UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

2005 2006 ANNUAL REPORT

Academic Programs • Advanced Traffic Analysis Center • Agricultural and Industrial Freight Center • Department of Transportation Support Center • Mountain-Plains Consortium • Small Urban & Rural Transit Center • Biennial Strategic Freight Analysis Center • Transportation Learning Network • Transportation Safety Systems Center • Rural Transportation Safety and Security Center • Academic Programs • Advanced Traffic Analysis Center • Agricultural and Industrial Freight Center • Department of Transportation Support Center • Mountain-Plains Consortium • Small Urban & Rural Transit Center • Biennial Strategic Freight Analysis Center • Transportation Learning Network • Transportation Safety Systems Center • Rural Transportation Safety and Security Center • Academic Programs • Advanced Traffic Analysis Center • Agricultural and Industrial Freight Center • Department of Transportation Support Center • Mountain-Plains Consortium • Small Urban & Rural Transit Center • Biennial Strategic Freight 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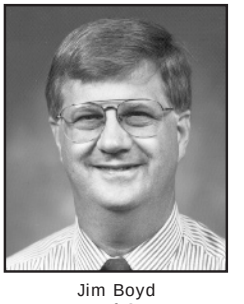
NDSU is an equal opportunity university.

The Upper Great Plains Transportation Institute is an independent research and education center at NDSU. Administratively, it is directly responsible to the university provost. The institute conducts research related to the immediate and long-term transportation needs of the region and disseminates information through conferences, workshops and seminars. The research program is guided, in part, by an advisory council composed of representatives of various organizations, industries and agencies affecting or affected by transportation. The program areas focus on specific transportation issues, but, united within the UGPTI, they share expertise, staff and other resources to form an overall program with the flexibility to address emerging challenges and opportunities.

Advisory Council

Neal Fisher, Chair
ND Wheat Commission

Tom Balzer
ND Motor Carriers Assn.



Jim Boyd
ND Dept. of Commerce

Sandy Clark
ND Farm Bureau

Tony Clark
ND Public Service Comm.

Jay Elkin
ND Grain Growers Assn.

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Contractors of ND

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Dave MacIver
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Commerce

Gary Ness
ND Aeronautics
Commission

Steve Strege
ND Grain Dealers
Association

Mark Wolfe
Phoenix International, Inc

Francis Ziegler
ND Department of
Transportation

Dan Zink
Red River Valley &
Western Railroad

Director's Message – Gene Griffin

In the past year, fuel prices have thrown transportation and its costs into the spotlight. Businesses, government agencies and transportation providers looked more closely than ever for ways to cut costs and improve efficiency.

Improving transportation efficiency is a key component of the Upper Great Plains Transportation Institute's work. Perhaps more importantly, much of our work has focused on improving the mobility of people and freight in our region and connecting our transportation systems here with those across the globe.

Quality of life issues continue to present opportunities and challenges on the Upper Great Plains. It's not easy to provide a high quality health care system, educational systems, justice systems, and opportunities to participate in government to a relatively small population dispersed over a vast landscape. At the same time, this region has a growing economy fueled by traditional and emerging energy sources, agricultural commodity producers and specialized food processors, small businesses and large manufacturers, and high tech industries.

Whether it's getting a senior citizen to a voting booth 30 miles away or shipping a locally manufactured electronics component to an assembly plant 1,000 miles away, the resilient thread that weaves together the social and economic fabric of the region is transportation.

This report highlights our efforts to strengthen that thread. Some highlights include:

A new Master's of Military Logistics program. This program brings some of the military's best and brightest young logistics experts to the NDSU campus where they're exposed to new concepts and ideas in an intensive 12-month program.

A look at vanpooling. An old idea gains new life as our Small Urban & Rural Transit Center evaluates vanpooling in a state with growing industries and changing demographics.

Smoothing runways. A pavement specialist looks at faster and better ways to assess the state's airport runways to meet FAA requirements.

Elevator impact. We looked at how larger grain elevators influence truck traffic and the resulting impact on roads and the need for road maintenance.

Faster and easier. Our researchers are looking at how standardizing truck size and weight regulations across the region would impact the speed and ease of shipping freight.

Rural road safety. On a per-mile-traveled basis, rural roads are more dangerous than city highways. Our new Rural Transportation Safety and Security Center will look at the reasons why and help find ways to reduce the risk.

This report shows the results of significant investment by the state of North Dakota and our other partners and collaborators in our nation's transportation system. That investment pays dividends only through the efforts of the highly qualified and motivated staff at the Upper Great Plains Transportation Institute.

We are proud of our accomplishments, but we recognize there is so much more yet to do. Thank you for your continued interest in our work and in the nation's transportation system.

Program Areas

The **Academic Programs** offered include an interdisciplinary Ph.D. program in transportation and logistics and a transportation option in the master's degree programs in civil engineering and agribusiness. Graduates are prepared for careers in wholesale and retail business, construction, consulting, and government. A master's in military logistics is also offered. The UGPTI is working with Bismarck State College to offer an associate's degree program to help students develop technical and management skills. UGPTI academic programs are largely funded by the Mountain-Plains Consortium.

The **Advanced Traffic Analysis Center** (ATAC) enhances transportation systems in small to medium-size cities by using advanced traffic analysis and intelligent transportation systems to improve safety and mobility. The center's primary role is to support decision makers responsible for planning, operating and funding transportation systems at the local, regional and state level. Primary efforts focus on intelligent transportation systems, traffic operations and travel demand modeling.

The **Agricultural and Industrial Freight Center** promotes the efficient use of resources and enhances the competitiveness of agricultural products in the region. Staff members evaluate transportation industry trends, policy, and rates – all factors that are critical to maintaining product quality and helping businesses and producers reach key markets. They also examine supply chain management and transportation-related economic development initiatives to enhance the competitiveness of agribusinesses in the region.

The **Department of Transportation Support Center** (DOTSC) provides intellectual capital to the NDDOT to solve complex problems. The center also addresses regional issues within North Dakota and the surrounding states. The center includes a student roadway design section supervised by on-site DOT design staff to employ, train and utilize undergraduate students in DOT design projects. The section provides real-life experience for engineering students. The center's student information technology center integrates NDSU computer science and management information systems students with real-world information technology issues and projects related to the DOT.

The **Mountain-Plains Consortium** (MPC) conducts research, education and training on transportation infrastructure and the movement of passengers and freight. It is a competitively selected university program sponsored by the U.S. Department of Transportation attracting the nation's best talent to study transportation and develop new transportation strategies and concepts. The consortium includes North Dakota State University, Colorado State University, South Dakota State University, the University of Utah, and the University of Wyoming.

The **Small Urban & Rural Transit Center** (SURTC) provides transit stakeholders, users, suppliers and agencies information and training on technology and improved management and operations to increase the mobility of small urban and rural residents through improved public transportation. Research focuses on transit coordination, ITS applications and mobility planning.

