



---

2023 COASTAL MASTER PLAN  
*COMMITTED TO OUR COAST*

# LOUISIANA'S 2023 COASTAL MASTER PLAN

**STUART BROWN**



**JANUARY 2023**

**[COASTAL.LA.GOV/OUR-PLAN](https://coastal.la.gov/our-plan) | [MASTERPLAN@LA.GOV](mailto:MASTERPLAN@LA.GOV)**

# PUBLIC COMMENTS

ACCEPTED THROUGH MARCH 25, 2023

## In-Person

- Public comment cards and statement request cards are available to submit comment

## Email

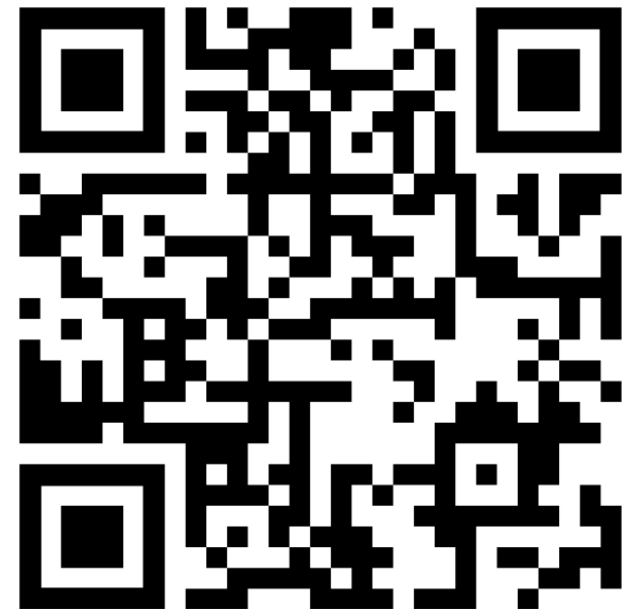
- Send with “Public Comment” in the subject line to [masterplan@la.gov](mailto:masterplan@la.gov)

## Online

- Submit comments online using the QR Code

## Mail

- Send comments to:  
Master Plan Public Comment  
150 Terrace Avenue  
Baton Rouge, LA 70802



\* Note that letters must be postmarked to arrive by March 25, 2023







# WHAT'S AT STAKE?



Photo courtesy of Lindsey Janies Photography  
2023 COASTAL MASTER PLAN

All photos courtesy of Louisiana Sea Grant unless otherwise noted



# WHAT'S AT STAKE?



Photo courtesy of Chuck Simmins



Photo courtesy of Alysha Jordan



Photo courtesy of Jocelyn Augustino



Photo courtesy of Louisiana Sea Grant



Photo courtesy of Louisiana Sea Grant



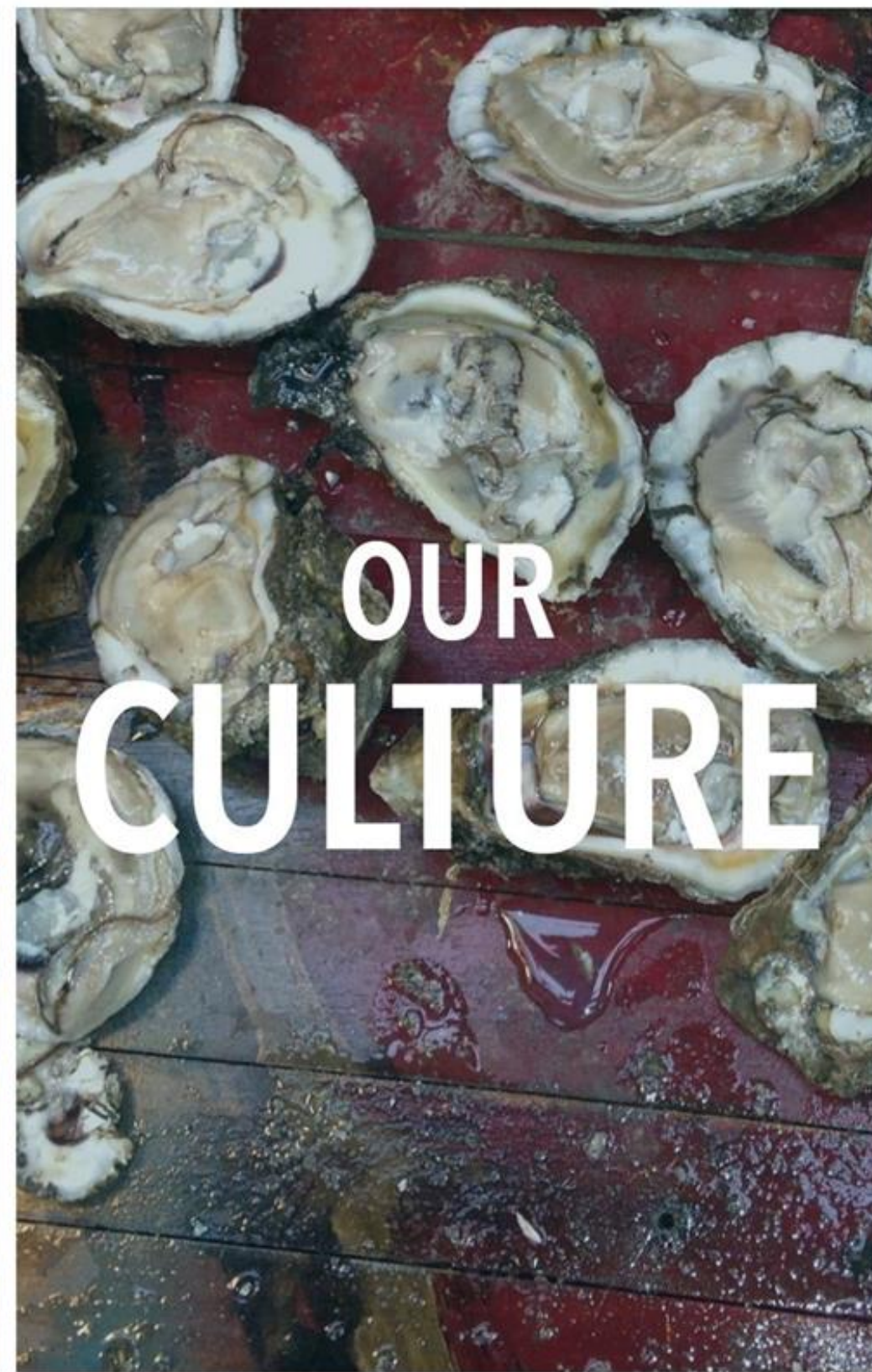
# WHAT IS THE COASTAL MASTER PLAN?

SCIENCE-BASED, STAKEHOLDER INFORMED

- Prioritization effort
  - How can the state spend its money most cost-effectively over the next 50 years to reduce storm surge-based flood risk and restore and maintain coastal wetlands?
- Developed through a process that ensures adaptive management
  - Required by law to be updated every 6 years
- Built on world class science and engineering
- Advances a comprehensive and integrated approach to restoration and risk reduction
- Incorporates extensive public input and review
- Illustrates how people and communities will experience a changing coast to allow preparation and adaptation into the future.



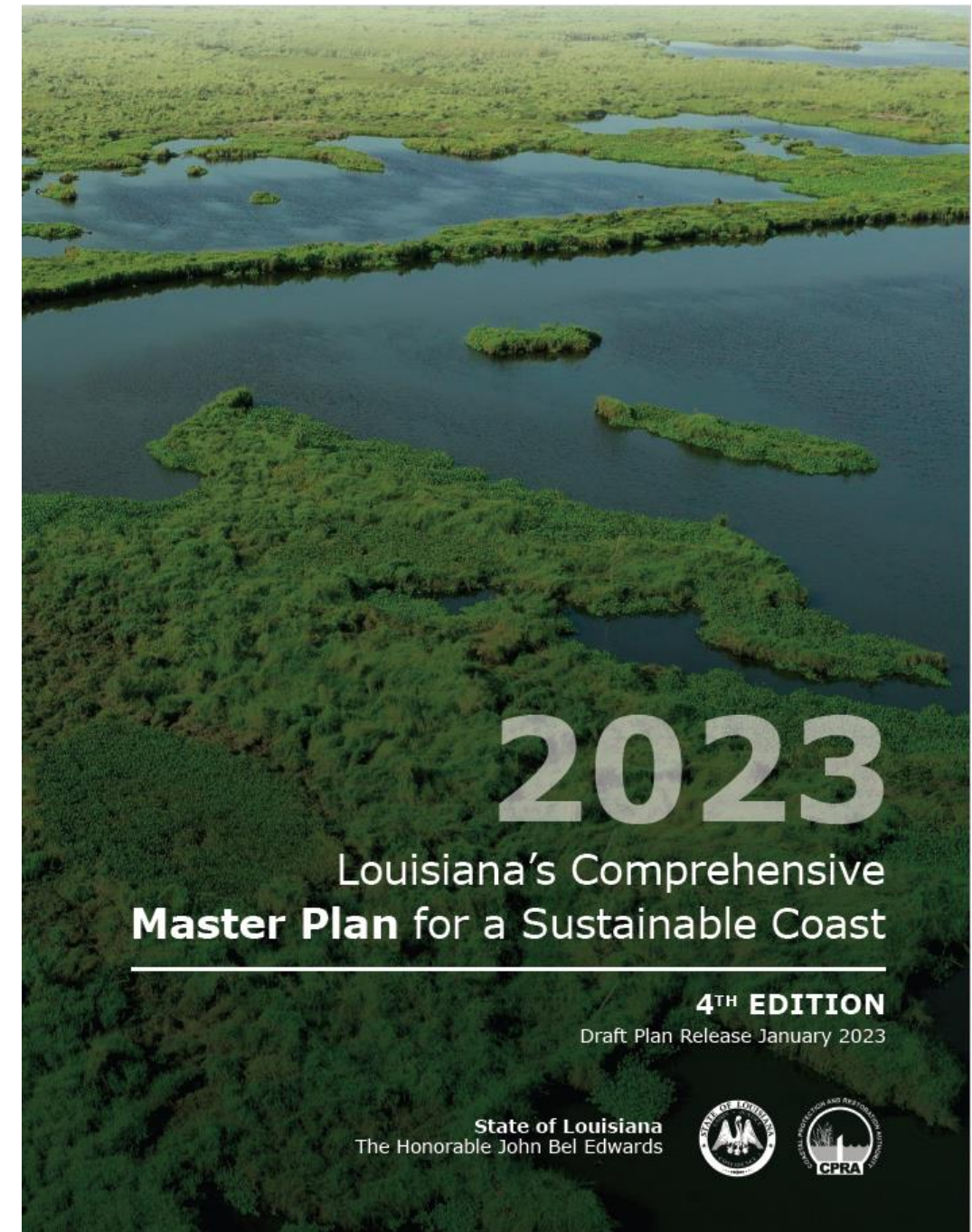






# UPCOMING MASTER PLAN SCHEDULE

- Draft Plan Released January 6th
- Public Comment Period January 6th through March 25<sup>th</sup>
- Public Hearings (4) - January 31st - February 16th
- Revised Plan, incorporating public comments, presented to CPRA Board for approval - April 19th
- Submit Draft Final Plan to Legislature following CPRA Board approval



