

2009-2010

UPPER GREAT PLAINS TRANSPORTATION INSTITUTE
NORTH DAKOTA STATE UNIVERSITY, FARGO

A N N U A L
R E P O R T





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DIRECTOR'S MESSAGE



GENE GRIFFIN

Census figures from 2010 put North Dakota's population at more than 672,500, just over 8,000 people shy of the historic high reached in 1930. That's good news for North Dakota, but poses challenges. That population growth is linked to growth in the energy and other industries, a stable economy and strong business investment. Supporting and sustaining that growth will require additional investments, not the least of which will be those required to maintain and upgrade the state's transportation infrastructure.

The UGPTI facilitated meetings in the spring of 2010 to help the NDDOT gather input on its strategic plan. We heard from people across the state with concerns about the deteriorating condition of roads and bridges and the need to carry more and heavier loads. The need is particularly acute in western North Dakota to support energy development. At the same time, mobility is needed to support business and industry and provide the quality of life demanded by a growing population. The state's aging population is also seeking transportation for shopping, socializing and medical needs.

These challenges will be met as much by information and data as by vehicles and roads. Today, the Internet and other communications technologies are making transportation safer, more convenient, more efficient and more competitive than ever before. Data, and the ability to move it, analyze it, and use it, are as important to transportation systems as vehicles and fuel.

At the UGPTI, our bread and butter has been the collection and analysis of information for the improvement of the transportation industry, particularly in the Upper Great Plains region and other rural areas. Our dedicated staff provides expert assistance to businesses, agricultural producers and industries, helping them find the most efficient way to bring in raw materials and ship out their finished goods so that they can compete in a global economy. Today that means helping them find and use new technologies and new techniques for collecting, managing, analyzing and using data.

Increasingly, sensors monitor the condition, safety and security of both infrastructure and cargo. Continuous monitoring of operations allows for on-the-go adaptations to speed deliveries and assure that freight and people arrive safely. Geographic information systems and global positioning systems are finding more and more applications in transportation to plan and monitor the movement of passengers and goods. The ability to transmit and use large volumes of data is critical to modern transportation systems.

In the following pages you will find information about our research, education and outreach efforts. We welcome your comments and suggestions on our efforts and encourage you to stay abreast of what's new at www.ugpti.org.

A handwritten signature in black ink, reading "Gene Griffin". The signature is written in a cursive, flowing style with a long horizontal line extending to the right.

MISSION AND VISION

Mission:

Develop future transportation practitioners and leaders; enhance the quality of life and economic opportunity for individuals; improve the economic viability and global competitiveness of businesses; and reduce transportation's environmental impact by improving the mobility of freight and people through research, education and outreach.

Vision:

Excel as one of the premiere university transportation centers in the United States.

UGPTI AT A GLANCE

- Created in 1967 by ND Legislature at NDSU
- Statutory advisory council
- Separate line item budget
- Answers to the Provost and Office of the President
- Annual Budget of \$12,000,000
- Three Locations
- Approximately 50 employees
- About 50 student employees, graduate and undergraduate
- Education programs include doctoral degree program, two master's degree programs, and two certificate programs
- Nine program areas
 - Advanced Traffic Analysis Center
 - Agriculture, Energy and Industrial Freight Center
 - DOT Support Center
 - North Dakota Local Technical Assistance Center
 - Mountain-Plains Consortium
 - Small Urban & Rural Transit Center
 - Rural Transportation Safety and Security Center
 - Transportation Learning Network
 - Transportation Safety Systems Center

UGPTI NEWS



MCCORMICK



DAGGETT



SPRYNCZYNATYK



PLACEK



BRUNELL



KAEDING

Four Honored at Banquet

More than 200 guests attended the UGPTI's 14th annual awards banquet at the Fargo Holiday Inn Oct. 8, 2009. The banquet featured the presentation of awards to four transportation leaders.

- Steve McCormick received the John M. Agrey Award. McCormick is the CEO/chairman of the board and president of McCormick Inc., the holding company that owns Northern Improvement. He also serves as executive vice president of Northern Improvement Company, a fourth-generation, family-owned, highway heavy road construction company specializing in asphalt and concrete paving.
- Delta Daggett received the Lifetime Achievement Award. He is former president of Daggett Truck Line of Frazee, MN. The Daggett fleet now numbers about 100 trucks and focuses primarily on temperature-controlled transport of food products and is managed by the third generation of the family. Delta was active in regional and national trucking associations throughout his career.
- Major General David Sprynczynatyk received the Chairman's Award to recognize his leadership as chair of the UGPTI's advisory board from 2003 to 2006. Before becoming the Adjutant General of North Dakota in 2006, Sprynczynatyk was the North Dakota Director of Transportation beginning in 2001. His career in government service began in 1972. He now commands 4,500 North Dakota Air and Army National Guard men and women.
- Terry Placek received the 2009 Special Achievement Award for Education. The award recognized her expertise, advice, support and promotion of the transportation and logistics academic programs at NDSU. She was instrumental in launching the Masters of Military Logistics Program (now the Masters of Managerial Logistics) program. Within the office of the Assistant Secretary of the Army, she is the Comptroller Proponency Program Manager and Chief, Comptroller Proponency Office.

Scholarships awarded

Garrett Brunell and Thomas Kaeding were awarded Transportation Engineering Scholarships from the UGPTI at its annual Awards Banquet Oct. 8. The \$1,500 scholarships are awarded each year through the Mountain-Plains Consortium with funding from the US DOT University Transportation Centers Program. Brunell is a senior in civil engineering from Elk River, MN. Kaeding is a senior in civil engineering from Park Rapids, MN.

New Staff

RAJ BRIDGELALL, a technology executive and product innovator, has been named the director of ATAC. He will also serve as principal investigator for the Intelligent Transportation Technology (IT2) Program (previously referred to as the tracking, sensing, communications test bed project). Bridgelall has been vice president of engineering and chief technology officer of Axxess International Inc. since 2006. He has more than 100 patents issued or pending.

TIM HORNER, former NDDOT deputy director for business support, became director of the Transportation Learning Network in November 2010. UGPTI recently signed an agreement with the DOTs in North Dakota, South Dakota and Montana to develop and facilitate training to meet the workforce development needs of those agencies. Horner will be based in the Bismarck office. He has been with the NDDOT since 1978.

STEVE CHASE is a circuit rider for the NDLTAP, providing expertise and advice on road maintenance and construction issues to local agencies across the state. Steve has 36 years of experience in employee and traffic safety. He retired in 2009 from the North Dakota Department of Transportation and joined UGPTI late in that year.

NETIA RICHARDS is a research technician assisting with research related to transportation security-related projects and class preparation. She is also involved in helping to develop several research and outreach project proposals for programs within the Department of Defense and the Department of Homeland Security.

ND Association of Counties honors Griffin & Mielke

UGPTI Director Gene Griffin and UGPTI research fellow Jon Mielke received Dedicated Partners Awards from the North Dakota Association of Counties in Oct. 2009 in recognition of their role in organizing a series of workshops around the state in 2008. The workshops prompted significant discussion in the state which led to an increase in state funding for transportation infrastructure.



GENE GRIFFIN, MARK JOHNSON, JON MIELKE

UGPTI sponsors transportation policy workshop

The UGPTI, through its involvement in the Mountain-Plains Consortium sponsored a two-day workshop to bring together industry, government and academic leaders to address transportation policy and regulation. Beyond the Crossroads: A National Discourse on Transportation Policy and Regulation was held May 27-29, 2010 at the University of Denver. Published proceedings from the conference will serve as a guidebook for agency heads, political leaders and researchers who want to address regulatory issues.



BRENDA LANTZ

Lantz authors book chapter

UGPTI Associate Research Fellow Brenda Lantz is the author of a chapter in a book on safety in the trucking industry, "Safety for the Long Haul." The book, authored by Ron Knipling and published by the American Trucking Association, is the first and only comprehensive textbook on large truck safety. The title of Lantz's chapter is "What to Look For in Driver Records."

