



## A Message from the Director Dr. Martin E. Lipinski

This past year has been an exciting and productive one for CIFTS as we have moved beyond experiencing growing pains to developing an effective organization involved with activities, which you will read about in this newsletter.

We have several projects underway at the University of Memphis and at our partner institution, Vanderbilt University. At Vanderbilt, a series of scans have been conducted, identifying key safety, security, and capacity issues in the freight transportation industry. Also, a Vanderbilt researcher is developing a water transportation database that can be used to trace global freight movements. University of Memphis activities have focused on An Assessment of the Memphis Regional Intermodal Infrastructure, while establishing key relationships with transportation providers, shippers and freight forwarders, and government officials.

Also underway are our first four faculty research projects, awarded in peer-reviewed competition. Topics range from Best Practices for Truck Driver Retention to Remote Sensing of Freight Transportation Networks. We are building capacity with the addition of a new faculty member, Mihalis Golias, who comes to us from Rutgers University with a wealth of experience in freight modeling.

Our second annual conference, focusing on "Disaster Recovery – Moving Beyond First Response," was a great success, and we selected our first UTC Student of the Year, Sandy Mehlhorn, who represented us well at the Transportation Research Board annual meeting.

This spring we will offer a graduate-level Intermodal Freight Transportation course that will be team-taught by Vanderbilt and University of Memphis faculty, using distance-learning technology.

These successes are made possible through strong partnerships and generous funding and support from the private sector led by a \$1 million gift from CN Railway to create the E. Hunter Harrison Center for Intermodal Safety and Emergency Preparedness. This gift, along with continued support from the Tennessee Department of Transportation, helps to ensure the sustainability of the Center.

We look forward with enthusiasm to the coming year and to expanding our activities in the areas of education, research, and technology transfer as we serve the region and our nation's freight needs.

## Intermodal Freight Transportation Course to be Offered in Spring 2009

One of the first research projects initiated through the Center for Intermodal Freight Transportation Studies (CIFTS) was the development of an introductory course in intermodal freight transportation for graduate students and upper-level undergraduates. This course has been designed to utilize faculty expertise at Vanderbilt University and the University of Memphis, as well as freight transportation industry professionals. Lectures will be delivered using distance-based learning technologies, and students from both universities will be able to enroll in the course starting in the spring of 2009.

The course will cover all modes of freight transportation and provide students with an introduction to special topics such as freight data and modeling, hazardous materials transportation and emerging technologies for expediting freight transport. The highlight of the course involves a two-day field trip in Memphis where students will see intermodal freight transportation operations up close. The trip will involve a tour of the Memphis FedEx World Hub (during a sort), inspection of the Port of Memphis and Mississippi River navigation on an Ingram Barge Company towboat, and a tour of the Canadian National Railway intermodal terminal.

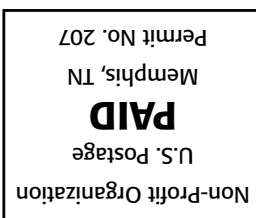


The course will be offered on Wednesdays from 4 -7 p.m., and it is anticipated that the course will continue to be jointly offered by both universities in the future. Development of an executive course is anticipated to follow, which would be offered to business and government professionals interested in learning more about intermodal freight transportation.

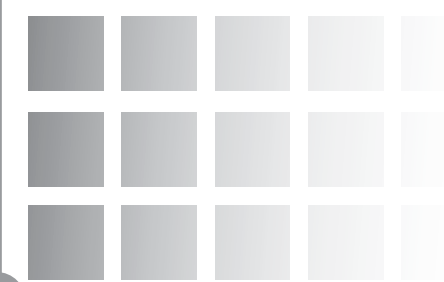
For more information about the course, please contact James Dobbins at Vanderbilt University ([j.dobbins@vanderbilt.edu](mailto:j.dobbins@vanderbilt.edu)).



