

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



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DISASTERS DON'T CARE ABOUT SILOS



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THEY ALSO DON'T CARE ABOUT **POLITICAL BOUNDARIES**



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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.



SEA-LEVEL SCENARIOS, 2100

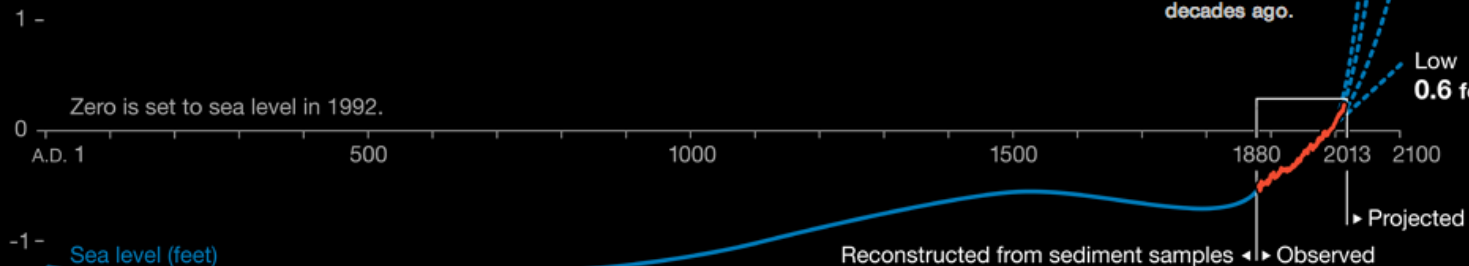
High
6.6 feet

Intermediate high
4.0 feet

Intermediate low
1.7 feet

Low
0.6 feet

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.



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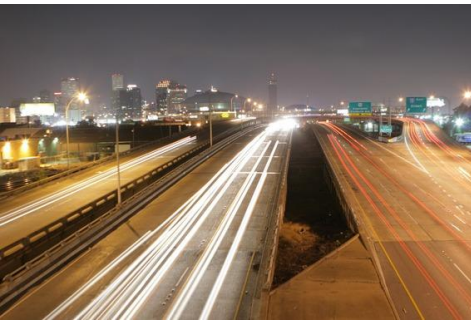


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WHY TRANSPORTATION PLANNERS SHOULD PLAN FOR DISASTERS



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New York



Iceland



Japan



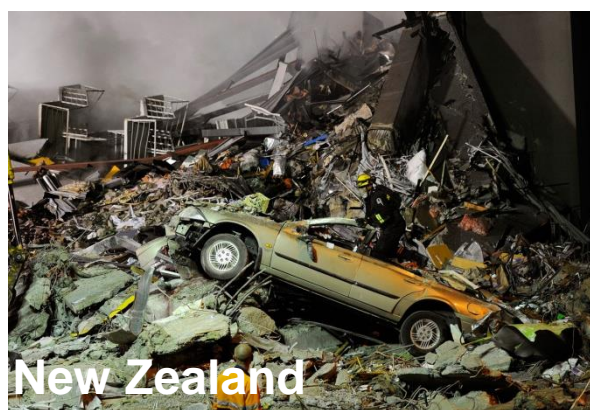
Indonesia



Haiti



Australia



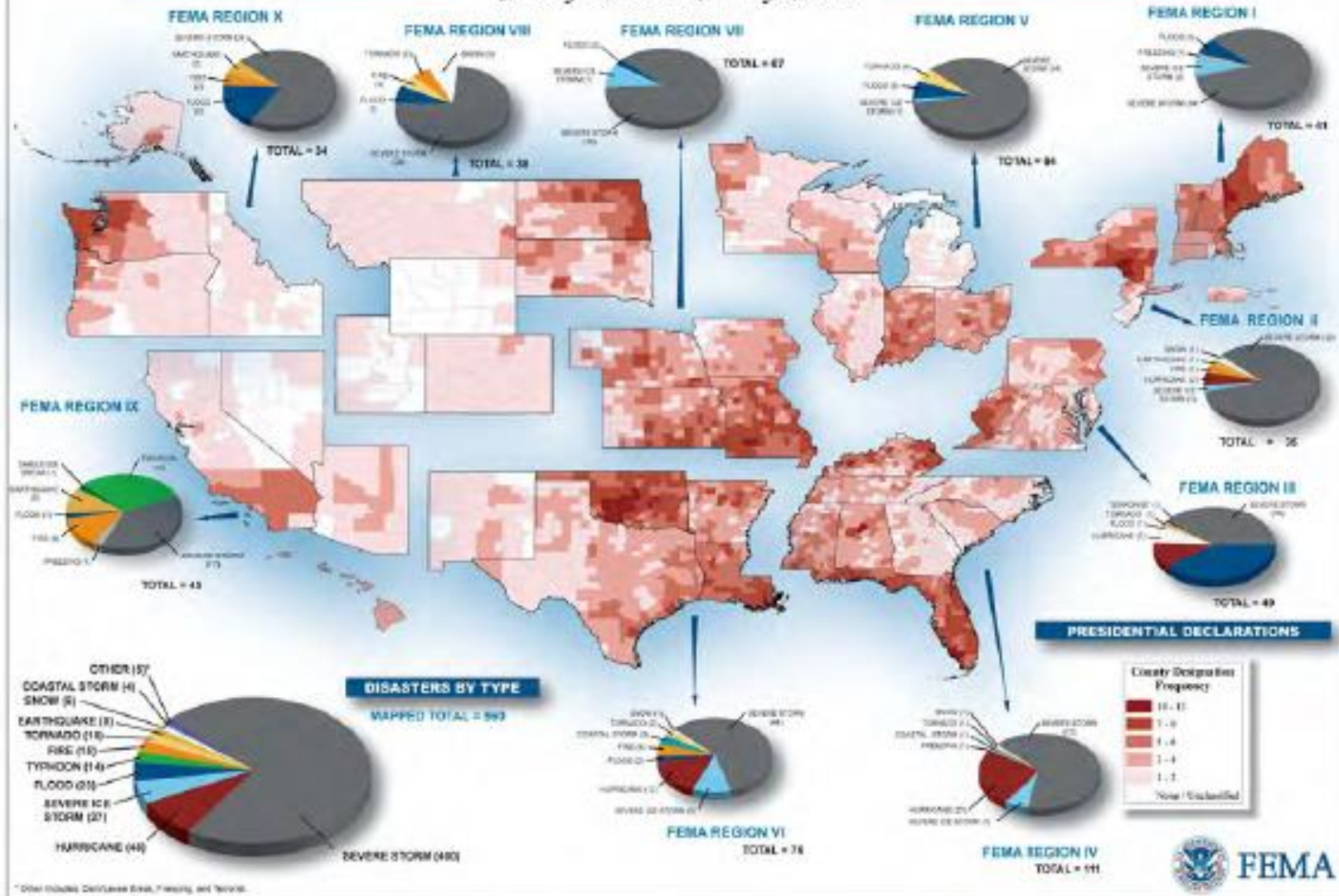
New Zealand



Chile



January 10, 2000 to January 1, 2010



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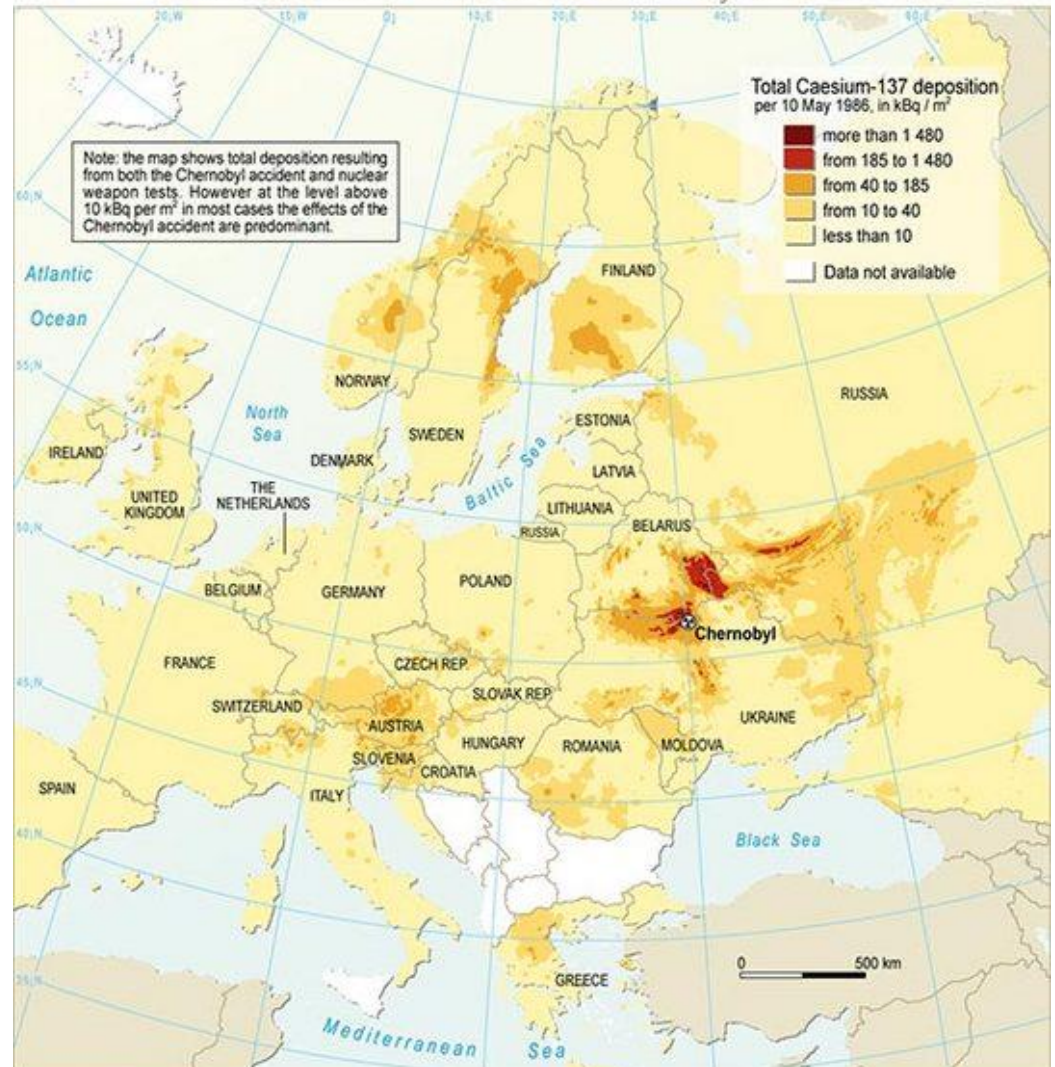
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	SINGLE JURISDICTION	MULTIPLE JURISDICTIONS
SINGLE MODE	<p>Local emergency planning and response; low level of planning and response complexity</p> <p>Example: Localized flooding evacuation using only automobiles</p>	<p>Regional emergency planning and response; moderate level of planning and response complexity</p> <p>Example: Large-scale hurricane contraflow evacuation using only automobiles</p>
MULTIPLE MODES	<p>Local emergency planning and response coordinated across several local agencies that share the same geography; moderate level of planning and response complexity</p> <p>Example: Localized wildfire evacuation using automobiles, buses, vans, ambulances, etc.</p>	<p>Regional emergency planning and response; high level of planning and response complexity</p> <p>Example: Large-scale city-assisted hurricane evacuation utilizing automobiles, buses, trains, ambulances, etc.</p>



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

The continental scale of the Chernobyl accident



Source: European Commission, Joint Research Center, Environment Institute; Institute of Global Climate and Ecology (Moscow); Roshydromet (Russia); Minchernobyl (Ukraine); Belhydromet (Belarus). *Atlas of Caesium Deposition on Europe after the Chernobyl Accident, 1998.*

Map by UNEP/GRID-Arendal, May 2007.

THE MAP DOES NOT IMPLY THE EXPRESSION OF ANY OPINION ON THE PART OF ENVSEC PARTNER ORGANISATIONS CONCERNING THE LEGAL STATUS OF ANY COUNTRY, TERRITORY, CITY OR AREA OF ITS AUTHORITY, OR DELINEATION OF ITS FRONTIERS AND BOUNDARIES.