UGPTI Facilitates 2010 NDDOT Transportation Public Input Meetings

As part of the North Dakota Department of Transportation's long-term strategic plan, TransAction II, the department contracted with the UGPTI to conduct research on the condition of the state's roadway system and to facilitate a series of public input meetings. The more than 500 people who attended NDDOT's public input meetings represented a wide range of transportation interests. Participants learned about the condition of North Dakota's roadway system; the costs to maintain the system; the challenges facing the system; and had an opportunity to express their roadway expectations and suggest system enhancements. Presentations and supporting material from the meetings are available at <http://www.ugpti.org/events/publicinput2010/>.

TLN featured in NHI publication

The UGPTI's Transportation Learning Network is featured in the National Highway Institute publication "Training in Action," a companion publication to the 2010 NHI training catalog. The feature emphasizes how the TLN uses video-conferencing technology to deliver NHI courses to individuals and groups in numerous locations, saving travel time and costs for both participants and instructors.

ATAC provides ITS training

The Advanced Traffic Analysis Center (ATAC) delivered an ITS architecture and systems engineering (SE) training session at the NDDOT in Bismarck in March. The training is part of an ongoing NDDOT effort for integrating SE into their ITS project development process. SE analysis is required for federally funded ITS projects and is a key for successful projects completion; on time, on budget and meeting user's requirements. The training was conducted by Mohammad Smadi and was attended by 21 transportation professionals from NDDOT central office, NDDOT districts, and the cities of Bismarck and Grand Forks in addition to several regional consulting and construction companies.

UGPTI revises website

During the past year, the UGPTI has been phasing in its newly redesigned website. The look and functionality of the new site was designed by Lindsay Arneson and Patrick Nichols. The new website offers a cleaner presentation and easier navigation for visitors and offers a more integrated image of the UGPTI. News and events are added weekly to keep the site fresh. Additional content is also being added to add depth to the site.

Ripplinger named to leadership post in TRF

Associate research fellow David Ripplinger was recently named vice president for membership of the Transportation Research Forum. The 250-member TRF is an independent organization of transportation professionals. As vice president for membership, Ripplinger will look for ways that the organization can bring value to existing and prospective members.



DAVID RIPPLINGER

Wright named to FTA's Bus Safety and Security Program Working Group

Associate research fellow Carol Wright was selected to serve on the national Bus Safety and Security Program working group for the Federal Transit Administration. The working group was established to improve program coordination and feedback on technical assistance materials before they are sent to a wide-scale audience. It consists of representatives from FTA, AASHTO, APTA, and CTAA, as well as representatives from industry, agencies, state departments of transportation and from other partners.



CAROL WRIGHT

Hough serves on APTA blue ribbon workforce development panel



JILL HOUGH

Research associate Jill Hough was named to the American Public Transportation Association's Blue Ribbon Panel on Workforce Development. The panel took a year-long look at workforce development issues facing transit agencies across the nation. It was charged with developing immediate, short-term, mid-term and longer term (five years and beyond) action plans.

Workforce development summit held

The "Solutions Summit for Public Transportation Workforce Development" was held in Fargo at the Holiday Inn in September 2009 to bring together more than experts from across the country to exchange ideas and develop strategies to address the need for workers and leaders in public Transportation. "The need for professionals in public transit could significantly hamper the industry's ability to meet the mobility needs of its clients, notes SURTC Director Jill Hough. The goal of the summit was to bring together interested persons in public transportation to dialogue on workforce development needs and actions.

UGPTI has role in U.S. DOT reauthorization tour

U.S. Secretary of Transportation Ray LaHood visited North Dakota as part of the U.S. DOT's Transportation Reauthorization Outreach Tour, one of six meetings across the country that brought together federal, state, and local officials, as well as transportation providers, users and other stakeholders. As part of the June 2010 event, UGPTI associate research fellow Jill Hough provided testimony on the importance of transit and mobility to the livability of rural areas. UGPTI director Gene Griffin moderated a panel discussion of state department of transportation directors from the region.

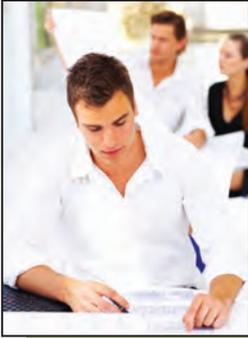


KIM VACHAL

Vachal on NCI advisory board

Associate research fellow Kim Vachal was named a member of the 2009-2010 Industry Advisory Board for the Northern Crops Institute. NCI's Industry Advisory Board advises NCI staff on educational programming and technical services. The board draws its members from the agricultural supply and processing industry and the grain trade in Minnesota, Montana, North Dakota, South Dakota and the rest of the region.

EDUCATION



Educational efforts of the UGPTI range from short courses and seminars for practitioners to traditional graduate and undergraduate programs. What the programs have in common is the interdisciplinary and collaborative approach that the UGPTI brings to all of its programs. Students learn from faculty, policy makers and professionals who bring diverse expertise, perspectives and experience to the classroom.

Degree programs are offered by the College of Graduate and Interdisciplinary Studies and coordinated by the UGPTI. A full description of the programs and related information can be found at <http://www.ugpti.org/education/>.

Programs include:

The **Doctorate in Transportation and Logistics** is an interdisciplinary program leading to the Ph.D. degree in Transportation & Logistics (TL). Students may enter one of three areas of concentration: (1) Logistics and Supply Chain Systems, (2) Transportation Economics and Regulation, and (3) Transportation Infrastructure and Capacity Planning.

The **Master of Managerial Logistics (MML)** is targeted specifically at career military officers, Department of Defense civilians, and other logistic professionals. The program focuses on logistics and supply chain management, global-international logistical systems, enterprise resource planning, remote sensing and adaptive logistics planning, joint total asset management, logistics, and security through technologies (RFID), contract management, crisis analysis, homeland security, and transportation analysis.

The **Master of Science (M.S.) in Transportation & Urban Systems** focuses on: (1) urban transportation systems; (2) relationships between transportation, land use, environment, emergency response, and logistical delivery systems; (3) coordinated planning, operations, and security; and (4) the spatial dimensions of urban systems. Because the M.S. degree requires a thesis, it is targeted at students with strong research interests.

The **Master of Transportation & Urban Systems (MTUS)** is a non-disquisition degree that is primarily intended for professional planners and engineers.

The **Certificate in Transportation & Urban Systems** is primarily targeted at practicing professionals who are unable to study in residency, but who wish to gain additional knowledge in the emerging fields of transportation and urban systems.

Student Accomplishments

Lee inducted into NDSU Tapestry of Diverse Talents

Ph.D. student Eunsu Lee was inducted into NDSU's Tapestry of Diverse Talents in December 2009. The award recognizes students, faculty, staff and alumni for the diversity and contributions they bring to NDSU. Lee, of South Korea is an active member of the Korean Student Association, Bison Herald, and Association of transportation and Logistics. He expects to defend his dissertation in December 2010.



Interim NDSU President Richard Hanson and Lee

Students attend freight flows conference

Three Ph.D. students attended the North American Freight Flows Conference in Irvine, CA, in September 2009. Christopher DeHaan presented "Analyzing Freight Data Between the Borders in North America" for the conference's Innovative Uses of data session. Qing Liu and Eunsu Lee also attended the conference. The event is hosted and organized by the Transportation Research Board to identify improvements in the availability and use of freight transportation data in North America.

NDSU paper tops GIS-T Student Paper Contest

Ph.D. student EunSu Lee's paper, "Estimating trip diversion by using impedance in flooding regions," was one of the winners in the GIS-T Student Paper Contest. The paper was presented April 12, 2010, at the GIS-T Symposium in Charleston, WV. He won a paid registration to the symposium and a cash award. Lee's paper focused on travel patterns and transportation management with road and bridge closures due to the flooding.



