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National Transportation Workforce Summit

The National Transportation Workforce Summit, sponsored by the Council of University Transportation Centers, was held on April 24-26 in Washington, DC. Nearly 300 professionals from the transportation, labor, and education fields met to share best practices for educating and training the transportation workforce of the twenty-first century, to identify collaborative approaches to connect career pathways, and to develop a national framework to guide policy and resources for workforce development in all transportation modes.

The Summit aimed to foster a national dialogue about the development of the transportation workforce of the future in the United States. This national dialogue helps promote greater visibility of transportation careers. It also addresses key workforce challenges for recruiting and retaining qualified personnel, meeting current and future workforce shortages, defining competencies for a high-performing workforce of the future, and for identifying and closing gaps in workforce training and education.

The Summit will also drive the establishment of a National Transportation Strategic Framework

and a coordinated plan to identify and manage joint actions by industry, transportation and education agencies at the federal, state, and local levels, and transportation professional organizations that will tie workforce needs to policies and programs to create effective workforce development.

CFIRE Director Teresa Adams chaired the Summit planning committee along with John Collura of the University of Massachusetts. Dr. Adams engaged 20 UTCs and research centers to join CFIRE in sponsoring the Summit. She met with stakeholders from the Departments of Education, Labor, and Transportation, and the National Science Foundation as well as leaders of professional organizations, to identify and bring the leaders representing the diverse range of workers and education sources together for the National Transportation Workforce Summit.

"The summit brought together people from education, labor, and the transportation industry who all have common goals but no other opportunities to join the discussion about the demand for transportation workers and the education and training sources to meet the demand," said Adams. "The biggest challenge



From the Director's Chair



It's been a busy spring here at CFIRE, filled with conferences, meetings, and new projects.

In April, CFIRE joined with the Minnesota DOT to host the annual meeting of our ten-state Mid-America Freight Coalition in Minneapolis, Minnesota. This year the meeting focused on freight

advisory teams—a particularly fruitful partnership of state and private sector stakeholders that some DOTs are using to advance freight interests in their states. The attendees also enjoyed a morning and lunch cruise on the upper Mississippi to see freight activities in the Minneapolis area. We've devoted an entire issue of the MAFC *Freight Notes* to a wrap-up of this meeting.

Also in April was the National Transportation Workforce Summit in Washington, DC. This meeting, for which I served as co-chair of the Summit planning committee, is the culmination of more than a year of intense preparation and organization. Key stakeholders from the transportation, labor, and education fields gathered to discuss how to best develop the transportation workforce of the future, and to begin taking steps for connecting the many workforce development initiatives to form effective career pathways that will prepare the transportation workforce in the 21st century.

Our partners at the Wisconsin DOT are leading the program planning for the [2012 Mid-Continent Transportation Research Forum](#), to be held on September 6-7, 2012 in Madison, Wisconsin. We are planning sessions to showcase our CFIRE research and MAFC activities as well as the research accomplishments of other programs that form the Wisconsin Transportation Center. We hope you will join us in Madison at this conference.

We are making great progress working with our new and continuing partners to prepare multi-partner collaborative work plans for our proposed research initiatives. We are using what I like to call a “stone soup” approach where any of our partners can contribute to developing the work plan and participate in the project. Along the way we have improved our understanding of the freight issues at hand and our awareness of the expertise at each partner institution. Research, education, and outreach projects are getting underway, and we're excited about all the possibilities this new partnership brings. We look forward to great things from all of these initiatives as they move forward.

Here at the University of Wisconsin–Madison, the semester concluded with the presentations from students in the Transportation Management and Policy colloquium and practicum courses. Students in the practicum course conducted a service learning project for the town of LaValle, Wisconsin. The students worked with the town chairwoman and roadman to develop recommendations and a cost estimate that addresses recurring pavement failures at culverts. They also conducted a safety audit for a particularly dangerous town road.

Congratulations to our 2010 student of the year Erica Bickford, who has been named the 2012-2013 American Geophysical Union Congressional Science Fellow. Bickford has worked on CFIRE research in the area of environmental sustainability of freight transportation under the direction of Professor Tracey Holloway. These two CFIRE projects make up her dissertation.

