



# RESEARCH SERVICES & LIBRARY

OFFICE OF TRANSPORTATION SYSTEM MANAGEMENT

## TECHNICAL SUMMARY

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### PROJECT COST:

\$235,217



A speed lottery that rewards drivers for not speeding is one option for leveraging the norm against speeding.

# Improving Traffic Safety Through Cultural Shifts

## What Was the Need?

Transportation safety is the primary goal of MnDOT's [Strategic Highway Safety Plan](#). As a partner in the [Toward Zero Deaths](#) program, the state has a goal of reducing traffic fatalities from 361 in 2014 to 300 by 2020.

Safety culture has a major impact on safety because social norms and values influence the choices of the individual to engage or not engage in risky behaviors. The safety culture concept has been studied in a number of contexts and successfully applied to improve safety in industries like commercial airlines, energy generation and public health.

MnDOT and the Minnesota Department of Public Safety have conducted a number of educational campaigns to improve highway safety. MnDOT wanted to investigate safety culture, a concept that only a couple of state transportation departments have applied to improving safety.

## What Was Our Goal?

This project sought to develop a survey methodology that Minnesota can use to measure public traffic safety culture at the state level.

## What Did We Do?

Researchers conducted a mail survey of 10,000 random household addresses throughout Minnesota. This survey collected information about respondent attitudes toward traffic safety in general and three specific risky driving behaviors: driving after consuming alcohol, driving without seat belts and speeding.

Researchers used the [Integrated Behavior Model](#) to guide the development of the survey. The IBM incorporates individual attitudes, perceived social norms and personal agency (an individual's sense of control or ability to engage in a behavior in a certain situation) as key factors that determine an individual's intention to perform a specific behavior, such as wearing a seat belt even if others are not.

Researchers conducted four analyses on the survey data. A frequency analysis simply evaluated the frequency and distribution of survey responses. An analysis of predictive models sought to determine the specific factors in the IBM that most strongly correlated with actual self-reported behaviors. An analysis of actual and perceived norms examined how misperceptions about cultural norms (for example, the belief that most people drive after drinking alcohol) affect an individual's behavior. Finally, researchers used the results to derive a unified metric to serve as a single score that can be used to rate and track traffic safety culture in Minnesota.

## What Did We Learn?

Of 9,164 successfully delivered surveys, 3,204 were completed and returned for an acceptable response rate of 36 percent.

*Researchers surveyed Minnesota households to measure driver attitudes toward traffic safety. Drivers are highly influenced by their perceptions of other drivers' behaviors and expectations, which suggests that changing misperceptions about how many people speed or drive drunk could reduce the number of people who do so themselves.*

*“We’ve participated in other strategies to reduce traffic fatalities, and this is the next approach we can apply to get toward our goal.”*

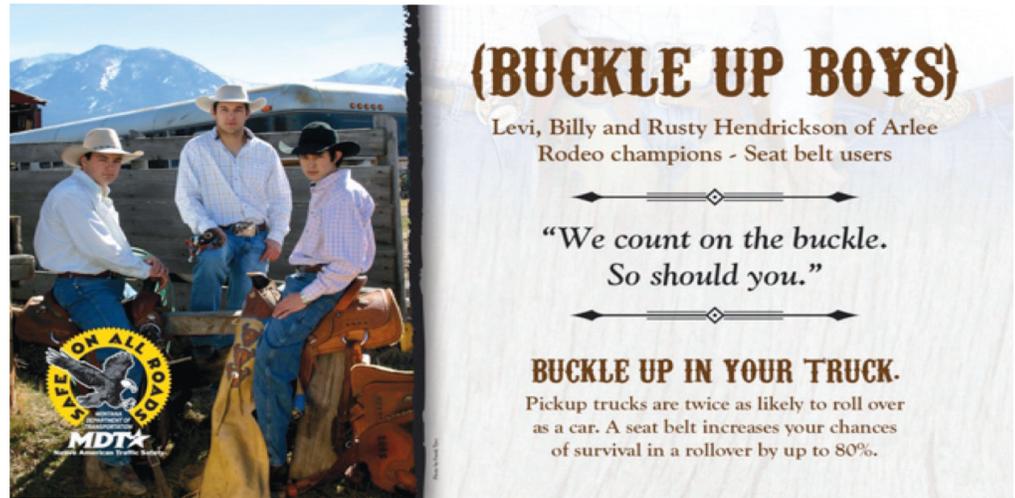
—Katie Fleming,  
Research Analyst, MnDOT  
Office of Traffic, Safety  
and Technology

*“We just completed our Strategic Highway Safety Plan, and safety culture and awareness is a central focus of it. We know that we have to start figuring out how to influence culture in Minnesota to positively impact safety in the long term.”*

—Sue Groth,  
MnDOT State Traffic  
Engineer

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**(BUCKLE UP BOYS)**  
Levi, Billy and Rusty Hendrickson of Arlee  
Rodeo champions - Seat belt users

“We count on the buckle.  
So should you.”

**BUCKLE UP IN YOUR TRUCK.**  
Pickup trucks are twice as likely to roll over  
as a car. A seat belt increases your chances  
of survival in a rollover by up to 80%.

Advertisements using spokespersons who have a positive image among their target audience is a potential strategy for increasing drivers’ concern for safety.

Survey responses showed the importance of respondents’ attitudes toward safety, but also the importance of their values and beliefs. For example, individuals who believe it is important to protect themselves were likely to report wearing seat belts, but there was also a high correlation between respondents who reported wearing seat belts and said they wanted the people they care about to wear seat belts.

Respondents were also highly affected by their perceptions of what other drivers considered to be normal behavior. Those who said they believed that driving 10 mph over the speed limit is common in Minnesota were 10 times more likely to report speeding than other respondents.

Importantly, whereas most respondents reported behaving safely, many respondents misperceive these norms in Minnesota, believing that more drivers speed or drive after drinking alcohol than actually do. These results suggest that correcting those misperceptions could reduce the number of drivers who engage in those behaviors.

A unified metric proved unfeasible to generate. As an alternative, researchers recommend using the level of agreement with a single survey statement—“I am very concerned about safety on Minnesota’s roads and highways”—as a good stand-in for a rating of traffic safety culture, as the respondents who agreed with that statement correlated well with respondents who avoided risky driving behaviors.

### What’s Next?

Researchers recommended several general strategies to help improve Minnesota’s traffic safety culture, including increasing the perceived importance of traffic safety by creating positive messages that use stories rather than just statistics to communicate traffic safety; encouraging workplaces to establish rules about safe driving; and encouraging greater acceptance of the Toward Zero Deaths goal, possibly by using spokespersons who have a positive image in the state and by conducting educational programs to correct misperceptions about norms in the state and leverage the actual norms to promote safe behaviors.

MnDOT plans to assemble a traffic safety culture implementation team. Specific strategies for implementation have not yet been identified, but this research will serve as a guidebook for those activities. Once MnDOT has implemented strategies to enhance traffic safety culture, it would be valuable to repeat the survey to evaluate the impact of those strategies.

*This Technical Summary pertains to Report 2015-13, “Measuring Minnesota’s Traffic Safety Culture,” published April 2015. The full report can be accessed at [mndot.gov/research/TS/2015/201513.pdf](http://mndot.gov/research/TS/2015/201513.pdf).*