DEHAAN



LIU

Student presents paper at TRF



LEI FAN

Ph.D. student Lei Fan presented his paper, "Optimization Model for Global Container Supply Chain: Imports to the United States," at the annual meeting of the Transportation Research Forum in March 2010. He received a scholarship from the TRF Foundation. Fan earned a doctoral degree from NDSU in May and is pursuing a career conducting analysis and planning in the merchandising and trading industry using quantitative methodologies.

Paper presented at symposium

Ph.D. student Khalid Bachkar was selected to present his paper, "A Decision Support System for Supplier Selection in a Chemical Firm Supply Chain: A Case Study Leveraging Analytic Hierarchy Process Model," at the 20th annual North American Research and Teaching Symposium sponsored by the Institute for Supply Management in March. Backhar earned a doctoral degree from NDSU in May 2010 and will teach global logistics and supply chain management at the California State University Maritime Academy where he also will conduct research in the area of supply chain security.



KHALID BACHKAR

Engineering Design

The DOTSC engineering center integrates NDSU engineering students with real world transportation designs and engineering issues. Teams of engineering students work under the direction of transportation designers to prepare plans, estimates and studies for transportation projects. The teams were involved in the following DOT projects for FY09-10:

- ND 127 from Jct 11 N to Wahpeton, widening, mine & blend, hot bituminous pavement surfacing
- Eastbound U.S. Highway 2 from 5.7 MI E ND 1 TO 0.1 MI E ND 35, mill & hot bituminous pavement surfacing
- ND 11 from Lidgerwood city limits to 2nd St NE, mill & hot bituminous pavement surfacing
- Fargo 10th St from 1st Ave S to NP Ave, structure repair, pavement, etc
- ND 56 from W Jct 13 N to Jct 46-Gackle, thin lift overlay
- Hwy 11 Grade Raise at reference point 130, grade raise, aggregate base, hot bituminous pavement & riprap
- Westbound I-94 in Stark County, RP 76.5 to Youngmans Butte, Portland concrete cement reconstruction
- ND 127 Jct 11 N to Wahpeton, hot bituminous pavement surfacing and seal coat
- ND 30 from Jct US 281 N to Canadian Line, hot bituminous pavement surfacing
- Fargo 10th St from 12th Ave to 17th Ave N., reconstruction
- ND 5 from E Jct 281-Rock Lake E to E Jct 20, hot bituminous pavement surfacing

- I-29 from N of Buxton to S of ND 15, median cross-overs & ramp connections
- I-29 southbound from Buxton to S of ND 15, Portland concrete cement reconstruction
- I-29 Buxton to S of ND 15-NB, Portland concrete cement reconstruction

Students Attend International Transport Economics Conference

NDSU transportation and logistics graduate students attended the International Transport Economics Conference June 2010 at the University of Minnesota. The UGPTI's Mountain-Plains Consortium sponsored their trip. NDSU's transportation and logistics graduate student Lei Fan presented his paper, "Global Supply Chain in Container Shipments: Impacts of Congestion on Imports to United States." Other students attending included Qing Liu, Eunsu Lee, Elvis Ndembe, Khaled Bachkar, Eileen Campbell, Steven Leon, Jeelong Chen, and Chris DeHaan.

NDSU graduate hired by BNSF logistics

Ashley Goldade, an NDSU graduate with a master's degree in agribusiness and applied economics with an emphasis on transportation, was recently hired by BNSF Logistics as Regional Business Development Manager and will be based in Minot, N.D. In this position, Goldade will manage BNSF Logistics relationship with the North Dakota Port Services by ensuring data flow and expanding services. She also will work on improving relationships with key importers and exporters, as well as working to identify new domestic business. Finally, Goldade will be a part of carrier development to ensure sufficient ocean carriers to service Minot by providing capacity, rates and trade lanes.

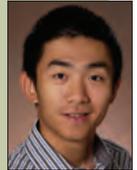
Other student presentations

Student Xianzhe Chen presented "Comparison of Decision Tree to Logistics Regression Model: An Application in Transportation" at the SAS Midwest Conference, Oct 11-13, 2009 in Cleveland, OH.

Dr. Tolliver, Diomo Motuba, and Qing Liu attended the National Urban Freight Conference 2009 Oct 21-23rd in Long Beach, CA. Motuba presented "Truck Trip Generation in Small and Medium-Sized Urban Areas," co-authored with Dr. Tolliver.

Chris Enyinda presented "A Sensitivity Analysis for Multi-Attribute Global Supply Chain Logistics Outsourcing Risk Management" at the IABPD Conference in Memphis, TN in October 2009. Dr. Tolliver and PhD student Charles Briggs are co-authors.

Eunse Lee attended the Institute for Operations Research and the Management Sciences (INFORMS) conference at San Diego, CA, in October 2009. He presented "Optimizing Intermodal Routes for Shipping Containerized Freight" and "Simulation-based Route Selection for Dispatching Snow Removal Fleet."



CHEN



MOTUBA



LIU



ENYINDA



BRIGGS

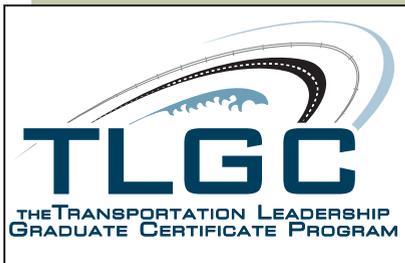


LEE

Education Program Highlights

New programs added

Beginning in the fall of 2009, several new programs were offered. These educational programs, offered by the Graduate School and coordinated by the UGPTI, include an interdisciplinary program leading to a Master of Science in Transportation and Urban Systems (M.S.), a Master of Transportation and Urban Systems (MTUS) and a Certificate in Transportation and Urban Systems. The program is a collaborative effort of four colleges and includes faculty from Agribusiness & Applied Economics; Civil Engineering; Computer Science and Operations Research; Emergency Management; Industrial Engineering; Management, Marketing & Finance; and the UGPTI.



Transportation Leadership Graduate Certificate Launched

The Transportation Leadership Graduate Certificate was first offered for the spring Semester of 2010. This certificate is a 12-credit on-line program designed to prepare future leaders of the transportation industry. The program is an initiative of the Regional University Transportation Centers. NDSU is one of the premier institutions that will offer courses taught by graduate faculty.

Staff teach on-line courses

The Transportation & Logistics program offered two online graduate courses in the fall semester of 2009. Subhro Mitra taught TL 753, Transportation Systems Modeling for 3 credits and Jarret Brachman was instructor for TL 751, Transportation Systems Security, both available online for traditional students and working professionals. During the spring semester of 2010, Jill Hough taught TL 786, Public Transportation.

Transit Class Integrates guest lecturers

The NDSU graduate course in transit continues to feature guest lecturers to give students real-world perspective on the transit industry. The course uses the Transportation Learning Network to reach students off-campus and to host guest lecturers. Lecturers included Bob Prince, a consultant and former manager of the Massachusetts Bay Transit Authority, former Easter Seals Project ACTION director Al Abeson, FTA associate administrator for research Vincent Valdez, American Public Transportation Association president Bill Millar, vice president public sector for Motor Coach Industries Michael Melaniphy, Minnesota Department of Transportation project Manager Keven Anderson, former Pennsylvania State University faculty member Jim Miller and Fargo city planner Jim Gilmour.

NDSU Hosts Senate Armed Services Committee Staffer

The Transportation and Logistics Program hosted Creighton Green, professional staff member with the U.S. Senate Armed Services Committee, on Sept. 3, 2009. Greene spoke about the policies and procedures of the committee. Greene also gave background information on his position as the committee's staff member for transportation and logistics. He discussed the role of logistics management for the best logistic systems for suppliers to maintain leadership in warfare and support the needs of the warfighter.

