U.S. ARMY CORPS OF ENGINEERS

HURRICANE AND STORM DAMAGE RISK REDUCTION SYSTEM

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# National Environmental Policy Act "NEPA"

- Required for all major Federal actions
- Analyze potential impacts to the human and natural environment and investigate reasonable alternatives
- Analyses documented in Environmental Assessments (EA), Environmental Impact Statements (EIS), or Individual Environmental Reports (IER)
- Public involvement is KEY: We want to hear from you!
- **Goal: more informed decision making through public involvement**

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# New Orleans East Levees IER #6 and IER #7

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# IER #6
# Current Alignment

LPV 105
LPV 106
LPV 107
Lake Pontchartrain
Lakefront Airport
Hayne Blvd
Paris Road
Bayou Sauvage NWR
Gentilly Ridge
Gulf Coast
Bayou Sauvage
Bayou Savage
Bayou Sauvage
Bayou Savage
Bayou Savage
St Charles Canal
Bayou Sauvage
Gulf Coast
Bayou Savage
Bayou Savage
Bayou Sauvage
Bayou Sauvage
Bayou Sauv

# IER #6 LPV 105: Lakefront Airport

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- Average Existing Elevation: 13.0’
- 100-Year Elevation
  - T-Wall: 15.5’
  - Levee: 13.5’
- Alternatives
  - Retrofit I-wall to a L-wall along the current I-wall alignment
  - Construct a T-wall along the current I-wall alignment
  - Construct a T-wall or levee south of the NS Railroad at west end of project

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# IER #6 LPV 106: Citrus to Lakefront Levee

- Average Existing Elevation: 13.0’

- 100-Year Elevation
  - Levee: 13.5’
  - T-Wall: 15.5’

- Alternatives
  - Raise levee with and w/o retaining wall at Hayne Blvd.
  - Raise levee with seepage cut-off wall
  - Raise levee with Deep Soil Mixing (DSM)
  - Construct a T-wall

# IER #6 LPV 107: Lincoln Beach

- Average Existing Elevation: 12.5’

- 100-Year Elevation
  - Levee: 13.5’
  - T-Wall: 15.5’

- Alternatives
  - Modify/retrofit I-wall & gate along existing alignment
  - Construct T-wall & gate along existing alignment
  - Construct T-wall & gate along LPV 106 alignment
  - Replace wall and gate with levee as in LPV 106
  - Construct levee with DSM to elevation 13.5’

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# IER #7 – Current Alignment

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# IER #7 LPV 108: Lakefront Levee

- Average Existing Elevation: 17’ to 19.5’
- 100-Year Elevation: 18.5’-19.5’
- Alternatives
  - Raise Crown To Meet Authorized Elevation
  - Adding Stability Berms for 100-Year Still Water Elevation (2011)

# IER #7 LPV 109a: South Point to CSX Gate

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- Average Existing Elevation: 12'- 17.5'
- 100-Year Elevation: 16.5'- 22'
- Alternatives
  - Raise levee with stability berms
  - Raise levee with lightweight material
  - Raise levee with high-strength geotextile, pre-fab vertical drains, & slurry cutoff walls
  - Raise levee with high-strength geotextile, pre-fab vertical drains, & slurry cutoff walls with partial Deep Soil Mixing
  - Raise Levees using Deep Soil Mixing

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# IER #7 LPV 109.02b: I-10 Crossing

- Average Existing Elevation: 14’
- 100-Year Elevation: 19’
- Alternatives
  - Construct a levee and raise I-10 with a ramp
  - Construct a levee and raise I-10 with a bridge
  - Construct a T-wall and raise I-10 with a bridge

# IER #7 LPV 109.02c: US 11 & US 90 Gates & Crossings

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**US 11**

- Average Existing Elevation: 12'
- 100-Year Elevation: 18.5'

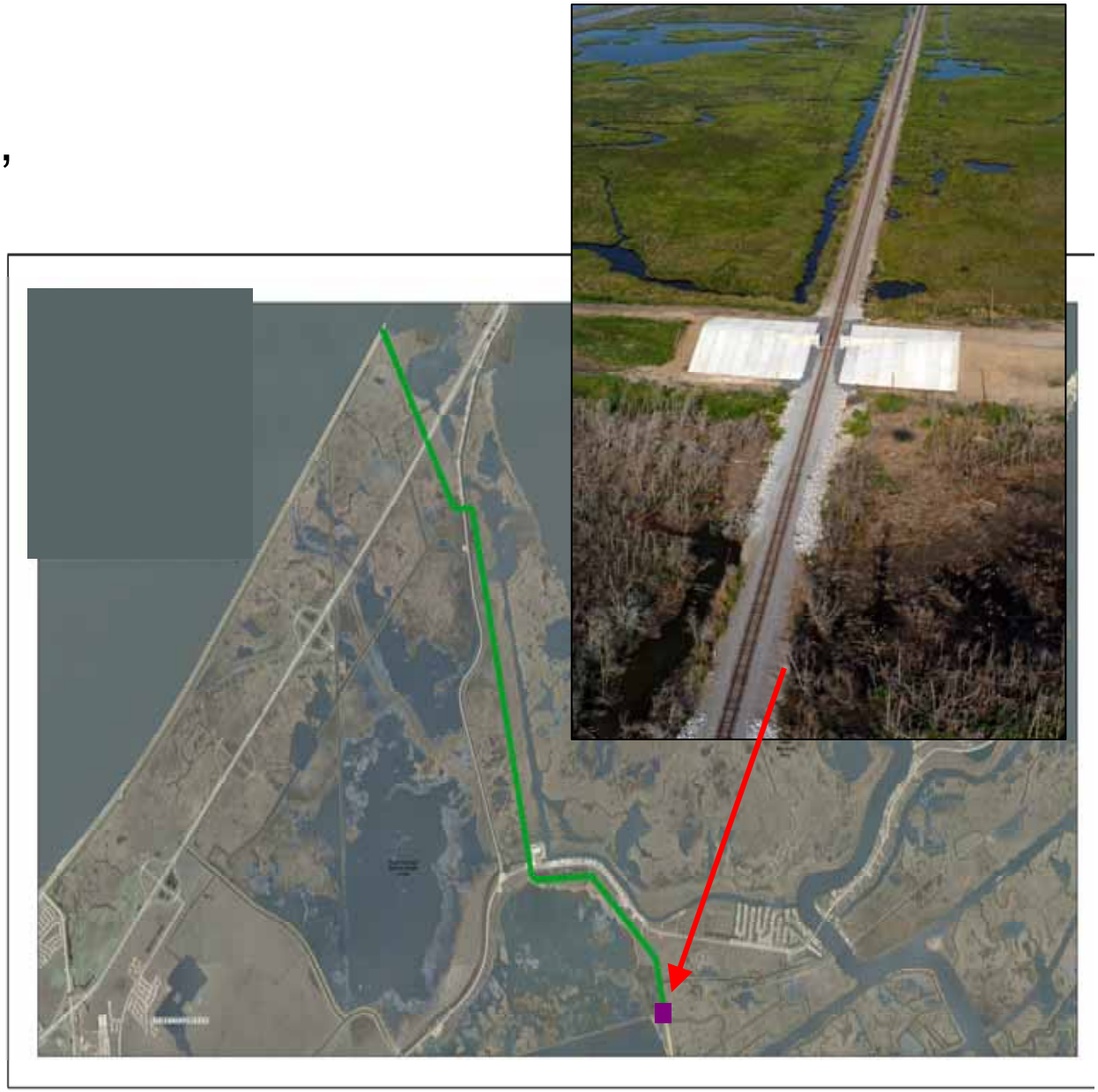
**US 90**

- Average Existing Elevation: 14'
- 100-Year Elevation: 22'

- Alternatives
  - Retrofit existing floodgates
  - Replace existing floodgates
  - Raise highway using ramp or bridge

