CFIRE NEWS

Fall/Winter 2011 | Quarterly Newsletter | Volume 5, Number 4

In this issue

cfire.wistrans.org

cfire@engr.wisc.edu

Shifting Freight to Rail to Improve Air Quality

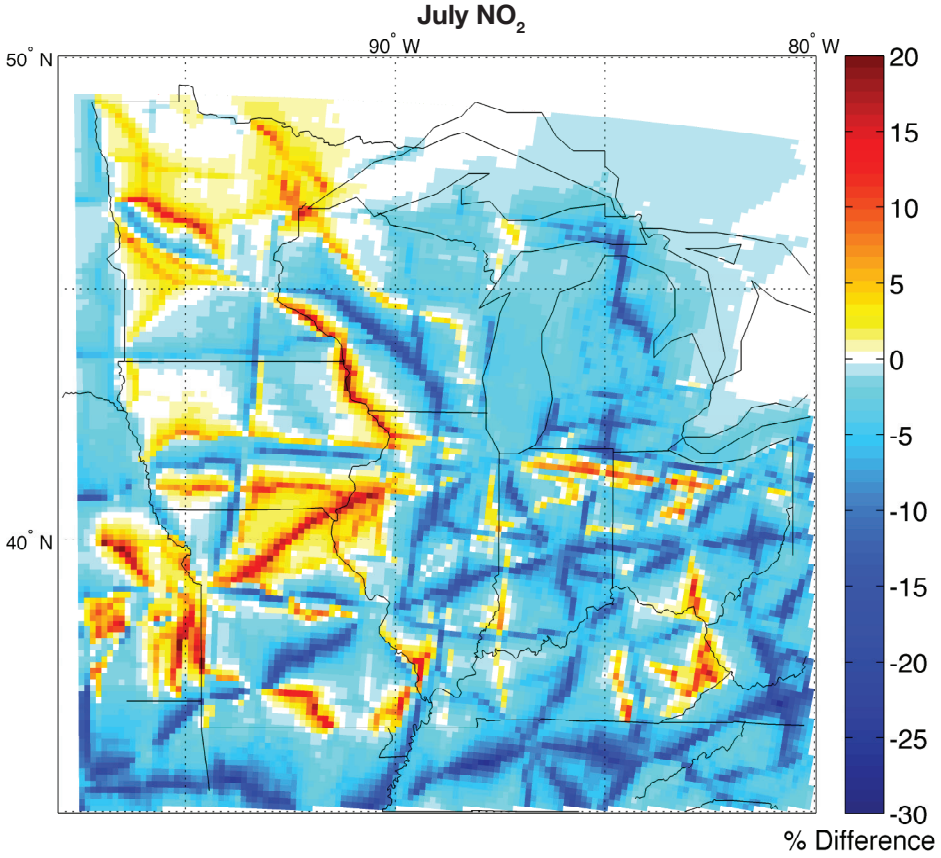
Chris Barncard, University Communications

Shifting a fraction of truck-borne freight onto trains would have an outsized impact on air quality in the Midwest, according to researchers at the University of Wisconsin–Madison.

Much of that impact boils down to simple efficiency, according to Erica Bickford, a graduate student in UW–Madison's Nelson Institute for Environmental Studies. For each ton they carry, long-distance trucks go about 150 miles on a gallon of diesel fuel. Trains can move a ton more than 400 miles per gallon.

Shifting 500 million tons of the freight passing through or to the Midwest from road to rail would make a large dent in the carbon dioxide spilled into the air by the movement of goods.

"There's a 31 percent decrease in carbon dioxide produced by freight shipping in the region, and that's straight from emissions," says Bickford, who made a model of freight traffic in 10 Midwestern states from Kansas to Ohio that she presented in San Francisco at the fall meeting of the American Geophysical Union.



Shown in blue, falling local levels of the pollutant nitrogen oxide are a benefit expected to follow a shift of freight from trucks to trains, according to a UW–Madison study. Areas shaded red represent areas close to rail corridors that would experience an increase in nitrogen oxide pollution.

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From the Director's Chair

We got our holiday wish!

We've been selected to serve as the lead institution for one of the ten Tier 1 University Transportation Centers funded by the US DOT. The new CFIRE consortium will be focused on making multimodal freight systems work for economic recovery and quality of life. We'll be collaborating with both existing and new consortium members, arranged into northern and southern "hubs." The northern hub includes the University of Wisconsin–Madison, University of Wisconsin–Milwaukee, University of Wisconsin–Superior, University of Toledo, and Michigan Technological University. The southern hub includes the University of Memphis, Vanderbilt University, University of Alabama–Huntsville, and University of Southern Mississippi. The University of Wisconsin–Madison and the University of Memphis will lead the northern and southern hubs, respectively. We're excited to begin working with the new CFIRE consortium on a wide range of research, education, and outreach projects.

At this time of year, we're also turning our minds to the upcoming events in 2012. Proposals for presentations at the 2012 Mid-Continent Transportation Research Forum are due in March and the conference itself will take place in early September. Daniel Yeh from the Wisconsin Department of Transportation is serving as the program chair.

