

Vulnerable Populations and Katrina:

Short and long term impacts

Strategies to address future vulnerability

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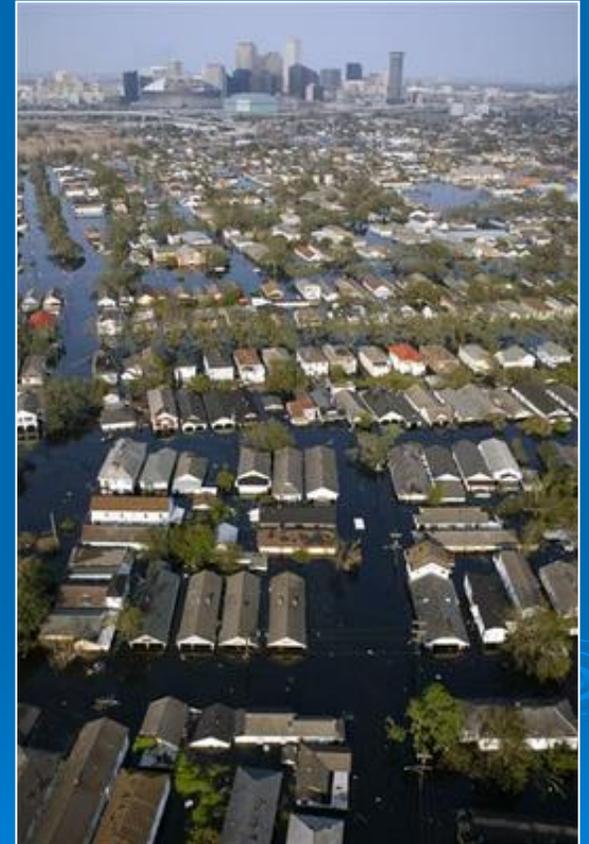
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Hazards Analysis

- Hazard identification (nature of the hazard)
- Vulnerability analysis (defining the potential for loss)
- Risk analysis (the likelihood of a hazard occurring and the severity of the consequences)



Risk Assessment



- A process of evaluating risks associated with specific hazards and defining them in terms of the nature, frequency of occurrence, magnitude, and severity.



Vulnerability Assessment



- Determining the potential for loss or the capacity to suffer harm from a hazard as applied to individuals, society, or the environment.

Consequence Assessment



- The adverse impact (damages) that can be quantified (often in economic or financial terms) including:
 - Injuries
 - Losses of life
 - Property, environmental, and business losses.