# IER #7 LPV 110: CSX Railroad Gate

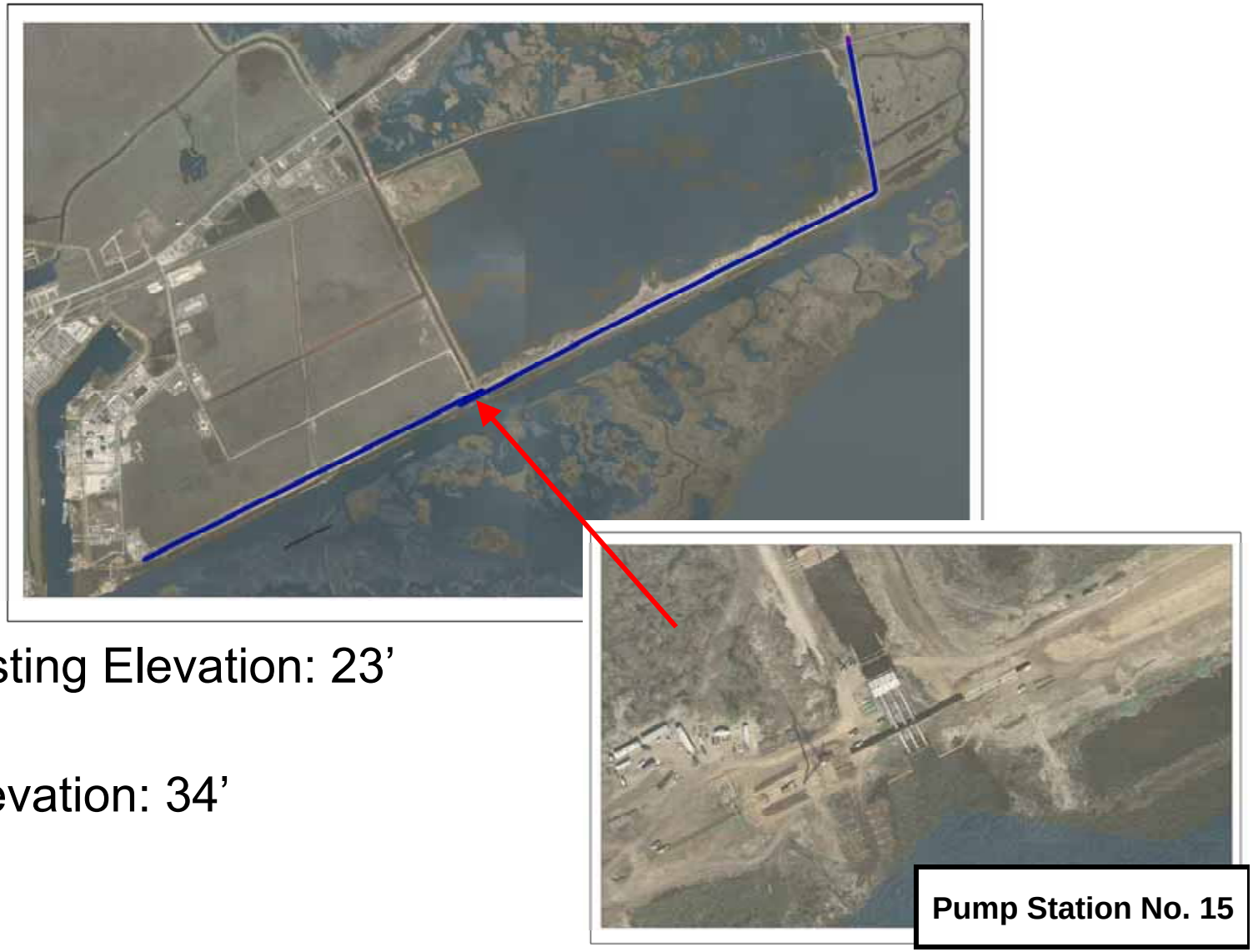
- Existing Elevation: 20’
- 100 yr Elevation: 30’
- Alternatives
  - Raise existing gate
  - New T-Wall & gate along existing alignment



# LPV 111.01 – NOE Back Levee

- Average Existing Elevation: 19.5’
- 100-Year Elevation
  - Levee: 25’ - 29’
  - T-Wall: 34’
- Alternatives
  - Raise Levee with stability berms
  - Raise Levee with lightweight material
  - Raise Levee with high-strength geotextile, pre-fab vertical drains, & slurry cutoff walls
  - Raise Levees using Deep Soil Mixing

# IER #7 LPV 111.02: Pump Station No. 15




- Average Existing Elevation: 23’
- 100-Year Elevation: 34’
- Alternatives
  - Replace existing wall at Pump Station #15

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# Levee Alternatives

## Advantages

- Low cost option
- Can easily modify
- Greater vehicle access
- Aesthetically pleasing
- Natural materials

## Disadvantages

- Stability issue
- Greater environmental impacts due to footprint
- Removal of scour protection for future lifts
- Quantity of Borrow required

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# T-Wall Alternatives

## Advantages

- Meets design and project requirements
- No interference with airport traffic (LPV 105)
- Most fit within existing Right of Way

  LPV 105: Alternative 2
  LPV 107: Alt 3
  LPV 109.02b: Alt 3
  LPV 109.02c: Alt 3
  LPV 111: Alt 2

## Disadvantages

- High cost
- Some may require acquisition of additional Right of Way (ROW)

  LPV 105: Alternative 3
  LPV Alt 5 for foreshore protection

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# Upcoming Levee Contracts

## New Orleans East Contracts to be awarded in Summer 2008

- LPV 109.01: South Point to Gulf Intracoastal Waterway - June
- LPV113: Citrus Back Levee (Michoud Canal to Michoud Slip) – June
- LPV 108: Paris Road to South Point – July
- LPV 106: Citrus Lakefront Levee (west of Paris Road) - TBD

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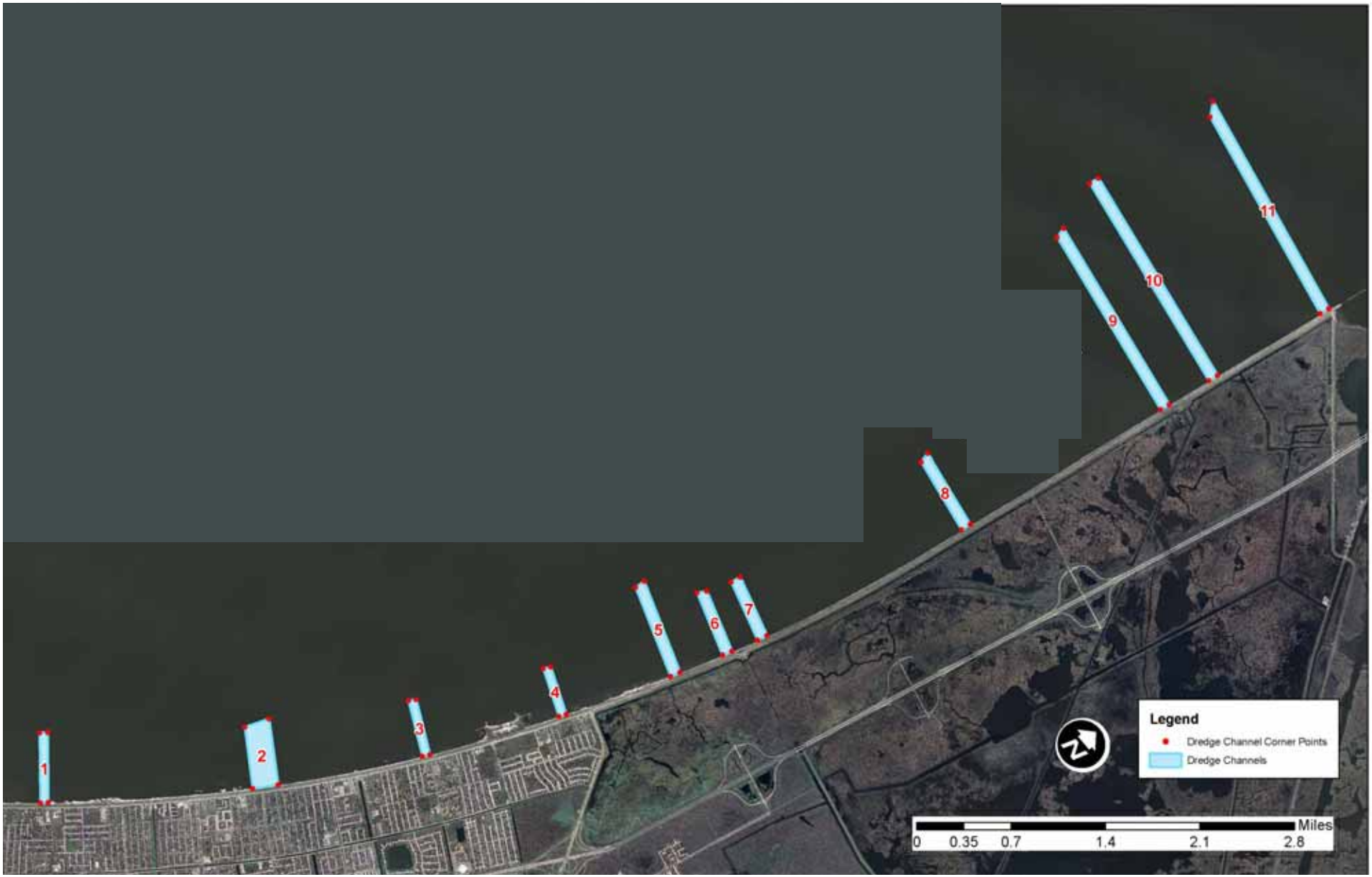
# Temporary Access Channels



