Abstracts of Current Programs and Projects
(PP06)

Barbara J. Behling
5405 Maher Avenue
Madison, WI 53716
(608) 226-9810
bbehling@charter.net

Preparing Businesses for Pre-and Post-Disaster

Natural disasters and manmade disasters can slow down, cripple, or destroy a business. Therefore, the private sector is investing time and resources to ensure products, services, and revenue streams continue to flow. This is true for my employer, Culver's, one of the nation's fastest growing restaurant chains.

By following the adage, "It's not if, but when," our crisis management plans address before, during, and post disaster scenarios. We continue to modify, update, and enhance our crisis management manual annually with new information, technology, and practices. This presentation will outline the planning and training tools we are employing to help our franchisees survive a disaster. Various tools, techniques, and scenarios have been tested in our training and operational systems. This has helped ensure the safety of millions of guests and provided ongoing vitality for our franchisees.

The vitality of a business is a blend of prevention, preparedness, and the ability to respond to the problem, the public, employees, stakeholders, community members, media, as well as to the business owners. We believe that prepared businesses grow their brand and improve their top and bottom lines.

Christopher G. Burton
Hazards Research Lab
University of South Carolina
Columbia, SC 29208
Burton@mailbox.sc.edu

Vulnerability of Oregon Coastal Communities to Tsunami Hazards

Tsunamis have inflicted damage and casualties upon coastal communities worldwide. The tsunami that occurred in the Indian Ocean on September 26, 2004, raised global awareness of the vulnerability of coastal populations to tsunami hazards. With great potential for loss of life, property loss, damage to critical infrastructure, and the disruption of industrial and commercial enterprises, tsunamis also pose a significant threat to coastal communities within the conterminous United States. The focus of this project is on the Cascadia Subduction Zone, where the Juan de Fuca plate is thrust beneath the North American plate from northern California to central Vancouver Island. Research indicates that this seismic zone could generate a quake of magnitude 8.0 or higher, and historical evidence shows previous occurrences of tsunamis. Activities related to the threat posed within the region include the development of mitigation strategies, preparedness initiatives, and vulnerability assessments, yet current literature reveals that vulnerability studies tend to focus primarily on specific vulnerability elements. Vulnerability assessment methods that take a broader approach focus primarily on heuristic planning processes that lack standardized analytical elements.

In partnership with the U.S. Geological Survey, the purpose of this research is to develop a vulnerability index for Oregon coastal counties scaled down to the census block level of geography. Physical and social characteristics will be integrated with elements of the built environment resulting in a high resolution measure of vulnerability. Such a methodology allows researchers to compare the vulnerabilities of groups residing inside and outside of Oregon's tsunami inundation zone. Results will help decision makers set priorities for increasing resiliency to the state's tsunami hazard.

Arrietta Chakos
City of Berkeley
MLK Civic Center Building
2180 Milvia Street, 5th Floor
Berkeley, CA 94704
achakos@ci.berkeley.ca.us

Using Political Strategies to Prepare the Public: A Local Perspective

Information alone is not enough to spur preparedness and mitigation. A community's full involvement in hazards issues must result in an effective foundation so that critical disaster preparedness actions encompass awareness, support for action, and fiscal investment in community safety. Taken together, these are highly charged political activities.

Communities preparing for disaster have multiple audiences, including community leaders, elected officials, government officials, and residents. In Berkeley, California, a small city, locating the target audience is simple. The whole community is affected by an array of natural hazards and developing an enduring, compelling outreach program is a challenge. Education and awareness efforts must result in policy development for preparedness and mitigation programs, budget allocations to implement programs, and outreach programs to sustain ongoing community engagement.