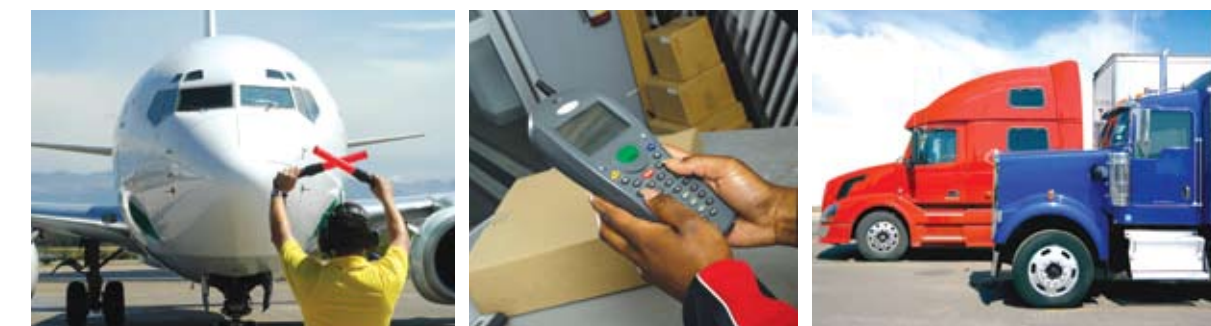
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INTERMODAL IMPACT



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## Airport Area Study Critical to Smart Growth

The University of Memphis Intermodal Freight Transportation Institute (IFTI), in partnership with the Sparks Bureau of Business and Economic Research (SBBER), has initiated a new project, *Intermodal Freight Transportation Assets and Needs and Economic Development Opportunities in the Area of the Memphis International Airport*. The study has multiple objectives, including an analysis of the impact of the airport on the Mid-South region's economy; a study of transportation system assets and needs focusing on the transportation system and its ability to provide adequate capacity to support future freight movements; and an evaluation of the economic development potential in the area surrounding the airport, including an analysis of the relationships between the robustness of the transportation system and the degree to which economic development can proceed.

The study will dovetail with the ongoing Memphis Aerotropolis initiative. Aerotropolis represents an evolving urban form involving aviation-intensive businesses and related activities extending up to 20 miles outward from major airports. This represents a new approach, bringing together airport planning, urban and regional planning, and business site planning in a synergistic manner

so that future aerotropolis development will be economically efficient, aesthetically pleasing, and socially and environmentally sustainable. The Memphis International Airport is home to FedEx and is the largest air cargo airport in the world by tonnage. It is a vital component of the Memphis economy. Many businesses have located around the airport, and many more are evaluating the potential of establishing operations in the area.

IFTI graduate students will evaluate the status of transportation infrastructure in the region surrounding the airport. All modes of transportation will be included, and the effects of future growth in highway and rail traffic will be considered. Students will use ArcGIS to develop maps of the area and TransCAD for modeling the transportation network. The degree of congestion and the condition of streets and highways are major concerns affecting development. A project deliverable will be recommendations for future roads extensions and improvement. A model of freight traffic and operations in the area will be developed. Using this model, future transportation patterns, based on the projected growth trends, will be forecast, and an analysis of the impact of economic development patterns in the area will be performed.





## Assessment of the Memphis Regional Intermodal Infrastructure

The Intermodal Freight Transportation Institute (IFTI) at the University of Memphis is partnering with Global Insight, an international leader in economic and financial analysis, forecasting and market intelligence, to conduct a study, "Assessment of the Memphis Regional Intermodal Infrastructure," for the Memphis Regional Chamber of Commerce. Other partners in the study include Wilbur Smith and Associates and Design Nine. The focus of the \$340,000 project is to identify future regional intermodal infrastructure needs within the context of the evolving global supply chain. The study area encompasses a 16-county region and will include analysis of transportation, telecommunications and critical economic facilities such as warehouses, distribution centers, and manufacturing companies. The primary role of IFTI is to collect data on the transportation and freight aspects of the project.

## I-75 Corridor Feasibility Study

CIFTS will partner on a team that has been selected by the Tennessee Department of Transportation to conduct a feasibility study of the I-75 corridor in eastern Tennessee. The project will focus on the analysis of freight congestion in the I-75 corridor and in the development of alternatives to mitigate the problem and meet future demand. Kimley-Horn and Associates will serve as the primary consultant on the study, which is expected to be completed by the summer of 2009.

