

Western Transportation Institute

Montana State University

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Message from the Director:

Westward, Go! Demographic Trends Have Huge Impact on Transportation in Western States

National policy makers are moving transportation to the top of their priority list. In the last year, WTI has been called upon to testify and submit information to congressional committees, national commissions, and major advocacy organizations.

As one example, the Western Governor's Association recently asked for our input into their efforts to develop a "roadmap" for the future of the national transportation system. The requested included a summary of major demographic trends that will impact transportation needs. These trends include:

- The West will add 42 million more people (and their cars) by 2030.
- The population aged 65 and older is projected to grow significantly. By 2030, the number of older people will have grown from 35 million to 70 million.
- Over the next 30 years, nearly 90 percent of the nation's population growth will occur in the South and West. Out of the 20 states expected to grow the fastest over the next 30 years, seven are considered rural including Nevada, New Mexico, Idaho, Utah, Wyoming, Alaska, and Montana.
- Total domestic freight carried by all U.S. freight systems is projected to increase by 67 percent by 2020. Some West coast ports are expected to quadruple the amount of cargo they handle in that same time period.

While these numbers are staggering, they also motivate us to work even harder toward a safe and seamless transportation system. For years, WTI's

research agenda has addressed the challenges related to these trends: enhancing the safety of travel in rural areas, facilitating transit systems in small towns to serve seniors and the disabled, and promoting collaborative highway development that preserves shrinking habitats in growing states.

I'm particularly pleased that the national organizations are beginning to recognize the importance of addressing transportation needs in rural areas. When I testified before the National Surface Transportation Policy & Revenue Study Commission recently, I compared traditional transportation policy to a slice of Swiss cheese. Urban areas are the random "holes" across the landscape that attract most of the attention. Rural areas are the large tracts of solid mass in between that do not stand out, but are essential to holding the cheese together. In the past, national policy has focused on the "holes" in the system, while losing sight of the system as a "whole."

We believe that WTI's research contributes to an enhanced and comprehensive national transportation infrastructure. As you read this issue, you'll also note that many of our projects are focused in the fast growing, western states cited by the WGA.

We are proud to work with WGA and other national leaders to ensure that America's transportation system will serve travelers throughout the country for years to come.

Steve Albert
Director

Advancing rural transportation through research and education...



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Diverse Partnership Nurtures Development at Lewistown Facility

The Cold Region Rural Transportation Research Testbed., better known as the Lewistown Research Facility, has achieved some important milestones in recent months, thanks to a dedicated partnership of local, state and federal partners.

The testbed is a state-of-the-art, multidisciplinary research facility located at the existing Lewistown, Montana airport. Using the runways, taxiways, and other assets at the airport, researchers can study a wide range of rural transportation issues related to designing, maintaining and operating roadways in a cold climate. Access to this large facility allows researchers to test multiple variables at once, in a safe and controlled environment.

Development of the center dates back to 2003 when former Fergus County Commissioner Vern Peterson first proposed the idea of using the airport in new ways. “Vern had the vision to turn the airport – which was physically under utilized – into a regional asset,” said Western Transportation Institute (WTI) Director Steve Albert. “He and Port Authority member Don Bost have shown unwavering commitment to turning the concept of a research center into reality.”

In 2006, U.S. Senator Max Baucus was instrumental in securing a \$4 million federal earmark for Lewistown, which provides \$1 million a year for four years towards growth and development of the center.

The airport location and facilities have already

proven themselves to be well-suited to innovative transportation research of national significance. Through partnerships with agencies such as the Office of Public Instruction, state departments of transportation, and FHWA, WTI has four active projects on site, which include:

- Teaching novice drivers defensive driving techniques that can prevent accidents



- Establishing the best methods for removing snow and ice from roads
- Comparing the performance of deicer products

The fourth project is particularly notable, because it demonstrates the size and complexity of research that can be addressed at the facility. The Roadside Animal Detection System (RADs) Testbed project is an \$800,000 effort to evaluate nine different roadside animal detection systems from five vendors. On a portion of the airport property, researchers have constructed the test site, installing sensors to activate the detection systems and fencing to guide animal movements. Large animals such as horses or llamas will be used to “trip” the systems, allowing a side-by-side comparison of how well the systems

Lewistown Facility, continued

work under similar circumstances. This research could provide invaluable information to transportation agencies trying to select a reliable and cost-effective system to improve safety for both animals and drivers.

Recent developments at Lewistown will allow the facility to continue to grow, diversify, and attract a growing number of partners. WTI, Montana State University (MSU), and the Lewistown Airport Board have signed a 10 year lease that will ensure continued access to the airport facilities for research activities. Designs for a new research building have been completed, and construction will soon begin. Having a dedicated research building will allow research partners to install specialized research labs or equipment on site, and allow staff to have a dedicated workspace for the length of the project.

