SHTSO  | MHP                              | Ongoing speed and DWI enforcement.   |

## Priority – Identify High-Crash Corridors/Locations and Implement Countermeasures (continued)

| Strat. No.                     | Current Strategies  | Reference Document   | Funding Agency   | Implementing Agency   | Overview of Actions   |
|--------------------------------|---|--|--|---|---|
| <i>Enforcement (continued)</i> |   |  |  |   |   |
| 7.                             | Local Safety Programs   |  | City and County budgets  | Local Law Enforcement Agencies  | Local funding is used for law enforcement efforts related to traffic safety.  |
| 8.                             | Speed Control   | Highway Safety Plan (HSP) 2006   | MDT-SHTSO through MDT Purchasing Bureau  | MT Highway Patrol (MHP), Local Police and Sheriff Agencies; MDT Maintenance   | MDT-SHTSO purchased five “Your Speed Is” trailers to measure and show a vehicle’s speed on the roadway; assist in speed education for the public, school zone awareness, high-volume traffic areas, and strategic placement of law enforcement officers. MDT Maintenance Division also is purchasing portable speed trailers, specifically to monitor before and after project implementation conditions.   |
| <i>Engineering</i>             |   |  |  |   |   |
| 9.                             | Highway Safety Improvement Program (HSIP)<br><br>(Encompasses former Safety Engineering Improvement Program (SEIP) and Hazard Elimination Safety Program (HES))   | Traveler Safety Policy Paper, TRANPLAN 21 – 2002 Update<br><br>Safety Engineering Improvement Program (seven-page document by Safety Management Section) | MDT Engineering-Traffic and Safety Bureau  | MDT Engineering-Traffic and Safety Bureau, Traffic Safety Engineering Section | The Highway Safety Improvement Program (HSIP) provides funds for safety improvements on all public roads and highways. The goal of the program is to eliminate or reduce the number and/or severity of traffic accidents at high-accident locations and to encourage engineering improvements that address identified safety needs (based on crash data identified by state, county, local, and Federal ownership and identified by location and severity). Program includes subprogram to address single-vehicle off-road short-road segments. Bi-annual District, Maintenance, and Construction staff notice for prioritizing projects and maintenance schedules. |
| 10.                            | Shoulder Rumble Strip Policy  | MDT Highways and Engineering Division Management Memo (rev. June 23, 2000)   | MDT  | MDT   | Policy in place and incorporated into project development for the use of rumble strips on roadway shoulders. Policy provides specifications for location and design on Interstate highways, National Highway, Primary, and Secondary Routes.  |
| 11.                            | 1999 Access Management Project  | Access Management and Land Use Planning Policy Paper, TRANPLAN 21 – 2002 Update  | MDT Engineering  | MDT Engineering   | The 1999 Access Management Project established a new access classification system for Montana’s National Highway System and Primary System. The classification system provides a framework for managing access onto the roadway. The overall approach for implementing these guidelines involves consistent application of the access management classification system. The system improves safety through strengthened access management.  |
| 12.                            | Railroad Safety:<br><ul style="list-style-type: none"> <li>• At-grade highway/ railroad safety improvement;</li> <li>• Railroad circuitry upgrade; and</li> <li>• Highway/Railroad grade separation.</li> </ul> | Policy and procedure manual  | Federal Railroad Administration (FRA)/Federal Highway Administration (FHWA)/MDT/ Railroad (RR) | MDT/RR  | The Rail Highway Safety Program provides funds for safety improvements at public highway-rail grade crossings. These funds are utilized to eliminate or reduce the number of grade crossing collisions statewide. Grade crossing information is collected on-site at each crossing and is entered in MDT’s TIS Crossing Database. Utilizing this database, grade crossing safety projects are prioritized and Diagnostic Review Teams are organized to determine what type of safety improvements are to be implemented.  |