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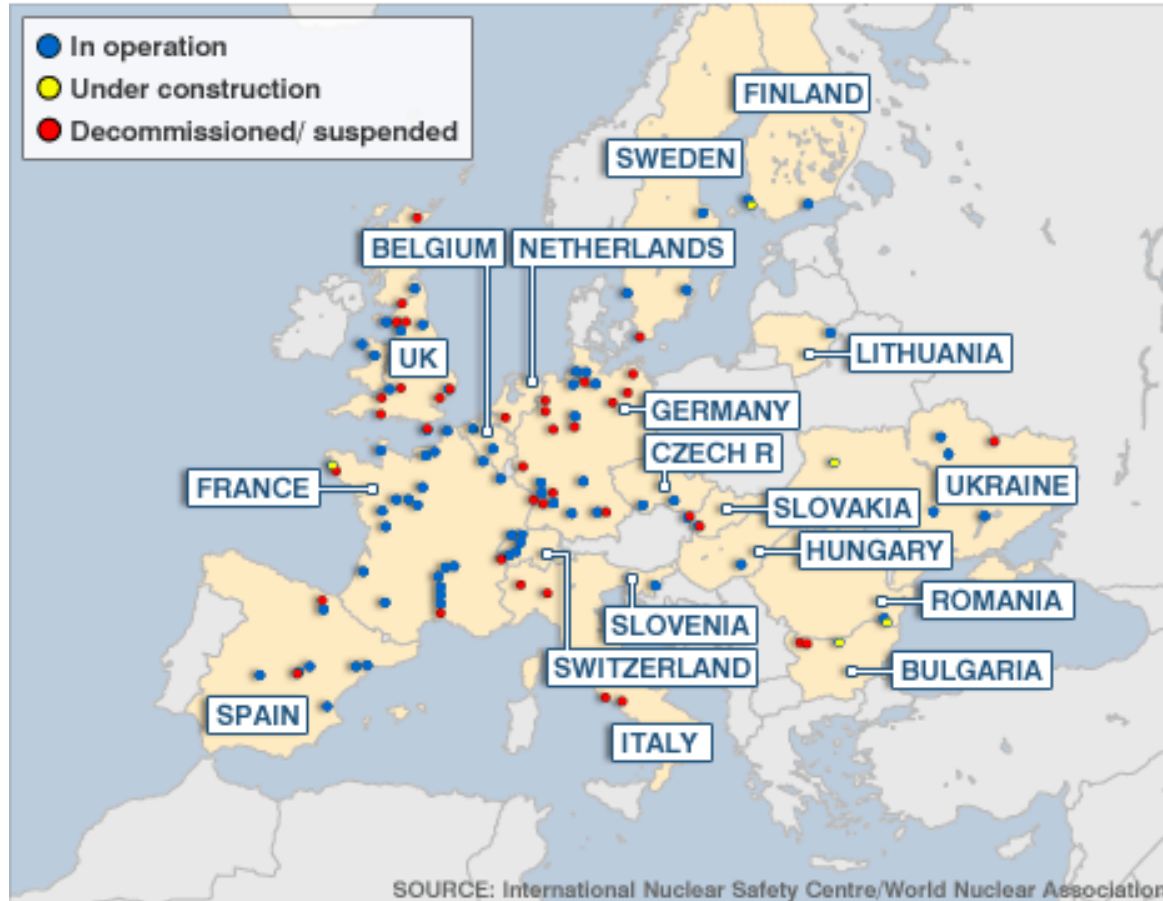
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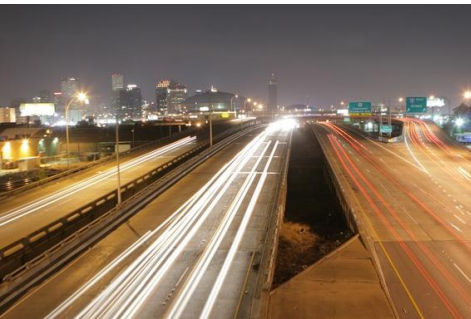
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From 1989 – 2009, 953 disasters killed 88,671 people in Europe, effected more than 29 million others and caused a total of \$269 billion (USD) in economic losses. Compared to the rest of the world, economic loss per capita is high in Europe partly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

NUCLEAR POWER PLANTS IN OPERATION IN EUROPE, JANUARY 2009



CARLESS & VULNERABLE POPULATIONS



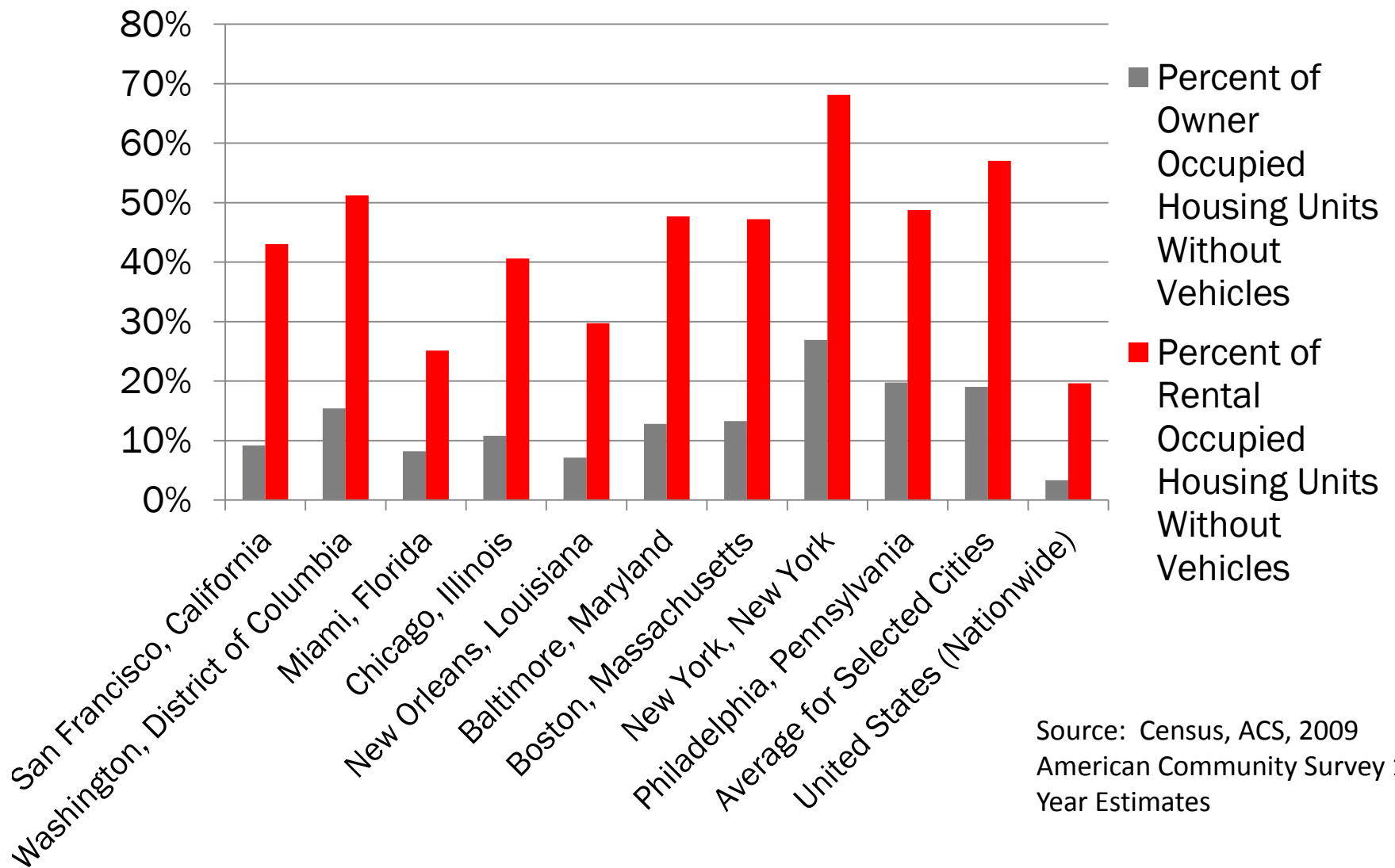
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Source: Census, ACS, 2009
American Community Survey 1-
Year Estimates



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Of the 1,800 deaths during Hurricane Katrina, 71% of the victims were older than 60, and 47% were over the age of 75.



Firemen help a woman and her family after they were evacuated from their Lacombe, LA home on Aug. 29, 2005. The flood surge from Lake Ponchartrain reached two miles inland.

Safeguarding Independent Living Emergency Evacuation of the Elderly and Disabled

By Clare Cahalan and John Renne



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Evacuation accessibility is mandated under the Americans with Disabilities Act.



Tanisha Blevin, 5, holds the hand of Nita LeGarde, 105, as they leave the Convention Center in New Orleans.

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.”



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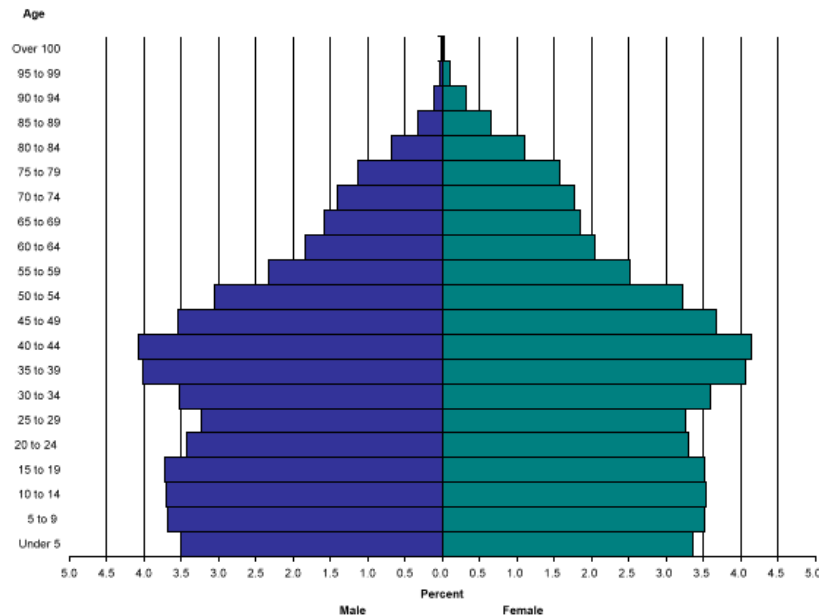
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Growing Trend of Elderly Populations

(NP-P2) Projected Resident Population of the United States as of July 1, 2000, Middle Series.



2009

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

Source: National Projections Program, Population Division, U.S. Census Bureau, Washington, D.C. 20233



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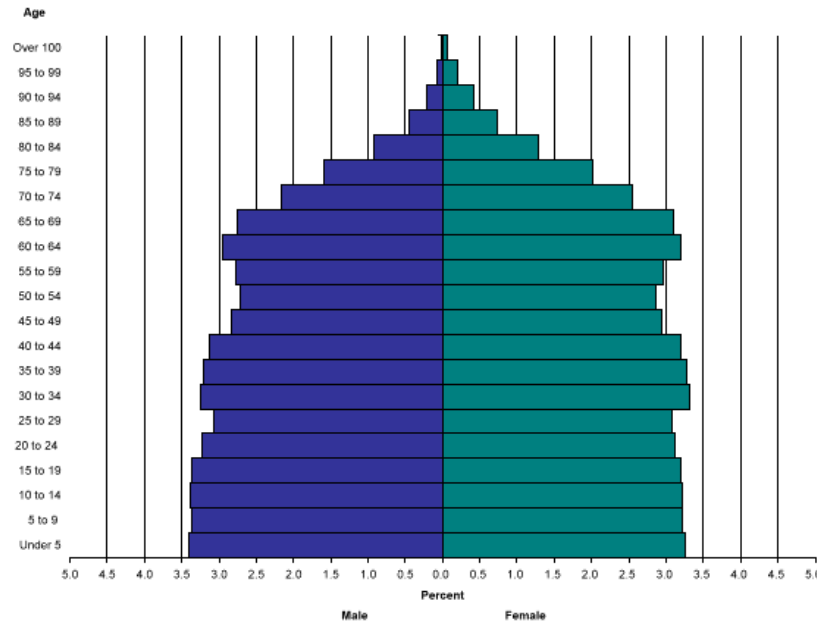
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Growing Trend of Elderly Populations

(NP-P3) Projected Resident Population of the United States as of July 1, 2025, Middle Series.



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



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Identifying Vulnerable Older Adults and Legal Options for Increasing Their Protection During All-Hazards Emergencies



A Cross-Sector Guide for States and Communities



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention

CDC Home



Centers for Disease Control and Prevention
CDC 24/7: Saving Lives. Protecting People.™

A-Z Index A B C D E F G H I J K L M N O P Q R S T U V W X Y Z #

Emergency Preparedness for Older Adults

Emergency Preparedness

Planning Tools for Communities & States

- Planning Guides, Strategies & Recommendations
- State & Local Planning Examples
- GIS Mapping
- Data Sources
- Registries
- 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

Emergency Preparedness

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Planning Tools for Communities & States

Comprehensive, all-hazard emergency preparedness requires the development and maintenance of emergency plans at all jurisdictional levels that address the needs of vulnerable populations, including older adults. The planning process itself is an essential catalyst for key partners and organizations to establish and maintain contacts that are critical to emergency preparedness, response, and recovery.

Planning Guides, Strategies & Recommendations

Selected planning guides and recommendations

GIS Mapping

Geographic Information Systems (GIS) resources and examples for use in preparedness planning

Registries

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 tool-kits 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

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[Print page](#)

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Contact Us:

[Centers for Disease Control and Prevention Healthy Aging Program](#)
4770 Buford Highway, N.E., Mailstop K-45
Atlanta, GA 30341-3717
800-CDC-INFO (800-232-4636)
TTY: (888) 232-6348
8am-8pm ET/Monday-Friday
Closed Holidays
cdcinfo@cdc.gov

http://www.cdc.gov/aging/emergency/planning_tools/index.htm



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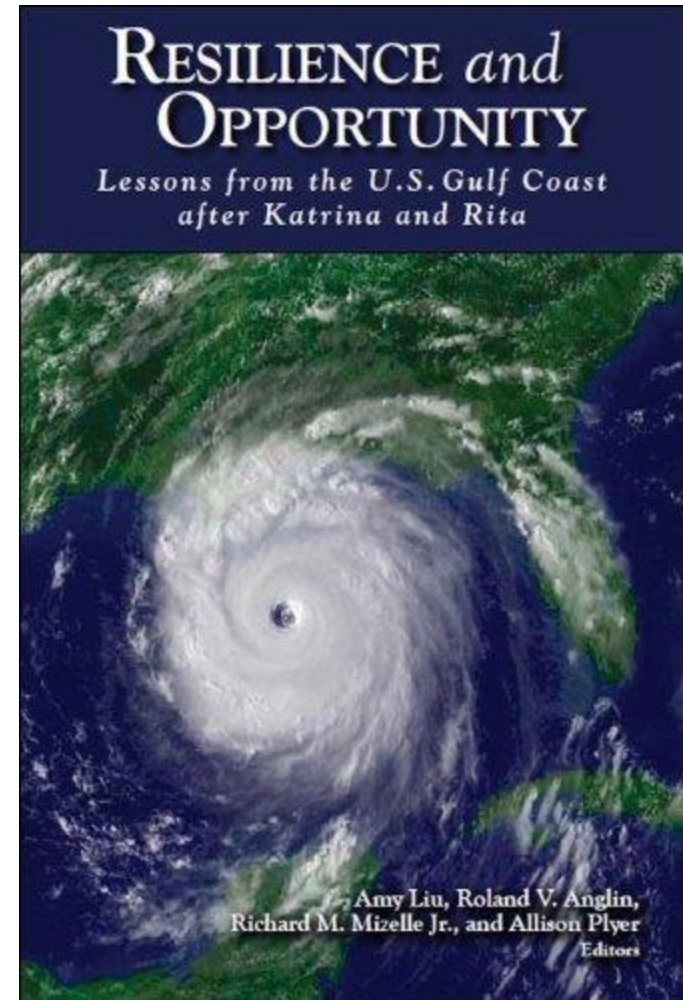


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Chapter on Evacuation Planning for Vulnerable Populations: Lessons from the New Orleans City Assisted Evacuation Plan



