



The current economic situation has created challenges for everyone, and the Center for Intermodal Freight Transportation Studies at the University of Memphis is no exception. Almost daily in our interactions with transportation providers, shippers, and government officials we hear questions like; when will the economy recover and how will it affect the freight business? How will the government stimulus plan affect business in the region, state and country? What can we do to position our company to better respond when the recovery begins? What technological advances are being made to help my company operate in a more cost effective manner? What projects can the State of Tennessee

embark on that will help promote the successful transportation of freight? What are the most important infrastructure projects to support freight movement in our community.

It is obvious that the days of “doing business as usual” have long passed. The Government and the private sector have reached a critical point of co-dependence and CIFS is serving as a liaison between these two groups to develop viable options to answer today’s critical questions.

In this issue, you will see how CIFS is working to ensure smart strategies are used in the re-development of the area around the Memphis International Airport, America’s Aerotropolis. With work being conducted by both CIFS and the Sparks Bureau of Economics, we are looking at how to improve the movement of freight in that area and to develop a transportation infrastructure to support economic development.

One of the accomplishments we are most proud of is also highlighted in this issue. As we prepare tomorrow’s workforce of transportation engineers, we conducted our first graduate level intermodal freight transportation class. Offered during the spring semester in a distance learning environment, the course was taught jointly by faculty from the University of Memphis and Vanderbilt University. Students from both institutions participated in the course. The highlight of the course was the end of the semester, two-day field trip to freight transportation facilities in Memphis.

As you can see, we are fulfilling our mission of becoming the nation’s premier research center on freight transportation. We continue to appreciate the support we receive from our partners at the Tennessee Department of Transportation, The Dehart Group, CN – Railway and Ingram Barge.

*Dr. Martin E. Lipinski*



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# INTERMODAL IMPACT



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## Assessment of the Memphis Regional Intermodal Infrastructure

The University of Memphis Center for Intermodal Freight Transportation Studies (CIFS) along with its partners, IHS Global Insight, Design Nine, and Wilbur Smith and Associates, completed their work on the “Assessment of the Memphis Regional Intermodal Infrastructure”. This Plan was commissioned by the Greater Memphis Chamber to review the capabilities and capacities of the region’s freight infrastructure, undertake an inventory of the region’s freight infrastructure, analyze the region’s role in the global supply chain, assess this infrastructure to adequately address this role, and provide recommendations of strategic projects that best advance the region’s unique transportation assets.

Joe Waldo, of IHS Global Insight, presented some of the findings on May 11, 2009 at the Multi-Modal Conference conducted by the World Trade Club of Memphis. In his remarks, he gave a brief history of the evolution of Memphis as a major freight center, beginning with the focus on barge

and steamship traffic on the Mississippi River up through the dynamic growth of FedEx and its impact on industries depending on overnight delivery and support. He emphasized that the key consideration needs to be the connectivity between modes and projects. He was particularly bullish on the future of railroads in the region. Memphis is home to five class I railroads, only one of three cities that can make that claim, and all are investing heavily in infrastructure improvements.

CIFS played a key role in the project; collecting data, developing GIS-based maps of transportation facilities, and conducting interviews with transportation providers and shippers. According to graduate student Aleksandra McGuire, “One of the best aspects of being involved in this project was the opportunity to participate in the interviews. Interfacing with regional transportation leaders was a valuable part of my graduate studies here at the University of Memphis.”

To find the complete report, please visit our web page at [www.memphis.edu/cifs](http://www.memphis.edu/cifs).





Phase 1 of the Airport Area Study Complete

The Sparks Bureau of Business & Economic Research has completed the first part of a two-part research project. The project being conducted in connection with the Center for Intermodal Freight Transportation Studies will look at the economic impact of the Memphis International Airport and the critical decisions associated with the growth of the area surrounding the airport.

The project first looked to quantify the economic impact of both the cargo and passenger operations of the airport. This was combined with the impact from construction projects and expenditures of the Memphis International Airport. The findings show a total combined direct expenditure of nearly \$13.5 billion, resulting in total output in the Memphis MSA of almost \$28.6 billion, earnings of nearly \$8.0 Billion, and generation of over 220,000 jobs. The impact of the Memphis International Airport accounted for 34.3% of the total MSA employment in FY 2007, or just over one in three jobs.