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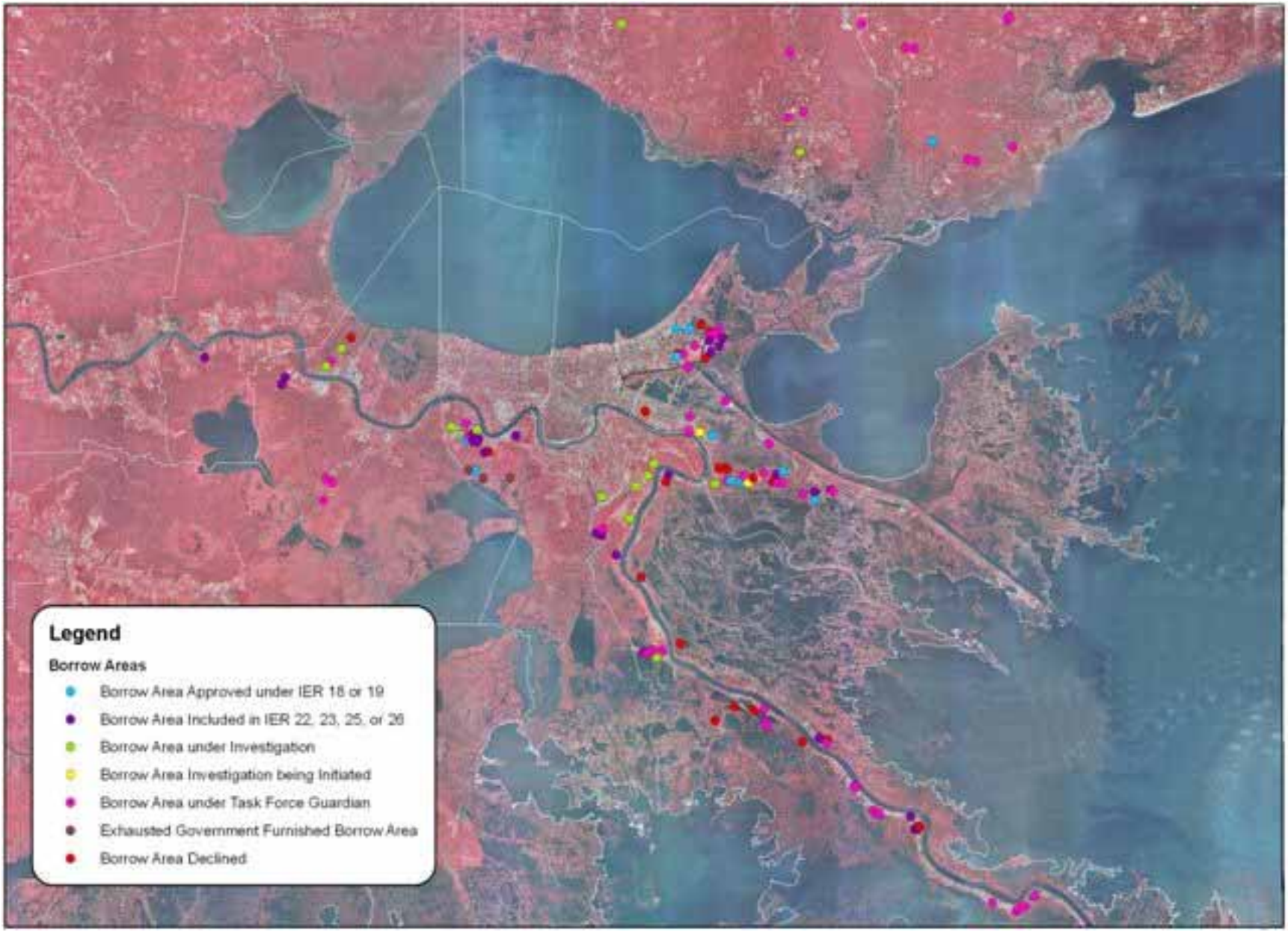
# Investigated Borrow-Site – System Wide



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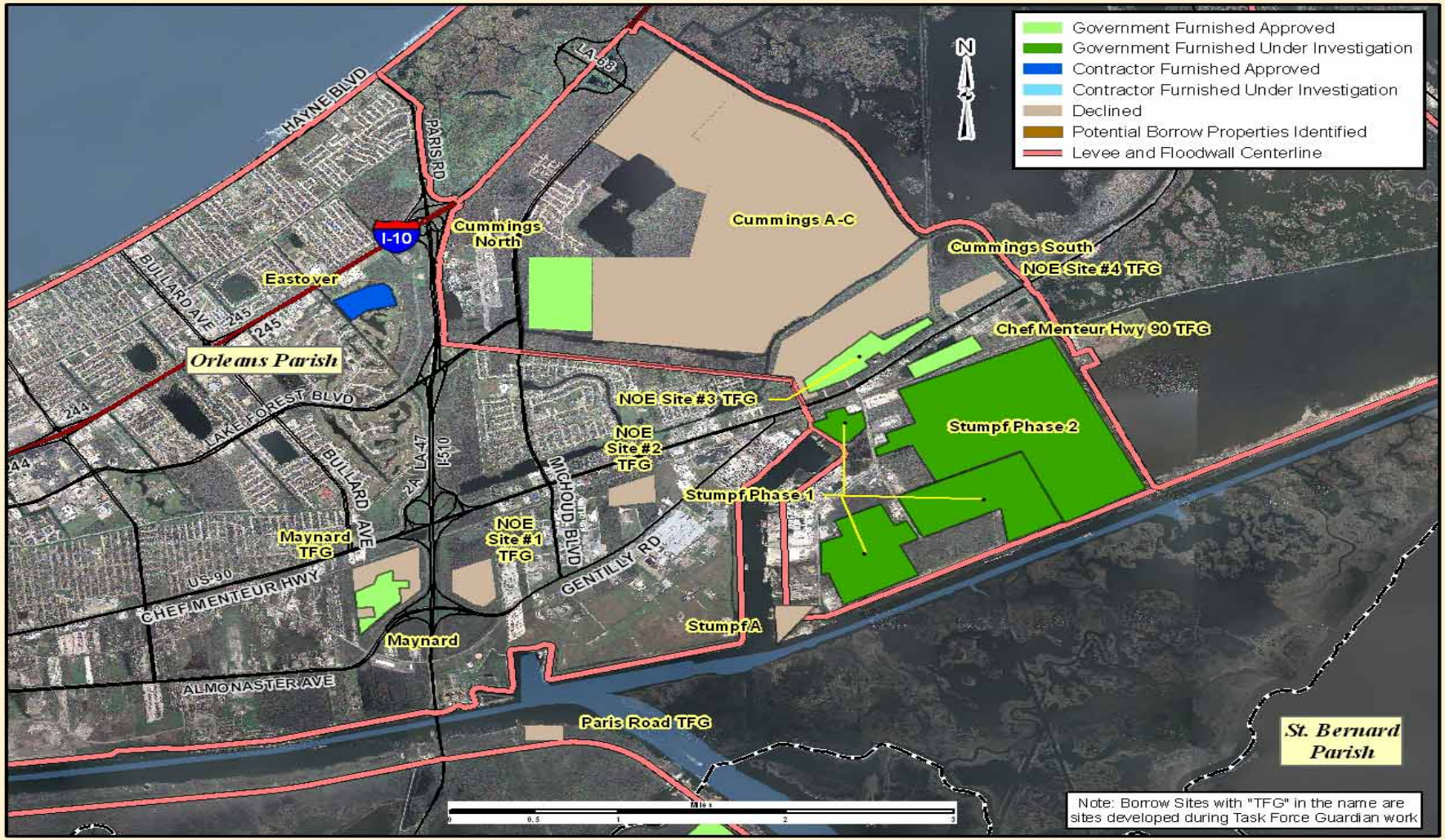
# NEW ORLEANS EAST - ORLEANS PARISH




Updated on 4/18/2008

Job No. EGIS-08-111

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# Neighborhood Borrow Maps:

# Cummings / Franklin Ave Baptist Church

7 MARCH 2008

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# Neighborhood Borrow Maps:
# Eastover

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# Neighborhood Borrow Maps:
# Maynard

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# Neighborhood Borrow Maps: Stumpf

7 MARCH 2008



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# Improving Hurricane Protection on the Inner Harbor Navigation Canal IER #11 Tier 2 Borgne

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# Project Purpose

Provide 100-year level of protection to the communities surrounding the Inner Harbor Navigation Canal (IHNC) from hurricane-induced storm surges by June 2011.

Provide advance measures by hurricane season 2009.

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# Where we've been

- IER #11 Tier 1 Decision Record signed March 14th
- Investigated alternatives for providing improved protection for the communities surrounding the IHNC

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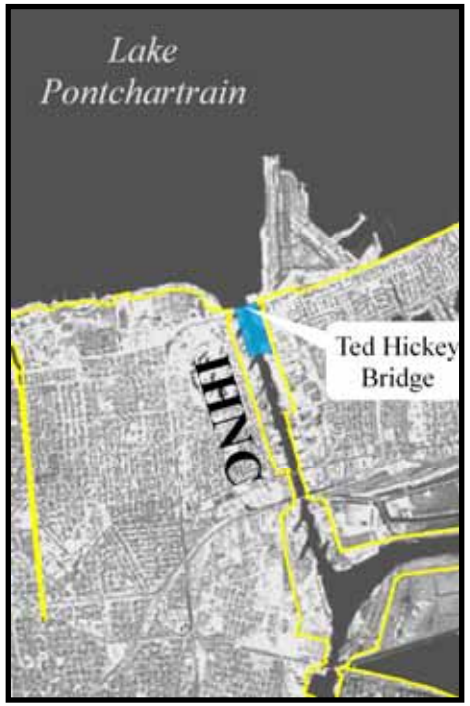
# Where we've been

- Selected "Storm Surge Protection Structures" alternative to protect from Lake Borgne surge and Lake Pontchartrain surge

- Selected "Pontchartrain 2" and "Borgne 1" location ranges

***Borgne 1***

***Pontchartrain 2***



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# IER #11 Tier 2: Where we're going

Two Tier 2 IERs

- **IER #11 Tier 2 Borgne:**
  Alignment and design alternatives within "Borgne 1"

- **IER #11 Tier 2 Pontchartrain:**
  Alignment and design alternatives within "Pontchartrain 2"
  (alternatives to be developed this summer)

