The Gulf Coast Research Center for Evacuation & Transportation Resiliency

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Associate Director's Message

Associate Director
Dr. Billy Fields

The LSU-UNO Gulf Coast Research Center for Evacuation and Transportation Resiliency (GCRCETR) has had an active academic year. The Center hosted the inaugural Transportation Lecture Series (story at right) that brought together leading scholars, practitioners, students, and the general public to engage in a discussion on sustainable transportation. Outreach activities also included presentations at national conferences and participation in the Association of Pedestrian and Bicycle Professionals (APBP) Complete Streets: State of the Practice webinar series. The Center's educational commitment was strengthened through the sponsorship of student scholarships for two students to attend the annual Transportation Research Board (TRB) meeting in Washington, DC. The student spotlight section of the newsletter provides firsthand updates from the students on this educational experience. In addition to these outreach and educational activities, the Center has continued to produce strong scholarship. Our research spotlight focuses on Dr. Marwa Hassan's work which investigates the use of nano-particles to control CO_2 emissions from vehicles. Projects' updates for all our sponsored ongoing activities are included here as well.

The Center continues to build strong partnerships with the academic, professional, and general public in the areas of evacuation and transportation resiliency. For more information, please contact us at the Center. We look forward to connecting with you.

Transportation Lecture Series Launched

On December 13, 2010, the Center hosted a public lecture focused on transportation and oil. The evening lecture, held at the Port of New Orleans Administration Building, represented the inaugural address of what is to become an annual Transportation Lecture Series for the Center. The new program is designed to provide a forum to address significant and timely issues that impact the transportation industry. Title sponsor for the event was PARSONS Corporation.

With the spotlight on the Gulf of Mexico's British Petroleum Deepwater Horizon tragedy on April 20, 2010, oil became an important topic of discussion worldwide. This attention on oil, coupled with the fact that transportation accounts for approximately 70% of our oil consumption, fostered the topic for the lecture -- "The Role of Sustainable Transport to Overcome Oil Dependence."

UNO's Dr. John Renne acted as moderator for the event, which featured Dr. Anthony Perl, Director of the Urban Studies Program at Simon Fraser University, Vancouver, BC and author of *Transport Revolutions: Moving People and Freight Without Oil,* as the keynote speaker and a panel presentation by noted transportation experts: Richard A. White, Rail Program Analyst, PARSONS; Robert S. Grandy, PE, Principal, Fehr & Peers Transportation Consultants; and Gary LaGrange, President and CEO, Port of New Orleans.

Dr. Renne set the stage for the evening discussion by remarking, "If we don't find ways to reduce our dependence

on oil within the transportation sector, our nation will fail to ever reduce our overall addiction to oil". In response, the speakers engaged the audience in thought-provoking presentations and discussions on sustainable transport.

Dr. Anthony Perl

Richard A. White

Robert S. Grandy

Gary LaGrange

Feedback from those attending the lecture was extremely positive with numerous requests for more programs of this nature. The Center extends its gratitude to Mr. P. Takis Salpeas, Senior Vice President of the Rail & Transit Division of PARSONS for his generosity as title sponsor of the event. The Center also acknowledges the support of Fehr & Peers Transportation Consultants, the Port of New Orleans,World Trade Center of New Orleans, and the ASCE Transportation & Development Institute, Louisiana Chapter.

Copies of the presentations are available by request to cshort2@uno.edu

Dr. Hassan Gaining National Attention for Pavement Research

Dr. Marwa Hassan is leading research sponsored by the Center which investigates the use of nano-particles to control CO_2 emissions from vehicles. Since her research started, she has garnered attention from LSU media, the Baton Rouge Advocate, and the San Francisco Chronicle.

Dr. Hassan (middle) works with students to calibrate the nano-particle applicator on the test site.

