

Toward Zero Deaths Conference

November 2–3, 2006
Duluth Entertainment Convention Center



A SUMMARY REPORT

The Minnesota Toward Zero Deaths (TZD) program is a multiagency partnership that includes representatives from the Minnesota Department of Transportation, Minnesota Department of Public Safety, Minnesota State Patrol, Federal Highway Administration, and the Center for Transportation Studies at the University of Minnesota. The ambitious goal of this program is to move toward zero deaths on Minnesota roads, using each of the “four Es” of traffic safety: education, enforcement, engineering, and emergency services. Using these strategies, TZD partners are working to raise awareness of traffic safety issues and to develop tools that can be used to reduce the number of deaths and injuries resulting from traffic crashes on Minnesota roads.

The annual TZD conference provides a forum for reporting on progress made, for sharing best practices in the areas of the four Es, and for charting the course for a future with fewer traffic fatalities and life-changing injuries.

Sponsored by:

*Minnesota Department of Public Safety
Minnesota Department of Transportation
Minnesota Toward Zero Deaths Program*

Hosted by:

Center for Transportation Studies, University of Minnesota

Welcome and Opening Remarks

Bernie Arseneau, State Traffic Engineer, Minnesota Department of Transportation

Kathy Swanson, Director, Office of Traffic Safety, Minnesota Department of Public Safety

“We have a record attendance this year,” Bernie Arseneau said, kicking off the event. “More than 500 people from the ‘four Es’ (engineering, education, enforcement, emergency services) are here, all working together to learn more about implementing safety strategies that save lives, reduce injuries, and ultimately move Minnesota closer to zero deaths.” Arseneau went on to explain several of the traffic safety projects going on in the state and provided an update on Minnesota’s Comprehensive Highway Safety Plan (CHSP) that was first launched in 2004. The CHSP identifies strategies and partnerships to achieve the aggressive goal of reducing traffic fatalities to fewer than 500 by 2008.

“So far, I think we have some good news,” he explained. “But at the same time, we’re being

cautiously optimistic...In 2004, there were 567 highway fatalities, which meant 90 fewer people were killed on Minnesota’s roads than two years earlier. In 2005, there were 559 fatalities, and in 2006, as of today, there are 50-plus fewer fatalities than last year at this time. We can be proud of these numbers, but there is much more to do.”

“[Toward Zero Deaths] is a cooperative, collaborative, and focused approach to driving down deaths,” added Kathy Swanson. “I truly want to thank all of you for what we’ve accomplished together in making Minnesota’s roads safer. We have a right to feel proud, successful, and energetic about what we’ve done so far, but we should not feel like we are done. We are not done until the number of traffic deaths is zero.”

Opening Plenary: Death Notification

Sharon Gehrman Driscoll, Minnesotans for Safe Driving

Lieutenant John Nagel, Minnesota State Patrol

Lindsey Thomas, Minnesota Regional Medical Examiner’s Office



Sharon Gehrman Driscoll

“Years ago, we wanted to protect victims...But we learned that victims want you to tell them the truth, and they want you to tell them immediately.”

In 2005, 559 Minnesota families received news that a loved one had been killed in a traffic crash. Death notification can be the hardest task law enforcement officials undertake. Properly done, it can be an important beginning to the healing process; when done badly or without insight into the survivor’s needs, it can negatively affect both the grieving and the healing processes for years. This session’s three panelists offered their thoughts on how best to approach this most difficult of duties.

“Death notification is the hardest thing any human can ever do in a lifetime,” acknowledged victim advocate Sharon Gehrman Driscoll. “What is worse than losing a loved one before his or her time because of someone’s irresponsibility? If the death notification doesn’t happen in a sensitive manner, it makes things all that much worse.”

Gehrman Driscoll explained that around 20 years ago, studies began to investigate how victims felt about the notification process. “Years ago, we wanted to protect victims...But we learned that victims want you to tell them the truth, and they want you to tell them immediately.”

“When someone delivers a death notification, everything that is said, and the way it is said, stays with the survivors for a lifetime,” she continued. “Your nonverbal actions are important. When you talk to victims, look directly at them, look into their eyes. Never give them too much, but give them as much as you possibly can.” In addition to nonverbal cues, Gehrman Driscoll pointed out that proper word choice also is vital. She presented a list of comments that

illustrate what she called “basic insensitivity” (e.g., “Everything is going to be ok,” “We all have to deal with loss,” “It could have been worse if...”) that should not be used when delivering a death notification, as well as a list of helpful phrases. “One of the simplest, yet most helpful things you can say is ‘I’m so sorry,’ and say it because you, as a human being, mean it.”

Next, Lindsey Thomas offered her perspective as a medical examiner. In her view, teamwork among law enforcement and state patrol officials, medical examiners/coroners, and others is one of the most important aspects of the death notification process. As such, she suggests that before making the notification, team members stop and take time to get input from all involved, determine who will do what, and collect as much information as possible. “It’s important to make the notification as soon as possible, but first, be sure that the information...is as complete as it can be,” Thomas said.

She pointed out that families of loved ones killed in a vehicle crash often have many of the same questions, but the answers may come from different sources. Typically, family members want to know, “What happened?” Usually, this information is best obtained from the investigating law enforcement agency. They’ll also usually want to know where their loved one is, whether they can see her or him (and if not, why), and what happens next. This information should come from a medical examiner investigator. Finally, the towing company can provide information about the loved one’s vehicle and belongings.

Although seemingly obvious, Thomas reminded

participants that before making notification, it's critical that team members confirm how the victim's identification has been verified. "One of the worst things that could happen is making notification to the wrong person," she explained, so locate the driver's license and identifying elements such as clothing, scars, birthmarks, tattoos, braces, or personal items that can be described to the family.

Another issue that comes up is whether or not the victim is viewable. "One of the things we have found, is even if a victim's face is so badly damaged it would be difficult for the family to see, it might be possible for family members to hold a hand or some other part that is reasonably intact. This is helpful information for the family to have."

Because victims' families often have a hard time remembering what they have been told when notified of a loved one's death, collect and write down contact information from the law enforcement agency, state patrol, towing company, coroner's office, and any other relevant agency to leave behind with the family, Thomas said.

Minnesota Statute 525.9214 requires medical examiners as well as law enforcement, paramedic, fire and rescue, and other emergency response personnel to determine if victims have indicated on their driver's license that they want to be an organ donor, Thomas said. "We have found that organ donation can be very helpful to the family. It's not just beneficial to the transplant patient, but it also really helps the family to think at least someone else's life was made better through this tragedy. Organ donation can be a source of comfort to some families, so I can't emphasize enough the importance of trying to make that happen when

possible. Because of timing issues, you need to get the medical examiner involved right away."

John Nagel then discussed his experience working with families of vehicle crash victims. "You should understand that when you walk into a home and start talking, the family will remember you for the rest of their life," he said. "They remember your shoes... they remember the smallest details forever. How you deliver the death notification makes a difference in how the victims mourn and grieve for the rest of their lives."

Nagel reported that one of the biggest complaints he hears from family members after receiving a death notification—be it from law enforcement or the fire department or other agency—is how the notification was done, impersonally, by phone. "Many family members tell me they would have liked someone to come to their house and explain to them exactly what happened and just talk to them." The second complaint: there was never any follow up.

He reminded participants that when they go to make a death notification, they should never go alone, and they should get as much information as they can. "When a family member has a question and you have the answer, it helps both of you."

Nagel acknowledged that most law enforcement and rescue personnel were never formally taught how to deliver a death notification; if there are staff within a department who don't conduct death notifications well, don't send them, he said. "Don't send the rookie, even though most of us as young rookies learned the hard way. It's hard not only on us, but also on the victim's family as well."



John Nagel

"How you deliver the death notification makes a difference in how the victims mourn and grieve for the rest of their lives."





Jeff Lindley

“This is about making the rules stick. I think we also need more follow-through in the judiciary. Not following through with existing laws, regulations, and enforcement actions is a big problem.”

Luncheon Plenary

Jeff Lindley, associate administrator, Federal Highway Administration

Nicholas J. Ward, director, HumanFIRST Program, University of Minnesota

Moderator: Robert Johns, director, Center for Transportation Studies, University of Minnesota

Robert Johns, director of the Center for Transportation Studies (CTS) at the University of Minnesota, opened the luncheon presentation with a brief overview of the missions of the University and of CTS, and how those relate to transportation and traffic safety efforts.

This conference, which is part of CTS’s outreach and public service efforts, corresponds with the

University’s current strategic priorities and its strong emphasis on public engagement, Johns said.

Johns went on to note that the last few years have seen an unprecedented level of federal focus and support of safety issues, especially through the leadership of the FHWA.

Traffic Safety: An FHWA Perspective

Jeff Lindley began by praising the partnerships in evidence at the conference, then discussed the connection between Minnesota’s zero deaths goal and the work the FHWA has been doing toward reducing the national traffic fatality rate to no more than one fatality per 100 million vehicle miles traveled by the end of 2008.

Lindley said that the FHWA sees five common denominators that stand out among the U.S. states and other countries with the most highway safety success. First, he explained, is the commitment of top leadership. “Safety requires leadership, because it’s hard...It requires resources, persistence, and capital, and it requires engaging in activities that aren’t always popular.”

