Resilience and Vulnerable Populations

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University of New Orleans

Senior Visiting Research Associate
Transport Studies Unit, School of Geography and the Environment
University of Oxford
Professional Silos

Transportation  Emergency Management  Public Safety
DISASTERS DON’T CARE ABOUT SILOS

NWS Birmingham
THEY ALSO DON’T CARE ABOUT POLITICAL BOUNDARIES
RISING SEAS

Sea level didn’t change much for nearly 2,000 years, judging from sediment cores. It began to rise in the late 19th century, as Earth started to warm. If sea level continues to track temperature, it could rise three feet or more by 2100. The great unknown: the future of the ice sheets. NOAA’s four scenarios, shown here, span the range of possibilities for 2100. The sea will keep rising after that.

Local measurements of sea level with tide gauges became common after 1880; satellites began global measurements in 1992. They’ve shown a clear acceleration: At an eighth of an inch a year, sea level is rising twice as fast as it was a few decades ago.

Projected

Reconstructed from sediment samples

Observed

Zero is set to sea level in 1992.

Sea level (feet)
WHY TRANSPORTATION PLANNERS SHOULD PLAN FOR DISASTERS
<table>
<thead>
<tr>
<th><strong>SINGLE JURISDICTION</strong></th>
<th><strong>MULTIPLE JURISDICTIONS</strong></th>
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<tbody>
<tr>
<td><strong>SINGLE MODE</strong></td>
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<tr>
<td>Local emergency planning and response; low level of planning and response complexity</td>
<td>Regional emergency planning and response; moderate level of planning and response complexity</td>
</tr>
<tr>
<td><strong>Example:</strong> Localized flooding evacuation using only automobiles</td>
<td><strong>Example:</strong> Large-scale hurricane contraflow evacuation using only automobiles</td>
</tr>
<tr>
<td><strong>MULTIPLE MODES</strong></td>
<td></td>
</tr>
<tr>
<td>Local emergency planning and response coordinated across several local agencies that share the same geography; moderate level of planning and response complexity</td>
<td>Regional emergency planning and response; high level of planning and response complexity</td>
</tr>
<tr>
<td><strong>Example:</strong> Localized wildfire evacuation using automobiles, buses, vans, ambulances, etc.</td>
<td><strong>Example:</strong> Large-scale city-assisted hurricane evacuation utilizing automobiles, buses, trains, ambulances, etc.</td>
</tr>
</tbody>
</table>
From 1989 – 2009, 953 disasters killed 88,671 people in Europe, affected more than 29 million others and caused a total of $269 billion (USD) in economic losses. Compared to the rest of the world, economic loss per capita is high in Europe partly because it is very densely populated.

—United Nations
From 1989 – 2009, 953 disasters killed 88,671 people in Europe, effected more than 29 million others and caused a total of $269 billion (USD) in economic losses. Compared to the rest of the world, economic loss per capita is high in Europe partly because it is very densely populated.

–United Nations
CARLESS & VULNERABLE POPULATIONS
Source: Census, ACS, 2009 American Community Survey 1-Year Estimates
Of the 1,800 deaths during Hurricane Katrina, 71% of the victims were older than 60, and 47% were over the age of 75.

Safeguarding Independent Living
Emergency Evacuation of the Elderly and Disabled

By Clare Cahalan and John Renne
Evacuation accessibility is mandated under the Americans with Disabilities Act.

Executive Order 13347 in 2004 requires federal agencies to address the needs of the disabled in their emergency preparedness plans and assist state, local, and tribal governments in doing the same. It also created the Interagency Coordinating Council on Emergency Preparedness and Individuals with Disabilities, and charged it with “ensuring that the Federal government appropriately supports safety and security for individuals with disabilities in situations involving disasters.”
Growing Trend of Elderly Populations

2009
Persons 65+ = 39.6 million (12.9% of Americans)

Growing Trend of Elderly Populations

2009
Persons 65+ = 39.6 million (12.9% of Americans)

2030
Persons 65+ = 72.1 million (19% of Americans)

Source: National Projections Program, Population Division, U.S. Census Bureau, Washington, D.C. 20233
Identifying Vulnerable Older Adults and Legal Options for Increasing Their Protection During All-Hazards Emergencies