CFIRE is working with the Minnesota DOT and the Center for Transportation Studies to plan the 2012 Mid-America Freight Coalition Annual Meeting, scheduled for April 18-20, 2012 in Minneapolis, Minnesota.

We are also working with the US DOT, the US Department of Labor, and the US Department of Education, as well as other organizations and University Transportation Centers to present the National Transportation Workforce Summit, scheduled for April 24-26, 2012 in Washington, DC.

We hope that you'll be able to join us for one or more of these meetings, all of which are designed to support and disseminate transportation research in the Midwest and across the United States.

CFIRE is also sponsoring scholarships for a series of rail infrastructure, operations, and safety short courses taught by the University of Wisconsin–Madison Department of Engineering Professional Development. These full-tuition scholarships will play a part in the education and development of the transportation workforce—especially for employees of transportation agencies that might not be able to attend the courses otherwise.

If you're in Washington for TRB this year, please join us at the Wisconsin Transportation Reception, hosted by CFIRE and sponsored by the Transportation Development Association of Wisconsin and a bevy of other sponsors. The reception is a great place to network and socialize with transportation researchers from all over the country—and a chance to meet and greet new and existing CFIRE partners.

We'd like to extend our congratulations to Kenneth Chong, an undergraduate at the University of Wisconsin-Superior, who was selected as the 2011 CFIRE Student of the Year. He'll receive this award at the TRB Annual Meeting.

And finally, we wish a fond farewell to Jason Bittner, who has left CFIRE to take up the directorship of the Center for Urban Transportation Studies at the University of South Florida.

The future of CFIRE looks bright, but there's also plenty of work to be done—and plenty of challenges—as we help prepare the transportation workforce for the 21st century and provide a sound, well-researched basis for a transportation policy that will support economic recovery and quality of life in the United States.

Teresa Adams, PhD
CFIRE Director

Farewell to Jason Bittner

After 12 years at the Wisconsin Transportation Center, Deputy Director Jason Bittner has left CFIRE to become the Director of the Center for Urban Transportation Research (CUTR) at the University of South Florida in Tampa, Florida.

Mr. Bittner has served as a transportation researcher, lecturer in the Transportation Management and Policy Program, and CFIRE Deputy Director. He began his service as a graduate project assistant developing an initial strategic plan for center efforts and helped establish the Midwest Regional University Transportation Center (MRUTC). He has overseen operations for the Center throughout his career. He also served as Acting Director of CFIRE while Dr. Teresa Adams was on sabbatical at the US DOT.

"The transportation research programs at the UW have seen tremendous growth during my time here," said Bittner. "We're now ten times larger than our first UTC allocation. I'm proud of the relationships we've built, the partnerships we've put into place, and the national reputation we've established."

"It's the people at UW and at CFIRE—faculty, staff, and students—that have made the Center successful…and it's the people that make it hard to leave," said Bittner. "I've worked with quite a few talented, dedicated researchers at the UW and the other CFIRE partner institutions."

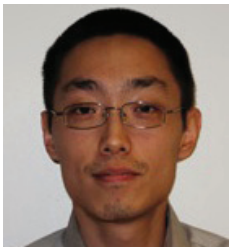
While at CFIRE, Bittner has served as a principal investigator or co-PI on a wide range of projects. In addition, Bittner has been instrumental in the planning and execution of major transportation asset management and freight-related peer exchanges, collaborations, conferences, and workshops at the regional and national levels.

Bittner left CFIRE in early January 2012 and starts his new position later in the same month, shortly before the 2012 Transportation Research Board Annual Meeting. A national recruitment to fill his position is expected to commence soon.

"This is an exciting opportunity for Jason. I am very happy for him." said Teresa Adams, CFIRE Director. "We will miss him at CFIRE but look forward to continuing to work with him through the UTC community. "

Please join us in congratulating Jason on his new position.

CFIRE Student of the Year



Kenneth Chong, an undergraduate majoring in transportation and logistics at the University of Wisconsin-Superior, has been named the 2011 CFIRE Student of the Year. He is a senior and plans to graduate in May 2012.

He has worked as a research assistant with UW-Superior's Dr. Richard Stewart on the Policy Issues in Cruise Line Operations on the Great Lakes (CFIRE 02-21) project. Chong is also vice president of UW-Superior's Transportation and Logistics Club and will become president the Spring 2012 semester.

"Having virtually no knowledge about cruising on the Great Lakes when I started, I was able to learn that the issues faced by the cruise market are far more intricate and complicated than I could ever imagine," he said. "Working for Dr. Stewart has expanded my knowledge about transportation and (related) issues."

The CFIRE Student of the Year receives a $1,000 cash award and travel support to attend the Transportation Research Board Annual Meeting in Washington, DC. Chong and other Students of the Year from other University Transportation Centers will be recognized at the Council of University Transportation Centers' annual banquet, held in conjunction with the TRB Annual Meeting.