Second are data-driven decisions—that is, looking at what the data reveal: where and what kind of crashes are occurring, and what countermeasures might work to reduce or eliminate those crashes. Although good data exists on a national level, most states need to work on gathering and analyzing more data to learn where fatalities, crashes, and serious injuries are occurring, he said.

Paired with that, Lindley continued, is the third factor: flexibility in directing investments. “Good data and analytical tools won’t help you if your money is set aside for the next six years to put in guardrails and that’s not where your crashes are. At the federal level,

we have pretty good flexibility to direct resources in the places where it’s needed if you are willing to work together.”

The fourth factor has to do with strengthening policies, legislation, and regulations. “Safety is an area where the answers don’t all lie in technical assistance, training, and outreach,” he said. “Sometimes we have to change the rules. Primary seat belt laws, changes in DUI thresholds, graduated driver’s licensing... Changes like these are not always popular...but they are changes that needed to be made, and they have been effective.”

Tied to that is the fifth factor: strong involvement of traffic law enforcement. “This is about making the rules stick,” Lindley explained. “I think we also need more follow-through in the judiciary. Not following through with existing laws, regulations, and enforcement actions is a big problem.”

He closed his presentation by reminding participants that although there is a lot of work left to do, it is important to celebrate the successes. “You may get to 500 [crash fatalities] this year, and that is cause for celebration. But, it’s also important to stay focused on the goal of toward zero deaths. One fatality is too many; that one fatality is someone’s spouse, parent, friend, and colleague, someone who won’t be here tomorrow.”

TZD and the Driver: Musings of a Psychologist

Following Lindley, HumanFIRST director Nicholas Ward discussed how the traffic safety culture in Minnesota, and throughout the United States, is preventing the changes necessary to reduce traffic fatalities. By the same token, he described how the cultures in Europe are more conducive to improving roadway safety.

“Each year in the United States, the reduction in crash risk is less than the preceding year. We are hitting the bottom on how much safety improvement

we can get into our current traffic system,” Ward said. “Our culture is perpetuating risky driving behavior and limiting our ability to deploy new safety interventions.”

He explained that researchers have predicted crash rates for various countries by looking at all the known factors that lead to traffic crashes. Some countries, though, end up having a *better* safety record than expected based on these predictions. This suggests that these countries have a positive “safety culture” that

encourages safe driving and the acceptance of effective safety interventions. In particular, the culture of many of the countries that have a better than expected safety record accepts interventions that benefit society at the expense of the individual. The United States, however, has more crashes than expected, which suggests a negative safety culture. For example, Ward said, in the United States, the rights of the individual can take precedence over the potential benefits to society as a whole.

Moreover, looking at the fatality rates in Minnesota per vehicle mile driven reveals increasingly smaller reductions in fatal crash risk each year—which suggests that we have gained all the safety benefits possible with our current application of traditional safety interventions, Ward continued. To make further progress toward the zero deaths goal, our society will need to develop new and innovative safety interventions. The introduction of these initiatives, however, is running up against cultural blocks—in that society accepts risks—and political blocks—in that many effective safety interventions are unpopular.

Speed is a specific example of a risk factor people enjoy. “Society values speed,” Ward explained. “Speed gets you from place to place quicker, and some like to speed because it’s thrilling. Society also accepts speeding, because there’s not much stigma attached to it. If you get caught, it’s just bad luck.”

Indeed, the appeal of speed in our culture is evident in the many advertisements shown in the United States for cars that depict speed and performance as the key selling points of the vehicle, Ward said. In addition, “Our society does not explicitly value safe driving, so people don’t try to be the drivers they could be,” he added. “In other countries, people tend to take pride in being good drivers.”

Decisions to run red lights, not wear seat belts, or drive drunk are often deliberate decisions based on the driver’s calculation that the benefits of engaging in these acts are greater than the perceived chance of getting caught, Ward said. The prevailing safety culture perpetuates these decisions to take risks while driving. If this is true, then the goal of future safety interventions should be to change the safety culture such that drivers want to reduce their risk and decide to be safe.

In support of this approach to safety interventions that motivate drivers to make safer decisions, researchers have developed several good psychological models to explain how people make decisions. These models can be used to identify critical decision processes that can be targeted by interventions that modify the safety culture and environment as well as the beliefs, attitudes, and social norms used by drivers in their decision making. For example, making existing risks more salient (e.g., through public media safety announcements) or introducing new risks (e.g., automatic penalties for red light running and speeding) could motivate drivers to avoid risk.

Conversely, adding incentives for safe behavior (such as a state tax deduction for each year of safe driving with no crashes or violations) would motivate drivers to seek safety.

Another interesting possibility includes family-based initiatives. Parents and families can be an important influence on teen drivers who have an especially high crash risk. For example, “Research shows that the more crashes or violations parents have, the more the[ir] kids have,” Ward explained. This may suggest that traffic safety programs that incorporate positive parent interactions with teens to develop family-based expectations and norms for safe driving may be effective. Such programs may be leveraged with existing Graduated Driver License (GDL) programs.

The ultimate traffic safety solutions will probably require the integration of intelligent technology with psychosocial engineering. Ward explained that with current technology, for example, it is possible to determine who is driving, where they are driving, and how are they driving. Such technology can be designed to identify violations of specific drivers and automatically charge fines. The technology can also evaluate driving quality, which could be used to detect driver impairment, and can automatically alert emergency services if a crash is detected.

Our current society, however, won’t accept these types of penetration into individuals’ rights to drive as they want. Ward contends that we need to realize that effective safety interventions may require an adjustment of our individual rights, and that no harm would come from small adjustments in order to accept these types of safety intervention. Indeed, we already make such adjustments in other areas of our lives without protest, he said. For example, “We have our photos taken every time we use an ATM and no one gets upset about that.”

According to Ward, the bottom line is that “if we really want a big push in traffic safety, we must concede that it will cost society—both in terms of money and changes in our safety culture and individual rights. But, if we are really serious about making a significant improvement in safety, we need to think outside of the box, relax our political barriers, modify our safety culture, and accept the costs,” Ward continued. “In order to move forward in reducing the number of fatalities and serious injuries from crashes, we have to make some unpopular political decisions to engage safety interventions that will require uncomfortable changes in our driving culture—but it’s better to be uncomfortable than dead.”



Nicholas Ward

“Society values speed...Society also accepts speeding, because there’s not much stigma attached to it. If you get caught, it’s just bad luck.”

Summaries of selected concurrent sessions

Case Studies of Crashes

Ken Slatten and **Terri Marty**, St. Luke's Hospital

Linda Way and **Gary Foley**, St. Mary's/Duluth Clinic Health System

Moderators: **Tom Kummrow** and **Kathy Burke Moore**, Office of Traffic Safety, Department of Public Safety

Nowhere is the precious value of a few seconds more apparent than in the race to save lives following a crash. The remoteness of many rural crashes, where 62 percent of Minnesota's fatalities occur, only amplifies that awareness. As those seconds and minutes tick away, a highly trained contingent of responders, part of a vast statewide trauma network, swing into action, each with a different—yet vital—job to do.

In two separate sessions, emergency medical professionals from two Duluth-area trauma centers provided an overview of their roles in treating roadway crash trauma victims and described in graphic detail a variety of actual cases to illustrate the types of emergency interventions necessary to save lives.

In the first session, St. Luke's Hospital emergency medical technician and flight paramedic Ken Slatten, along with trauma surgeon Terri Marty, outlined the phases of emergency response to a crash before presenting five case studies.

St. Luke's Hospital, a Level II Trauma Center as certified by the American College of Surgeons (see article on page 9), provides air medical and ground critical-care transport as well as a complete range of emergency and surgical services. The facility is part of a state trauma system that directs the severely injured to specialized trauma centers—a system that has cut the risk of trauma deaths in half.

A key piece of the trauma system, especially in rural areas, is the close connection and communication between the nearest trauma center and responding emergency medical services (EMS), which range from first responders to advanced life support ambulances and air medical helicopters.

At the crash scene, a variety of responders (fire department, rescue squad, law enforcement, and other specialized services) converge to locate and rescue victims, restore safety, and provide overall scene control. An emerging standard in responding to crashes involves the establishment of an incident command, where someone takes charge of the scene to ensure proper treatment of the injured, use of appropriate resources, and hazard control. "We don't want to become part of the problem," Slatten said, describing efforts to mitigate the various dangers often faced by emergency responders.

Throughout the process, responders remain focused on the basics while caring for the injured: the ABCs, or airway (ventilation), breathing, and circulation. Supporting activities aim to disentangle and extricate victims, triage multiple patients, choose the best available transportation, "package" for transport, and provide continued cardiovascular, musculoskeletal,

and neurologic stabilization. During the process, the trauma team is alerted to prepare for a severely injured incoming patient.

During transport, the injured receive ongoing monitoring, assessment, and treatment, and the transporter remains in contact with the receiving facility. Once transferred to the hospital, patients are further assessed and stabilized by the trauma team. More sophisticated diagnostics are used, including radiology, labs, ultrasound, and CT scans, and surgical intervention occurs as required. Time usually remains such a factor that the focus of the trauma team remains on saving the life; restoring a severely injured crash victim to wholeness is another job for another team.