Partners in the Lewistown Testbed are con-

fident that the benefits of research at the facility will extend well into the future. At a recent event to thank participating agencies and recognize the progress that has taken place, MSU President Geoff Gamble stated that “WTI’s presence in Lewistown will function as a magnet for other business opportunities.”

WTI Director Steve Albert agreed, adding that “by attracting research dollars from other states, research here will lead to economic development that supports the community, similar to the impact that the North Carolina research triangle has on the surrounding local economies. Working together we have created a strong foundation that will nurture research and development in Montana for many years to come.”

Promoting the Use of Bicycles on Federal Lands

Visiting Federal Lands such as those administered by the Bureau of Land Management, Forest Service, Fish and Wildlife Service, and National Park Service should be an experience where observation and interpretation is maximized; with the pace, sequence and duration that is unique for each visitor. Bicycle access offers the visitor to Federal Lands a great opportunity to enjoy all that each location has to offer. Many roads in Federal Lands, especially those with low traffic volumes, could provide additional opportunities for family recreational biking if suitable facilities existed. The increased interest in recreational tour biking along the roadways traveling through Federal Lands provides opportunities to support healthful activity and enhance visitor experience, reduce air pollution and noise, reduce energy use, mitigate automobile congestion by working with transit facilities, and protect scenic beauty as well as plants and soil.

Through case histories, researchers will identify barriers Federal Land managers face to providing bicycle facilities, identify successful existing bicycling facilities, and create a guide of potential solutions for the barriers identified. The Guide for

Promoting Bicycling on Federal Lands will present a vision of how bicycling can enhance existing transportation systems, and recommend bicycling friendly policies and procedures to promote bicycling on Federal Lands.

By presenting bicycling as a mainstream mode of transportation rather than alternative activity, this



project will present Federal Lands with leadership opportunities in progressive, environmentally sensitive land management through bicycling.

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US 93 Field Study Collects Key Wildlife Crossing and Collision Data

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The reconstruction of US Highway 93 on the Flathead Indian Reservation in northwestern Montana provides an opportunity to evaluate how wildlife crossing structures and wildlife fencing affect animal-vehicle collisions (AVCs) and wildlife movements in a multiple-use rural landscape. Researchers at WTI recently completed a preconstruction field study establishing baseline



data that will be used in a before-after comparative assessment of the installation of 42 fish and wildlife crossing structures and approximately 15 miles of wildlife exclusion fencing for a total investment of over \$10 million.

The first goal of the field study involves comparing AVCs before and after installation of the mitigation measures throughout the entire 56-mile US 93 corridor from Evaro to Polson, Montana. Four years of reported preconstruction AVC data were analyzed to understand the statistical limitations that will affect the rigor of the analysis and interpretation of the results, as well as to determine how preconstruction AVCs may have been affected by traffic activity patterns and volume.

The second goal of the field study will be accomplished by assessing deer and bear movements across US 93 in the areas where the most extensive lengths of fencing and crossings will be installed before and after construction. Prior to construction, sand track beds were used to subsample wildlife movements along the edge of the highway, providing an estimated total preconstruction crossing rate within the areas that will have the most extensive wildlife fencing. The

preconstruction estimated crossing rate will then be compared to post-construction numbers of observed wildlife movements through the crossing structures (the desired outcome) as well as around the ends of the fences to understand the effect of the fencing and crossings on wildlife connectivity.

Additionally, preconstruction photographic monitoring at an existing bridge confirmed daily patterns of activity in deer and bear moving under the highway, as well as documenting other wildlife in the highway corridor. To account for wildlife population fluctuations that could affect the interpretation of the effect of the mitigation, pellet group data were collected to index local deer population trends and a black bear study provided a count of genetically-unique black bears in the area using DNA extracted from bear hair snagged at sampling stations on both sides of the highway. These indices will be used to better understand observed trends and changes in trends after construction as well as what factors may be driving potential changes in AVC occurrences and wildlife movements across the highway.

Analysis of the preconstruction datasets confirmed the need for several years of post-construction research in order to attain statistically significant outcomes that can better distinguish between the effects of the mitigation versus the influence of other factors. In collaboration with the Montana Department of Transportation, the Confederated Salish and Kootenai Tribes, the Federal Highway Administration, WTI is developing the complementary post-construction monitoring plan. The agencies are working together to define “measures of effectiveness” (MOEs) that will be used to determine whether these mitigation measures achieve desired outcomes of reducing animal-vehicle collisions (AVCs) and maintaining or increasing wildlife movements across the US 93 corridor.