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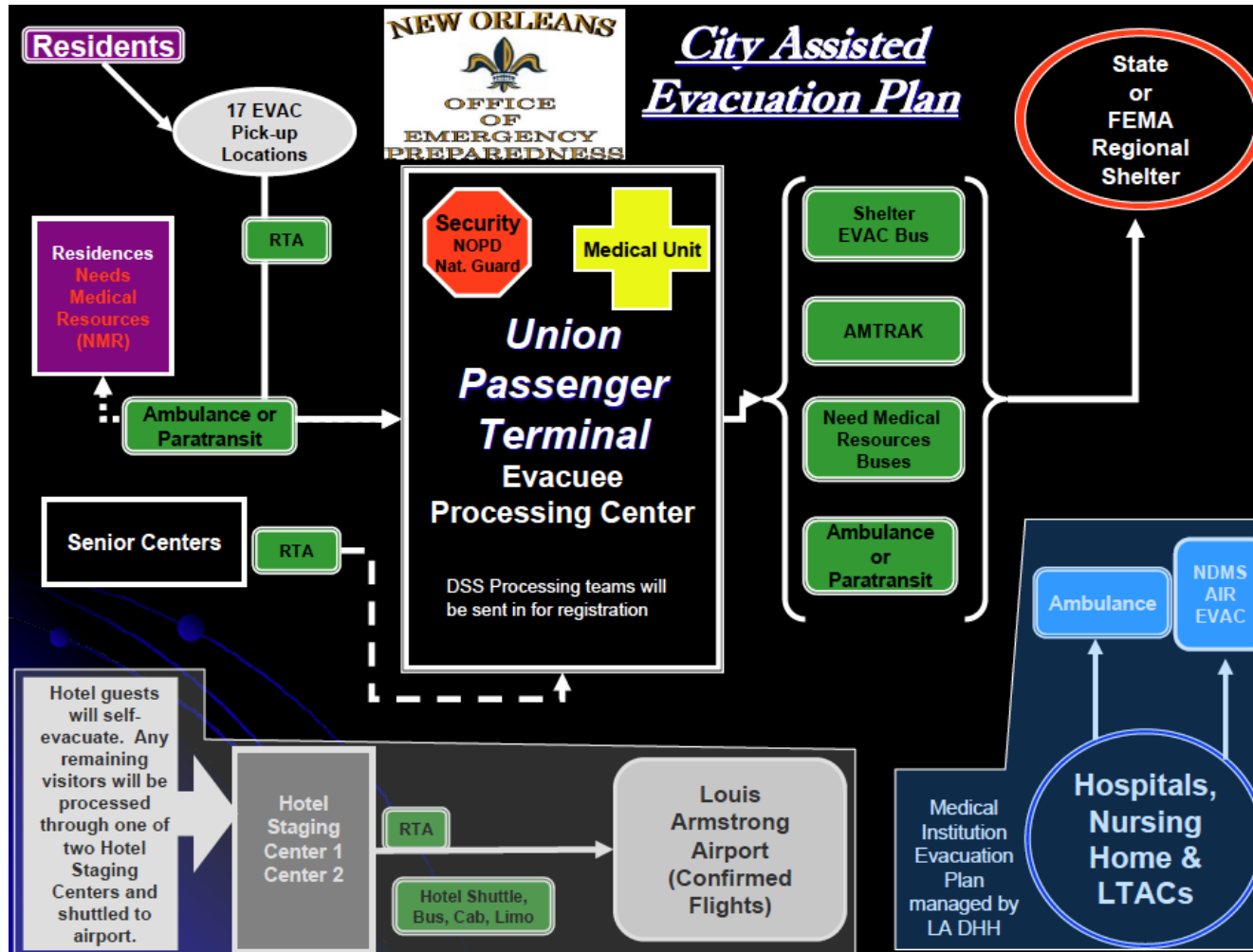


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New Orleans



New Orleans

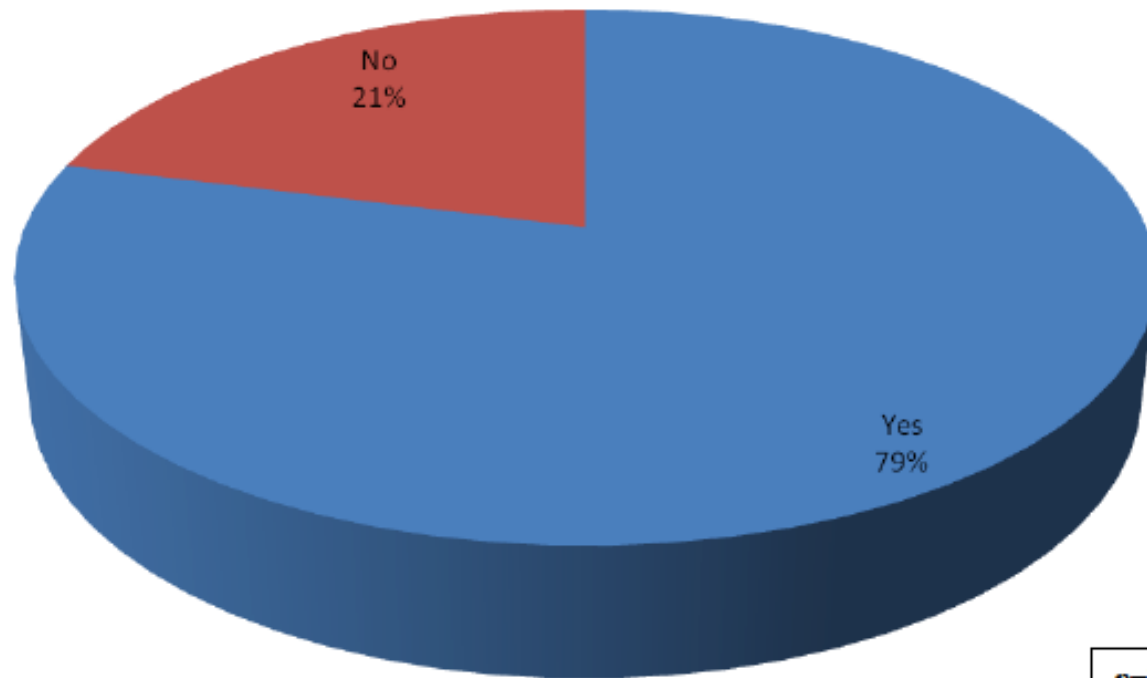
- New Orleans Office of Homeland Security and Public Safety
- New Orleans Office of Emergency Preparedness
- New Orleans Police Department (NOPD)
- New Orleans Fire Department (NOFD)
- New Orleans Mayor's Office of Technology (MOT)
- New Orleans Emergency Medical Services (EMS)
- New Orleans Health Department (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?



n=364

Source: Kiefer, Jenkins and Laska, 2009



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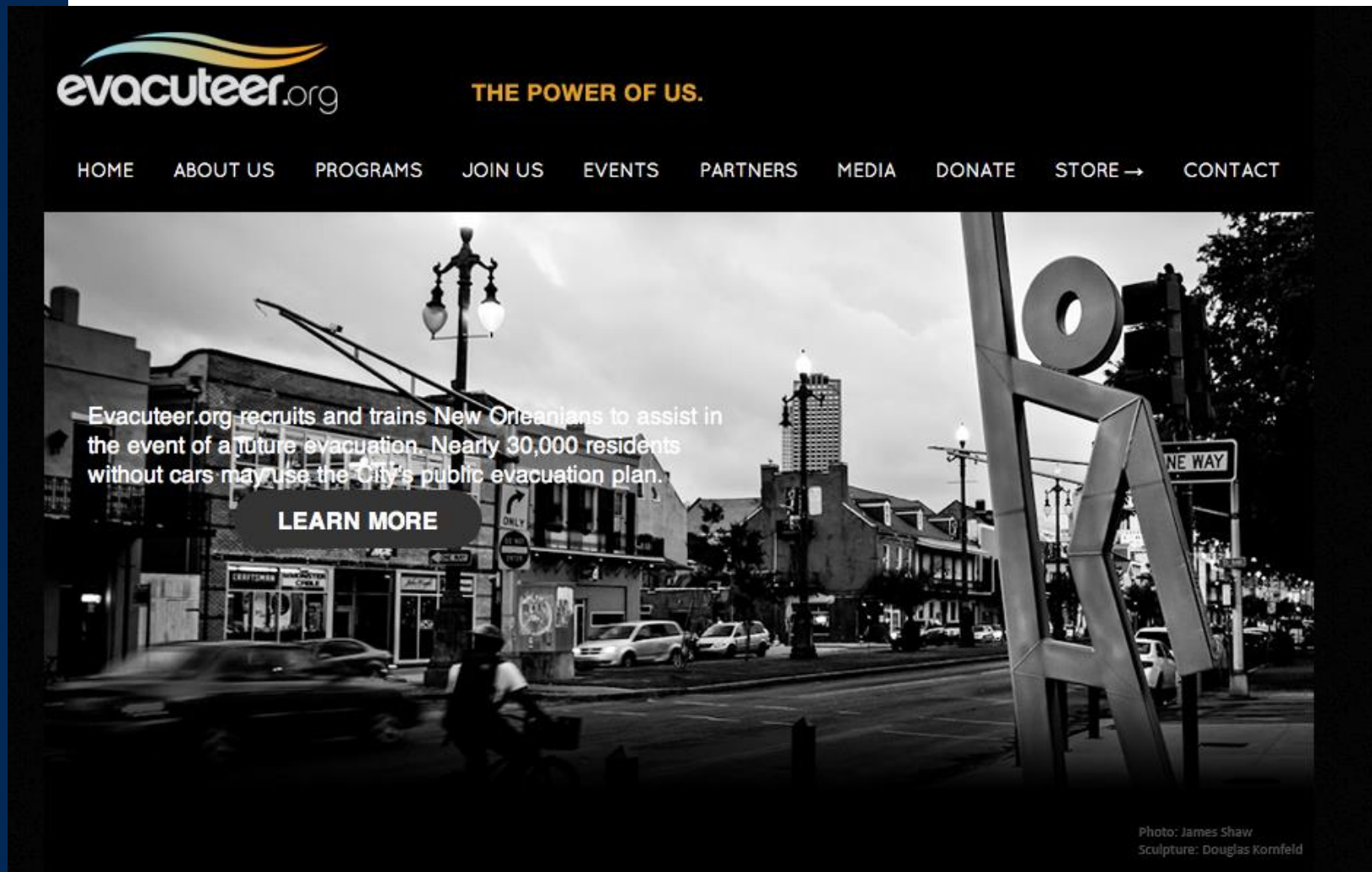


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Transportation Resilience



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CITY OF NEW ORLEANS
Mitchell J. Landrieu, Mayor

Evacuspots



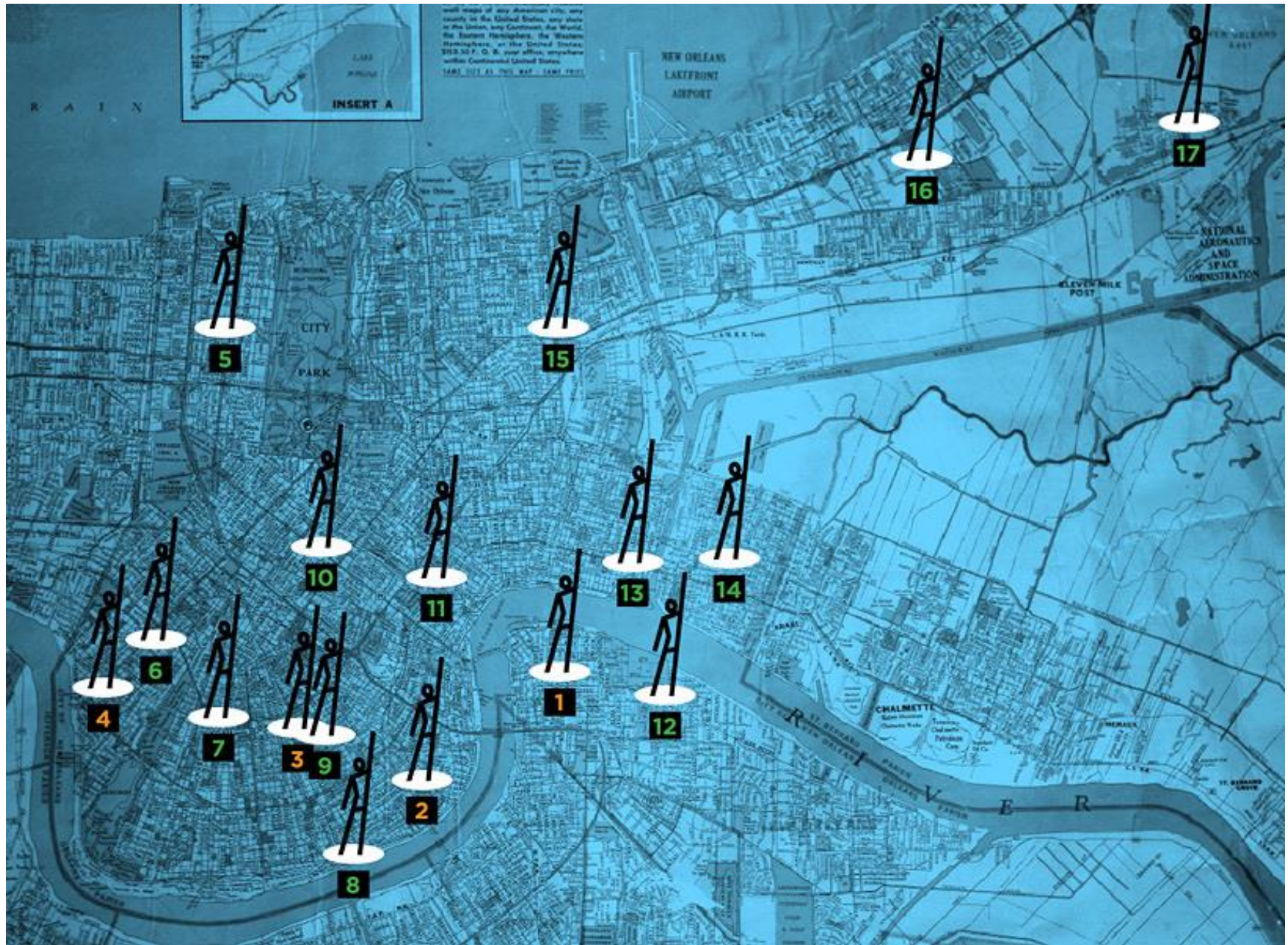
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National Study on Carless and Special Needs Evacuation Planning

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.