In the second session, trauma nurse Linda Way, director of emergency and regional services for the St. Mary's/Duluth Clinic Health System, and trauma surgeon Gary Foley, section chief of emergency medicine at the same institution, probed the impact of trauma on the care of a patient, especially injury resulting from a motor vehicle crash. They followed with six illustrative case studies.

"Brain and craniofacial injuries account for 40 to 50 percent of all trauma deaths," Way said, pointing out that motor vehicle crashes are the primary mechanism of injuries. Thoracic and neck injuries are the second leading cause of trauma deaths.

The presentation by Way and Foley emphasized that, even though technological and medical advancements have vastly improved safety and lifesaving care, motor vehicle crashes still can exact a devastating toll on the human body. Indeed, trauma centers are saving more lives than ever, but Way also credited the hospital staffs and rehab centers that care for patients—sometimes for weeks or months—to ensure their recovery and return them to optimal health. "These are complex, complicated cases," Way said.

A key goal of the trauma system, Foley said, is to compress the time from injury to definitive care. But trauma facilities must have dedicated resources and appropriately trained staff. He went on to describe a mind-boggling list of resources—including about 22 people—necessary at all times to handle trauma cases: a trauma surgeon, an emergency physician (and maybe a pediatric intensivist), a consulting physician, two emergency nurses, lab personnel, X-ray personnel, respiratory care, a nurse recorder, a nursing assistant, transport personnel, and a chaplain/social worker (to support the patient's family).

"Trauma patients require a lot of resources," Foley said. "It's an orchestra. You've got to coordinate it. Everyone comes in and does their part."

Minnesota Speed Management Programs

Dan Brannan, Minnesota Department of Transportation

Lieutenant Mark Peterson, Minnesota State Patrol

Kathleen Harder, Ph.D., University of Minnesota

Moderator: Brad Kollman, Department of Public Safety

Over the last 10 years, the number of speeding drivers and the speed at which they drive has dramatically increased, and the trend is for these speeds to continue going up each year. Not surprisingly, then, explained traffic safety specialist Dan Brannan, the number of deadly crashes in which speeding was a factor has continued an upward trend since 1997, when speed limits on some Minnesota roads were increased.

The Minnesota Department of Transportation (Mn/DOT) studied traffic data from the five years before and after the 1997 speed limit increase to pinpoint when and where fatal crashes were happening. It discovered that on all highways where speed limits were increased, the number of fatal crashes also increased—and in some cases—increased dramatically.

When the speeds were raised in 1997, Brannan noted, only one of the “four Es” of traffic safety—engineering—was involved in the process. “There was no enforcement or education done around the speed limit increase,” he said. “In order to safely increase speeds from 55 to 60 on some trunk highways, as the legislature now wants to, all of the four Es need to be considered.”

Through funding designated from Minnesota’s Comprehensive Highway Safety Plan (CHSP), Mn/DOT and the Department of Public Safety initiated a somewhat controversial speed management project based on the premise that by increasing speed limits on certain roads, drivers actually would slow down. Brannan explained that Mn/DOT reviewed selected roadways, performed safety and engineering studies, and revised the speed limits where appropriate.

As part of the effort, automatic traffic recorders (ATR) were used to track speeds on select road segments throughout Minnesota. From the ATR data collected, the department developed profiles of when and where people were speeding. Speed enforcement schedules and education initiatives were then set up by the State Patrol based on where the highest number of speeders were at any given time and day of the week.

The entire project cost about \$3 million. This included about \$2.5 million for enforcement, which, according to Lieutenant Mark Peterson, is not a lot of money for a statewide project. Most of this enforcement money was used to pay overtime to law enforcement officers. These enforcement and education components, known collectively as Highway Enforcement of Aggressive Traffic, or HEAT, formed a year-long, federally funded enforcement program, supported by nearly 1,400 hours of additional weekly traffic enforcement by the state patrol, county sheriffs’ offices, and local police.

Another important component of this effort was effective marketing. “We have to create a fear of apprehension,” Peterson said.

Using ATR data, 32 enforcement zones were created throughout the state. The program included eight weeks of enforcement in these zones followed by a four-week cooling-off period, with press releases after each enforcement wave. “During the four off weeks, we looked at data to see if the trends changed based on enforcement,” Peterson said. “We then scheduled the next wave according to this data.”

The education portion included a visible police presence; 22 weeks of paid radio spots statewide to complement the extra enforcement time periods; and earned media with each wave. The target audience for the radio spots was 16- to 30-year-olds, the group most likely to speed and not buckle up. Additionally, the radio spots were concentrated in the corridors where they would have the most impact.

During the enforcement waves, nearly 90,000 vehicles were stopped, resulting in almost 48,000 total citations, of which nearly 34,000 were speeding citations. “Our goal was to be smarter and better than we were in the past in approaching speed enforcement, because past efforts just weren’t working,” Peterson said.

Kathleen Harder and John Bloomfield, researchers from the University of Minnesota, are currently working to complete an analysis and evaluation of the HEAT program. For evaluation purposes, the roads studied were divided into four categories: two-lane/two-way, four-lane divided, rural freeways, and urban freeways—and then further classified by whether there was enhanced enforcement or no enhanced enforcement along that roadway. Data were collected between September 26, 2005, and August 13, 2006, from 14 ATRs placed within the enforced zones and 7 ATRs placed in locations outside the enforcement zones.

By analyzing the initial speed data collected both before and after the HEAT enforcement waves began, Harder and Bloomfield have found a reduction in the number of drivers traveling 70 mph or more on two-lane/two-way and urban highways where the speed limit was increased from 55 to 60 mph; those traveling 75 mph or more on four-lane divided highways where the speed limit was unchanged at 65 mph; and those traveling 80 mph or more on rural highways where the speed limit was unchanged at 70 mph.

“We have found massively statistically significant effects,” Harder said about the study findings. “This program has impacted individuals in their cars in a



Kathleen Harder

“This program has impacted individuals in their cars in a real way. While we could just say that the program worked, we have the data to back it up.”



Bob Works

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When Harder and Bloomfield analyzed speed data from the seven ATRs placed outside the enhanced enforcement zones, six of which were in relatively close proximity to the enhanced enforcement zones, they found reduced speeds in these areas as well, suggesting there is a “spillover” effect from the nearby enhanced enforcement zones.

Crash data received through mid-August 2006 indicate the number of crashes is down on nearly all

road types when compared to the five-year average for the same 46-week period.

Harder and Bloomfield will incorporate their analysis and resulting recommendations into a report to be submitted to the legislature next year. In it, they will provide a comprehensive overview of their findings and most likely will recommend staying with the seemingly effective enforcement levels used during the HEAT program. HEAT will continue in 2007 with \$1.5 million in federal funding.

Motorcycle and Bicycle Safety

Bill Shaffer, Department of Public Safety

Mary Nelsestuen, State Bicycle Advisory Committee

Robert Works, Minnesota Department of Transportation

Moderator: Amy Roggenbuck, Department of Public Safety

Whether you’re traveling on two wheels or four, you share responsibility with others on the road for safe travel. In this session, moderated by Amy Roggenbuck of the Department of Public Safety (DPS), speakers discussed what Minnesota is doing to improve safety for motorcyclists and bicyclists.

Bill Shaffer works for the DPS’s Minnesota Motorcycle Safety Center (MMSC), which offers rider training and education, safety materials, testing, and licensing.

Shaffer, who is also a motorcycle rider, began by pointing out the steady increase in Minnesota’s motorcycle fatalities over the last 10 years—even though the number of crashes is down. In 2005, there were 61 fatal motorcycle crashes, and 2006 “is on pace to [be] one of the worst years we’ve had in 20 years,” he said.

The most common factors in fatal single-vehicle motorcycle crashes are illegal or unsafe speed and driver inexperience; in crashes involving other vehicles, they are failure of the other driver to yield right of way and driver distraction.

Shaffer noted that Minnesota motorcyclists are also “killing themselves” by driving impaired; nearly one-third of the drivers killed in 2005 were at 0.08 BAC or greater.

The MMSC trains about 9,000 motorcycle riders in Minnesota each year. About half of all registered motorcycle owners take the basic rider course, and Shaffer is working on increasing the numbers of riders who take the experienced rider course. He cited a study that said training was good for about six months—which means a large segment of the riding population would benefit from more training, and reaching them is one goal for the organization. Because many riders don’t pass their test the first time around, the MMSC is offering testing with more convenient hours to accommodate more riders.

Shaffer also mentioned a dial-a-ride service that will pick up motorcyclists and their bikes and give them a

ride home. They are trying to recruit bars to distribute coasters and napkins with the service’s phone number on it to increase participation, he added.

Next, Bob Works and Mary Nelsestuen discussed efforts to improve bicycling safety, including the eight rules of the road established by the State Bicycle Advisory Committee, which Nelsestuen chairs.

One rule states that bicycles may legally ride on all Minnesota roads, except where restricted. Works pointed out that many people don’t know this, but instead believe bicyclists should be riding only on sidewalks or trails. Even when a trail exists, bicyclists do not have to use it, he said. A 1996 study found that riding on the road is much safer than riding on other types of facilities, including trails.