We'd also like to congratulate Elizabeth Heyman, who was awarded the 2012 Muzi Fellowship for bicycle-related work with UW Transportation Services and the City of Bloomington, Minnesota.

And finally, we'd like to welcome Ben Zietlow to the CFIRE staff. Ben joins us as a Geoeconomist and he'll be focusing his economic and GIS skills on providing a substantive basis for the Mid-America Freight Coalition Regional Freight Study, as well as other CFIRE projects.



Zietlow Joins CFIRE



Ben Zietlow recently joined CFIRE as a geoeconomist. He will focus on both CFIRE and MAFC research activities.

Before joining CFIRE, Zietlow worked as a surveyor for La Crosse Engineering and Surveying Co., Inc., as a GIS intern at Gunderson Lutheran Health System, and a

traders' assistant at Robert W. Baird & Co. He holds a BS in Economics and Philosophy from University of Wisconsin-La Crosse and a MS in Geographic Information Science from Saint Mary's University.

You can reach Ben at bzietlow@wisc.edu.

Adams Named to Two Committees



Earlier this Spring, CFIRE Director Teresa Adams was named to two freight transportation committees.

In March, Secretary of Transportation Ray LaHood named Teresa Adams to the Intelligent Transportation Systems (ITS) Program Advisory Committee (ITSPAC).

"We have seen tremendous progress in the area of traveler information," says Adams. "ITS technology applications can enhance the efficiency of freight transportation and improve safety and security too."

The ITSPAC advises the Secretary of Transportation on matters relating to the study, development, and implementation of Intelligent Transportation Systems in the United States. Members of this select committee make recommendations on ITS strategic planning and review proposed areas of ITS research funding to determine whether research activities are likely to advance the state of the art and be deployed by users. The committee also makes recommendations regarding the appropriate governmental and private sector roles in funding ITS-related research initiatives.

Adams was also named to the World Road Association Freight Transport committee.

Bickford Named AGU Fellow



Erica Bickford has been named the 2012-2013 American Geophysical Union Congressional Science Fellow. As part of this fellowship, Bickford will serve Congress and assist with science policy issues, write periodic columns for EOS, the AGU weekly newspaper, and serve as the face of the American Geophysical Union.

Bickford holds a MS in Atmospheric and Oceanic Sciences a certificate in Transportation Management and Policy from the University of Wisconsin-Madison and is completing her PhD in Environment and Resources at the Nelson Institute for Environmental Studies. She has also been awarded the American Meteorological Society policy fellowship and the Eno Transportation fellowship, participated in the prestigious International Institute for Applied Systems Analysis' (IIASA) Young Scientists Summer Program in Vienna, Austria, and was the 2010 CFIRE Student of the Year.

Bickford is the lead graduate researcher on two projects funded by CFIRE and conducted by the Nelson Institute for Environmental Studies under the leadership of CFIRE Associate Director 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)

These two projects together form the basis for Bickford's dissertation.

She will take up the AGU Congressional Science Fellowship in September 2012, after she completes her PhD at the University of Wisconsin-Madison.

"International cooperation is necessary to cope with the current challenges of global freight transportation," says Adams.

The WRA Freight Transport committee will examine issues of urban and interurban freight management and investigate the use of different freight modes on their own and in combination. Adams will collaborate with researchers globally to identify and disseminate best practices in road and intermodal freight transportation.

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in planning the summit was to identify the right people join the conversation and to get them to the table to start the dialogue.”

The National Transportation Workforce Summit attracted distinguished speakers and guests from the three major stakeholders in the Federal government: US Department of Transportation, US Department of Education, and US Department of Labor. In addition, the Summit included representatives from professional organizations, academic institutions, and the private sector from across the fields of transportation, education, and labor.

US DOT Secretary Ray LaHood gave the keynote address, in which he provided his vision of the transportation enterprise and his expectations for the National Workforce Summit.

“Secretary LaHood was a middle school teacher in his early career,” said Adams. “He understands the challenges in making students aware of career possibilities in transportation and in connecting the education pathways for preparing highly skilled workers.”