Emergency Preparedness for Older Adults

Planning Tools for Communities & States

Planning Guides, Strategies & Recommendations
State & Local Planning Examples
GIS Mapping
Data Sources
Registers
Sheltering
Communication & Messaging
Planning for In-Home & Community-based Support Services
Planning for Recovery & Transition
Legal Information
Older Adult Health & Medical Concerns
Training Resources
Personal Preparedness for Older Adults & Their Caregivers
General Information about the Older Adult Population

Planning Guides, Strategies & Recommendations
Selected planning guides and recommendations
GIS Mapping
Geographic Information Systems (GIS) resources and examples for use in preparedness planning
Registers
Information and examples of registries operated by local government and utility companies
Communication and Messaging
Materials to assist in developing preparedness messages for older adults
Planning for In-home & Other Community-based Support Services
Resources for working with in-home and community-based service providers

State & Local Planning Examples
Examples of state and local preparedness plans and markets for at-risk and vulnerable populations

Data Sources
Example of data sources for use in planning and during all phases of an emergency

Sheltering
Sheltering guidance and examples of state sheltering plans

Planning for Recovery & Transition
Resources to assist in discharge planning for older adults

Contact Us:
Centers for Disease Control and Prevention
Healthy Aging Program
4770 Buford Highway, N.E., Mailstop C-47
Atlanta, GA 30341-3724
(404) 332-4635
TTY: 800-233-5480
8:30 a.m. - 4:30 p.m.
Monday - Friday
Closed Holidays

http://www.cdc.gov/aging/emergency/planning_tools/index.htm
Chapter on Evacuation Planning for Vulnerable Populations: Lessons from the New Orleans City Assisted Evacuation Plan
New Orleans

- New Orleans Office of Homeland Security and Public Safety
- New Orleans Office of Emergency Preparedness
- New Orleans Police Department (NOPD)
- New Orleans Fire Department (NOFD)
- New Orleans Mayor’s Office of Technology (MOT)
- New Orleans Emergency Medical Services (EMS)
- New Orleans Health Department (NOHD)
- New Orleans Council on Aging (NOCA)
- Jefferson Parish OEP
- Plaquemines Parish OEP
- St. Bernard Parish OEP
- Port Authority Harbor Police
- Louisiana Office of Homeland Security and Emergency Preparedness (LOHSEP)
- Louisiana Department of Transportation and Development (LOTD)
- Louisiana Department of Social Services (LDSS)
- Louisiana Department of Health and Hospitals (LDHH)
- Louisiana National Guard (LNG)
- Louisiana State Police (LSP)
- AMTRAK
- Morial Convention Center (MCC)
- Union Passenger Terminal (UPT)
- Louis Armstrong Airport (MSY)
- Regional Transit Authority (RTA)
- Louisiana Society for the Prevention of Cruelty to Animals (SPCA)
- American Red Cross (ARC)
- New Orleans Hotel and Lodging Association (NOHLA)
- Lakefront Airport (LA)
- Citizens Emergency Response Team (CERT)
New Orleans

For those that were registered for CAEP:

Would you use CAEP again?

Source: Kiefer, Jenkins and Laska, 2009

n=364
New Orleans
Evacuteer.org recruits and trains New Orleanians to assist in the event of a future evacuation. Nearly 30,000 residents without cars may use the City’s public evacuation plan.