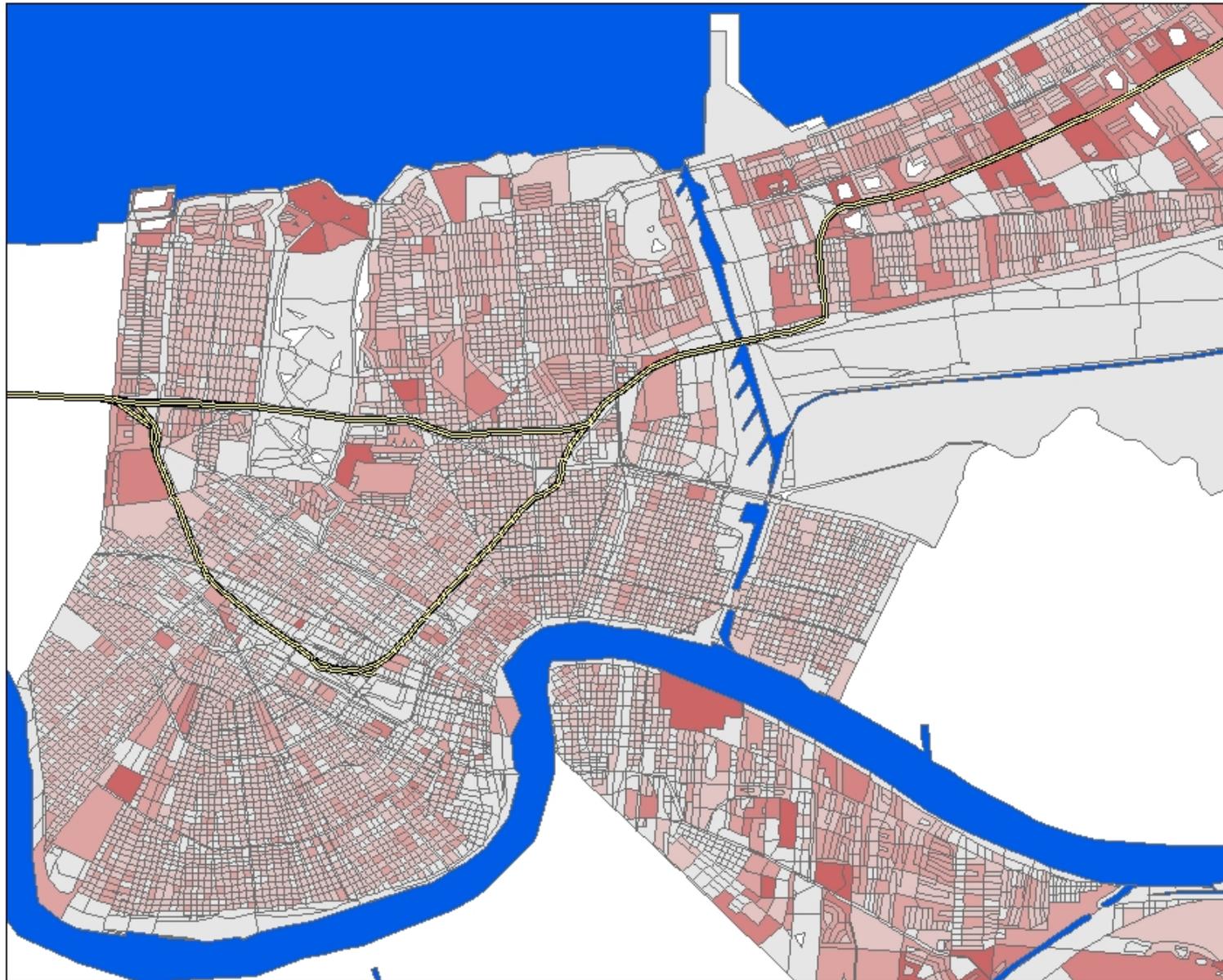
New Orleans Metropolitan Area



0 0.5 1 2 3 4 Miles



Exposure of Residential Property Orleans Parish Census 2000 Blocks



Legend

Interstates

Mississippi River

Exposure

Residential Value

0.00 to 1701.00

1701.00 to 4973.00

4973.00 to 13136.00

13136.00 to 35377.00

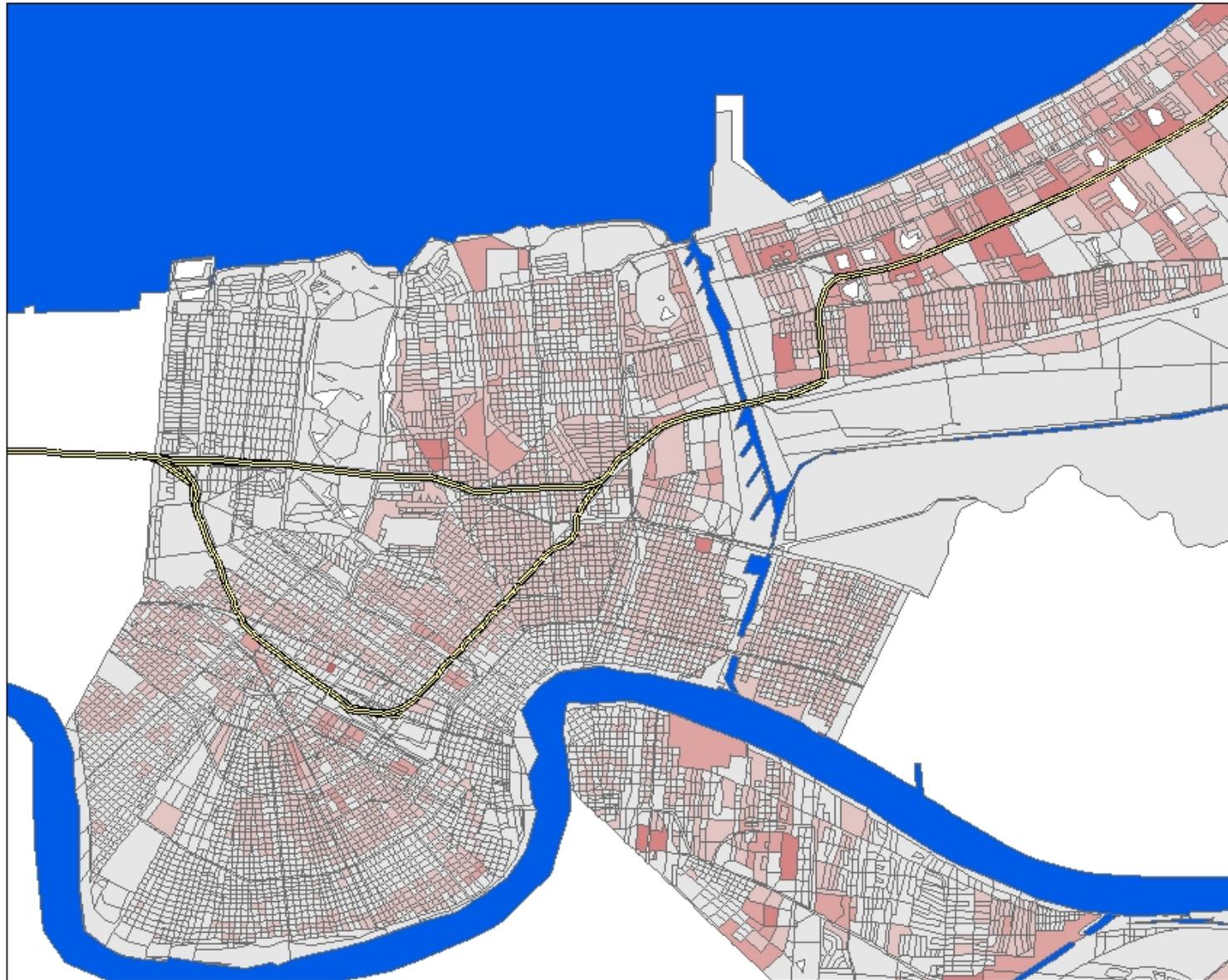
35377.00 to 78957.00

0 0.5 1 2 3 4 Miles

HAZUS-MH Flood