The research is motivated by the significant challenge the US faces in controlling air pollution resulting from transportation activities and growing population. A number of regions in the US, including in Louisiana, have been designated by the EPA as nonattainment areas in which air pollution levels persistently exceed national air quality standards. In an effort to reduce air pollution, Dr. Hassan's research is investigating a method to remove vehicle emissions from the air using titanium dioxide (TiO_2) on the pavement surface. The use of TiO_2 as an air purifier in urban and metropolitan areas has been widely recognized and is receiving considerable attention. However, current applications of this technology are limited to building facades and gateway elements of bridges not subjected to traffic as in the case of the I-35W Bridge over the Mississippi River in downtown Minneapolis. Expanding the technology to pavements requires creating a new generation of pavements that have photocatalytic capabilities, are durable, safe and cost effec-

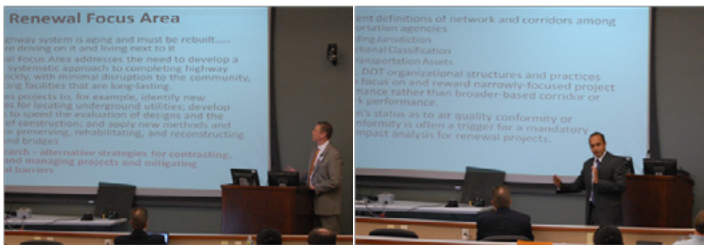
-tive. This project aims to create the first generation of photocatalytic asphalt and concrete pavements. These pavements will have the capability of producing hydroxyl radical intermediates, which are effective oxidizing agents of environmental contaminants including VOC, SOx and NOx. Based on this heterogeneous photocatalytic oxidation process, nitrogen oxides are oxidized into water-soluble nitrates while sulfur dioxide is oxidized into water-soluble sulfate; these substances can be washed away by rainfall. In addition, the project will test the long-term durability and safety of the technology.

Dr. Hassan (middle), Dr. Vinay Dixit (right), and team gather for picture after application process is complete.

Deep South Section ITE Meeting

Dr. Brian Wolshon and Dr. Vinay Dixit both presented at a section meeting for the Institute of Transportation Engineers (ITE) on February 24, 2011. The meeting of the Deep South section which consists of Louisiana and Mississippi, a subsection of the Southeastern District, was held in Baton Rouge. Their presentation, entitled *Coordination of Construction Projects,* centered on a current research project being undertaken in-part by LSU.

The research is focused on allowing network-level evaluation of renewal projects. Currently, transportation corridor and network analysis at the planning stage may not consider the entirety of infrastructure needs within that corridor and/or network. The analysis may not consider the impact that significantly different project execution strategies may have on the overall budget, disruption to traveling public, disruption to commerce, and impacts on the local community during the actual construction operations.



Dr. Brian Wolshon (left) and Dr. Vinay Dixit (right) present at ITE Meeting.

Decisions made during planning can enhance or constrain opportunities to accelerate construction or minimize disruption. These decisions may also overlook opportunities to minimize the number of construction interventions ultimately required in a corridor. In an effort to aid planners and decision-makers, a new software is being developed which will aid in analyzing such networks.

In addition, student participation was encouraged at the conference for a "Traffic Bowl" competition. Louisiana and Mississippi divisions competed to win for their respective states. The two finalists, LSU and Jackson State University, will proceed to the overall Southeastern District meeting to be

Traffic Bowl Teams representing various universities gather for a picture following the competition.

held in Lafayette, LA in April. The LSU student chapter of ITE was recently reactivated through efforts by students, local engineers and faculty after several years of inactive status.

Technology Transfer: "Complete Streets--State of the Practice" Webinar

On February 16, 2011, the Center sponsored a viewing of the Complete Streets: State of the Practice webinar. The program, produced by the Association of Pedestrian and Bicycle Professionals (APBP), examined the current state of the practice for complete streets.