LEARN MORE
Evacuspots
National Study on Carless and Special Needs Evacuation Planning

The objective of this study was to research how state Departments of Transportation (DOTs), metropolitan planning organizations (MPOs), transit agencies, and local governments are considering, in the context of their emergency preparedness planning, the unique needs of carless individuals and people with specific and/or special needs.
National Study on Carless and Special Needs Evacuation Planning

1. Chicago
2. Miami
3. New Orleans
4. New York
5. San Francisco
Purpose and Overview

Purpose
The purpose of Mobilizing Your Community for Emergency Evacuation: Vulnerable Populations Guidebook provides background on planning issues. The guidebook follows the general outline provided in the guidebook with sections on:

- Planning Process
- Plan-Making
- Process Evaluation
- Recommendations
<table>
<thead>
<tr>
<th>Chicago</th>
<th>Miami</th>
<th>New Orleans</th>
<th>New York</th>
<th>San Francisco</th>
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<tbody>
<tr>
<td>Center for Neighborhood Technology</td>
<td>Alliance for Aging, Inc.</td>
<td>American Red Cross</td>
<td>Con Edison</td>
<td>San Leandro City Emergency Preparedness</td>
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<tr>
<td>Chicago Metropolitan Agency for Planning</td>
<td>American Red Cross</td>
<td>Catholic Charities</td>
<td>Metropolitan Transportation Authority</td>
<td>Eden Medical Center</td>
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<td>Chicago Transit Authority</td>
<td>Community Partnership for the Homeless, Inc.</td>
<td>Evacueer.org</td>
<td>New York City Department for the Aging</td>
<td>Alta Bates Sutter Health</td>
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<tr>
<td>Chicago Department of Transportation</td>
<td>Florida Department of Emergency Management</td>
<td>Natural Hazard Mitigation Association</td>
<td>New York City Department of Health and Mental Hygiene</td>
<td>Children’s Hospital and Research Center</td>
</tr>
<tr>
<td>Illinois Department of Public Health</td>
<td>Florida Department of Transportation</td>
<td>New Orleans Council on Aging</td>
<td>New York City Office of Emergency Management</td>
<td>Livermore-Pleasanton Fire Department</td>
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<tr>
<td>Mayor’s Office for People with Disabilities</td>
<td>Florida International University</td>
<td>New Orleans Homeland Security</td>
<td>New York City Transit</td>
<td>Alameda Sheriff’s Office</td>
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<tr>
<td>Office of Emergency Management and Communications</td>
<td>Miami Coalition for the Homeless</td>
<td>Regional Planning Commission</td>
<td>New York State Department of Transportation</td>
<td>City of San Francisco Department of Emergency Management</td>
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<tr>
<td>Regional Transportation Authority</td>
<td>Miami-Dade County Public Schools</td>
<td>University of New Orleans, Center for Hazards, Assessment, Response and Technology</td>
<td>New York University Public Safety</td>
<td>City of Oakland Office of Emergency Services</td>
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<td></td>
<td>Miami-Dade Emergency Management</td>
<td></td>
<td>New York University Wagner Graduate School of Public Service</td>
<td>Berkeley Unified School District</td>
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<tr>
<td></td>
<td>Miami-Dade Transit</td>
<td></td>
<td>The City University of New York – John Jay College</td>
<td>American Red Cross</td>
</tr>
<tr>
<td></td>
<td>Monroe County Board of County Commissioners</td>
<td></td>
<td>World Cares Center</td>
<td>Holy Names University</td>
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<tr>
<td></td>
<td>Monroe County Emergency Management</td>
<td></td>
<td></td>
<td>Mills College</td>
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<td></td>
<td>Monroe County Health Department</td>
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<td>California College of the Arts</td>
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<td></td>
<td>South Florida Regional Planning Council</td>
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<td>City of Oakland Parks and Recreation</td>
</tr>
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<td></td>
<td>The Arc of South Florida</td>
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<td>CARD, Collaborating Agencies Responding to Disasters</td>
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<td>Alameda County Medical Center</td>
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<td>City of Oakland Department of Human Services</td>
</tr>
<tr>
<td></td>
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<td>Private Consultant</td>
</tr>
</tbody>
</table>
Guidebook Framework
CREATING A PLANNING PROCESS FOR SPECIAL NEEDS AND CARLESS POPULATIONS
Creating a Planning Process