Long-term credibility with the Berkeley community is built on the serious commitment that local leaders have undertaken to prepare for and respond to disasters. This was a critical first step in winning over key stakeholders to the necessity, over time, of community preparedness and damage prevention efforts. Neighborhood leaders and elected officials who were the first champions for preparedness were recognized as prudent advocates in early awareness efforts. In addition, expert guidance from the Bay Area Regional Earthquake Preparedness Project, the Association of Bay Area Governments, the State Seismic Safety Commission, the Governor's Office of Emergency Services (OES), along with the Earthquake Engineering Research Institute and the University of California, Berkeley, strengthened the message from local leaders.

In today's communities, no vehicle for communication can be ignored—print, electronic, and person-to-person push-out strategies must be coordinated and complementary. Berkeley uses simple safety messages for quotidian public information. Preparedness and mitigation messages developed from sources such as the state OES, the Federal Emergency Management Agency (FEMA), the Red Cross, and other regional neighbors, work well. But, in Berkeley, this information is linked with an assertive distribution strategy that mimics the ones used in political campaigns. This unusual approach to tailor content and attendant neighborhood organizing activities looks promising.

The "Get Ready, Berkeley—No One's Prepared Until Everyone's Prepared" campaign was launched this spring. The city brought together many agencies to work together to improve

community engagement in disaster readiness activities. Local utilities, community and university service groups, along with neighborhood associations, joined together to urge residents that individual/family preparedness alone is not enough to be disaster-prepared. Using electronic, print, and media vehicles, 250 volunteers used innovative, computer-generated precinct maps to walk neighborhoods in every Berkeley district. This volunteer effort reached 27,000 households in a single day with crucial information and ways to connect to a larger community network.

This organizing strategy could be used in any community that has neighborhood- or block-based community groups, from California, to Japan, to Turkey. Using a political organizing approach can sharpen the interest of local leaders and provide residents with ready-made ways to connect with one another. This link between disaster readiness and political advocacy can strengthen community capacity to prepare for the next disaster.

Graeme R. Cox
Disaster Scope
Pasadena, California
Graeme@Disasterscope.com

Repair and Mitigation of Essential Structures (RAMES)

As demonstrated by the effects of Hurricane Katrina, it is vital that essential facilities remain functional during and after a disaster in order to maximize the assistance they provide to the community. The Repair and Mitigation of Essential Structures (RAMES) program is being developed to provide grant funding, to not only repair disaster damage, but also to perform mitigation that will minimize damage and enable designated essential facilities to remain fully functional during and immediately following a disaster event. This would reduce or eliminate the loss of service and the related federal cost experienced during Hurricane Katrina.

The program will provide a fixed amount of funding based on an algorithm related to building area, eliminating the need to perform lengthy detailed inspections and costly engineering analyses. RAMES funds can be used to repair and retrofit the damaged building, purchase and retrofit another building to comply with the program requirements, or build a new building. Each grant will cover all of an applicant's eligible essential facilities of a particular type (e.g., all fire stations taken together or all hospital facilities taken together), allowing the applicant flexibility in determining the best means of restoring the predisaster functions. For example, an applicant may decide to replace five damaged police stations with three larger stations located to better address the current law enforcement needs of the community.

Applicants will benefit from having their funding established and available more rapidly under RAMES than under the standard project worksheet process, enabling them to plan and perform their projects more efficiently. The costs to perform the projects should be reduced as design and construction work will be initiated sooner and the impacts of inflation minimized. In addition, the administrative costs to the applicant, state, and the Federal Emergency Management Agency (FEMA) will be reduced because the staff time necessary to handle the projects will decrease (simplified application, review, and approval process; no supplements or appeals to deal with; and reduced monitoring and closeout efforts).

RAMES is based on our previous experience with FEMA's Seismic Hazard Mitigation Program for Hospitals (SHMPH) and the Grant Acceleration Program (GAP), both of which were implemented during the recovery from the Northridge earthquake. The experience gained from both the SHMPH and the GAP will be assimilated into RAMES in order to develop an efficient, effective program for delivery of repair and mitigation funding.