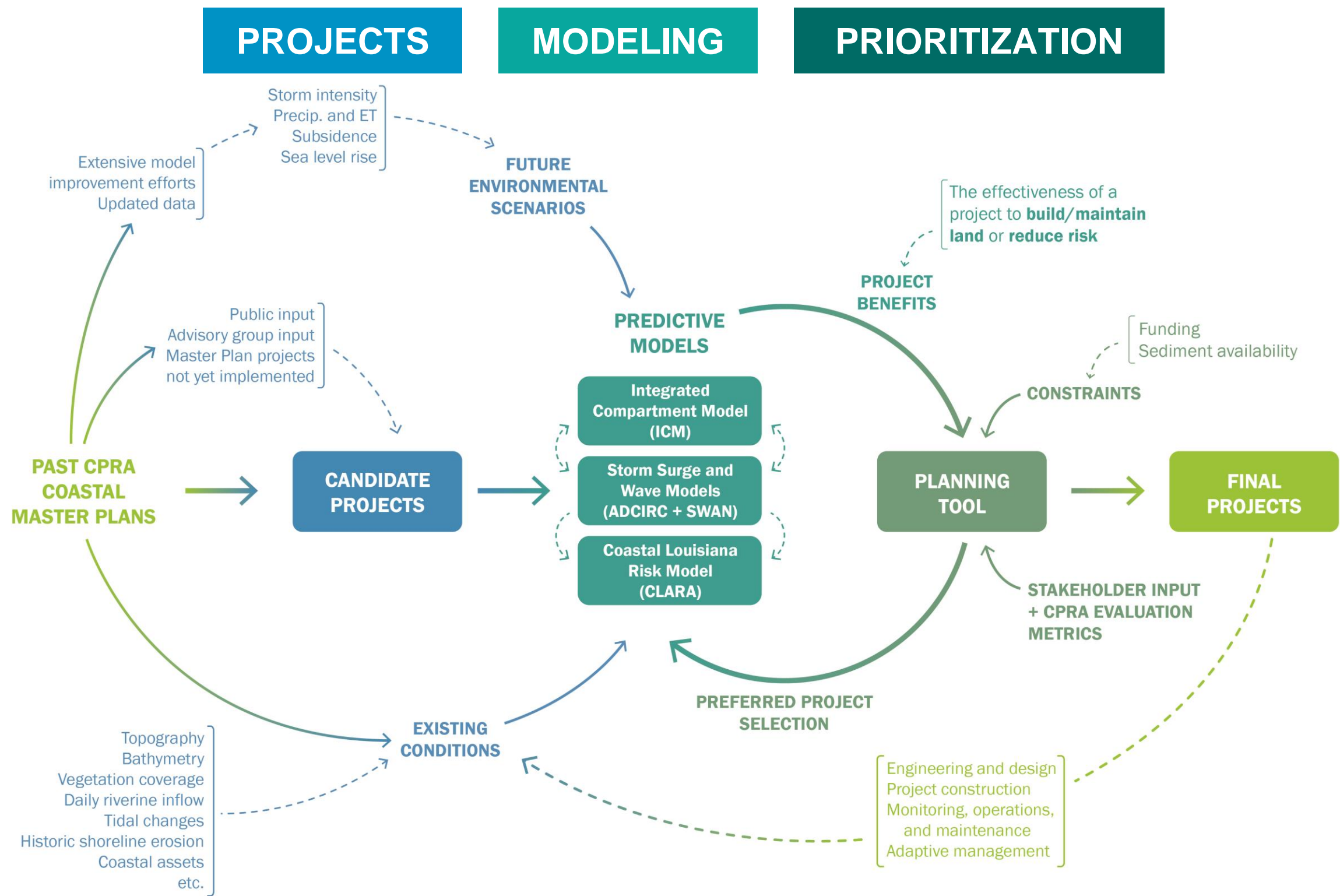


A scenic view of a coastal waterway. In the foreground, there's a body of blue water with some ripples. To the left, there's a patch of tall, dry, yellowish-brown reeds or marsh grass. In the middle ground, a white boat with a green stripe and a black outboard motor is moving from right to left, leaving a white wake. The background features a line of green trees and a clear blue sky with some light clouds. A dark green rectangular box is overlaid on the center of the image, containing the text 'THE 2023 MASTER PLAN PROCESS' in white, bold, sans-serif capital letters.

# THE 2023 MASTER PLAN PROCESS



# MASTER PLAN PROCESS





# MASTER PLAN PROCESS

## PROJECT SELECTION FRAMEWORK

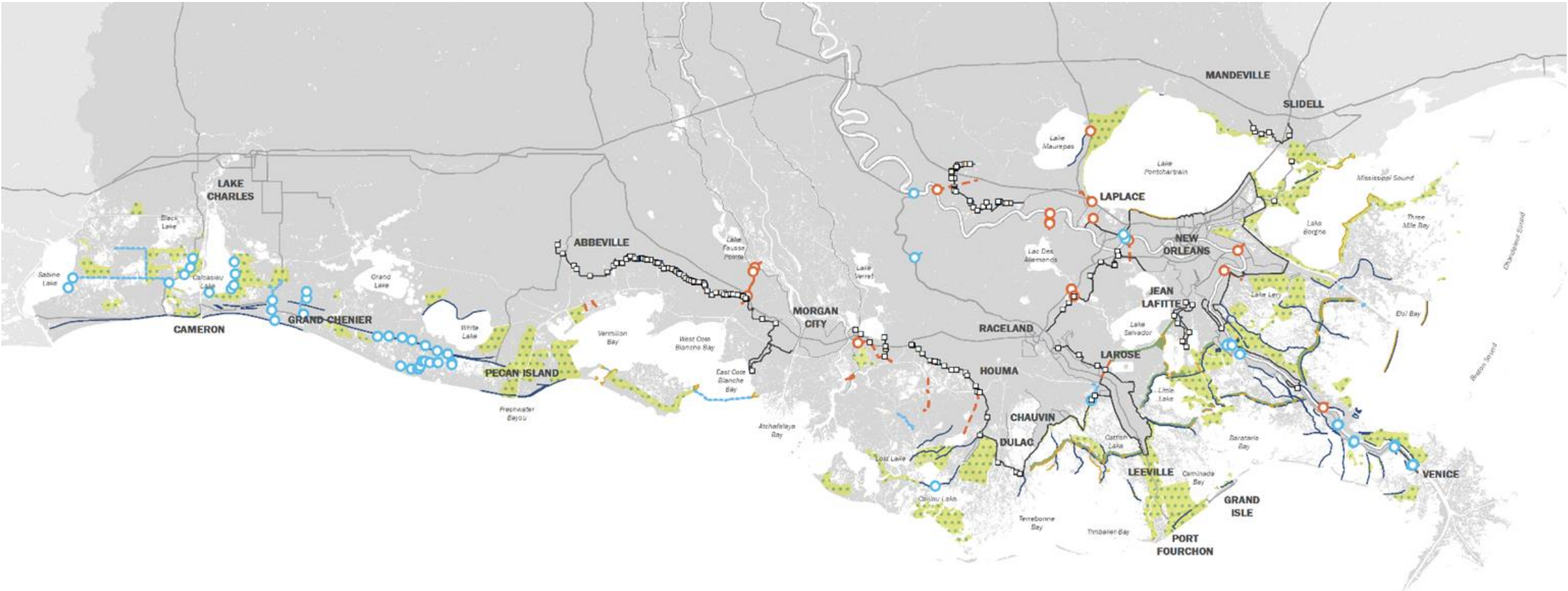
PROJECTS



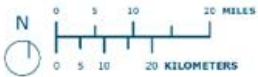
MODELING



PRIORITIZATION  
(Planning Tool)



## 2023 COASTAL MASTER PLAN CANDIDATE PROJECTS





## PROJECT SELECTION FRAMEWORK





# MASTER PLAN PROCESS

## PROJECT SELECTION FRAMEWORK

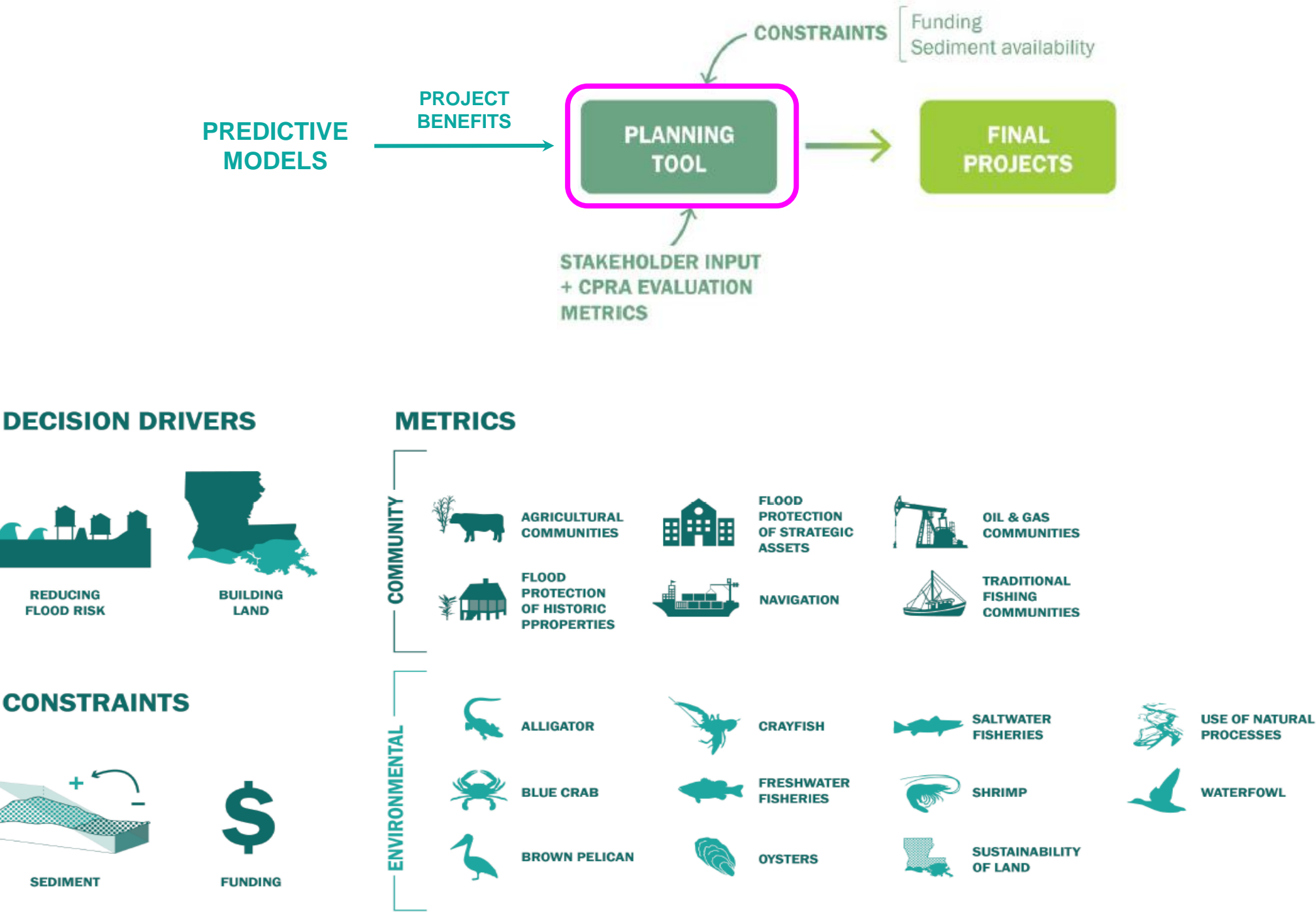
PROJECTS



MODELING



PRIORITIZATION  
(Planning Tool)





