



# The Innovative Engineer

“Innovative Engineering Against Hazards”

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## USU Joins the MPC and is Awarded a UTC

from Utah Transportation Center Director, Dr. Paul J. Barr, Ph.D., P.E.

We are pleased to announce that Utah State University is now part of a regional consortium of eight universities focused on transportation research that has recently been awarded a \$3.5 million grant by the U.S. Department of Transportation. This partnership allows the Utah Transportation Center to even more effectively continue the vital work of increasing the understanding of critical transportation issues, and improving the state of transportation practice into the future. In this issue we are pleased will highlight the part student researchers play in this important work.

The grant was one of 22 awarded in the University Transportation Centers Program administered by the DOT’s Research and Innovative Technology Administration. Utah State University and other members of the Mountain-Plains Consortium (MPC) received the award for the coming year to study transportation issues in the Upper Great Plains and Intermountain West. USU’s share will be about \$250,000.

The grant was one of ten awarded to regional transportation centers. The other 12 grants, of which the UTC was also part of, were awarded to Tier 1 centers. The MPC includes Colorado State University, South Dakota State University, the University of Colorado-Denver, the University of Denver, the University of

### Utah State University is part of consortium awarded \$3.5 million from U.S. Department of Transportation.

Utah, the University of Wyoming and USU. North Dakota State University is the lead university of the effort and has led the MPC with various partner universities since 1988.

“The states in this region share a number of common characteristics such as vast rural road net-

works, few urban centers and harsh climate extremes,” noted Denver Tolliver, consortium director and associate director of the Upper Great Plains Transportation Institute associate director at NDSU. “No single university can effectively address the complex transportation issues we face in this region, but the integrated efforts of eight universities along with support and partnerships in each state will have a significant impact.”

Research conducted under the grant will focus on key areas including:

- Assessing the impact of energy development and

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climatic extremes on transportation

- Advancing the state of repair and sustainability of transportation infrastructure
- Enhance economic competitiveness through transportation
- Improving safety and enforcement
- Advancing livable communities through transportation

The grant supports transportation-related education programs at the participating universities as well as technology transfer and workforce development activities. The Federal transportation bill will fund the MPC at \$3.5 million each year for two years.

“Each of the participating universities has key

## Demonstrating the Value of Student Research

with excerpts from an article titled, “Capitol hosts USU student researchers,” by Megan Allen, Utah Statesman (originally published, Friday, January 27, 2012)

For the last 12 years, undergraduate students from USU have had the opportunity to present research to state government officials at the Utah Capitol as the annual legislative session gets underway.

Students spent one to three years on research projects under the guidance of university advisers, and prepared posters to display project synopses and results.

“You don’t get credits for this. It’s discovery and what’s happening outside of the textbook,” said Scott Bates, USU Associate Vice President for Research. “The legislators benefit from being educated about the things that are going on at the research universities.”

Bates said undergraduate research is important to USU because it does a good job finding balance between two of the main missions of the university — research and education.

“That’s an important thing for legislators to see,” Bates said. “There’s a lot of pressure for us to either grow the research mission or grow the education mission and both of them are sort of at the core of what

strengths and programs. The consortium will combine them into a comprehensive and coordinated program that addresses key transportation issues in the region,” Tolliver said. The consortium has on-going programs in several areas including transportation and sustainable energy development; bridge monitoring and performance; tribal transportation planning; transit oriented development and urban sustainability; workforce skill development; and development of on-line courses and training.

“These are areas where we’ve already identified needs and where our faculty and staff have developed excellent programs. This grant award gives us an opportunity to build on that foundation,” Tolliver said.

we’re trying to do here.

“It’s a way for the legislators to come down and see that our students are doing some pretty incredible things. This is cutting-edge research, presented by students in the legislators’ constituency. It puts a great face up for USU.”



Kirk Jackson, a senior majoring in civil engineering who was selected to present this year, developed a project that focused on infrastructure and city planning. He said the things he has learned through conducting his own research project will be more beneficial to the real world than what he’s learned in the classroom.