Federal Emergency Management Agency



Population Count: Non-white Orleans Parish Census 2000 Blocks



Legend

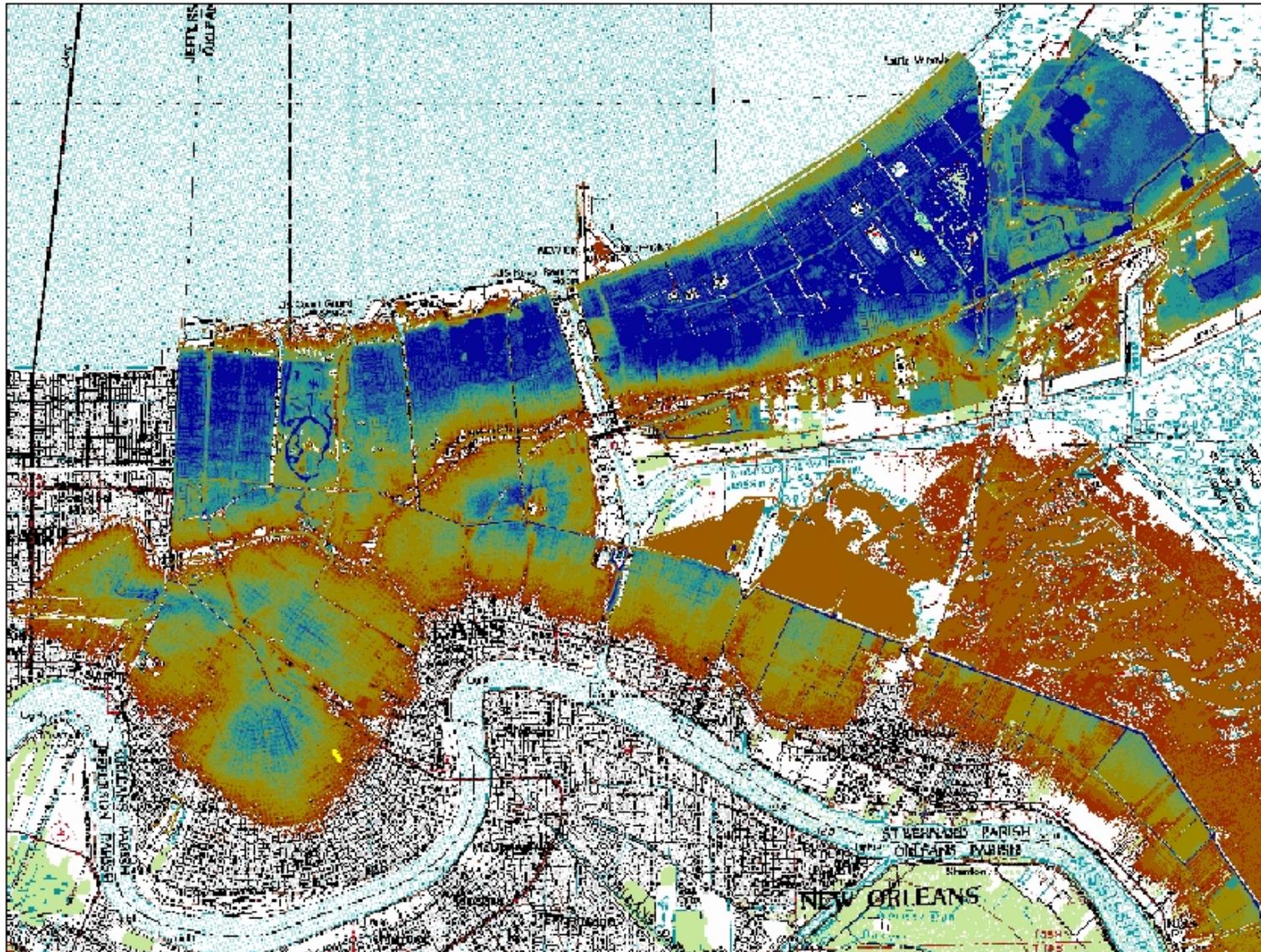
- Interstates
- Mississippi River
- Non-White**
- 0.00 to 38.00
- 38.00 to 187.00
- 187.00 to 643.00
- 643.00 to 2157.00
- 2157.00 to 5302.00



0 0.5 1 2 3 4 Miles

HAZUS-MH Flood
Federal Emergency Management Agency

New Orleans Metropolitan Area



Katrina Depth Grid



0 0.5 1 2 3 4 Miles



Methodology: Defining Vulnerability

- City of New Orleans (Orleans Parish)
- Analysis at the Census block group level (481 block groups)
- Social Vulnerability Indicators (expressed in percentages)
 - Over 65 years of age
 - Renters
 - Disability
 - No high school diploma
 - Household income < \$25,000
 - No phone
 - Single parent
 - No vehicle
 - Non-white