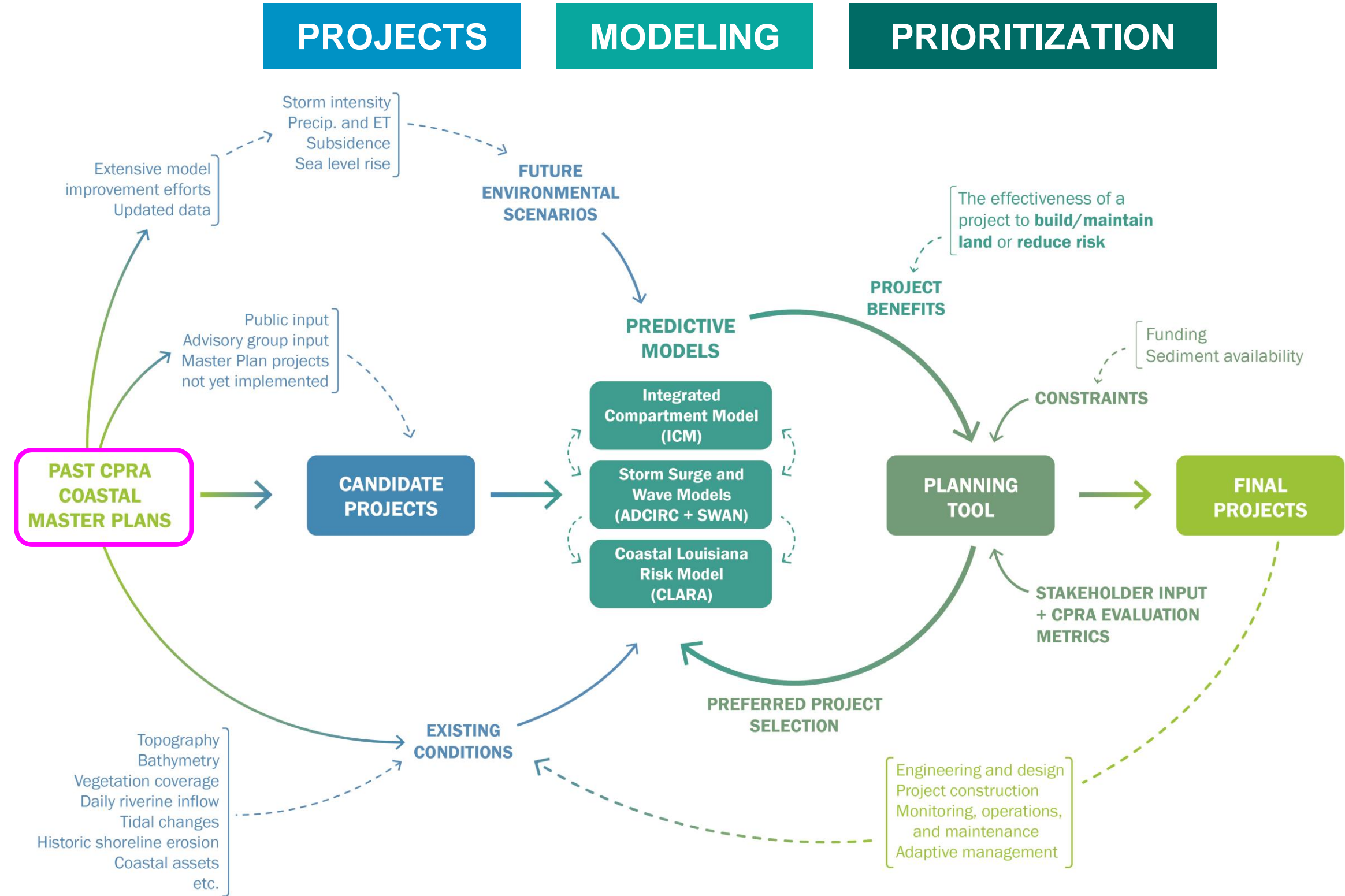
A scenic view of a coastal wetland. In the foreground, there's a body of water with a small boat on the right side. The boat is white with green accents and has a net or trap system attached to its stern. It's moving through the water, leaving a small wake. To the left of the boat, there's a large clump of tall, dry, yellowish-brown reeds or grasses. In the background, there's a line of green trees and a body of water under a blue sky with some light clouds. A dark green rectangular box with white text is overlaid in the center of the image.

# **WHAT'S NEW IN THE 2023 PLAN**



# MASTER PLAN PROCESS OVERVIEW

ADAPTIVE MANAGEMENT





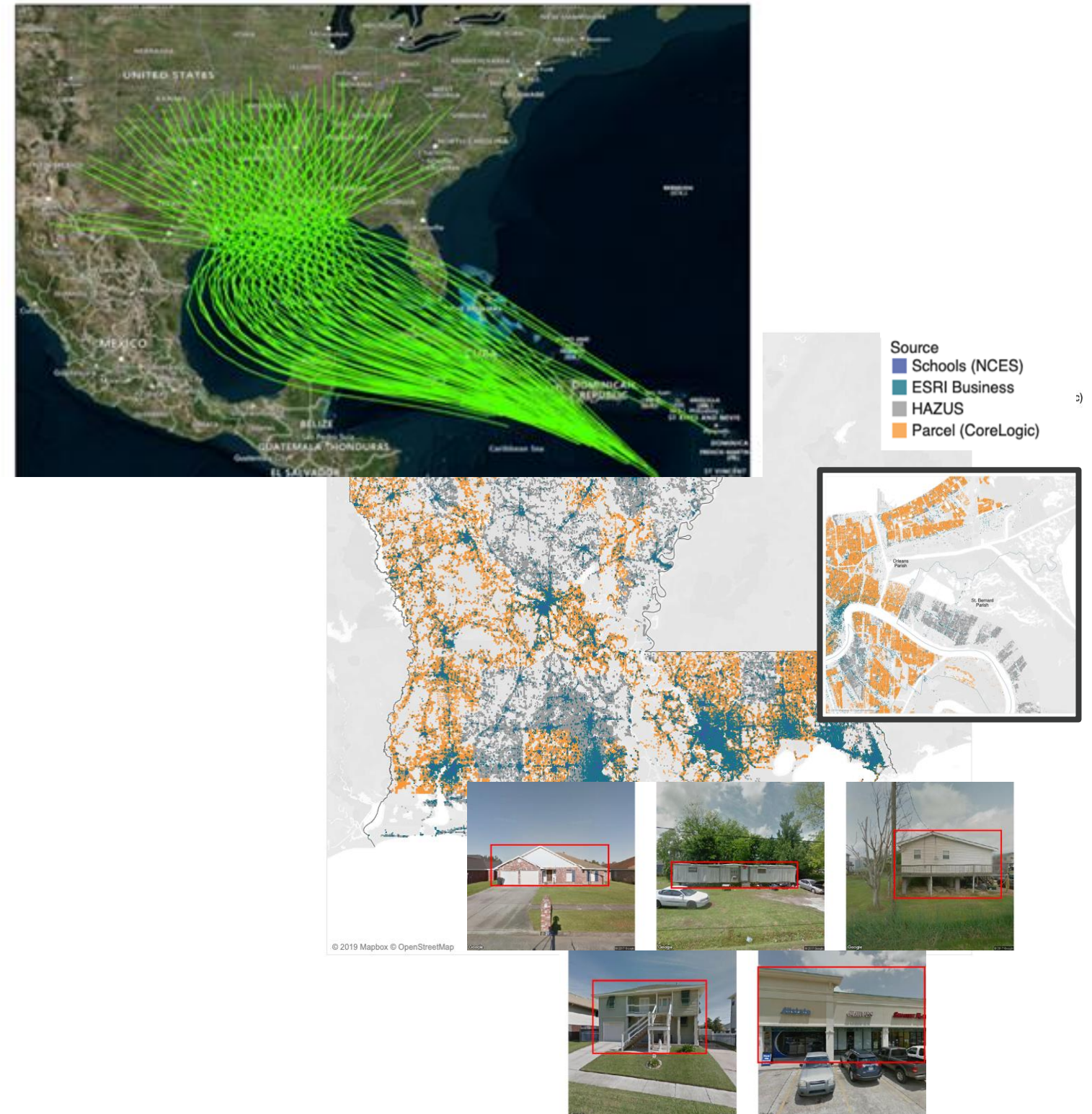
# MASTER PLAN PROCESS

## ADAPTIVE MANAGEMENT, 2023 IMPROVEMENTS

### Incorporating best available science **Examples**

- **Input Data**
  - Landscape inputs
  - Storm suite
  - Asset database
- **Modeling Improvements**
  - Hydrologic resolution
  - Vegetation response
- **Environmental Drivers (Scenarios)**
  - Reduced uncertainty
    - Subsidence
    - Climate uncertainty
      - Sea level rise
  - Co-varying climate driven variables

2023 MP





# MASTER PLAN PROCESS

## ADAPTIVE MANAGEMENT, 2023 IMPROVEMENTS

### Incorporating best available science **Examples**

- Input Data
  - Landscape inputs
  - Storm suite
  - Asset database
- **Modeling Improvements**
  - Hydrologic resolution
  - Vegetation response
- Environmental Drivers (Scenarios)
  - Reduced uncertainty
    - Subsidence
    - Climate uncertainty
      - Sea level rise
  - Co-varying climate driven variables

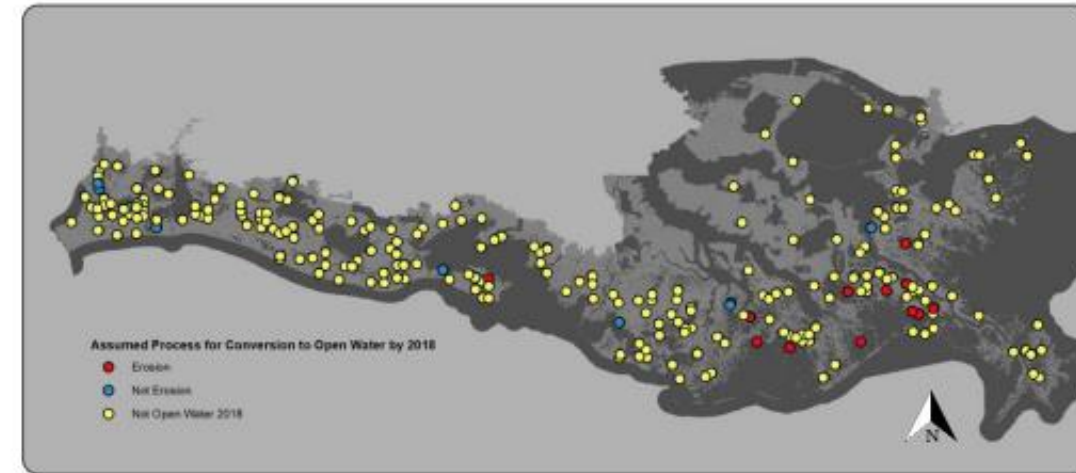
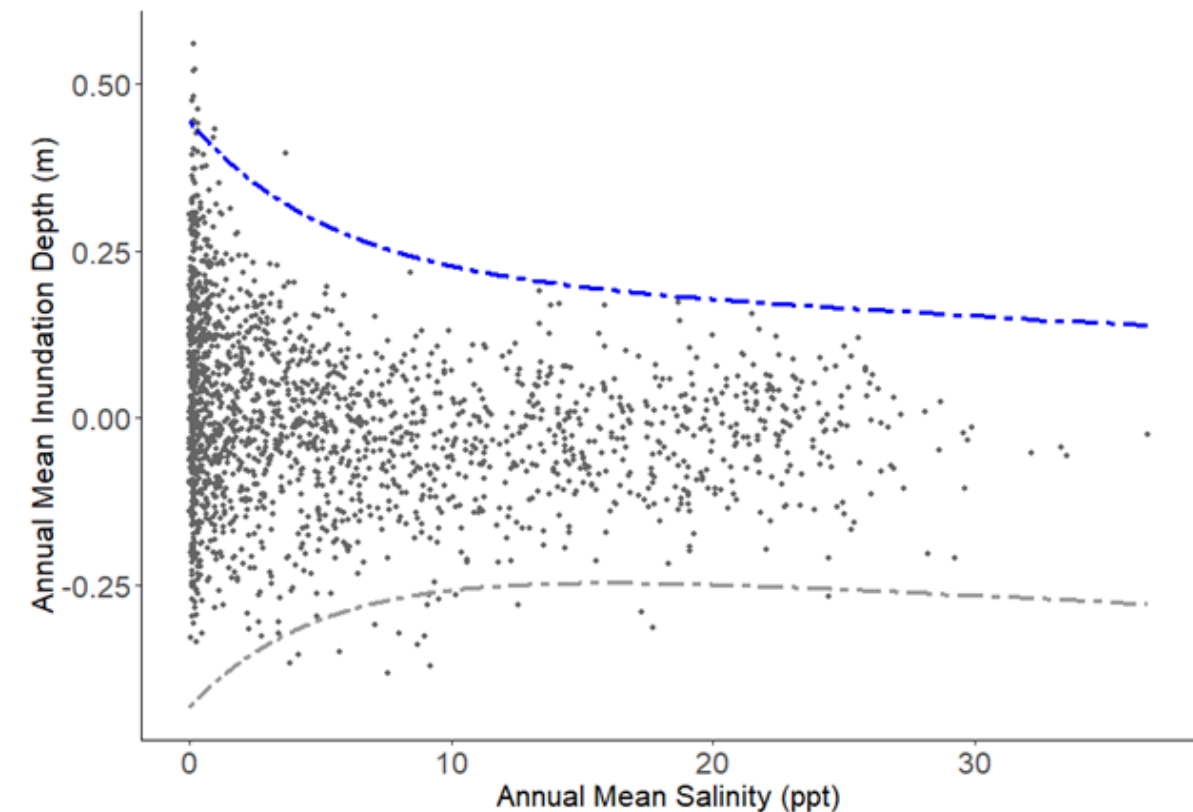


Figure A5. CRMS sites assessed for this exercise with an indication of whether permanent vegetation loss occurred prior to 2018 and which of those are thought to be due to erosion.