The second phase of the project will look at the area surrounding the airport and determine the state of the transportation system in the area. All modes of transportation will be included, with an emphasis on future growth in highway and rail traffic. A good roadway network is necessary for efficient distribution of freight to and from the airport via truck. The study will look at the existing warehouse and transportation facilities and the truck movements to and from them. A map of the area has been developed in GIS with all the transportation infrastructure and existing facilities. A congestion map for the area, including major and minor roadways, will be needed to look at current and potential problems. The area also includes major expansion of the Burlington Northern intermodal terminal, with the number of container lifts increasing from 300,000 lifts per year to one million lifts per year. This area also has two highways, but most of the truck traffic is operated on the major roads that are in need of improvement. A major concern is Lamar Avenue that may need to be upgraded to interstate level as in Mississippi. Other options include the signal timing to be improved or coordinated to make the movement of vehicles more efficient.

Currently, we are surveying all the area transportation and distribution facilities. The data collected will be used to further develop future transportation patterns and needs to support economic development and increase in freight traffic. The Center is also collecting all the traffic counts in the area, and signal timing of the major intersections. This data will be used to develop a congestion map.

The final product will be a transportation and freight model for the area around the airport and recommendations according to priority of road development with regard to capacity and congestion. A road improvement priority will be identified, and related alternatives to solve existing road problems will be suggested.

Update and Enhancement of the U.S. Foreign Waterborne Cargo Data System

This research project has updated and enhanced a prototype web-based U.S. Foreign Waterborne Cargo Data System previously developed in 2002 by Vanderbilt University in a joint research effort with the Waterborne Commerce Statistics Center (WCSC) of the U.S. Army Corps of Engineers (USACE). USACE is responsible for the operation and maintenance of the nation's waterways to ensure efficient and safe passage of commercial and recreational vessels. Part of this task is to establish and maintain a variety of transportation information systems, including databases and statistics pertaining to foreign waterborne commodity and vessel movement between the United States and foreign ports. Users normally access this data via internet download or CD, and then must process this information into a usable format for analysis purposes. The main motivation for the system was to improve data access and ease of use for analysis purposes.

With CIFTs funding support, Vanderbilt University was able to continue this effort by updating and enhancing the system querying and reporting tools. The system utilizes state-of-the-art web technologies to query available maritime cargo databases for a specific year or compare across different years and list Foreign Ports, Countries and Regions (including tonnage) that were involved in commodity movement with the U.S., U.S. Coastal Districts or specific US Ports and waterways. An additional option is available to report ton-mile calculations between US Ports/Waterways and Foreign Ports. Query results can be generated in tabular, map and graph formats or downloaded in a variety of file formats, including text files, Excel, and Word documents.

The system query and reporting tools are supported by annual maritime cargo databases and the National Waterway Network (NWN) which was expanded by attaching foreign port locations. Both data sources are maintained and published by the U.S. Army Corp of Engineers Navigation Data Center. Future research efforts will consider looking at merging this work with other CIFTs-funded intermodal network initiatives to develop a comprehensive international cargo network.

Potential system users include government agencies, international organizations, businesses, port authorities, individual shippers/carriers, trade associations and chambers of commerce. This system will assist these users in analyzing U.S. foreign waterborne cargo data including identifying current and future commodity volume and movement trends that would be useful for managing port facilities, improving intermodal freight transportation, opening new international markets and enhancing global competitiveness.

For more information about the system, please contact Dr. Edsel Daniel at Vanderbilt University (edsel.b.daniel@vanderbilt.edu).

Joint Masters Level Course Huge Success for Both Universities

During the spring 2009 semester, students at the University of Memphis and Vanderbilt University took a course together on Intermodal Freight Transportation. The graduate level course was co-taught by professors at both universities and included two days of field trips to several freight operations in Memphis. On April 1st, the students toured BNSF railroad's intermodal rail yard, Comtrack Logistics' headquarters, and FedEx Express' night sort. On April 2nd, the students visited the Port of Memphis facility and Wepfer Marine on President's Island. Hisham Gnedy, a Ph.D. candidate, thought the field trips were a "good opportunity to meet face to face with the other students and professors to share ideas outside of our usual multi-media connection."

Burlington Northern Sante Fe Railway's Shelby Drive Intermodal Rail Yard in Memphis is currently being expanded to more than triple the capacity of the facility. Scott Jenkins, a yard manager at the facility, explained the typical daily operations and also key elements of the expansion with the help of a scale model. The students and professors were then taken on a tour of the grounds of the existing and new intermodal yards. "This was a valuable experience," says Aleksandra Maguire, a Masters candidate, "to be able to see the yard layout and operations."