Elizabeth Dunn
Department of Geography
University of South Carolina
Callcott Building
Columbia, SC 29205
(803) 777-1699
dunnec@mailbox.sc.edu

Testing the Scale Dependency of the Social Vulnerability Index

Some of the general factors that influence social vulnerability include demographic characteristics, such as age, gender, race, and socioeconomic influences. However, those characteristics of the built environment also contribute to the geographic variability of vulnerability. Both elements are captured by an overall Social Vulnerability Index (SoVI), which attempts to quantify and relatively measure the potential for loss based on various social factors and built environment factors, such as the density of nonresidential manufacturing and commercial structures.

Building on the previous work on social vulnerability metrics done at the Hazards Research Lab at the University of South Carolina, this project examines the feasibility of downscaling the original SoVI (done at the county level) to the census tract level. The areas of study are the Mississippi counties included in the University of South Carolina's Coastal Resiliency Information Systems Initiative for the Southeast research project. This project includes the counties of Hancock, Harrison, Jackson, and Pearl River in southern Mississippi, all of which were directly impacted by Hurricane Katrina.

William P. Galle, Jr.
University of New Orleans
Kirshman Hall
2000 Lakeshore Drive
New Orleans, LA 70148
(504) 280-6241
wgalle@uno.edu

Practicing Emergency Management in Institutions of Higher Education

The University of New Orleans has an Emergency Preparedness Committee headed by the chancellor with representation from Facility Services, University Computing and Communication, Campus Police, University Safety Office, Public Relations, and Auxiliary Services. Critical players not on the committee are the building coordinators for the various buildings on campus.

The university administration, like everyone else in the Gulf Coast region, learned from the Katrina experience that conventional communication technology is unreliable. Consequently, the members of the Emergency Preparedness Committee evaluated alternative technology and now have satellite phones. A new committee was formed to anticipate as many different scenarios, before, during, and after a disaster and to create a series of prewritten messages, which are cross-referenced by event, timing (before/during/after), and audience and placed on a server. These messages are directed to the various constituent groups, such as faculty, staff, students, and the media. The public relations office can quickly select and forward messages to the targeted audience. This method precludes the need to compose messages under the pressure and stress of an ongoing disaster.

Because the major disaster most likely to be faced by the University of New Orleans is a hurricane, a new building will be designed and constructed on campus that will withstand maximum hurricane conditions such as wind and flooding. Conceptualized as a self-contained building, it will house critical personnel and equipment and include energy generation capabilities. An alternative short-term plan is to occupy temporary housing at the Louisiana State University campus in Baton Rouge. This was done after Katrina, but it was done spontaneously, without planning or resources.

The biggest hurdles in the design and implementation of the emergency management program at the University of New Orleans are adequate funding and the lack of personnel with the experience and expertise necessary to ensure a comprehensively designed program. There are three additional areas that planners should be aware of. The first is the need to truly think out of the box. At the heart of this activity is the capacity to identify all assumptions and critically question their validity. Many assumptions that seem simple must be questioned. For example, will communication technology work? Will transportation methods work? A good example of this was the reliance on street signs and house addresses. With 8-12 feet of water in the streets,

these conventions were useless when trying to locate people in their homes. The second caution is the need for thorough "coming-back" planning. Most people were able to escape the immediate effects of Katrina, but no one was truly prepared for dealing with the return. The third caution deals with the need to identify all critical parties with whom to coordinate and to have a plan to maintain coordination. The number of agencies involved in the aftermath of Katrina was enormous, and very few people were ready to deal with the complex coordination that was required.

James Godfrey
Earthquake Engineering Research Institute
499 14th Street, Suite 320
Oakland, CA 94612
(510) 451-0905
jgodfrey@eeri.org

Guidelines for Developing an Earthquake Scenario: A New Mitigation Advocacy Tool

An earthquake scenario is a powerful way to stimulate mitigation planning in a community that is vulnerable to earthquake damages. *Guidelines for Developing an Earthquake Scenario* is a new product supported by a grant from the Earthquake Engineering Research Institute (EERI) Endowment Fund. It is available now, for free, at www.eeri.org.