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National Study on Carless and Special Needs Evacuation Planning

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



National Study on Carless and Special Needs Project Executive Summary

Principal Investigator: John L. Renne, Ph.D., AICP, University of New Orleans
Co-Principal Investigator: Thomas W. Sanchez, Ph.D., Virginia Tech

Project Team (listed alphabetically):
Jacky Grimshaw, Center for Neighborhood Technology
Pam Jenkins, University of New Orleans
Todd Litman, Victoria Transport Policy Institute
Brian Wootton, Louisiana State University

Student Assistants (listed alphabetically):
Lauren Brown
Clare Cahalan
Jon Dodson
Mariana Marmol
Robert Peterson
Max Williamson



Funded by the Federal Transit Administration



National Study on Carless and Special Needs Evacuation Planning: A Literature Review

John L. Renne, Ph.D., AICP, University of New Orleans
Thomas W. Sanchez, Ph.D., University of Utah
Todd Litman, Victoria Transport Policy Institute



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Produced by the University of New Orleans Transportation Center
October 2008



National Study on Carless and Special Needs Evacuation Planning: Case Studies

John L. Renne, Ph.D., AICP, University of New Orleans
Thomas W. Sanchez, Ph.D., University of Utah
Robert C. Peterson, University of New Orleans



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Produced by The University of New Orleans Transportation Center
March 2009



The National Study on Carless and Special Needs Evacuation Planning: Government and Non-Profit Focus Group Results

John L. Renne, Ph.D., AICP, University of New Orleans
Pamela Jenkins, Ph.D., University of New Orleans
Thomas W. Sanchez, Ph.D., University of Utah
Robert C. Peterson, University of New Orleans



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Produced by The University of New Orleans Transportation Center
December 2008

Mobilizing Your Community for Emergency Evacuation: A Guidebook for Vulnerable Populations

John L. Renne, Ph.D., AICP, The University of New Orleans
Thomas W. Sanchez, Ph.D., Virginia Tech
Lauren Brown, University of Utah

December 2012



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Mobilizing Your Community for Emergency Evacuation: Vulnerable Populations Planning Workbook

John L. Renne, Ph.D., AICP, The University of New Orleans
Thomas W. Sanchez, Ph.D., Virginia Tech
Lauren Brown, University of Utah

December 2012



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Mobilizing Your Community for Emergency Evacuation: Vulnerable Populations *Summary of Stakeholder Workshops*

John L. Renne, Ph.D., AICP, The University of New Orleans
Thomas W. Sanchez, Ph.D., Virginia Tech

December 2012



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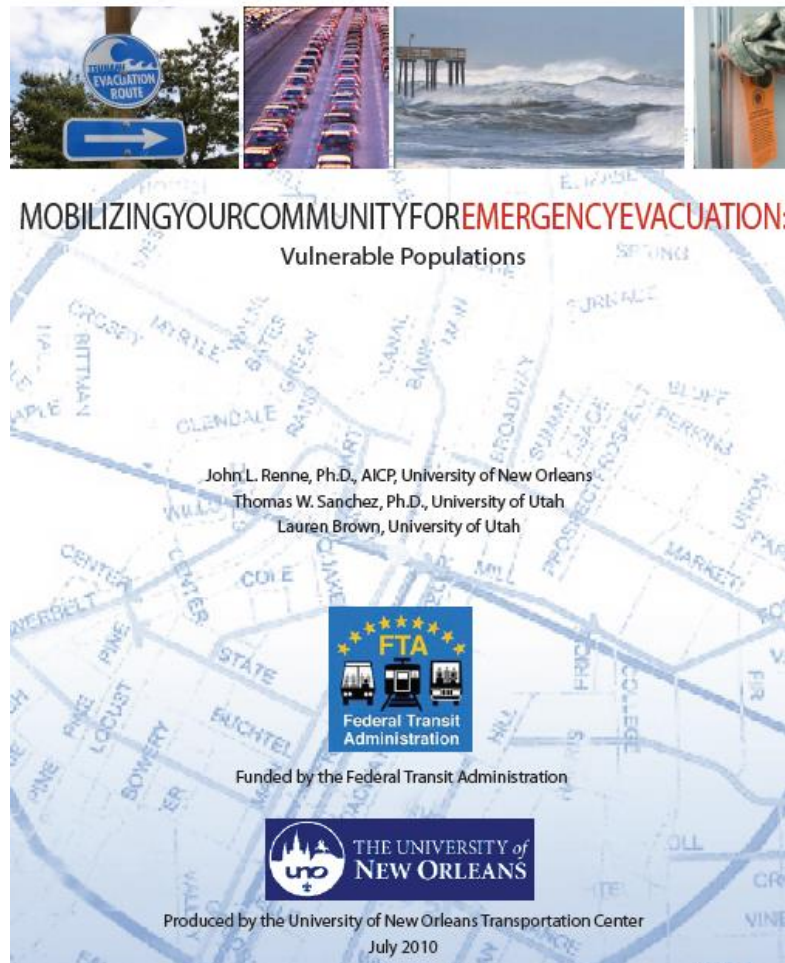


Purpose and Overview

Purpose

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

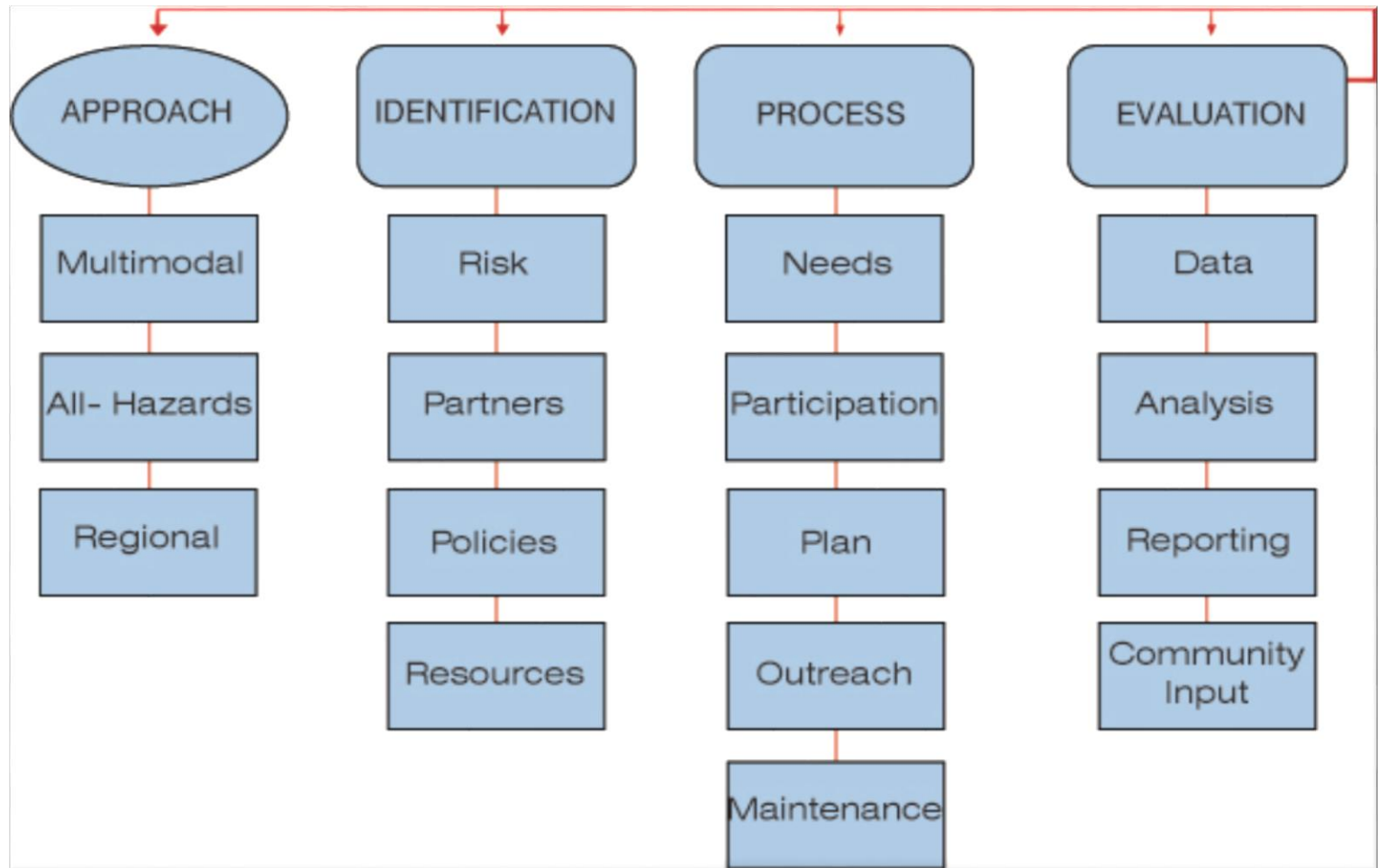
- Planning Process
- Plan-Making
- Process Evaluation
- Recommendations



Chicago	Miami	New Orleans	New York	San Francisco
Center for Neighborhood Technology	Alliance for Aging, Inc.	American Red Cross	Con Edison	San Leandro City Emergency Preparedness
Chicago Metropolitan Agency for Planning	American Red Cross	Catholic Charities	Metropolitan Transportation Authority	Eden Medical Center
Chicago Transit Authority	Community Partnership for the Homeless, Inc.	Evacuteer.org	New York City Department for the Aging	Alta Bates Sutter Health
Chicago Department of Transportation	Florida Department of Emergency Management	Natural Hazard Mitigation Association	New York City Department of Health and Mental Hygiene	Children's Hospital and Research Center
Illinois Department of Public Health	Florida Department of Transportation	New Orleans Council on Aging	New York City Office of Emergency Management	Livermore-Pleasanton Fire Department
Mayor's Office for People with Disabilities	Florida International University	New Orleans Homeland Security	New York City Transit	Alameda Sheriff's Office
Office of Emergency Management and Communications	Miami Coalition for the Homeless	Regional Planning Commission	New York State Department of Transportation	City of San Francisco Department of Emergency Management
Regional Transportation Authority	Miami-Dade County Public Schools	University of New Orleans, Center for Hazards, Assessment, Response and Technology	New York University Public Safety	City of Oakland Office of Emergency Services
	Miami-Dade Emergency Management		New York University Wagner Graduate School of Public Service	Berkeley Unified School District
	Miami-Dade Transit		The City University of New York – John Jay College	American Red Cross
	Monroe County Board of County Commissioners		World Cares Center	Holy Names University
	Monroe County Emergency Management			Mills College
	Monroe County Health Department			California College of the Arts
	South Florida Regional Planning Council			City of Oakland Parks and Recreation
	The Arc of South Florida			CARD, Collaborating Agencies Responding to Disasters
				Alameda County Medical Center
				City of Oakland Department of Human Services
				Private Consultant



Guidebook Framework



CREATING A PLANNING PROCESS FOR SPECIAL NEEDS AND CARLESS POPULATIONS



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Creating a Planning Process

- **Disasters and Types of Evacuations**

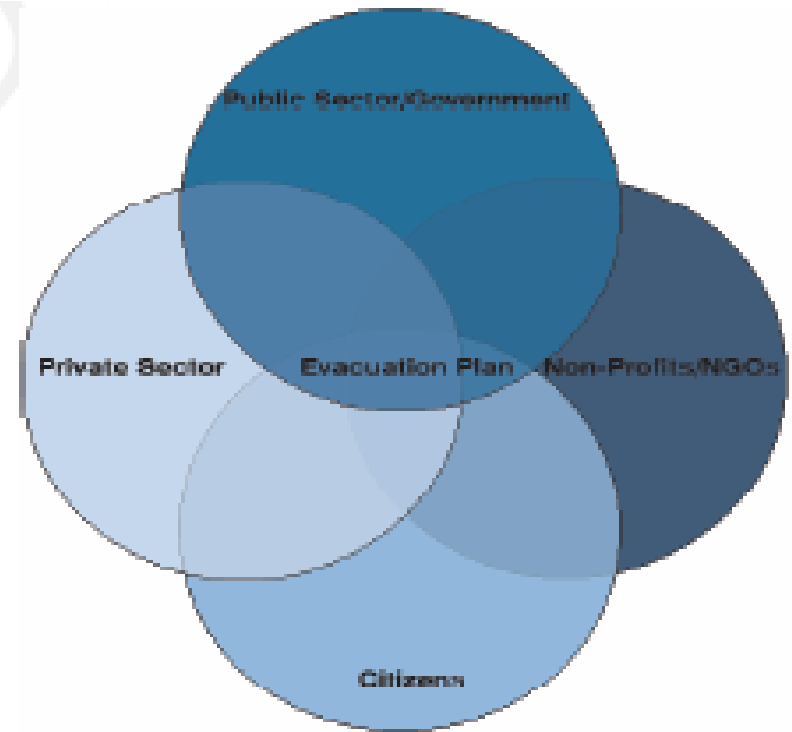
	Geographic Scale	Warning	Evacuation	Emerg. Services	Search & Rescue	Quarantine	Infrast. Repair
Hurricane	Very large	Days	√	√	√		√
Earthquake	Large	None	√	√	√		√
Tsunami	Very large	Short	√	√	√		√
Flooding	Large	Days	√	√	√		√
Forest fire	Small to large	Usually	√	√	√		√
Volcano	Small to large	Usually	√	√	√		√
Blizzard/ice storm	Very large	Usually		√	√		√
Building fire	Small	Seldom		√	√		
Explosion	Small to large	Seldom	√	√	√		√
Bus/train/aircraft crash	Small	Seldom		√	√		√
Radiation/toxic release	Small to large	Sometimes	√	√	√	√	
Plague	Small to large	Usually		√		√	
Riot	Small to large	Sometimes	√	√			
War	Small to large	Usually	√	√			√
Landslide/avalanche	Small to medium	Sometimes	√	√	√		√



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**



TCRP

REPORT 150

TRANSIT
COOPERATIVE
RESEARCH
PROGRAM

Communication with Vulnerable Populations: A Transportation and Emergency Management Toolkit