UNO Students and Faculty, Complete Streets Webinar Feb. 16, 2011

Topics addressed in the session included:

- How support for complete streets is strengthened as collaboration with public health, transit, and other partners increases
- A comparison of existing policies and how they match up to guidelines from the National Complete Streets Coalition
- Examples of best practices at the local and state level

The webinar was attended by UNO faculty, staff, and students.

Project Updates

Resilient Transportation Systems in a Post-Katrina Environment: Opportunities Realized and Missed in New Orleans and the Louisiana Coastal Region
Principal Investigator: James R. Amdal

This project assessed the role of transportation resiliency in a post disaster environment with an emphasis on those systems serving New Orleans and coastal Louisiana. Specifically, our research focused on Public Transportation (fixed rail, bus, para-transit), Passenger and Freight Rail, and Maritime systems. We reviewed the impacts and response of these modes to both natural and man-made disasters in our region using two distinct time frames: i.e. Hurricanes Katrina and Rita in 2005 and Hurricanes Ike and Gustav in 2008. These storms exposed significant deficiencies and disconnects in our pre-Katrina transportation systems which are now being addressed in both the public and private sector. We make specific recommendations per mode that are currently being implemented. The goal is to improve the individual modes and their inter relationships so that individually and collectively they form integral parts of a resilient transportation system.

Status: Complete. Final report has been submitted to RITA and posted on www.evaccenter.lsu.edu.

Rails to Recovery: The Role of Passenger Rail Transportation in Post-Katrina Louisiana
Principal Investigator: James R. Amdal

Historically, passenger trains and streetcars have played key roles in the growth and development of the State of Louisiana and the City of New Orleans. This research proj-

ect addresses their potential impacts on contemporary Louisiana, the City of New Orleans and the greater New Orleans – Baton Rouge region in a post-Katrina environment, as recovery tools and as enhancements to existing public transportation systems.

Through multiple recovery planning processes citizens have debated the merits of new passenger rail service. From these efforts two projects have emerged. The first is a proposed commuter train between Baton Rouge and the New Orleans Central Business District. This project is currently on hold based on Governor Jindal's opposition to its annual operating costs, which he believes will be a recurring burden for the state. The second project, recently funded by ARRA at 100%, will construct a new streetcar line between the existing New Orleans Union Passenger Terminal and Canal Street. This research evaluates these rail passenger projects in light of national best practices for both new commuter rail services and urban streetcar lines, and examines the relationship between the proposed lines and existing or planned real estate development.

Maps, at various scales, illustrate the apparent disconnect between the investments being made or planned within the CBD and adjoining neighborhoods and the investments being built or proposed by these streetcar extensions. This is directly related to the lack of a public policy that links public investment in public transit with development in New Orleans, regardless of location or neighborhood. This however need not be the case, as our two case studies demonstrate. In both Portland, Oregon and San Diego, California public agencies and political bodies have adopted proactive development policies that have directly tied development to public transit investment. The degree of success however is still being debated. With this study, another residual value is this freeze-frame of development prior to the construction and operation of any of the proposed streetcar extensions. This will also allow later researchers to quantify the actual impact the streetcars made on corridor development, neighborhood revitalization, etc. using a number of specific metrics: property value increase; sales tax revenue.

Status: Awaiting receipt of peer reviews; report will then be finalized, submitted to RITA, and posted on www.evaccenter.lsu.edu.

Louisiana Intermodal Transportation Infrastructure Study: Feasibility Analysis for Inland Waterway Container Transport Systems Within the Lower Mississippi Region and the New Orleans Metropolitan Area
Principal Investigator: James R. Amdal

The primary objective of this study is to conduct an analysis of successful inland waterway container transport in selected U.S. locations and to assess the feasibility of this transportation mode within the Mississippi River corridor. A "marine highway" initiative is being proposed by the USDOT to encourage a shift of cargo movements from traditional surface transportation modes to maritime systems. This research is conducted in partnership with the New Orleans Regional Planning Commission (RPC). As a Metropolitan Planning Organization (MPO), the RPC has the distinct advantage of providing a regional perspective on transportation systems. This project allows the RPC to expand their traditional perspective to include the region's extensive maritime transportation assets. The study also provides a perspective of resilient freight transportation utilizing inland waterways as an alternate freight delivery system.