The guidelines lead a mitigation advocate through the simple steps needed to create a comprehensive and credible story about a community's most likely seismic hazard and the damages and losses projected to result from that earthquake. When EERI supported the development of the 2005 Seattle Scenario Fault Scenario, the experience of that region's planning group yielded information that be can used by other regions interested in improving public awareness of earthquake risk. (The Seattle Scenario is available at http://seattlescenario.eeri.org/documents/EQScenarioFullBook.pdf.)

Communities without current mitigation programs, as well as those communities with policies in place, can use the guidelines to motivate public mitigation action. The guidelines explain the benefits of scenario planning and describe how to engage a community in launching and developing a scenario. Organization of a scenario planning group is critical; the roles needed to keep the long-term project on schedule and productive are explained. To be most effective, the scenario should present as complete a picture as possible of the effects of the proposed earthquake. The guidelines list and describe those components of a catastrophic event that should be included to ensure credibility for the project. Tips on how to effectively present the final product to various audiences are also discussed.

Guidelines for Development of an Earthquake Scenario was a project selected for an Endowment Fund grant by EERI's Special Projects and Initiatives committee (SPI). Each year SPI reviews proposals for innovative projects that advance the mission of EERI to keep society safe from earthquakes. Ideas for new projects are welcomed. Please contact James Godfrey, special projects manager, for more information (jgodfrey@eeri.org).

Chris Maier
National Oceanic and Atmospheric Administration
National Weather Service
1325 East-West Highway, Room 14442
Silver Spring, MD 20910
(301) 713-0090 x175
chris.maier@noaa.gov

The New Enhanced Fujita Tornado Scale

For 35 years, the Fujita (F) Scale has been used to estimate tornado wind speeds based on the damage left in their wake. Originally developed by the late Tetsuya Theodore (Ted) Fujita, the staying power of the F Scale rating system is a testament to the brilliance of the man remembered by many as "Mr. Tornado." It is with the greatest respect that in February 2007, National Oceanic and Atmospheric Administration (NOAA) National Weather Service will implement an Enhanced Fujita (EF) Scale to rate tornadoes in a more consistent and accurate manner.

The original F Scale has limitations, such as a lack of damage indicators, no account for construction quality and variability, and no definitive correlation between damage and wind speed. The major improvements of the EF Scale are the more accurate wind speed ranges in each category and an increase in the amount of detail that goes into determining a tornado rating. A correlation between the two scales has been developed and this makes it possible to express ratings in term of one scale to the other, thus preserving the historical tornado database.

The Texas Tech University Wind Science and Engineering Center, along with a forum of nationally renowned meteorologists and wind engineers from across the country, developed the EF Scale. The forum began their work in March of 2001 and included participants from several government organizations, universities, and private companies. Information about the research and methodology used to develop the EF Scale can be found at www.wind.ttu.edu/EFscale.pdf. Information on the EF Scale can also be found on NOAA's Storm Prediction Center Web site at www.spc.noaa.gov/efscale.

Gary Patterson
Michelle Dry
Arleen Hill
Arch Johnston
Center for Earthquake Research and Information
University of Memphis
3892 Central Avenue, Suite 1
Memphis, TN 38152
(901) 678-5264
glpttrsn@memphis.edu

Promoting Earthquake Awareness in the Central United States through Strategic Education and Outreach Partnerships

The New Madrid seismic zone is characterized by large earthquake sequences that have occurred at least three times over the last 1,500 years. Low awareness of the hazard and associated risk, relatively large damage areas (due to low attenuation of seismic energy in an intraplate setting), a large inventory of structurally vulnerable buildings and infrastructure, and a significant population of socially vulnerable people, leads most scientists and emergency managers to the conclusion that losses from similar earthquake sequences in the future would be catastrophic, widespread, and long lasting. Recent disasters in the United States and Asia related to similar low-recurrence, high-consequence events emphasize the need to implement comprehensive education and outreach programs. However, the low frequency of these events leads to relatively low funding levels for education and outreach and fewer organizations focused on earthquake awareness and loss mitigation. Given these constraints, it is essential to leverage the resources and talents of numerous agencies, institutions, and organizations to implement comprehensive programs that reach a significant proportion of the 11 million residents of the central United States that are at risk from earthquakes in the New Madrid seismic zone.