The Summit participants developed a set of strategic actions for educators, the transportation industry, and government. The planning team is preparing materials to disseminate results and specifically to address the recommendations to the groups who can implement them.

“The Council of University Transportation Centers had a major leadership role in making the Summit happen,” said Adams. “As incoming president of CUTC, I am looking forward to keeping the dialogue moving.”

For more information about the National Transportation Workforce Summit, including the agenda and presentations, visit cutcworkforce.com.

CFIRE also supported the Summit at the Gold Contributor (\$10,000) level.



The Benefits and Perceptions of LCVs

Longer combination vehicle (LCV) operations are currently allowed in thirteen states (with some restrictions), and in six additional states on turnpikes only. These longer combination trucks, consisting of two or three trailers, provide more space to transport increased cargo volumes. As a result, cargo can be shipped more efficiently at a reduced cost because it requires less labor and fuel per ton of cargo transported. The use of LCVs creates further benefits related to lower emissions and reduced congestion. However, due to the Intermodal Surface Transportation Efficiency Act of 1991, the use of LCVs on the federal-aid highway system cannot be expanded beyond their current permitted uses – a grandfathering allowance only. As operational costs (including personnel, fuel, and equipment) in the freight industry have risen, so has the interest in the potential benefits of LCVs. As a result, there is increased interest in the costs and benefits of LCVs, and discussion surrounding the repeal of the current restrictions.

When Congress passed the Intermodal Surface Transportation Efficiency Act concerns about safety and pavement damage emerged as the primary reasons for the freeze on LCV use. However, rising fuel prices, increasing costs associated with noxious emissions, and surging congestion costs have recently made the use of LCVs more attractive. This study evaluates both the negative and positive outcomes concerning longer combination vehicle use.

Longer Combination Vehicles: An Estimation of their Benefits and the Public Perception of their Use (CFIRE 05-01) took a critical look at LCV use to determine whether the expanded use of LCVs would be beneficial to society. This study consisted of four parts: 1) a literature review summarizing past research on LCVs; 2) a representative cost-benefit analysis involving the operation of LCVs on the Ohio Turnpike; 3) interviews with direct stakeholders from both the public and private sectors to get input relative to the benefits and costs they foresee with increased LCV use; and, 4) a survey of the general public to gain a better understanding of their views related to the use of LCVs on the highway.

Based on this research, the project team was able to draw a number of conclusions. First, the literature review revealed inconsistency and a lack of consensus relative to the safety of LCVs. Researchers were able to neglect pavement damage cost because a general consensus is emerging that this damage is directly related to weight per

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Understanding Freight Land-Use Relationships

Land use patterns in any community can be considered as manifestation of its history and policy decisions concerning land development and transportation infrastructure. The Understanding Freight Land-Use Relationships (CFIRE 02-07) project, funded by CFIRE and led by Dr. Kazuya Kawamura of the University of Illinois at Chicago, seeks to address the knowledge gaps concerning the relationship between land use and freight and to advance the understanding of interactions among land use, transportation infrastructure, and movement of freight.

This study approached the freight land-use problem from three different angles. It sought first to examine the effects of transportation infrastructure on freight sector output, employment, and productivity. Second, researchers considered how built environment factors such as intersections and road densities affect consumption of retail goods while accounting for the effects of economic and demographic conditions. And third, the project team examined the perceptions and knowledge of the stakeholders involved in urban freight movement and commercial real estate development regarding the relationship between land use and freight.

