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## Tolliver appointed associate director



Denver Tolliver has been promoted to associate director of the Upper Great Plains Transportation Institute at North Dakota State University, effective July 1,

according to UGPTI director Gene Griffin.

As associate director, Tolliver will coordinate efforts of the nine existing programs within the Transportation Institute and assist in planning and development of programs. He will also be responsible for representing the institute internally at NDSU in the absence of the director and will assist the director in planning and development of future programs.

Tolliver oversees the new doctoral program in transportation and logistics, serves as director of the four-state Mountain-Plains Consortium and is a senior research fellow with UGPTI. He is also an adjunct professor in civil and construction engineering.

Prior to coming to NDSU in 1980 he was a research assistant at the Virginia Polytechnic Institute Center for Environmental Studies and a rail planner

with the North Dakota Department of Transportation. He received a bachelor of arts degree at Morehead State University in Kentucky and masters and doctoral degrees at VPI.

He is a past president of the Agriculture and Rural Transportation Chapter of the Transportation Research Forum, served on national research committees, and wrote verified statements on railroad freight transportation presented to the Interstate Commerce Commission or Surface Transportation Board. He has been a consultant to the transportation departments of Washington, Idaho, Nebraska and Virginia, the U.S. Army Corps of Engineers, Grain Transportation Agency of Canada, Canadian National Railroad and private companies.

Tolliver has written many journal articles and reports on transportation topics and the book, "Highway Impact Assessment Techniques: A Guide for Transportation Managers and Planners."

## Fargo-Moorhead metropolitan transportation planning model

The Advanced Traffic Analysis Center updated the metropolitan travel demand and forecasting model with the Fargo-Moorhead Council of Governments (FM-COG). The updated model reflects the recent development areas in the Fargo, West Fargo, Moorhead and Dilworth areas and the corresponding transportation network, using 2000 as the base year.

ATAC completed the model calibration and has begun working with FM-COG on forecasting future demand levels.

The model was used this summer to conduct an analysis of traffic impact due to the Main Avenue construction project.

## Md. Ahsan Habib joins ATAC

Md. Ahsan Habib joined the Advanced Traffic Analysis Center Sept. 15 and will work in the areas of Intelligent Transportation Systems architecture, systems engineering, and enhancing transportation analysis software.

While working with ATAC as a graduate research assistant, Habib developed two interfaces to enhance the CORSIM traffic simulation model to allow multiple runs of the model and automate output extraction.

In addition, Habib trained in advanced GIS applications in ArchGIS, which will allow ATAC to support the development of automated routing systems in North Dakota.

Habib has extensive programming experience in various platforms and languages including Visual Basic, VBA, C/C++/C#, JAVA, ASP, XML/XSL, HTML, JavaScript, NUnit/JUnit Testing, JSP, Servlet, UNIX/Linux, and Windows 95-2000/XP.

Habib will complete his master of science degree in computer science at North Dakota State University this fall.

## ATAC student wins Second Place

Jason Baker, Advanced Traffic Analysis Center research student and a senior in civil engineering, won second place for a presentation at the Educator-Student program of the Highway Engineering Exchange Program.

His paper, presented at the 2003 Area III HEEP conference in Ames, Iowa in May was on the use of innovative traffic analysis methods.

## Bismarck school safety study

The Advanced Traffic Analysis Center has just completed an extensive inventory of Bismarck area schools to be used in a city-wide school safety study. The data collection was conducted through a collaboration between ATAC students and a Bismarck State College student. They used GPS technology to accurately collect the data and transform it to GIS.

## UGPTI awarded federal contract

The Upper Great Plains Transportation Institute at North Dakota State University has been awarded an \$8.7 million five-year contract to maintain and enhance software programs used by the Federal Motor Carrier Safety Administration and safety inspectors nationwide, according to Brenda Lantz, director of the Institute's Transportation Safety Systems Center.

The Safety Systems Center is a specialized software development center operated by UGPTI in Lakewood, Colo., to develop and maintain front-end software for state and federal motor carrier safety specialists.