Transportation and Logistics Students Tour BNSF Facilities

Students in NDSU's Association of Transportation and Logistics toured Dilworth's Burlington Northern Santa Fe (BNSF) Railway facilities during the spring semester of 2010. The tour, which allowed students to interact with yardmasters, gave students a better understanding of railroad terminal operation. The visit to Dilworth's BNSF railroad terminal allowed the students to gain a better understanding of the concepts presented in class through first-hand observation. Students also gained a better understanding of the importance of safety and technical assistance.



PROGRAM PROJECT HIGHLIGHTS

Advanced Traffic Analysis Center

ATAC Expertise Tapped to Improve Border Crossing



RAJ BRIDGELALL

Traffic congestion is seldom a problem in North Dakota, but an exception is the U.S.-Canadian border crossing near Pembina, ND. In recent years, more than 224,000 trucks and more than 324,000 personal vehicles crossed the border annually.

At peak times, traffic is backed up for up to a half-mile or more as trucks, buses and cars wait for customs. Congestion, confusion and frustration for drivers are the result. The NDDOT asked UGPTI's Advanced Traffic Analysis Center to evaluate the crossing and offer suggestions for improving traffic flow. ATAC staff analyzed traffic patterns, observed how traffic flowed through the crossing and identified key problem areas and safety concerns.

On the ND side, the crossing includes six lanes – three for passenger cars, two for trucks and a final lane for vehicles in the NEXUS program, a joint Canada-United States effort designed to let pre-approved, low-risk travelers cross the US-Canada border quickly. Recommended improvements included:

- Restriping pavement to address congestion and reduce delays for patrons using the northbound Nexus lane.
- Add dynamic messaging signs to improve orderly flow of traffic.
- Employ technology such as speed detection loops and video cameras to detect speed and delays and relay that information to travelers so they can better plan their arrival time at the border.

The recommendations from the study are now under consideration by the NDDOT. “The analysis looked at what we had proposed and confirmed and denied some of what we were looking at. The ATAC staff also added some new dimensions, that we hadn’t considered,” noted Les Noehre, NDDOT district engineer in Grand Forks. “We very much appreciate the work that was done.”

For more information on ATAC, go to: www.atacenter.org

Raj Bridgelall, Director, (701) 231-8058 or raj.bridgelall@ndsu.edu

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.

Agricultural, Energy and Industrial Freight Center

Center studies Hard Red Spring Wheat Movements for ND Wheat Commission

Movement of hard red spring wheat to market from North Dakota has been transformed in the last 25 years by consolidation in both the grain and railroad industries as well as by a move toward larger trains. When the North Dakota Wheat Commission wanted a clearer picture of that transformation, it asked UGPTI's Agricultural, Energy and Industrial Freight Center for its analysis.

Nationwide, there were 12 relatively large railroads moving grain in the 1980s. Today there are seven with two serving North Dakota, the Canadian Pacific and the BNSF. In 2006 and 2007, less than 40 percent of the nation's hard red spring wheat moved by trains of 100 cars or more. In 2008 and 2009, that number had grown to more than 60 percent. "Rail utilization for moving wheat in Montana and North Dakota has increased dramatically since 2001," notes UGPTI researcher Mark Berwick. "We've seen a 50 percent increase in the past 10 years and all of that has been because railroads are using larger trains."

North Dakota has about 50 elevators that are capable of loading trains of 100 cars or more, far more than any other state - for comparison, Minnesota has 24. As a result, local grain movements gravitate to those facilities. At the same time, railroad cost estimates have declined. Rail rates for grain shipping also have declined gradually. Future work will investigate how much of that reduction is attributable to the greater efficiencies of larger trains and how much is the result of competition and other factors. Data from the most recent year, however, showed an up-tick in rates.

"We wanted to try to get a picture of where we're at now," notes Jim Peterson, the N.D. Wheat Commission's marketing director. "In order to know where you want to go, you need to know where you've been and where you are right now. We wanted real numbers and data rather than perceptions."

Peterson says that data is being used to assess how competitive ND wheat is with other commodities and other parts of the country and to learn how transportation factors into that competitiveness. Producers and country elevators have invested heavily in facilities and track which has been a big benefit to the railroads via improved velocity and capacity on grain shipments. Are we still getting the most competitive rates for that investment? "We want to make sure the highest farm-gate prices possible are attained for wheat. We know there is competition for land and productive capacity."

For more information on the Agricultural, Energy and Industrial Freight Center, go to www.ugpti.org

Kimberly Vachal, Director, (701) 231-6425 or kimberly.vachal@ndsu.edu



KIM VACHAL

The Agricultural, Energy and Industrial Freight Center conducts economic analysis, transportation planning, and network analysis to improve the competitiveness of the region's producers and businesses through enhanced transportation, supply chain management and logistics. Efforts focus on policy and investment decisions and application of logistics and supply chain management principals. Researchers also study the efficient use of local resources in infrastructure, investment, and maintenance as well as the effects of investments and policies on agricultural producers, rural businesses and the traditional and alternative energy industries.

Department of Transportation Support Center



DOTSC helps students jump start careers while providing valuable help for NDDOT

Designing highways and bridges is a complex task, requiring engineering expertise as well as a working knowledge of design software and department of transportation procedures. NDSU engineering graduates who have been employed by UGPTI's Department of Transportation Support Center (DOTSC) have the on-the-job experience that makes them ready for the task.

The center has two components: the engineering center and the information technology center.

In the engineering center, teams of engineering students work under the direction of DOT designers to prepare plans, estimates and studies for transportation projects. A goal of the program is to familiarize students with the NDDOT and typical transportation issues. Student transportation engineers who work for DOTSC train on software used by the many transportation organizations and receive orientation on the programs and procedures for developing transportation projects. In addition to working in transportation design, student engineers also get the chance to assist in transportation related research.

Since DOTSC was created in 2000, the center has employed 72 students. Twenty-eight of those students moved directly into positions at NDDOT. Another 28 others went to work with consulting or engineering firms. Other employers included other state departments of transportation and the BNSF Railway. Currently there are 11 student design assistants in the engineering center.

The center's current supervisor Matt Linneman, a DOT engineer who works full-time at the center, graduated from NDSU in 2002 and spent two semesters as a student design assistant at DOTSC.

The information technology center currently employs three students. The center familiarizes students with IT issues and governmental IT systems while encouraging them to stay in North Dakota and work with public or private organizations after graduation.

For more information on DOTSC, go to: www.ugpti.org/dotsc/

The **DOT Support Center (DOTSC)** provides intellectual capital to the North Dakota Department of Transportation to solve complex problems. The center also addresses regional issues within North Dakota and 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 so that upon graduation they bring valuable marketable experiences to employers.

Mountain-Plains Consortium

Workshop Brings Asset Management Concepts to Local Officials

Local road managers across the Upper Great Plains and Mountain West will do a better job of tracking needs and directing investments, thanks to a two-day video workshop and other efforts sponsored by the Mountain-Plains Consortium.

The “Roadway Surface Management Workshop for Local Officials,” held in November 2009 was directed at local roads officials with little or no experience with asset management. Through video conferencing technology, there were participants at 19 sites in North Dakota, South Dakota, Montana, Wyoming, Utah, and Colorado.

“This was a major outreach to local and tribal road planners,” noted Denver Tolliver, director of the Mountain-Plains Consortium, a major sponsor and organizer of the event. “Asset management is well-practiced at the state and federal level, but there’s not as much experience and capacity at the local level.” He notes that most road miles in the Upper Great Plains and the Intermountain West are rural roads under the authority of local governments or tribal managers.

The conference had two primary goals: to learn how extensively asset management techniques are applied by road managers in the region; and to identify ways to help them implement principles of asset management. Presenters included staff from county road departments and municipal public works departments who detailed their efforts.