Status: Draft 75% complete; final report will be submitted for peer review, finalized, submitted to RITA and posted to www.evaccenter.lsu.edu by July 1, 2011.

Active Transportation Measurement and Benchmarking Development: New Orleans Case Study
Principal Investigator: Billy Fields, PhD

Status: The two-year project to collect bicycle and pedestrian count data from sites around New Orleans to test the impact of the addition of new bicycle and pedestrian infrastructure on usage rates is just over half way complete. The draft of State of Active Transportation report which provides an overview of walking and cycling conditions has been completed. The initial set of manual counts has been compiled and analyzed. Counters are being deployed in April and May of 2011 for follow-up counts. An updated count report and complete final report will be produced later this year.

Active Transportation Measurement and Benchmarking Development Extension: Minneapolis Case Study
Principal Investigator: Billy Fields, PhD

The Active Transportation Measurement and Benchmarking Development Extension: Minneapolis Case Study seeks to take advantage of a unique research opportunity to examine a large scale environmental intervention in Minneapolis where $20 million in active transportation improvements are being implemented as part of the federal Nonmotorized Transportation Pilot Program.

Status: Bicycle and pedestrian count data from over 40 locations around Minneapolis have been collected before new facilities were installed. A fall 2011 count at these new facilities will provide an important opportunity to utilize a pre/post design to test the impact of environmental change. Currently, data from the pre-intervention counts are being analyzed and a GIS database of land use and demographic conditions around the sites is being created.

Five Years Later: Emergency Preparedness Improvements in New Orleans, Louisiana since Hurricane Katrina
Principal Investigator: Robert X. Fogarty

Multiple preparedness innovations have sprouted in New Orleans in the past four years from all levels of government, private enterprise and citizen-led groups such as neighborhood associations and churches. This research documents the full extent of emergency preparedness improvements made in New Orleans since Hurricane Katrina, including government, academic, and private enterprise.

Status: Completed. Final report can be accessed at www.evaccenter.lsu.edu/publications.html.

An Integrated Approach to Modeling Evacuation Behavior
Principal Investigator: Dr. Sudipta Sarangi

This project centers on the development of an integrated approach to modeling evacuation behavior that considers both economic and non-economic factors for the decision. The abstract theoretical model takes hyperbolic discounting and peer effects into account. Data from Hurricane Andrew was used to test the theoretical models, and simple experiments were used to collect data on risk attitudes.

Status: Completed. Final report can be accessed at www.evaccenter.lsu.edu/publications.html

Assessing the Long-term Impact of Subsidence and Global Climate Change on Emergency Evacuation Routes in Coastal Louisiana

Principal Investigators: Dr. Roy Dokka and Dr. Joshua Kent

This project will model subsidence for coastal Louisiana The end result of the research will be to investigate the impact of subsidence on major evacuation routes in Louisiana. The model that will be produced should be able to forecast subsidence for coastal Louisiana through 2100.

Status: On-going. Dr. Joshua Kent presented his current findings to the LSU School of the Coast & Environment at a seminar on February 18, 2011. The presentation was titled Visualization Models of Anthropogenic Subsidence across Coastal Louisiana.

Setup of Driving Simulator for Behavioral Research

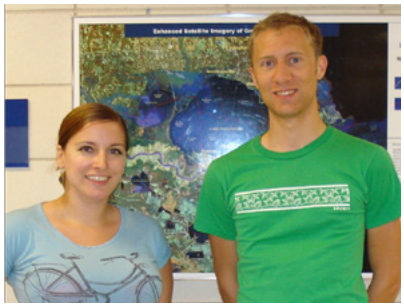
Principal Investigator: Dr. Sherif Ishak

The project is for the material and equipment to set up a driving simulator for behavioral research. This is a preliminary project, and at the end of this project a scope of research will be identified, as well as, the benefits that are envisioned for the state of Louisiana.