GLMRI to Study Environmental Issues

The Great Lakes Maritime Research Institute (GLMRI), a consortium of the University of Wisconsin-Superior (UW-S), and the University of Minnesota Duluth (UMD) have signed a five-year cooperative agreement with the United States Department of Transportation, Maritime Administration (MARAD), to address environmental issues that face shipping and marine transportation.

GLMRI studies funded by MARAD will address maritime commerce on the Great Lakes. The results of the studies should benefit not only maritime commerce in the Great Lakes region, but other transportation modes along with ports and vessels operating on the inland rivers and coastal waters.

The Great Lakes Maritime Research Institute is a CFIRE research partner. For more information about GLMRI, visit glmri.org.

Continued from page 1...

"It's 21 million metric tons of CO_2, the equivalent of what's produced by about 4 million cars."

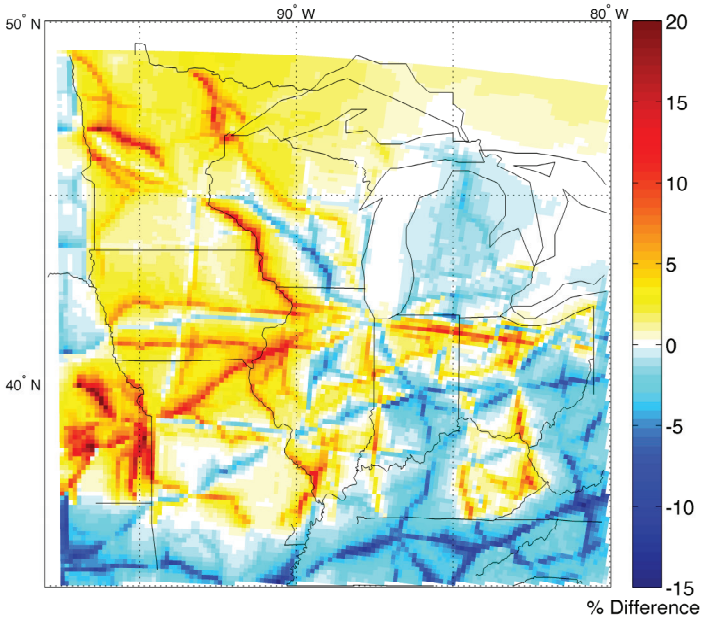
But carbon dioxide mixes fairly evenly in the atmosphere, spreading its effects around the globe. Bickford's study accounts for weather patterns and the way particular pollutants are distributed to determine how long other products of diesel engines—like black carbon soot and the ozone ingredient and lung irritant nitrogen dioxide (NO_2)—linger near their sources.

"The result is a much more thorough and local idea of the differences between truck and rail shipping," says Tracey Holloway, director of the Nelson Institute's Center for Sustainability and the Global Environment and Bickford's advisor. "If you're emitting CO_2 in Indiana or India it has the same impact. But something like soot, that has local impact."

More rail traffic would mean more pollutants near the tracks, but relief near roads frequented by trucks—a trade-off is unbalanced in favor of more densely populated areas.

"Black carbon and NO_2 are harmful to everyone's health," Bickford says. "But because more people live near roads than railroad tracks, more people would benefit from the shifts in these pollutants."

July Black Carbon (Soot)



Shown in blue, falling local levels of black carbon soot—a pollutant pumped into the air by diesel engines—are a benefit expected to follow a shift of freight from trucks to trains, according to the study. Areas shaded red represent areas close to rail corridors that would experience an increase in black carbon pollution.

As much as 16 percent less black carbon soot would linger near roads with heavy shipping traffic, according to Bickford's model, while the increase around rail corridors would be as high as 20 percent. Nitrogen dioxide would plummet by as much as 30 percent near roads, but rise by as much as 20 percent near railroad tracks.

Holloway's research group is already working on further modeling to explore connected changes in the number of asthma and heart disease cases.

The effects of greater rail use would be particularly noticeable in the middle of the country, according to Bickford. "We're sort of a freight crossroads in the Midwest," says Bickford. "International shipping comes into the country on the coasts and then passes through our backyard on the way to its destination."

The study limited hypothetical changes in shipping to trips of more than 400 miles to ensure a cost savings for shippers, and to cargo—such as automobiles and non-perishable food—that could handle the slower trip in railcars. The 500 million tons Bickford selected for travel by rail represent about 5 percent of US truck freight by weight.

"These aren't pie-in-the-sky figures," Holloway says. "They are reasonable and achievable."

And they come with non-pollution benefits, like reduced traffic congestion, wear on roads and demand for diesel fuel. "Truck freight travels on publicly-funded roads, rail traffic on privately-built tracks," Bickford says. "But these benefits could be an impetus for public investment in rail infrastructure."

Erica Bickford was the 2010 UTC Student of the Year in Transportation. She works on two inter-connected CFIRE projects, both under the direction of Dr. Tracey Holloway.

- Long Term Environmental Sustainability for Freight Transport (CFIRE 02-09)
- Freight from Space: Evaluating Freight Activity and Emissions Trends from Satellite Data (CFIRE 04-20).