Another rule is that bicyclists must signal their turns and should ride in a predictable manner. That includes not weaving in and out of parked cars, Nelsestuen said. She explained that it is safer for bicyclists to ride out from the curb (or parked cars) a little, and in some situations, to take the lane.

And even though it is not the law in Minnesota, bicyclists should always wear a helmet, Nelsestuen added.

“Bicyclists and motorists are equally responsible for bicycle safety,” Works said. “The number-one factor contributing to collisions is failure to yield the right-of-way—by both bikes and motorists.” Other actions that cause accidents are bicyclists disregarding traffic control signs and motorist inattention and distraction.

The biggest complaint she has heard from motorists is bicyclists not obeying traffic signals, Nelsestuen said. While acknowledging that it is probably not a high priority for law enforcement, she would like to see bicyclists get ticketed for disregarding traffic signals.

Works offered some final ideas about ways the various traffic safety groups could collaborate for improved bicycle safety, including distributing materials, which can be ordered from the Web site (www.sharetheroadmn.org).

Emergency Management Practices: The Minnesota Statewide Trauma System

Tim Held, Minnesota Department of Health

Moderator: **Stephanie Jackson**, Center for Transportation Studies

Trauma—or serious injury—claims an average of more than 2,400 lives every year in Minnesota. It is the leading cause of death for Minnesotans ages 1 to 44 and the third leading cause of death for all age groups. Within the broad category of trauma, the largest piece of the pie comes from motor vehicle crashes. In this session, trauma system coordinator Tim Held discussed the recently passed trauma system legislation that moves Minnesota a giant step forward in establishing a statewide trauma system to help ensure Minnesotans receive prompt and appropriate care following a serious injury.

For a severely injured person, the time between an injury and receiving definitive care—the so-called “golden hour”—is the most important predictor of survival. This can be a particular challenge in Minnesota, as many residents live, and most fatal crashes occur, in rural areas that are often far away from medical resources. The chance of survival diminishes with time, despite the availability of resources and modern technology. A statewide trauma system, however, increases the chance of survival regardless of proximity to an urban trauma center.

With this in mind, officials at the Minnesota Department of Health worked with representatives of nearly 15 professional organizations between 2003 and 2005 to develop a comprehensive statewide trauma care plan. In July 2005, legislation was passed to enact a statewide trauma system, and in 2006, legislation was passed establishing the State Trauma Advisory Council.

Held explained that the term *trauma* as it relates to this system means *injury*; it does not include bumps, bruises, broken bones, heart attacks, strokes, or other medical conditions. “More specifically, with regard to the statewide trauma system, we’re talking about only the most severely injured people. While it’s a small population of total trauma patients, it’s a very important part of the trauma population.”

Together, the Minnesota Department of Health and the State Trauma Advisory Council have established criteria and a process by which hospitals can apply to be designated as trauma centers. Hospitals that receive trauma designation then become part of the statewide system. Participation in the trauma system is voluntary; those hospitals that choose to participate receive one of four levels of trauma designation. The four levels correspond to the capabilities and resources, not quality of care, within hospitals to provide for varying levels of trauma care. Wide-scale participation of hospitals in this system will ensure that a statewide, cooperative effort is in place to care for seriously injured patients. The goal of the system is

to decrease injured patients’ time to definitive care by ensuring that patients’ medical needs are appropriately matched with hospitals’ resources.

While there is no fee associated with becoming a trauma hospital in Minnesota, it is a huge commitment—financially and in other ways, especially for those hospitals seeking to become Level I or II. “We don’t anticipate that we’ll expand the number of Level I or II hospitals already in Minnesota,” Held said. “But we hope we can get every other hospital in Minnesota to step up and become a Level III or IV trauma hospital if they are not already.”

Though still in its infancy, the statewide trauma system is up and functioning. Participation criteria, applications, and supporting materials are available on the system Web site at www.health.state.mn.us/traumasystem.

“We’re now encouraging hospitals to apply and participate, and we do have a small grant program of up to \$5,000 to help hospitals offset some equipment costs or educational requirements,” Held said. “It will probably take the next three years or so until every hospital that wants to participate has a chance to do so. Three years out from that point we can measure results and make necessary changes to make the system better.”



Tim Held

“With regard to the statewide trauma system, we’re talking about only the most severely injured people. While it’s a small population of total trauma patients, it’s a very important part.”

Addressing Safety Problems on Local Roads

Duane Thomas, Kentucky Department of Transportation

Ron Eck, West Virginia Local Technical Assistance Program

Dave Engstrom, Minnesota Department of Transportation

Moderator: Jeff Lindley, Federal Highway Administration

Moderator Jeff Lindley, associate director of the Federal Highway Administration's (FHWA) Office of Safety, began this session by explaining the importance of addressing local road safety problems. "About 60 percent of accident fatalities nationwide happen in rural areas, and about 60 percent of those happen on local roads," he said. "So, close to 40 percent of the fatalities happen on rural, local roads."

To address this problem, often exacerbated by sketchy data about those crashes, Lindley pointed to the FHWA's High-Risk Rural Roads Program, created by Congress through the 2005 transportation act as part of the Highway Safety Improvement Programs (HSIP). Then Lindley introduced session panelists for more ideas and examples to address local road safety problems.

First, Duane Thomas, an engineer with the Kentucky DOT's Division of Traffic Operations, spoke on the effectiveness of safety measures taken in that state, especially those aimed at avoiding lane departures (run-off-roadway collisions, collisions with fixed objects, rollovers, head-on collisions, and sideswipe collisions). "Most of our problems are on the rural, two-lane roads," he said.

In 2004, Kentucky had a record-high driver fatality rate with 964 deaths. Only 67 percent of Kentucky drivers wear their seat belts, which ranks 47th in the country, Thomas said, and those numbers need to improve.

In response to the increased fatalities and need for more awareness about seat belt usage, a program called "Kentucky's Roadmap to Safer Highways" has been implemented with the goal of reducing the number of fatalities to fewer than 700 by the end of December 2008.

In addition to seat belt safety, Thomas said the program aims to develop a strategic action plan to "substantially reduce statewide lane-departure fatalities and injuries in a cost-effective manner that the vast majority of the state population will support." Lane-departure collisions account for 59 percent of Kentucky's crash-related fatalities and 36 percent of related injuries. Objectives to reduce lane departures include keeping vehicles on the road and in the proper lane, providing recoverable roadsides, and reducing the severity of crashes.

Since young drivers cause a majority of the highway crashes taking place in Kentucky, the program also created educational programs to promote driver safety to 16- to 24-year-olds, Thomas added.

In a presentation about Safety Circuit Rider Programs, Ron Eck, professor of civil engineering

at West Virginia University, discussed work done in other states, including South Dakota and Florida, to reduce death rates on their roads.

Due to an increase in death rates on its roads, the response for Florida was to create more ways to prevent crashes from happening. Some of the successful achievements were increasing signage, cleaning signs more regularly, and retroreflectometer loan programs, Eck said.

In Florida's Levy and Madison Counties, the implementation of pilot crash mapping software that had been developed by Utah LTAP was helpful in plotting problems that needed to be fixed.

South Dakota focused its attention on low-cost projects, including conducting Road Safety Audits and implementing the recommended changes. Eck noted some of the successful changes, which included lowering speed limits where necessary, posting additional pedestrian crosswalk signs, and creating more education information regarding the consequences of sign vandalism.

Finally, David Engstrom described the Low-Cost Safety Improvements Pooled Fund Study (www.tfhrc.gov/safety/evaluations), which is helping 26 states bring low-cost solutions to their roads in order to increase safety.

The project, for which the FHWA is funding \$1.5 million, is studying data regarding the effectiveness of roadway solutions such as beacon lights on intersection signage and increasing pavement markings to warn drivers of upcoming situations, such as a stop sign ahead.

Engstrom said one of the huge problems in evaluating the effectiveness of different projects was determining the history of the changes. It was difficult to find information regarding when changes on roadways were implemented and how, which made thorough evaluations on effectiveness impossible, he said.

Programs for Older Drivers: What Can You Do?

Elin Schold-Davis, American Occupational Therapy Association

Mark Hoisser, Dakota Area Resources and Transportation for Seniors (DARTS)

Jennifer Pancer, Alzheimer's Association

Moderator: Susie Palmer, Department of Public Safety

By 2020, an estimated 40 million people with a driver's license in the United States will be over age 65. To meet the needs of this "senior tsunami," our society needs to ramp up now, said Susie Palmer, who moderated this session on programs to help older drivers.

Elin Schold-Davis said it is not ageism to talk about the changes associated with aging that affect our driving safety. The key is to recognize those changes and do something about them. She pointed out that the majority of seniors do "self-limit," but in order to do that, they need an awareness of what their limits are.

One way to identify impairments is through a comprehensive driving evaluation, conducted by a driver rehabilitation specialist. This evaluation has two components: a clinical assessment of vision, physical function, and condition, and an on-road assessment of performance in a driving context. The evaluation could result in continued driving, with appropriate education; addressing the impairment through treatment; addressing the impairment through adaptation; or cease and transition, which necessitates finding appropriate alternatives.

"We need to be requesting driving evaluations and rehab services...so service providers [are] growing the programs," she said. "Fiscally, we can't afford to have all these seniors not drive."