This effort will offer important insights into the design, construction and monitoring of wildlife fencing and crossings to improve driver safety and ecological integrity.

UDOT Weather Operations/RWIS Evaluation Receives National Award

In June, the Utah Department of Transportation received a prestigious award at the annual meeting of the Intelligent Transportation Society of America (ITS America). UDOT received a “Best of ITS” award for the Evaluation of its Weather Operations/RWIS Program, conducted in partnership with the Western Transportation Institute.

According to the ITS America press release, these awards honor “the organizations and agencies that demonstrated the most innovative and effective uses of advanced technologies in surface transportation.” The five winning programs were selected from more than 60 entries from around the country by a select panel of judges. The Utah program won top honors in the category of “Best Return on Investment.”

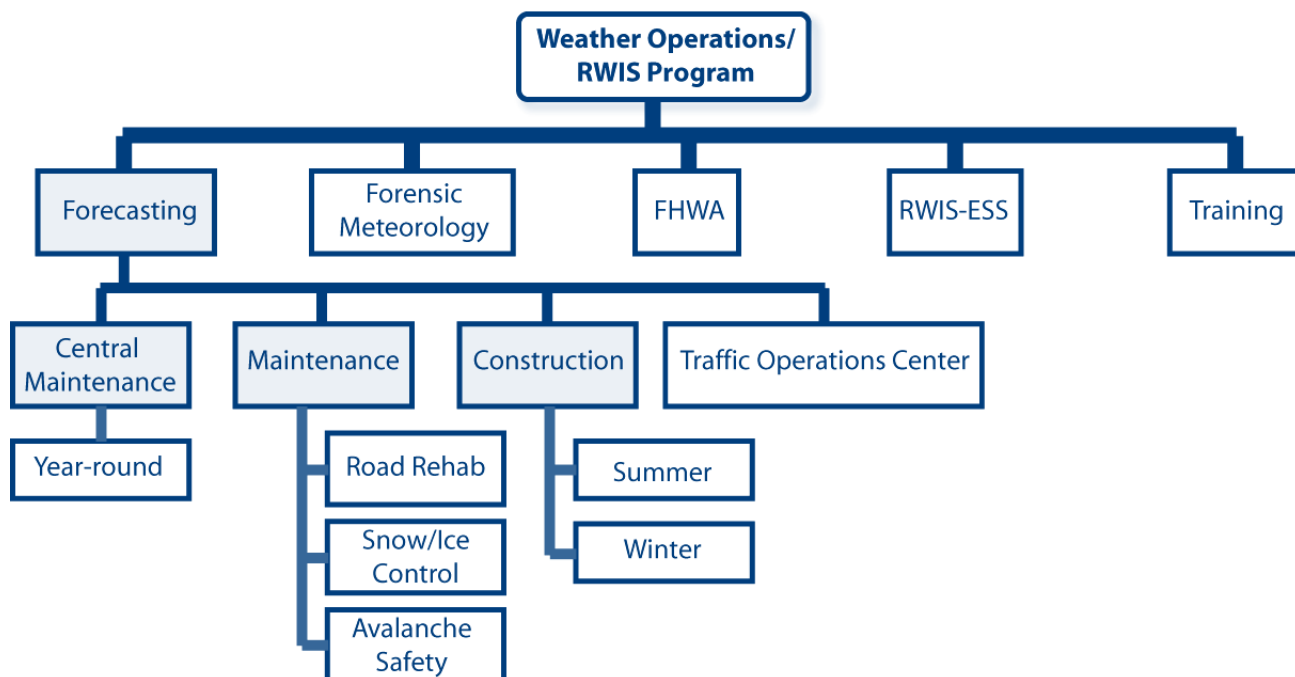
UDOT’s Weather Operations/Road Weather Information System (RWIS) Program is nationally unique. The program assists the DOT operations, maintenance, and construction functions by providing detailed, often customized, area-specific weather forecasts. It provides pre-storm, during-storm, and post-storm weather forecasts to the maintenance engineers, area supervisors and local sheds. The forecasts are tailored to the users’ needs, addressing issues such as the timing of events, tem-

perature trends and precipitation rates. The program also provides longer-term forecasts, which can assist construction engineers and contractors with planning their projects.

The Western Transportation Institute conducted an evaluation for UDOT to identify and quantify the benefits of the Weather Operations/RWIS Program, particularly in the area of winter maintenance operations. A unique aspect of the evaluation was the use of an artificial neural network model to analyze labor and materials costs for each of UDOT’s 77 maintenance sheds. WTI’s research estimated that UDOT’s Weather Operations Program saves the UDOT maintenance sheds \$2.2 million per year for snow and ice control activities, which leads to a benefit-cost ratio greater than 10:1.