For more information about these and other CFIRE research projects, visit cfire.wistrans.org/research.

Policy Issues for the Great Lakes Cruising Market

Researchers at the University of Wisconsin-Superior recently completed a project, funded by the Great Lakes Maritime Research Institute and CFIRE, that examined the cruise industry on the Great Lakes, with particular focus on the US flag segment.

This study, Policy Issues in Cruise Line Operations on the Great Lakes (CFIRE 02-21), considered the history of cruise operations on the Great Lakes, examined market studies and business ventures aimed at restoring the cruise industry on the Great Lakes, and investigated the policy issues impeding the growth of the cruise industry.

After flourishing for nearly 100 years, the Great Lakes passenger ship trade began to decline in the 1930s, caused in larger part by the development of both the interstate highway system and later by regional air transportation. By the late 1960s the overnight cruise trade had disappeared and by the 1970s all passenger fleets had disappeared from the Great Lakes. Overnight berths were limited to car ferries, railcar ferries, and ferries operating in Canadian waters. In the latter decades of the 20th century, cruise operations, though sporadic, began to increase. In the wake of September 11, 2001, increased security regulations for crossing the US-Canada border created further complications and costs.

The policy issues that affect the Great Lakes cruise industry are many and wide-ranging.

Steamer South America Leaving Duluth, MN, Lake Superior Marine Museum Archives

Cabotage regulations limit which passenger vessels can put in at US ports of call. Pilotage laws and regulations in both the United States and Canada require navigation in the Great Lakes by registered pilots. Gaming laws and regulations, which are administered differently by each state bordering the Great Lakes, limit the amount of revenue that cruise lines can derive from gambling.

Environmental regulations, while later in coming than cabotage, pilotage, and gaming regulations, have proven just as complex. Waste water disposal, ballast water, and emissions are all regulated by the United States in order to limit water pollution, the spread of invasive species, and to improve air quality.

Based on this research, the project team was able to assemble a set of recommendations for policy changes to improve the economic climate of US flag cruise ships operating on the Great Lakes.

1. Establish uniform border crossing procedures for the entire Great Lakes.
2. Streamline border crossing procedures for US and Canadian vessels on the Great Lakes so that these vessels can call at smaller ports of entry.
3. Allow US flag cruise vessels that operate on foreign voyages to forgo pilots if their US officers have appropriate US Coast Guard licences.
4. Amend the Passenger Vessel Services Act to enable a US flag vessel to engage in “cruises to nowhere” on the Great Lakes so that passengers can gamble and buy duty-free goods where permitted under state law.
5. Amend the Gambling Ship Act and Johnson Act to allow gambling aboard US flag cruise ships operating in nearby foreign or interstate service on the Great Lakes when permission is granted by states and/or provinces.
6. Provide financial incentives to build Great Lakes suitable cruise ships in US shipyards that incorporate the technology to meet the evolving environmental laws and regulations.
7. Establish a single ballast water standard for the entire Great Lakes including Canadian provinces which would apply to all vessels with ballast on board.

For more information about this project and to read the final report, visit cfire.wistrans.org/research/projects/02-21/.

Optimizing the Transportation of Forest Products

Transportation of forest products, because of their relatively high weight and bulk and low value, account for a disproportionate amount of the overall cost of timber operations. Transportation may account for as much as 50 percent of the delivered cost of logs to the mill. As such, minimizing transportation costs is essential to the economic well-being of the forest products industry.

Researchers at the University of Wisconsin-Superior and Michigan Technological University recently completed a project, funded in part by CFIRE, that analyzed the performance and efficiency of log and wood chip trucks in Michigan's Upper Peninsula.

