

# SOLUTIONS



## RESEARCH PROGRAMS Summer/Fall 2017

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## PROJECT HIGHLIGHTS

### Exploring Traffic Safety Citizenship

<http://www.mdt.mt.gov/research/projects/safety-citizenship.shtml>

Traditional strategies to reduce risky or unhealthy behaviors focus on changing the behaviors of those individuals at risk. For example, drunk driving is a common topic in the Strategic Highway Safety Plans (SHSP) of many states. The primary strategies applied to this issue are education and enforcement, both focused on changing the behavior of those people who decide to drink and drive. Drinking and driving, speeding, and not wearing a seat belt are major contributing factors to roadway fatalities. However, the proportion of the U.S. population that engages in such behaviors tends to be small relative to the proportion that abstains. To achieve zero deaths, we must reach these smaller groups of individuals who continue to engage in unsafe behaviors.



A novel approach is to empower the vast majority of safe road users to engage in prosocial behaviors to impact this smaller group. Instead of trying to reduce risky behaviors among a small group of individuals, the goal is to

instill a sense of responsibility in everyone for the safety of others. This strategy is known as “safety citizenship” (Hofmann, Morgeson, and Gerras 2003 ; Dov 2008 ; Didla, Mearns, and Flin 2009 ). In essence, safety citizenship among a group of individuals is about creating a shared commitment to the value of safety and the social obligation to behave in ways that support the safety of one another (Safety Institute of Australia Ltd 2013 ).

The goal of this study was to better understand which specific aspects of traffic safety culture (the values and beliefs shared among groups of road users and stakeholders that influence their decisions to behave or act in ways that affect traffic safety) predict engagement in traffic safety citizenship behaviors. The research sought to:

1. Measure the prevalence of the specific prosocial traffic safety behaviors among adults in the U.S.;
2. Identify values, attitudes, and beliefs predictive of these traffic safety citizenship behaviors; and
3. Identify values, attitudes, and beliefs associated with higher levels of support for strategies to address seat belt usage and texting while driving.



Researchers developed a survey based on an augmented form of the integrated behavioral model (Fishbein and Ajzen 2010 ; Gerrard et al. 2008 ). The survey pool was made up of Highway safety staff from participating state DOTs. The respondents ranked potential behaviors to address. The highest ranked behaviors were asking someone to wear a seat belt and asking the driver to refrain from reading or typing on a cell phone while driving. The context for these behaviors were limited to four social relationships: with a family member, with a friend, with an acquaintance or coworker, and with a stranger.

The survey revealed a range of values, beliefs, and attitudes about intervening with others to promote traffic safety. About half of the respondents indicated they had been in a situation in the past 12 months when someone was not wearing a seat belt or was reading or texting while driving. More than half indicated they were in a situation to intervene, and were more likely to intervene with others who were socially closer to them (e.g., family and friends) than with those more socially distant (e.g., acquaintances or strangers).

Overall, most respondents had favorable attitudes and beliefs about intervening. Correlations revealed that the perception of whether most people do intervene (e.g., the perceived descriptive norm) was most strongly associated with intervening behavior. Furthermore, a comparison of the means of survey components among those who intervened more often compared to those who intervened rarely or never revealed significant differences in the respondents' sense of comfort and confidence in intervening.

These results show that people already think they should intervene (i.e., injunctive norms). The desired shift toward community safety may take hold in the form of guidance programs to reduce the discomfort of involvement at the individual level. Similarly, those who were more likely to intervene and who had more favorable attitudes and beliefs about intervening were more supportive of strategies involving policy or rules to increase seat belt use or decrease reading or typing on a cell phone while driving.

Recommendation #1: Develop interventions to bolster comfort and confidence in engaging in these protective behaviors and to grow the perception that speaking up is typical. Interventions can include a wide variety of activities including classroom instruction (in a driver's education program, for example), experiential activities like role playing, education campaigns, one-on-one counseling, etc.

The specific beliefs to be addressed include:

- Most people will ask someone to wear a seat belt or not read or type on a cell phone when driving.
- Examples can be provided to "teach" people how to intervene and that they can be successful.

Recommendation #2: Couple efforts with policy strategies including primary laws, workplace policies, and family rules. This survey revealed that most people



support these strategies. Establishing laws, policies, and rules can create a context across the social environment that empowers people to act when they see someone else violating the policy. This notion, called "expressive law," recognizes that the adoption of laws can impact culture by moving beyond the notion that a law is seeking to deter individuals from engaging in a behavior by creating a penalty. Instead, expressive law recognizes that laws can codify norms shared by a group. In this way individuals are empowered to speak up or engage with individuals who violate the laws (Geisinger 2009 ). Thus, policies coupled with training on how to intervene may increase traffic safety citizenship.



Helpful community policy strategies include, establishing workplace rules requiring all employees wear their seatbelts and never text while driving, encouraging families to establish rules about safe driving practices, and working with policymakers to establish primary seatbelt and distracted driving laws.

Elected officials, community and workplace leaders, and families should be informed of policies and rules

that support traffic safety, and those policies should be coupled with community and workplace training on how to intervene when someone witnesses risky behavior.