The **Biennial Strategic Freight Analysis Center** addresses key issues in North Dakota transportation. Each biennium, the program focuses on an economic sector important to the state with the goal of improving the competitiveness of firms through transportation enhancement in North Dakota. The current effort focuses on freight planning.

The **Transportation Learning Network** (TLN) is an interactive video conferencing network linking the transportation departments in Montana, North Dakota, and Wyoming and the Mountain-Plains Consortium universities. TLN supports quality transportation through a network of people and technology that serves TLN members by enhancing communication, education, professional development, technology transfer and research.

The **Transportation Safety Systems Center** (TSSC) based in Lakewood, Colo., develops and maintains software used by state and federal safety specialists nationwide at weigh stations and ports-of-entry for inspecting commercial vehicles. Additional software is used by safety specialists during on-site reviews of commercial carriers. In addition, the center is also extensively involved in safety-related research and analysis to improve targeting of enforcement efforts and enhance software programs.

The **Rural Transportation Safety and Security Center** promotes and enhances the region's transportation safety and security through research, education, and outreach in partnership with stakeholders. It is a collaborative effort between the Upper Great Plains Transportation Institute and the NDDOT, with funding from the Federal Highway Administration.

Education

The UGPTI's educational programs are designed to prepare tomorrow's transportation professionals. Students learn from staff involved in research and outreach programs so they are able to apply theory and case studies to real-world situations. Students apply their classroom lessons through their intimate involvement in the Institute's research and outreach programs. The Institute's programs benefit from the students' enthusiasm and creativity.

Enrollment grows. During FY 05-06 there were 14 students in the NDSU interdisciplinary doctoral program in Transportation & Logistics. When the program was launched in 2002, six students enrolled. The program features three areas of concentration: logistics and supply chain management; transportation economics and regulation; and transportation infrastructure and capacity planning.

First graduate from Ph.D. program. Sang Young Moon is the first student to graduate from NDSU's Transportation and Logistics Ph.D. program. Moon earned his M.S. in agribusiness and applied economics from NDSU in 2002. Research for his dissertation evaluated the impacts of alternative ocean and inland transportation systems in shipping soybeans from major exporting countries to major importing regions and countries. Moon has joined the staff of the Korea Institute for Industrial Economics and Trade in Seoul, South Korea.

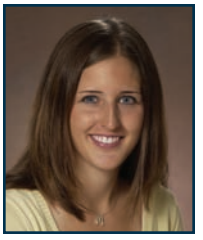
Dybing named UTC Student of Year. NDSU student Alan Dybing was named 2005 Region VIII Student of the Year at the Transportation Research Board annual meeting in Washington in January. Each year, the U.S. Department of Transportation honors the most outstanding student from each participating University Transportation Center for achievements and promise for future contributions to the transportation field. A native of Maddock, ND, Dybing holds a B.S. degree in agricultural education and a minor in agricultural economics. He earned a M.S. in agricultural and applied economics with a transportation option. He is now an associate research fellow with the UGPTI and is continuing to work on his Ph.D. in Transportation and Logistics.

Student designs. The Department of Transportation Support Center student design center teaches undergraduate engineering students roadway design through hands-on involvement in projects ranging from Interstate and interchange reconstruction to asphalt overlays and improved safety features on two-lane highways. Under the direction of a Department of Transportation engineer, students complete plans and specifications for the projects. At a recent engineering career fair at NDSU, representatives from departments of transportation in North Dakota, South Dakota, Minnesota, Kansas, Missouri and numerous consultants were seeking students with these skills.

Software conversions. Information technology students with the Department of Transportation Support Center helped convert a number of existing programs to run with updated software programs. Conversions included moving Quattro Pro solutions to Microsoft Excel solutions. A number of Basic programs were converted to visual basic.net programs.

Software Tools. The Department of Transportation Support Center information technology students were instrumental in developing specialized software for the NDDOT. A Web survey tool was developed for the NDDOT Organizational Health Survey. The survey tool was developed so the core of the system can be used over and over with other surveys with a minimal effort. Additional NDDOT software was totally rewritten for greater usability as well.

MPC supports Scholarships at NDSU. Four $1,500 scholarships are funded each year at NDSU by the Mountain-Plains Consortium through a grant from the U.S. Department of Transportation. The University Transportation Engineering Scholarship recognizes academic performance and interest in transportation. Recipients were Molly Holleman, a junior from Benson, MN, majoring in civil engineering and William Doerr, a senior originally from Hettinger, ND, pursuing a double major in civil and construction engineering. The Paul E.R. Abrahamson Transportation Scholarship recognizes academic achievement and leadership and interest in agricultural transportation and logistics. Recipients were David Heinz, a senior from Cooperstown, ND, majoring in agribusiness and applied economics, and Chad Wegner a senior in business administration from Fargo. Eighteen scholarships have been awarded since they were established in 2002.



Holleman

Doerr

Heinz

Wegner

Students find real-world applications. Students in a graduate-level engineering course in quantitative modeling are applying their newly developed skills to snowplowing. UGPTI researchers Denver Tolliver and Kurt Johnson worked with Canan Bilen-Green, an assistant professor in the industrial and manufacturing engineering department and Troy Gilbertson, NDDOT maintenance supervisor, to introduce students to the complexities of snowplowing. As a course project, students apply quantitative modeling techniques to snowplowing operations to look for ways to improve the process.

NDSU Offers Military Logistics Master's Degree

Gannon

U.S. Army Capt. Jim Gannon said he was often frustrated during his recent tour of duty in Iraq because when a shipment left a distribution site, it was nearly impossible to track or change its direction. That delayed getting supplies to the officers who needed them.

A new program coordinated by the UGPTI aims to ease that problem by teaching officers how to more efficiently transport and track everything from ammunition to medical supplies. Gannon is one of 17 military officers and Department of the Army civilians who are the program's first students. Those students are expected to continue their defense-related careers for another 10-15 years.

The Master of Military Logistics is part of the interdisciplinary Transportation & Logistics Program offered by the College of Graduate and Interdisciplinary Studies. The Colleges of Agriculture, Food Systems, and Natural Resources; Arts, Humanities & Social Sciences; Business Administration; Engineering & Architecture; and Science & Mathematics participate in the program which is sponsored and coordinated by the UGPTI.

The Department of Defense selected the campus for a three-year pilot program. If successful, it could become permanent, said program manager Brian Kalk. The program will train officers to use technology such as radio-frequency identification tags to track and manage products, Kalk said.

The NDSU courses will also train officers on Geographic Information Systems and Global Positioning Systems, said Denver Tolliver, the academic program director. "Our primary goal for the program is to acquaint students with the most current thinking and technology about military logistics and supply chain management," Tolliver said.

Outreach

The UGPTI's staff members have close working relationships with professionals in government agencies and industry. Many UGPTI staff members have work experience as consultants and transportation professionals. Those relationships and that experience channeled into training programs and applied research. In addition, staff members are resources for colleagues to consult on emerging issues and technology. Results from the Institute's research programs are key components of outreach efforts.