Schold-Davis mentioned several related resources, including the American Society on Aging's DriveWell toolkit (www.asaging.org/drivewell), which promotes driver safety and transportation choices for adults over 65; CarFit (www.asaging.org/carfit), which helps older drivers make their personal vehicles better "fit" them; and guides for families of aging drivers published by The Hartford (www.thehartford.com/talkwitholderdrivers) and www.thehartford.com/alzheimers). In addition, NHTSA has recently developed a course designed to help law enforcement officers address the needs of older drivers in their communities (www.nhtsa.dot.gov/nhtsa.dot.gov/nhtsa/whatis/regions).

Next, Jennifer Pancer, a licensed clinical social worker with the Alzheimer's Association, addressed driving as it relates to persons with dementia. Dementia, she explained, is a set of symptoms (including confusion and memory loss) of Alzheimer's disease—a progressive, fatal brain disorder.

An estimated 4.5 million Americans have Alzheimer's disease, and by 2050, that number will increase to 16 million unless there is a cure, Pancer said.

Though not always consistently, persons with dementia tend to drive slower, make errors at intersections, have less awareness of other drivers,

have worse lane control, and exhibit more frequent and unexpected braking, she continued.

"There's no cookie-cutter way to get people to stop driving," Pancer continued. People with dementia can be very resourceful. Some ideas for dealing with the "insistent unsafe driver" include installing a "kill switch," disconnecting wires or the battery, or involving Elder-at-Risk programs, the local police, or DMV, she said.

Wrapping up the session, Mark Hoisser, president of DARTS, talked about the Minnesota Partnership for Safe Mobility, a statewide collaborative group that DARTS convened.

The partnership's mission is to improve the safety and mobility of Minnesota's aging population by influencing policy, creating initiatives, and promoting research, Hoisser explained. Members include the State Departments of Transportation and Human Services, FHWA, University of Minnesota, and others.

The issue of mobility for seniors is "really about the health and independence of older adults in your communities," Hoisser said. Loss of mobility can lead to depression, loss of satisfaction in life, health problems, isolation, and loneliness.

Providing good alternative transit options is challenging, Hoisser noted: public transportation is often inadequate, especially for users with special needs; funding for alternative systems is stretched; family members may be unavailable to give rides; transportation options are often lacking in rural areas, and in urban areas there are concerns about crime; and there are fewer people overall available to support older adults.

Some ideas to consider, Hoisser said, are rebalancing long-term care, making transit part of the long-term care system, and creating age-friendly communities (with nearby amenities, safe walking paths, and a range of housing options, for example).

Another idea is using mobility managers to facilitate coordination efforts at the county level—a concept proposed in Mn/DOT's statewide transit coordination study (www.dot.state.mn.us/transit/coordination/index.html).

When considering alternatives, it's helpful to think of the characteristics of your car, Hoisser said. It's available, accessible, acceptable, affordable, and adaptable. "People are going to ask for that for their mobility options," he said.



Mark Hoisser

The issue of mobility for seniors is "really about the health and independence of older adults in your communities."

Putting Research to Work

Max Donath, ITS Institute, and **Janet Creaser**, University of Minnesota

Dan Murray, American Transportation Research Institute

Moderator: Gina Baas, Center for Transportation Studies

A variety of research initiatives have been implemented in Minnesota and throughout the country, all with a common goal of improving road and vehicle safety. In this session, researchers described recent efforts toward this end and some of the resulting research findings.

Janet Creaser, a researcher with the HumanFIRST Program at the University of Minnesota, presented an evaluation of Minnesota's Operation NightCAP (nighttime concentrated alcohol patrol) program. This program—designed to reduce highly preventable alcohol-related traffic fatalities and serious injuries on Minnesota's roadways—combines the Minnesota State Patrol, county sheriff offices, and city police departments to saturate specific roadways where impaired driving is likely. NightCAP efforts are concentrated in the 13 of Minnesota's 87 counties with the highest number of alcohol-related traffic crash fatalities and injuries.

Researchers recently evaluated NightCAP enforcement efforts in order to learn what drivers thought of the program and whether it influenced their behavior. Creaser and her team found that increasing the number of saturations in a given year resulted in a marginally significant decrease in the fatal alcohol-related crash rate. In 2002, the 99 saturations conducted accounted for 16 percent of the reduction in alcohol-related fatal crashes when compared to years that had no enforcement saturations. In 2004, the 247 saturations conducted accounted for 34 percent of the reduction in alcohol-related fatal crashes when compared to years that had no saturations. This seems to indicate that a large number of saturations are probably required to see significant decreases in the fatal alcohol-related crash rate.

Overall, this analysis of the Operation NightCAP program suggests that to increase deterrence, both visible enforcement and appropriate advertising is needed, and since funding is limited, targeted enforcement seems to be the best option for now. Creaser also recommended reducing some patrol sizes,

perhaps in busy summer months when it is hard to staff extra patrols; increasing visibility by being out on busy freeways even for a short amount of time, rather than patrolling only the worst roads; and finding other ways, besides overtime pay, to motivate officers to participate in the program.

Next, ITS Institute director Max Donath described emerging technologies, such as rural intersection decision support (IDS) systems, that may reduce intersection fatalities.

Each year, nearly 2.5 million intersection-related crashes occur in the United States. In 2005 in Minnesota, 29 percent of fatal crashes were intersection related. IDS focuses on improving a driver's ability to successfully negotiate rural intersections. Since one of the main risk factors in these areas is an unsafe gap (the distance between vehicles traveling down the roadway), the IDS system uses sensing and communication technology to determine when a gap is safe and then communicate this information to the driver so that he or she can make an informed decision about crossing the intersection or entering a major road traffic stream. The goal of the research is to reduce crashes and fatalities at such intersections without having to introduce traffic signals, which on high-speed rural roads often lead to an increase in rear-end crashes.

"We want to see what kind of gaps drivers take and how can we help them make better decisions," Donath explained. The team also plans to evaluate a variety of concepts in the signs presented to drivers and come up with tools to install at an intersection, he said. "One of the main research questions around this topic is, 'What level of information complexity can be communicated effectively?'"

Donath then discussed the Cooperative Intersection Collision Avoidance Systems (CICAS) initiative, through which the U.S. Department of Transportation (DOT) is working in partnership with automotive manufacturers and state and local DOTs.

Through this initiative, Minnesota is currently demonstrating an infrastructure-based rural intersection collision-avoidance system and is leading an eight-state, pooled-fund demonstration to note the differences in application across varying geographies and driving characteristics.

Finally, Dan Murray, vice president of research for the American Transportation Research Institute (ATRI), explained how the Institute, as part of the American Trucking Associations Federation, conducts research with an emphasis on the trucking industry's essential role in a safe, efficient, and viable transportation system.

Some recent ATRI research efforts focus on



predicting truck involvement in traffic crashes. Through three separate studies, the U.S. DOT, Transport Canada, and the AAA Foundation all found that more than 70 percent of the time, the car driver is responsible for car/truck crashes. Another study found that car drivers are twice as fatigued as the truck driver in these crashes. To address these issues, ATRI has engaged in research initiatives that seek answers to several specific questions: Can an overall driver-performance-based model that provides predictive capabilities be developed? Are specific types of driver violations or convictions more highly correlated with future crash involvement? Are there particular enforcement actions that could be effective in counteracting these behaviors and events?

Using statistical tests to assess the significance of indicators in predicting truck crashes, ATRI researchers have developed performance metrics to relate safety

statistics to enforcement strategies. This has led to creation of a weighted relationship between higher inspections/enforcement and fewer crashes.

Through these research efforts, several enforcement countermeasures have been identified. These include measures that focus on commercial motor vehicle (CMV) and non-CMV behavior patterns, those that blend highly visible and covert enforcement activities, and those that use internal performance-based monitoring programs to relate enforcement to specific crash types, driver behaviors, and locations.

Murray added that ATRI is working with the Federal Motor Carrier Safety Administration to analyze the effectiveness of on-board safety systems. “Early indications are that these are very promising technologies for the trucking industry and offer safety benefits regardless of who is to blame,” Murray reported.

Back Off Jack! Rear-End Crash Avoidance and Tailgating Countermeasures

Gordy Pehrson, Office of Traffic Safety, Department of Public Safety

Pat Hackman, Safe Communities of Wright County

Randy Zahn, Minnesota State Patrol—Commercial Vehicle Enforcement

Moderator: Gordy Pehrson, DPS

Tailgating is one of the most common—and dangerous—bad driving behaviors encountered on Minnesota’s roads. Gordy Pehrson noted that in 2005, one in four crashes involved rear-end collisions, resulting in 23 traffic deaths on Minnesota roads.

Many drivers learned about the “two-second rule” (now three-second rule) in driver’s education—which allows for a two-second following distance between cars. However, many drivers are unfamiliar with what a two- or three-second following distance looks like, Pehrson said.

The Highway 55 “Dots” Tailgating Prevention Project, a pilot project of the Minnesota Departments of Public Safety and Transportation, along with Safe Communities of Wright County and the Wright County Highway Department, was designed to help drivers identify safe following distances under normal driving conditions. It was implemented along Highway 55 in Wright County between Buffalo and Rockford, Minn. (a TZD corridor). White “dots” were painted on the road and signs were put up that direct drivers to keep at least two dots between them and the car ahead of them, when ideal driving conditions exist. Drivers were advised to add more space in conditions of fog, snow, ice, or rain.