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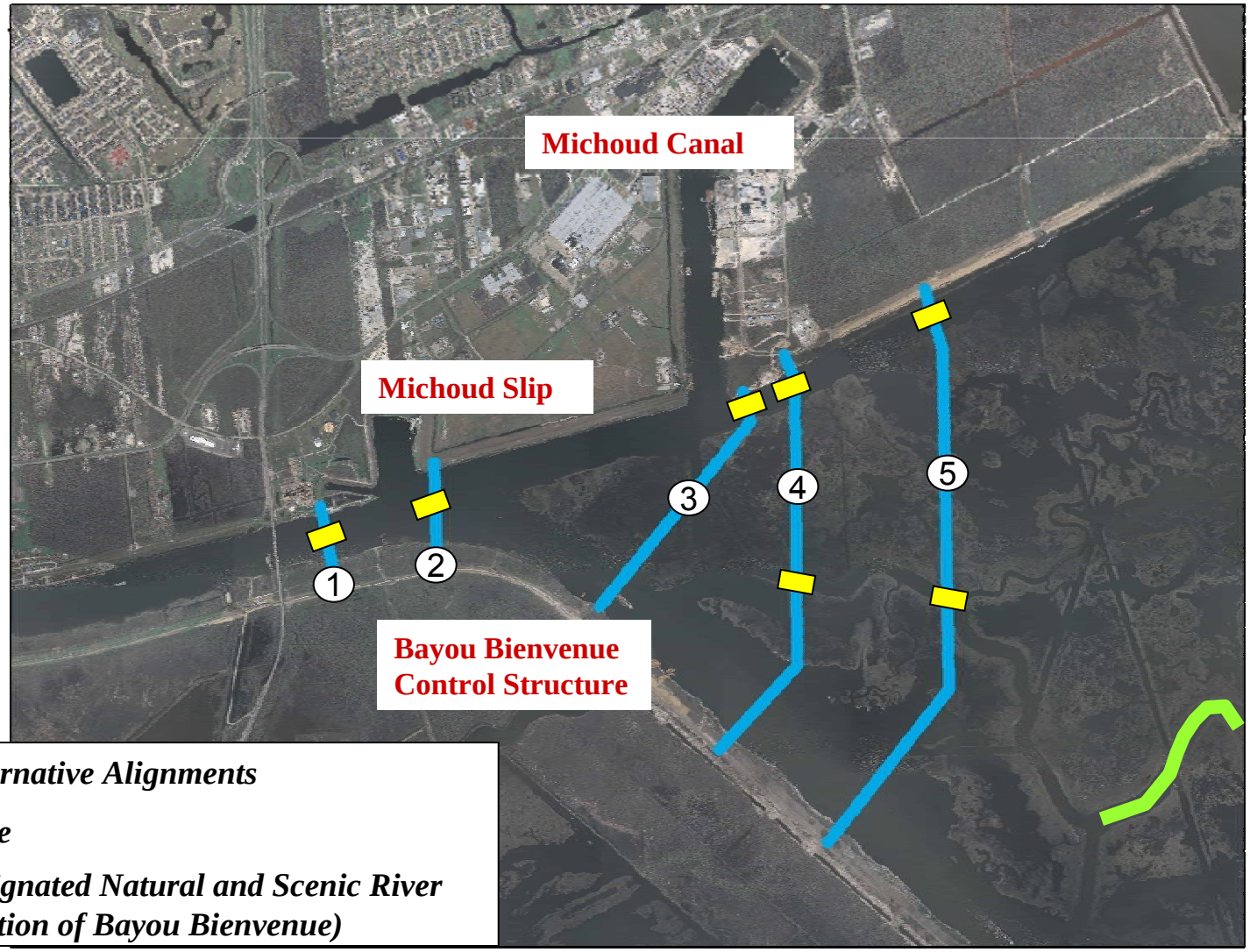
# IER #11 Tier 2 Borgne Alternative Alignments Overview




*Alternative Alignments*

*Gate*

*Designated Natural and Scenic River (portion of Bayou Bienvenue)*

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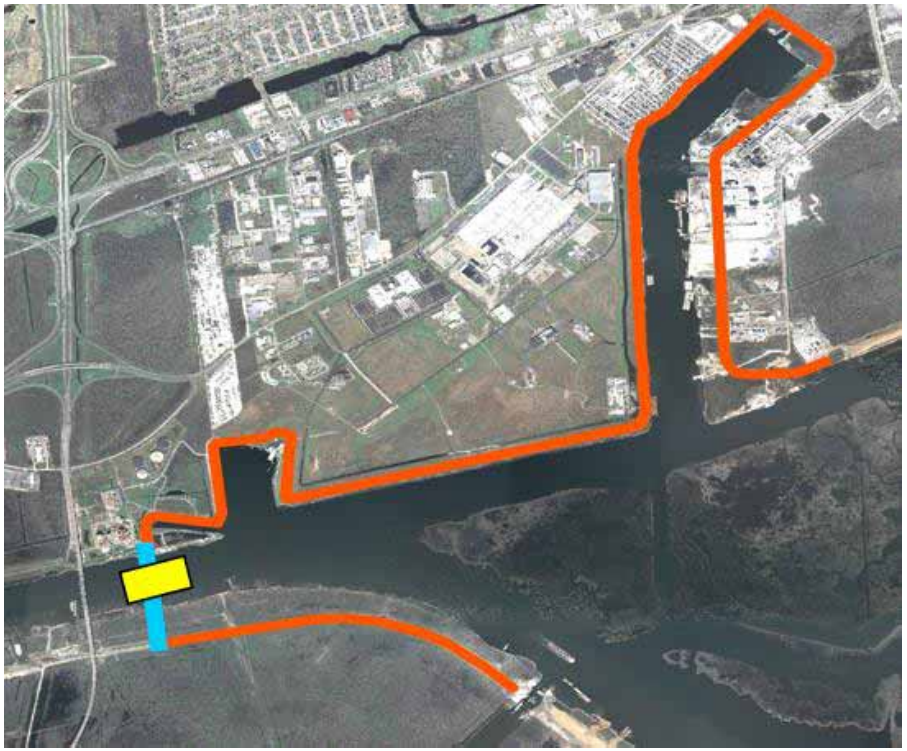
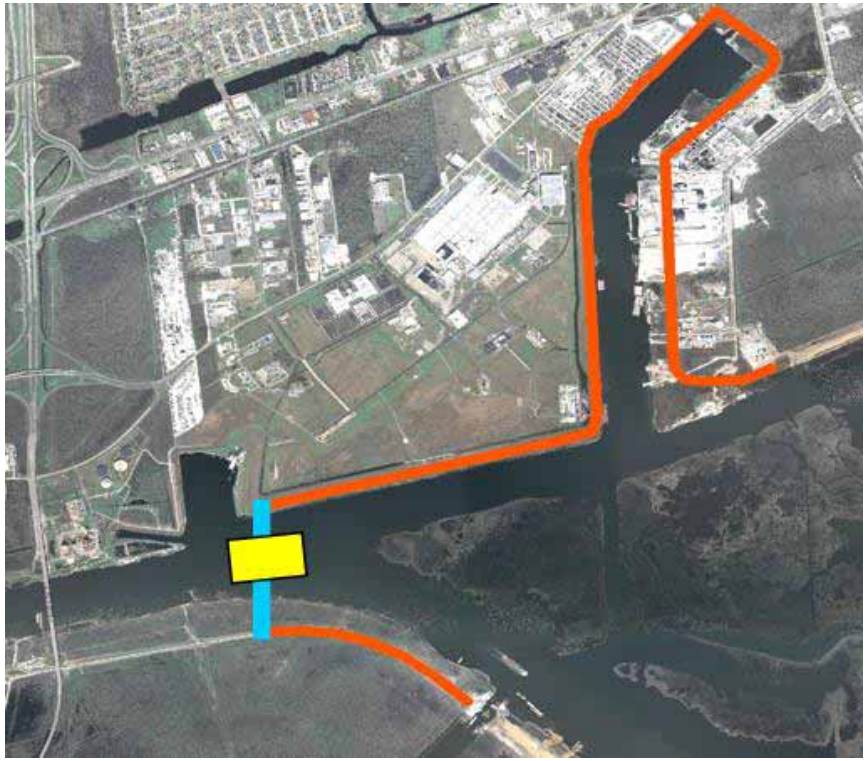
# IER #11 Tier 2 Borgne Alternative Alignments