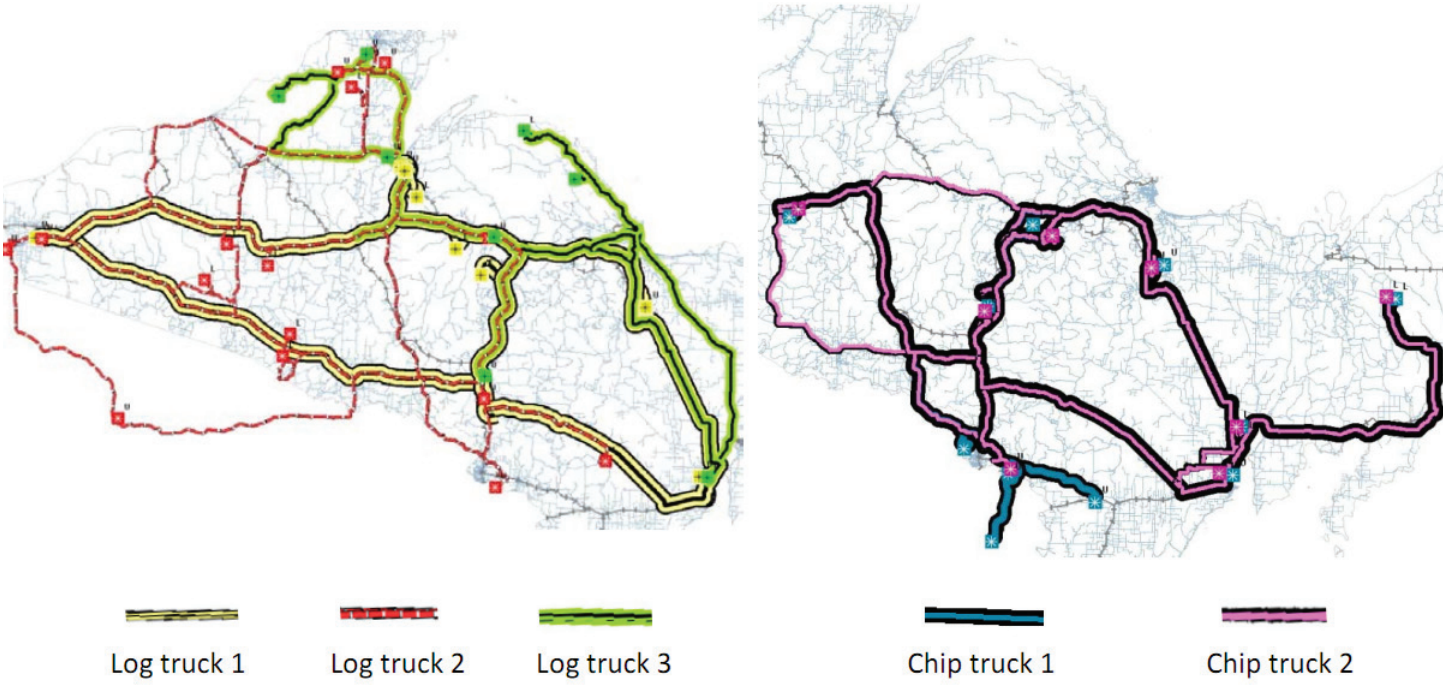
This project, Optimization of Log Truck Operations and Regional Log Superyards (CFIRE 02-22), used on-truck GPS devices to track truck movements and gather data for analysis. The research team supplemented the GPS data with log sheets filled out by truck drivers, which tracked activities during stops or idling periods.

After a pilot test and two rounds of data collection, the project team found that 45 percent of the operation time of log trucks is spent idle and 25 percent of the time is spent moving unloaded. When trucks are stopped, truckers logged activities that included loading and unloading, attending to administrative tasks, completing technical tasks, and fueling. There were also some GPS-recorded stops that were not logged.

Only 30 percent of the overall operational time is spent in revenue generating activities; that is, hauling forest products. Log trucks and chip trucks were found to have a similar breakdown of idling, stopped, and active times. Chip trucks, however, did have slightly lower stopped times for unloading and loading, while slightly longer times for administrative tasks.

Based on these results, researchers made recommendations for increasing the efficiency of both log and chip truck operations to reduce loading time (using pre-loaded trucks and trailers), unloading time (advanced equipment at mills, plants, or rail sidings), and idling (turning off the engine, or using new anti-idling technologies). A reduction in idling alone would help offset increasing fuel prices, producing a savings of $700 per year for every $1 increase in fuel cost per gallon.

For more information about this project and to read the final report, visit cfire.wistrans.org/research/projects/02-22/.

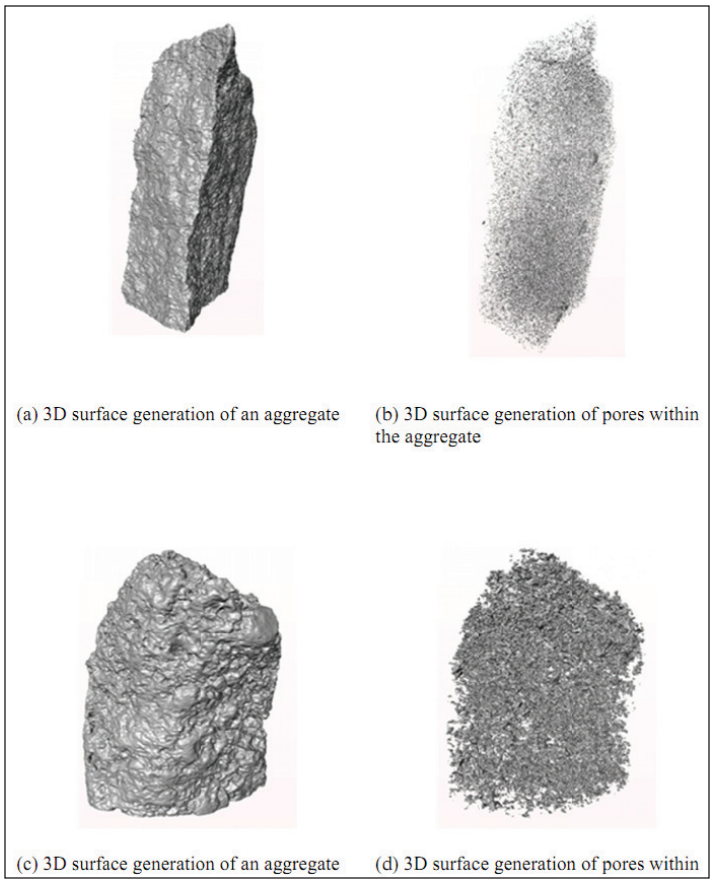


Log truck and chip truck movements (Round 2)

Using CT Scans to Test Aggregates

Aggregates are used in the construction of a wide range of transportation infrastructure components, such as roadway base courses, asphalt pavements, cement pavements, and pre-cast concrete structures. The quality and durability of these aggregates has a direct bearing on the sustainability and quality of roads, bridges, and other structures.