MPC increases TLN offerings. The Mountain-Plains Consortium (MPC) expanded its short-course offerings via the Transportation Learning Network, the UGPTI's video and internet outreach system. A broad range of topics included updates on the use of superpave asphalt-rubber binders in road maintenance and rehabilitation, demographics of mobility-challenged residents in North Dakota, highway traffic impacts of large grain elevators, and fundamentals of freight railroad capacity. The effort was designed to bring research results at the MPC universities of Colorado State University, NDSU, the University of Utah and the University of Wyoming to a broader audience of professionals who could use the information in their day-to-day work.

Concrete seminars launched. The UGPTI's Transportation Learning Network (TLN) in March held the first in a series of concrete technical seminars. These concrete construction seminars are aimed at DOT and construction professionals. The initial seminar provided information on the impacts of weather conditions on concrete construction. "The seminars will provide professionals the latest information on concrete construction technology," notes TLN director Julie Rodriguez. "Our objective is to provide very targeted information that will have an impact on how these professionals do their work." Additional topics include concrete sawing, concrete engineering properties, and hydration and curing technology.

Advisory group for TLN. An executive advisory group of upper level state department of transportation officials was formed to help shape the programs of the UGPTI's TLN. "An important function of the TLN is to provide the latest information on emerging technology to professionals," notes TLN director Julie Rodriguez. This advisory group will help us better align what courses we offer and how we offer them to the needs of DOT professionals. It will also help us integrate our programs into the DOT training programs. The advisory group includes officials from DOTs in Montana, North Dakota, South Dakota, Utah, Wyoming and Utah.

Better communicators. For several years, MPC and TLN offered a graduate-level advanced technical writing class over its video network to help graduating engineers improve their writing skills. This year, the course was opened to professionals at state departments of transportation who wanted to audit the class. "The people taking the class from the DOTs weren't interested in receiving the credit, but they were interested in brushing up on their communication skills," notes TLN director Julie Rodriguez. University of Utah Professor Peter Martin is the instructor.

ITS and safety. Faster and more powerful computing equipment, the Internet, fiber-optic networks and other electronic technologies employed in intelligent transportation systems, have a significant potential for improving safety for commercial vehicle operators and the public. With support from MPC, researchers at the Transportation Safety Systems Center (TSSC) are examining applications of that technology in logistics and supply chain management. The research will examine what segments of the supply chain will be impacted most by the technology, what technologies have the greatest potential for improving safety and how the adoption of those technologies can be facilitated by motor carriers.

Training provided to transit employees in Detroit metro. Based on a recommendation from the Community Transportation Association of America (CTAA), the Suburban Mobility Authority for Regional Transportation (SMART) of Detroit, MI, contracted with the Small Urban & Rural Transit Center (SURTC) to provide customized training for its workers. SMART includes about 60 community partners in three counties and provides weekly transportation for 200,000 riders. SURTC customized training modules from CTAA for SMART drivers and other employees. Primary focus was on alternative delivery methods including interactive video conferencing, interactive websites, CDs, and DVDs. SURTC is developing a Passenger Service and Safety Certification training module and another on professional dispatching and scheduling.

Bus routing program moves ahead. SURTC selected the Enderlin, ND, school district to work with in testing its school bus routing program. SURTC is developing easy-to-use, low-cost software specifically designed to help rural and small urban school districts design bus routes that make the best use of buses and fuel while minimizing the amount of time students must spend on the bus. In addition SURTC is identifying common needs of North Dakota school districts in regard to school bus routing. Ultimately, SURTC plans to establish a help center to guide schools in routing buses more efficiently and explore policy issues related to school transportation funding. In addition, SURTC

TLN Addresses DOT Training Needs

The UGPTI through the TLN is launching a four-state initiative to provide technical training to department of transportation professionals.

Gary Berreth and Julie Rodriguez have met with an executive advisory group from the departments of transportation in North Dakota, Montana, South Dakota and Wyoming to identify training needs and challenges. A report outlining strategies for addressing those needs is expected to be complete by the end of 2006.

"We've already received indications from the DOTs that they want to proceed to the next level, to determine common training needs and find ways to cooperate in innovative and more cost effective ways of meeting those needs," Berreth says.

In the beginning, that may involve looking at training in each state to determine if it can be offered via video network or the Internet to other states. The UGPTI's Transportation Learning Network is already tailoring it's offerings to meet needs identified by the DOTs. A series of concrete seminars has been launched and several technical presentations have been offered.

Universities within the Mountain-Plains Consortium – NDSU, Colorado State University, South Dakota State University, the University of Utah, and the University of Wyoming – have agreed to provide additional content.

"As new training delivery technologies become available, we'll be looking at those as well," Rodriguez notes. For example, training may be offered via Internet video or as downloadable lessons that could be replayed on an iPod or computer.

DOTs in the region face similar challenges. Workloads are increasing. Requirements for career-long learning are becoming more intensive, and budgets are flat. "Our goal is to help the DOTs address training needs in that environment in a way that meets the needs of their staffs efficiently and effectively," Rodriguez says.

will explore the possibility of using school buses to transport non-students in rural areas.

School transportation efficiency training. SURTC will conduct its School Transportation Efficiency training program in 2006 with six modules provided at locations throughout North Dakota. The training is being provided under contract with the N.D. Department of Public Instruction with funding provided from the 2005 Session of the North Dakota Legislature. Topics include coordinated maintenance, routing, technology, and safety and security.

New tools. The Department of Transportation Support Center (DOTSC) information technology students are involved in two ongoing development projects. The first is to develop a data mining application that utilizes the NDDOT's weigh-in-motion data to develop quality

control procedures followed by building truck load spectrum files for use within the National Cooperative Highway Research Program's new pavement design procedure. The second project is to develop a Web-based pavement performance tool that will allow the user to analyze pavement performance by user-selected criteria via a Web browser.

A door to the University. DOTSC enhanced efforts to increase access for the NDDOT to university-wide intellectual knowledge. For example, a collaborative project between the Department of Civil Engineering and the NDDOT research group was initiated to utilize the new National Cooperative Highway Research Program's new design procedure to investigate truck damage models and damage accumulated during spring thaw.

Pavement preservation assistance. Work continued in support of the pavement preservation initiative. The effort consisted primarily of performance analysis of preservation strategies. Follow up analysis of the effectiveness of the NDDOT's use of a small-scale surfacing machine to treat depressed transverse cracks was undertaken. Preliminary findings suggest that this low cost preservation strategy has a significant effect on increasing pavement smoothness and as a treatment prior to thin overlays. The Upper Great Plains Transportation Institute also provided assistance to the NDDOT construction strategies group in assessing ways to reduce concrete construction costs.

Pavement management. DOTSC helped the pavement management group of the NDDOT by updating the departments existing pavement management software. Performance prediction was changed from predicting future distress to predicting future international roughness index values based primarily on prior research on the performance of the department's rehabilitation strategies. New decision trees were developed to align with current department preservation and rehabilitation investment strategies. A mentoring effort was started to train the department's new pavement management engineer.