## Alignment 1



## Alignment 2



- Levees & Floodwalls to be Raised
- Alternative Alignments
- Gate

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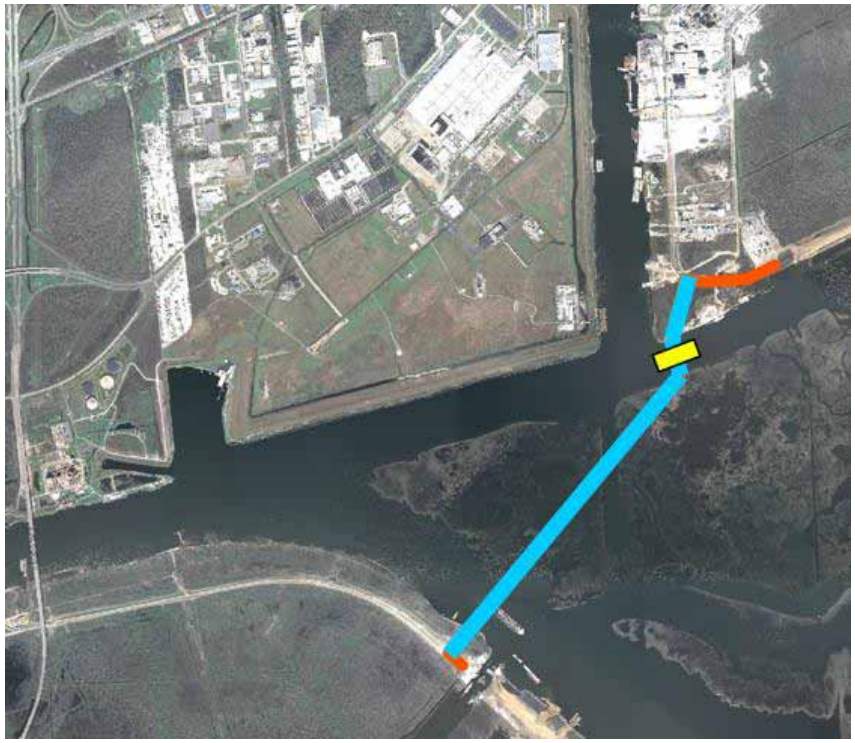
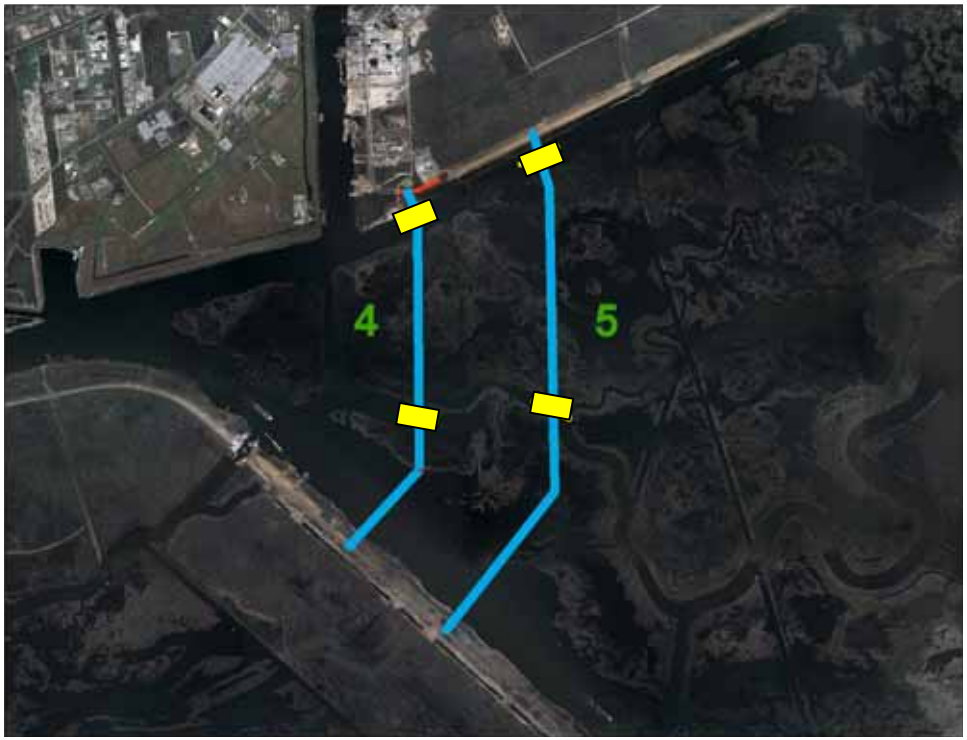
# IER #11 Tier 2 Borgne Alternative Alignments

## Alignment 3



## Alignment 4 & 5




- Levees & Floodwalls to be Raised
- Alternative Alignments
- Gate

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# Project Feature Alternatives

**Gate**

*(GIWW gate on all alternative alignments; Bayou Bienvenue gate on alternative alignments 4 & 5)*

**A. Vertical lift gate**

**B. Sector gate**

**C. Concrete barge gate**

**MRGO** Closure structure pending de-authorization

*(applicable to alternative alignments 3, 4 & 5)*

**A. Earthen closure**

**B. Sheet pile cells**

**C. Structural walls**

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# Project Feature Alternatives

**Barrier**

*(applicable to alternative alignments 3,4 & 5)*

**A-1. Traditional levee**

**A-2. Traditional levee with flow structures**

**B-1. Geotextile levee**

**B-2. Geotextile levee with flow structures**

**C-1. Structural wall**

**C-2. Structural wall with flow structures**

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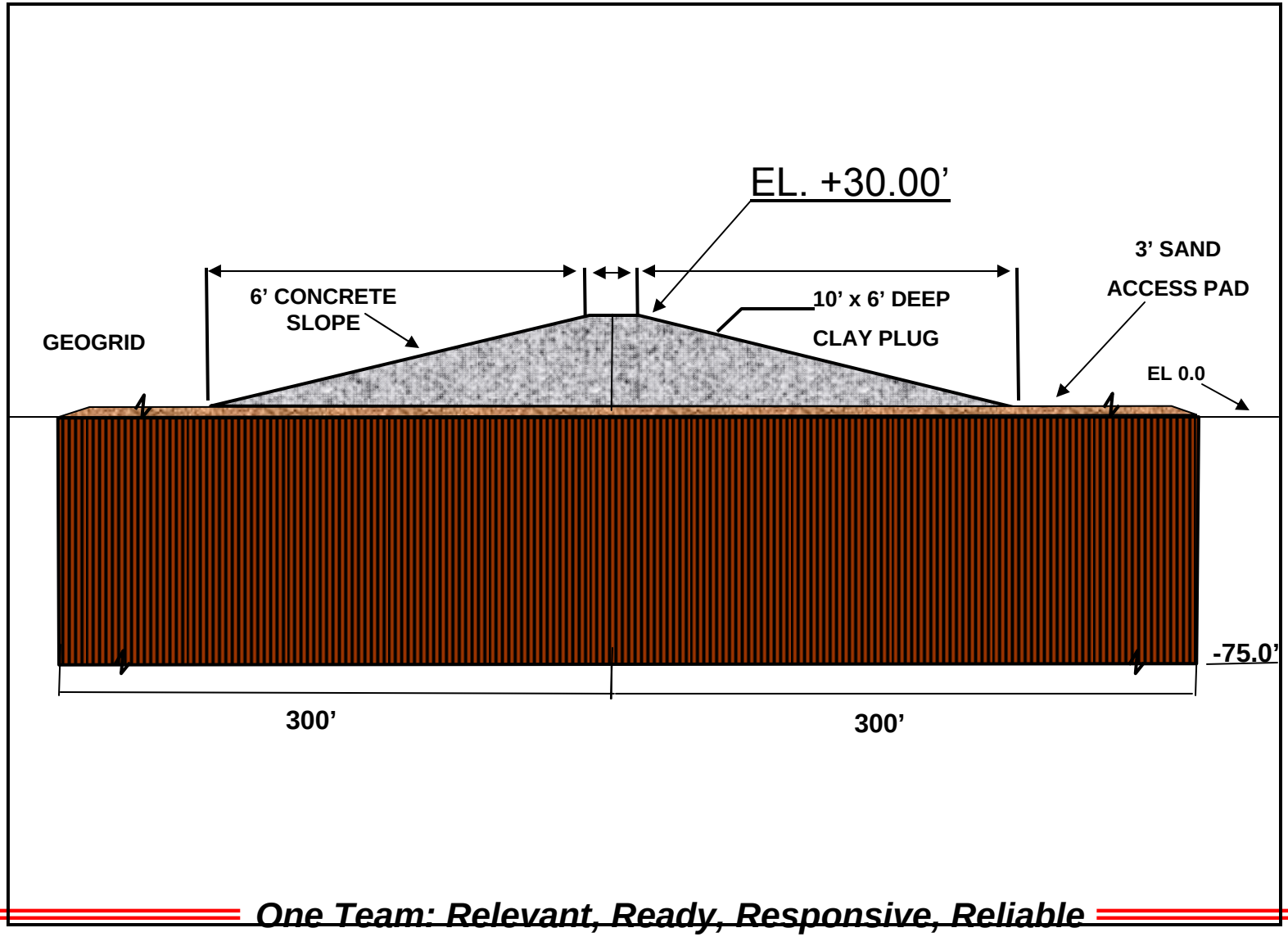
# IER #11 Tier 2
# Borgne Alternatives Geotextile levee



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# Opportunities for Public Input

- Monthly Public Meetings throughout New Orleans Metro Area
  - Make sure to sign in tonight to get on our meeting notification mailing list
- Comments can be submitted at any time at **www.nolaenvironmental.gov**
- Individual Environmental Reports (IER) 30-day Public Review

Questions and comments regarding Hurricane Protection Projects should be addressed to:


**Gib Owen**
**PM-RS**
**P.O. Box 60267**
**New Orleans, LA 70160-0267**
**Telephone: 504-862-1337**

**E-mail: mvnenvironmental@usace.army.mil**

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# NOLA Environmental

NEW ORLEANS, LOUISIANA

Environmental Compliance Data Bank

www.nolaenvironmental.gov

PROJECTS | MEETINGS | LIBRARY | DATA VIEWER | GET INVOLVED | RELATED LINKS

**Welcome to NOLA Environmental!** This site has been set up to share with the public the efforts being made by the U.S. Army Corps of Engineers and other Federal and state agencies in south Louisiana regarding the environmental compliance for proposed Federal and state Hurricane Protection Projects. Additional information pertaining to other Federal and state agencies' hurricane recovery efforts in southeast Louisiana will also be posted on the site as it becomes available. Learn more...