## Priority – Identify High-Crash Corridors/Locations and Implement Countermeasures (continued)

| Strat. No.                     | Current Strategies                               | Reference Document  | Funding Agency   | Implementing Agency  | Overview of Actions   |
|--------------------------------|--|---|--|--|---|
| <i>Engineering (continued)</i> |  |   |  |  |   |
| 13.                            | Implement MT Rest Area Plan                      | Montana Rest Area Plan Amended May 2004   | MDT  | MDT  | Planning document to address the long-term needs of roadway travelers in Montana. The primary benefit of rest areas is improved highway safety. This document guides long-term decision-making.   |
| 14.                            | High-Crash Corridors                             |   | MDT  | MDT  | Engineering process to analyze crash data to determine high-crash severity corridors. HCC are evaluated every five years in order to allow adequate time to implement strategies to address crash trends. The high-crash severity corridors are the corridors with the highest score by adding the crash severity rate and the number of fatalities plus incapacitating injuries per mile.  |
| <i>Emergency Response</i>      |  |   |  |  |   |
| 15.                            | Montana Statewide EMS Program                    | State of Montana Reassessment of Emergency Medical Services, June 2005            | NHTSA with Montana EMS and Trauma Systems (EMS&TS) Section of Department of Public Health and Human Services (DPHHS) | EMS&TS   | Montana program consists of 5,000 EMS providers; 100 percent of Montana residents are served by 9-1-1 service. EMSTS is working to develop a comprehensive system for assessing, planning, developing, deploying, and coordinating EMS resources.   |
| <i>Data Management</i>         |  |   |  |  |   |
| 16.                            | Montana Traffic Records Strategic Plan (MT-TRSP) | State of Montana Traffic Records Strategic Plan – Final Report (February 6, 2006) | Montana Department of Transportation (MDT)- State Highway Traffic Safety Office (MDT-SHTSO)                          | Traffic Records Coordinating Committee (TRCC), MDT-SHTSO, MDT-Traffic and Safety Bureau and other state agencies | Guiding document for statewide Traffic Records Coordinating Committee (TRCC) (stakeholders of state crash records); purposes of MT-TRSP: <ul style="list-style-type: none"> <li>• Fulfill the requirements of the Montana Traffic Records Assessment (TRA);</li> <li>• Provide Montana state agencies with a common basis for moving ahead with traffic records systems upgrades, integration, and data analysis; and</li> <li>• Provide a basis for Montana’s grant requests to the National Highway Traffic Safety Administration (NHTSA) to receive first-year and successive-year grants under Section 408 (Title 23).</li> </ul> |
| 17.                            | MDT Safety Management System                     |   | MDT  | MDT  | MDT’s Safety Management System is an Oracle-based system developed to conduct safety analyses using crash and traffic data sources. The system gives MDT the ability to report traffic safety trends, identify high-crash locations, and provide crash characteristics on individual sections of highways.  |
| 18.                            | MDT Road Inventory (Road Log)                    | State of Montana Traffic Records Strategic Plan – Final Report (February 6, 2006) | MDT- Rail, Transit and Planning  | MDT- Rail, Transit and Planning  | Contains roadway and intersection characteristics; contains basic information on geometric and traffic conditions on a segment-by-segment basis; and includes information on surface type, lane and shoulder widths, number of lanes, and average annual daily traffic (AADT).  |

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# **High-Crash Corridors/High-Crash Locations**