WTI’s full evaluation report is available at:

http://www.coe.montana.edu/wti/wti/pdf/4W0892_Final_Report.pdf



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Impacts of Barriers on Topeka Shiner Populations

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Humans are increasingly aware of our impact on the natural world. This awareness includes the effects of roads, and associated crossing structures like culverts, on wildlife. The effect of roadways that dissect large animal habitat and migration routes are fairly well known. Lesser known are the effects of culverts on less visible organisms such as fish. Topeka shiners are an endangered species that live in small streams with high water quality in several prairie states such as South Dakota, Minnesota, Kansas, Iowa, Nebraska and Missouri. This fish was placed on the endangered species list due to a reduction in population in its historic range, primarily from stream degradation, habitat fragmentation, siltation and animal waste contamination. Although its Topeka shiner population is still relatively healthy, the South Dakota Department of Transportation has taken a proactive stance to ensure the shiner and its habitat remain viably healthy.

In an effort to understand the effects of culverts on the Topeka shiner and to meet the national research priority of understanding and mitigating transportation impacts on the environment, the Western Transportation Institute and the South Dakota Department of Transportation have joined in a project led by WTI researcher Matt Blank. WTI is working with Joel Cahoon of the Department of Civil Engineering and Bob Bram-

blett, Tom McMahon and Steve Kalinowski of the Department of Ecology to provide an interdisciplinary approach to this project. The project is investigating the effect of culverts as barriers on the



distribution and genetic diversity of Topeka shiners. Culvert characteristics, such as the outlet drop height and slope that may create permanent or temporal barriers to movement of the Topeka shiner are being identified. The WTI team is also developing strategies for retrofitting existing culverts and improving new culvert designs to improve passage of Topeka shiners and other warm water fish species. The results from this research will be useful to other Departments of Transportation tasked with building and maintaining roads and crossings that are safe and cost effective, yet not destructive to aquatic habitats and connectivity.



Keeping an Eye on the Weather: Assessing RWIS Network in Alaska

Monitoring current and forecasted weather conditions is an important component of road agency operations. Having access to accurate and reliable information is crucial in states like Alaska, where winter weather has a significant impact on maintenance and driving conditions.

Since 2001, the Alaska Department of Transportation and Public Facilities (ADOT&PF) has established nearly 50 operational road weather information systems (RWIS) sites located at strategic locations on its highway network. These sites provide environmental information (such as temperature, precipitation, wind speed, roadway images, and pavement surface and subsurface temperatures) to ADOT&PF personnel for winter weather maintenance decisions. Other key uses of RWIS data include year-round maintenance, traveler information, seasonal weight restrictions, avalanche support, and flood forecasting (through the National Weather Service's Pacific River Forecast Center). "Alaska has adopted a pro-active approach to RWIS implementation, because we believe it has tremendous potential benefits not only to our own personnel, but also to the trucking community, law enforcement, aviation, and the traveling public," said Jill Sullivan of ADOT&PF's Division of Program Development.

With a solid foundation in place, ADOT&PF is interested in learning more about how its RWIS network is used, answering questions such as who is using the information, how effective it is, how it supplements other sources of weather information, and how personnel uses the information to make decisions. WTI is nearing completion on a project to assess the current usage of the ADOT&PF RWIS network, and to identify ways to improve its utility and effectiveness. "This evaluation will help the department find out if the RWIS information is getting to the people who need it, and if it's making it easier for them to do their jobs," said Principal Investigator Chris Strong.

WTI researchers conducted surveys and interviews of ADOT&PF maintenance and operations personnel throughout the state to document when and how they use the RWIS network. Researchers

also included questions regarding how the system should be modified, enhanced or expanded.

Principal findings from the project indicate that maintenance and operations personnel are familiar with the RWIS sites in their respective areas, and that the majority of the respondents view the data on a daily basis. Camera images of road and weather conditions were cited as the most frequently accessed type of information. In general, respondents indicated that the RWIS network is a good system and is a valuable tool in supporting winter maintenance operations.

Respondents also provided many suggestions for how system usage could be improved, which formed the basis for recommendations in the final report. Non-technical recommendations include expand-



ing staff training and working with other agencies to improve availability and quality of forecast information. Technical recommendations include additional RWIS sites, camera and sensor upgrades, installation of snow-depth measurement tools, and improved Internet connectivity at maintenance camps.

The findings of this project are intended to serve as a five-year deployment plan for ADOT&PF as it continues to expand its RWIS network and integrate it with its winter maintenance program. "We hope it will help the department get the most 'bang for the buck' on future system investments," concluded Strong.