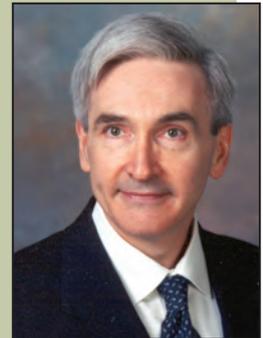
“Asset management could be used to help road managers answer the question, ‘If you received additional funding, how could it best be used?’” noted Steve Gaj, leader of the System Management and Monitoring Team in the FHWA’s Office of Asset Management.

Dennis Trusty, director of the Northern Plains Tribal Technical Assistance Program in Bismarck, ND, surveyed tribes across the country to find if any were implementing asset management systems. “We caught a few in the initial stages of implementation,” he noted. “In North and South Dakota, Wyoming, eastern Montana, and northern Nebraska, we’re just getting a good start.”

Tolliver noted that the use of video conferencing technology was especially appropriate for this workshop. “Travel is difficult for them because of the cost and the fact that they are often a one-person show and it’s difficult for them to be away from the office for any significant amount of time.”

For more information on the Mountain-Plains Consortium, visit www.mountain-plains.org

Denver Tolliver, Director, (701) 231-7190 or denver.tolliver@ndsu.edu



DENVER TOLLIVER

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, University of Utah, and University of Wyoming.

North Dakota Local Technical Assistance Program

NDLTAP Uses High Tech tools and a Personal Touch to Deliver Training to Road Agencies



GARY BERRETH

The Internet, video, interactive technology and other high-tech tools can be used to train transportation workers, but sometimes the personal touch is best. For the ND Local Technical Assistance Program, it's often Steve Chase that provides that personal touch.

Since becoming NDLTAP's "circuit rider" in December 2009, Chase has visited all of North Dakota's counties, all of the NDDOT offices and shops, and many of the state's cities and towns. He provides updates on resources and training programs offered by NDLTAP and then he asks, "How can we help?"

"Most local agencies don't have a safety program," notes Chase, a former employee and traffic safety expert with the NDDOT. Often they lack the budget, background and time to assemble relevant safety information for basic safety programs. "The National Institute on Safety and Health and other agencies have a lot of info available, but you have to be able to piece it together and apply it to road workers." Chase says.

So Chase launched "Safety-Talk" a monthly e-mail on selected safety topics that is distributed across the state. The topic can be used as the basis for safety training, for discussion at shop meetings, or merely shared with employees and range from cold weather safety to equipment operation.

That kind of personal contact assures that NDLTAP's broader programs are on target. In addition, NDLTAP staff have more than 100 years of accumulated experience at the local, state and national level. "That experience is a huge asset in developing relationships and resources for delivery to our customers," notes director Gary Berreth.

That experience coupled with technology can have a powerful impact. Training is accomplished through a variety of methods from traditional instructor-led classes to video conference training and web-based training. In 2010, NDLTAP and the UGPTI's Transportation Learning Network held 32 training sessions with more than 750 North Dakota participants (approximately half of which were from local governments and private industry) with more than 4600 participant hours of training. Of the 32 training sessions, seven were traditional workshops. NDLTAP also assisted in program planning for the Northland Chapter of the American Traffic Safety Services Association in Fargo and the Local Roads Conference in Rapid City. NDLTAP also planned a ND Asphalt Conference. Those events drew more than 600 participants.

For more information on the NDLTAP, go to www.ndltap.org

Gary Berreth, Director, (701) 328-9856 or gary.berreth@ndsu.edu

The North Dakota Local Technical Assistance Program (NDLTAP)

fosters safe, efficient, environmentally sound, and cost effective highway, road, and street systems by facilitating the exchange of transportation technology among local units of government and other transportation agencies through training, technical assistance, and information services as part of the U.S. Federal Highway Administration's nationwide LTAP network.

Small Urban & Rural Transit Center

SURTC evaluates costs to ride or relocate

Rural areas are no stranger to the “aging tsunami” facing the United States in which more than 1 in 5 Americans soon will be 65 years old or older. This growth in the population of elderly residents is posing public policy questions related to transit and other public services, particularly in rural areas where distances to services are greater, and the proportion of elderly is even larger.

“Public transportation provides freedom to much of the aging population who would otherwise be forced to give up their lifestyles,” SURTC researcher Del Peterson notes. “Critics of publicly funded transportation argue that many of the aging population would be better off relocating to larger communities where desired services are more readily available. Public transportation proponents believe that it is more desirable for aging Americans in rural areas to remain in their homes and utilize public transportation.”

A study by UGPTI’s Small Urban & Rural Transit Center quantified the cost of riding transit in rural areas of North Dakota versus relocating to larger communities. Peterson worked with SURTC director Jill Hough and graduate student Marc Scott to review existing information associated with transit costs and the cost of moving to an assisted living center or a nursing home. They also drew on the expertise of Pat Hansen, program director at South Central Adult Services in Valley City.

Transit costs included capital costs, passenger fares, and operating costs. Relocation costs included rent, realtor fees and intangible costs related to quality of life. Finally the research quantified the cost of riding transit versus relocating to the eight largest communities in North Dakota: Fargo, Bismarck, Grand Forks, Minot, Dickinson, Jamestown, Williston, and Devils Lake.

Overall, results indicated that the cost of assisted living was almost always higher than the other three alternatives. Homeowners without mortgages had the lowest costs followed by apartment dwellers and homeowners with mortgages. “Every senior’s situation is unique, and other factors such as amenities and safety may be more important than cost in considering quality of life and peace of mind for them and their families,” Peterson notes.

To view the study, go to www.ugpti.org/resources/reports/ and search for “Ride or Relocate” or DP-223.

For more information on SURTC, go to: www.surtc.org

Jill Hough, Director, (701) 231-8082 or jill.hough@ndsu.edu



JILL HOUGH

The Small Urban & Rural Transit Center (SURTC) provides transit stakeholders, users, providers, 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. An “Introduction to Public Transportation” graduate course has been developed and offered in several states via interactive video and staff help faculty integrate transit concepts and issues into their coursework.

The Transportation Learning Network

TLN Revitalized to Address Critical Training Needs



TIM HORNER

Keeping workers and keeping them up to speed and satisfied is getting tougher for state departments of transportation and other transportation-related agencies – especially on the northern plains. Baby boomers in the workforce are retiring. Competition from the oil industry and warmer climates makes it tough to find and hold onto workers. Technological advancements in transportation make it difficult for those on the job to keep up. Budget constraints limit their employer's ability to help. Providing high-quality training on key topics at low cost will be critical in meeting those challenges.

The UGPTI's Transportation Learning Network (TLN) is being revitalized to help DOTs in the region fill that need. Established in 1994 as the TEL-8 Communications Network and using interactive video, the organization was a pioneer in providing distance education in transportation. TLN is again a pioneer in coupling technology like on-line instructional modules and Internet video with precisely targeted topics.

In the summer of 2010, North Dakota, South Dakota, and Wyoming DOTs agreed to cooperate in their training efforts through the use of the TLN. NDSU, in collaboration with its partners in the Mountain-Plains Consortium, is developing and coordinating training. The efforts will be conducted in conjunction with other transportation-related programs that focus on building, refreshing and improving skills.

"Collaboration and innovation will be keys to the success of this partnership," notes Tim Horner, who became TLN director after more than 30 years with the NDDOT. "Innovation will be in the form of the technology and the approaches we will use training," he says. Learning management technology will assist in delivering training, monitoring learner achievement, and assessing program effectiveness. Alternative training platforms will be used to deliver training in ways that work best for content, learners, and the agencies. Emphasis will be placed on storing repeatable training for on-demand retrievable use. A system to catalog or access connections to other technical training resources such as NHI and the National Transportation Training Resource (NTTR) data base will also be developed.