Methodology



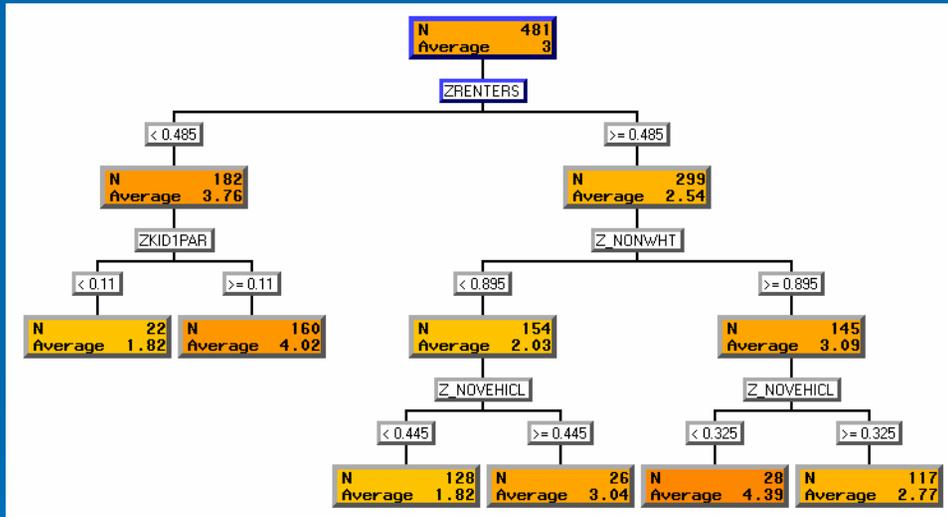
- Use U.S. Core of Engineers Katrina flood depth grid
- Flooding threshold (1/2 foot and 2 feet)
- Observations
 - At 1/2 ft. 481 = 81 NF + 400 F
 - At 2 ft. 481 = 214 NF + 267 F

Findings

- At the 0.5 ft: No significant differences across flooded and non-flooded population medians for any of the variables
- At 2 ft., we found that there were significant differences at the 0.05 level.
 - Non-white ($p < .001$)
 - No diploma ($p < .02$)
 - Renters ($p < .03$)

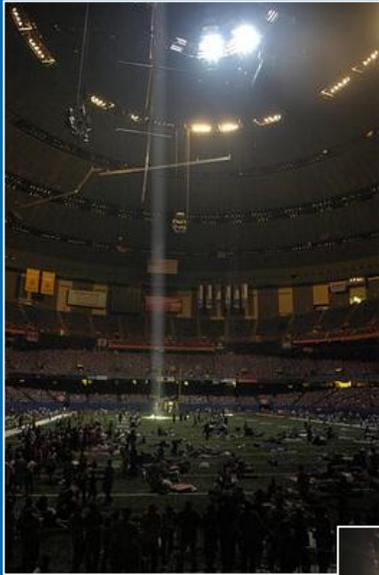


Pilot Regression Tree



- Used all data
- Renters and Non-Whites surfaced as potentially important variables
- Forms “homogeneous” subsets
- Renters at 49% was the primary split
- Non-Whites at 89% was the secondary split
- No vehicle was the next split at 33%