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WTI Holds the Key to Improving Traffic Flow after Large Events

September 7, 2007 - Courtesy MSU News Service

A plan to improve the traffic flow after Montana State University football games took effect Saturday, Sept. 15, when MSU played Dixie State.

The interagency traffic management plan incorporates road closures, traffic signal timing, real time Dynamic Message Signs, radio announcements, traffic cops, closed-circuit television cameras, wireless communication relays, and a nerve center on the MSU campus. The plan was devised by a committee representing MSU (athletics, police, infrastructure, and the Western Transportation Institute), the city of Bozeman, the Bozeman Police Department, Gallatin County and the Montana Department of Transportation.

"I hope the delays in people getting out after football games will be drastically reduced and we will be able to sustain that for many years to come," said MSU Police Chief Robert Putzke, traffic management team member.

Steve Albert, WTI director and head of the traffic management team, said, "If it took three hours to exodus a game before, I can't tell you it will take 20 minutes now, but I can tell you we should move more traffic quicker, safer and more orderly."

Closed-circuit TV cameras will be stationed in trailers parked at four points along the main corridors. The cameras will be monitored from inside the WTI building on the MSU campus. The operators won't look at specific cars, people or license plates, but traffic flow in general, Albert said. If traffic backs up or slows down, the operators will

notify police officers and people in charge of traffic signals.

The traffic committee will try the new plan for a couple of games, then meet to discuss it and



tweak the plan as necessary, Albert said. Albert and his WTI researchers are confident that the plan will improve traffic flow, however. Albert said WTI has projects in more than 40 states, and staff members have resolved real-life traffic situations in the public and private sector. Albert, himself, has developed traffic plans for Houston, Boston, Washington, D.C., and a Republican National Convention.

If the plan is done right, "People will ultimately say, 'What was the problem?' or 'Why aren't we doing this every day?'" Albert said.



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WTI Sponsors SAE Formula West Competition Car

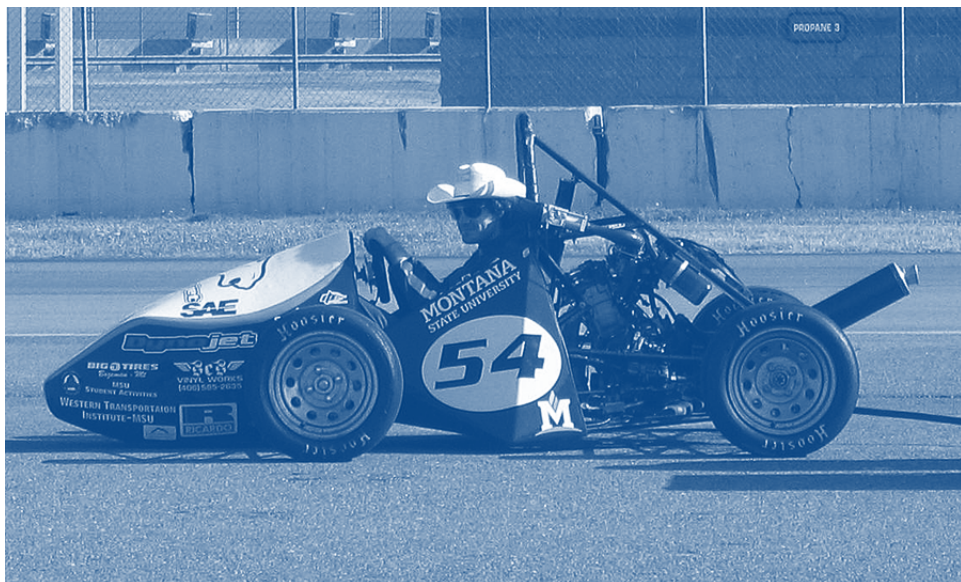
Nine months of design, analysis, fabrication, and testing culminated June 13-16 at the SAE Formula West Competition held at the California Speedway NASCAR Track in Fontana, California.



The FSAE competition is an international engineering event that requires student members to conceive, design, fabricate and compete with small, formula-style race cars. The car frame and engine options are restricted so the knowledge, creativity and imagination of students are challenged. Annual competitions are held in England, Brazil, Italy and Australia as

well as in Michigan and California in the United States. Top engineering students from around the world compete in an all-out effort that goes far beyond any classroom experience. Montana State University's SAE Club, led by Chapter Advisor and Assistant Professor Robb Larson, initiated design work in the fall of 2006 to build their race car from the ground up. The Club competed against 80 registered teams: 54 from U.S. universities plus teams representing eleven other countries.