"Maintaining the transportation infrastructure is critical to keeping the region competitive in a global economy and maintaining the quality of life for residents. It will require a well-trained and motivated workforce to maintain that infrastructure," Horner notes. "The TLN is ideally positioned to provide the training for that workforce."

To learn more about TLN, go to: www.translearning.org

Tim Horner, Director, (701) 231-328-9859 or timothy.horner@ndsu.edu

The **Transportation Learning Network (TLN)** is an interactive videoconferencing network linking the transportation departments in Montana, North Dakota, and Wyoming and the Mountain-Plains Consortium universities of North Dakota State University, Colorado State University, South Dakota State University, University of Utah, and the University of Wyoming. 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

A Smarter Way to Measure Motor Carrier Safety

Federal and state motor carrier safety is getting smarter thanks, in part, to an updated commercial vehicle and driver selection algorithm being developed by UGPTI's Transportation Safety System Center (TSSC), in partnership with the CSA 2010 BASICS to Roadside team.

The Federal Motor Carrier Safety Administration has updated its business processes for enforcement and compliance activities. This new comprehensive safety analysis program, called CSA 2010, covers a full spectrum of safety issues from how data are collected, evaluated and shared to how enforcement officials can intervene most effectively and efficiently to improve safety on our roads. A key part of that updated program is the commercial vehicle and driver selection algorithm updated by the UGPTI's Transportation Safety Systems Center.

The algorithm, called the Inspection Selection System for 2010 (ISS 2010), uses the new data measures developed for the CSA 2010 program. The ISS is the primary tool used by FMCSA and state commercial vehicle enforcement personnel to screen commercial motor vehicles and drivers for inspection. "This algorithm, in alignment with CSA 2010, will have a much greater focus on the behaviors of a company," TSSC Director Brenda Lantz says.

In the past, the algorithm and FMCSA actions focused primarily on four broad categories to identify problem carriers. CSA 2010 and the updated ISS are based on seven Behavior Analysis Safety Improvement Categories. The new algorithm takes into account violations under the following categories:

- Unsafe driving
- Fatigued driving
- Driver fitness
- Controlled substance and alcohol
- Vehicle Maintenance
- Cargo Related
- Crashes

Previously, FMCSA was only reaching a limited number of carriers via full compliance reviews, but CSA 2010, supported by the updated ISS, will allow for early and additional intervention methods, such as warning letters, on-site focused reviews, or off-site reviews.

Lantz notes the staff with TSSC are evaluating the updated ISS to ensure that it has retained its strengths and that the program functions as expected to support the FMCSA's new compliance analysis program.

For more information on the TSSC, go to www.ugpti.org/tssc

Brenda Lantz, Director, (720) 238-0070 or brenda.lantz@ndsu.edu



BRENDA LANTZ

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 extensively involved in safety-related research and analysis to improve targeting of enforcement efforts and enhance software programs.

Rural Transportation Safety and Security Center



KIM VACHAL

Traffic Safety Evaluations are a first step to safety improvements on local roads

When a car crashes on one of North Dakota's rural roads, there's a good chance poor signage, outdated road design, improper or out-of-place roadside barriers or obstacles, or bad pavement markings may be at least partly to blame.

More than 40 percent of fatal motor vehicle crashes in North Dakota occurred on local roads – the two-lane gravel and pavement roads that make up the bulk of North Dakota's road systems. The U.S. Department of Transportation indicates up to a third of those crashes could have been avoided if the roads, markings and signs were updated.

The UGPTI's Rural Transportation Safety and Security Center (RTSSC) and Department of Transportation Support Center (DOTSC) are working with local cities, counties and tribal authorities to conduct "traffic safety evaluations" on crash-prone road segments to identify safety improvements. "The idea is to implement low-cost improvements on road segments that local residents and road managers have identified as high-risk for crashes," notes Kim Vachal.

"This is not a case where we go in and tell local officials what to do," Vachal says. County commissioners, road superintendents, law enforcement personnel, maintenance personnel, DOT staff and others may be involved in the evaluation. "We help them see and understand things they didn't before," she says. The team identifies three types of improvements:

- Immediate safety improvements that should be made, including vegetation removal to improve sight lines, sign replacement, etc.
- Low cost improvements that could have a positive impact on safety, such as improved signing, assuring there is an adequate clear zone around intersections, etc.
- High-cost improvements that could be considered when funds are available, such as rehabilitation or reconstruction to improve road condition and geometry.

One traffic safety audit was conducted along scenic Barnes County highway 21 which runs south of Valley City along the Sheyenne River. Examples of resulting improvements included upgraded signs and pavement markings on several curves and the removal of vegetation to improve visibility.

Vachal notes that transportation safety evaluations are a practical and proactive approach to safety that reduces crash incidents and severity through the low-cost, high-value improvements. They also create an environment where safety is a consistent consideration in road maintenance and improvement.

To learn more about the RTSSC, visit www.ugpti.org/rtssc

Kim Vachal, Director, (701) 231-6425 or kimberly.vachal@ndsu.edu

The Rural Transportation Safety and Security Center (RTSSC) vision is to promote and enhance the region's transportation safety and security through research, education, and outreach, in a partnership with stakeholders. This collaborative effort between UGPTI and the North Dakota Department of Transportation was initiated with funding from the Federal Highway Administration.

COMPREHENSIVE PROJECTS LIST

The following is a comprehensive list of research and outreach projects underway during FY 2009-2010. The UGPTI's project portfolio is now national in scope and has extended far beyond its original focus on agricultural commodities. Projects focus on the mobility of people and freight in rural areas, communities and small cities. The flow of people and goods is increasingly intertwined with the flow of data, so our research also explores the intersect of transportation and information. If you have questions about these projects, visit our website at www.ugpti.org or contact our office.

Agriculture

ND Wheat Transportation Knowledge for Market Enhancement

Grain Movement Reports

Weekly and Monthly Grain Transportation Reports

Quarterly Mexico Market Update

U.S. Grain Truck Market Advisory

U.S. Grains Modal Share Analysis

RTQ and Ocean Freight Database Tech Support

Agricultural Transport Conference

Infrastructure Management

NDDOT Highway Investment Needs Analysis and Policy for ND

A GIS Model for Bridge Management and Routing

Indian Reservation Roads and Local Roads Modeling and Management Database

Regional Pavement Management Workshop for Asset Management and Pavement Management for Local Officials

Intelligent Transportation Systems

North Dakota Statewide ITS Plan

Project Architecture and Systems Engineering for Fargo-Moorhead Traffic Operations Center

Implementation of Advanced Technologies in Rural Transit Service for the State of North Dakota

MNDOT/NW Passage

Metropolitan Transportation Planning

ATAC Travel Demand Modeling

FM COG

- NP Avenue / 1st Ave N Study
- Modeling for Long Range Transportation Plan
- Downtown Calibration (Fargo)
- Modeling Themed Alternative for FM IOS Phase II
- Moorhead AUAR
- Modeling Hybrid Alternatives for F-M IOS Phase II
- F-M COG Traffic Counts
- LRTP Travel Demand Model Re-evaluation
- SE Main Avenue and I-94 Ramp Justification

NDDOT

- Exit 161 Operational Study (Bismarck)

Grand Forks-East Grand Forks

- School Safety Study-Winship, Wilder, St. Michael's

Traffic Operations

U.S. / Canadian Border Crossing Operational Analysis (Pembina, ND)

US2 & ND8 Intersection Analysis (Stanley, ND)

ND Traffic Operations Roundtable Meeting (Bismarck, ND)

ND County Data Collection Project - 111 sites in 17 Counties

Transit and Personal Mobility

North Dakota Regional Coordination Pilot Projects

Organizing Transit in Small Urban and Rural Communities

Roughrider Travel Management Coordination Center

Assessing Existing and Needed Community Transportation for People with Disabilities in North Dakota

Public Transportation Workforce Development: A Survey of Vocational and University Students