“You go to classes, you learn from professors and do the problems they assign you, but there’s nothing quite like initiating a project and problems on your own,” he said. “For me, it was easy because I love what I did. I think the experience you gain from learning how to do research and get out there on your own is great.”

# Utah Transportation Center: Training the Next Generation of Transportation Researchers

## James Fishelson Named Student of the Year

James Fishelson was born and raised on Long Island, New York, and enjoyed playing football and wrestling in high school. After completing his undergraduate work at Yale University, he drove from New York to Key West to the Arctic Ocean in a 1938 Dodge. He became interested in transportation infrastructure issues and the challenge posed by a rapidly developing, urbanizing, and interconnected world, during this trip, as well as during time spent working and studying in places such as Vietnam, Russia, the Philippines, and Kazakhstan.

He came to Utah State University for their Automated Electric Transportation (AET) project—a concept for network-automated vehicles electrically powered via in-motion energy transfer from the roadway itself. His thesis, titled “Modeling Automated Electric Transportation Platoons” focuses on modeling platoons of vehicles in an AET system, and being able to demonstrate the capacity and safety improvements that AET can provide over traditional roadways. He is particu-



larly interested in the potential for AET as a sustainable solution to the congestion issues of the world’s sprawling megacities. Mr. Fishelson was selected as this year’s student of the year for not only his past academic achievements but his potential future impact within the transportation area.

Congratulations James!

## AET Student Wins SURCO Grant



The Summer Undergraduate Research and Creative Opportunities (SURCO) pilot program was established to provide funding for students to be involved in research activities during the summer months. The response to the SURCO mechanism was staggering: Sixty-six projects were proposed, for a total of more than 120,000 in requests; approximately \$30,000 was available for distribution.

Undergraduate student, Steven Morales, was chosen for this award. He is working on the Automated Electric Transportation project and was awarded a grant to continue his summer research.

## Transportation Student Receives Honorable Mention for Poster in USU Student Showcase

More than 150 students participated in USU’s Student Showcase, its largest turnout ever. The judged poster session, with more than 90 individual posters, yielded ten winners and honorable mentions.

Our own Kirk Jackson, received honorable mention recognition for his research on, “The remaining service life method for pavement deterioration: Improving pavement forecasting and optimizing infrastructure investment.” His faculty mentor is Dr. Kevin Heaslip, Associate Director of the Utah Transportation Center.

Congratulations, Kirk!

# Center Projects in Progress

“Work Zone Design Evaluation,”  
Dr. Kevin Heaslip, PI.  
*Co-funded by UDOT and UTC.*

“Forecasting Network Traffic for Small Communities in Utah,”  
Dr. Anthony Chen, PI.  
*Funded by UTC.*

“Investigation of the Use of Texel Cameras for Counting Passengers on Public Transportation, Phase II,”  
Dr. Scott Budge, PI.  
*Funded by UTC.*

“Forensic Testing of Prestressed Girders,”  
Dr. Paul J. Barr, PI.  
*Funded by Tier 1 CAIT at USU.*

“Accelerated Bridge Construction Deck Testing,”  
Dr. Marv W. Halling, PI.  
*Co-funded by UDOT and Tier 1 CAIT at USU.*

“Sign Management,”  
Dr. Kevin Heaslip, PI.  
*Funded by Tier 1 CAIT at USU.*

“A Two-Stage Approach for Estimating a Statewide Truck Trip Table,”  
Dr. Anthony Chen, PI.  
*Funded by the Mountain-Plains Consortium.*

“Develop Design Guidelines for Integral Abutment Bridges,”  
Dr. Paul J. Barr, PI.  
*Co-funded by UDOT and the Mountain-Plains Consortium.*

“Do Changing Prices Portend a Shift in Fuel Consumption, Diminished Greenhouse Gas Emissions, and Lower Fuel Tax Revenue?”  
Dr. Kevin Heaslip, PI.  
*Funded by the Mountain-Plains Consortium.*

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