This project was conducted as a part of the [Traffic Safety Culture Transportation Pooled Fund](#). For more information on this project or the pooled fund, please contact Sue Sillick ([ssillick@mt.gov](mailto:ssillick@mt.gov), 406.444.7693)

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- Geisinger, Alex C. "A Belief Change Theory of Expressive Law." *Social Science Research Network, Scholarly Paper ID 1369311*. (March 27, 2009) pp. 37-73.

## Identifying Disparities in Definitions of Heavy Trucks

Big vehicles come with big regulations. There are both federal and state regulations that are codified. In addition, there are rules, policies, processes, and procedures interpreting these regulations. In the realm of heavy trucks, there are differences in definitions among these documents. With that in mind, researchers from Western Transportation Institute undertook a project to make sense of these regulations and develop a tool to aid those who use them most.

To pinpoint the most confusing aspects of these regulations, various professionals in the field were surveyed. Survey participants included truck drivers, bus drivers and those responsible for enforcement.

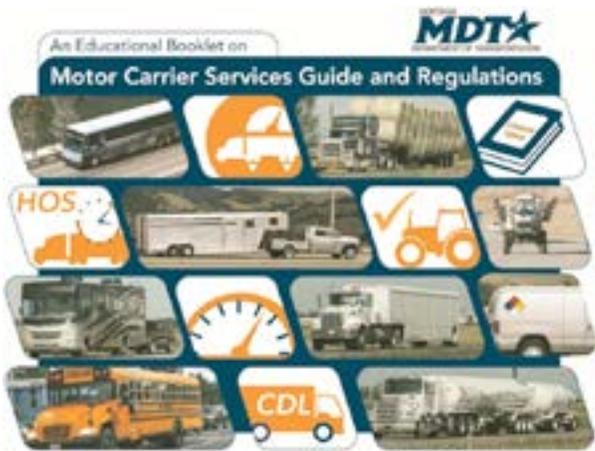




Three categories emerged from the surveys:

1. Changes that are recommended in the state's administrative documents
2. Issues worthy of legislative consideration
3. Items to be considered for educational purposes

Using visuals in the form of charts and photographs, [this booklet](#) helps to identify the types of vehicles and conditions that fall under specific regulatory guidelines.



Its use of glossary of terms and plain language helps to explain specific requirements.

The educational booklet helps to:

- Identify and define common regulatory terms
- Provide examples of types of large trucks and correlating speed limits.
- Explain the conditions that warrant a required vehicle inspection
- Outline the weight limits required for weigh station stops
- Clarify which vehicles might be exempt from weigh station stops
- Describe CDL requirements
- Illustrate vehicle classification
- Diagram the daily and weekly hours of service for commercial drivers
- Detail HAZMAT regulations and registration

You can access this free educational resource and the report behind it on the MDT website at:

<http://www.mdt.mt.gov/research/projects/mcs/heavy-trucks.shtml>

For more information on this project or the pooled fund, please contact Sue Sillick ([ssillick@mt.gov](mailto:ssillick@mt.gov), 406.444.7693)

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## Assessment of the Montana Road Weather Information System (RWIS)

Weather presents considerable challenges to transportation agencies related to both safety and operations. From a safety standpoint, snow, ice, and other forms of precipitation may reduce pavement friction, increasing the potential for crashes when vehicles are traveling too fast for the conditions

From an operations standpoint, heavy snow storms may affect the connectivity of the highway network due to closures that need to be cleared in an efficient and timely fashion. Further, travelers should be informed about unusual pavement conditions and road closures on time to minimize the effect of adverse weather on the safety and mobility of the traveling public. For these





reasons, road weather information has become increasingly important for transportation agencies, particularly in regions that experience harsh winter weather conditions. In addition, road weather information is used in many applications, such as winter maintenance, traveler information, and other weather-related intelligent transportation system (ITS) applications.

The Montana Department of Transportation (MDT) currently has 73 Road Weather Information System (RWIS) stations throughout the state that have been used as a major source of weather data for transportation applications. MDT recently completed a research project to perform a comprehensive review and assessment of the state road weather

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## **LIBRARY CORNER**

### **Meet the Librarian**

Hi, my name is Bobbi deMontigny.

I am the new librarian at the Montana Department of Transportation. I am very happy to be here and look forward to working with you. It is fun to be back in the world of large scale infrastructure. I began my early work life in a large utility company in Washington. This gave me a taste of information services and resource digitization. When my family moved to Montana, I was introduced to library work and enjoyed it so much that I went all in. It has been ten years since coming to this state and I am excited to apply my education and experience to curating a collection that will help you with your research and professional needs.

One of the first tasks I took on after settling in was adding to our digital collection of independent study materials. You can access these materials at <https://mdtlibrary.overdrive.com/>. These resources provide information, perspective, and encouragement to assist in your professional journey.

In my free time, I like to work with clay, garden, and drive to little known places to mine for sapphires with my family. I am also an avid reader but with such muddy hobbies I usually prefer to multitask with an audiobook.