Maintenance support. Support of other NDDOT business objectives included analysis of maintenance service levels and change in geometric and performance standards for each highway performance classification system. As part of this effort a document addressing functional requirements for an updated Maintenance Management System was developed and submitted to the department.

Software for motor carrier safety. Staff at UGPTI's TSSC continue to develop and maintain high-quality software for use by federal and state commercial vehicle safety specialists nationwide. The work is funded by the Federal Motor Carrier Safety Administration. The software applications are used by specialists in many functions, including helping to conduct inspections, checking on driver's license status, reviewing information from past inspections, reviewing carriers' safety and violation history, and developing case files for enforcement activities. This FMCSA work is the primary activity of the Transportation Safety Systems Center.

COMPASS provides new direction. TSSC is helping the Federal Motor Carrier Safety Administration realign its information technology systems with its business operations. Under the initiative, called COMPASS, the FMCSA's information technology systems will be integrated and modernized and will allow for simplified information sharing with motor carriers and other customers. The Transportation Safety Systems Center has a long history of developing and maintaining software for the agency.

Border help. TSSC is working with the Federal Motor Carrier Safety Administration and U.S. Customs and Border Protection to improve truck and bus safety and security at U.S. borders. The center is helping to bridge FMCSA and CBP computer systems and databases to facilitate the clearance of commercial carriers, vehicles and drivers. The goal is to identify and contain unsafe vehicles while speeding the flow of safe vehicles and goods crossing the border.

Small Urban and Rural Transportation Operations Coalition. The Advanced Traffic Analysis Center (ATAC) launched this initiative to focus on the transportation operation needs of rural and small communities. The initiative, with support from the Federal Highway Administration and the Mountain-Plains Consortium, was embraced as part of the National Transportation Operations Coalition. Key transportation organizations participating on the coalition subcommittee include: American Association of State Highway and Transportation Officials, American Public Works Association, Federal Highway Administration, Institute of Transportation Engineers, Intelligent Transportation Society of America, National Association of County Engineers, National Association of Development Organizations, and National Association of Regional Councils.

North Dakota Traffic Operations Roundtable. The roundtable was established by ATAC in 2004 to support traffic engineers across North Dakota and the region and allow peers to share ideas, identify critical issues, provide experiences, and guide ATAC's traffic operations activities. A summer 2005 meeting held in Minot included discussions on safety impacts of traffic signal operations during power outages as well as presentations on emerging traffic signal controller technologies. At Fargo's March 2006 meeting, the group requested that ATAC study the implications of dark traffic signal operations and review practices in other states. The roundtable is supported by the Federal Highway Administration and the NDDOT.

County road planning process. With support from MPC, NDSU researchers developed a process to help county officials develop plans to maintain and improve their road systems. The process is designed to make the best use of limited resources and be easily adapted to a county's unique situation. A case study was developed with help from Cass County, ND, and Mendicino County, CA. Researchers plan to develop a workbook to lead planners through the process.

Investigating Runway Roughness

Johnson

The UGPTI and the North Dakota Aeronautics Commission are pioneering the use of automated highway pavement assessment techniques to measure the roughness of airport runways.

The Federal Aviation Administration requires all general aviation airports to conduct pavement distress surveys every three to four years. In 2005, the North Dakota Aeronautics Commission asked the contractor conducting the surveys to collect roughness information on all surfaced runways in the state. Because of his experience assessing ride quality on the state's highways, Kurt Johnson, director of the UGPTI's Department of Transportation Support Center, was called to help.

The contractor used a specially equipped N.D. Department of Transportation van to collect the data. Then Johnson worked closely with the engineering firm Kadrmas, Lee and Jackson to analyze and interpret that data.

When comparing roughness measurements to pavement distress measurements, Johnson found that either method provided a good overview of runway condition. Consequently, he worked with the commission to develop roughness reports for all of the airports measured.

Johnson is working to develop a mathematical relationship between the International Roughness Index and the Pavement Condition Index. Such a relationship might make it possible to use roughness measurements in alternating assessment cycles to meet FAA assessment requirements, making the process faster and cheaper. The challenge will be in gaining FAA approval.

In addition, Johnson is developing roughness performance standards for evaluating various runway rehabilitation strategies and is investigating the impact of roughness on different types of aircraft.

Research

The UGPTI's research program has roots that are more than 40 years deep. Originally focused on North Dakota commodity transportation, the Institute's research portfolio is now national in scope. The focus of that portfolio is on the mobility of people and freight in rural areas and communities and small cities.

Highway Planning

Freight corridors. Regional freight corridors provide for the efficient movement of freight which improves traffic flow and limits impediments. Freight corridors require jurisdictions to cooperate in setting standards, regulations and planning. With Mountain-Plains Consortium support, researchers are setting the criteria necessary for analyzing data needed to establish regional freight corridors. The study will give officials and policy makers tools to use in evaluating potential freight corridors.

Teddy Roosevelt Express. When the Montana Department of Transportation began to examine the feasibility of expanding the U.S. Highway 2/Montana Highway 16 corridor to four lanes, they assembled an expert panel to guide the consultants. UGPTI researchers are helping Montana officials identify economic, regulatory, and operational changes that would result in traffic and safety conditions that would justify four lanes on the Theodore Roosevelt Expressway.

Modeling pavement deterioration. NDSU and University of Wyoming researchers are studying data from highways across the region to develop a computer model that predicts how long various pavements will last, how fast they deteriorate and when then need repair or replacement. The model, designed for cold-weather regions, will use traffic counts and environmental measurements such as solar radiation, temperature extremes and precipitation. It will help highway planners manage their highway repair and replacement programs.

Load carrying capacity. An analysis of pavement damage during spring thaw was developed and the results prompted a change to the state's load restriction policy. The new policy places a greater emphasis on axle weight rather than gross vehicle weight and removes spring load restrictions from the top three levels of highway in the state to aid in the economic movement of goods during this eight-week period. This new policy was adopted by the state legislature and was put in place the spring of 2006. The cost to remove spring load restrictions for the entire state network was developed as part of the UGPTI's study for the state's legislative Transportation Committee.

Investment and performance classification studies. The Department of Transportation Support Center (DOTSC) supported the NDDOT strategic plan objectives to refine and implement highway modal investment strategy, and refine and implement a roadway classification system. As part of this effort the economic analysis program called HERS-ST for statewide modal investment was updated and subsections of the database corresponding to district boundaries for future local investment analysis were included. The analysis included the safety impacts of potential modal and performance classification alternatives. A final report and executive summary was provided to the department.

Rail

Guiding rail investment. UGPTI researchers are developing a system to help federal and state agencies as well as railroads decide how best to invest the limited funds available for upgrading and maintaining rail lines. The GIS-based planning model being developed goes further than current models that estimate the cost-benefit of single line segments. It simulates the network effects of potential improvements as well as the effects of implementing two or more projects in conjunction with each other.