- Disasters and Types of Evacuations

<table>
<thead>
<tr>
<th>Disaster</th>
<th>Geographic Scale</th>
<th>Warning</th>
<th>Evacuation</th>
<th>Emerg. Services</th>
<th>Search &amp; Rescue</th>
<th>Quarantine</th>
<th>Infrast. Repair</th>
</tr>
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<tbody>
<tr>
<td>Hurricane</td>
<td>Very large</td>
<td>Days</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Earthquake</td>
<td>Large</td>
<td>None</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Tsunami</td>
<td>Very large</td>
<td>Short</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Flooding</td>
<td>Large</td>
<td>Days</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Forest fire</td>
<td>Small to large</td>
<td>Usually</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Volcano</td>
<td>Small to large</td>
<td>Usually</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Blizzard/ice storm</td>
<td>Very large</td>
<td>Usually</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Building fire</td>
<td>Small</td>
<td>Seldom</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Explosion</td>
<td>Small to large</td>
<td>Seldom</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Bus/train/aircraft crash</td>
<td>Small</td>
<td>Seldom</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Radiation/toxic release</td>
<td>Small to large</td>
<td>Sometimes</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Plague</td>
<td>Small to large</td>
<td>Usually</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Riot</td>
<td>Small to large</td>
<td>Sometimes</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>War</td>
<td>Small to large</td>
<td>Usually</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Landslide/avalanche</td>
<td>Small to medium</td>
<td>Sometimes</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
Creating a Planning Process

• Partners and Roles
  ▪ Counties, Local Utilities, Municipalities, Transit Agencies, MPOs, State Agencies, Emergency Management Agencies, Special Needs Providers, Private Bus Companies, Community Emergency Response Teams (CERTs), Community Transportation Providers, Non-English Speaking Community Leaders, Area Agency on Aging, Other Advocates
NCHRP
REPORT 777

A Guide to Regional Transportation Planning for Disasters, Emergencies, and Significant Events

TRANSPORTATION RESEARCH BOARD
OF THE NATIONAL ACADEMIES
• The Urban Land Institute Plan – November 2005
• FEMA’s ESF 14: Long-term Recovery Planning
• Louisiana Recovery Authority
• The Bring New Orleans Back Commission
• The New Orleans City Planning Commission
• The Lambert Plans
• The Unified New Orleans Plan
• Office of Recovery Management – Ed Blakely
• New Orleans Master Plan for the 21st Century
A SMALLER FOOTPRINT

When then-Mayor Ray Nagin’s Bring New Orleans Back Commission unveiled this map in early 2006, it sparked an outcry in neighborhoods where green dots designated areas where parks might be created. Nearly five years later, urban planners seem to have been right in their predictions that letting property owners rebuild everywhere would produce a gap-toothed effect of remodeled homes amid a sea of blight. On the other hand, some of the green dot areas have had substantial rebuilding.
Unified New Orleans Plan

UNIFIED PLAN

IMPLEMENTATION

FUNDING

UNOP DISTRICT and NEIGHBORHOOD PLANNING

BNOB COMMISSION

LOUISIANA SPEAKS

LAMBERT PLANS

FEMA ESF-14

INDEPENDENT NEIGHBORHOOD PLANS
On, Jan. 8, 2007, Dr. Ed Blakely appointed Director of the Office of Recovery Management

**Recovery Strategy:**
1. Healing and consultation
2. Improving safety and security
3. 21st century infrastructure reconfiguration
4. Economic diversification
5. Develop a sustainable settlement pattern
Office of Recovery Management

Targeted Recovery Areas

Legend
- Target Recovery Areas
- In-Play
- In-Process
- In-Planning
- Street Segment Type
- Residential
- Commercial
- Industrial
- Local Road
- State Road

CITY OF NEW ORLEANS
MAYOR'S OFFICE OF TECHNOLOGY
CDBG DEPARTMENT

gis@cityofno.com
Local Boom, National Bust

YOUR BUSINESS CONCIERGE

GNO, Inc. strives to serve as your local partner—a concierge service for companies—when deciding where to locate or launch your business.