Pat Hackman described the project’s public information campaign. In addition to the signs erected along the corridor, postcards were distributed to all homes and businesses along the Highway 55 corridor.

The kickoff press conference attracted all the major

metro television stations as well as local press. A nationally syndicated radio show and *The New York Times* were also among those who covered the project, Hackman said.

Results from the project showed that following distances did increase overall by 14.1 feet. What’s more, distances increased in the adjacent areas: one mile into the project, the increase was 22.9 feet, and one mile after the project, it was an increase of 12.9 feet. Traffic speeds decreased, from 58.6 mph to 57.9 mph (the speed limit, however, is 55 mph, Hackman noted).

Next, Randy Zahn with the Minnesota State Patrol discussed tailgating as it relates to commercial vehicles. Using photos he had taken, Zahn demonstrated the size and scope of a truck driver’s blind spot. “It’s critical to get across to the motoring public that...if a truck can’t see [a vehicle], he doesn’t know they’re back there... That might influence his actions, how he operates.”

Unlike cars, trucks have a deep blind spot directly behind them. A truck also has blind spots on either side of it, which are much larger than those on a regular passenger vehicle. For example, on the right of a truck the blind spot spans an area longer than the whole body of the truck. Trucks also have a blind spot directly in front of them. In these “no-zone” areas, cars disappear from the truck driver’s view.

Zahn said it’s critical to educate drivers, driver’s ed students, and commercial vehicle operators themselves about no-zone areas and what constitutes a safe following distance.



Randy Zahn

“It’s critical to get across to the motoring public that...if a truck can’t see [a vehicle], he doesn’t know they’re back there...That might influence his actions, how he operates.”

A fully loaded truck tractor semi trailer traveling at 55 mph takes approximately 196 feet to stop; an automobile takes approximately 133 feet. These distances, Zahn added, assume that brakes, tires, and other components are in good operating condition and that roads are not wet or slippery from rain or ice. A truck's load can shift during travel, and liquid freight could slosh around and push a truck forward after

it's stopped. Also, if a load is not properly secured, something could fall off; if another vehicle is following too close, it runs a much higher risk of colliding with that object.

"What it comes down to is, we all need to share the highway and drive defensively, and keep in mind following distances," Zahn said.

Problems and Solutions for Law Enforcement Partnerships

Sergeant John Bermel, Apple Valley Police Department

Amie Queensland, Winona County Community Health Services

Paul Schoen, Minnesota State Patrol

Lieutenant Mark Peterson, Minnesota State Patrol

Moderator, Jean Ryan, Department of Public Safety

Law enforcement is becoming more and more innovative with traffic safety programs. This session offered highlights from three programs that have successfully created partnerships to improve traffic safety.

In 2004, Dakota County was the fifth deadliest county in terms of impaired drivers, with 33 alcohol-related traffic deaths. While traditional safety programs like Operation NightCAP and Safe & Sober helped, something more was needed. Thus, the Dakota County Traffic Safety Project was formed to reduce the number of alcohol-related traffic crashes. This program is a collaboration of police departments from all of the cities in Dakota County, the sheriff's office, and the state patrol.

The program involves two enforcement dates per month based on crash location and anecdotal information. Last year's project goals were to average one DWI arrest per agency per event, increase DWI arrests in the county by 10 percent for the year, and reduce alcohol-related deaths and incapacitating injury crashes by 10 percent county-wide. "We blew the first goal out of the water," Sergeant John Bermel said. "We are making maybe four arrests per agency per event. We've increased DWI arrests by about 9 percent just with the NightCAP events. In 2004 and 2005, we had 33 and 28 alcohol-related deaths. So far this year, we've had 19."

Although the project has been effective and has yielded positive results, Bermel admitted that there were some wrinkles. "We have 12 jurisdictions...citation and charging issues with multiple jurisdictions was a challenge, but we've hammered out some better processes. We also found that sometimes we had an enforcement area that was just too small, and we needed to increase it. We learned to be flexible with this."

Amie Queensland then shared the results of Winona County's "Bluff Country Buckle Up" seat belt use campaign that ran May 7–June 4, 2006. With the Winona County Community Health Services department taking the lead, a partnership was formed with several other surrounding counties including Fillmore, Houston, and

Wabasha, and the Minnesota State Patrol. Queensland explained that the partnership received a \$50,000 seat belt grant from the Office of Traffic Safety to target education around seat belt use throughout the month of May.

Each county had the flexibility to pick which days it conducted the most enforcement; each also picked one day each week when all counties would enforce on the same day. Overtime enforcement was funded through all four of the county sheriff departments and the state patrol, and \$1,500 went to each public health department for staff time. "We didn't use much grant money to purchase any real tangible items except some printing costs and signs. We were able to use existing educational materials from the Office of Traffic Safety or other traffic safety organizations. About \$3,000 of the grant was used to create a visible education and enforcement message throughout the four counties," Queensland said.

During the enforcement period, 2,180 vehicles were stopped and 239 seat belt citations and 433 speed citations were issued. "We had a lower number of seat belt citations, probably because the visible education piece seemed to be working and more people were buckling up," Queensland said. As a result of this effort, overall seat belt usage increased 13 percent among the four counties.

Lieutenant Mark Peterson next discussed Minnesota's Operation NightCAP (nighttime concentrated alcohol patrol) program (see program evaluation summary, page 12). NightCAP is funded by the National Highway Traffic Safety Administration and coordinated by the Office of Traffic Safety.

Media coverage is a key aspect of the program. "Enforcement is more effective if you couple it with media and vice versa," Peterson said. "We want to use the media to help create that fear of apprehension. People have to believe they will get caught so they don't go out and drink and drive."

When NightCAP began, the program targeted the times and places when people did a lot of drinking,

including various summer events, and then shifted to other events throughout the course of the year when enforcement events were scheduled. “Our goal now is to get smarter in what we are doing,” Peterson said. The program uses crash data to help pinpoint where fatalities are taking place, and then targets the areas with the biggest problems.

Today, NightCAP efforts are generally concentrated in the 13 of Minnesota’s 87 counties with the highest

number of alcohol-related traffic crash fatalities and injuries. “By attacking the 13 counties with at least one to two saturations per month, we have approached 400 NightCAP enforcement events a year, whereas we used to have only 30 or 40 a year,” Peterson said. In 2005, more than 260 NightCAP efforts resulted in 1,610 impaired driving arrests, 11,934 traffic citations and 25,541 traffic stops. “This year, we’re approaching 2,000 arrests,” Peterson reported.

Clinical Diagnosis: Safer Roads Through Road Safety Audits

Dan Brannan, Minnesota Department of Transportation

Mike Sheehan, Olmsted County

Lieutenant Mark Peterson, Minnesota State Patrol

Moderator: Karen Sprattler, SRF Consulting Group

Moving toward zero deaths on Minnesota roadways may seem like a difficult goal—but simple steps can help move Minnesota in that direction, said speakers at a session on road safety audits.

A road safety audit (RSA) is a formal safety performance examination of an existing or future road or intersection by an independent audit team. Minnesota’s Comprehensive Highway Safety Plan has identified the use of RSAs as one strategy to help reduce the number of fatal and life-altering crashes on Minnesota roadways.

Some common problems are predictable and can be fixed inexpensively, according to Dan Brannan, traffic safety specialist with Mn/DOT. Posting signs where crashes consistently happen and putting more police officers on the road in areas where drivers frequently speed will help to increase safety, he said.

Olmsted County is taking steps to work toward zero deaths by using statistics to fix some of their local problems. County engineer Mike Sheehan said that some of the most prevalent problems in Olmsted County are crashes caused by failure to yield to right-of-way. The percentage of crashes caused by failure to yield is 14 percent for the county, compared to 6 percent statewide, Sheehan said.

To alleviate this problem, signing on right-turn lanes and relocating stop bars are potential solutions that could lower the number of crashes.

Other problems that seem to be more prevalent in Olmsted County include speeding and inattentive driving. The county averages 15 percent of its crashes from speeding, compared to 7 percent statewide, he said.

Lieutenant Mark Peterson explained some of the ways in which the State Patrol is using road safety audits to solve roadway problems.

More than 4,000 drivers are speeding over 75 miles per hour each day. To control this, Peterson said the State Patrol has put more officers on the road at times when the most drivers are speeding. Short-term studies are showing that increasing the number of officers on the road is reducing speeding and therefore reducing crashes, Peterson said.

It works because people become more cautious and more aware of their pocketbook; drivers tend to think, “If I speed, I run the risk of getting caught, and that’s going to cost me money,” he said.

Regional TZD Efforts

Amy Roggenbuck, Office of Traffic Safety

Kara Zoller, Sherburne County Public Health Department

Captain Randy Slinger, Minnesota State Patrol, Countryside (Western Minnesota) Region

Moderator, Nancy Franke Wilson, Department of Public Safety Southeast Region

In three areas of the state, Safe Community coalitions have joined forces with neighboring coalitions to create a regional approach to reducing traffic crashes and impaired driving while increasing seat belt use. This session offered tips from representatives from three coalitions on how their programs work.