## Announcements

- IER 1 Draft Public Comment Period 4/29 - 5/28
- IER 15 Draft Public Comment Period 4/28 - 5/28
- IER 22 Draft Public Comment Period: 4/01 - 4/30
- The Decision Record for **IER 11** has been signed by the District Commander: Final IER 11 *(News Release)*
- The Decision Records for **IER 18** and **IER 19** have been signed by the District Commander

## Upcoming

- 04/29/2008 - Public Meeting (IERs 6 7 11 & Borrow)
- 04/29/2008 - IER 1 Draft Public Comment Period Begins

More...

## Newly Available

- IER 1 DRAFT La Branch Wetlands Levee St. Charles Parish 29 April 08
- Ad - IER 1 Notice of Availability 29 April 08

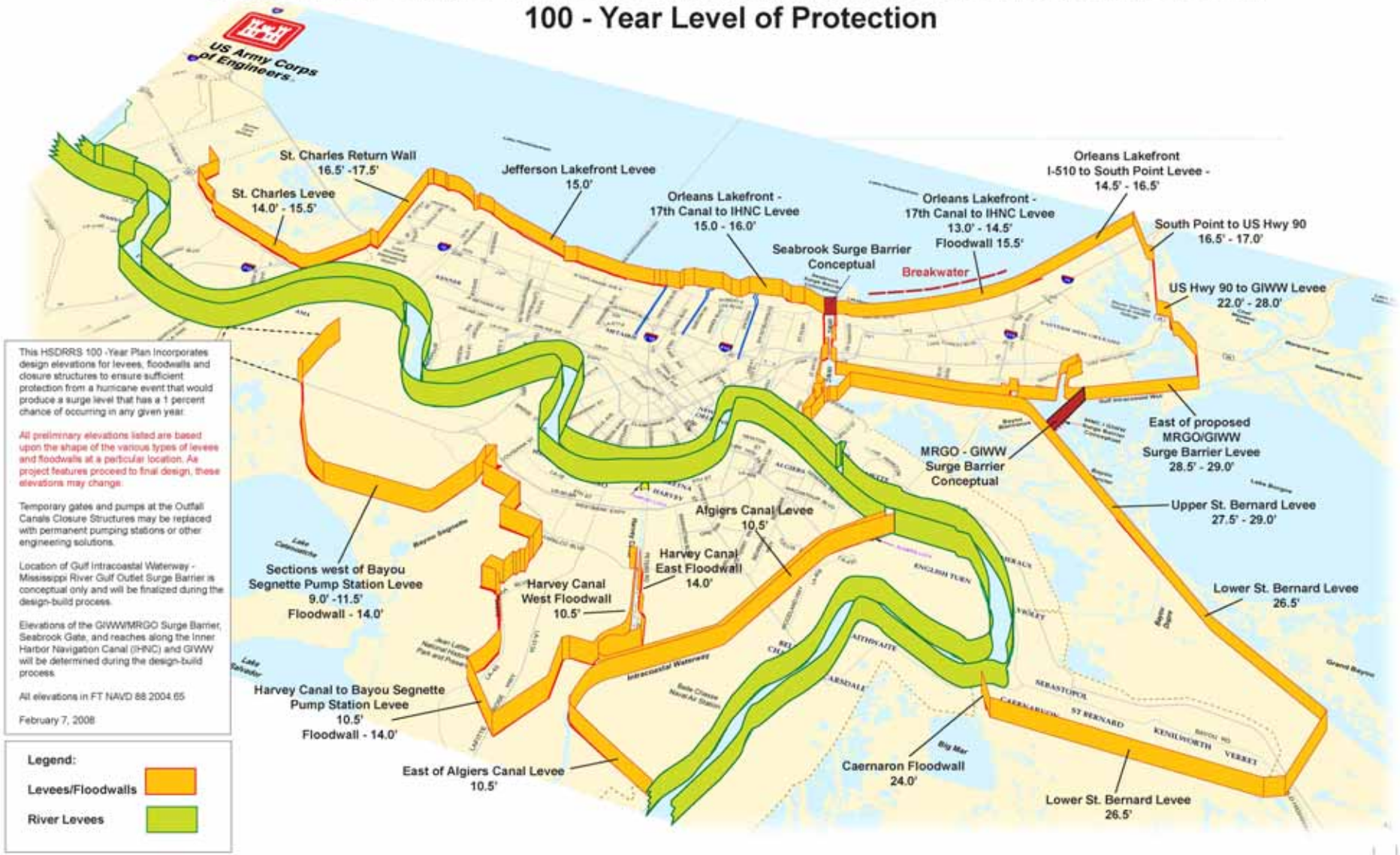
More...

## FEATURED PROJECT

USACE-MVN Emergency Alternative Arrangements
Greater New Orleans
Hurricane and Storm Damage
Risk Reduction System Projects

# Back-up Slides

# Greater New Orleans Hurricane and Storm Damage Risk Reduction System
## 100 - Year Level of Protection



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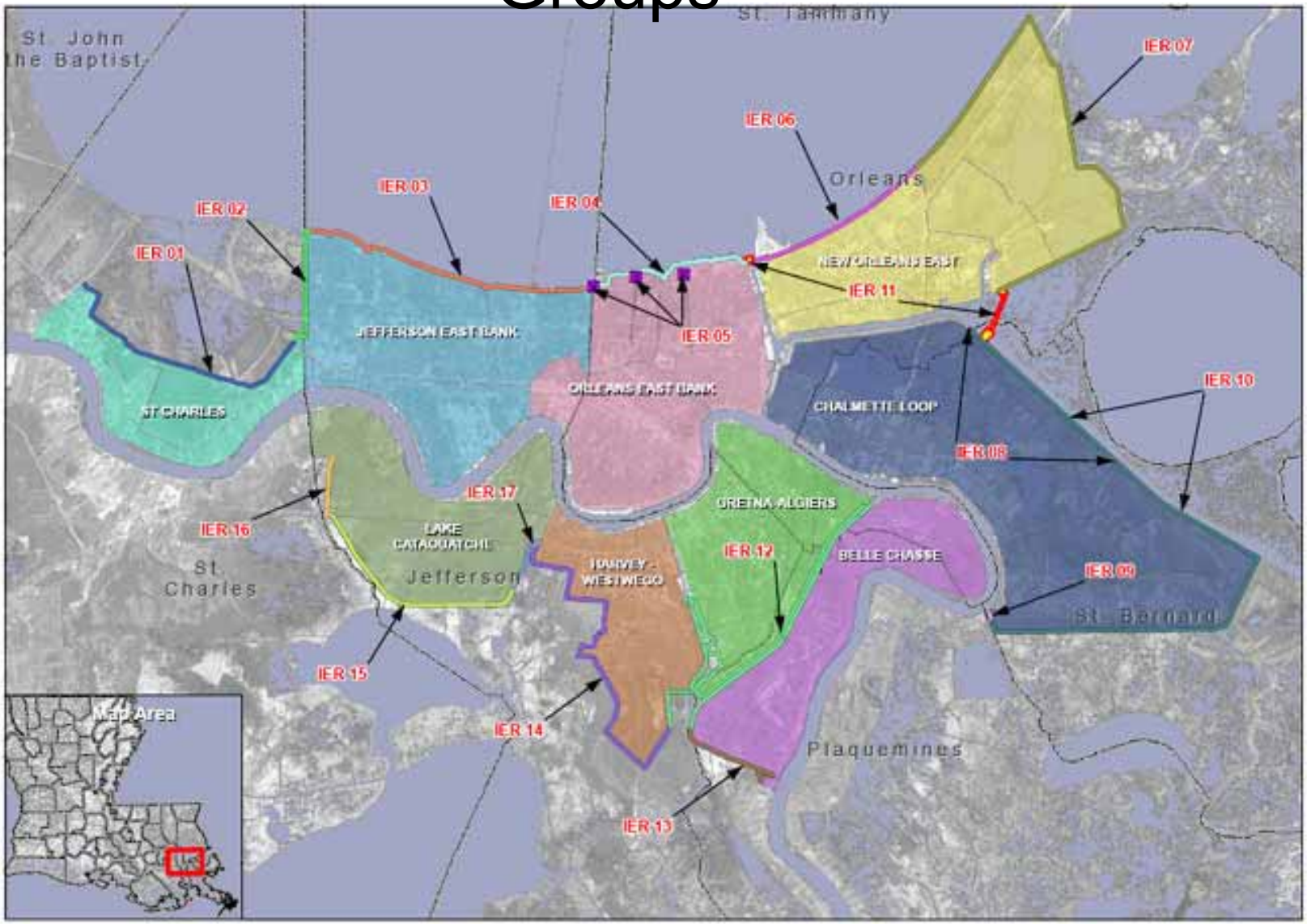
# Sub Basins and Representative Project Groups