Two primary goals drove the 2007 team; complete all events without major engineering failures or disqualifications, and surpass the achievements of last year's squad. The 10-member student traveling team surpassed the initial goals by completing all events and rising through the 80-team field to earn the SAE Certificate of Accomplishment and finish 24th overall. The cars are judged in a series of static and dynamic events including: technical inspection, cost, presentation, and engineering design, solo performance trials, and high performance track endurance. These events are scored to determine how well the car performs. In each event, the manufacturing firm has specified minimum acceptable performance levels that are reflected in the scoring equations. The Western Transportation Institute is proud to sponsor this successful project and the future leaders in the transportation industry.



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Popular Summer Program Promotes “Hands-on” Learning

This summer, WTI once again hosted the Summer Transportation Institute (STI), a program for high school students who are interested in learning more about college and career opportunities in the field of transportation. Fifteen students from eleven towns across the state of Montana participated in STI, traveling to Bozeman to live on campus for two weeks of educational and enrichment activities.

Students received instruction and participated in hands-on activities related to traffic engineering, infrastructure design and maintenance, road ecology, urban planning, automotive engineering, and human factors. A number of transportation professionals shared their expertise with the students during a Transportation Career Panel, and STI

Academic advisors from MSU helped students learn more about how to prepare for college entrance exams, admission procedures, coursework,



STI students take a discovery flight with Summit Aviation instructor pilots

and selecting majors. After days packed with activities, students were offered an evening sports and recreation program where they enjoyed a taste of the lighter side of college life.

WTI is committed to educating the next generation of transportation engineers and the STI program is a great way to reach students before they enter college.



Balsa bridge competition

participants had the opportunity to visit the Montana Department of Transportation headquarters in Helena where they received a first-hand view of how transportation professionals contribute to transportation operations.

In addition to classroom activities, students participated in a number of team design/build projects, including a glider activity and balsa wood bridge competition. Other highlights included a discovery flight in a private aviation training aircraft, a demonstration of a formula race car built by MSU students, and a test drive in the WTI driving simulator.



ROCS (Roadkill Observation Collection System) demonstration

WTI Director Named to National Transportation Advisory Panel

August 06, 2007 – Courtesy MSU News Service

Steve Albert, director of Montana State University's Western Transportation Institute, will join leading public and private transportation officials on a new national transportation advisory committee.

U.S. Transportation Secretary Mary Peters recently selected Albert to serve on the Intelligent Transportation Systems (ITS) Advisory Committee. The Western Transportation Institute specializes in ITS research that benefits rural areas. "Urban areas have long recognized the value of technologies such as roadside closed-circuit television to monitor and manage traffic," Albert said. "WTI looks at how advanced technologies might be used in more remote areas, such as alerting drivers to severe weather conditions or wildlife near the road."

As a member of the committee, Albert will review and make recommendations regarding the U.S. Department of Transportation's strategic plan, as well as ITS research under consideration for funding. He will serve on a 19-member panel of national experts that includes representatives from the New York City Department of Transportation, the Massachusetts Institute of Technology (MIT), the Insurance Institute for Highway Safety, General Motors, and Sprint/Nextel.

"I'm very pleased and excited the U.S. DOT has created this high-level panel to give serious

attention to the future of America's transportation system, and the potential of emerging technologies," Albert said. "I look forward to representing the rural perspective in these discussions, so that people and goods can travel safely and efficiently to every corner of the country."

Albert speaks frequently on the importance of improving the entire national transportation system. "Sixty percent of crash fatalities occur on rural roads, and drivers are four times more likely to die on a non-interstate roadway than on an interstate," Albert said. "Safety is literally a life-and-death issue as people travel through less populated areas."

At a recent hearing of the National Surface Transportation Policy & Revenue Study Commission Albert presented examples of how upgrading rural roads benefits everyone.

"When a business owner's deliveries are three days late because of a snowstorm in Minnesota, he will start to see the value in road sensors that can forecast weather conditions," he said. "Or a family driving from their home in the suburbs to Mt. Rushmore, whose car breaks down on a two-lane highway with no cellular coverage, will gain a whole new appreciation for upgrading rural communication systems."

What Does It Take To Make Rural ITS Work?

It takes good engineering. It takes technical excellence across a variety of skill areas. It takes creativity. It also helps to learn from the experience of others.

The challenges in making rural ITS work are significant. Therefore it is important for ITS technology practitioners to be able to meet in order to share what they have learned, to help advance the state of the practice.

If you are involved with ITS technology at a field level, whether in design and engineering, communications systems development, systems integration, or field maintenance, we invite you to

attend the 2008 Western States Rural Transportation Technology Implementers Forum. Share what you have learned and learn from others.

The Forum will be held June 3-5, 2008 in Mount Shasta California. It is being sponsored by the California Department of Transportation and WTI.