The project will require an analysis of freight movements on all modes of transportation within the corridor. CIFTS will be involved in estimating potential diversion of freight traffic from the highway system to the rail network. In addition, the University will be responsible for investigating the potential impacts resulting from lock closure on the Tennessee River.

One of the benefits of the project is for the center to work closely with many graduates of the University of Memphis. The local office of Kimley-Horn is well represented with University of Memphis civil engineering alumni in the local office, including James F. Collins, P.E., Vice President (Local Office Manager), John G. Perry, P.E., Harvey Matheny, P.E., Kenneth Monroe, P.E., Drake Danley, P.E., Kevin R. Eason, P.E., Russell Brasfield, P.E., and Jennifer Perego, P.E.,

Kenny Monroe has been designated by Kimley-Horn to manage the I-75 project. When asked about working with the University of Memphis on this project, Monroe said, "As an alumnus of the University of Memphis, I am excited to have the opportunity to work with current students. The transportation center provides a great opportunity for them to gain experience in the field of transportation engineering, while providing a much needed service to the community. Having the transportation center here on our campus is a great asset for the city, state, and region."



Mihalis Golias

## New faculty member to work closely with the Transportation Institute

The Herff College of Engineering is excited to welcome Mihalis Golias to the faculty in the civil engineering department. Golias brings a wealth of knowledge in freight transportation to the classroom. He will also work closely with CIFTS on projects conducted at the University of Memphis. Hisham Gneedy, a graduate student receiving his degree in civil engineering with a concentration in transportation, and a number of other students met with Golias this fall. Hisham said, "Golias is incredibly knowledgeable about freight transportation. I am excited to have someone who is nationally recognized in the freight modeling area join the faculty."

Golias holds a diploma in Civil and Environmental Engineering from Aristotle University of Thessaloniki, Greece, a Graduate Certificate in Transportation Studies, and master's and Ph.D. degrees in Transportation Engineering from Rutgers University. For the past two years he has been working as a Research Associate at the Freight and Maritime Program (FMP) Laboratory at the Center for Advanced Infrastructure and Transportation at Rutgers University. His core expertise is in the field of freight and maritime operations with a focus on container terminal operations modeling and management. He possesses experience with data mining,

optimization, transportation planning, and traffic operations and management. He is familiar with the U.S. and the European freight industry's issues and policies and a variety of transportation, mathematical and statistical analysis software packages. He has developed and co-developed a number of freight transportation custom-made algorithms and applications, which are currently being used and are available at the FMP laboratory. His recent research work includes modeling of container terminal operations; intermodal freight network modeling; traffic congestion and travel time reliability; ITS-assisted operational strategies to relieve truck traffic related externalities; scheduling and routing of commercial vehicles to reduce related vehicle mileage; and capital and operational network improvements to increase transportation efficiency.



Sandy Melhorn

## Outstanding Student Honored by CIFTS

CIFTS is proud to announce its first Student of the Year award, which was presented to Sandy Melhorn. Sandy received her undergraduate degree in civil engineering from Mississippi State University in 1996 and a master's degree in civil engineering in 1997. She has worked for the Federal Highway Administration and the Texas Department of Transportation. In 2006 she received her Professional Engineering license before enrolling at the U of M to get her Ph.D. The focus of her research is in the

field of highway network reconstruction after a natural disaster. She plans to pursue an academic career when she completes her degree.

Sandy, who lives in Martin, Tenn., with her husband and two children, has shown a great deal of tenacity in working towards her Ph. D. The 200-mile round trip to attend classes at the University of Memphis has required her to give up a great deal of time at home with her family. Along with her class work, Sandy spends 20 hours a week working in the Intermodal Freight Transportation Institute. Her work ethic drives her to be involved in each of the projects that the center works on, and she always takes time to help other students who are working on their graduate and undergraduate work.

Marty Lipinski, director of CIFTS and Sandy's major advisor in pursuit of her Ph.D. said, "I am very proud of the work Sandy has done while here at the University of Memphis. She has exhibited outstanding leadership skills, as well as excellence in the classroom. Her commitment to her studies will make her successful in her future career."

