Emphasis Area: Roadway Departure & Intersections Related Crashes

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Objectives:
- **Reduction of Roadway Departure Fatalities**
- **Reduction of Roadway Departure Suspected Serious Injuries**
- **Reduction of Intersection related Fatalities**
- **Reduction of Intersection related Suspected Serious Injuries**

Strategy 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 prevent vehicles from leaving the roadway or to 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 identifies roadways with a higher than normal crash rate and determines appropriate proven safety countermeasures to address the issues. Along with input from local and tribal jurisdictions MDT will continue to conduct analysis of locations identified as having safety issues and define potential infrastructure solutions. As research into proven best practices is ongoing, MDT will continue to research, identify, and implement technology and infrastructure safety improvements.

Opportunities	Timeline	August 2020 Status	Lead(s)	Reference	Resource	Measurement of Success
Continue to Implement the Highway Safety Improvement Program (HSIP)	Annual. Ongoing	The Highway Safety Improvement Program (HSIP) is a core Federal-aid program with the purpose to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned roads and roads on tribal land. The HSIP requires a data-driven, strategic approach to improving highway safety on all public roads with a focus on performance.	Patricia Burke/Gabe Priebe, Traffic & Safety Bureau (TSB), Highway Safety Improvement Program (HSIP) - Montana Department of Transportation (MDT)	HSIP FFY 2021	FHWA HSIP	Reduction in crashes, both number and severity.
Continue to support and implement Roadway Departure Plan	Annual. Ongoing	Using Montana Specific Safety Performance Functions to focus on roadway departure crashes. This is based on non-junction related crashes and four crash types (roll over, fixed object, side-swipe opposite direction and head-on crashes).	Patricia Burke, Safety Engineer, Highway Safety Improvement Program (HSIP) -MDT		FHWA Proven Safety Countermeasures	Reduction in number and severity of roadway departure crashes.

Strategy 2: : Reduce and mitigate speed-related roadway departure/intersection crashes

Purpose: Driving the speed limits is the responsibility of the vehicle operator. While roads are designed, constructed, and maintained with safety in mind, drivers routinely exceed the posted speed limits and drive too fast for conditions. The faster a vehicle is traveling when it crashes, the greater the risk of severe injury for the occupants. Speed limits are set by state statute and monitored and enforced by law enforcement to improve speed limit compliance. Challenges to enforcing the speed limits include vast distances of open road, limited manpower and funding for law enforcement, and Legislative statute that forbids the use of automated enforcement. Countermeasures for mitigating speed-related roadway departures and intersection crashes include geometric alignment changes and use of other roadway safety features.

Opportunities	Timeline	August 2020 Status	Lead(s)	Reference	Resource	Measurement of Success
Continued implementation of Speed Enforcement Campaigns	Annual. Ongoing	In addition to focusing on impaired drivers and unrestrained vehicle occupants the STEP campaigns also focus on drivers exceeding the posted speeding and other risky driving factors. MCS and MHP coordinate Ticketing Aggressive Cars and Trucks (TACT) enforcement specials to deter unsafe driving behaviors by passenger vehicle (PV) and commercial motor vehicle (CMV) drivers when they interact to share the road.	Chad Newman, Law Enforcement Liaison, State Highway Traffic Safety Section (SHTSS) -MDT; Eric Belford, Motor Carrier Services (MCS)-MDT & Capt. Collins/Captain Conner Smith , Montana Highway Patrol (MHP)	CVSP FFY2018-2020, HSP FFY 2021	Federal Motor Carriers Safety Administration (FMCSA), NHTSA Countermeasures That Work (CMW)	Output Measure: Implement STEP program. Outcome Measure: Reduction in speed related citations.
Continue to support and implement Intersection Safety Plan	Annual. Ongoing	Using Montana Specific Safety Performance Functions to focus on intersection related crashes in both rural and urban environments.	Patricia Burke, Safety Engineer, HSIP-MDT		FHWA Proven Safety Countermeasures	Reduction in number and severity of intersection related crashes.
Continue to implement and consider speed management methodologies appropriate for Montana.	Annual. Ongoing.	Speed limits are posted only after a traffic and safety engineering study has been conducted and (where applicable) approved by the Transportation Commission. Before setting limits, Engineering traffic investigator considers: the length and width of roadway, the roadway type and condition, the location of access roads & intersections, existing traffic control, sight distance, crash history, and traffic speed studies.	Stan Brelin, Traffic Engineer, Traffic & Safety Bureau-MDT		MT Traffic Engineering Manual (TEM), Institute for Setting Speeds (ITE)	Reduction of speed related crashes on roadways