According to health educator Amy Roggenbuck,

successful Safe Community coalitions typically involve a diverse set of partners such as local, county, and state law enforcement; schools; family services; county commissioners; parents; judges; public health departments; highway engineers; and others.

“When we went looking for partners, we first identified...what we thought were essential partners



Kara Zoller

“By partnering, we were able to combine funding and cover a bigger area. And, we had more expertise, many more contacts, and much more creativity.”

and made a contact list,” Roggenbuck said, adding that it is also important to continue to network in order to find additional partnership possibilities.

One big challenge, Roggenbuck explained, is finding ways to keep the coalition members active. For that reason it’s important to have a clear outline of the goals of the proposed projects. “Become an active coalition, and don’t just meet to meet. Let the members take ownership so you don’t end up doing all of the work yourself.”

Next, Captain Randy Slinger described the regional Southeast Minnesota TZD initiative, which targets the southeastern 11 counties of the state where there have been a particularly high number of traffic fatalities and severe injuries.

During the past year, TZD efforts in these counties focused on 15- to 19-year-old high school students, who as a group have the highest fatality rates on regional roads, as well as on the 3 p.m. to 7 p.m. time period, which experiences the highest number of teen traffic fatalities.

Since December was identified as the worst month for fatal crashes, the coalition held a jointly planned Thanksgiving and December enforcement wave, Slinger reported. This event was coordinated with the December high school education program and kicked off with a media event in November at the Owatonna high school.

Several law enforcement agencies in this region also partnered with public health educators in several counties to create the Bluff County Buckle Up seat belt enforcement program. “We increased seat belt use by 13 percent through this month-long effort. This wouldn’t have happened with just enforcement—it takes a public awareness campaign to get behaviors to change,” Slinger explained. “We’re not necessarily creating anything new; there are great things going on at the city and county level and we want to broaden that to regional successes.”

The overall enforcement results include 2,180 vehicles stopped, 239 seat belt citations issued, and 433 speeding citations issued. Traffic fatalities in this southeastern region decreased from 70 in 2004 to 63 last year, a 10 percent drop, and by more than 20 percent compared with the 2000–04 five-year average traffic death count of 78.

During the 2005–2006 Safe Communities grant period, another coalition, called the Gateway TZD Region, was created. The Gateway TZD region includes northwest Hennepin, Isanti, Wright, Sherburne, and Stearns Counties. Grantees within this area identified that they all serve as a gateway to recreation areas in northern Minnesota and that they were all dealing with similar problems. They also found that motorists from their respective counties were dying in neighboring counties.

The coalition’s inaugural event was held at the Cabela’s store in Rogers last spring and targeted “men who drive trucks and do not wear seat belts.” This May Mobilization initiative involved 11 law enforcement agencies—including the state patrol—and three counties. The event included more than 15 squad cars, the blood alcohol testing (BAT) mobile, and the North Memorial Air Care Helicopter in the parking lot, Kara Zoller explained. Inside the store were a child passenger seat educational display and Vince and Larry, the crash dummies. “This was an incredible way to reach people and hand out coupons from local businesses,” Zoller said. “Vince and Larry added a touch of humor to this serious topic and were instrumental to breaking the ice with the kids.”

Despite the challenges—funding issues and deciding who paid for what, as well as finding convenient times and places for everyone to meet—the effort netted positive rewards, Zoller said. “By partnering, we were able to combine funding and cover a bigger area. And, we had more expertise, many more contacts, and much more creativity.”

Maintenance Activities to Improve Safety

Mike Wagner, Nicollet County

Jon Jackels, Minnesota Department of Transportation

Dan Gullickson, Minnesota Department of Transportation

Moderator: Sue Miller, Freeborn County

County engineer Sue Miller opened the session by describing Freeborn County’s efforts to eliminate little-used field approaches (driveways from a road or highway into a field). As farms get bigger, she said, so do the field approaches because they now need to accommodate semi tractor-trailers. These approaches, however, are potential obstructions for drivers who might run off the road, hit the approach, and “skyrocket into the cornfield,” Miller said. “If you don’t need that approach there, why have an extra obstruction out there for people to hit?”

She and her county’s board created a policy to

charge farmers \$200 for a permit to put in an approach; however, they will waive that fee for farmers who agree to give up other approaches they no longer use.

Following Miller, Mike Wagner, county engineer for Nicollet County, addressed the problem of vegetation growing unchecked in roadside ditches. Such vegetation provides protective cover for birds and other animals that could suddenly dart out into the road—and into the path of oncoming traffic. For that reason, Wagner encourages farmers to mow their ditches.

Pavement edge drop-offs can be a serious safety

problem in rural areas as well. If adding extra pavement to a shoulder is not an option, Wagner recommended tapering or beveling the edge of the pavement. That way, a driver whose vehicle strays off the road will have a better chance of righting it and controlling the vehicle—without overcorrecting and veering into the opposite lane. This beveling can be done by blading, Wagner said, “and it costs basically nothing to do that when you are paving.”

Next, Jon Jackels talked about the role of pavement markings in preventing lane-departure crashes. Since so many road-departure crashes happen at night, road markings need to be retroreflective, and he told attendees to review markings at night in order to see when maintenance is needed.

Jackels said that although higher quality marking paint might be more expensive initially, it would pay for itself over the long run. Whichever road, these retroreflective marking are used on, there is a good benefit-to-cost ratio, Jackels added. For example, for roadways that carry 2,500 cars per day, the cost benefit is 86 to 1. “[These markings] keep people on the roadways. If you can see the road, chances are you’ll stay on it,” he said.

Jackels also recommended a handbook published by the American Traffic Safety Services Association and the National Association of County Engineers

titled *Low-Cost Local Road Safety Solutions*. The handbook, available at www.atssa.com, describes rumble strips, rumble stripes, signing, delineation, and other techniques.

Finally, Dan Gullickson, Mn/DOT forestry program coordinator, talked about a partnership opportunity available for counties, township authorities, and trunk highway authorities, to work with the U.S. Department of Agriculture and its Conservation Reserve Program to establish living snow fences. The program will pay farmers to take land out of production and plant vegetation to create a snow fence at a specified distance along a highway.

Snow fences keep blowing snow off roads and prevent it from freezing on a previously cleared road. This keeps the road open—saving maintenance costs and the costs that go with shutting down a major highway. In addition to reducing drifting snow, a snow fence can reduce soil erosion.

A challenge Gullickson noted was establishing snow fences on private land, since farmers are often reluctant to give up crop land for planting trees. One approach that has proved successful is to give farmers recognition in their community for doing so, Gullickson said.

Session 28—What the %#@! is a DWI Court and What is the Role of Law Enforcement?

Kristin Lail, Office of Justice Programs

Jessica McConaughy, DWI Court prosecutor

Sergeant Curt Sandell and **Officer Daniel Day**, St. Paul Police Department

Moderator: Jean Ryan, Department of Public Safety

The Ramsey County DWI Court is an intensive supervision program for repeat DWI offenders. The program began operation as a pilot program in January of 2005 and is based on the national model of drug courts. It is currently funded via a grant provided by the Minnesota Department of Public Safety, Office of Justice Programs, and the National Highway Transportation Safety Administration.

According to Kristin Lail, the goal of the DWI Court is to enhance public safety by holding repeat DWI offenders accountable through the use of technology, judicial supervision, intensive case management with random alcohol and drug testing, and supplemental services such as vocational and educational coaching. The program reaches a population underserved by probation, expanding a probation pilot program and putting it under the court’s jurisdiction. It uses a cognitive-based, recidivism-focused education and treatment program specifically designed for the repeat DWI offender.

“We know that people continue to drink and drive, and we are dealing with many cases that have been

in the system over and over,” Jessica McConaughy stated. “We need a better way to deal with them than what has been done in the past. That’s what these courts are about.”

A participant in this court must be a Ramsey County resident and a three-time (or more) DWI offender. Although the program is not designed to handle felony-level cases at this time, that is the goal for the future. While some offenders would rather serve a shorter jail time than participate in this challenging, two-year program, others are committed to recovery and want an opportunity to come into a supportive environment to get them back on track. “It’s also a voluntary program,” McConaughy said. “If offenders want to do something different, if they are committed to sobriety, we’ll take them.”

The Ramsey County DWI Court functions with a team of criminal justice professionals, all equally involved in the success of each participant, and consists of the following disciplines: judge, city attorney, public defender, conditional release, case management, treatment, and program coordinator.



Lee Munnich

“There are a variety of reasons why elected leaders are reluctant to move forward on what we know will make a difference...Our primary focus is on the public policy aspects of this.”

The DWI Court has also partnered with the St. Paul Police Department to conduct unannounced field visits to participants’ homes to provide support and monitoring. “People don’t always look at us [police officers] as their friends,” explained Curt Sandell. “But we go out as their friend and encourage them to stay sober. It’s so different than anything I’ve done before as a police officer. We build relationships with these people. They don’t like us a lot at first but they learn we are human...It’s a whole new approach in how we deal with these offenders.”

“Most of my time as an officer is focused on DWI enforcement,” added Dan Day. “This program is designed to be strength-based; we want to be positive,

not remind them of the consequences. The more visits I make the better chance [program participants] have of staying sober.”