Relationship (from CRMS data analysis) used to define water depth limitation Lines are the 0.5<sup>th</sup> (gray) and 99.5<sup>th</sup> percentiles.

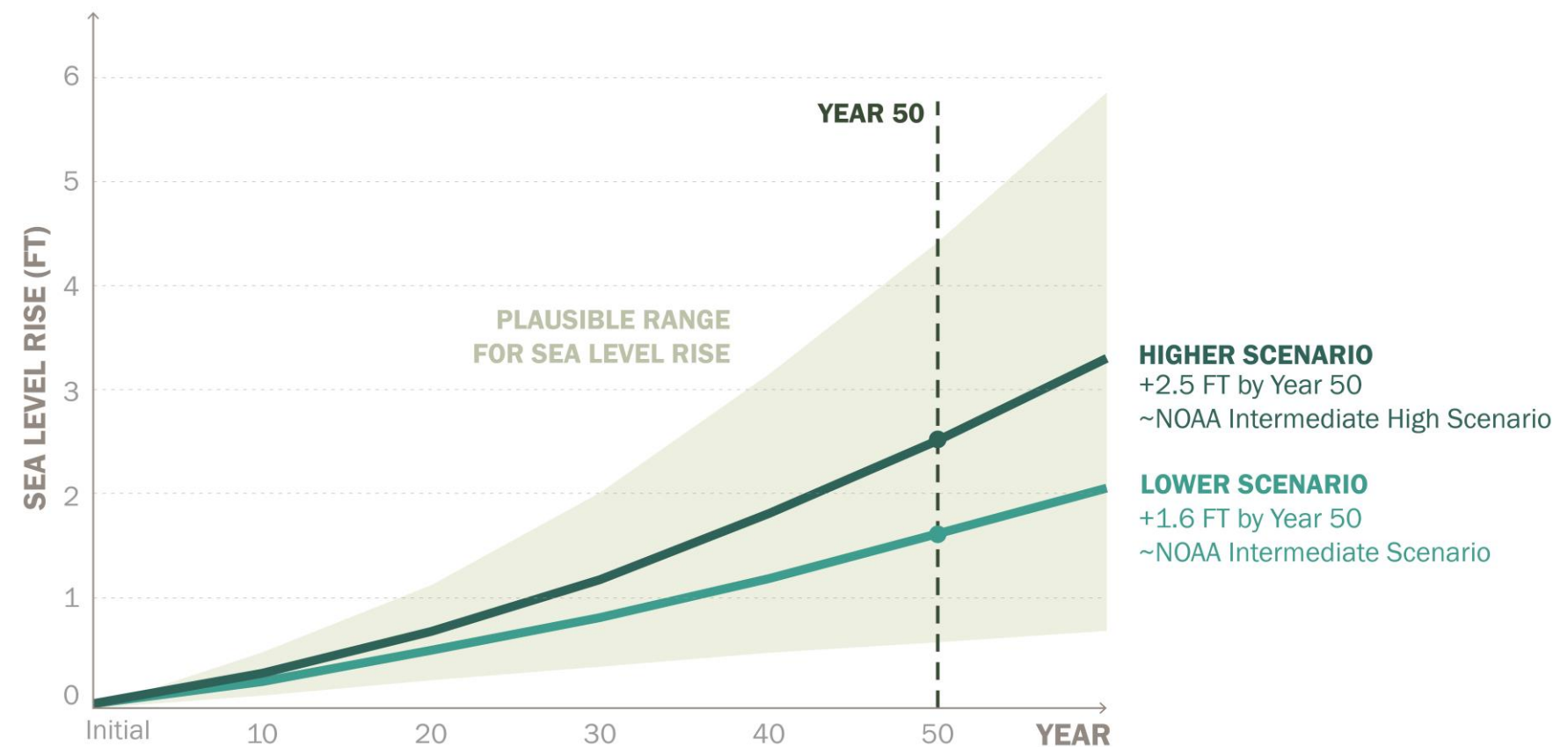


# MASTER PLAN PROCESS

## ADAPTIVE MANAGEMENT, 2023 IMPROVEMENTS

### Incorporating best available science **Examples**

- Input Data
  - Landscape inputs
  - Storm suite
  - Asset database
- Modeling Improvements
  - Hydrologic resolution
  - Vegetation response
- Environmental Drivers (Scenarios)
  - Reduced uncertainty
    - Subsidence
    - Climate uncertainty
      - Sea level rise
  - Co-varying climate driven variables





# MASTER PLAN PROCESS

## PROCESS IMPROVEMENTS AND PROJECT SELECTION

### Process Improvements **Examples**

- Development of Regional Workgroups
- New project development
- New risk metrics (Expected Annual Structural Damage)
- Prioritizing across a range of scenarios
- Exploratory analysis



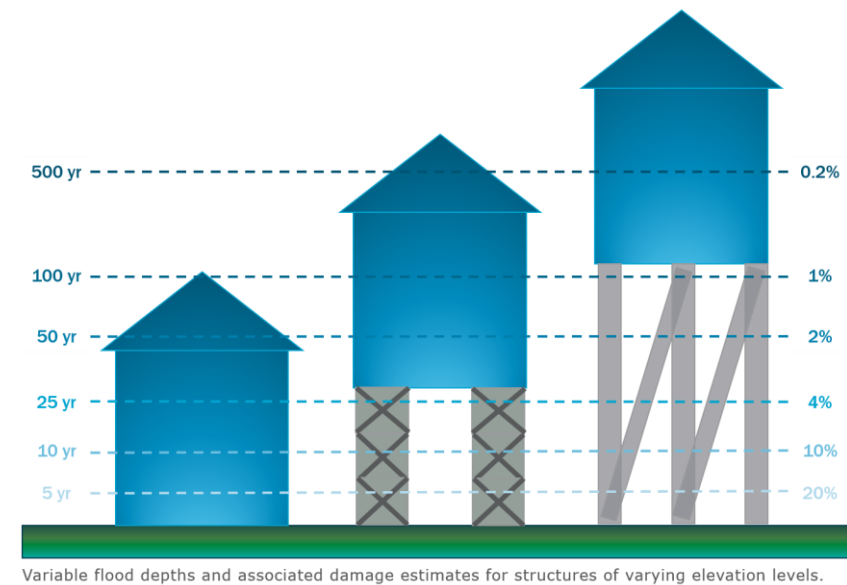


# MASTER PLAN PROCESS

## PROCESS IMPROVEMENTS AND PROJECT SELECTION

### Process Improvements Examples

- Development of Regional Workgroups
- New project development
- New risk metrics
  - Expected Annual Structural Damage
- Prioritizing across a range of scenarios
- Exploratory analysis



**EASD** = Annual probability of flood elevations \*  
Damage (% of Replacement cost) \* ~~Asset Value~~

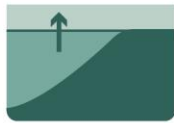









# MASTER PLAN PROCESS

## PROCESS IMPROVEMENTS AND PROJECT SELECTION

### Process Improvements Examples

- Development of Regional Workgroups
- New project development
- New risk metrics
  - Expected Annual Structural Damage
- Prioritizing across a range of scenarios
- Exploratory analysis

	CLIMATE DRIVERS						OTHER DRIVERS	
								
	SEA LEVEL RISE (SLR)	AVG. STORM INTENSITY	PRECIPITATION	TRIBUTARY FLOW	EVAPO-TRANSPIRATION	TEMPERATURE	SUBSIDENCE	MISSISSIPPI RIVER HYDROLOGY
HIGHER SCENARIO	+2.5 FT by Year 50	+10% over 50 years	Following more severe climate change pathway, to co-vary with SLR curve				Higher rates, by ecoregion	Moderate change
LOWER SCENARIO	+1.6 FT by Year 50	+5% over 50 years	Following moderate climate change pathway, to co-vary with SLR curve				Lower rates, by ecoregion	Moderate change



# MASTER PLAN PROCESS

## PROCESS IMPROVEMENTS AND PROJECT SELECTION

### Process Improvements Examples

- Development of Regional Workgroups
- New project development
- New risk metrics (Expected Annual Structural Damage)
- Prioritizing across a range of scenarios
- Exploratory analysis

#### REGIONAL APPROACH

##### HIGH TIDE FLOODING IN DULAC

In addition to storm surge-based flood risk, Louisiana's coastal communities often contend with localized flooding, also known as high tide flooding which can impede day-to-day travel and activity as well as emergency services. Communities are experiencing these issues today, and their residents have informal impact thresholds—areas they know to flood regularly—such as the Dulac Community Center's parking lot, which signals the threat of flooding. While the construction of the Morganza to the Gulf project has the potential to mitigate some high tide flooding, communities will still potentially be affected when the floodgates are open, allowing tidal ingress. The combined effects of sea level rise and coastal land loss will exacerbate the magnitude, frequency, and extent of these issues. As sea level rises and the geography of the coast changes, Dulac should continue to experience similar seasonal tidal variation as it does now. However, the extent and magnitude of tidal ingress will continue to increase due to these changes.

	YEAR 1	YEAR 25	YEAR 50
Dulac Community Center	Up to 31	49 - 52	49 - 52
Shrimpers Row Rd / Bayou Guillaume Rd	Up to 14	49 - 52	49 - 52

Figure 6.12: Number of weeks per year that HTF in Dulac may occur at least once.

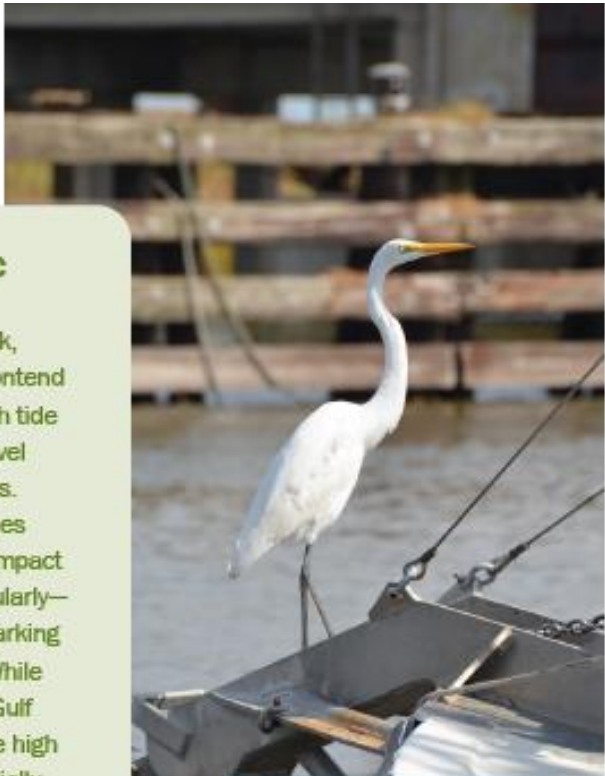


Image: Egret in Dulac (Louisiana Sea Grant College Program)



Image: Shrimpers Row, Dulac (Louisiana Sea Grant College Program)

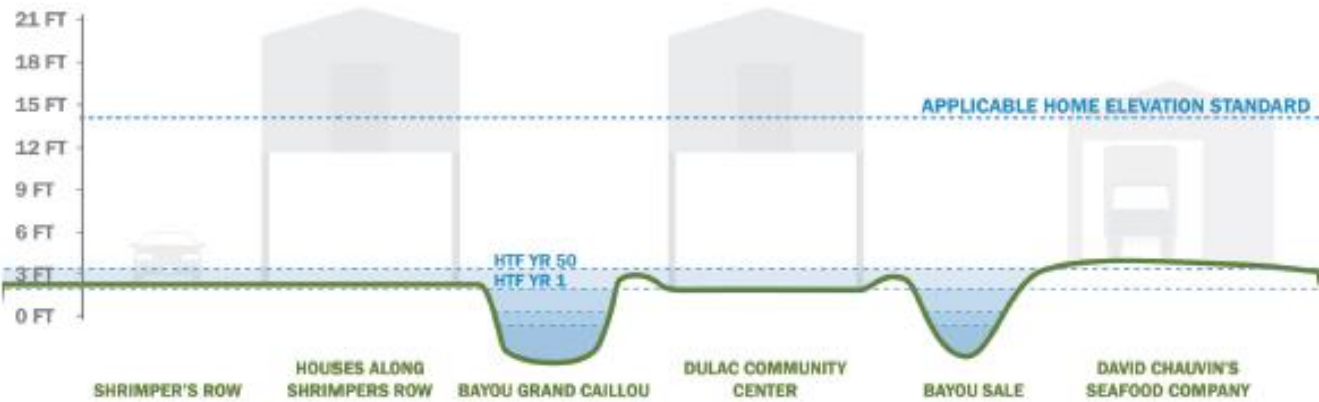


Figure 6.13: Representative High Tide Flooding (HTF) Elevations for Dulac at Year 1 and 50 in the Lower Scenario.