Strategy 3: Reduce roadway departure and intersection crashes through traffic safety education

Purpose: Education and awareness campaigns are a critical in reducing roadway departure and intersection related crashes. Public awareness and knowledge of safe driving practices can help prevent unsafe driving reaction and behavior. Drivers should be encouraged to refresh their knowledge and skills as new technological and safety improvement becomes available. Most people only learn about these new elements when they encounter them on the roadway. Public education and awareness inform people on how to navigate standard and innovate roadway infrastructure and safety improvements

Opportunities	Timeline	Status	Lead(s)	Reference	Resource	Measurement of Success
AARP Driver Skills Training refresher course covers current rules of the road and defensive driving techniques.	Annual. Ongoing	The AARP Smart Driver™ course, offered by AARP Driver Safety, is the nation's first and largest refresher course designed specifically for drivers age 50 and older. Courses are offered in either a traditional classroom setting or through an interactive online course that may be taken from your home computer at	Carl Peil, AARP Driver Instructor	AARP	AARP Driver Safety	Number of classes: Successful Classroom Participants:
Sustain and continue to provide Share the Road and No-Zone training focusing on operating around large vehicles	Annual. Ongoing	Training focuses on the importance of operating passenger vehicles safely around large vehicles. Motor Carriers Services (MCS) will continue to work with the Office of Public Instruction (OPI), Motor Carriers of Montana (MCM) and carriers throughout Montana to line up trainers and equipment as needed.	Eric Belford, MCS-MDT, Office of Public Instruction (OPI), MCM	CVSP FFY 2018-2020	FMCSA	Number of classes:
Continue to sustain and support the implementation of MT D.R.I.V.E skills training	Annual. Ongoing	The Montana Traffic Education Curriculum Guide meets the standards, benchmarks & performance standards for state-approved teen driver education. Structured learning & guided practice are needed for students to acquire & demonstrate legal & safe driving skills, habits, and responsibilities. Teen drivers must complete an approved Montana drivers education & training program to obtain a drivers license before age 16.	Patti Borneman, Traffic Education Program Specialist	OPI	Administrative Rules of Montana (ARM) 10.13.401-410	Successful Participants:
Continue to sustain and support implementation of the OPI Teen Drivers Education	Annual. Ongoing	Expand awareness and importance of drivers education for novice drivers and requirement for parental participation.	Patti Borneman, Traffic Education Program Specialist, OPI	OPI		Successful Participants:

Montana Motorcycle Rider Safety (MMRS) Training	Annual. Ongoing	Classroom and driving range safety education to learn and enhance motorcycle operator skills and importance of using motorcycle safety equipment; and applying operator skills to enhance abilities and improve defensive driving strategies.	Jim Morrow, Montana Motorcycle Rider Safety(MMRS) - MSU Northern, Sheila Cozzie State Highway Traffic Safety Section (SHTSS)-MDT	HSP FFY 2021	Motorcycle Safety Foundation (MSF)	Successful Participants:
Continue to promote Operation Lifesaver- RR safety program	Annual. Ongoing	Develop MT Operation Lifesaver website to enhance public awareness and promote safety around rail road crossings to reduce highway-rail crossing collisions, deaths and injuries	John Althof, RR Safety-MDT & Colin Smith, Montana Operation Lifesaver (OL) Coordinator		Operation Lifesaver Rail Safety Education	Annual outreach events/presentations (including high school assemblies, drivers education, and business meetings):
Continue to provide and enhance traffic safety information for bicyclist and pedestrians and other non-motorized transportation system users.	Ongoing	Support and provide traffic safety education materials and resources to enhance safety awareness and Montana statute for non-motorized transportation system users with consideration of age and if appropriate skill levels.	Multimodal Bureau-MDT		Tran Plan MT	Program implementation.

Strategy 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 addressing intersection safety in a proactive manner 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. MDT will continue to work with all roadway jurisdictions using input on safety issues to identify specific locations where improvements may be needed, conduct analysis, and define and implement solutions.