Researchers at the University of Wisconsin-Milwaukee recently completed a project entitled Characterization of Aggregates for Sustainable Freight Transportation Infrastructure (CFIRE 05-07), which used X-ray computed tomography (CT) to analyze different types of aggregates used in the construction of transportation infrastructure.



(a) 3D surface generation of an aggregate

(b) 3D surface generation of pores within the aggregate

(c) 3D surface generation of an aggregate

(d) 3D surface generation of pores within

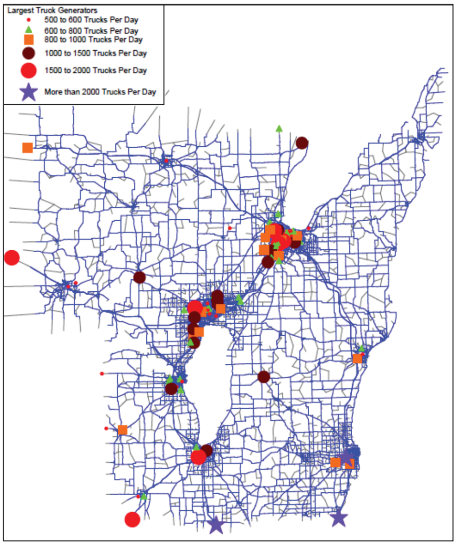
The CT scans produced high-resolution images which they then analyzed for determine the pore structure of the aggregates and to detect the presence of micro-cracks. This analysis yielded the shape, connectivity and distribution of the pore structure.

For more information about this project and to read the final report, visit cfire.wistrans.org/research/projects/05-07/.

ECWRPC Freight Model

In early 2009, the Wisconsin Department of Transportation (WisDOT), HNTB, and East Central Wisconsin Regional Planning Council (ECWRPC) completed the first phase of the Northeast Regional Model, which was a travel demand forecast model developed for the northeast region of Wisconsin (Brown, Calumet, Dodge, Door, Fond du Lac, Kewaunee, Manitowoc, Oconto, Outagamie, Shawano, Sheboygan, Washington, Waupaca, and Winnebago counties). The model includes a conventional four-step model component for passenger travel and a three-step truck model component for freight transportation.

A CFIRE research team recently completed the Freight Model Improvement Project for ECWRPC (CFIRE 03-08), which improved and extended the truck/freight component of the original model.



Zones generating more than 500 truck trips per day

As part of this initiative, the project team helped establish a Highway 41 Freight Advisory Council, reviewed and developed trip generation variables, completed a land use inventory, gathered new data for the model, created illustrative mapping, and worked with various stakeholders to improve modeling capabilities statewide.

The results of the data collection and model evaluation effort suggest that the NE model is capable of illustrating the roadways with the greatest anticipated travel demand. As such, the model can assist in forming policies and prioritizing transportation investments. The model can be a powerful tool for recognizing critical corridors and connections for the efficient movement of goods and services throughout the region.

For more information about this project and to read the final report, visit cfire.wistrans.org/research/projects/03-08/.

CFIRE Successes: Bill Holloway

This month, we're kicking off a new occasional series of articles profiling former CFIRE students who have successfully moved into the transportation workforce.

Bill Holloway graduated from the University of Wisconsin–Madison in 2007 with a Master's degree in Urban and Regional Planning and a certificate in Transportation Management and Policy.

During his time at the UW, he worked as a CFIRE project assistant on a wide array of projects, including the Wisconsin Trucker's Guide, commercial truck parking, freight flows in the Mississippi Valley region, and others. He also helped organize and conduct several major conferences.

In 2006 and 2007, he served on the UW Student Bus Pass Advisory Committee and as one of the three student representatives on the UW Campus Transportation Committee. As a result of this work, Holloway was selected as the 2007 UTC Student of the Year in Transportation.

"As a planner, gaining experience in transportation, particularly freight transportation, through the TMP program and my work at CFIRE opened a lot of doors and was a huge boost in the job market," said Holloway.

After leaving CFIRE, Holloway worked as a transportation analyst for Cambridge Systematics, Inc. in their Austin, Texas office. While with Cambridge, he contributed to the Kansas Statewide Freight Study, the Texas Waterborne Freight Corridor Study, and the Minnesota State Rail Plan, as well as regional transportation studies in the Seattle and Los Angeles areas. This broad range of projects provided Holloway with extensive experience in performing quantitative and qualitative analysis of freight transportation issues and challenges for state departments of transportation, regional planning organizations, and other agencies.