ND rail plan update. State and local officials and rail users look to the ND Department of Transportation's state rail plan for information and guidance because it serves as a guide for state investment in rail lines. UGPTI researchers are updating that document. The researchers and DOT officials anticipate that the plan will outline a shared vision for the state's rail system that incorporates input from the private sector and all levels of government. The plan will outline an inclusive and ongoing strategic rail planning process that incorporates assistance programs, freight mobility issues and safety concerns.

Rail Rate Investigation. UGPTI researchers provided technical expertise to the North Dakota Public Service Commission on rail-related matters such as grain elevator shipping patterns, railroad operations, and revenue-to-variable cost data. The Commission sought UGPTI's expertise as part of its plans to pursue a rate complaint before the federal Surface Transportation Board. The complaint, authorized by the 2005 North Dakota Legislature, would involve rail shipments of grain originating in North Dakota. The Commission believes that its activities in the case to date caused the state's major rail carriers to implement a series of rate reductions that amounted to nearly $10 million in annual savings for state grain shippers and growers. These reductions and the pending Surface Transportation Board rate complaint rulemaking proceedings prompted the PSC to postpone its plans to file a complaint. Instead, it will continue to monitor the railroads' rates and participate in the board's rulemaking proceedings.

Estimating Trips to the Grain Elevator

Tolliver

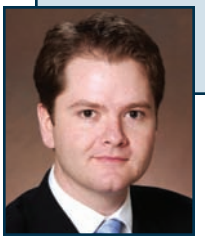
Truck traffic to local grain elevators can have a significant impact on local roads. The ability to predict that truck traffic will help planners address traffic and safety concerns and road maintenance issues.

Mountain-Plains Consortium researchers Alan Dybing and Denver Tolliver studied a statewide grain movement database maintained by the UGPTI for the North Dakota Public Service Commission to learn how grain moves to various elevators. They correlated that information to transportation and land-use data to develop a computer model to estimate the volume of truck trips generated by various-sized elevators.

"The work will be useful in road planning to evaluate the draw of trucks to elevators based on the elevator's characteristics," Dybing explained. For example, large elevators that ship on shuttle trains draw more traffic than small elevators. That traffic also includes larger and heavier trucks.

"The model is designed to be applied to grain elevators in any state," Dybing says. "If you look at the total bushels handled, you can break that out into truckloads by looking at the profile of the trucks commonly used in that region or state."

Dybing received an honorable mention for the work in the Canadian Transportation Research Forum paper competition. He also presented a paper on the research at the 2006 Transportation Research Board (TRB) Annual Meeting. That paper will be published in the TRB's Transportation Research Record.



Dybing

Transit & Personal Mobility

Students help gauge bus satisfaction. With the help of students who rode buses to collect data, the Small Urban & Rural Transit Center (SURTC) helped Fargo-Moorhead's Metropolitan Area Transit gauge the satisfaction of its riders. In November 2005, students rode all routes in Fargo-Moorhead from dawn until well past dusk. They asked questions about how frequently riders ride the bus, how friendly they think the drivers are, how easy it is to get information about bus routes, the cleanliness of buses, quality of buses, and other issues. The city used the survey to identify areas of concern and will use results in developing a five-year transit plan.

Studying the bus industry. SURTC researchers are examining the financial health of the small bus manufacturing industry and examining bus purchasing trends of the last 20 years. They are also examining Federal Transit Administration and local procurement policies and their impact on the manufacturing industry. Of the 50,000 transit vehicles purchased with Federal Transit Administration support from 1995 to 2001, 26 percent were buses smaller than 30 feet long and more than 35 percent were vans and other small vehicles. The study will also evaluate the impact of the Clean Air Act, the Americans with Disabilities Act, Buy America requirements and other laws and requirements. Researchers will attempt to identify incentives to adopting new technologies and the impact that standardization of bus specifications would have on production efficiency and cost.

Evaluating transit requirements. SURTC is helping the NDDOT develop a matrix to be used to compare transit management plans used by other states in the region. Each state has its own regulations for transit providers in addition to federal regulations. The matrix will help NDDOT look at its requirements and compare them to those of surrounding states. Changes and updates to requirements have resulted in a more complex set of regulations than necessary. This effort should result in a new state management plan which will provide a clear set of instructions for transit providers.

Researchers work to improve transit on the Turtle Mountain Reservation. SURTC researchers are working with officials on the Turtle Mountain Indian Reservation to develop a coordinated transit plan as required for local agencies to receive federal funding from the Federal Transit Administration. More than 15 agencies have indicated that improved transit is a high priority for successfully reaching clients. Examples include the Turtle Mountain Community College which indicates enrollment suffers because students lack transportation; local health care agencies say clients have difficulties reaching medical facilities; and the local Job Service office finds that many in employment training programs drop out because they do not have reliable transportation. Rolette County and the Turtle Mountain Reservation are more densely populated than much of rural North Dakota and the poverty, health issues and educational needs make improved transit a priority.

A look at travel potential of elderly in rural areas. The proportion of elderly remaining in small towns and rural areas continues to grow. A SURTC study should help researchers and policy makers assess the situation. To date, very little data has been collected on the travel potential of the elderly, particularly women, in rural areas. The number of Americans older than 65 will more than double by 2030. Currently, about 23 percent of those older than 65 live in rural areas. The work is being done in collaboration with the Institute of Transportation Studies at the University of California-Davis.

Express bus. Nearly 50 percent of commuters surveyed by SURTC indicated they would use an "express" bus for their 50-mile commute between Fargo-Moorhead and Wahpeton-Breckenridge. The survey was conducted in cooperation with the Fargo-Moorhead Metropolitan Council of Governments at the request of Clay County Rural Transit. The region has seen an increase in the exchange of workers and commerce between the two towns. The survey found that most people travel between Wahpeton-Breckenridge and Fargo-Moorhead for employment, with more than 30 percent working in North Fargo.

Paratransit service boundaries. Fargo-Moorhead's Metropolitan Area Transit (MAT) currently goes beyond the requirements of the Americans with Disabilities Act. However, continuing to do so will be a challenge in the face of a growing metropolitan area and increasing costs. To best address changing needs, MAT contracted with SURTC to develop service zones as well as fare structures that will help it provide

affordable, high quality service to its riders while remaining in compliance with ADA requirements.

Projecting mobility-challenged populations. Earlier this year SURTC published a report Projecting Changes in Mobility-Challenged Populations in North Dakota: 2005-2025. Researchers generated population projections for each of North Dakota's 53 counties for a number of mobility-dependent target populations including: the elderly, those with go-outside-the home disabilities, children enrolled in school, and individuals living in households without vehicles. The projections will be valuable to transit policy makers, other researchers and transit agencies.

What to do when the lights go out. The

Commuter Vanpooling in North Dakota

Mielke

High gas prices and an evolution in demographics and business in North Dakota may revive interest in vanpools.

The Small Urban & Rural Transit Center (SURTC) and the North Dakota Department of Commerce explored the feasibility of establishing vanpools across the state. "We're looking at how this concept has changed since North Dakota last had an aggressive program in the late '70s and early '80s," says UGPTI researcher Jon Mielke.