## Conference Presented Timely Topic: Disaster Recovery in Freight Transportation

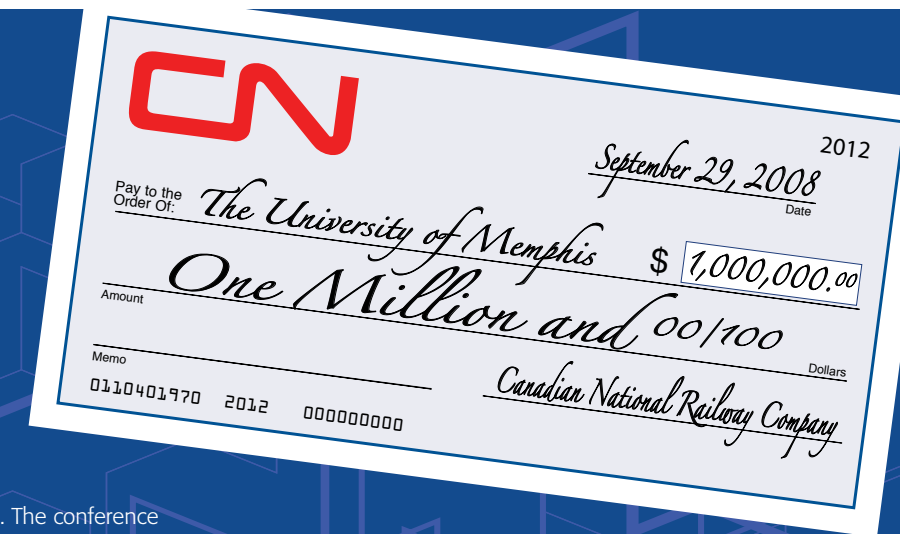
The University of Memphis Intermodal Freight Transportation Institute, housed within the University's Herff College of Engineering, brought together individuals with an interest in disaster recovery and contingency plans for transportation and logistics at a seminar, "Disaster Recovery in Freight Transportation – Moving Beyond First Response," Sept. 29, 2008. The conference was sponsored by CN (Canadian National Railway) and The DeHart Group.

Attendees learned about the current state of disaster recovery preparedness and identified long-term issues that should be addressed should a disaster strike the area and disrupt supply chain systems. These issues included prioritization of rebuilding the infrastructure and partnerships between the public and private sectors.

Conference speakers included State Senator Mark Norris, Robert D. Jamison (BSEE '87), Under Secretary for National Protection and Programs with the Department of Homeland Security, and Joe Waldo, senior consultant on global trade and transportation with Global Insight Inc. Other speakers presented a local perspective on business recovery and contingency planning, including issues facing air, rail, water and trucking.

"This is a timely and important topic for the Memphis region," said Martin Lipinski, director of the Intermodal Freight Transportation Institute. "Memphis is one of the nation's leading freight transportation and logistics centers and is home to the largest cargo airport in the world, five Class I railroads, one of the country's largest inland river ports, and two major interstate highways. Any long-term disruption to the transportation network in the region, such as the collapse of the railroad bridges or the closure of the airport, would have a devastating impact on the economy of the United States."

At the conference, Danny Simpson of CN Railway presented a \$1 million gift to President Shirley C. Raines to establish the CN – E. Hunter Harrison Center for Intermodal Safety and Emergency Preparedness.



## Freight Transportation Safety, Security and Capacity Scans

Researchers at Vanderbilt University are completing a report that systematically identifies and prioritizes safety, security and capacity issues in intermodal freight transportation. The project contains a thorough literature review, state-by-state freight transportation data analysis, and application of a methodology for ranking the issues' impact.

Thus far, operator fatigue, theft/piracy, and infrastructure maintenance have emerged as leading issues, in addition to broader considerations involving global warming and energy independence. The report is expected to be released in the coming months. The findings will be presented geographically, allowing for issues facing the CIFTS region to be differentiated from national results. The top safety, security, and capacity issues will be addressed in a CIFTS summit where interested parties from industry, government and academia will be invited to explore the problem and recommend strategies to resolve it in a cost-effective manner.

For more information about this report, please contact Mark Abkowitz at Vanderbilt University ([mark.d.abkowitz@vanderbilt.edu](mailto:mark.d.abkowitz@vanderbilt.edu))