"Working at Cambridge Systematics' Austin office gave me the chance to become involved in a wide variety of freight transportation projects dealing with truck, rail, and waterborne freight issues across the United States," said Holloway. "Along with the variety of locations and freight modes, the work was varied in terms of tasks as well, involving quantitative analysis and writing, as well as working with and interviewing stakeholders including state DOTs, MPOs, shippers, carriers, ports, and trade associations."

In November 2010, Holloway returned to Madison when he was hired as a transportation policy analyst for the State Smart Transportation Initiative (SSTI). SSTI works with state and local policy makers to promote "smart transportation" (ST) practices that advance environmental sustainability and equitable economic development, while maintaining high standards of governmental efficiency and transparency.

In this role, Holloway currently serves as the project manager and lead researcher for SSTI's Kansas School Siting Reform project, the project manager for the DelDOT 3-D Micromodel project, and was project manager for the REAMP-funded Road Subsidy project (the report is available at ssti.us/wp/wp-content/uploads/2011/10/WI_Road costs report.pdf).

Holloway also writes news articles, manages the SSTI website and the website redesign project, organizes webinars, and assists in organizing Community of Practice meetings.

"I'm very happy to be back in Madison at SSTI. Given the gridlock in Washington, SSTI's focus on the implementation of smart transportation reforms at the state level seems to be the best way to increase the social, economic, and environmental sustainability of our transportation systems," said Holloway.

"Too often great research and promising ideas remain just that—ideas. We are hoping to take some of these promising new ideas from research and pilot projects to implementation at the state level. CFIRE brings a lot to the table with its research and work with the Mid-America Freight Coalition and we hope that SSTI and CFIRE can collaborate to work towards our shared goals together."

For more information about the State Smart Transportation Initiative, visit ssti.us.

Fall 2011 TMP Reception

At the end of the Fall semester, students in the Transportation Management and Policy Colloquium present the results of their group projects to interested staff and faculty, as well as other students. Reception attendees also share a buffet lunch sponsored by a donation from Cambridge Systematics, Inc.

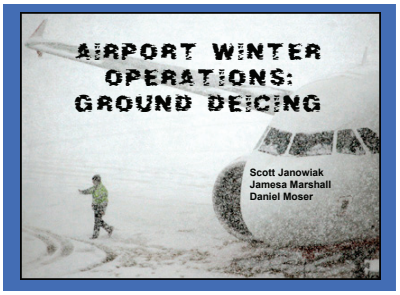
About the TMP Colloquium

Students in the Transportation Management and Policy (TMP) program take two one-credit colloquium modules as part of the TMP curriculum. These colloquia provide students with the opportunity to discuss transportation issues with leaders in the field. Each semester, the topic and guest speakers vary. Students also work in small groups on projects related to the topic at hand. The Fall 2011 theme was Air Transportation.

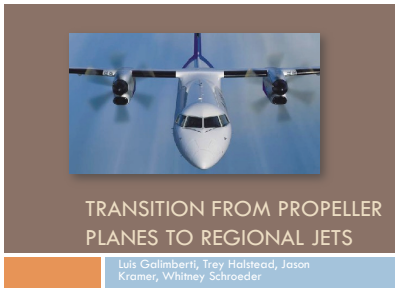
Group Presentations

During this semester's colloquium, students collaborated in three groups and worked on the following projects:

The No-Fly List: Screening Policies from Around the World (Alex Marach, Chun-Wei Lin, Gregory Helfrich, and Liz Heyman). This project examined the US no-fly and selectee lists in detail and compared them to analogous lists in the European Union and Israel.



Airport Winter Operations: Ground Deicing (Scott Janowiak, Jamesa Marshall, and Daniel Moser). This project considered the economic, safety, and environmental aspects of ground deicing and the various strategies and techniques for implementing and managing ground deicing at US airports.

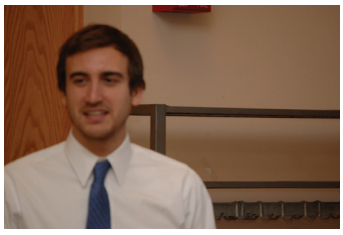


Transition from Propeller Plans to Regional Jets (Luis Galimberti, Trey Halstead, Jason Kramer, and Whitney Schroeder). This project examined the advantages and disadvantages of the use of turbo-prop airplanes versus small jets for regional routes.

About the TMP Program

The Transportation Management and Policy (TMP) program prepares students for professional work with public sector transportation agencies, consulting firms, and other organizations concerned with sustainable transportation management and policy. CFIRE provides support and coordination for the TMP program and CFIRE Director Teresa Adams serves as program chair. For more information, visit cfire.wistrans.org/cfire/education/for-students/tmp/.





Freight Transportation Leadership Academy

The University of Memphis will be hosting the Freight Transportation Leadership Academy starting in February 2012.