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REPORT 740

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A Transportation Guide for All-Hazards Emergency Evacuation



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REPORT 777

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



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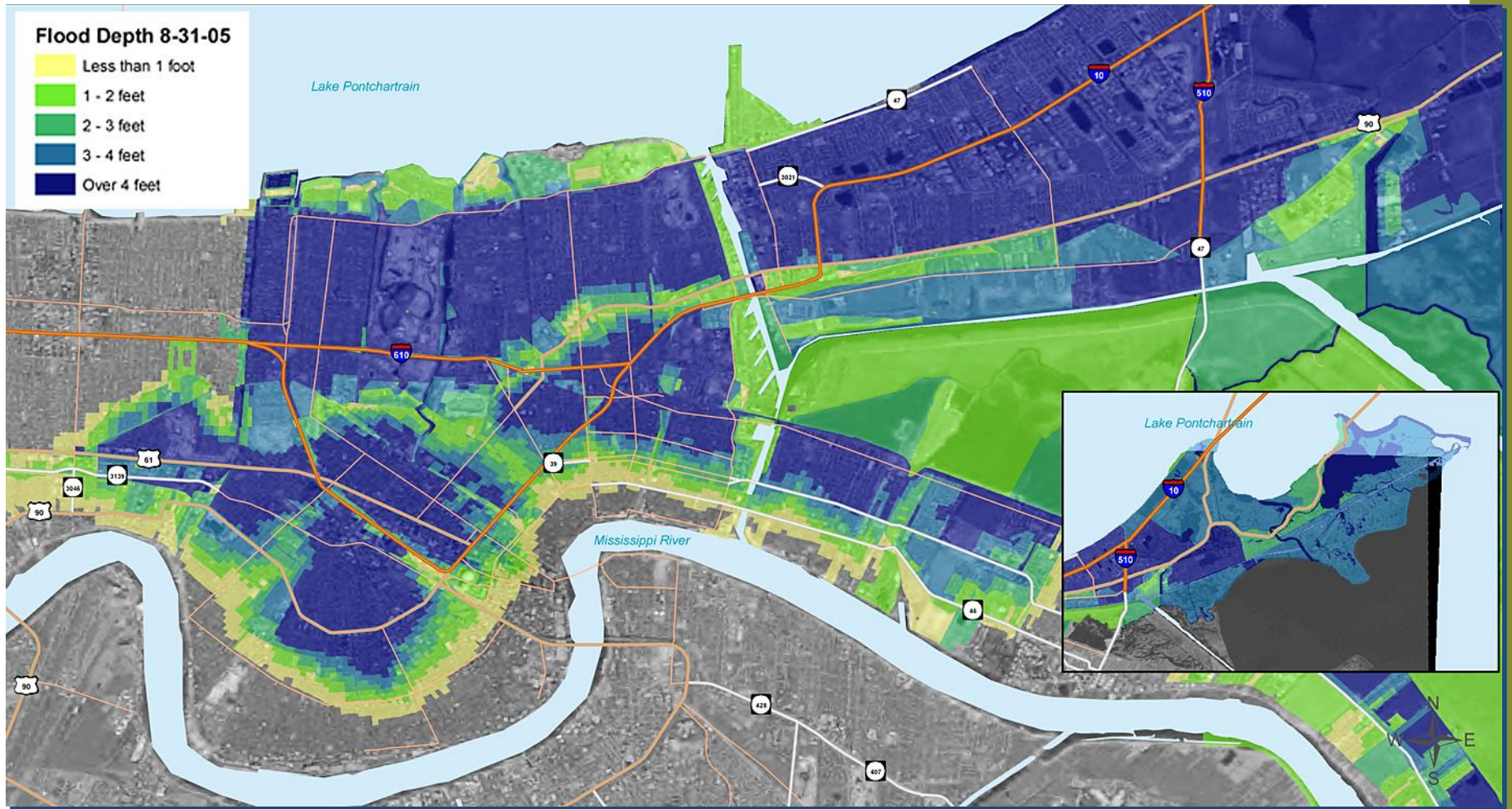
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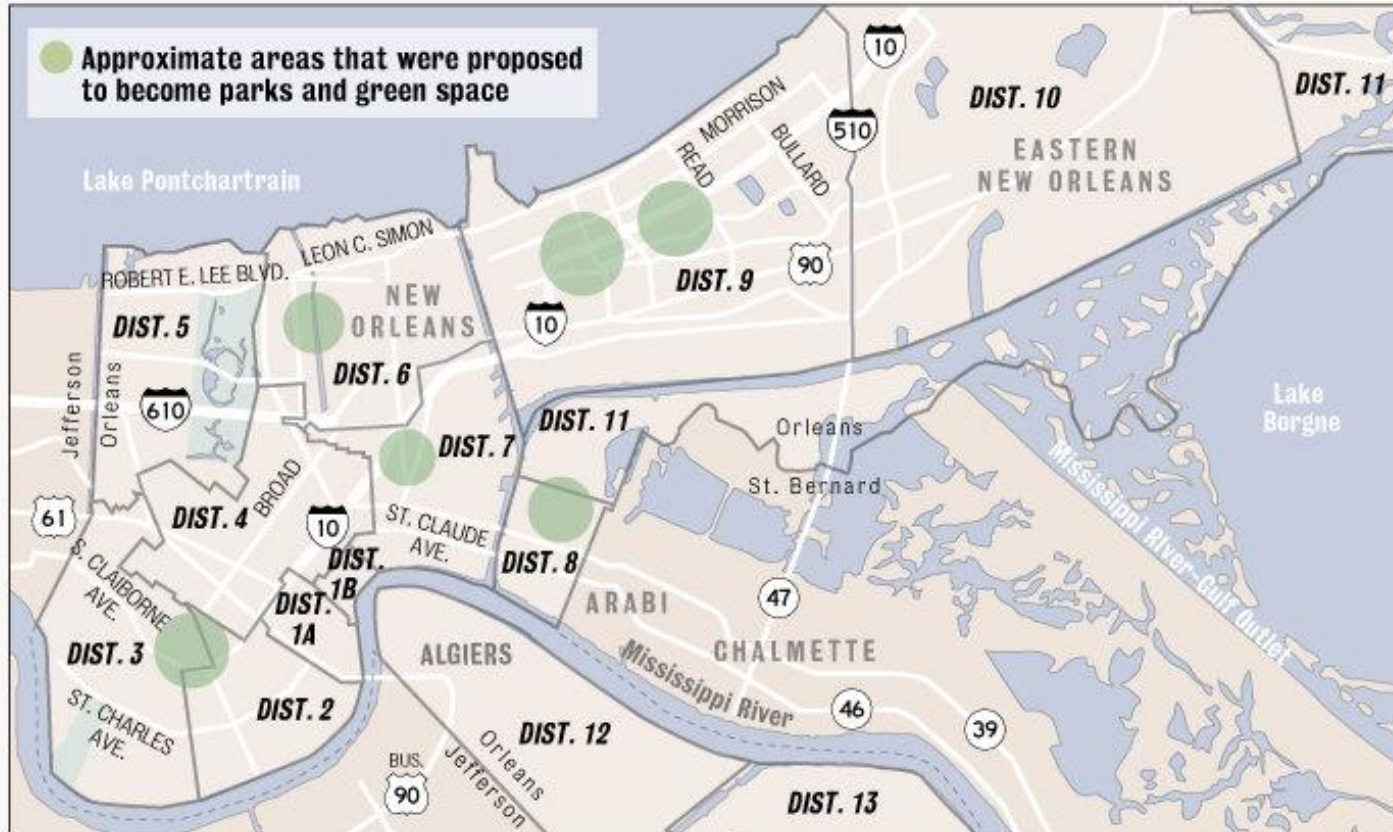
Planning for Recovery

- **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.



Source: Bring New Orleans Back Commission



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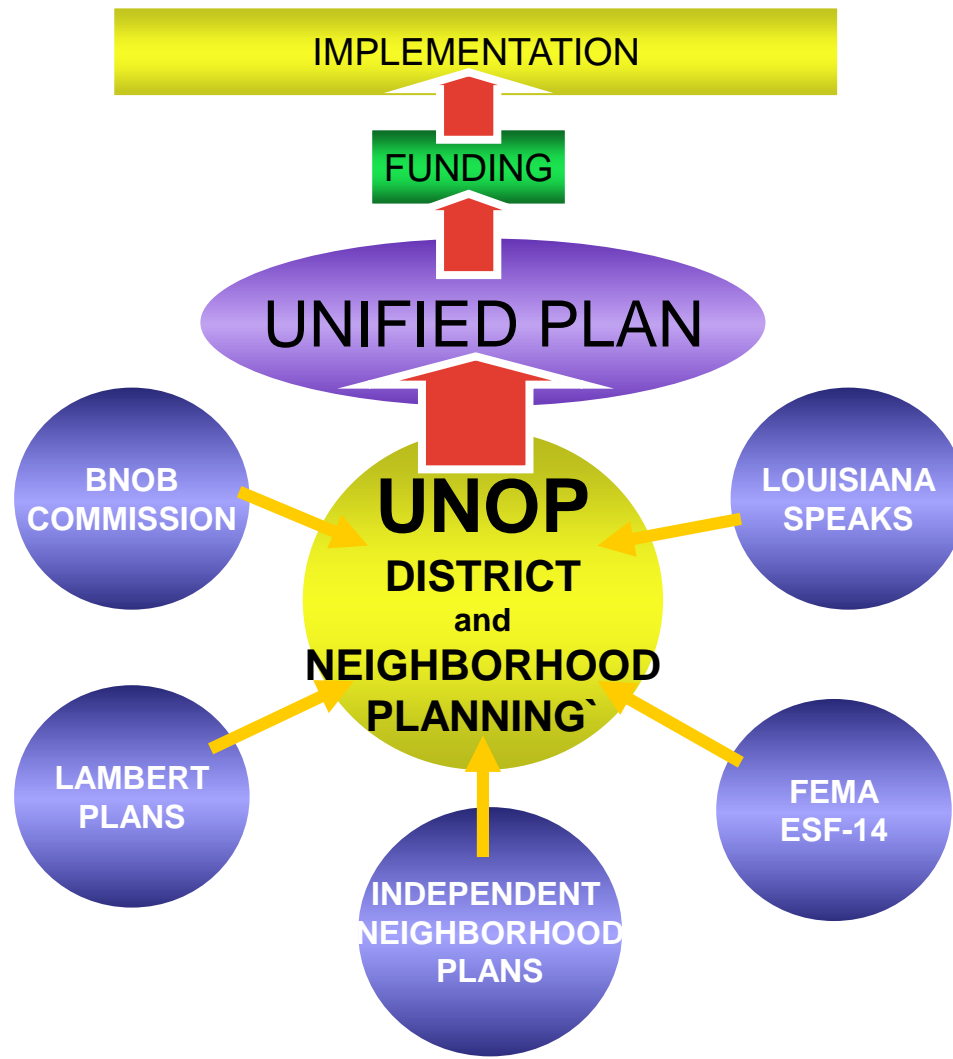
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THE TIMES-PICAYUNE



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Unified New Orleans Plan



Recovery Czar

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

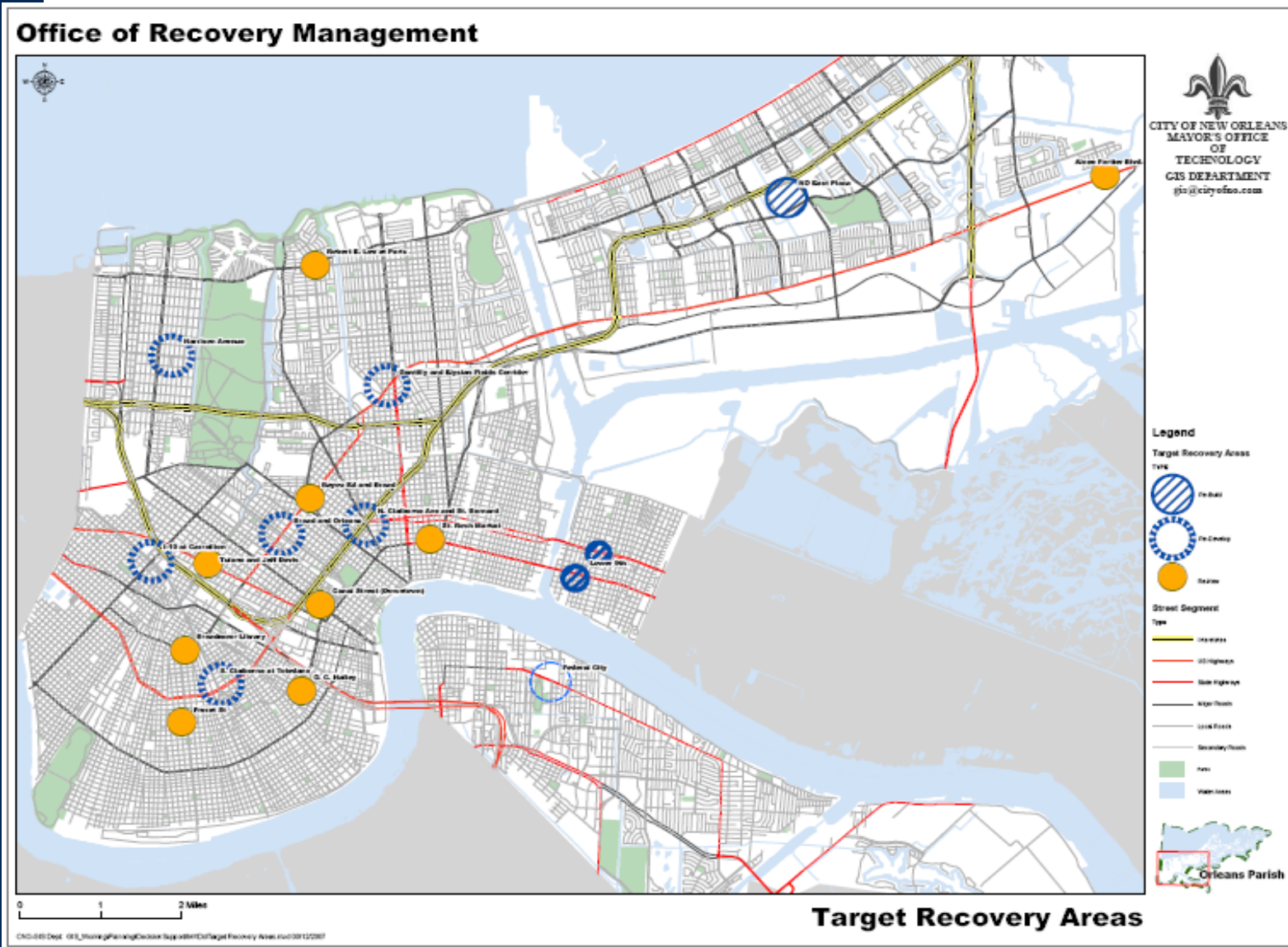


Recovery Strategy:

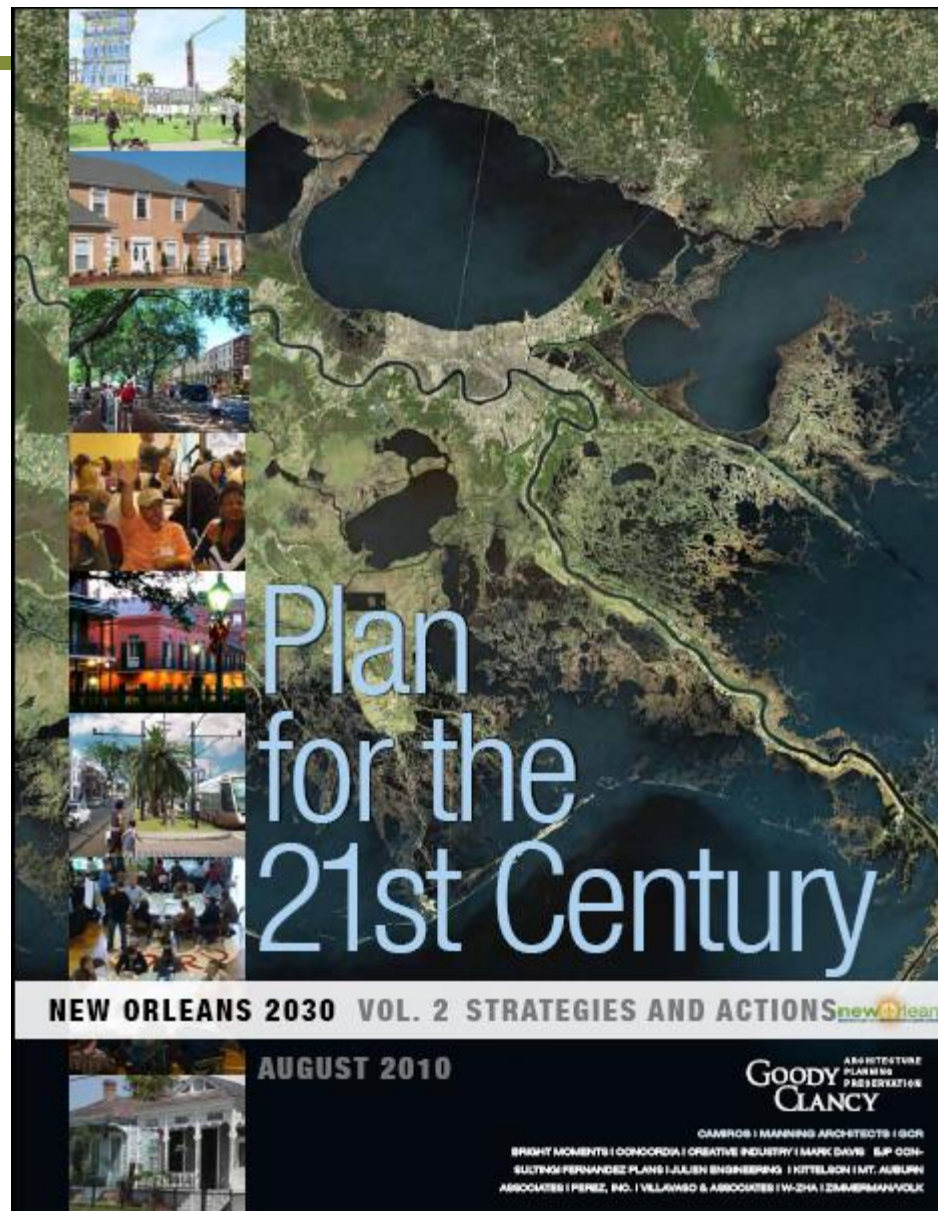
- 1. Healing and consultation**
- 2. Improving safety and security**
- 3. 21st century infrastructure reconfiguration**
- 4. Economic diversification**
- 5. Develop a sustainable settlement pattern**



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Master Plan



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Local Boom, National Bust

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Deepwater Horizon



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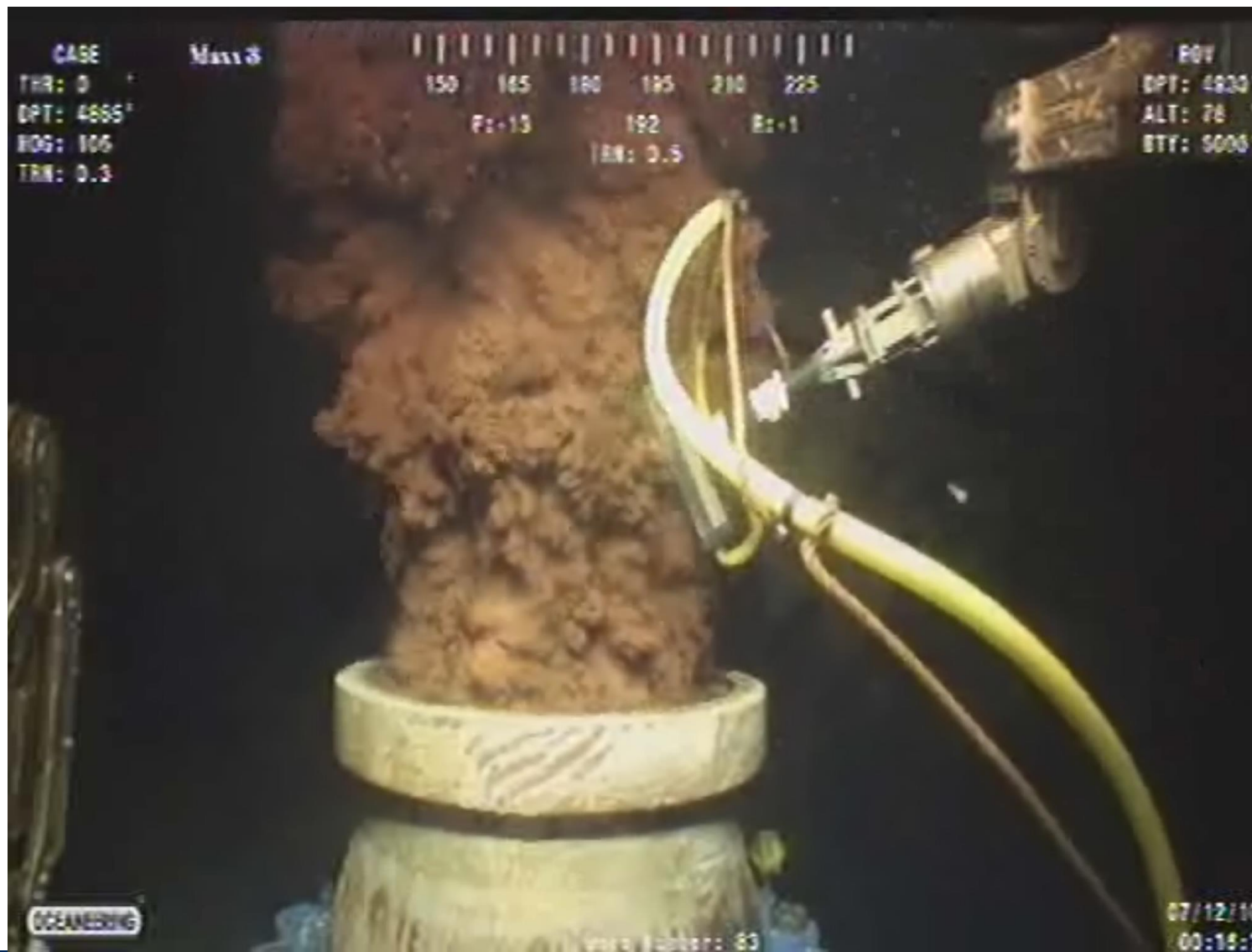


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Deepwater Horizon



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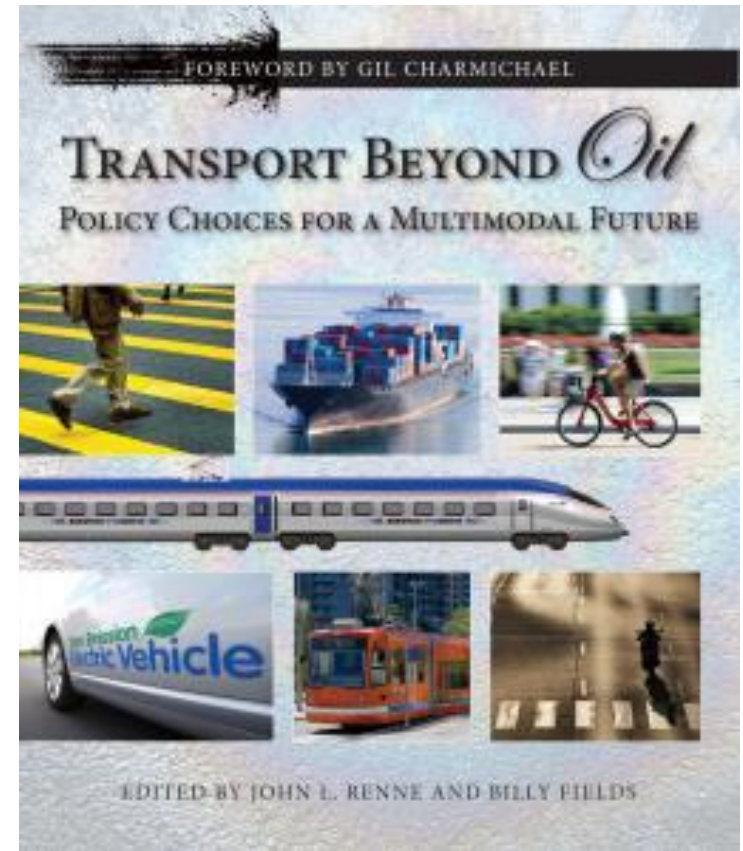
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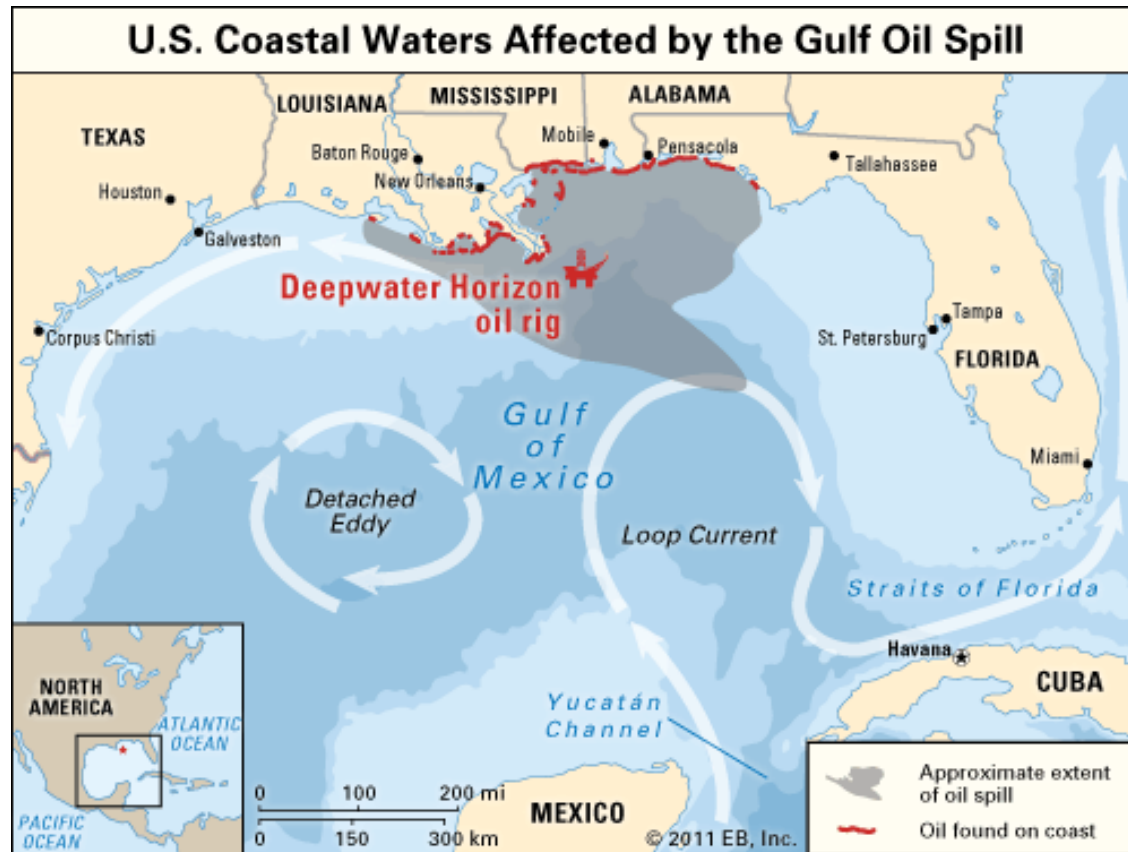
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A Transportation Disaster?