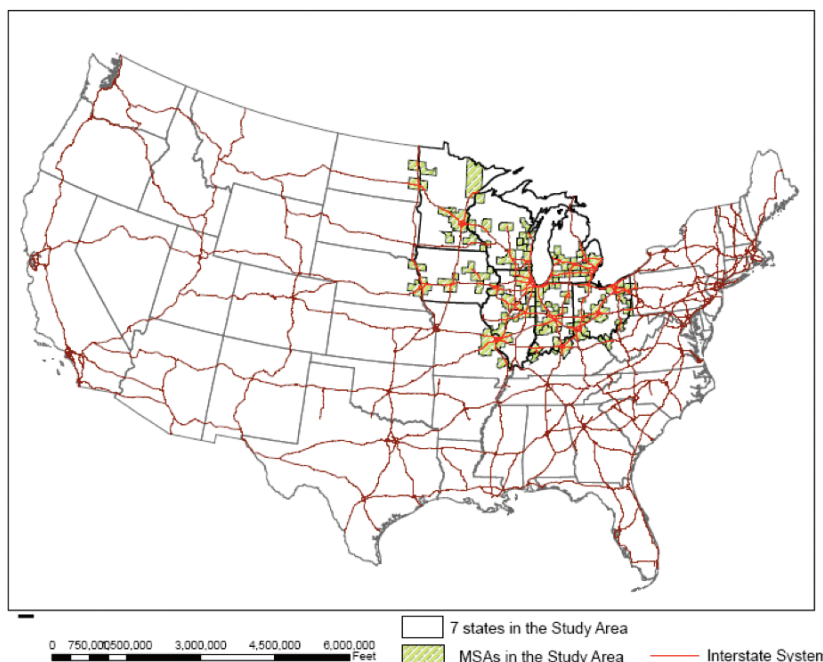
The research team found that in each of these areas the information they collected from the field painted a picture of nuanced and complex relationships between land use, which included transportation infrastructure, and freight. Statistical analysis often did not produce the results suggested by conventional wisdom, which is itself often the basis for policy decisions regarding freight. While more in-depth research is required in each of these three areas to extract more concrete policy implications, researchers were able to identify a number of valuable insights.

The supply of roads, measured in terms of lane miles or centerline miles, does not stimulate the growth of

freight sectors nor improve their productivity. Rather, improvements in the management of traffic operations or bottlenecks may be more fruitful.

Growth in trucking sector seems to become a zero-sum game in which the growth for one urban area translates to a decline in another, often right next to each other. Urban areas that engaged in aggressive economic development initiatives often emerged as winners.

Increasing air cargo activity is correlated with both trucking sector employment and productivity. In general, increasing the value of goods being transported seems to be the key to increasing the output of the freight sector since the freight rates tend to reflect the value of goods that are being transported.



Compact urban development patterns seem to reduce consumption of retail goods, measured in weight. The effect, however, is very small.

The information gathered from the interviews of freight experts underscores the importance of involving a broad spectrum of stakeholders in the discussion of freight issues. Especially, the participation and cooperation of shippers are critical in implementing nighttime

deliveries that are seen by all the stakeholders as a promising strategy to address congestion and inefficiency.

Based on these results, the research team also recommends that a regional coordination committee to be set up and operated by the MPO or state department of transportation for each urban area to facilitate open exchange of information since their analysis indicated that currently there is no mechanism for the stakeholders to communicate.

For more information about this project, visit cfire.wistrans.org/research/projects/02-07/.

Truckers Going Oversize/Overweight

Ernie Wittwer, Wittwer Consulting

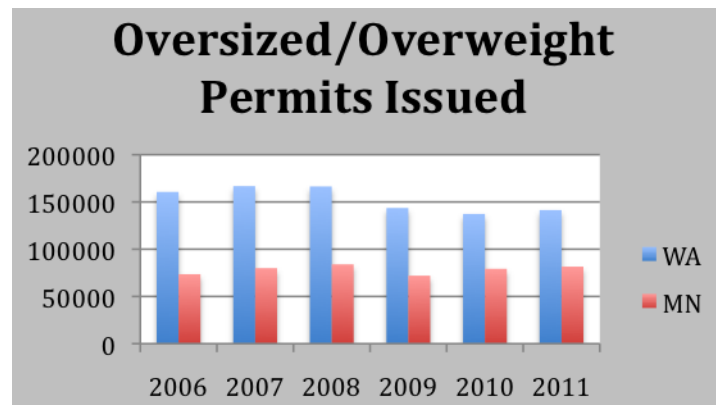
The states along the I-90/94 corridor between Wisconsin and Washington have organized themselves as the Northwest Passage (NWP) Coalition with a goal of improving the overall flow of traffic and commerce in the corridor. Most of the efforts of the NWP states have focused on Intelligent Transportation applications, but they have also spent time on oversize/overweight trucks.