Please feel free to stop in. I would love to meet you, and would be happy to help you find the resources you need.

To learn more about library services at the Montana Department of Transportation please contact Bobbi deMontigny ([bodemontigny@mt.gov](mailto:bodemontigny@mt.gov), 406.444.6338).





## DID YOU KNOW?

### Research Project Solicitation Process Change

This year the research project solicitation process changed. It is now a two-step process with a simple stage 1 research idea being due on March 31st of each year. The fields include title, research idea description, submitter information, and champion information. Anyone can submit a research idea and the champion can be any MDT staff. If the idea originates within MDT, the champion is usually the submitter. If the idea originates outside of MDT, the champion field is optional. However, it is strongly suggested outside entities discuss MDT's research needs in their area of research interest. It's often best to discuss MDT issues and identify which have a research solution. In doing this, a champion is already identified. If a champion is not identified when the form is submitted, research staff will attempt to identify a champion. If one is not identified, the research idea goes no further.

For all stage 1 research ideas that have a champion identified, the MDT librarian will conduct a literature search to identify same or similar research in progress and that has been completed. The champion reviews this information and determines

if the research should proceed to the second stage. If the research has been conducted already, the champion may choose to implement the results directly or submit a stage 2 implementation project. If the research is in progress, the champion may choose to wait until the research is complete. If the research has not been conducted, is not in progress, or is not similar enough, the champion may choose to submit a stage 2 research topic statement, which is due April 30th of each year.

The champion then presents their stage 2 form to the MDT Research Review Committee (RRC) and District Administrators at the May RRC meeting. Both of these groups will then submit their project rankings, which are compiled for the June or July RRC meeting when the RRC decides which projects will move forward in the next federal fiscal year, beginning October 1st.

For further information and research forms, [visit the MDT solicitation website](#). Please contact Sue Sillick ([ssillick@mt.gov](mailto:ssillick@mt.gov), 406-444-7693) for additional information.

## CALENDAR OF EVENTS

### September

Domestic Scan Program Proposals Due - 9/29/17

### October

Library Catalog Training - 10/4/17

ACRP Legal Research Problem Statements Due - 10/13/17

NCHRP Problem Statements Due - 10/16/17

### November

TCRP Transit IDEA Program Proposals Due - 11/1/17

Technology Transfer Committee Meeting - 11/16/17

### December

MDT RRC Meeting - 12/5/17

AASHTO Special Committee On Research and Innovation Meeting - 12/4 - 12/5/17

### January

TRB Annual Meeting - 1/7/18 - 1/12/18

AASHTO Research Advisory Committee Meeting - 1/7/18

MDT RRC Meeting - 1/24/18

### February

NCHRP Synthesis Topics Due - 2/16/18

MDT RRC Meeting - 2/27/17



For additional information, please see: <http://rppm.transportation.org/Lists/Calendar/calendar.aspx>.



## **NEW RESEARCH REPORTS**

[Advanced Methodology to Determine Highway Construction Cost Index](#)

[Assessment of Montana Road Weather Information System](#)

[Development of Strategic Enterprise Architecture Design for MDT](#)

[Evaluation of Wildlife Crossing Structures on US 93 in Montana's Bitterroot Valley](#)

[Identifying Disparities in Definitions of Heavy Trucks](#)

[Investigation of Prefabricated Steel Truss/Bridge Deck Systems](#)

[Montana Airport Economic Impact Update](#)

[Montana Weigh-in-Motion \(WIM\) and Automatic Traffic Recorder \(ATR\) Strategy](#)

[Top-down Construction Cost Estimating Model Using an Artificial Neural Network](#)

[Understanding Law Enforcement Attitudes and Beliefs about Traffic Safety](#)

A listing of all past and current projects can be found at  
[http://www.mdt.mt.gov/research/projects/sub\\_listing.shtml](http://www.mdt.mt.gov/research/projects/sub_listing.shtml).

## **EXPERIMENTAL REPORTS**

A listing of all past and current projects can be found at  
[http://www.mdt.mt.gov/research/projects/exp\\_sub\\_listing.shtml](http://www.mdt.mt.gov/research/projects/exp_sub_listing.shtml).

### **REMINDER**

Information on research services and products, such as research and experimental project processes and reports and technology transfer services, can be found on the Research web site at [www.mdt.mt.gov/research](http://www.mdt.mt.gov/research).

MDT's library collection can be searched through the [library catalog](#). The catalog and other information resources are available through the [MDT Library web site](#).



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## CONTACT US

Sue Sillick – Research Programs Manager  
406.444.7693  
[ssillick@mt.gov](mailto:ssillick@mt.gov)

Craig Abernathy – Experimental Projects  
Manager  
406.444.6269  
[cabernathy@mt.gov](mailto:cabernathy@mt.gov)

Bobbi deMontigny – Librarian  
406.444.0871  
[bodemontigny@mt.gov](mailto:bodemontigny@mt.gov)

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0 copies of this public document were published at an estimated cost of \$0.00 per copy, for a total cost of \$0.00, which includes \$0.00 for printing and \$0.00 for distribution