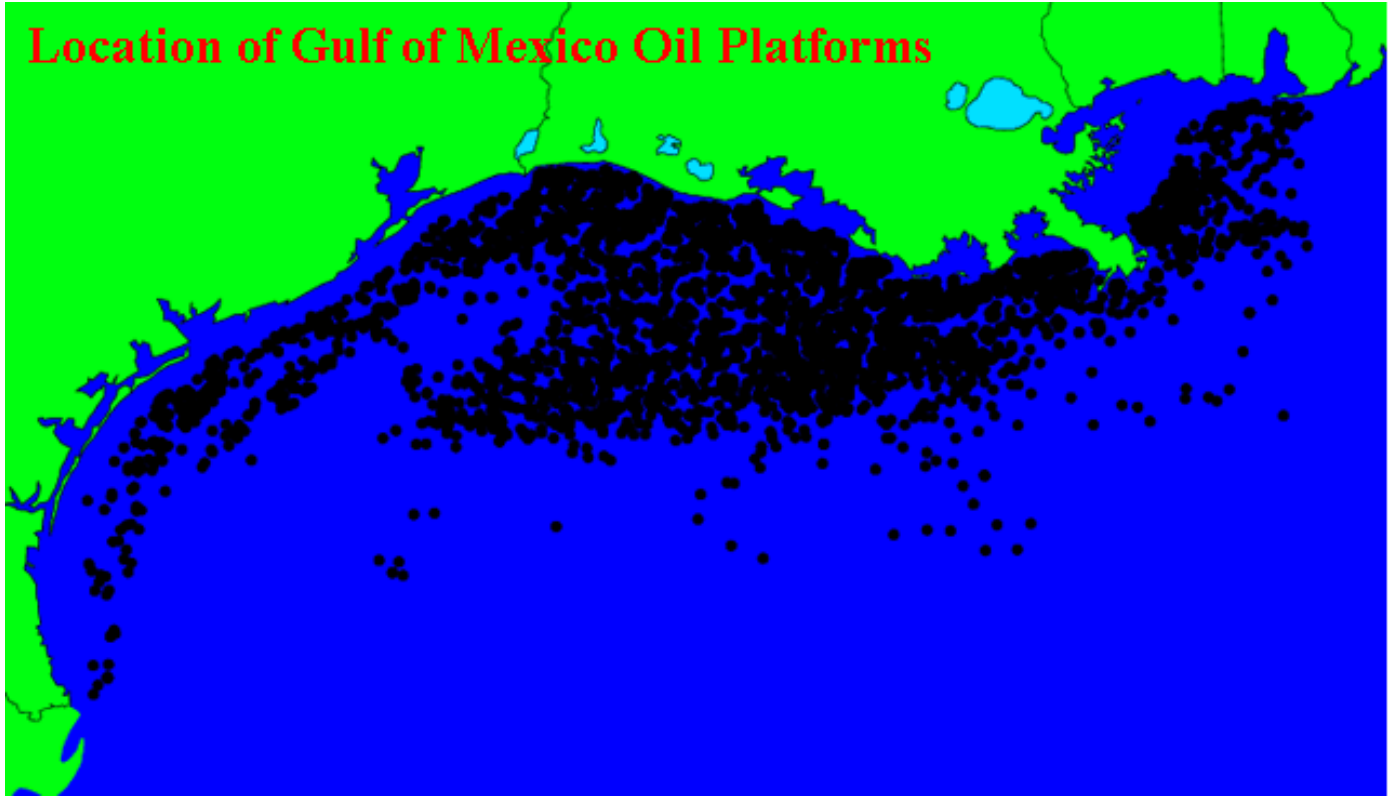
To put this in the context of the Deepwater Horizon disaster, imagine that seventy percent of the 68,000 square miles of oil that was floating in the Gulf of Mexico was destined to be consumed by America's transportation sector. The area covered by the oil intended for the transportation sector would 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?



Location of Gulf of Mexico Oil Platforms



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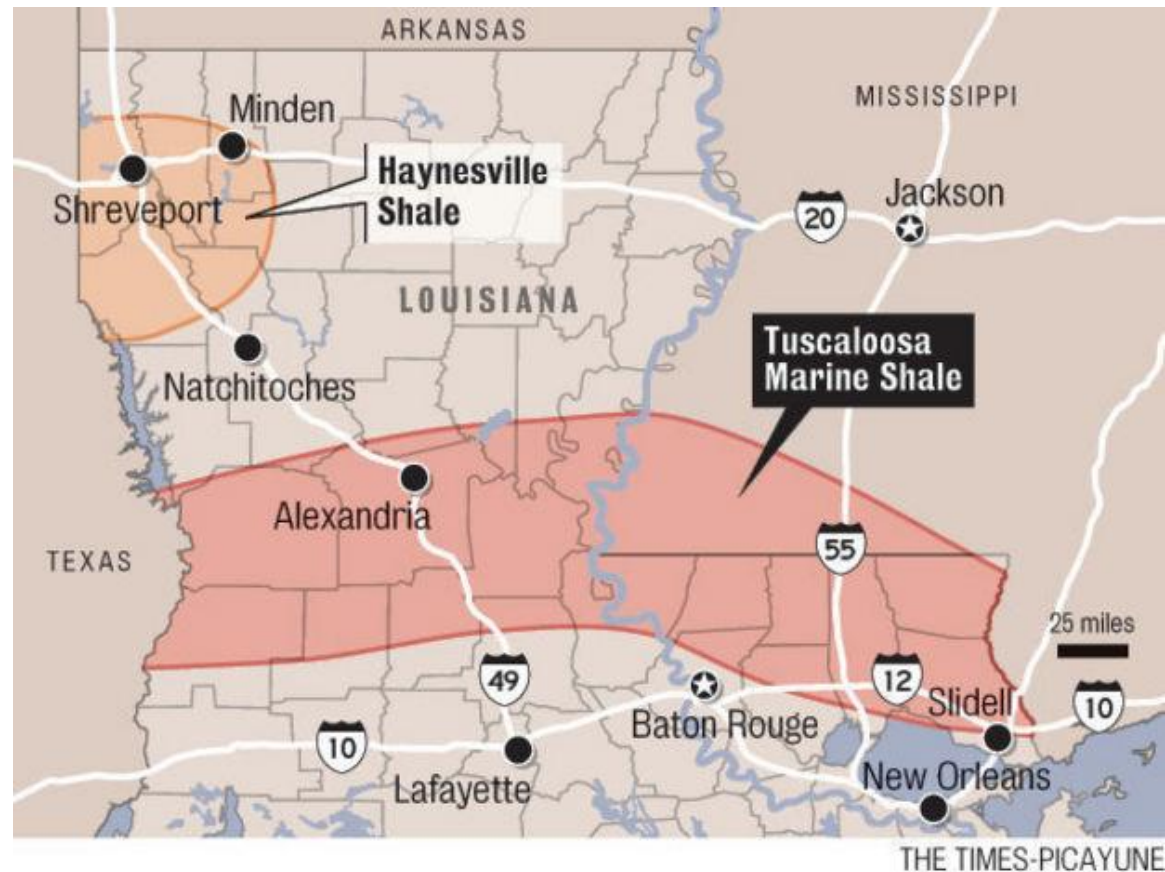


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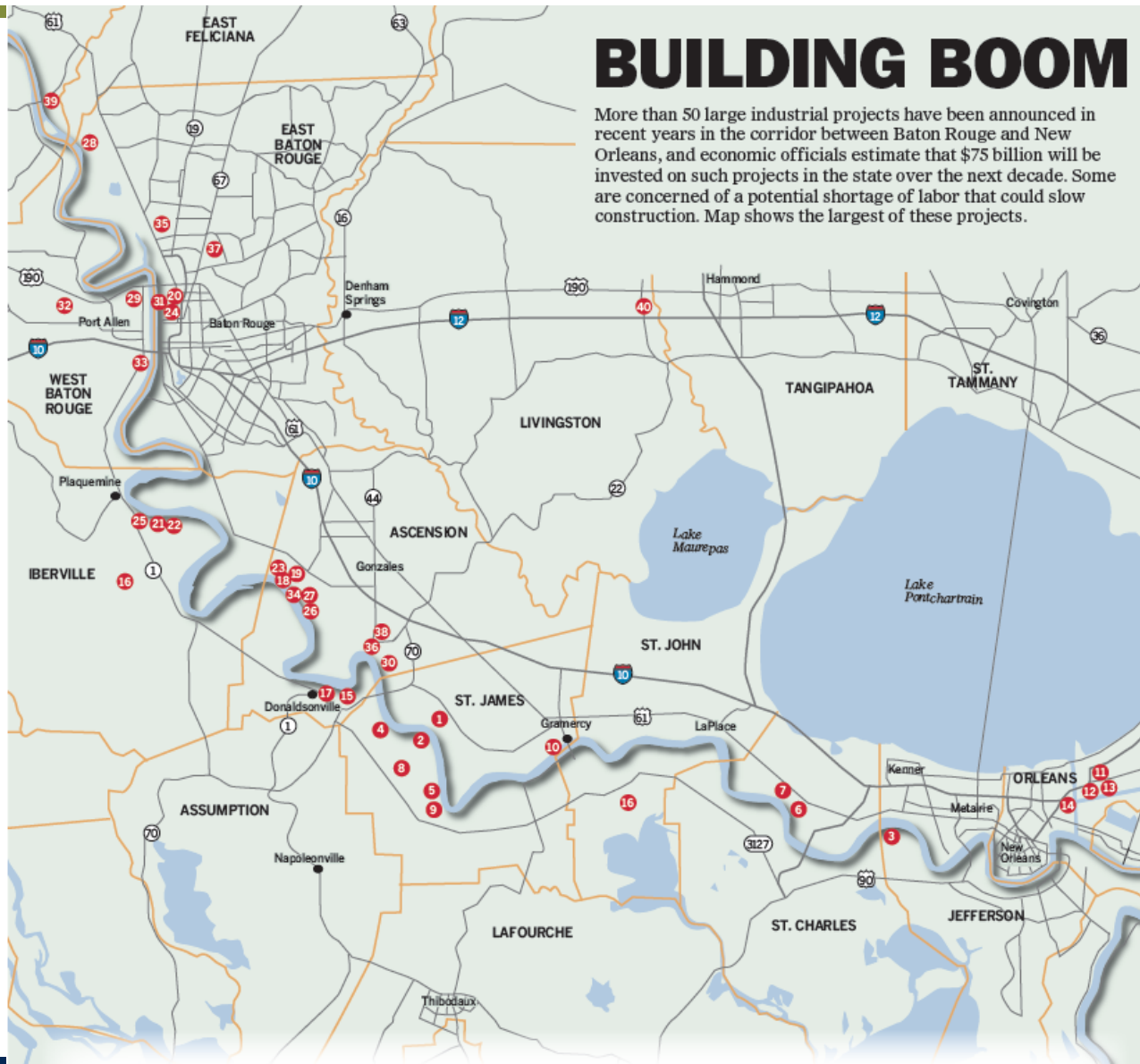
Oil and Gas Boom



\$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.



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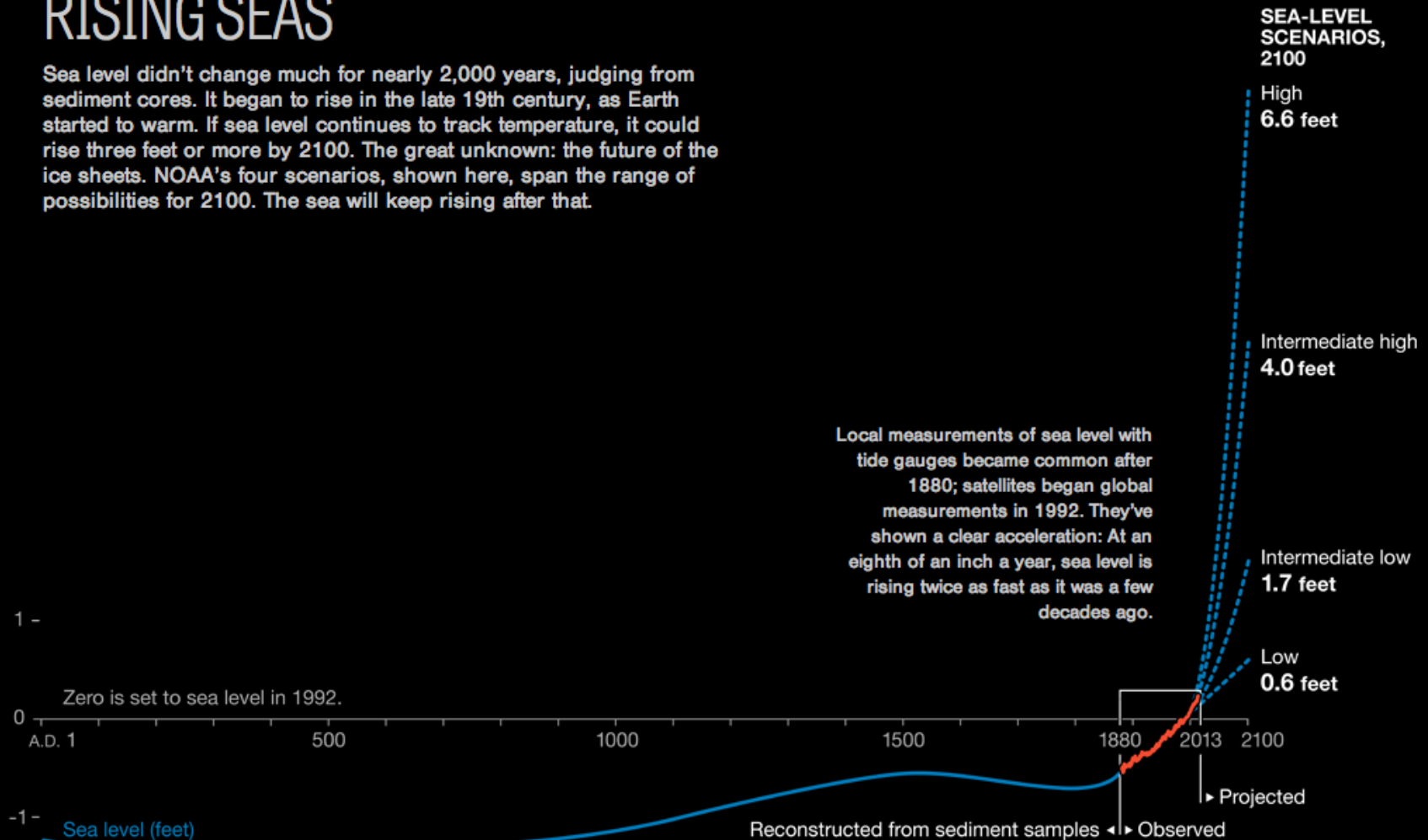
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RISING SEAS

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.