One example of successful education and outreach partnerships in the central United States is the implementation and operation of the Public Earthquake Resource Center at the University of Memphis. The facility provides comprehensive Web-based information and lesson plans (www.ceri.memphis.edu/perc), interactive exhibits, and information tools that promote earthquake preparedness and a better understanding of earthquake hazards and earthquake engineering. The facility hosts thousands of visitors annually and the project's Web site receives over two million hits per year. A special focus is placed on serving the needs of K-12 students with significant social and structural vulnerability to earthquakes. Displays include a scale model liquefaction trench, liquefaction shake table, building resonance shake table, real time information on global and local earthquakes, and drum seismograph. Hardcopy and Web-based information on all related topics is also available. Smaller displays have been developed through the National Earthquake Hazards Reduction Program for "Suitcase Learning Modules," which enhance offsite presentations that reached over 2,500 people across the region

in 2005. The Public Earthquake Resource Center and its associated activities are made possible by the leveraged efforts of the U.S. Geological Survey, the State of Tennessee, the Center for Earthquake Research and Information, and the Mid America Earthquake Center with indirect support from the Central U.S. Earthquake Consortium, the Federal Emergency Management Agency (FEMA), the American Red Cross, various emergency management agencies, and many other earth science and earthquake information providers.

Kenneth C. Topping
Topping Associates International
504 Warwick Street
Cambria, CA 93428
(805) 927-7773
kentopping@aol.com

Disaster Risk Reduction Planning: The Story of Marikina City, Philippines

Losses from natural disasters such as earthquakes and floods can block economic development, reduce social stability, and inhibit sustainable development, creating a repetitive cycle especially harmful in developing countries. Development and application of stakeholder-based risk reduction strategic planning models is the subject of research initially led by researchers from the Center for Research in Disaster Reduction Systems (DRS), Disaster Prevention Research Institute, Kyoto University. Using the City of Marikina in the Philippines as a case study, the premise of this project is that repetitive disaster cycles can be interrupted and even reversed through implementation of stakeholder-based strategic planning for community risk reduction.

The project is now the subject of a book being prepared for DRS by Topping Associates International with support from Marikina City and the Pacific Disaster Center (PDC) in Maui, Hawaii. The book will highlight stakeholder-based community risk reduction strategic planning processes based on continuing experiences of Marikina City. It will also examine ways in which the Marikina story can be useful as a transferable, stakeholder-based risk reduction planning model for use in other developing countries as well as developed countries.

Like several other metro Manila cities, Marikina City is traversed by an earthquake fault system known as the West Valley Fault. According to the Philippine Institute of Volcanology and Seismology, the entire metro Manila region shares the common threat of a 7.0 magnitude earthquake on this fault system. Marikina became the first city in the metro Manila region to address this common regional earthquake threat with a comprehensive strategic planning process based on local government capacity-building principles.

In 2004, city staff completed their own stakeholder-based earthquake disaster reduction strategic plan. The Marikina Safety Program, dated March 5, 2004, included a preliminary geographic information systems (GIS) based earthquake risk assessment and a long-term Comprehensive Earthquake Disaster Reduction Program identifying risk reduction objectives, policies, and programs, as well as a prioritized action plan with lead department assignments. The Marikina Safety Program was a product of EqTAP, a Japan-based multilateral research effort involving 14 countries, and was sponsored by the Earthquake Disaster Mitigation Center with support from DRS and other public and private entities.