Technology Adoption by Small Urban and Rural Transit Agencies

Ride or Relocate

Business Plan for Palace Transit
Business Plan for West River Transit Authority Inc.
Business Plan for People's Transit
Business Plan for Brookings Area Transit Authority
The Changing Attitudes and Behaviors of University Students toward Public Transportation
North Dakota Transportation Survey: Aging and Mobility
Classifying Rural and Small Urban Transit Agencies
Public Transportation and Access to Health Care
RFID for Small Transit Agencies
Assessing Demand for Rural Intercity Transportation in a Changing Environment
Use of Alternative Fuels and Advanced Vehicles by Small Urban and Rural Transit Agencies
Evaluating the Benefits of Technology in Public Participation in the Public Transportation Planning Process

Transportation Planning

Integrate Supply Chain Model in Urban Freight Planning
Transit's Role in Small Urban Sprawl
Estimation of the Generalized Truck Freight Elasticity of Demand: Case Study of the Seattle-Tacoma to Chicago Corridor
Analysis of Freight Fuel Efficiency with Comparisons to Waterways and Truck Transportation
ND Air Cargo Study
Estimating Shipper Response to Lock Closures and Transportation Rate of Waterborne Movements Using the John Day Lock and Dam
Development of GIS Multimodal Capacity No-Tier Freight Corridor
Integrate Supply Chain Model in Urban Freight Planning
Inland Waterway Commodity Project/Columbia Snake River Transportation

Safety and Security

Using Traffic Records to Identify Higher Risk Teen Drivers

Traffic Safety: Pilot Study to Assess Sustained and Multifaceted Activity on North Dakota's Rural Roads

Using ND Traffic Records to Identify Higher Risk Teen Drivers

Implementing Traffic Safety Evaluations to Enhance Roadway Safety

Proper Seat Placement of Children Aged 4 to 12 within Vehicles

Misinformation Contributing to Safety Issues in Vehicle Restraints for Children

NDDOT Statewide Seatbelt Survey/Traffic Safety Program Evaluation

Vision Safe Drive Conference

Integrating Security into Small MPO Planning Activities

Pilot Project to Develop Rural Youth Occupant Protection Education

Rural Road Signage: Simulation Driving to Evaluate Low-Cost Safety Improvements

Evacuation Modeling for Small- to Medium-Sized Metro Areas

Other

Collaboration with American Road and Transportation Builders on National LTAP Clearinghouse

Economics of Access to Graham Island

UGPTI PUBLICATIONS

In addition to Department Publications (DP) and Staff Papers (SP), UGPTI publishes reports for the Mountain-Plains Consortium (MPC). These reports may be written by staff from universities which cooperate with the UGPTI in the consortium. Reports may be found by using the search function on the UGPTI's Research Reports Web page at <http://www.ugpti.org/resources/reports/>.

SP-173 **"Business Plan for Palace Transit"** was written by James H. Miller, Jon Mielke, and Marc Scott. The publication outlines a business plan for the transit system in Mitchell, SD.

SP-172 **"Business Plan for West River Transit Authority Inc."** was written by James H. Miller, Jon Mielke, and Marc Scott. The publication outlines a business plan for the transit system in Spearfish, SD.

SP-171 **"Business Plan for People's Transit"** was written by James H. Miller, Jon Mielke, and Marc Scott. The publication outlines a business plan for the transit system in Huron, SD.

SP-170 **"Business Plan for Brookings Area Transit Authority"** was written by James H. Miller, Jon Mielke, and Marc Scott and outlines a business plan for the transit system in Brookings, SD.

MPC-09-216 **"Use of Salvaged Utility Poles in Roadway Bridges: Time-Dependent Behavior of Composite Wood-Concrete Beams"** was written by Nathan J. Miller, Richard M. Gutkowski, and Jenő Balogh at Colorado State University. The report describes a research study focused on the long-term and repeated load behavior of wood-concrete composite beams in which the wood layer is composed of recycled utility poles.

MPC-08-196 **"Structural Performance of Prestressed SCC Bridge Girders Made with Limestone Aggregates"** was written by Nadim Wehbe, Arden Sigl, Zachary Gutzmer, and Chad Stripling at South Dakota State University. The report details material testing of self consolidating concrete (SCC) mixtures and structural testing of full-scale prestressed bridge girders.

DP-222 **"The Changing Attitudes and Behaviors of University Students Toward Public Transportation: Final Report"** by David Ripplinger, Jill Hough, and Bethany Brandt-Sargent describes a survey of NDSU students conducted to investigate changing attitudes and travel behaviors.

DP-221 **"North Dakota Transportation Survey: Aging and Mobility"** by Jeremy Mattson. The report describes a study to determine how informed and satisfied older adults are with their transportation options, how often they make different types of trips, if they desire more trips, if lack of transportation limits the trips they make, what improvements they would like to see made for them to stay in their neighborhood as they age, and what problems they encounter with using public transportation.

DP-220 "Annual North Dakota Elevator Marketing Report, 2008-09" by Kimberly Vachal and Laurel Benson provides a benchmark for elevator managers in assessing performance, and supply a source for recognizing trends in the characteristics of North Dakota elevators.

DP-219 "Evaluation of North Dakota's Fixed Automated Spray Technology Systems" by Shawn Birst and Mohammad Smadi describes an evaluation of two fixed automated spray technology (FAST) systems installed by the NDDOT for anti-icing.

DP-218 "North Dakota Grain and Oilseed Transportation Statistics, 2008-09" by Kimberly Vachal and Laurel Benson represents a continuation of analysis concerned with the patterns and methods of distributing grains and oilseeds from North Dakota.

DP-217 "Transit and Small Urban Sprawl" by Del Peterson describes what steps small urban transit providers are currently taking to integrate transit service into sprawling communities, and to determine what can be done to improve relationships with local governments during the land development planning process.

MPC-10-219 "Feasibility Study of Mobile Scanning Technology for Fast Damage Detection of Rural Bridge Using Wireless Sensors" was written by Suren Chen, Jun Wu, and Feng Chen at South Dakota State University. The study aims at conducting the feasibility study on detecting damage of bridges through using passing vehicles and wireless sensors.

MPC-09-213A "Evaluation of Transit Signal Priority Strategies for Bus Rapid Transit on 5600 West Street in Salt Lake County, Utah" was written by Peter Martin and Milan Zlatkovic at the University of Utah. The report evaluates the impact of extended public transit services on vehicular traffic in the region in future years.

DP-227 "What Can Crash Data Tell Us About Older Drivers in North Dakota?" by Kimberly Vachal and Donald Malchose presents findings that may be used in vetting a combination of education, engineering, policy, and enforcement measures that can be used to reduce older driver risk for crash injury and death both in terms of crash involvement and injury severity.

DP-226 "Technology Adoption by Small Urban and Rural Transit Agencies" by David Ripplinger and Bethany Brand-Sargent presents findings from a national survey on technology use by agencies providing transit service to rural areas.

MPC-10-218 "Implementing Traffic Safety Evaluations to Enhance Roadway Safety" was written by Jason Baker, Kurt Johnson, and Kim Vachal. The report provides a blueprint for conducting low-cost road safety audits for counties in North Dakota.

DP-225 "Medical and Economic Cost of North Dakota Motor Vehicle Crashes" by Donald Malchose and Kimberly Vachal evaluates the economic impacts of motor vehicle crashes.

DP-224 "Assessing Demand for Rural Intercity Transportation in a Changing Environment" by Jeremy Mattson, Del Peterson, William Thoms, David Ripplinger, and Jill Hough determines the attitude of would-be passengers in their choice of mode and the factors determining their choice in rural and small urban areas.

MPC-10-217 "Seismic Vulnerability and Emergency Response Analyses of UDOT Lifelines" was written by Aleksandar Stevanovic and Bhagavan Nadimpalli at the University of Utah. The report describes a research study that presents estimated traffic disruption user delay costs resulting from two earthquake scenarios in Utah.