Comtrak Logistics is a trucking drayage and logistics company headquartered in Memphis. Drayage operations focus on the transport of freight containers from one intermodal facility (such as a port or rail yard) to another facility. Mike Bruns, the president and founder, along with Dan Pallme, the director of business operations, spoke to the group and led a tour of the facility. Students saw employees delivering real-time communications between customers and drivers on the road, through the use of in-cab communication systems. "I was impressed with their concerted effort to avoid layoffs in this economic recession," said Kwabena Anafi, a Ph.D. candidate. Comtrak Logistics, pride in their employees is seen throughout the headquarters; with various walls dedicated to drivers' accomplishments.

The final stop on our tour of freight operations was Wepfer Marine at the Port of Memphis. After meeting with the management team for the Memphis office, we were invited to ride along on one of the tow boats. The trip included picking up a docked barge and traveling out onto the Mississippi River. Many of the students were given the opportunity to see up close the captain's responsibilities of moving the massive amounts of freight within the parameters of the channel. The experience was incredibly unique and educational for the students.

A special "thank you" is extended to all the companies who took time to meet with our students. Seeing each of these freight transportation companies is an example of the University of Memphis offering learning opportunities to our students.



Students learn about the expansion of the BNSF yard in Memphis, Tenn., and get an early tour of the new nine story cranes.



A day on board a tow boat on the Mississippi River created a unique classroom.

National Green Conference Held at U of M

The University of Memphis and CIFTs hosted The Global Green Initiative at the FedEx Institute of Technology. The three-day conference, organized by The Foundation for Global Mobility, presented practical solutions for transforming a company's supply chain into a more environmentally friendly process.

The key note speaker was Frederick Smith, President and CEO of FedEx Corporation. Mr. Smith spoke on the national importance of lowering our dependence on foreign oil. He also spoke about FedEx's efforts to lower the environmental affect of their company.

CIFTs was able to provide leadership to the conference by moderating round table discussions and providing a reception for conference participants. Dr. Martin Lipinski, Director of CIFTs, moderated a session that included representatives from the Norfolk Southern Railroad, the Burlington Northern Railroad, the Canadian National Railway, J.B. Hunt Trucking, and Comtrax Logistics. Each shared their views on steps that could be taken by the industry to conserve resources.

"Our ability to help attract premier national conferences to the Memphis area is one way CIFTs provides value to our freight community", said Dr. Lipinski.

The topic of environmentally friendly companies will continue to be a focal point for the freight community, and, therefore, a focal point for CIFTs. We will continue to look for changes that can make sense both in a business plan and an environmental plan.

CIFTs Shines at the Memphis Multimodal Conference

Memphis hosted its third annual Multimodal Conference at the Peabody Hotel, May 11th and 12th. The theme centered on "Global Logistics and the Global Economy". This year's speakers and attendees had the chance to interact with premier players in the industry and share the latest news about the "FOUR R's", (Rail, River, Runway, and Road). The Center for Intermodal Freight Transportation Studies was well-represented.

Memphis is home to all five Class-I railroads, the world's largest air-cargo airport, the Mississippi River Port of Memphis, and a vast network of highway connections. Freight transportation businesses took advantage of the opportunity to benchmark, learned best practices, establish new relationships, and identify new opportunities. The speakers ranged from leaders in the largest freight movement organizations to federal and state government leaders to members of several supporting associations.

In addition to sharing our most recent projects, CIFTs



representatives served as impartial liaisons, working to help connect competitors and target potential alliance partners. We found that our interaction at this conference allowed us to learn more about current transportation-related hurdles, as well as critical economic adjustments. Overall, we secured a better understanding of the current trends and how to effectively approach industry-specific research opportunities.

The conference was timely and fruitful, despite our current economic constraints. The sessions were well-facilitated and met the goals of heightening awareness, promoting interaction, and identifying new opportunities in freight transportation. Our CIFTs leadership team was honored to have been a part of this conference and will continue to utilize these types of events to provide reliable research results, develop curricular programs, and engage in technology transfer.

A special note of appreciation goes out to Adams and Reese, FedEx, and the World Trade Club as the primary sponsors and facilitators of this event. To read more about this year's conference, go to [www.memphismultimodalconference.com](http://www.memphismultimodalconference.com).