There are new federal incentives for vanpooling programs. "Major employers like Pro-Gold, Dakota Growers Pasta, Marvin Windows and others have facilities located in relatively small communities that draw employees from a large area. We also have employees choosing to live in rural areas and commute to larger communities for employment," Mielke notes.

The study surveyed employers across the state to learn about employment trends and employer attitudes toward ride sharing. The study also analyzed 15 vanpool programs that are operated by state and local entities around the country. Drawing from the most attractive features of those programs, the study presented a set of recommendations that may be considered if North Dakota decides to reinstate a state commuter vanpool program.

Traffic Analysis

Advanced Traffic Analysis Center (ATAC) is facilitating a change in North Dakota laws to improve safety at signalized intersections during power failures. The change, sponsored unanimously by the N.D. Traffic Operations Roundtable, would require drivers to treat dark traffic signals as an all-way stop sign. The effort is supported by the Federal Highway Administration and the NDDOT.

Hardware-in-the-loop traffic simulation. After several years of research and development, a controller interface device developed by ATAC is now used by researchers at the University of Virginia, Texas Tech University, and Siemens ITS. The device, called ATACid, enables researchers to model complex traffic control problems using hardware-in-the-loop – actual traffic control systems – in VISSIM traffic simulation model. To date, six units have been sold and researchers are developing interfaces with other traffic simulation software packages DYNASIM and CORSIM interfaces. The effort is funded by the Federal Highway Administration and the NDDOT.

Work zone mobility and safety. The purpose of this project is to enhance safety and traffic operations in highway work zones through: 1) effective management and control strategies; 2) applications of advanced technologies (ITS); 3) accumulating work zone performance data to support decision-making; and 4) successful public awareness and outreach. During Phase 1, which started spring of 2006, ATAC has been collecting traffic and speed data along the I-29 construction corridor. ATAC also worked with the N.D. Highway Patrol to evaluate impact of speed enforcement on corridor speeds. The effort is supported by the Federal Highway Administration and the NDDOT.

Review of I-94 work zone traffic control. ATAC conducted a review of two work zones along I-94: eastbound direction of I-94 between Valley City and Tower City; and westbound between Eckelson and Oakes. A field review of the work zones, including videotaping selected sections, was conducted to identify issues with signage and lane-closure requirements. ATAC made several recommendations to the NDDOT, including removal of redundant signs, relocating speed reduction signs, and adding signs for uneven lanes. The effort was supported by the Federal Highway Administration and the NDDOT.

Grand Forks school safety. ATAC worked with the Grand Forks/East Grand Forks Metropolitan Planning Organization, the Safe Kids Coalition, and the Grand Forks school district to conduct extensive traffic operations and safety reviews for three elementary schools: Ben Franklin, J. Nelson Kelly, and Viking in Grand Forks. ATAC staff and students collected data during school dismissal periods; noted issues in operations and traffic control devices; and suggested improvements. The Grand Forks/East Grand Forks Metropolitan Planning Organization and the Safe Kids Coalition provided funding for the effort.

Bismarck Washington Street analysis support. ATAC reviewed results from extensive technical analysis for evaluating future strategies to alleviate traffic problems on Washington Street in Bismarck. ATAC staff worked with the city of Bismarck to interpret the results.

Evaluating traffic near NDSU. At the request of the NDSU Facilities Management Department, ATAC evaluated pedestrian and vehicle safety in the NDSU Alumni Center/Post Office area and provided potential solutions.

Radar traffic data collection system. ATAC acquired five Wavetronix advanced radar sensors to be used in non-intrusive traffic data collection. ATAC students designed and built mounting bases for the sensors that meet manufacturer recommended operating guidelines and facilitate field deployment. The sensors were tested and calibrated along I-29 in Fargo. They are currently being used for collecting data on the I-29 work zone. The work was funded by the Federal Highway Administration and the NDDOT.

I-29 user-cost estimates. ATAC estimated region-wide user costs resulting from the I-29 construction for 2006. The analysis included estimating additional travel time using the Fargo-Moorhead Metropolitan Council of Governments regional travel model and additional delay due to increased traffic at alternative routes. The analysis was supported by the NDDOT.

Dynamic message sign guidelines. ATAC is working with the NDDOT to develop statewide guidelines for using dynamic message signs to ensure consistency across the state and enhance mobility and safety of travelers. An extensive review of federal guidelines and practices in other states has been completed. The final

Traffic Operations Field Study Launched

Smadi

The Advanced Traffic Analysis Center (ATAC) and the city of Fargo are cooperating to evaluate new technology for improving traffic signal operations.

Last winter and spring, traffic signal control technology and communications equipment were installed at the intersection of 12th Ave. N. and 18th St. near NDSU. ATAC is collecting data via the city of Fargo's fiber optic network using four Autoscope image processing cameras. The city has access to the data, research findings, and use of a video surveillance camera with a powerful zoom that can support traffic management during special events. Traffic Control Corp. supplied the necessary equipment for the project and NDSU Network Services assisted in design and installation.

The intersection is essentially a real-world laboratory that allows ATAC to collect detailed data on traffic characteristics and traffic signal controller operations in order to explore detection and control improvements. Various detection strategies and traffic controller operations are being evaluated to determine their effects on intersection operation in terms of traffic delay. In addition, traffic data will be collected continuously to determine changes in traffic conditions during typical daily operations and during special events (i.e., NDSU sporting and Fargo Dome events).

"We've seen a tremendous emphasis on transportation system operations. This is very evident in the new federal highway bill, which calls for including operations in metropolitan and statewide planning and developing standards for real-time system management information," notes ATAC director Ayman Smadi. "This is a local step in that direction." The effort is supported by the Federal Highway Administration and the N.D. Department of Transportation.

guidelines will be submitted to the NDDOT by the end of 2006. The project was funded by the NDDOT and by the Federal Highway Administration.

Comparing condition reporting systems. ATAC examined the requirements of statewide road condition reporting systems as part of a project for the North/West Passage Pooled Fund Study. The review included experiences of these systems in Arizona, Minnesota, South Dakota, and Wisconsin.

North/West Passage. ATAC has been a participant in the North/West Passage Pooled Fund Study since its inception in 2003. The study currently includes the states of Wisconsin, Minnesota, North Dakota, South Dakota, Montana, Idaho, Wyoming, and Washington. ATAC maintains the study web site and is participating in the corridor strategic plan.

Traffic Planning. ATAC houses all regional travel models for the three metropolitan planning organizations in North Dakota. As such, ATAC provides, maintains, runs, and updates these models in order to support transportation planning activities. The multi-year partnership is supported by the NDDOT, the Grand Forks/East Grand Forks Metropolitan Planning Organization, the Fargo-Moorhead Metropolitan Council of Governments, and the Bismarck-Mandan Metropolitan Planning Organization. During the 2005-2006 fiscal year, ATAC:

- Completed a major update of the Grand Forks/East Grand Forks Metropolitan Planning Organization's regional travel model. The

update transferred the model to a more advanced software system, updated traffic analysis zones, updated the transportation network, and enhanced the model functionality and data management by using geographic information systems.