In 2005, the project was expanded and enhanced through the efforts of the PDC to build a Web-based GIS application, providing GIS information on flooding as well as earthquake hazards on the Internet, and linking hazards information into the city's economic development and comprehensive land use master plan. In 2006, the PDC portion of the project was extended to a regional level, including two other cities and the Metro Manila Development Authority with the support of the Earthquake Megacities Initiative (EMI), the Philippine Institute of Volcanology and Seismology, and the University of the Philippines.

The City of Marikina leadership and staff continue the stakeholder-based risk reduction initiative through support of the EMI regional initiative and the expansion of the city's own local public information, education, mitigation, and preparedness efforts.

Susan K. Tubbesing
Earthquake Engineering Research Institute
499 14th Street, Suite 320
Oakland, CA 94612
(510) 451-0905
skt@eeri.org
www.eeri.org

EERI's Learning from Earthquakes Program

For more than 30 years, the Earthquake Engineering Research Institute (EERI) has operated its Learning from Earthquakes (LFE) Program, with funding from the National Science Foundation. The program has enabled more than 140 multidisciplinary teams of researchers to carry out field investigations of significant earthquakes throughout the world to observe and document the effects on the natural and built environment and the resulting social, economic, and policy impacts. Over the years, the program has generated new knowledge, leading to changes in practice and stimulating new research in each of the related fields. For a complete listing of investigations and resulting reports, see the brief synopsis of major contributions to the LFE program at www.eeri.org/lfe/pdf/Report_LFE_Contributions.pdf.

In 2005, EERI sent a team from the United States to Pakistan after the devastating October earthquake that affected both Pakistan and Indian-controlled Kashmir. The team was able to document the significant geotechnical effects of the earthquake, including massive landsliding, as well as widespread building and bridge damage, all with enormous social consequences. Reports from the EERI team, as well as other EERI members and others in the region, are available at the Kashmir earthquake clearinghouse site at www.eeri.org/lfe/clearinghouse/kashmir/observ1.php.

EERI members and others contributed newsletter reports on other earthquakes that occurred in 2005 and 2006, including a major 8.7 magnitude earthquake in March 2005 in Indonesia and a 7.9 magnitude earthquake in Tarapaca, Chile, in June 2005. The Tarapaca earthquake demonstrated the effectiveness of confined masonry construction, if built well. Reports on these two earthquakes are available at www.eeri.org/cds_publications/newsletter.html. In addition, newsletter articles and/or Web reports were published on two earthquakes in Iran, one in Kythira, Greece, and one in Mozambique. Several EERI members and colleagues are currently working on a report on the May 26, 2006, Java, Indonesia, earthquake.

Three major special issues of EERI's peer-reviewed journal, *Earthquake Spectra*, have been released in 2005/6. The first two, on the 2003 Bam, Iran, earthquake and the 2004 Niigata, Japan, earthquake, are available online through the American Institute of Physics. All subscribers will also receive CDs of these two issues with all the papers in PDF format. The third, which will be a major, comprehensive report of impacts from the Great Sumatra earthquake and Indian Ocean tsunami, will be available in July. With 44 papers and over 120 authors, this issue will be among

the most comprehensive reports available to date on the tsunami. Papers address the geology, tsunami runup, lifelines and structures impacts, preparedness, response, and initial recovery activities. A CD of this issue will also be sent to *Earthquake Spectra* subscribers, with a summary report synthesizing major findings of the various articles. Budget cuts from the National Science Foundation to the LFE program precluded the printing and dissemination of these three issues for all members. Hard copies and CDs of each of the issues will be available for purchase through EERI.

The LFE Web site also includes background information, preliminary reconnaissance reports, and information on countries that have a seismic risk. This site is also linked to EERI's Web-based World Housing Encyclopedia, which provides exhaustive information on housing in seismically prone areas, along with techniques and tutorials for strengthening vulnerable structures.