Truckers moving oversize/overweight permitted loads through several states face many challenges. First of all, getting the permit may require going to several state websites, understanding each state's rules and data requirements, and proposing routes. If the rules and/or data requirements are not understood, the permit application may be returned. If the routes approved by two or more states are in conflict because of maintenance or construction work zones or other restrictions, the applicant will have to return to one or more states for a change of route. While this seems a minor inconvenience, truckers have reported going through several iterations of routes for a single permit.

Once the permit is approved, the operational requirements among the states may well be different. Signing and flagging rules may differ. Hours of allowed operations may vary. Different rules for escort vehicles and different training rules for escort drivers may be imposed.

Complying with rules costs money, especially when compliance requires delay. Those costs are not borne by the truckers; they are passed along to the shippers, who must reflect them in the price of the product. Unnecessary cost may place a business or a regional economy at a needless disadvantage.

The number of oversize/overweight permits issued is significant. The figure below illustrates the numbers of permits issued in Minnesota and Washington for the past five years. The numbers shown are all such permits, intrastate and interstate, but the numbers are very large. Both states show the impact of the 2008 economic meltdown. By 2011, Minnesota had recovered to previous levels. Washington is recovering, but still has a way to go to 2008 levels.



Two industries that are important to the region help to illustrate the importance of moving large loads. A relatively new and growing industry is energy. Wind energy is huge on the plains. Wind turbines are often shipped into the region via the Great Lakes ports or the Port of Seattle/Tacoma. Some components are then shipped by rail to near their final destinations. Many are moved the entire way by truck. The other type of energy that is growing in importance is hydraulic fracturing. North Dakota and the Canadian provinces across the border are experiencing an oil boom. The boom requires large equipment to drill, move



tar sands, and process the raw materials. None of that equipment is manufactured in the region. It arrives through the Great Lakes or Seattle/Tacoma or it is shipped from its Midwestern manufacturing sources. Again, some moves by rail, but most of it is trucked.

The other industry is agriculture. Farm equipment is big. Farm equipment on the plains is even bigger. Getting it from its manufacturing source, whether that source is Illinois or Iowa or Japan or India, to the dealers and farms in the region requires some movement by truck.

The states of the Northwest Passage have come to recognize the importance of the flow of commerce to their economies and the importance of large truckloads to that overall economy. The NWP Coalition has sponsored two efforts and is now beginning a third to improve how oversize and overweight loads move through the corridor. CFIRE has facilitated each of these efforts.

The first efforts dealt with how permits are issued. The central question was whether some type of regional permitting compact would benefit the NWP corridor. We concluded that it probably would, but that only one regional permitting compact had been successful. That was the Western States (WASHTO), of which several of the NWP states were members. Unfortunately, the concerns of the non-member states about workload, control of the process, and of the types of permits issued made it unlikely that an expansion of WASHTO could be successfully completed. In any case, the concerns that were raised most often by truckers dealt with the rules that accompany an oversize/overweight permit.

Our second effort focused on harmonizing the rules between the states. We gained agreement on standards that staff in the states could support, but they all have concerns about actual implementation, since it typically involves the political process of rule making.

The upcoming effort will continue dealing with harmonization. It will also involve an outreach to the trucking community to establish a method for the industry to discuss issues of concern with the states and to provide input into the state's rule-making processes.

Harmonization is not an easy task. Existing rules have evolved to protect the safety of the travelling public and to protect the highway infrastructure. No one wants to compromise either of those important goals. Existing rules also tend to have strong supporters. The effort of the NW Passage states is to find that balance that protects our highway investment and our safety without imposing undue burdens on regional economic activity.

2012 Muzi Fellowship



Elizabeth Heyman has been awarded the 2012 Andrew Muzi Yellow Jersey Fellowship. Her work as an alternative transportation intern at UW Transportation Services and as an engineering aid with the City of Bloomington, Minnesota both focused in part on improving bicycle-related infrastructure and services.