- Performed a detailed analysis to assist the NDDOT in designing the 13th Avenue and 9th Street S.E. intersection in West Fargo for 2030 traffic projections.
- Performed a detailed analysis to assist NDDOT in designing the I-94 and 45th Street interchange in Fargo based on 2030 traffic projections. The analysis provided 2030 traffic and truck projections, including turning movement at each ramp to be used in a traffic operations study.
- Conducted an analysis to estimate traffic for the 34th Street and Highway 10 area in Dilworth. The main purpose of the analysis was to examine the impacts of plans to locate a Wal-Mart store in the area. The work was funded by the Fargo-Moorhead Metropolitan Council of Governments.
- Provided traffic projections to support the evaluation of four interchange design alternatives for the 34th Street and I-94 interchange in Moorhead.
- Provided updated traffic projects to support the development of a growth plan for the city of Dilworth, MN, using the Fargo-Moorhead Metropolitan Council of Government's regional travel model based on projected socioeconomic data and network configuration. The work was funded by the Fargo-Moorhead Metropolitan Council of Governments.
- Worked with Bismarck-Mandan Metropolitan Planning Organization and SEH Consulting by providing updated 2030 traffic projections based on new data collected for the city of Lincoln. The data included a mail-in survey as well as travel time studies.
- Provided the NDDOT with user cost estimates as a result of the 2006 University Drive reconstruction project. The analysis examined planned work phases and used the Fargo-Moorhead Metropolitan Council of Governments' regional travel model to estimate additional costs which were used by the NDDOT to determine contractor incentives and disincentives.

Summit Yields Direction for Center

Berreth

More than 90 policy makers, elected county officials, emergency planners and responders, and representatives from transportation agencies and private transportation firms attended a Rural Transportation Safety and Security Summit in Bismarck August 23-24.

The conference identified and increased awareness of safety and security risks in the state and region. North Dakota Governor John Hoeven and Senator Kent Conrad provided a state and federal overview of transportation safety and security. Representatives from the NDDOT, N.D. Department of Homeland Security, N.D. Highway Patrol, N.D. Aeronautics Commission, Federal Transportation Security Administration, Federal Highway Administration, the Minnesota Department of Transportation, NDSU, and private industry outlined their approaches to transportation safety and security issues.

The conference was a launching point for the UGPTI's Rural Transportation Safety and Security Center. "We're taking the input from the summit and using it to refine the center's objectives and develop an outline of research and outreach activities," says Gary Berreth, director of the center. "The participation of so many diverse groups and agencies in the summit will be a real benefit to us in that process."

The conference was sponsored by the Federal Highway Administration, the N.D. Department of Transportation, the UGPTI and NDSU. Presentations and other information from the summit are available at ***www.ugpti.org/conf/rtssc/****.*

Agricultural Research

Transportation of U.S. grains, modal share analysis. This analysis of grain movements by transport mode is a continuation in a series. This work by the Agricultural and Industrial Freight Center provides information about changes in the competitiveness and relative efficiencies among the modes. The goal of this analysis was to estimate the tonnages of grain railed, barged, and trucked, using secondary data sources. The report analyzes the movements of corn, wheat, soybeans, sorghum, barley, and rye to either the domestic market or to U.S. ports for export. The UGPTI works with the USDA in collecting data and updating the time series presentations in the report.

Grain movement database. The Agricultural and Industrial Freight Center summarizes grain movement reports from each elevator in North Dakota to describe distribution patterns and shipment characteristics – including destination, mode (rail or truck), origin, time, and commodity. Annual reports and monthly updates are used to encourage competition within the grain industry and to identify research needs and market trends. Support is provided by the North Dakota Wheat Commission.

Grain transportation weekly report. The UGPTI provides the USDA with updated market and service information for the rail section of the weekly Grain Transportation Report. The report is distributed to hundreds of readers in international and domestic grain markets as a source of market intelligence regarding the current state and trends in the U.S. grain market and selected international grain markets.

Other Research

Pacific Northwest Freight Mobility Center. NDSU, Washington State University, and the University of Washington have developed a joint research and outreach center that focuses on freight mobility for the Northwest region of the United States. This regional approach is vital to solving existing issues and enhancing the future for freight transportation because of the interstate nature of commerce and the inter-jurisdictional issues that arise from it. The first year of activities included a survey of state departments of transportation, a compilation of existing freight data resources and IT applications, and a study of the freight economic activity in the corridor.

NDSU involved in ENO project. Researchers are working to update and improve the ENO Transportation Foundation's Transportation in America publication. The report provides transportation statistical data for all modes of transportation and various facets of the transportation industry. The researchers are collecting data, improving methods, and calculating transportation statistics to provide a comprehensive report.

National Study Looks at Commercial Driver Risk Factors

Lantz

UGPTI's Transportation Safety Systems Center is a partner in a national study designed to examine risk factors associated with drivers of commercial vehicles.

Researchers in a pilot study are identifying, verifying, quantifying and prioritizing commercial driver risk factors. It will focus on personal factors such as demographic characteristics, medical conditions, personality traits and performance capabilities. It will also include information on carrier type, work environment and compensation methods.

"The effort hopes to establish the role these factors play in the safe operation of commercial vehicles," notes Brenda Lantz, the UGPTI researcher involved in the project. "Our experience in working with commercial carriers and in collecting and analyzing data related to carriers and their drivers was excellent background for this project."

The effort is being funded by the Federal Motor Carrier Safety Administration and is being led by researchers from the global consulting firm of Booz Allen Hamilton. Researchers from the Virginia Tech Transportation Institute are also involved.

Lantz is analyzing existing data on driver risk factors to help establish groundwork for the study. She will help the research team make sure drivers and carriers selected for the pilot study are representative of drivers and carriers overall. If the pilot project is successful, the study will be expanded to a large-scale study.

"Ultimately, the goal is to identify risk factors and learn how seriously each factor impacts driver safety. Based on that information, carriers and regulators will be able to put into place mechanisms that counteract those factors." Lantz says.

NDDOT organizational health. Assistance was provided to the NDDOT to complete an updated assessment of the organization's health. An employee satisfaction survey was modified to capture information about new issues of concern and to assess perceptions of change over time. In 2005, a survey tool was developed to easily update the survey via the web. Assistance was provided in the 2006 collection and analysis of the new survey information and a report summarizing the findings was provided to the department.

Correlating driver convictions with carrier risk. Transportation Safety Systems Center (TSSC) researchers are using information on driver convictions from the Commercial Driver's License Information System to better identify high-risk motor carriers. By electronically cross-referencing information in the system with information from commercial vehicle inspection and crash reports, researchers are able to create a driver safety index for commercial carriers. This index, when combined with other information and data, will help the Federal Motor Carrier Safety Administration and other agencies better target their enforcement activities.