Lincoln Walther
Continental Shelf Associates, Inc.
759 Parkway Street
Jupiter, FL 33477
(561) 746-7946
lwalther@conshelf.com

Palm Beach County Post Disaster Redevelopment Plan

Catastrophic disasters disrupt communities in major ways. They destroy property, force people out of their homes, close businesses, suspend normal routines, and can take lives. They also scar and rearrange the landscape by uprooting roads, toppling trees, scattering debris, and reshaping the landscape, often rendering communities totally unrecognizable. Amidst the chaos and despair, there is often a sense of isolation and helplessness. There is also a strong desire on the part of residents, property owners, and businesses to rebuild quickly.

Disasters also create opportunities for action. State and federal agencies converge on stricken communities to assist with the rebuilding effort. Outside money may be available to undertake projects that were previously considered infeasible financially. Damaged or destroyed buildings, roads, and utilities can be rebuilt in safer locations or built to be more damage-resistant. New urban designs and development patterns can emerge. And perhaps most importantly, because the community is focused, at least temporarily, on its own vulnerability, it may be the opportune time to consider implementing bold mitigation measures to build a more sustainable, disaster-resistant community.

When disaster strikes, response activities and recovery activities are often uncoordinated, occur concurrently and, on occasion, overlap or conflict with one another. Often, management responsibility for these activities will be assigned to people unfamiliar with them. Decisions affecting community welfare, some of which may have long-lasting impacts, will have to be made under intense pressure and scrutiny, and it will be impossible to take into account the views of all pertinent stakeholders. One consequence is that the community may miss opportunities to ultimately improve its infrastructure, economy, environment, or quality of life.

Only a few jurisdictions in Florida have prepared postdisaster redevelopment plans. Most existing plans are very general and provide little specific guidance or direction should a major catastrophe occur. In 1996, Palm Beach County prepared its first Post-Disaster Redevelopment Plan (PDRP); however, it focused solely on the unincorporated county, yet most of the highly vulnerable areas in the county that are susceptible to flooding and storm surge are situated along the Atlantic Ocean coastline in municipalities that are highly populated. Also, the plan needed to address long-range postdisaster issues more thoroughly and limit discussion of short-term recovery issues to those that have long-term implications, such as temporary housing and debris management.

The updated PDRP will provide Palm Beach County and its 38 municipalities with a single reference for guiding action and decision making during the difficult disaster recovery period, as well as detailing actions that can be taken before a disaster strikes to speed the recovery process. Issues are being grouped under four major topics: 1) local government recovery issues, 2) economic and private sector issues, 3) social and environmental issues, and 4) redevelopment and mitigation issues. Actions to be taken and resources to be drawn upon in a postdisaster environment will also be tailored to the magnitude of the disaster event, minor, major, or catastrophic.

Brian Wolshon
Department of Civil and Environmental Engineering
Louisiana State University
Baton Rouge, LA 70803
(225) 578-5247
brian@rsip.lsu.edu

Highway Evacuation Plan Development for Hurricane Katrina and Its Effects

Between the fall of 2004 and spring of 2005, a plan was developed to facilitate the evacuation of southeast Louisiana, including the city of New Orleans, when under the threat of a hurricane. The plan was created by the Louisiana Department of Transportation and Development and the Louisiana State Police with the goal of eliminating or mitigating the traffic problems that were a part of the Hurricane Ivan evacuation in September 2004. The cornerstone of the plan was to maximize the available roadway infrastructure within the region to move nearly the entire population in the most rapid and efficient manner. It incorporated the reversal of about 100 miles of interstate freeway across two states and restricted access to nearly 100 additional miles of freeway, while coordinating transportation assets on a region-wide basis.

This presentation describes and quantifies the effect of this regional evacuation plan on the movement of traffic across roadway infrastructure covering an area of nearly 75,000 square miles and a period of three days. The analyses illustrate the extent to which the evacuation impacted the roads in Louisiana, where these impacts were the most significant, how long they lasted, and how they compared to a prior evacuation plan in which a much lower level of management was used.