At UW Transportation Services, Heyman served as an ambassador for cycling and walking to and on campus. She was also instrumental in the development of the department's football game day bicycle valet parking service.

While working with the City of Bloomington, Heyman researched and wrote the city's Complete Streets policy, which was adopted by the city in February 2012.

After she graduates in Spring 2012 with a Master's degree in Urban and Regional Planning and a certificate in Transportation Management and Policy, Heyman will relocate to the Twin Cities and continue working on bicycle and pedestrian issues.

"For me, riding a bicycle is everything I need rolled into one: exercise, transportation and fun," says Heyman. "On both a personal and professional level, I am dedicated to advocating for safe and improved bicycle infrastructure in my community. I believe improving cycling networks is one very important way to build strong communities and I'm looking forward to being part of that movement."

About the Muzi Fellowship

CFIRE awards this \$500 fellowship to a bicycling enthusiast and student in the Transportation Management and Policy Program. The award is sponsored by the Dane County Bicycle Association "to honor the lifetime contribution of Andrew Muzi to cycling in the Greater Madison Area." The award recipient is a cycling enthusiast who upon graduation plans to assume a professional position that will influence the future design of facilities and infrastructure that support safe and effective bicycling.

For more information about the Transportation Management and Policy Program, visit cfire.wistrans.org/education/for-students/tmp/.

TMP Successes: Mary Ebeling



Mary Ebeling graduated from the University of Wisconsin-Madison with a Master's degree in Urban and Regional Planning and a certificate in Transportation Management and Policy.

During her time at the UW, Ebeling worked as a research assistant under the auspices of the Midwest University Transportation Center (MRUTC), focusing on tolling and asset management. She also helped organize UW transportation week events.

After she graduated in 2006, Ebeling managed the Nonmotorized Transportation Pilot Program for Sheboygan County, Wisconsin. This \$25 million federal grant focused on increasing the use of bicycle and pedestrian transportation modes throughout the county. Ebeling led the creation of a 30-year comprehensive bicycle/pedestrian plan, bicycle lane striping, the creation of rail-trail and mixed-use paths, and other enhancements designed to create a safe, efficient transportation network for cyclists and pedestrians. She is a founding member of the Sheboygan County Bicycle and Pedestrian Coalition, where she helped start the ReBike program, which teaches youth how to rehabilitate used bikes and provides them with refurbished bikes for their own use. She was involved in a campaign called "Get Lit – It's the Law" to distribute safety lights to bicyclists who didn't have any. She also led the effort to produce a county-wide Safe Routes to Schools program, establish valet bicycle parking for public events, and launch the county's Bike and Walk to Work weeks.

"More than one-third of the infrastructure facilities are now constructed," says Ebeling. "As a result of this program, Sheboygan County has seen a 17 percent increase in bicycle modal share and now has a bronze-level bicycle friendly designation."

Ebeling then spent two years in the Public Transit Section of the Wisconsin Department of Transportation, where she managed \$8 million American Recovery and Reinvestment Act projects that focused on improving transit systems in rural Wisconsin. In this role, she helped a number of small towns, counties, and tribal governments build new maintenance and transfer facilities for their transit fleets. She also worked with disadvantaged enterprise programs for transit.

Ebeling is now a transportation policy analyst with the State Smart Transportation Initiative (SSTI). At SSTI, she works with the North Carolina DOT on a sustainable revenue study that aims to identify revenue sources across all modes, not just highway. Ebeling has also begun working with the Delaware DOT to identify recommendations for improvements to the transit system in Wilmington, Delaware.

In addition to her professional work, Ebeling is a regular transit user, an avid cyclist, and a member of the board of the Bicycle Federation of Wisconsin.

"I like to share the joy and freedom that comes with being able to bicycle and walk for transportation," says Ebeling.

For more information about SSTI, visit ssti.us.