Examining How Truck Regulation Differences Hamper Competitiveness

Berwick

Permitting and regulations on truck size and weight that vary from state to state or from province to state make shipping freight more complex and expensive, and limit the competitiveness of the region's businesses.

Researchers with UGPTI's Biennial Strategic Freight Analysis Program compiled truck size and weight regulations from the region's U.S. states and Canadian provinces to identify key issues and determine the impact the varying regulations had on regional trade. Regulations are established to enhance safety and limit damage to roads and bridges. Differences in that infrastructure, the age of the regulations, and other policy considerations result in the differences.

"The research will allow researchers and policy makers to come together and look at key areas where improvements can be made," explains researcher Mark Berwick.

The effort is part of the N.D. Department of Transportation's (DOT) strategic plan. The DOT commissioned and provided funding for the work. "Much of the Upper Great Plains region has only limited access to water and rail transportation. Efficient truck transportation for industries in the region is crucial to maintaining, stimulating and diversifying economic growth," Berwick says.

Helping Producers with Supply Chain Challenges

Vachal

What happens when an organically grown potato leaves a field in North Dakota? How long does it take to reach a consumer? Is it still identified as organic? Is it still in good condition when it gets there? Do shippers handle it properly? What's a potato producer to do?

UGPTI researchers are working with U.S. Department of Agriculture colleagues to develop resource modules for producers about emerging supply chain management trends in food marketing channels. They're using a focus group of North Dakota potato producers to test the materials.

"As retailers become more concentrated, we're also seeing them try to differentiate themselves to serve niche markets for products such as organic or ethnic foods. Concerns over food safety and security are major issues and technology is emerging to help track product movement and quality," notes UGPTI research associate Kim Vachal.

"Our approach was to look at how to help small and midsize producers, to assemble materials that tell them, 'Here's what you need to know about these trends,'" says Debbie Tropp a cooperator in the project from the USDA's Agricultural Marketing Service. "We want to help producers learn how these trends will influence their business relationships with shippers and commercial food buyers."

The first module, focusing on technology, is expected to be ready in late 2006. The module will explain how food marketing is moving beyond bar codes to radio frequency identification tags and other technology that can help producers, shippers and retailers track and share information on product location, quality and characteristics.

The partnership between UGPTI and USDA is a natural, says Tropp. "We've worked with NDSU for a long time," she says."The people there are very timely and responsive to our needs."

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July 1, 2005 – June 30, 2006

Conrad, Anderson Honored at Awards Banquet

Nearly 150 people gathered at the Ramada Plaza Suites Wednesday night, Oct. 11, 2005, for the 10th Annual Upper Great Plains Transportation Institute Awards Banquet. Honorees were Dale Anderson and Senator Kent Conrad.

Anderson received the institute's first Chairman's Award in recognition of his contributions to transportation research, education, and outreach at NDSU, and contributions to the viability of the Upper Great Plains Transportation Institute.

Anderson was director of the Upper Great Plains Transportation Institute from 1972-1974 and is credited with establishing a stable base of staff and funding for the program. He served on the UGPTI Advisory Council representing the Greater North Dakota Association from 1997 to 2004. He served as chair of the council from 2000 to 2002.

Gene Griffin, Sen. Kent Conrad, Dale Anderson, Dave Sprynczynatyk

"The Upper Great Plains Transportation Institute has become a very dear and valuable part of North Dakota," Anderson said. He described the tenuous nature of the institute in its early years and complimented subsequent NDSU and institute administrators for continuing to build and expand the institute. "Research, education and information continue to be the foundation of your strong programs."

Senator Kent Conrad received the institute's highest award, the John M. Agrey Award, in recognition of his service to transportation in the region. The award is named for John M. Agrey, a pioneer, innovator, and an advocate for transportation in North Dakota.

"Transportation is one of the keys to the economic future of our state," Conrad said. "This award means a great deal to me." In introducing Conrad, NDSU President Joseph Chapman recognized his efforts in developing the recently-passed transportation bill. The bill includes more than $8 million in funding for the transportation institute.

Dave Sprynczynatyk, director of the North Dakota Department of Transportation, is chair of the Upper Great Plains Transportation Institute's Advisory Board. In his opening remarks, Sprynczynatyk said his colleagues around the country are quite envious of his department's relationship with NDSU and the transportation institute. "We are able to have the institute's staff undertake a number of special studies we're not able to do internally. And perhaps more importantly, we're able to work with the institute to attract young people into the transportation industry."

Publications

Staff Papers

SP-159 Mobility of NDSU Students Transit Survey Results - Year 2
SP-160 Mobility of Concordia Students Transit Survey Results - Year 2
SP-161 Mobility of MSUM Students Transit Survey Results - Year 2
SP-162 The Design & Implementation of a Web-Accessible Library Database (WALDB) Containing Materials for the Rural Transit Assistance Program (RTAP)
SP-163 Projecting Changes in Mobility-Challenged Populations in North Dakota: 2005-2025

Departmental Publications

DP-167 Farm-to-Market Transportation Patterns and Truck Use in the Northern Plains
DP-168 Rail Grain Indicators Industry Survey, 2004-05
DP-169 U.S. Grain Rail Market Indicators, 2004-05
DP-171 ITS Transit Case Studies: Making a Case for Coordination of Community Transportation Services Using ITS
DP-172 North Dakota Grain and Oilseed Transportation Statistics, 2004-05
DP-173 Annual North Dakota Elevator Marketing Report, 2004-05 (11/05)
DP-174 Vanpooling in North Dakota: Feasibility and Operating Scenarios

Mountain-Plains Consortium Publications

MPC 05-172 Impact Performance Testing of Roadway Safety and Security Barriers, 2004-05
MPC 05-173 Composite Repair of Full-Scale Timber Bridge Chord Members through the Process of Shear Spiking, 2004-05
MPC 05-174 Review of the Effectiveness of the High Occupancy Vehicle (HOV) Lanes Extension, 2004-05
MPC 05-175 Traveler Information Systems: Evaluation of UDOT's ATIS Technologies
MPC 05-176 Utah Intersection Safety - Recurrent Crash Sites: Identification, Issues and Factors, 2004-05
MPC 05-177 Evaluation of Strategic Logistics of Rural Firms, 2004-05
MPC 06-178 Express Bus Transit Study: A Case Study
MPC 06-179 Utilization of Wyoming Bottom Ash in Asphalt Mixes
MPC 06-180 Evaluating the Effectiveness of Hot-Poured Crack Surfacing Material
MPC 06-181 Assessment of Thermal Stresses in Asphalt Pavements Due to Environmental Conditions
MPC 06-182 Adaptive Signal Control IV: Evaluation of the Adaptive Traffic Control System in Park City, Utah
MPC 06-183 A Process for County Road Planning

*Academic Programs • Advanced Traffic Analysis Center • Agricultural and Industrial Freight Center • Department of Transportation Support Center • Mountain-Plains Consortium • Small Urban & Rural Transit Center • Biennial Strategic Freight Analysis Center • Transportation Learning Network • Transportation Safety Systems Center • Rural Transportation Safety and Security Center •