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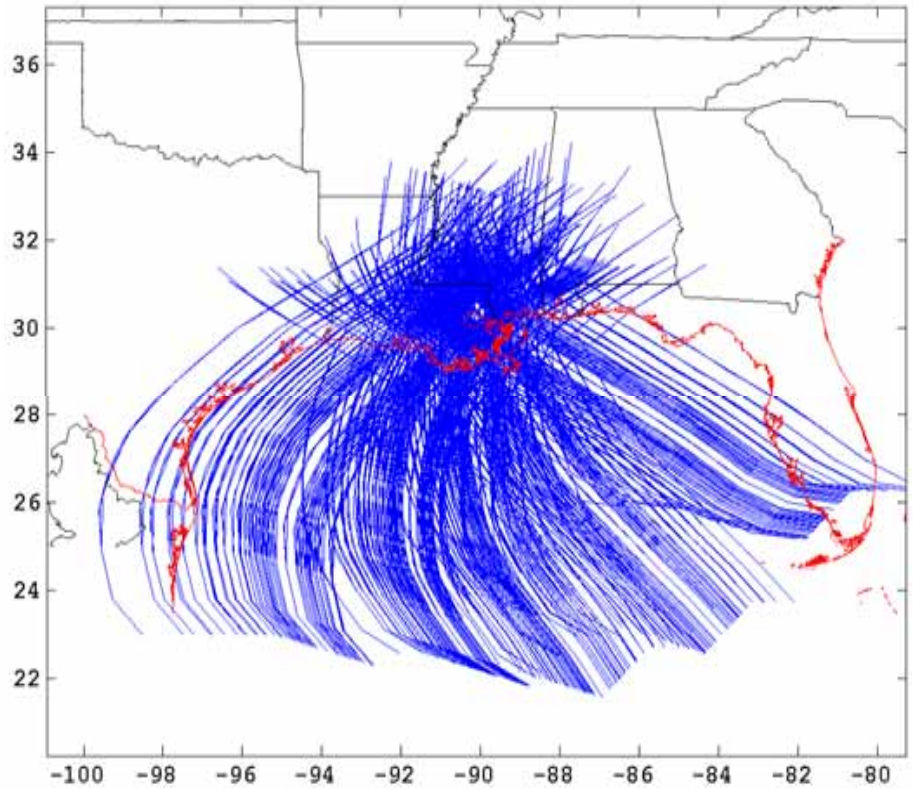
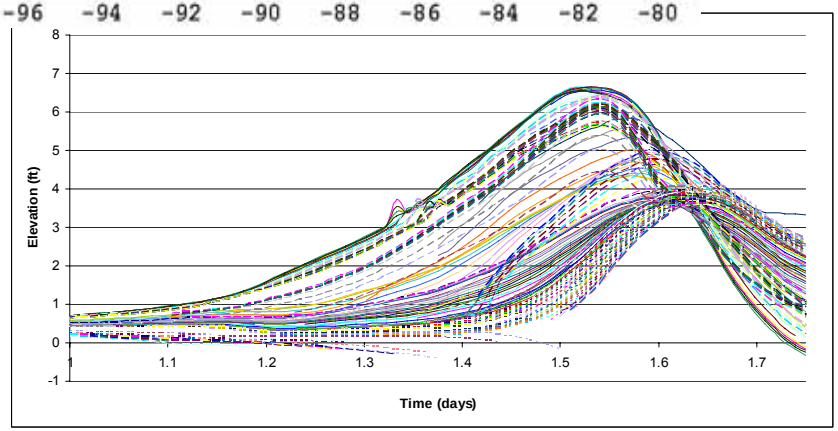
# Hurricane Paths Considered in the Risk Analysis




- *3 HPS Geometries*
  - *Pre-Katrina*
  - *Current (1 June 07)*
  - *100-year LOP (~2011)*
- *152 storm hydrographs*
- *350+ features*
  - *Floodwalls*
  - *Levees*
  - *Pumps Stations*

→ **62,928 Hurricane**
→ **Hydrographs**

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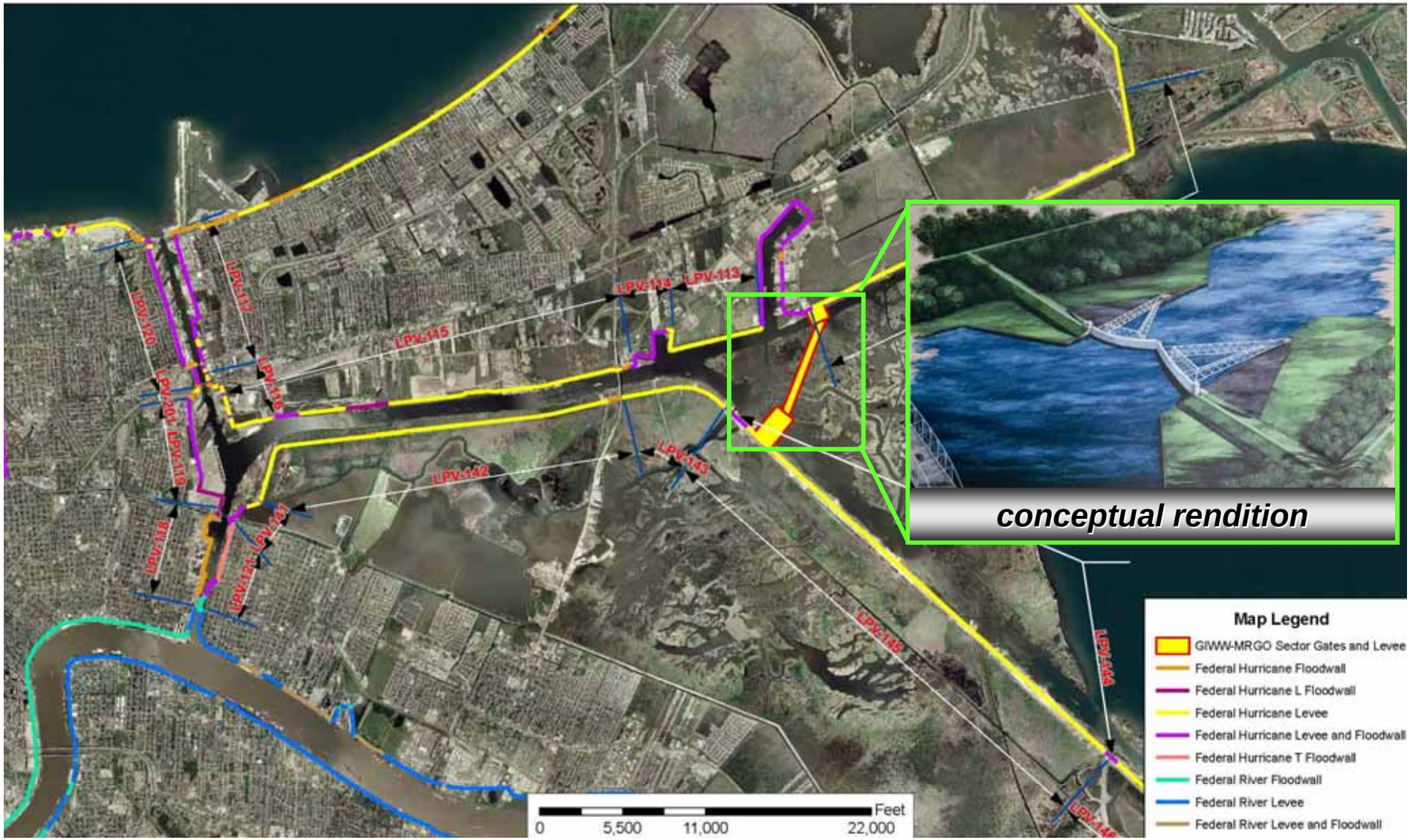
# IHNC Surge Protection

***cost $500 Million to $1 Billion***

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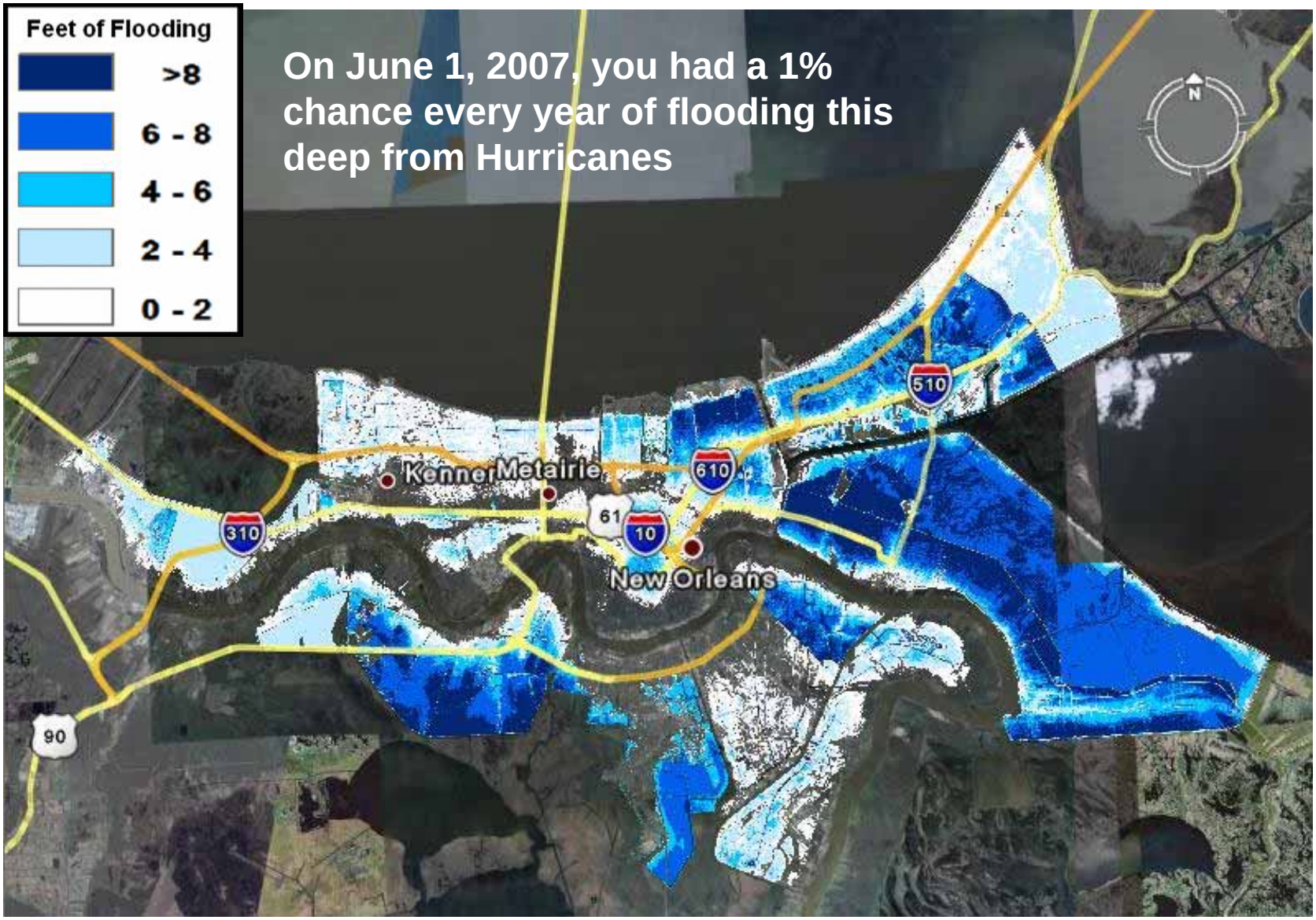
# Current Flood Risk