# THE 2023 MASTER PLAN







# 61 Restoration Projects      12 Structural Risk Reduction Projects

## \$11B for Nonstructural Risk Reduction

### PROJECT MAP

FUTURE WITH ACTION: COASTWIDE

The 2023 Coastal Master Plan identifies projects designed to restore, create, and maintain land; reduce flood risk to citizens and communities; and sustain habitats that support a variety of recreational and commercial activities. The restoration and risk reduction projects selected perform well with respect to future conditions and reflect a comprehensive, long-term focus and continued commitment to balancing the diverse objectives of the master plan. In addition to these specific projects, \$2.5 billion is allocated to programmatic restoration efforts, including barrier island maintenance and repair, small-scale hydrologic restoration, and local strategies, such as bank stabilization and oyster reef

restoration. Additionally, \$11.2 billion is allocated to nonstructural risk reduction activities across the coast.

Beyond the projects, the master plan acknowledges that the coastal area is dynamic, and additional adaptation will be required to continue living, working, and playing in coastal Louisiana. The plan alone is not sufficient to respond to all of the challenges the future may bring, but it can be a catalyst for coordinating local, state, and federal efforts to help address our coastal land loss crisis and threats from storm surge-based flooding and in pursuing the greenhouse gas reductions that are necessary to avoid the most severe impacts of climate change.



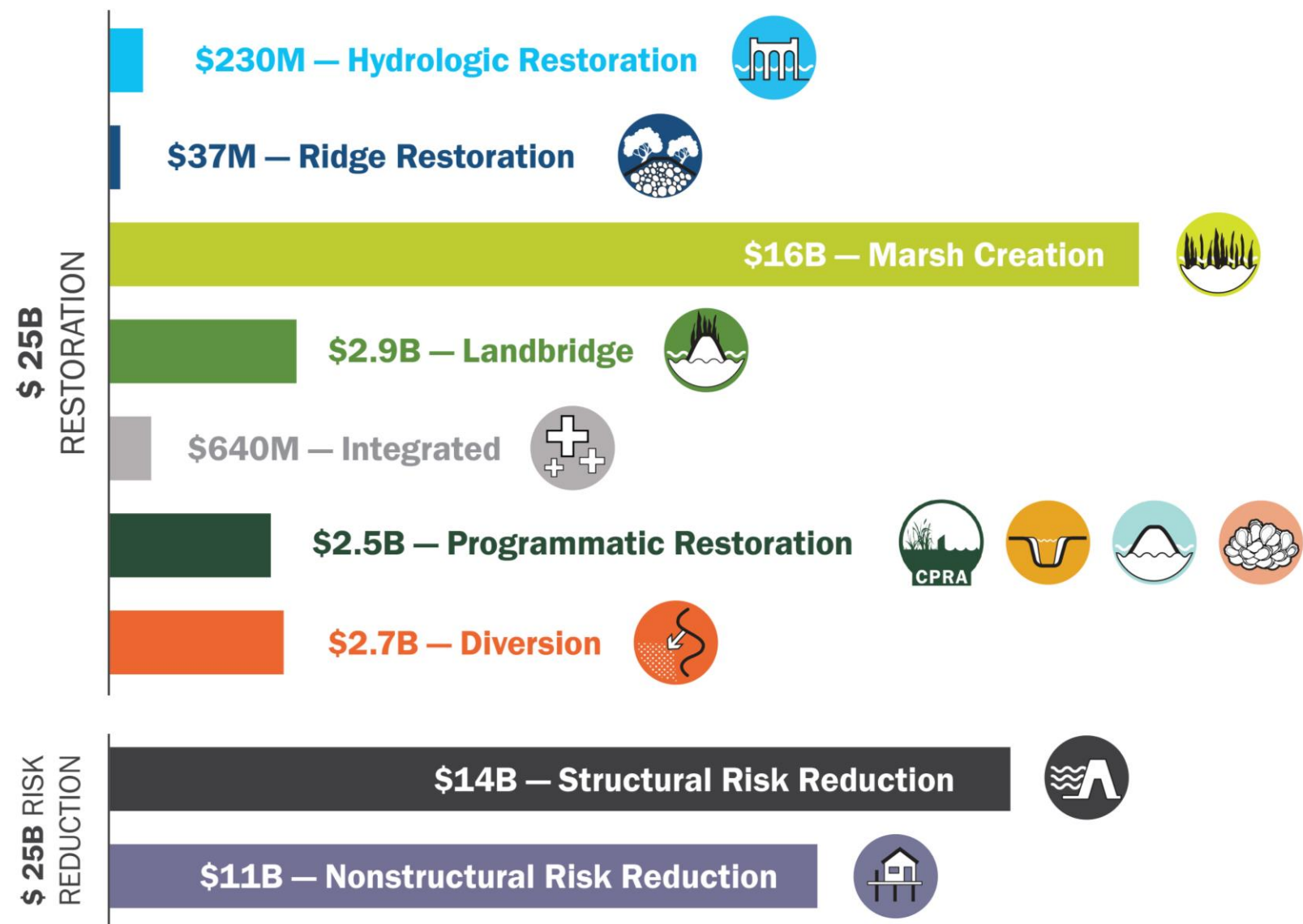
Figure 5.1: Funding by Project Type in USD.



# THE 2023 COASTAL MASTER PLAN

## RESTORATION PROJECTS

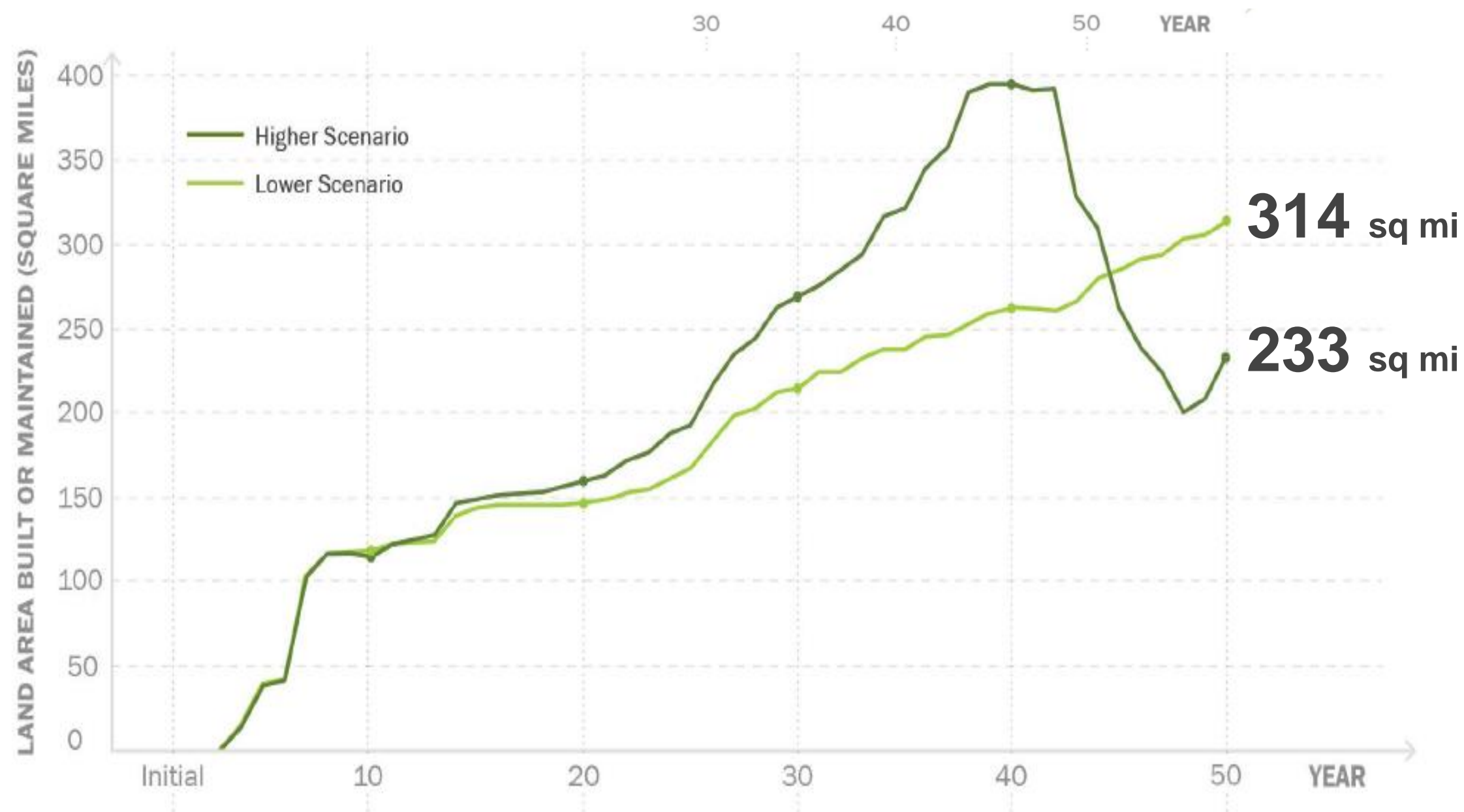
- \$2.7B New\* diversions
- Over \$19B in dredging projects
- \$2.5B in Programmatic
  - Barrier Islands, small-scale hydrologic restoration, oyster reefs, shoreline protection