During each house visit, participants must take a preliminary breath test (PBT), which estimates the amount of alcohol in one’s blood. Day explained that they give a PBT test to everyone, every time they make a visit. “This is another good incentive to stay sober. This face-to-face contact, along with treatment and counseling, is the best deterrent.”

“Every year there are approximately 34,000 DWI arrests in Minnesota,” he continued. “We could put everyone in jail, or we could try something new, and this is something new.”

Center for Excellence in Rural Safety

Lee Munnich and **Tom Horan**, State and Local Policy Program, Hubert H. Humphrey Institute of Public Affairs, University of Minnesota

Moderator: Gina Baas, Center for Transportation Studies

Attendees received an introduction to the newly established Center for Excellence in Rural Safety (CERS) from the program’s director, Lee Munnich, during a Friday morning concurrent session. The Center’s research director, Tom Horan, described the program’s research objectives, welcoming opportunities for collaboration.

“This is an effort to bring together national leaders to conduct rural transportation safety research,” Munnich said, pointing to the Minnesota TZD program as a great starting point. “We think what Minnesota is doing will become a model for other states.”

The new center, housed at the Humphrey Institute, was created from a directive in the SAFETEA-LU federal transportation legislation. Minnesota TZD program partners are considered key CERS stakeholders.

The mission of the new center is to provide citizen-centered research, training, and outreach to improve rural safety and to meet the online and seminar training needs of rural transportation practitioners and policymakers. The center will hold an annual summer institute and conduct several focused research activities, such as projects addressing safety-conscious planning, ITS and rural emergency response, integrated policy approaches, and related human factors, societal trends, and stakeholder needs analysis.

Munnich stressed the need for building strategic collaborations to leverage a wealth of existing research and expertise in rural safety while also carving out areas CERS can most effectively contribute in-depth to the issues at hand. Noting the politically charged nature of rural safety issues, he said he favors a “grasstops” approach—first cultivating support from the governor, legislators, and other elected officials.

“There are a variety of reasons why elected leaders are reluctant to move forward on what we know will make a difference,” Munnich added. “Our primary focus is on the public policy aspects of this.”

Horan, who also serves as executive director of the Claremont (Calif.) Graduate University’s Information and Technology Institute (a CERS partner), presented an overview of his research into rural emergency response systems, especially their impact on surviving a crash in a rural area. “Accident victims are five to seven times more likely to die if the arrival to a hospital exceeds 30 minutes,” he said. “In a rural areas, the average time is 50-plus minutes.”

Horan hopes his research findings will ultimately contribute to improved rural emergency response, measured by a reduction in crash-related deaths and disabilities through faster response, better quality of service, and improved function across the service. The project is just one aspect of the center’s much broader research agenda to identify the behavioral, technological, and institutional barriers and challenges to advancing rural safety public policy and finding ways to translate that research and policy into strategies to deal with rural crashes.

2006 Star Award Presentations

Presenters: **Bernie Arseneau**, Minnesota Department of Transportation, and **Kathy Swanson**, Office of Transportation Safety, Minnesota Department of Public Safety

The Star Awards are given to recognize excellence in child passenger safety, safe communities, law enforcement, and engineering. "In efforts to reduce fatal and life-changing crashes on our highways, I think it's important that we recognize some of the successes that have occurred," said Bernie Arseneau. "I am honored to recognize some of the people who have gone above and beyond in the safety effort."



Kathy Swanson, left, and Sgt. Marty Earley. Earley accepted a Safe and Sober award on behalf of the Bloomington Police Department.

2006 Star Award Recipients

Safe Communities

Safe Communities of Wright County
Isanti County TZD/Safe Communities Coalition
Safe Communities of Southeast Minnesota

Child Passenger Safety

Organization: AAA Minnesota/Iowa
Professional: Gerry Wyland, Rehabilitation Manager for Fairview University Medical Center-Mesabi
Volunteer: Roberta Morrow, Hibbing Community College

Engineering

Mn/DOT: Gary Dirlam, District 3 Plan Development Engineer
Local Government: Sue Miller, Freeborn County Engineer

Safe and Sober

Southern Minnesota
Officer: Officer Marilee Dorn, Willmar Police Department
Department: Benson Police Department

Northern Minnesota

Officer: Lt. Jim Mortenson, St. Cloud Police Department
Department: Stearns County Sheriff's Office

Metropolitan Area

Officer: Deputy Tim Entner, Ramsey County Sheriff's Department
Department: Bloomington Police Department



During the CPS Products and Technology Update, a session participant looked over a car safety seat that was among those displayed. Ann Strong-Schmidt, a national CPS instructor with North Memorial Medical Center, covered new products in the car seat market as well as changes in vehicle technology. Other CPS sessions offered during the conference covered topics on identifying CPS problem areas; CPS and children with special needs; empowering parents and caregivers; and using car safety seats in school buses.

Closing Plenary: A Multidisciplinary Approach to Traffic Safety

Congressman James L. Oberstar

Moderator: Mike Robinson, Minnesota Department of Transportation

Excerpt from Congressman Oberstar's Speech

"On the eve of enactment of the Interstate Highway Program and the Highway Trust Fund in 1955/1956, the statistics indicated that if we didn't do something...if we didn't improve the road surface, if we didn't create this coast-to-coast, border-to-border system of interconnected, access-controlled, divided highways, we'd be killing 110,000 people a year by the end of the 1950s," Congressman Oberstar stated in his opening remarks. "The interstate highway system has saved us from that tragic reality. And while we had a decline in the number of fatalities, the rate is going back up again. We have to resolve nationally to do a lot better...we have to look carefully and in-depth at who's involved in traffic crashes, why they happen, and where and when they happen. Simply, it comes down to basics: buckle up, do not drive impaired, use protective gear when riding bicycles or motorcycles, restrain children, obey speed limits, be alert on the road, and don't drive when fatigued."



James L. Oberstar

"We have to set realistic goals, otherwise people will give up—and the Toward Zero Deaths initiative is a realistic goal," he asserted. "The key factors in how we'll move toward this goal are in four categories: human behavior, the roadway environment, the vehicle, and post-crash medical care. Most of you focus on the human factors contributing to crashes. We addressed human factors issues in SAFETEA-LU. I worked a lot on the safety provisions in that legislation, which includes \$3.262 billion for safety...that means \$1 billion over the life of the bill for state and community highway safety grants called the 402 Highway Safety Program; \$554-plus million for grants to deter alcohol-impaired driving called the 410 Alcohol Incentive Program; a \$498 million new seat belt initiative and incentive grant program; a \$116 million high-visibility law enforcement media campaign to encourage public awareness of seat belt use; a \$25 million motorcycle incentive grant program; and a \$25 million child passenger safety incentive grant program...There is also a \$984 million motor carrier safety grant program. For Minnesota, this means \$4.3 million for the state community highway safety program—that's a 38 percent increase in funds; \$2.1 million for the impaired driver prevention fund—that's a 114 percent increase; and \$15.2 million to the state provided that the next legislature and next governor enact the primary seat belt law. The single most important step the governor and the legislature can take is to pass this law."

He continued, "It's been about 25 years since we began seriously

paying attention to alcohol and driving, but it still remains half of our problem. While Minnesota does have a .08 blood alcohol content (BAC) limit, during the statewide DWI enforcement last summer, 2,300 impaired drivers had an average BAC level of 1.5 percent—that's double the legal limit. Funding for sobriety check points, for prosecution, for alcohol rehabilitation...it is important that we use some highway trust fund dollars for rehabilitation to get people to abandon their addiction and become functioning members of society."

"...Another troubling statistic is that the rate of increase in fatalities from motorcycle crashes is greater than the increase in motorcycle ownership," Oberstar reported. "There were 58 motorcyclist killed in 2005, and we're on pace to kill more than we did last year in Minnesota. One-third of these accidents are alcohol related. The only direct control we have over motorcyclists is their licensing, so as part of the licensing, there ought to be training requirements."

"...We also have to think about pedestrians and children. I created the Safe Routes to School initiative in SAFETEA-LU to encourage bicycling and walking as a way to reduce obesity among children. There is \$612 million in SAFETEA-LU for this program...[which] has taken off like gangbusters. Everyone is taking charge of their own destinies to make it safe and effective for children to walk or bicycle to school. With this program, we can change the habits of an entire generation. We are on track to do that, and Minnesota is leading the way."

"Under the SAFETEA-LU legislation, we established the Center for Excellence in Rural Safety at the Humphrey Institute and CTS at the University of Minnesota to intensify research, establish best practices, to cope with the disproportionate number of rural road fatalities," Oberstar said. "I am hopeful that through this center, we can reduce the frequency of nighttime crashes, crash severity, run-off road injury, and fatalities and restore safety and sanity to rural driving."

"All of these issues are factors you know of and have dealt with in one way or another," he continued. "This conference brings you all together and gives you an opportunity to share ideas and recommit yourself to highway safety. We will continue to do that on the federal level. We will gather more data, we will look at best practices, and we will take your experiences here in Minnesota and around the country. When we get to the next reauthorization period we will be prepared so we can do a better job of saving lives not only in Minnesota but throughout America. Thank you all for your dedication."

UNIVERSITY OF MINNESOTA



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Printed on recycled paper with 20% postconsumer waste.