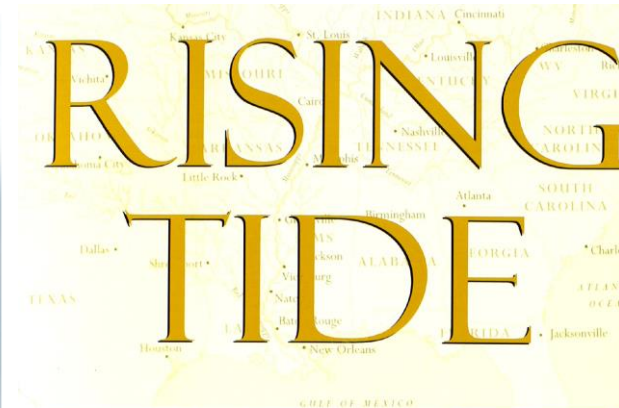


David vs. Goliath: John Barry, New Orleanian of the Year 2013

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 Clancy DuBos [@clancygambit](#)

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—Jonathan Yardley
The Washington Post

JOHN M. BARRY



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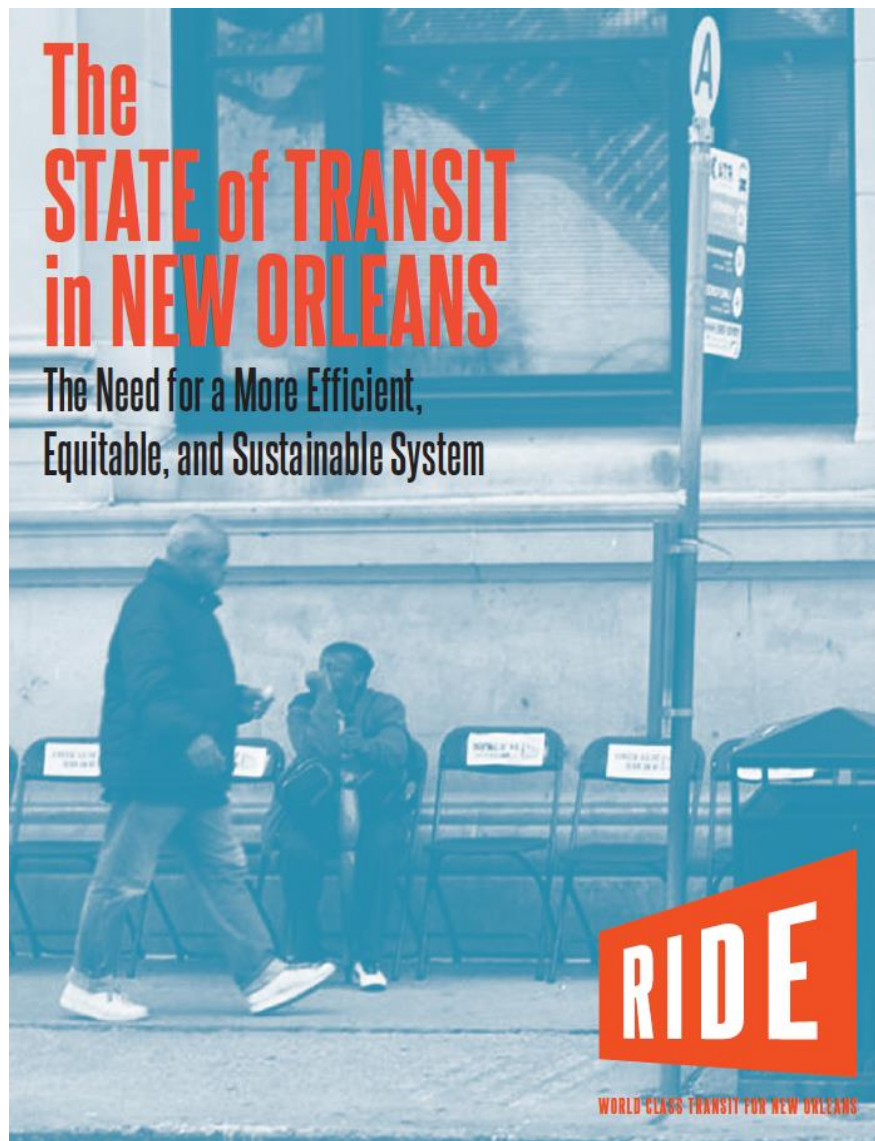


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Declining Transit Service



“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.”



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Chart 1: Vehicle Revenue Miles 2000 - 2012

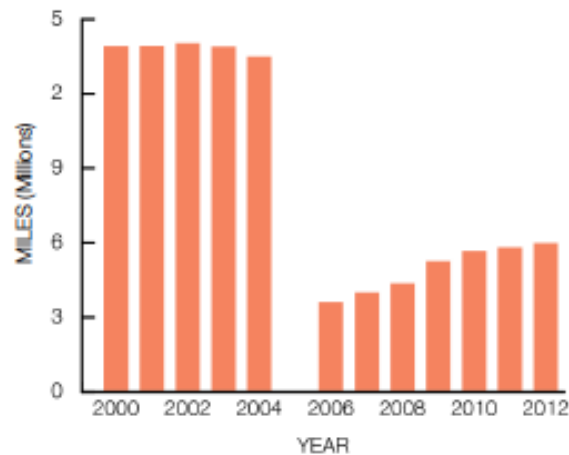
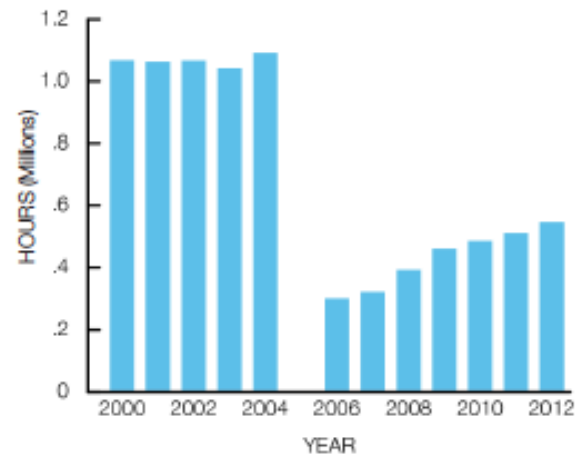
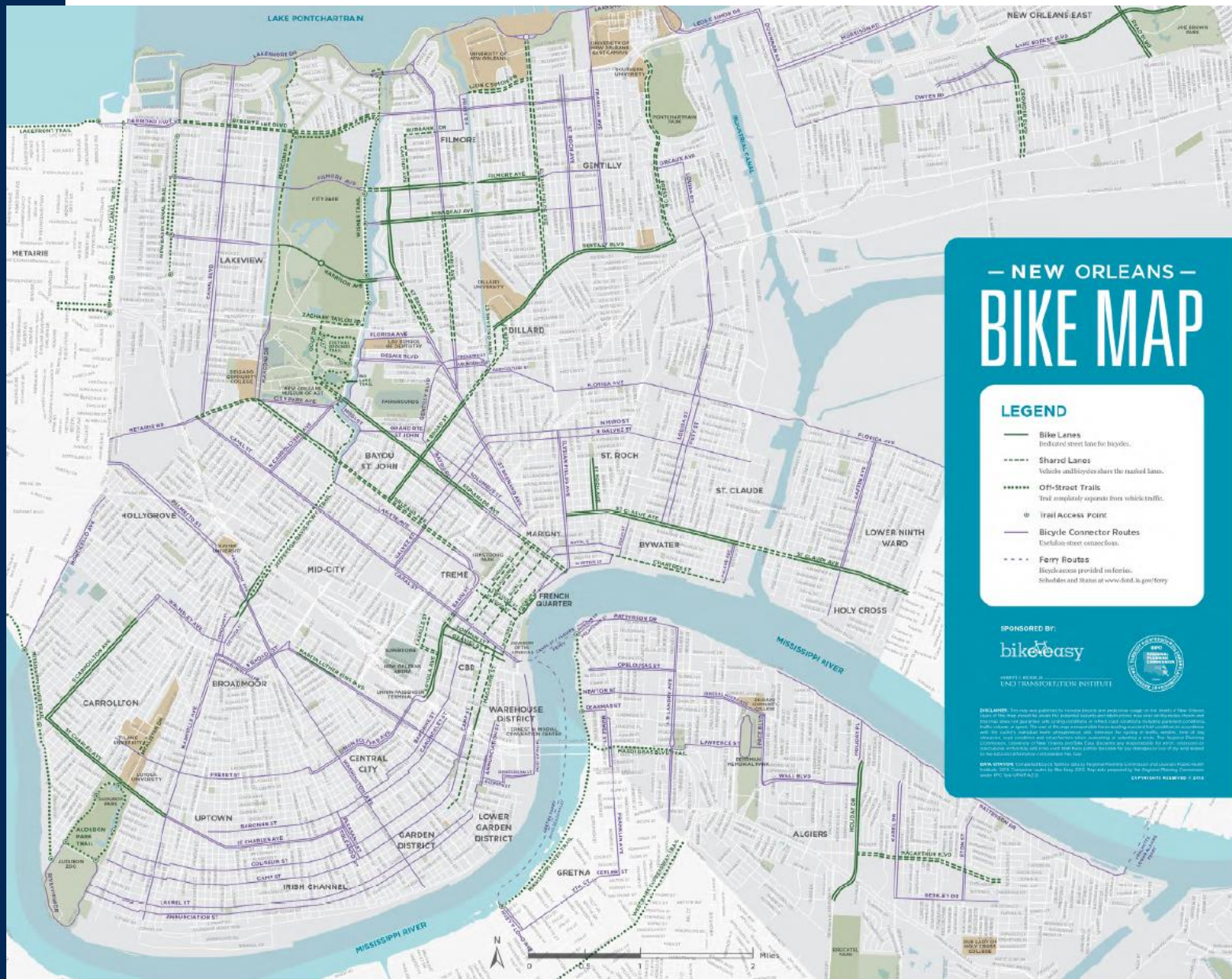


Chart 2: Vehicle Revenue Hours 2000 - 2012



100 Miles of Bike Facilities



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New Orleans' 'complete streets' ordinance draws praise



By [Bruce Egger, NOLA.com | The Times-Picayune](#)
on December 23, 2011 at 8:30 PM

[Print](#)

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.



[+ View full size](#)

Chris Granger, The Times-Picayune

Kate Parker rides her bike across the Canal Street neutral ground in

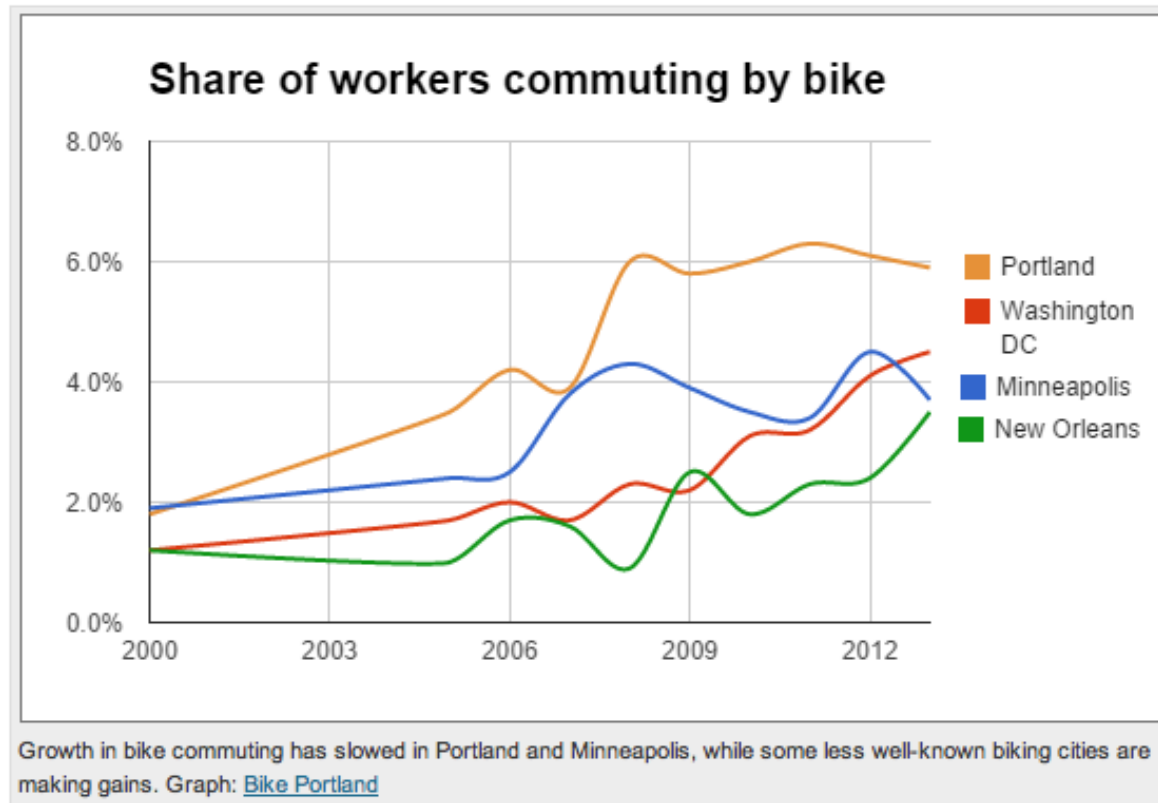
The basic premise of the growing "complete streets" movement is that city streets should not be designed only with cars and other motorized vehicles in mind. Instead, advocates say, designers and engineers ought to consider everyone else who uses the streets, including bicyclists, pedestrians, people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

Thursday, September 18, 2014

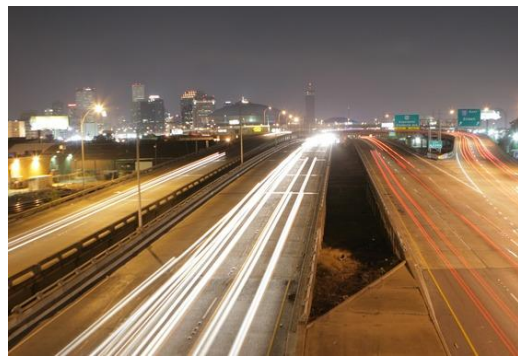
[11 Comments](#)

DC and New Orleans Closing the Bike Commute Gap With Portland

by [Angie Schmitt](#)



Thank You



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