FMSCA, a unit within the U.S. Department of Transportation, maintains highly sophisticated safety information gathering and processing systems to ensure safety of motor carrier operations in the United States. A major part of the agency's field systems includes a group of

(federal contract continued on page 3)

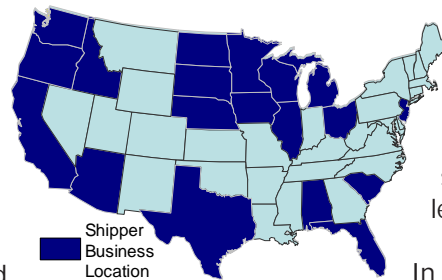
## Study shows shippers active in marketing

Containerization has evolved from an industry serving niche markets to an industry creating niche market opportunities.

The Upper Great Plains Transportation Institute, North Dakota State University and Transportation Marketing Services with the United States Department of Agriculture, recently published results of a survey of containerized grain and oilseed export businesses.

The survey suggests an established and growing U.S. shipper population is active in marketing containerized grains and oilseed products. Respondents reported they marketed an average 212 containers in 2002, a 25 percent increase in average annual volume compared to volumes they report for 2000. The businesses were located across 19 states (see map).

A majority of the containerized grain and oilseed export volume, 76 percent, is originated by shippers located within 350 miles of their primary container terminal.



Shippers report that premiums for containerized grain and oilseed products are approximately \$5 per hundredweight, compared to the local bulk counterpart market. The net return to shippers is unknown as business practices and market fundamentals influence the costs associated with delivering the product to a customer overseas versus a local grain terminal or processor.

Assuming market activity is positively correlated to profitability, the grain and oilseed container shippers would seem to be achieving acceptable levels of profit.

In aggregate, shippers reported grain and oilseed container exports that increased annually between 2000 and 2002. Shippers estimate that exports will increase another 20 percent by 2005.

Although many factors affect industry ability to realize this growth, shippers deem ocean freight rates as most crucial. Ocean liner routes/services, distance to container terminal, and foreign buyer information are also rated with above average importance. For more information on this research, download publication MPC 03-151 at [www.mountain-plains.org](http://www.mountain-plains.org).

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programs used by safety investigators and inspectors on the highway, at borders and during safety reviews and audits.

Tasks will include developing field system software, preparing software documentation, quality assurance and testing, analysis and technology research, program management, and developing client software applications.

Some of the field systems software packages include roadside driver and vehicle inspection, commercial driver license information access, roadside access to critical carrier information for inspection prioritization, carrier safety profile software, hazardous materials inspection software and field data routing software. These efforts will be enhanced through related research conducted by Lantz and other colleagues at the Transportation Institute. For more information about the program please visit the Website at [www.ugpti.org/tssc/](http://www.ugpti.org/tssc/).

## North Dakota's third Biennial Strategic Freight Analysis focuses on motor carriers

Upper Great Plains Transportation Institute researchers are conducting the third in a series of research projects. The North Dakota Biennial Strategic Transportation Analysis Program addresses key issues in the state. This study offers information that may help solve problems in the motor carrier industry, enhancing the state's competitive position through efficient transportation.

Each biennium the program focuses on a specific economic sector important to North Dakota. The purpose of the program is to improve North Dakota's economy by fostering a better understanding of the role transportation and logistics play in the success of the state's industries. The overall goal of the program is to improve the competitiveness of firms in North Dakota.

The 2003-2005 program focuses on the economics of the motor carrier industry and its customers. This analysis will specifically focus on costs resulting from obstacles faced in day-to-day business operations.

These obstacles include:

- Different regulations on size and weight in different jurisdictions,
- Different permit requirements, and
- Problems faced in retaining and supporting employees in the industry.

The motor carrier industry is a major link to the outside world for many businesses in North Dakota. This strategic biennial project focuses on the significance of motor carriers, and problems motor carriers and shippers face dealing with differences in regulations between North Dakota and the surrounding region.