For more information, please contact Chris Strong at WTI via email chriss@coe.montana.edu or 406-994-7351.

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Come In From the Cold: States Convene to Prioritize Research

In cold weather states around the country, winter maintenance is emerging as the new “hot topic” in transportation research. On a largely regional basis, transportation agencies are commissioning pooled fund studies and other collaborative efforts to study new technologies and advancements related to snow and ice removal materials, equipment, methods, and weather forecasting. However, are the findings from these various groups reaching transportation professionals outside of the regions where the studies are being conducted? And – are the research groups focused on the issues that road agencies as a whole are most concerned about?

These questions were the inspiration for an information sharing and research coordination forum. The National Winter Maintenance Peer Exchange convened for the first time this summer, thanks to a partnership between many of the entities actively involved in winter maintenance research issues, including the Aurora Pooled Fund, Center for Transportation Research and Education (CRTE) at Iowa State University, Clear Roads pooled fund, Federal Highway Administration, the Pacific Northwest Snowfighters Association (PNS), the Snow and Ice Pooled Fund Cooperative Program (SICOP) and the Western Transportation Institute at Montana State University. “Each one of us has our own area of research,” said Dennis Burkheimer, Iowa DOT Winter Operations Administrator, “but none of us knew the research needs of all the states, especially those that weren’t represented by one of these groups.” Burkheimer, who represents Iowa DOT on the Clear Roads Technical Advisory Committee, co-chaired the conference with Lee Smithson, the Coordinator of the Snow and Ice Pooled Fund Cooperative Program under AASHTO, and Diana Clonch, Snow and Ice Coordinator for the Ohio DOT.

To bridge the communication gap between research organizations and states, organizers invited up to two representatives from the department of transportation in every state.

The two-day event featured a variety of forums designed to identify the most critical issues in winter maintenance. “It was an opportunity to create a true peer exchange,” said Clonch; “With input from all across the country, there’s a high probability of addressing true needs when we’re making decisions about where to focus research dollars.”

The event opened with presentations by a number of the partner agencies. Representatives from Clear Roads, Aurora, PNS, FHWA, and SICOP shared findings from their latest research and initiatives, such as Road Weather Information Systems, evaluation of anti-icing and deicing products, Ground Speed Control systems, Maintenance Decision Support Systems and Clarus. “We wanted to allow the research groups to talk a little bit about their work,” said Burkheimer, “so that all states would know what winter maintenance research is being conducted across the United States.” Also introduced at the Peer Exchange was a new national winter driver safety initiative, “Ice and Snow...Take it Slow” that all states were encouraged to consider for their winter media efforts.

The core of the conference was a series of round table discussions, in which the states were encouraged to describe their winter maintenance needs and suggest topics for future research. To focus the discussion, the round tables were organized around four tracks. Facilitators from the Western Transportation Institute and moderators from state and federal transportation agencies helped to lead and document the exchange of ideas. “For researchers, it was a great opportunity to hear specific, detailed ideas from the states about what kind of research would help them the most in their day-to-day operations,” said Dr. Xianming Shi, the WTI Winter Maintenance and Effects Program Manager who served as one of the moderators.

On the second day, participants voted on the research needs that they believed were most important to their state maintenance operations.

Come in From the Cold, continued

In the final session, they had the chance to comment on the results of the voting and on suggested next steps. In another unique aspect of this conference, vendors were invited to participate in this discussion. “The vendors had the opportunity to hear firsthand some of the problems that are out there that need to be addressed,” said Burkheimer, “plus, they had personal access to top decision makers from numerous state transportation agencies.”

Response to the event was enthusiastic and positive. Thirty-five states plus Washington D.C. attended; together they identified and prioritized 70 research problem statements. Organizers continue to work on them, looking for opportunities to consolidate or refine the issues. “We want to have good, clarified problems that we can move forward to all the research groups,” said Burkheimer.

The conference also helped participants build personal relationships with others in their field.

“The most important thing you can do at an event like this is to establish a network with your peers,” said Clonch; “so when you need something, you know exactly who to turn to.”

Perhaps the clearest indicator of success is that many of the participants would like to make the conference an annual event. “States don’t typically meet on winter issues,” said Burkheimer; “one of the recurring comments I heard was that we should do this more often.” Clonch agreed: “You know you’ve created good synergy when everyone leaves the table saying they want to come back and do it again.”

For more information regarding the Winter Maintenance Peer Exchange Conference, contact Dennis Burkheimer at dennis.burkheimer@dot.iowa.gov, Lee Smithson at leland.smithson@dot.iowa.gov, or Diana Clonch at diana.clonch@dot.state.oh.us.