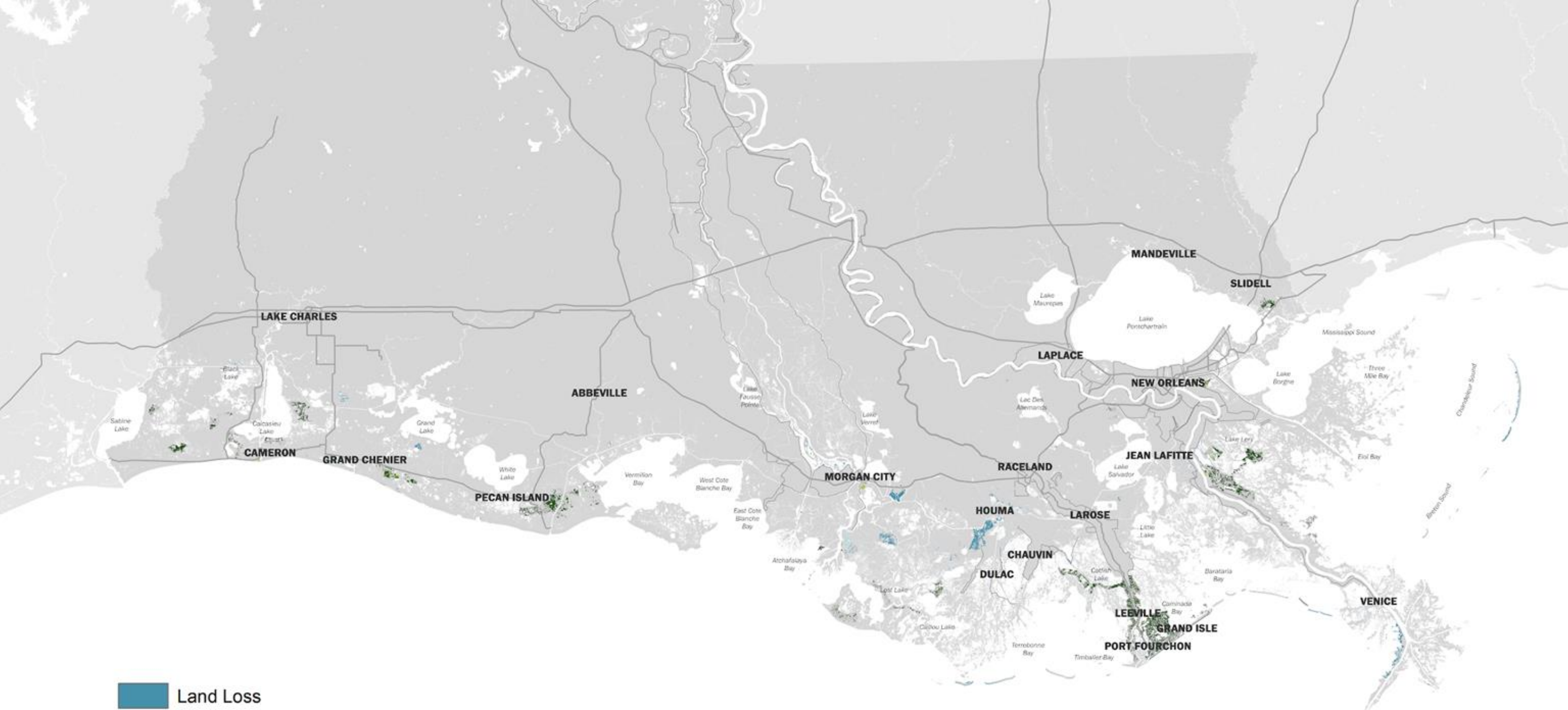
# THE 2023 COASTAL MASTER PLAN

## RESTORATION PROJECT BENEFITS



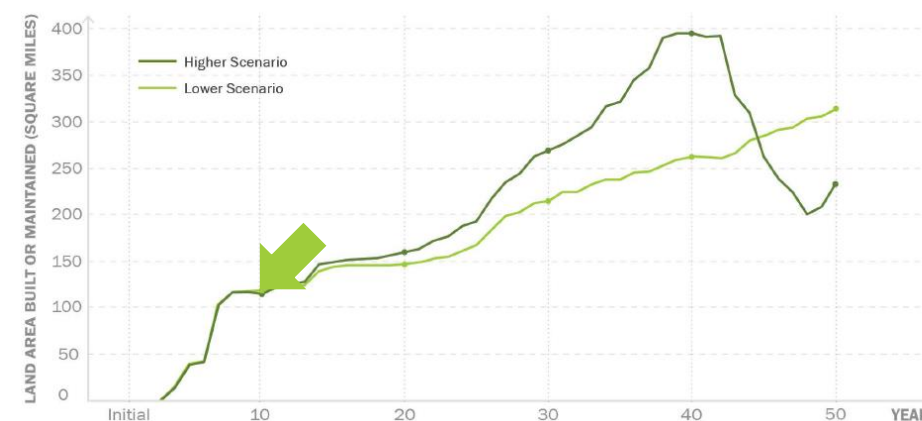
...of land is built or maintained that would have otherwise been lost at Year 50.



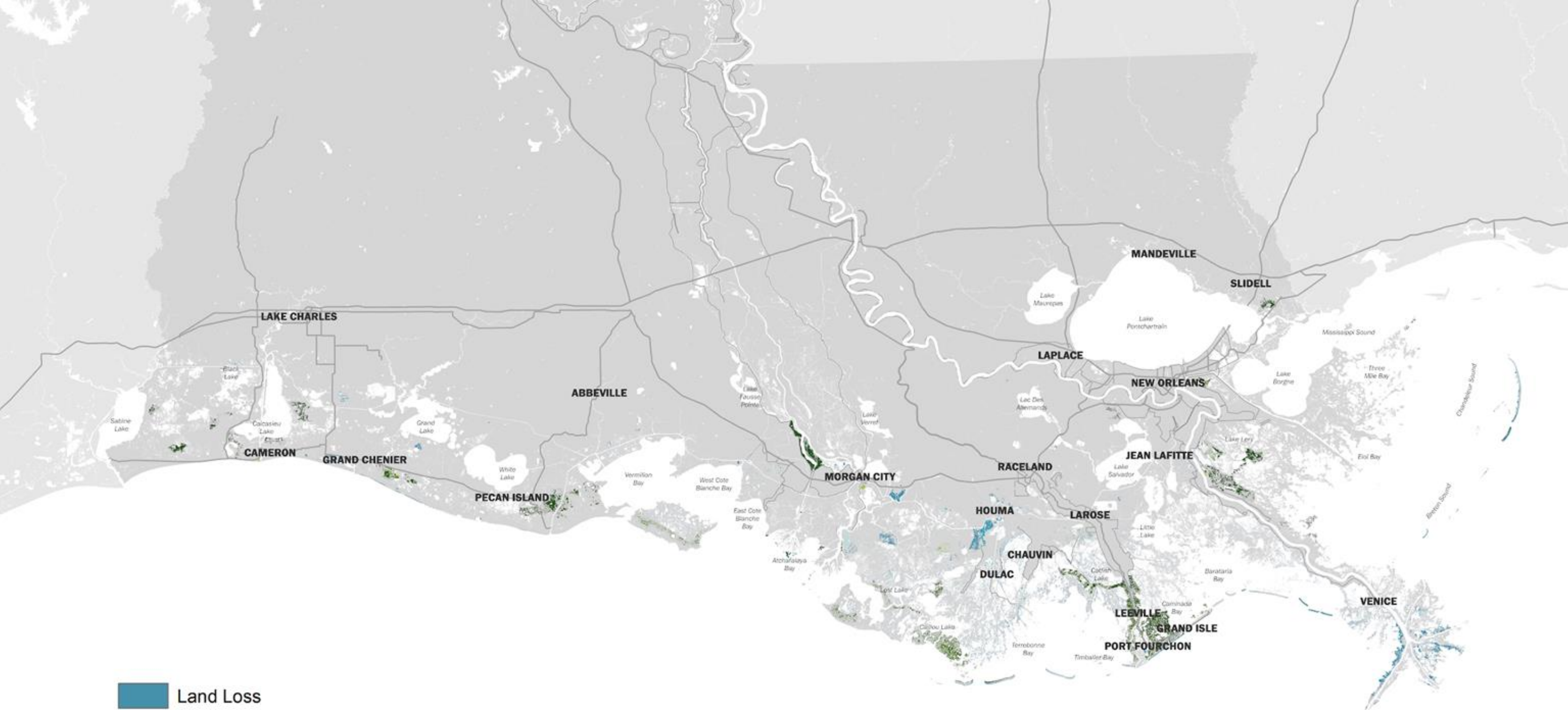


# 2023 COASTAL MASTER PLAN FUTURE WITH ACTION

LAND CHANGE OVER TIME - YEAR 10  
LOWER PROJECT SELECTION SCENARIO - S07



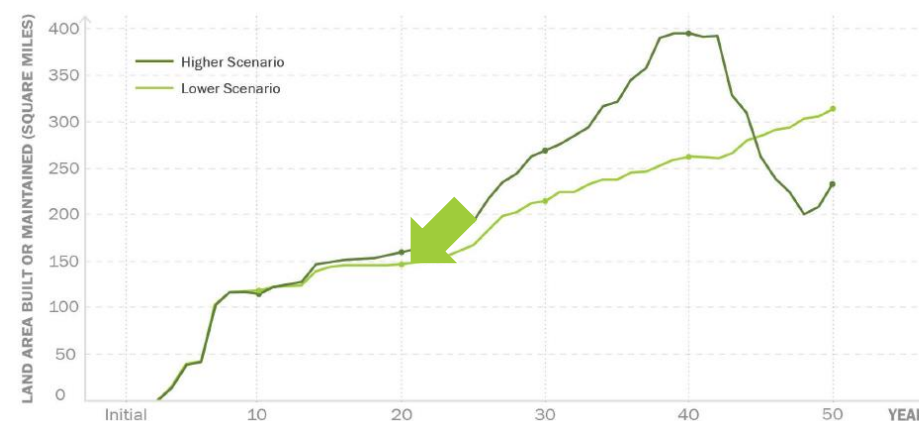




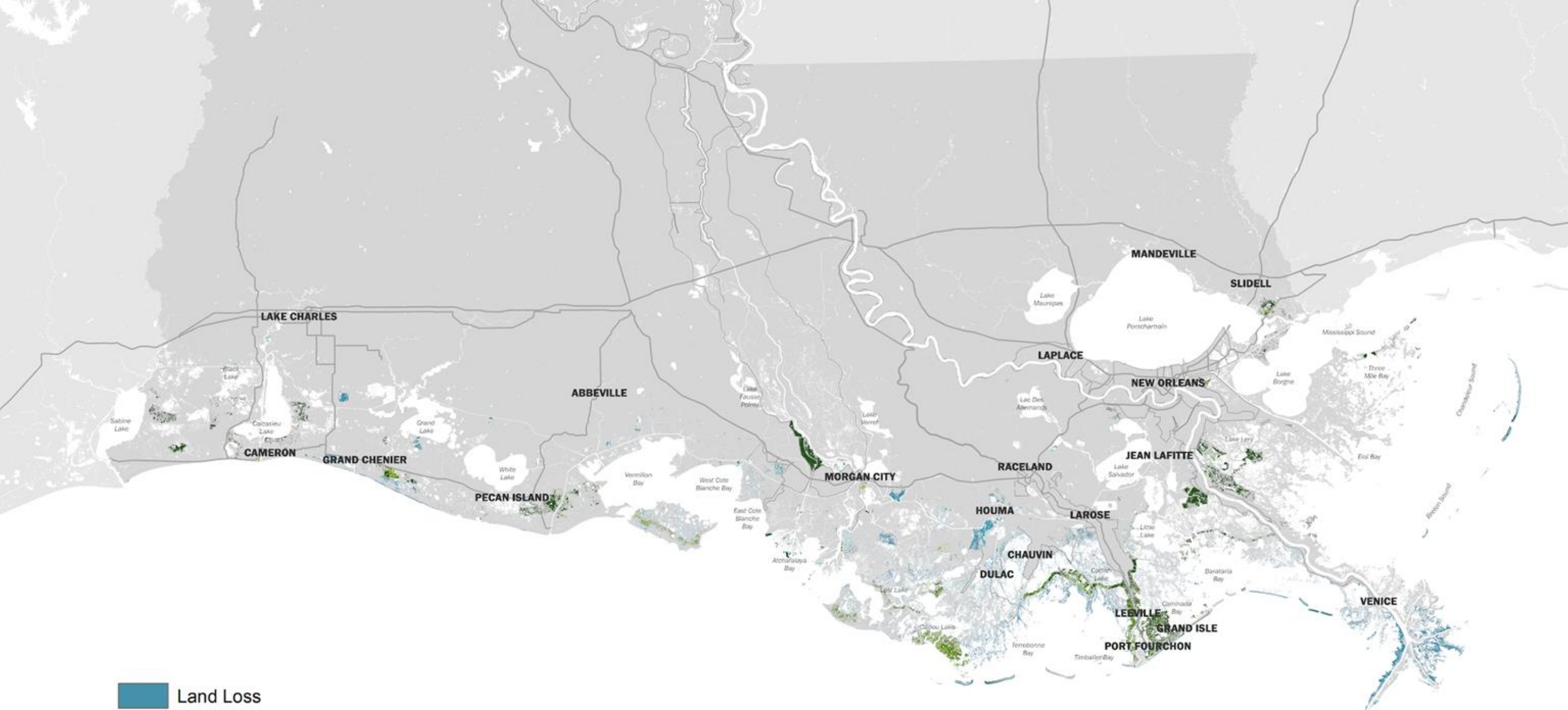
- Land Loss
- Land Gain
- Induced Loss
- Land Maintained