DP-223 "Ride or Relocate" by Del Peterson and Marc Scott focuses on quantifying the cost of living at home and riding transit in North Dakota versus relocating to an assisted living facility.

MPC-10-220 "Sustainable Concretes for Transportation Infrastructure" was written by Carolyne Namagga and Rebecca Atadero at Colorado State University. The report describes research that focuses on the beneficial utilization of Spray Dryer Ash (SDA) and investigates its performance in concrete for structural and transportation applications.

MPC-08-195 "Evaluation of SRICOS Method on Cohesive Soils in South Dakota" was written by Francis C. K. Ting, Allen L. Jones, and Ryan J. Larsen at South Dakota State University. The report evaluates the SRICOS (Scour Rates In COhesive Soils) method, which has been proposed as an alternative design methodology for predicting scour at bridges found in cohesive soils.

MPC-20-220 "Mesoscopic Evacuation Modeling for Small to Medium Sized Metropolitan Areas" was written by Mohammad Naser and Shawn Birst. The paper focuses on the development of an evacuation model for urban areas utilizing the resources available to MPOs and obtaining local evacuation data, which include human behavior data from a local household survey.

DP-230 "Safety Insights and Indicators for North Dakota" was written by Kimberly Vachal, Donald Malchose, and Laurel Benson. The report outlines the analysis of a survey completed by teens in the state which shows that age, driving exposure, driving experience, and demographics are interrelated factors in safety outcomes.

UGPTI HISTORY

The UGPTI was created at North Dakota State University in 1967 by the North Dakota Legislature. The institute initially focused on agricultural commodity movements, particularly rail freight rates. In the 1970s and 1980s, with transportation deregulation, some of the research that the UGPTI had conducted was no longer necessary and funding for those efforts began to dwindle. Consequently, the UGPTI has broadened its programs to address a full range of issues related to the mobility of people and freight regionally and globally. As a result, the quantity and variety of UGPTI programs has grown.

The institute has had four directors (pictured on this page). The current director, Gene Griffin, became acting director in 1979 and was named director in 1980. Under his direction, the institute's annual budget increased from \$175,000 to more than \$10 million and the staff has grown from two to more than 50.

Some milestones.

- In 1988, UGPTI, Colorado State University, the University of Utah and the University of Wyoming established the Mountain-Plains Consortium under the USDOT's University Transportation Centers Program and won recompetitions in 1991, 1998 and 2005. SDSU joined in 2006. MPC serves USDOT Region 8 which includes the Upper Great Plains and Intermountain West.
- In 1994, the UGPTI established the TEL8 video conferencing network. TEL8 is now the Transportation Learning Network. TLN is governed by a board of directors representing each of the participating state DOTs and Mountain-Plains Consortium (MPC) universities. The system uses the latest learning technology to serve the transportation interests of the region.
- Based in Lakewood, CO, the Transportation Safety Systems Center has been in operation since 1996, and develops and maintains software used by state and federal safety specialists nationwide. The center is also extensively involved with safety-related research and analysis.
- The Advanced Traffic Analysis Center was established in 1998 to address transportation needs and issues of small- to medium-sized cities. ATAC provides support to decision makers who plan, operate, and fund transportation systems at the local, regional, and state level.
- The Department of Transportation Support Center was established in November 2000 when the UGPTI established a partnership with the NDDOT. The center, supervised by on-site DOT design staff, employs, trains and utilizes undergraduate students in DOT design and IT projects.



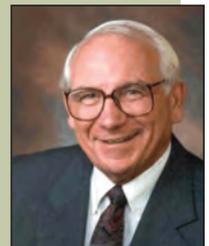
GENE GRIFFIN
1979 – PRESENT



ROBERT TOSTERUD
SEPTEMBER 1974 –
JANUARY 1979



DALE ANDERSON
JANUARY 1972 –
AUGUST 1974



DAVE NELSON
JULY 1967 –
DECEMBER 1971

- The Small Urban & Rural Transit Center was founded in 2002 to increase the mobility of small urban and rural residents through improved public transportation. The center's research, education, training and outreach programs are now national in stature.
- A doctorate in transportation and logistics was offered in 2002. The Masters of Military Logistics (now Masters of Managerial Logistics) was added in 2006. A master's in Transportation & Urban Systems, a Master of Transportation and Urban Systems and a certificate program in Transportation and Urban Systems were first offered in 2009.
- The Rural Transportation Safety and Security Center, established in 2005, promotes and enhances the region's transportation safety and security through research, education, and outreach, in a partnership with stakeholders.
- The North Dakota Local Technical Assistance Program became part of the UGPTI in 2007. The Local Technical Assistance Program (LTAP) of the Federal Highway Administration (FHWA) was originally created in 1981 to improve access to highway transportation related technology for local units of government.

2010-2011 INITIATIVES

The following initiatives are proposed or under development for FY 2010-2011 and beyond.

Tracking, Sensing, Communications Test Bed. This initiative would develop the NDSU campus into a test bed that could be used by developers to evaluate advances in electronic technology such as RFID for tracking, sensing and communications and demonstrate them to users. Many of the applications are likely to focus on transportation and could include supply chain management and the related areas of inventory control, automatic vehicle location, cold chain management, electronic monitoring, bus routing, infrastructure management, security and safety.

NDSU Transportation Building Initiative. The proposed Center for Transportation Studies will serve as an acknowledgement that mobility is an important and recognized academic field. The building will support the UGPTI's research, education and outreach for small urban and rural communities. The current design includes 55,000 square feet for classrooms, teaching and research labs, a museum, and administrative offices at a cost of about \$16 million.

Procurement Technical Assistance Center. Through education and technical assistance, this center will help North Dakota businesses build relationships that will allow them to sell their products and services to the Department of Defense and other national, state and local government agencies. The center's efforts will also enhance the logistics and supply chain management expertise that is so important for businesses to be competitive for government contracts.

Transportation Security and Counterterrorism. Given the critical nature of mobility to our socioeconomic system, protecting the mobility of freight and people is critical to U.S. security. With a focus on transportation operations and infrastructure, the center would conduct research and outreach on current and future threats; critical vulnerabilities; and existing security protocols.

Transportation and Economic Development University Center. Staff will collaborate with local and regional partners to provide technical assistance, disseminate information and conduct research on transportation-related aspects of economic development. This work with businesses, local governments and economic development organizations will produce transportation innovations that will increase the mobility of labor, goods and knowledge.

Rural and Agricultural University Transportation Center Program. UGPTI is working with a consortium of universities to establish a program to address the rural transportation and logistics needs of agricultural producers and related rural businesses. At least initially, research and outreach will focus on the transport of biofuels and the export of agricultural products.

North Dakota Intelligent Border Security. This effort will develop an intelligent border sensor security system tool kit for the National Guard Bureau that can be used to acquire and deploy an integrated multi-technology sensor network with state-of-the-art wireless reach-back capability. This tool-kit will provide a solution for end-users with border security, perimeter security and mobile reach-back needs.

Institute for Complex Operations. Staff in this proposed research center will study stabilization and reconstruction, humanitarian and disaster relief and irregular warfare and counterinsurgency operations. These areas, taken together, comprise the umbrella concept now referred to as “complex operations.” The center will conduct long- and short-term research to support programs and personnel working to deter those that are focused on inflicting harm on our civilized democratic system and to win the hearts and minds of the people and cultures caught in the crossfire.

Participation at the Fort Lee Army Logistics University. This project will help meet the logistics education and professional development goals of the Department of Defense by establishing NDSU degree programs in collaboration with the Army Logistics University under a cooperative agreement with the Department of the Army. A complementary program will be implemented on the NDSU campus so that it is accessible to National Guard and Army Reserve units in the Upper Great Plains region.

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