Status: On-going. Installation of the driving simulator should be complete by mid-April. Training on the use of the simulator will commence for both faculty and graduate students soon after.

Student Involvement Spotlight: TRB Annual Meeting, 2011

Through a travel scholarship from the Gulf Coast Research Center for Evacuation and Transportation Resiliency, MURP students Peter Bennett and Tara Tolford attended the annual Transportation Research Board (TRB) meeting in Washington, DC, January 23-27th.



UNO MURP Students, Tara Tolford and Peter Bennett

Below are their reflections on the overall TRB experience, specific lessons learned, and the value of meeting other professionals in their fields of interest.

Peter Bennett, MURP Candidate, '11:

"At this gathering of transportation professionals, all sorts of challenges are discussed and addressed through presentations of research. Concurrently, committees meet and collaborate to set the research goals they have in their specific topic for the year ahead. I was able to find many enlightening sessions on items of interest to me - transit, biking, and walking - despite the small share of research funding these modes receive.

The most important part of attending TRB as a graduate student in transportation planning was the chance to meet the important people and organizations in the field. I was able to connect with transit planners in several cities and many of the bicycle and pedestrian advocates working in Washington and beyond. These connections may lead to work opportunities in the future, but are equally important because they are

the people I will be working with for the rest of my career. I am thankful for this opportunity from UNO to further my interests in transportation."

Tara Tolford, MURP Candidate, '11:

"Attending the TRB conference through the GCRCETR scholarship provided a unique opportunity to connect with transportation professionals and to significantly enhance my knowledge of my current interests, while piquing my interest in new topics. The sessions I attended—on topics including bike infrastructure and safety, minority and women's travel behavior, and transportation planning in an unconstrained, idealized world—also encouraged attendees to think about the need to better integrate ideas across modes, geographies, and disciplines: only then can we develop a holistic, multimodal transportation 'vision' for the nation. At the same time, discussions of big-picture ideals were grounded in the sharing of real, practical tools and data we need to implement our ideas. From a debate between transit advocate Todd Litman and a trucking-industry lobbyist on the gas tax, to a highly technical (yet fascinating) three-hour discussion on the optimal form of bicycle sharrow markings, TRB 2011 inspired me to seek creative solutions to today's transportation problems, to get more involved with the organizations that influence policy and decision-making, and to continue to dream about a more sustainable and equitable transportation future."

Announcements

The University of New Orleans Transportation Institute now has a facebook page! "Like" UNOTI for updates, news and events.

Publications

The article, "*Giving Parks Back to People: A Transportation Study of New Orleans City Park with Implications for Improving Public Health"* by UNO's Dr. John Renne and graduate assistant, Peter Bennett, was recently published in Local Environment. The article presents the findings from a study conducted by Dr. Renne's *MURP 4062/G: Applied Techniques for Transportation Planners* class at UNO.

Abstract:
Park planning, once at the root of the planning profession during the nineteenth century, can again provide cities with a means to improve public health through restricting access to automobiles. This intercept study, conducted in New Orleans City Park, found that two-thirds of users support weekend street closures to automobiles. Widespread support (63%) exists even among the 72% of people who arrived by automobile. This study also found measurable stated benefits from restricting car access. For more than 53% of the sample that stated that they would walk more in a car-free zone, respondents noted that they would walk nearly 30 min more per month. These findings suggest that planners and policy-makers have a cost-effective option to improve cities and public health - taming the automobile in urban parks.

The article in its entirety can be found in Local Environment, Vol. 15, No. 9 & 10, pp. 879-890, 2010.

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