Redding Responder Video Featured at International Conference

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In August, the Association of Public Safety Communications Officials – International (APCO International) showcased the Caltrans/WTI Redding Responder project at its Annual Conference in Baltimore, Maryland as part of “APCO TV.” A five-minute video, shot on location in California, was exhibited at the conference as a featured example of “putting research into practice.”

Through the Redding Responder project, WTI is developing a mobile communications system for the California Department of Transportation (Caltrans), which will help first responders overcome communications difficulties that are common in rural locations. The system integrates a Tablet PC, Digital Camera, GPS, Satellite Modem, Cellular Modem and a custom-developed software application into a user-friendly, robust tool intended for use by field crews for two-way data communication. The proof-of-concept system has been successfully tested in the field, allowing Caltrans employees to send and receive key data from the site of an inci-

dent, including photos, annotated maps and road conditions.

The video, produced by HBL Media in London, featured footage of the Responder system in use at the scene of a simulated incident, as well as interviews of project principals, including Ian Turnbull, Bill Stein and Mandy Chu from Caltrans, and Doug Galarus, WTI Principal Investigator. WTI and Caltrans co-sponsored production of the video, which the two agencies can now use for other technology transfer and educational purposes.

“We are proud that APCO International selected the Responder project as an example of a collaborative, innovative solution to communications problems faced by many public safety agencies around the country,” said Galarus. “We’re also excited to have a video of this caliber available to demonstrate our capabilities and what is possible using the latest computing and communications technologies.”

The video is available for viewing on the APCO TV website: <http://www.apcotv.com/news.php>

Staff News

WTI Welcomes New Research Staff

WTI welcomes two staff members to the Winter Maintenance and one member to Safety and Operations Focus Areas.

The Winter Maintenance program at WTI adds new expertise in the area of environmental research and analysis, thanks to the arrival of Research Associate Laura Fay. Laura has five years laboratory and field research experience, with specialized skills in stream inventory studies, fish surveys, stream-bank stability studies, and road decommissioning studies, as well as laboratory analysis of mercury. She also has experience facilitating partnerships among public and private agencies, and the general public on a variety of environmental issues.

At WTI, she will use these skills to examine the environmental implications of winter maintenance materials and practices. For example, her current projects focus on the impact of anti-icing and deic-

ing compounds on U.S. roadways, an analysis of cement corrosion, and coordination of a dust suppression and stabilization summit.

Laura earned a M.S. in Environmental Science and Health from the University of Nevada, Reno. Now settled in Montana with her husband Erich, she enjoys all things outdoors including road cycling, skiing and hiking with her dog.



New Research Staff Continued

WTI is pleased to announce that Dr. David Veneziano has joined the staff as a Research Scientist in the Safety and Operations focus area. David comes to WTI from Iowa State University, where



he recently earned his Ph.D. in Civil Engineering while also conducting research for the Center for Transportation Research and Education.

With six years of experience in transportation engineering and planning research, David specializes

in studies related to intelligent transportation systems (ITS), safety, operations, remote sensing, and geographic information systems (GIS) analysis. At WTI, he is leading projects to evaluate an icy curve warning system on the Fredonyer Summit in California and to conduct a pilot test of Automatic Vehicle Location on snow plows for the Montana Department of Transportation. He is also lending technical expertise to several other projects, including the development of traffic management strategies for MSU football games, the enhancement of 511 traveler information in Yellowstone National Park and the development of an integrated corridor management plan for a rural section of Interstate 5 between California and Oregon.

David and his wife Susan live in Belgrade, where they have been spending most of their free time landscaping their new home. Outside of work, David enjoys football, reading, and building model trains.

Research Engineer Tongyan Pan joins the Winter Maintenance and Effects staff to conduct research in mechanical behavior and durability of asphalt binder and asphalt mixture, concrete durability, electrochemical treatment of reinforced con-

crete, and constitutional modeling of infrastructure materials using innovative testing and numerical analysis.

Dr. Pan, a licensed Professional Engineer, holds his Ph.D. in Civil Engineering – Construction Materials of Transportation Infrastructure from the University of Illinois at Urbana-Champaign, one M.S. in Transportation Engineering, a second M.S. in Geotechnical Engineering, and a B.S. in Civil Engineering. At WTI, Dr. Pan will provide a wealth of expertise in materials testing, finite element modeling and pavement management.

Dr. Pan is an active member of several national organizations in civil engineering, including ASCE, ACI, TRB, and AAPT and is the author or co-author of over 30 peer-reviewed publications.

From the city of Shanghai, People's Republic of China, Tongyan, his wife Ying Zhong and four-year-old daughter Rachel live in Bozeman. He enjoys badminton, table tennis, jogging, hunting and cooking Chinese food.





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