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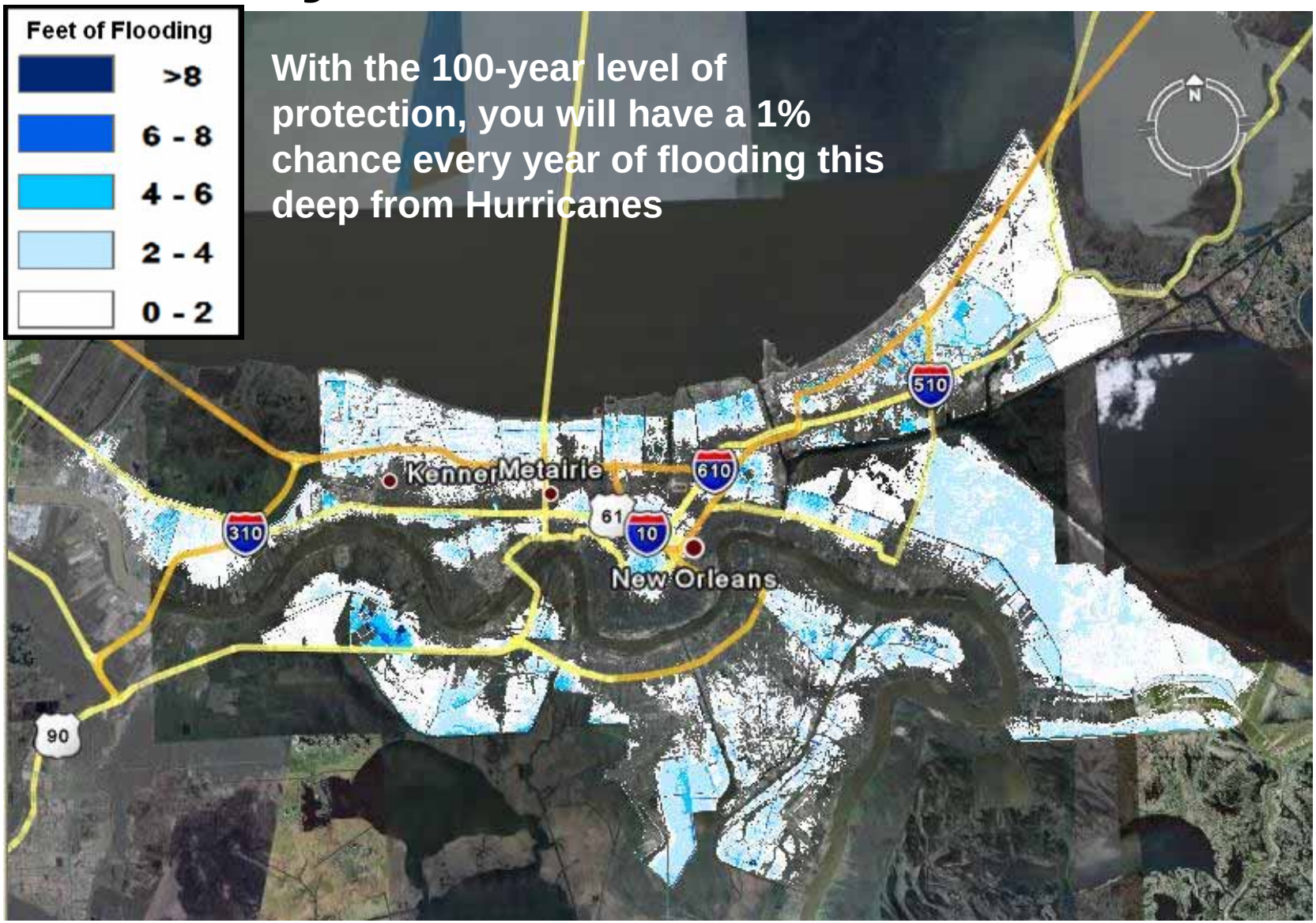
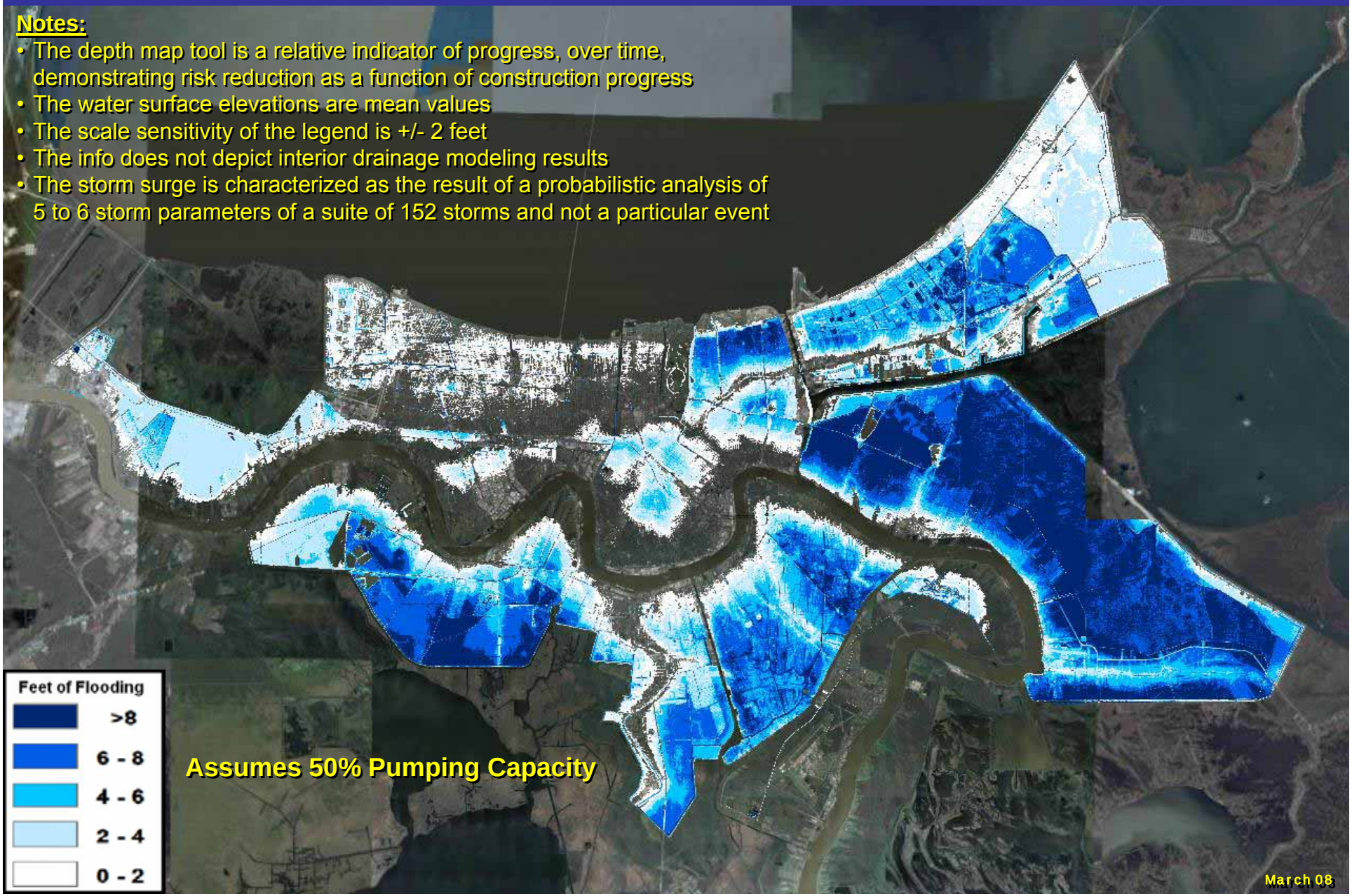
# 100-year Protection Flood Risk



# On June 1, 2007, you had a 1% chance every year of flooding this deep from Hurricanes



# With the 100-year level of protection, you have a 1% chance every year of flooding this deep from Hurricanes