*New Strategies*

## High-Crash Corridors - New Strategies

| <b>CHAMPION:</b><br>Kraig McLeod<br>(MDT Engineering-Safety Management Program )<br>krmcleod@mt.gov<br>(406) 444-6256  | Sponsoring Agency   | Agency Contact                      | Implementation Approach - Action Steps  | Coordination/ Outreach Efforts  | Funding Approach/ Needs/Sources        | Implementation Oversight                           | Evaluation/ Assessment Procedure                                 |
|--|---|-------------------------------------|---|---|--|--|--|
| <b>Establish a Process to Reduce Crashes, Injury Crashes, and Fatal Crashes in Identified High-Crash Corridors and Locations</b>   | <b>Implementation Team: Duane Williams MDT-Motor Carriers, Lesly Tribelhorn MDT-Preconstruction, Jon Swartz and Brandi Hamilton MDT-Maintenance, Priscilla Sinclair MDT- SHTSO, MDT- Planning, Montana Highway Patrol (MHP), Marcee Allen, FHWA, WTI. Plus any others with expertise or interest.</b> |                                     |   |   |  |  |  |
| <b>HC-1 Develop Level of Service of Safety (LOSS) for all roads in Montana</b><br><br>Establish qualitative safety norms for roadways by considering several contributing factors (roadway geometrics, terrain, ADT, classification of roadway, etc.).   | MDT   | Kraig McLeod                        | <ol style="list-style-type: none"> <li>1. The process will start with a feasibility study of the existing safety management information system to determine any enhancement or replacement needs to accommodate updates in different software applications.</li> <li>2. Develop Business Plan.</li> <li>3. Qualitatively compare the actual accident frequency and severity of each roadway with the expected norms to determine LOSS for the respective roadways.</li> </ol> | Federal Highway Administration (FHWA), Montana Department of Transportation (MDT), Montana Highway Patrol (MHP) | Safety Management Program - STPX funds | MDT Engineering Division                           | LOSS process development complete.                               |
| <b>HC-2 Review of Best Practices</b><br><br>Implement best available engineering practices for roadway improvement such as: centerline rumble strips, edge line rumble strips/ stripes, pavement markings and signing, etc., and keep current with design and engineering principles and practices in guiding documents (MUTCD, AASHTO, etc.). | MDT   | Duane Williams, Danielle Bolan/FHWA | <ol style="list-style-type: none"> <li>1. Establish test sites for usage of various types of rumble stripes, skid resistant corners and other roadway improvement applications.</li> <li>2. Evaluate test sites and develop appropriate policy changes.</li> <li>3. Review current and proposed changes to national standards and incorporate changes into MDT guidelines where appropriate.</li> <li>4. Review recent MUTCD update for changes.</li> </ol>                   | MDT, FHWA   | MDT                                    | MDT Traffic and Safety Bureau, MDT Preconstruction | Potential policy changes/MDT Guidelines reflect national trends. |

## High-Crash Corridors - New Strategies (continued)

| <b>CHAMPION:</b><br>Kraig McLeod<br>(MDT Engineering-Safety<br>Management Program )<br>krmcleod@mt.gov<br>(406) 444-6256                          | <b>Sponsoring<br/>                     Agency</b> | <b>Agency<br/>                     Contact</b> | <b>Implementation Approach -<br/>                     Action Steps</b>  | <b>Coordination/<br/>                     Outreach Efforts</b> | <b>Funding<br/>                     Approach/<br/>                     Needs/Sources</b> | <b>Implementation<br/>                     Oversight</b> | <b>Evaluation/<br/>                     Assessment Procedure</b>                         |
|---|---|--|---|--|--|--|--|
| <b>HC-3 HCC Sign Evaluation</b><br>Evaluate signage to ensure consistency throughout corridors of similar curves, speed zones, and narrow widths. | MDT   | Traffic and Safety Bureau                      | Safety evaluation:<br>1. HCC review of signage begun in Missoula District (2010).<br>2. Determines chevron placement based on speed differential.         | MDT Engineering/Maintenance                                    |  | MDT Engineering  |  |
| <b>HC-4 Incorporate New Technology</b><br>Identify new technology being used in other states to identify high-crash corridors.                    | MDT   | MDT, FHWA                                      | Research how high-crash corridors are determined in other rural states and how new technology is used as countermeasures.                                 | MDT Engineering  |  | MDT Engineering  |  |
| <b>HC-5 Implement and Evaluate Corridor Safety Audit Process</b>  | MDT   | MDT - Traffic & Safety Engineering             | 1. Conduct two CSA annually.<br>2. Track implementation of recommendations.<br>3. Evaluate CSA process and the effectiveness of addressing safety issues. | MDT, Local officials, FHWA, Enforcement, EMS, others           |  | MDT-Traffic & Safety Engineering                         | Successful CSA review and implementation of improvement options in High Crash Corridors. |