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- Business Facilities

#1
Most Economical City
- KPMG

#1
Brain Magnet in America
- Forbes

#3 CITY
Winning the IT Jobs Battle
- Forbes
Deepwater Horizon
To put this in the context of the Deepwater Horizon disaster, imagine that seventy percent of the 68,0000 square miles of oil that was floating in the Gulf of Mexico was destined to be consumed by America’s transportation sector. The area covered by the oil intended for the transportation sector would cover an area slightly larger than the entire state of Pennsylvania (47,600 square miles). Perhaps more shocking is that despite the massive amount of oil spilled in Gulf of Mexico, the quantity used just by the transportation sector would be consumed in just under 3 days.
A Transportation Disaster?

U.S. Coastal Waters Affected by the Gulf Oil Spill

Deepwater Horizon oil rig

Detached Eddy

Loop Current

Gulf of Mexico

Approximate extent of oil spill

Oil found on coast

NORTH AMERICA

ATLANTIC OCEAN

PACIFIC OCEAN

MEXICO

CUBA

MERRITT C. BECKER, JR.
UNO TRANSPORTATION INSTITUTE

THE UNIVERSITY of NEW ORLEANS

UNIVERSITY OF OXFORD
Oil and Gas Boom

The map shows the Haynesville Shale region in Louisiana, with highlights on locations such as Shreveport, Minden, Natchitoches, Alexandria, and New Orleans. The Tuscaloosa Marine Shale is also marked, indicating areas of potential oil and gas deposits.
$90+ Billion Investment

BUILDING BOOM

More than 50 large industrial projects have been announced in recent years in the corridor between Baton Rouge and New Orleans, and economic officials estimate that $75 billion will be invested on such projects in the state over the next decade. Some are concerned of a potential shortage of labor that could slow construction. Map shows the largest of these projects.
RISE IN SEAS

Sea level didn't change much for nearly 2,000 years, judging from sediment cores. It began to rise in the late 19th century, as Earth started to warm. If sea level continues to track temperature, it could rise three feet or more by 2100. The great unknown: the future of the ice sheets. NOAA's four scenarios, shown here, span the range of possibilities for 2100. The sea will keep rising after that.

Local measurements of sea level with tide gauges became common after 1880; satellites began global measurements in 1992. They've shown a clear acceleration: at an eighth of an inch a year, sea level is rising twice as fast as it was a few decades ago.

- Sea level (feet)
- Reconstructed from sediment samples
- Observed
- Projected
David vs. Goliath: John Barry, New Orleanian of the Year 2013

In his attempt to secure funding for coastal restoration and hurricane protection, John Barry refused to back down in his fight against Big Oil and Gov. Bobby Jindal

By Claye DuBos  @claneysgamblit

RISING TIDE

THE GREAT MISSISSIPPI FLOOD OF 1927 AND HOW IT CHANGED AMERICA

"Breathtaking... A big, ambitious book that is not merely engrossing and informative but also has the potential to change the way we think."
—Jonathan Yardley
The Washington Post
“By 2012, New Orleans had less than half the amount of transit service that was available pre-Katrina — while our population had rebounded to 86% of its pre-Katrina size.”
100 Miles of Bike Facilities
New Orleans' 'complete streets' ordinance draws praise

By Bruce Eggler, NOLA.com | The Times-Picayune
on December 23, 2011 at 8:30 PM

Many ordinances passed by the New Orleans City Council attract little notice beyond other offices in City Hall. But it didn't take long for an ordinance approved this month on the subject of "complete streets" to begin attracting compliments. Tributes to the council's wisdom rolled in from sources such as the Louisiana Public Health Institute, Tulane University's Prevention Research Center and the University of New Orleans Transportation Institute.

The basic premise of the growing "complete streets" movement is that city streets should not be designed only with cars and other motorized vehicles in mind. Instead, advocates say, designers and engineers ought to consider everyone else who uses the streets, including bicyclists, pedestrians, people in wheelchairs and transit riders.
Thursday, September 18, 2014

DC and New Orleans Closing the Bike Commute Gap With Portland
by Angie Schmitt

Share of workers commuting by bike

Growth in bike commuting has slowed in Portland and Minneapolis, while some less well-known biking cities are making gains. Graph: Bike Portland
Contact Information:

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(504) 717-1744