Changing View of Vulnerability Assessment



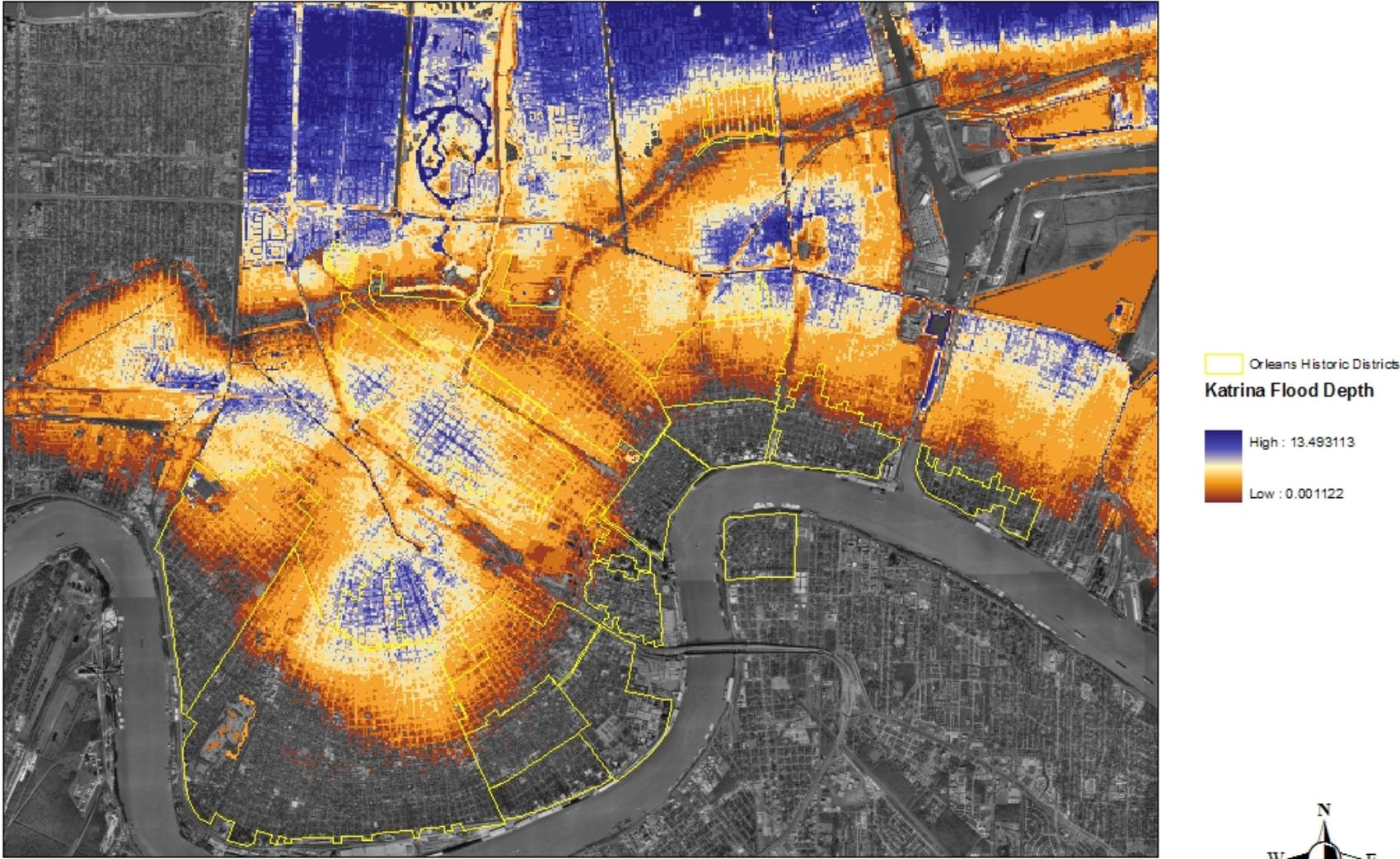
- Short term assessment
- Scenario specific (levee breaches could have occurred in many places thus changing the outcomes)
- Future of New Orleans will be complex
- Growth in New Orleans will be gradual

Strategies to Reduce Vulnerability

- Encourage population growth in less vulnerable areas
- Restore historic neighborhoods
- Restore economic foundation of the neighborhoods
- Work with neighborhoods to restore social, economic, environmental infrastructure



Hurricane Katrina Flood Depth: New Orleans with Historic Districts September 2, 2005