### Direct and indirect economic impact evaluated

Particularly, the program focuses on regulations of size and weight of commercial trucks. This analysis will evaluate the direct and indirect economic impact on shippers faced by the differences in motor carrier regulations and seasonal load restrictions. Restriction differences among counties, states and provinces provide a less than optimum transportation system. This, in turn, results in higher product costs, lost trade, and reduced revenues for producers and shippers.

This project, dedicated to motor carriers in the region, will focus on determining the costs associated with regulations and restrictions. In turn, the project will analyze the differences in regulations and permitting processes, and the costs due to these differences.

The North Dakota Department of Transportation recently published a statewide strategic transportation plan, TransAction. Several initiatives referring to freight

transportation and existing problems were identified. This UGPTI analysis directly addresses some of the issues that resulted from TransAction, studying some of the motor carrier problems identified in the plan.

### Motor carriers face multiple challenges

Businesses and motor carrier companies are directly affected by weight, size and seasonal and year-round load restrictions.

Motor carriers, farmers and businesses desire load restriction free roads for all season delivery of commodities and products. In addition to seasonal and year-round road restrictions, some state, city and county highways have height or width restrictions that result in increased costs through reduced payloads and extra trips.

These restrictions often present confusion, frustration and additional costs for those trying to transport products within the state or region. In some cases, multiple permits may provide a

motor carrier with the authority to transport freight across different counties and state highways, or within the region.

Problems exist, however, in the system of obtaining permits. A company may have to obtain permits from several different jurisdictions to complete a trip. In some instances, permits may not be available. This inconvenience is often costly and may result in re-routing or postponing an event.

### Project to determine costs

The project has two objectives.

First, the project should determine the opportunities for, and the economic and safety impact of, a regional uniform size, weight and permitting system. In addition, it will provide information about economic costs to shippers because of the differences in size and weight regulations in the region including Saskatchewan, Manitoba, North Dakota, South Dakota, Minnesota, Montana, Iowa and Nebraska. This analysis will inform DOTs and policymakers as they examine economic costs of restrictions and regulations on motor carriers and their customers.

Second, researchers will analyze the economic impact of load limits and the benefits of establishing a statewide program to coordinate the administration of load limits. This will examine economic costs to shippers associated with seasonal and non-seasonal in-state load restrictions on state and county roads as well as the costs associated with the permitting processes and other problems that may surface as a result of the research.

### Johnson joins DOTSC



Kurt D. Johnson routed through Washington, D.C., and a decade with AASHTO, to his role as associate research fellow with the Upper Great Plains Transportation Institute. Born, raised and educated in North Dakota, Johnson

enjoyed his term with the American Association of State Highway and Transportation Officials

where he guided multiple multi-million dollar software efforts and offered technical expertise.

Projects with AASHTO included serving as technical expert for the United States Department of Transportation and the National Academy of Sciences on several major national projects. He also directed the Transportation Safety Information Management System and managed the development of the BRIDGIT Bridge Management System, the HWYCON expert system software for concrete, the SDMS software project for survey data management, the PONTIS Bridge Management System, the Virtis bridge load rating system, the Opis bridge analysis system and the SUPERPave software product for asphalt mix design.

Now he's home, working at his alma mater doing research projects contracted with the North Dakota Department of Transportation. He has several focus areas including lending technical support to the task group charged with increasing the load carrying capacity of the highway system by 20% by 2008. Second, he provides technical support for improving the ride quality of North Dakota highways 10% by 2008. Third, he provides technical support for the task group charged with developing maintenance service levels on the state highway system and fourth, he is part of a team developing a pavement preservation system for the NDDOT.

He also brings expertise to UGPTI for the North Dakota Aeronautics Commission. His experience in rehabilitation design, pavement evaluation and management systems for airports can be a payoff for the state's airports. Because UGPTI can do this work, dollars may stay in the state – and as an extra bonus, NDSU engineering students can train to work in the aeronautic aspects of transportation.

Johnson has always wanted to return to his North Dakota roots and give something back. Working with graduate students is exciting for him because he can share his experience gained outside the state and help them be able to stay in the area, too. He hopes students from the program will keep their technical knowledge in the state.