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axle rather than overall weight. Therefore if the maximum allowable axle load for an LCV is the same as for a conventional tractor and semitrailer, we can assume no additional pavement damage. The cost-benefit analysis of allowing LCV use on the Ohio Turnpike revealed as much as \$205 million in cumulative benefits over a twenty-year planning horizon. The estimated per LCV mile benefit ranges from \$0.45 to \$0.75. Interviews with stakeholders showed that both the public and private sectors expect benefits from expanded LCV use. Both sectors also predicted that LCV use would increase significantly if allowed. The public survey suggested that the public understands the potential benefits of LCV use; however, education, outreach, and awareness campaigns would be required to mitigate safety and infrastructure concerns.

For the future, the project team recommends further study examining the safety of LCVs, as current studies provide inconsistent, and often conflicting, findings. In particular, the relative safety of LCV vehicles compared to the standard configuration tractor and semitrailer appears to be unknown. Similarly, research investigating the impact on infrastructure costs directly related to adapting for LCVs would be beneficial. At present, studies cannot differentiate the incremental changes associated with LCV uses.

For more information about this project, visit cfire.wistrans.org/research/projects/05-01/.

Spring 2012 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.

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

- An examination of the policies that promote Transit Oriented Development (TOD)
- Vehicle Miles Traveled (VMT) Tolling
- Transit management within the Chicago Loop

About the TMP Practicum

In the Transportation Management and Policy (TMP) program, students take a practicum course where they work on a solution to a real-world transportation-related problem.

At the Spring 2012 TMP program reception, practicum students presented the results of their project: Road network analysis for the Town of La Valle, WI.

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/.



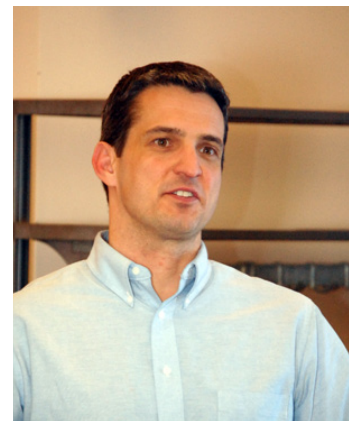
Jason Kramer



Andrew Young



Ade Tinamei



Dan Moser



Phil Sletten



Jamesa Marshall



Myungook Kang



Whitney Schroeder

Adopt-a-Highway Clean-up

CFIRE, as part of the Wisconsin Transportation Center (WisTrans), adopted a three-mile stretch of WI-19 near Indian Lake County Park in northwestern Dane County.



CFIRE staff and students spent the morning of May 10 cleaning up this stretch of adopted highway. They will pick up litter on this stretch of highway two more times in 2012.



As part of the Adopt-a-Highway program, CFIRE takes responsibility for litter control on approximately a three mile segment of state highway. The group picks up litter on this segment at least three times per year between April 1 and November 1. The Wisconsin Department of Transportation furnishes safety vests, a safety training video, trash bags, trash bag pick-up and disposal, and two signs marking adopted segment of highway.

For more information about the Adopt-a-Highway program, visit www.dot.wisconsin.gov/localgov/aid/adopt-a-highway.htm.

CFIRE Supports Short Course Attendees

CFIRE recently teamed up with the University of Wisconsin-Madison Department of Engineering Professional Development to offer scholarships for three rail-related short 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 were held in Madison, Wisconsin on the UW-Madison campus and include classroom instruction, group discussion, and a set of well-developed course materials. CFIRE provided full tuition for ten attendees for the course of their choice. Each attendee submitted a scholarship application with information about their current position and how they would use the information that they learned in the short course to better do their jobs and serve the public good.

We spoke with a number of attendees after they completed their selected short course, all of whom were enthusiastic about the educational experiences provided by these three short courses. Many of them have already applied the information they have learned in the course of their day-to-day work. This is especially true of the lessons learned in the Introduction to Railroad Engineering and Operations, which serves as a useful point of entry for public sector employees into the issues involved with working with private sector railroad companies.

It was also clear that without a scholarship from CFIRE, none of these transportation professionals would have been able to attend this course due to budget constraints currently present in many public sector agencies.

CFIRE rail short course scholarships are one aspect of CFIRE's ongoing effort to support workforce development in the transportation industry.

For more information, visit cfire.wistrans.org/education/epd-rail/.