Opportunities	Timeline	August 2020 Status	Lead(s)	Reference	Resource	Measurement of Success
Implement the Railway-Highway Crossings (Section 130) Program. Section 130 program funds are eligible for projects at all public crossings including roadways, bicycle and pedestrian paths.	Annual. Ongoing	This program provides funds for the elimination of hazards at railway-highway crossings. 50% of a State's apportionment under 23 USC 130(e) is dedicated for the installation of protective devices at crossings. The remainder of the funds apportionment can be used for any hazard elimination project, including protective devices.	John Althof, RR Highway Safety, TSB-MDT		FHWA-Railway-Highway Crossings (Section 130) Program, 23 USC 130	Implementation of annual program. Number of projects:
Continue to implement and enhance proven countermeasures such as, but not limited to improving sight distance at intersections and availability of gaps in traffic and assist drivers in judging gaps; access management; traffic signalization, control, operational, and other infrastructure improvements for all transportation system users.	Annual. Ongoing	The Highway Safety Improvement Program (HSIP) is a core Federal-aid program with the purpose to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned roads and roads on tribal land. The HSIP requires a data-driven, strategic approach to improving highway safety on all public roads with a focus on performance.	Patricia Burke, Safety Engineer, HSIP-MDT	HSIP FY 2021	FHWA- Highway Safety Improvement Program	Implementation of annual program.

Strategy 5: Continue to improve the accuracy, completeness, integration, timeliness, uniformity, collection, and accessibility of safety (fatality and serious injury, traffic, and roadway) data used in traffic safety analysis

Purpose: The key to achieving the long-term vison of zero fatalities and zero serious injuries is to focus resources on the most significant problems. Accurate, complete, uniform, and timely data can be used to access appropriate countermeasures. The ability to collect and integrate all city, county, tribal, and state crash data by jurisdictional law enforcement would allow a more accurate picture of road crashes and contributing roadway factors. Ability to access data by all entities is necessary for infrastructure safety improvement and safety program funding opportunities.

Opportunities	Timeline	August 2020 Status	Lead(s)	Reference	Resource	Measurement of Success
Enhance and upgrade MDT's Safety Information Management System (SIMS) crash database. Continue to identify, analyze and track HSIP projects that reduce the number of fatal and serious injuries.	Ongoing. 5+ Years.	Work through the process of upgrading MDT's current crash database. This includes coordination with MDT-ISD and MHP.	Patricia Burke, Safety Engineer, HSIP-MDT, Informations Services Division (ISD)-MDT	HSIP FFY 2021	Safety - MDT	Program approval and implementation.
Create crash database dashboards for groups including CHSP, Planning Division, etc. This could include other agencies such as MHP (focusing enforcement efforts) and DPHHS (focusing educational efforts).	1-2 Years	Preliminary discussions on creating dashboards. Dashboard development early 2021.	Patricia Burke, Safety Engineer, HSIP-MDT, Informations Services Division (ISD)-MDT	Confirm HSIP FFY 2021	Safety - MDT	

Strategy 6: Support and increase enforcement of proper road use behaviors by all road users (motorized and nonmotorized) identified through crash data.

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 in identifying locations where enforcement and /or safety improvements are needed. Those locations may also be reviewed for infrastructure and facility upgrades to increase safety for enforcement and other emergency responders.

Opportunities	Timeline	August 2020 Status	Lead(s)	Reference	Resource	Measurement of Success
Continue to conduct and implement Operation Safe Driver campaigns.	Annual. Ongoing.	CMV enforcement activities within corridors where data indicated there are a high number of crashes involving vehicles involved in international commerce.	Eric Belford, MCS & MHP	CVSP FFY 2018-2020	Federal Motor Carriers Safety Administration (FMCSA)	Implementation of Annual Campaigns
Continue to support the Montana Highway Patrol (MHP) high visibility enforcement STEP and SETT programs with crash maps for distribution to Montana Highway Patrol Districts focusing on speeding, impaired driving, unrestrained vehicle occupants, and distraction in addition to other risky driving behaviors.	Annual. Ongoing.	Crash maps to assist enforcement in identifying enforcement corridor or crash clusters to focus on risky driving behaviors to reduce roadway departures.	Chad Newman & Mark Keeffe, SHTSS-MDT, & MHP			Annual maps.

Strategy 7: Explore and implement best practices for reducing roadway departure, including distracted 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 continue to monitor safety literature to evaluate emerging safety improvements strategies with a proven safety benefit and consider implementation, as appropriate.