## Manohar joins DOTSC



The Upper Great Plains Transportation Institute's commitment to education and students paid off again. Radha Manohar, who began working for UGPTI as a graduate student in April 2002, has become a full-time research

assistant for the North Dakota Department of Transportation Support Center, DOTSC.

Manohar provides support for research projects requiring computer programming or statistical analysis. She is the primary contact for utilization of pavement management software for projects with the state, and for future contracts with cities and counties. Her expertise is involved in the development of pavement preservation software.

She is part of preparing a proposal for a runway management software system for the North Dakota Aeronautics Commission.

Her credentials span an array of software applications. After earning her bachelor of science in mathematics from the University of Madras and her first master of science in mathematics from the Indian Institute of Technology, both in Chennai, India, she developed, built and maintained applications in COBOL for Tata Consultancy Services, Chennai, India. Much of her work supported Boeing Co., Seattle, Wash., and the United Service Automobile Association in Texas.

Moving to Oman, she was in Oracle development, primarily for MEDICOM, a comprehensive, modular and integrated hospital information system. Many hospitals adopted the program including the American hospital in Dubai. At the time, MEDICOM was implemented in the 3,000-bed Chris Hani Bargwanath Hospital in South Africa, the world's largest hospital. This project was in association with IBM South Africa.

Working on her second master's degree at North Dakota State University, Manohar is focusing on computer science. She chose NDSU

as the university that had everything she sought in advancing her education.

Her thesis is on the problem of developing, analyzing and testing a new approach to database process synchronization.

Manohar's initial work with UGPTI was in applications for road load, gravity models. Specifically, she developed software involving the Bridge formula, converting truck axle weights and configurations to allowable truck load limits. The software also calculates equivalent single axle load factors for the given configurations. Other software was for the gravity model that forecast trip distribution for the horizon year based on the trip distribution specified for the base year.

Intelligent transportation is an innovative field in which she is vitally interested. She plans to be part of future applications that will integrate the Internet, intranets and extranets in the design, construction and operation of transportation facilities.

In addition to her other accomplishments, Manohar is on her way to certification as an Oracle certified professional having successfully completed Develop PL/SQL Program units and Introduction to Oracle: SQL and PL/SQL.

## NDSU transit researcher named to national project committee



Jill Hough, program director for small urban and rural transit research with the Upper Great Plains Transportation Institute at North Dakota State University, has been selected to serve on the oversight and project selection committee of

the Transit Cooperative Research Program.

TCRP, authorized in 1991, is a research program designed to focus on the needs of transit operating agencies. It is sponsored by the Federal Transit Administration and carried out under an agreement among the National Academies of Science acting through the

Transportation Research Board, the Transit Development Corporation, the educational and research arm of the American Public Transit Association, and the FTA.

As a member of the TCRP Oversight and Project Selection (TOPS) Committee, Hough will be involved in setting the research agenda for TCRP. The TOPS committee, composed of transit system managers, university representatives, suppliers and the FTA, selects projects from research topics submitted by the transit industry or developed to meet special research needs. Research topics come from a wide variety of areas including operations, services, engineering of facilities and equipment, maintenance, human resources, administration, and policy and planning.

Hough has 12 years of experience in transportation research. She serves as director of UGPTI's Small Urban and Rural Transit Center, which focuses on research, education and training for the public transportation industry. She has published reports and articles in the areas of low-volume roads, logistics and economic development and has worked on several projects with the U.S. Department of Transportation. She spent four months as interim director for the Federal Transit Administration's Transit Intelligent Vehicle Initiative in Washington, D.C.

She received bachelor of science and master of science degrees in agricultural economics at NDSU and is working on a doctorate degree in transportation technology and policy from the University of California-Davis.

Her first meeting with the TOPS committee was June 21 and 22 at Woods Hole, Mass.

## SURTC hosts seminar, completes projects

Small Urban and Rural Transit Center recent activities have included sponsoring a seminar, hosting a steering committee meeting, completing projects and reports, and initiating new projects.