# 2023 COASTAL MASTER PLAN FUTURE WITH ACTION

LAND CHANGE OVER TIME - YEAR 20  
LOWER PROJECT SELECTION SCENARIO - S07



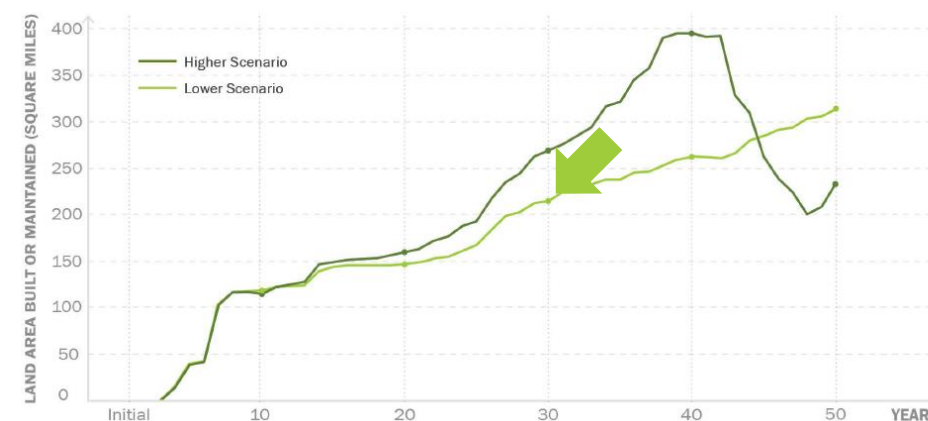




- Land Loss
- Land Gain
- Induced Loss
- Land Maintained

## 2023 COASTAL MASTER PLAN FUTURE WITH ACTION

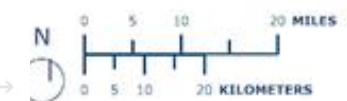
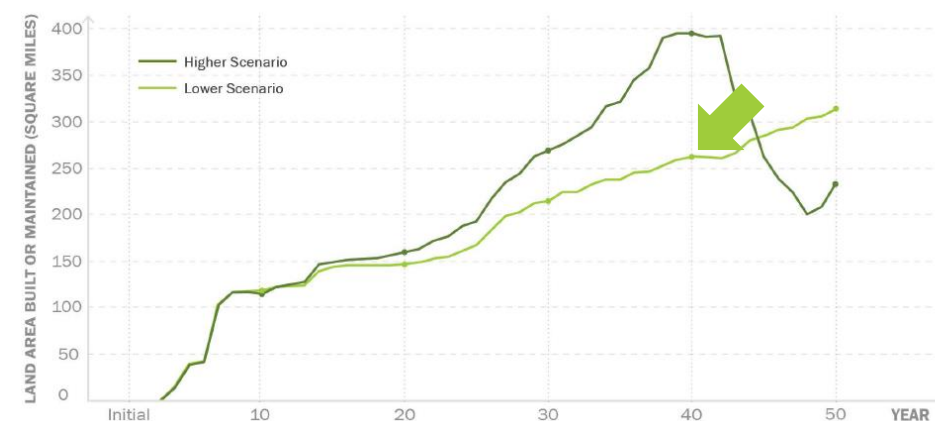
LAND CHANGE OVER TIME - YEAR 30  
LOWER PROJECT SELECTION SCENARIO - S07