Opportunities	Timeline	August 2020 Status	Lead(s)	Reference	Resource	Measurement of Success
Conduct low volume rural roads research project to prioritize and identify areas of need.	Two year project	Develop a methodology for identifying and prioritizing locations on low volume local roads in Montana at the network level deserving of Highway Safety Improvement Projects.	Traffic & Safety Engineering (TS)	Research- MDT	Research-MDT	Completion of research project.
Research effectiveness of highway safety public education at Montana Motor Vehicle Division and Vehicle Registration Stations by streaming safety videos.	In progress.	There is a need to educate Montanans about highway safety, the consequences of risky driving behaviors (such as texting while driving, driving while impaired or distracted, driving unbuckled); and the benefits of proven innovative road safety countermeasures (such as roundabouts and rumble strips installed by public transportation agencies). There is an opportunity to educate the public by continuously showing looping highway safety video clips at Motor Vehicle Divisions licensing & vehicle registration stations for customers waiting 5+ minutes.	Traffic & Safety Engineering (TS), Motor Vehicle Division-Dept of Justice (MVD-DOJ) and other traffic safety partners	Research- MDT	Research-MDT	Consider implementation of research findings, if appropriate.

Proposed: Research safety evaluation of sinusoidal centerline rumble strips.	In progress.	Previous studies show a quieter CLRS option is the sinusoidal centerline rumble strip (SCLRS). Currently there are no studies to quantify the crash reduction effects of the SCLRS. This proposed project will investigate the effectiveness of sinusoidal centerline rumble strips in lowering the number of observed crashes.	Traffic & Safety Engineering (TS)-MDT	Research- MDT	Research-MDT	Implement research findings, if appropriate.
Proposed research effective wildlife fences through better functioning barriers at access roads and jump-outs. Wildlife fences in combination with wildlife crossing structures are the most effective measure to improve human safety through reducing collisions with large mammals, and to provide safe crossing opportunities for wildlife.	Proposed	Study to investigate barrier types to keep species with paws out of the fenced road corridor at access roads. Research to select sites with very low traffic volume & interested landowners first, before increasing complexities with higher volume public roads. Initial focus is on very low volume access roads and single land owners, and relatively low-cost barriers, including those from ranching and African wildlife reserves. No research on whether barriers have been tested for wildlife (especially species with paws) in North America. Barriers at higher volume access roads or barriers on the main highway at fence-ends, likely will require more complex and more expensive measures (e.g. "electricity off" switch on a timer for transportation system users. Initial focus on low volume access roads has the potential to result in the greatest benefits at the lowest costs. Existing gates and existing wildlife guards can be left in place; they would either be an integral part of the "treatment" (e.g. for existing wildlife guards) or the could be left open during the testing of the alternative barriers (e.g. for existing gates).	Environmental-MDT, Confederated Salish & Kootenai Tribes and other traffic safety partners	Research- MDT	Research-MDT	Implement research findings, if appropriate.
Implement findings of New/Novel Signs Study to Support Infrastructure Based Motorcycle Crash Countermeasures Project	Completed by end of FFY 2021	Develop a prioritized list of highway sign alternatives that can serve as effective motorcycle crash countermeasures. Objective is to determine and/or develop various new/novel highway sign alternatives, conduct comprehension and legibility testing of these highway signs, and develop a prioritized list of highway sign alternatives that can serve as effective motorcycle crash countermeasures.	FHWA	FHWA	FHWA	Review technical report & implement findings if appropriate.
Continue to track and consider implementation of advances in automated vehicle and roadway technologies. As automated vehicle technology advances and is deployed, transportation policy and planning will be critical. Approaches to fully address the needs of the traveling public, businesses, and freight operators will need to be adapted.	Ongoing.	As automated driving systems developers continue to improve their systems, laboratory and track-testing are validated with controlled testing on public roads. Vehicle-to-vehicle (V2V) communication's ability to wirelessly exchange information about the speed and position of surrounding vehicles can help to avoid crashes, ease traffic congestion, and improve the travel environment. Advanced driver assistance technologies depend on an array of electronics, sensors, and computer systems. In advancing these features and exploring the safety benefits of these new vehicle technologies, NHTSA is also focused on strong cybersecurity to ensure these systems work as intended and are built to mitigate safety risks.	Chad Newman, SHTSS-MDT & Gabe Priebe, Traffic & Safety engineering, & Eric Belford, Motor Carrier Services-MDT	NHTSA	NHTSA, Research-MDT, FHWA, FMCSA, among others	Provide updates as they become available.