In a Sept. 9 seminar, Daniel Sperling, director of the Institute of Transportation Studies at the University of California, Davis, spoke of the continuing rapid increase in the number of personal vehicles in the world and the resulting increases in oil consumption and emission of carbon dioxide and other pollutants. He pointed out that most transportation trends in the United States are heading in the wrong directions, with increased use of heavier and less fuel efficient vehicles. He said a combination of strategies to reduce vehicle traffic, produce advanced vehicles and move to low-carbon fuels could reduce fuel consumption and reduce carbon dioxide emissions.

The SURTC steering committee met at NDSU Sept. 24. Attendees included committee members from North and South Dakota, Minnesota, Montana, Wyoming and Washington, D.C., as well as David Sprynczynatyk, director of the North Dakota Department of Transportation, and Barbara Sisson, associate administrator of the Federal Transportation Administration. Participants shared experiences, discussed mutual problems and suggested areas for future SURTC projects. Areas of concern included revenue sources, driver safety training, insurance costs, affordable and easy-to-use scheduling software and integration of technology into rural transit.

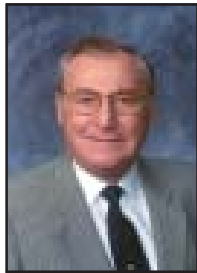
SURTC recently completed a study on how well transit needs of the disadvantaged are being met in North Dakota. The survey showed that respondents are largely satisfied with transit services, but a higher percentage of disadvantaged North Dakotans reported transportation problems compared to the national average. The most requested improvements in service included increased service hours, lower fares, more convenient scheduling and reduced riding time.

Campus transit studies involving NDSU, Minnesota State University Moorhead and Concordia College were completed. The goal of the campus transit study was to design and develop an internal campus transit system interfacing with the city-wide transit system to better meet the needs of the expanding NDSU campus,

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## UGPTI awards banquet held October 16

The Upper Great Plains Transportation Institute honored two prominent individuals in North Dakota's transportation industry at its annual awards banquet.



Receiving the John Agrey Award for outstanding contributions in transportation were Warren B. Diederich and Walter R. Hjelle. Diederich is the founder of Industrial Builders, Inc., and still serves as chairman of the board. He was active in the state and national Associated General

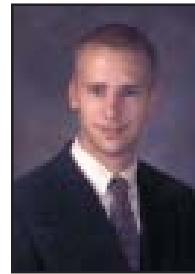
Contractors of America, serving as state president and on numerous national committees. He was honored for work on highway funding legislation that benefitted North Dakota.

Hjelle served as North Dakota highway commissioner from 1961 to 1981 and again from 1985 to 1988, longer than any other commissioner in state history. The state highway system had its greatest expansion under his leadership, including the state's portion of the Interstate Highway System.



UGPTI also awarded four undergraduate scholarships to NDSU students.

Paul E.R. Abrahamson Scholarships were awarded to Justin Sorby, Fort Ransom, N.D., and Justin Goettle, Donnybrook, N.D.

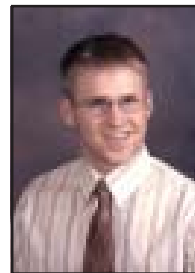


Justin Sorby



Justin Goettle

Transportation engineering scholarships were awarded to Nathan Pederson, New London, Minn., and Robert Klein, St. Cloud, Minn.



Robert Klein



Nathan Pederson

Funding for the scholarships is provided through the Mountain-Plains Consortium through a grant from the U.S. Department of Transportation.

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including students, faculty and staff. The project was expanded to include MSUM and Concordia at the request of the Fargo-Moorhead Council of Governments. A report on the full project is coming soon.

Several new projects are under way, including North Dakota's Statewide Mobility Plan, analysis of demographic information, Transit and non-profit organizations, development of a best practices manual for transit managers, coordinated transportation, a James River Transit study, and an ITS technology tool kit for operators and service providers.

A transportation coordination meeting for public transportation stakeholders is scheduled for Nov. 20 in Bismarck.