This four-part certification program is targeted for mid-upper level executive positions.

This program offers a unique collaboration between academic and industry experts that will insure participants receive the most up-to-date information on critical issues facing the freight transportation industry. By design, the Freight Transportation Leadership Academy focuses specifically on one of the four transportation modes per session: Rail, River, Runway, and Road.

Participants will interact with industry experts and business professionals, learn from university professors and take "field trips" to see each mode in action. By understanding the interaction between the modes, participants can become successful employees and experts in their respective fields.

A few of the industry experts associated with this program are former CEO of CN Railroad, Hunter Harrison, former COO of "K" Line Ocean Carrier, Ted Prince and president of Intermodal Cartage, Joel Henry.

Class Basics

- Class meets Thursday afternoon – Saturday morning over four months in Memphis, TN at the University of Memphis.
- First class is February 9-11, 2012.
- Cost per/participant is $5000.00. This incorporates all class materials including use of an iPad, reading materials, one-on-one coaching time with professional coach and speakers' fees.

For more information visit the Academy website or contact Dan Pallme (depallme@memphis.edu) at the University of Memphis.

THE UNIVERSITY OF MEMPHIS®

CFIRE Scholarships for Rail Short Courses

Want to learn more about the basic principles of highway-rail crossing safety, railroad construction project management, or railroad engineering and operations?

The National Center for Freight and Infrastructure Research and Education (CFIRE) has teamed up with the University of Wisconsin–Madison Department of Engineering Professional Development to offer scholarships for three rail-related courses:

- Railroad Track Construction Project Management (March 12-14, 2012)
- Highway-Rail Grade Crossing Safety Course (March 15-16, 2012)
- Introduction to Railroad Engineering and Operations (May 7-9, 2012)

These courses are held in Madison, Wisconsin on the UW-Madison campus.

Employees of public agencies and private organizations that work in the rail sector are eligible to apply. Scholarship qualifications are unrestricted; however preference will be given to transit and transportation agency employees.

Successful applicants will receive a CFIRE full tuition scholarship to attend one of these UW short courses. You would be responsible for travel and lodging expenses.

For more information about how to apply for a CFIRE scholarship and how to register for these courses, visit cfire.wistrans.org/education/epd-rail/.

UNIVERSITY OF WISCONSIN–MADISON
DEPARTMENT OF ENGINEERING PROFESSIONAL DEVELOPMENT

Upcoming Events

2012 TRB 91st Annual Meeting
January 22-26, 2012, Washington, DC
trb.org

Innovation in Urban Freight
February 6-7, 2012, Seattle, Washington
depts.washington.edu/ifreight/

WCPA Annual Concrete Pavement Workshop
February 8-9, 2012
www.wisconcrete.org

9th National Conference on Asset Management
April 16-18, 2012, San Diego, California
trb.org

2012 Joint Rail Conference: Technology to Advance the Future of Rail Transport
April 17 - 19, 2012, Philadelphia, Pennsylvania
trb.org

Mid-America Freight Coalition Annual Meeting
April 18-20, 2012, Minneapolis, Minnesota
midamericafreight.org/events/2012am

CUTC National Transportation Workforce Summit
April 24-26, 2012, Washington, DC
cutcworkforce.com

Mid-Continent Transportation Research Forum
September 6-7, 2012, Madison, Wisconsin
mrutc.org/other-activities/midcon/2012-midcon

Contributors

Content and photographs for this edition of the CFIRE News were contributed by Teresa Adams, Chris Barncard, Bill Holloway, Steve Wagner, and the authors of the reports referenced herein.

About CFIRE

You are invited to the

2012 Wisconsin Transportation Reception

During the TRB Annual Meeting

HOSTED BY

Transportation Development Association

Sunday, January 22, 2012
5:30 pm–7:30 pm

Remarks from WisDOT Secretary Gottlieb at 6pm

Marriott Wardman Park Hotel
Thurgood Marshall Ballroom West
2660 Woodley Road, NW
Washington, DC

Major Sponsors

- UW-Madison Civil and Environmental Engineering
- UW-Madison Office of Sustainability
- National Center for Freight & Infrastructure Research & Education
- Midwest Regional University Transportation Center
- Wisconsin Transportation Builders Association
- HNTB

Other Sponsors

- Construction & Materials Support Center
- Great Lakes Maritime Research Institute
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CFIRE Staff

Dr. Teresa Adams
Director
adams@engr.wisc.edu

Dr. Ernie Perry
MAFC Program Director
ebperry@engr.wisc.edu

Gregory Waidley, Jr.
Research and Education Manager
gwaidley@engr.wisc.edu

Maria Hart
Researcher
mhart@engr.wisc.edu

Steve Wagner
Communications Manager
swagner@engr.wisc.edu

Kaushik Bekkem
Research Intern
bekkem@wisc.edu

Joshua Levine
Research Intern
jblevine2@wisc.edu

Lisa Beneker
Program Assistant
beneker@engr.wisc.edu

CFIRE
cfire.wistrans.org
cfire@engr.wisc.edu