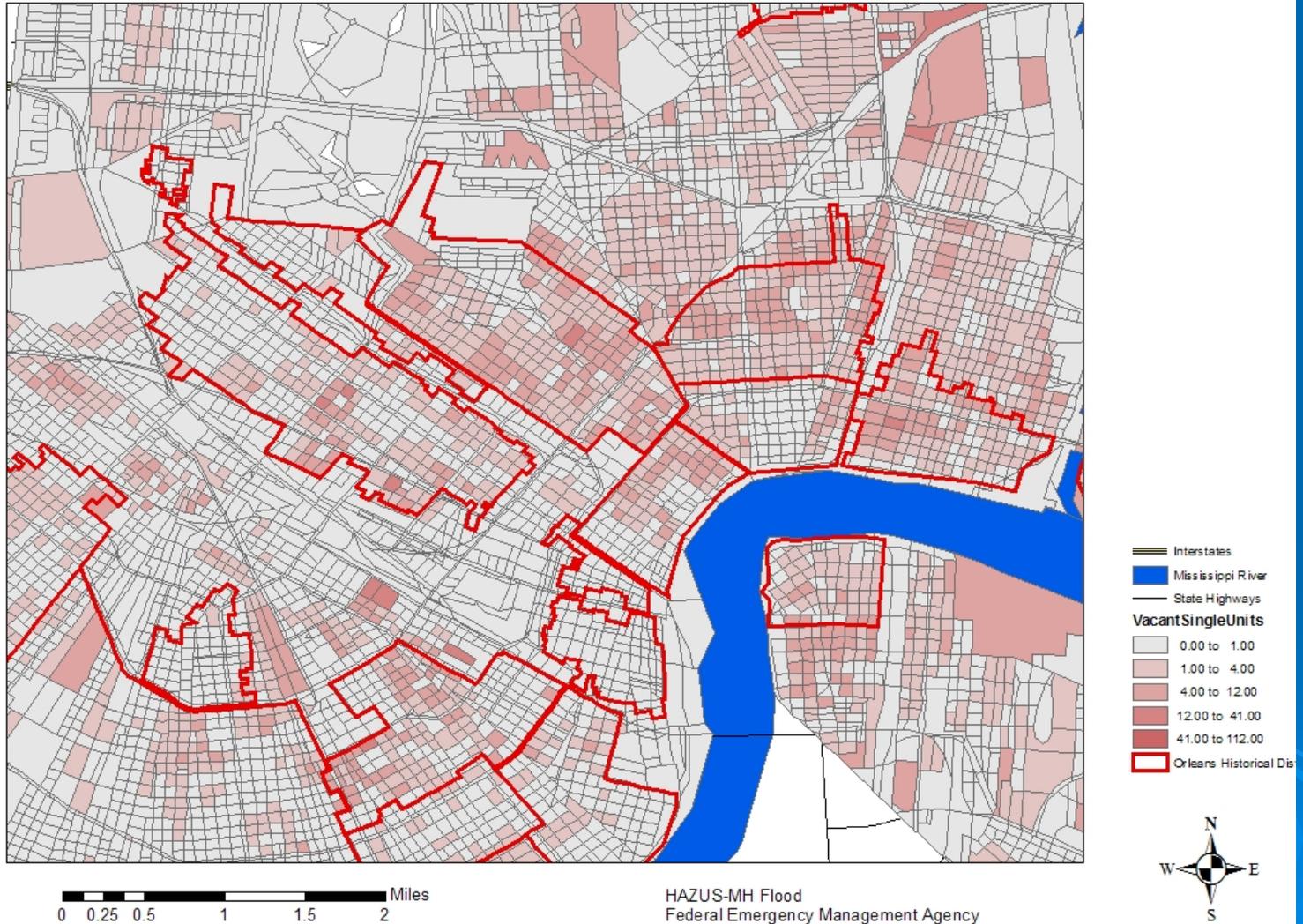


0 0.250.5 1 Miles
|-----|

High Resolution Image of New Orleans provided by Dept. of Homeland Security - 2001



Vacant Structures in New Orleans



Vernacular Landscapes: Variety, Services, Uniqueness: Whimsy





A neighborhood view of a historic neighborhood of New Orleans

Strategies for Sustainable Communities



- Strong building codes
- Enforcement of land use and zoning requirements
- Flood Insurance Program enforcement
- Protect our cultural and historic heritage resources





HURRICANE KATRINA & RITA

Information Clearinghouse

General	Data	Contribute	More Information
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:: ABOUT THE SITE

This clearinghouse has been established at the Louisiana State University, Baton Rouge to facilitate the collection, dissemination, and archiving of data related to Hurricane Katrina and Rita. Katrina made landfall in Louisiana on Monday, August 29, 2005 and Rita made landfall on September 24, 2005.

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Map Products, Reports & Data Downloads

- [Residentail replacement costs for South West Louisiana \(pdf\) **New!** Added 02/13/06](#)
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View images from hurricanes Katrina & Rita

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Our Goal: Sustainable Communities (social, economic and environmental)