Kleinmaier to Legislative Audit Bureau

CFIRE project assistant Dan Kleinmaier was recently hired by the Wisconsin Legislative Audit Bureau. He will work as a legislative analyst performing program evaluations.

During his time at CFIRE, Kleinmaier has worked on a number of research projects.

- Containerization Policy: Considering Increased Load Weight for Certain Circumstances of Freight in Wisconsin (CFIRE 01-05)
- Assessing the Value of Delay to Rank Order Congestion Cost in Freight Movement Performance Evaluation (CFIRE 03-15)
- Aligning Oversize and Overweight Truck (OSOW) Permit Fees and Policies with Agency Costs (CFIRE 03-17)
- Longer Combination Vehicles: An Estimation of their Benefits and the Public Perception of their Use (CFIRE 05-01)
- North-West Passage Corridor-wide Commercial Vehicle Permitting (CFIRE 05-02)

Kleinmaier also he co-wrote a paper on the transportation challenges associated with the construction of wind farms entitled “Transportation of Wind Energy Industry Components: Planning For Growth in the Heartland” and presented these findings at the 2010 Great Lakes Wind Collaborative annual meeting and the 2010 E-Hub Conference.

Kleinmaier graduated in Spring 2012 with Master’s degrees in Public Affairs and Urban and Regional Planning with a certificate in Transportation Management and Policy from the University of Wisconsin-Madison.

He credits his project work at CFIRE and his experiences in the Transportation Management and Policy (TMP) program for helping him prepare for his new position. “My experiences at both CFIRE and in TMP courses has provided me with the analytic and research background necessary to be successful in a career focusing on high level analysis,” said Kleinmaier.

Join us in wishing Dan every success as he moves into his new position.

For more information about the Transportation Management and Policy program, visit cfire.wistrans.org/education/for-students/tmp/.

Freight Modal Shift and the Environment

The majority of freight in the United States is transported by heavy duty diesel vehicles (HDDVs), trucks that are a major source of smog-producing nitrogen oxides and fine particulates – pollutants harmful to human health. A projected doubling of domestic freight tonnage by 2050 has caused concern both for transportation planners and air quality managers about how existing infrastructure will handle this growth, and what impact it will have on air quality and public health. Modal shift, or shifting freight away from truck towards more fuel-efficient freight transport options, such as barge and rail, has been proposed as a solution to increasing highway congestion and vehicle emissions.

The Sustainable Freight Infrastructure to Meet Climate and Air Quality Goals (CFIRE 02-09) project examined the potential for freight modal shift from truck-to-rail in the upper Midwestern United States to improve regional air quality and reduce carbon dioxide (CO₂) emissions. Researchers used two scenarios to both select commodities viable for rail (e.g., base metals, motorized vehicles etc.), and transport distances longer than 400 miles, where rail is more economically competitive. One scenario focused on intra-regional (I-R) freight movements within the upper Midwest and the second on through-freight (T-F) movements into, out of, and through the Midwest region. Results showed the Midwest I-R scenario exhibited only a small emissions reduction, and therefore little impact on regional air quality. However the T-F scenario greatly reduced emissions: 26 percent reduction of nitrogen oxides (NO_x) and 40 percent reduction of particulate sulfate (SO₄) relative to trucking. Surface concentrations were also significantly reduced, particularly nitrogen dioxide (NO₂) and elemental or black carbon (EC) near roadways in summer (up to 27 percent for NO₂ and up to 16 percent for EC), with corresponding increases near railways (23 and 22 percent, respectively). The T-F scenario also reduced CO₂ emissions 31 percent compared to baseline trucking. Reductions in regional fine particulate matter (PM_{2.5}) and ozone (O₃) were modest, about 3 percent.

Using more trains and fewer trucks to transport freight improved regional air quality in the Midwest, but not enough to affect designation of counties out of attainment with National Ambient Air Quality standards. The motivation for advocating more freight rail over truck lies principally in reducing human pollutant exposure near roadways, and decreasing CO₂ emissions.

For more information about this project, visit cfire.wistrans.org/research/projects/02-09/.

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