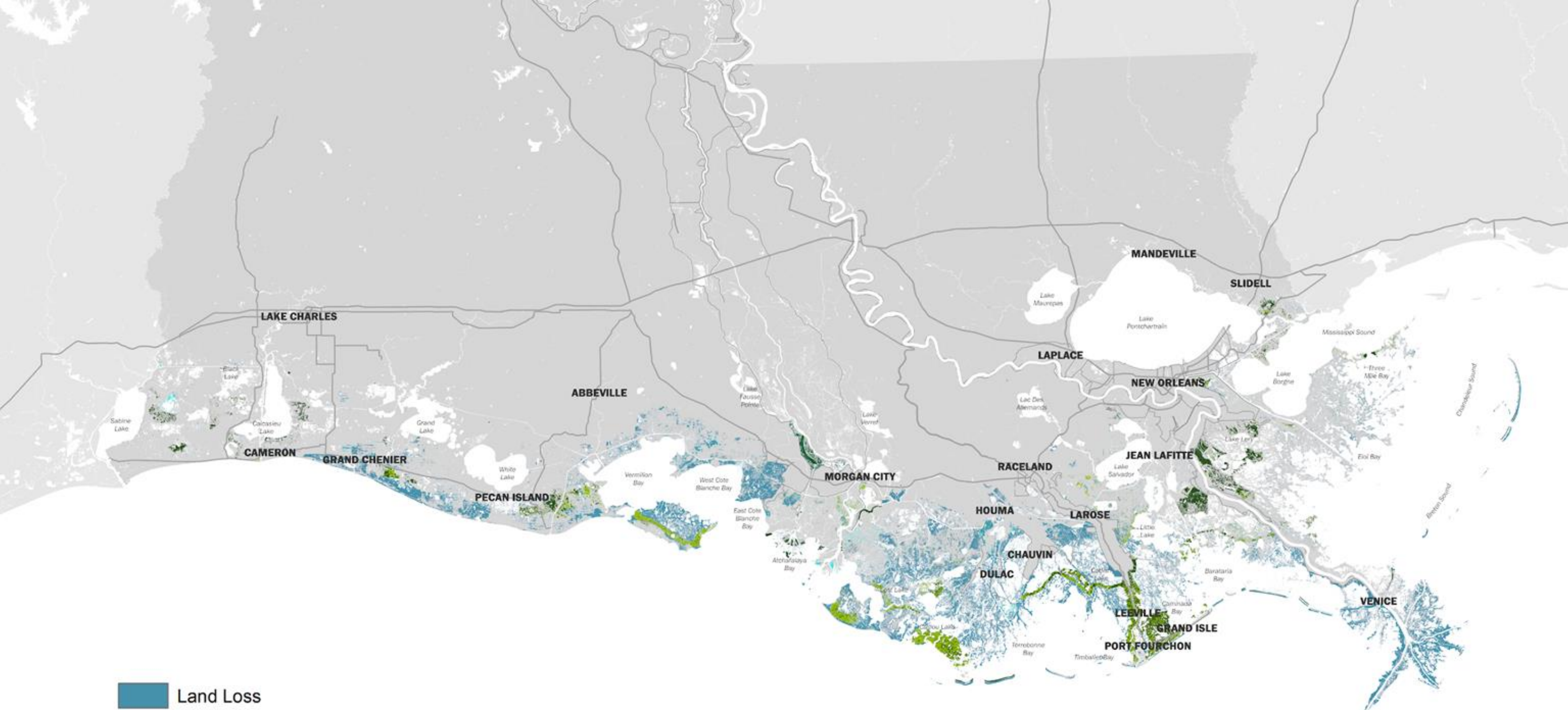




LAND CHANGE OVER TIME - YEAR 40  
LOWER PROJECT SELECTION SCENARIO - S07



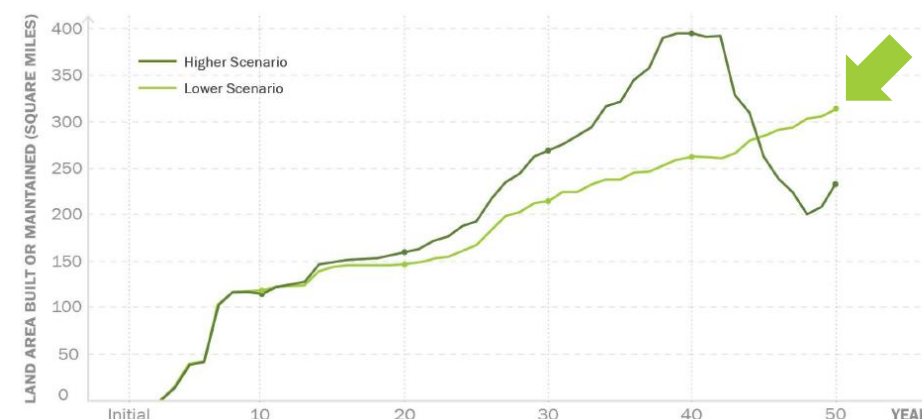




- Land Loss
- Land Gain
- Induced Loss
- Land Maintained

# 2023 COASTAL MASTER PLAN FUTURE WITH ACTION

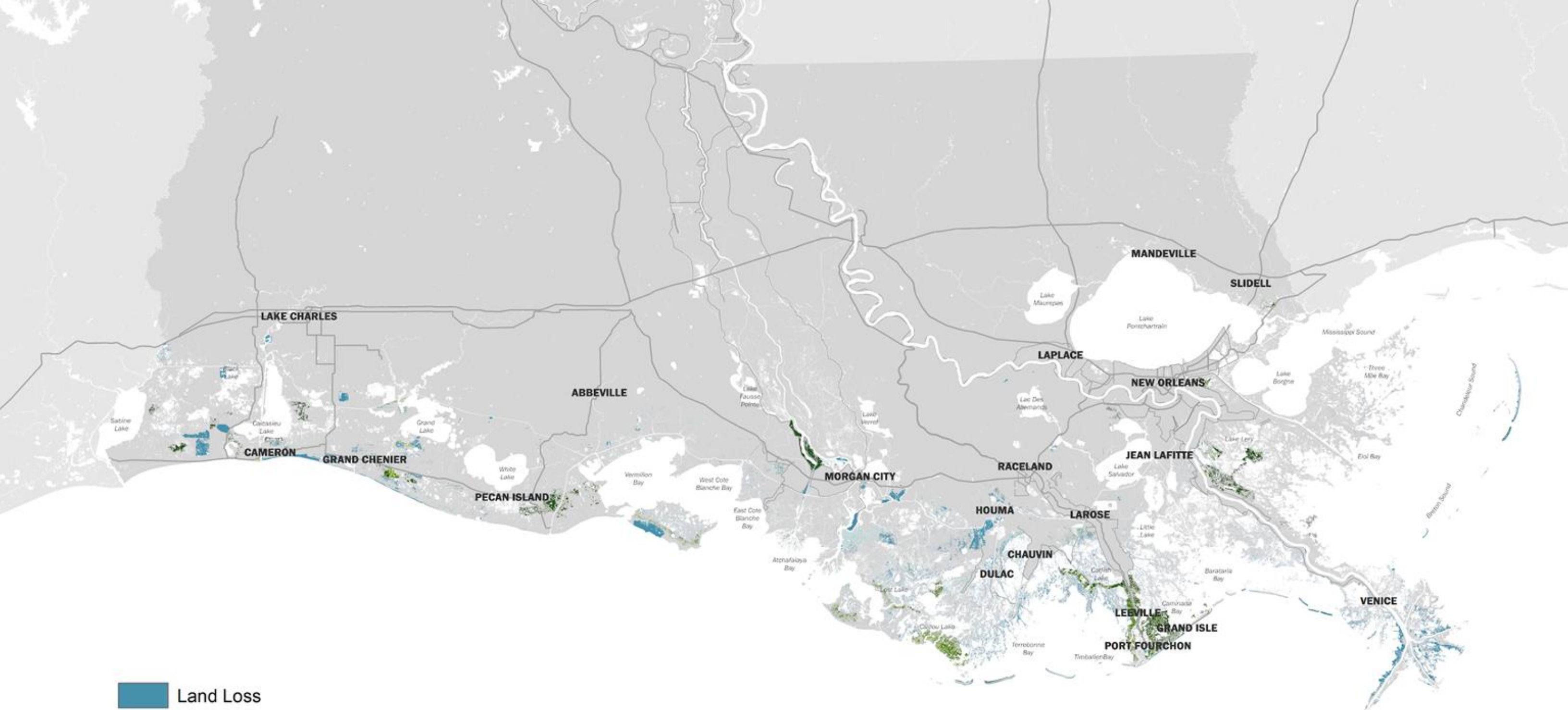
LAND CHANGE OVER TIME - YEAR 50  
LOWER PROJECT SELECTION SCENARIO - S07







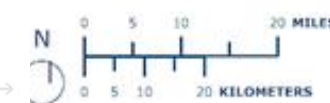
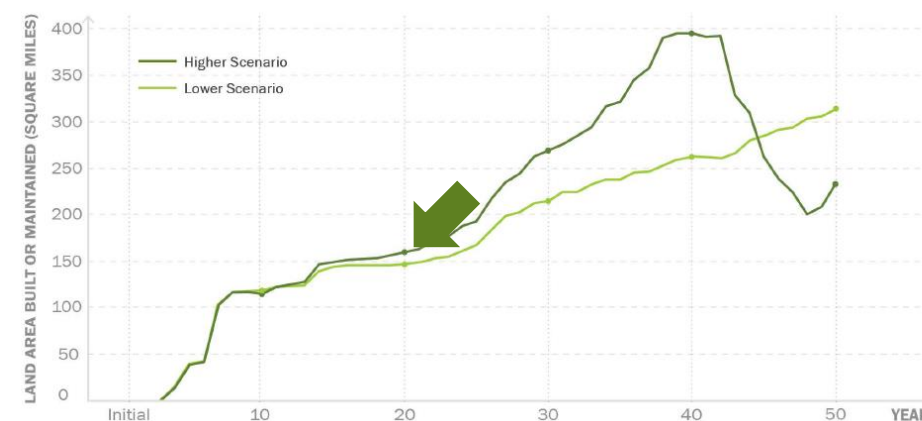




- Land Loss
- Land Gain
- Induced Loss
- Land Maintained

## 2023 COASTAL MASTER PLAN FUTURE WITH ACTION

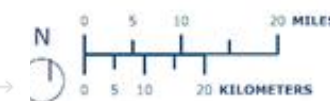
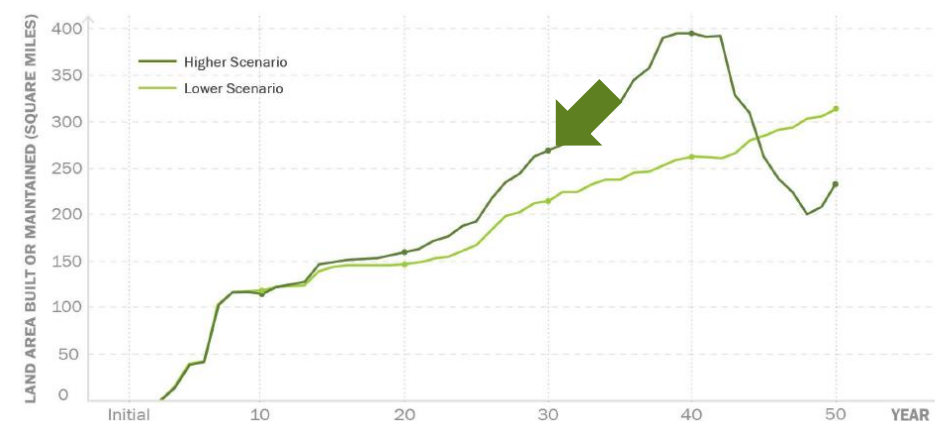
LAND CHANGE OVER TIME - YEAR 20  
HIGHER PROJECT SELECTION SCENARIO - S08







LAND CHANGE OVER TIME - YEAR 30  
HIGHER PROJECT SELECTION SCENARIO - S08











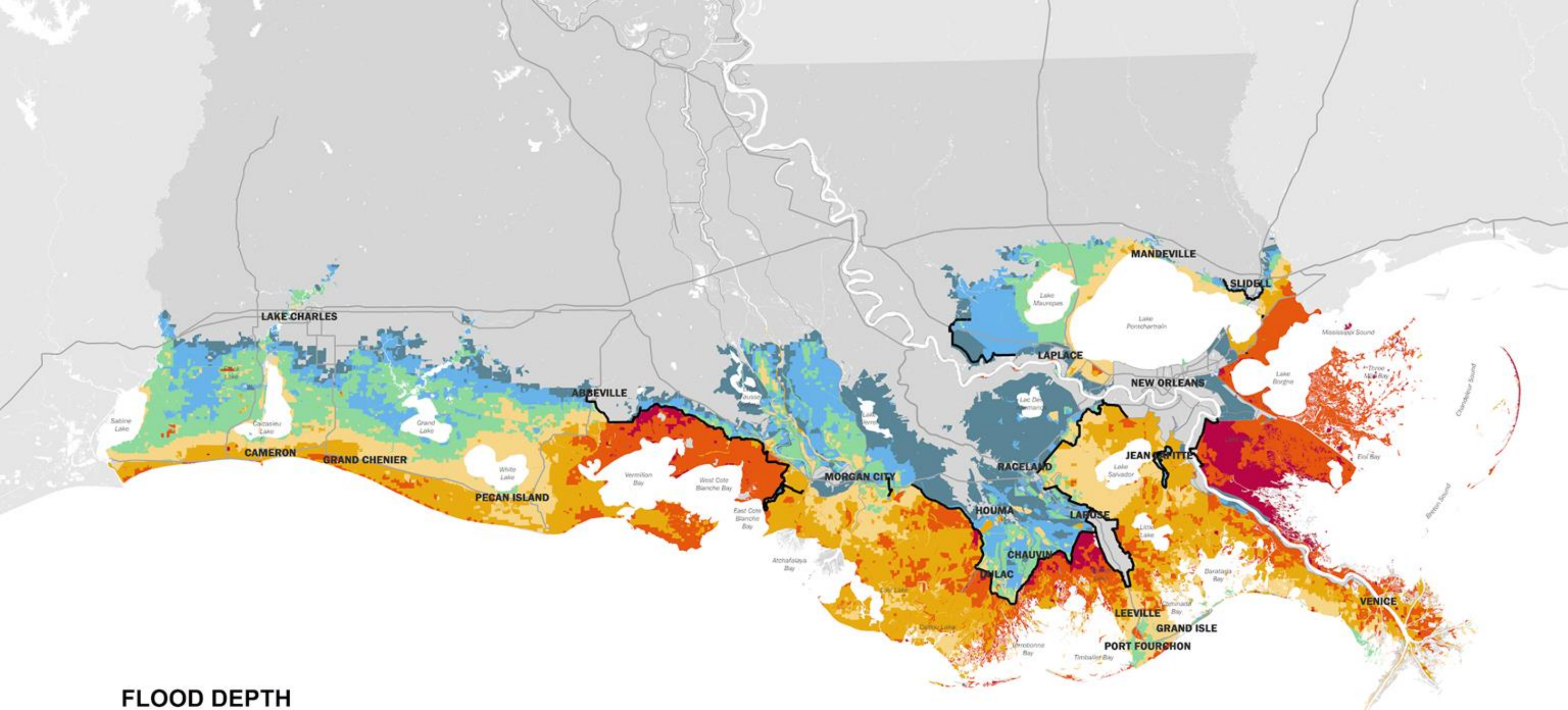


## RISK REDUCTION PROJECTS

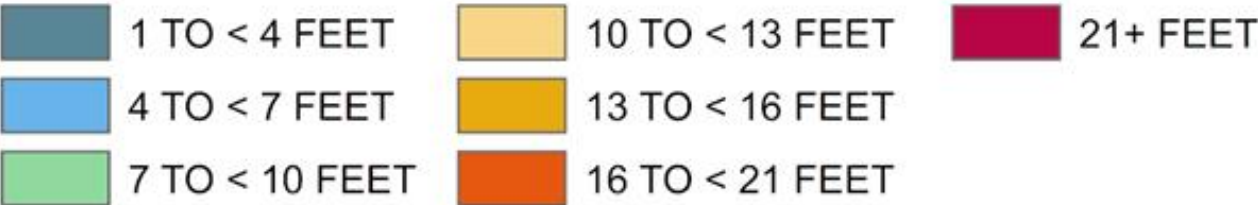
- [illegible]







# FLOOD DEPTH

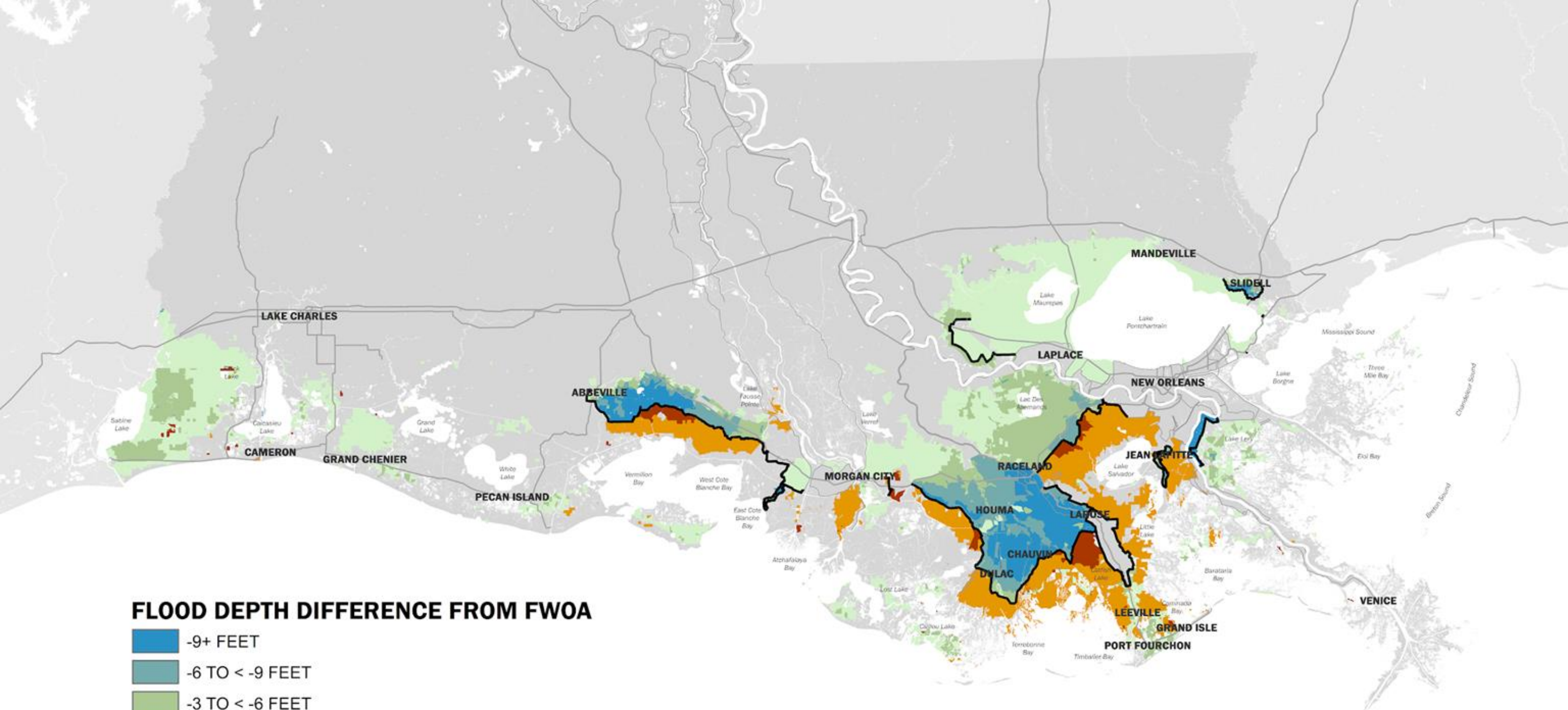


## 2023 COASTAL MASTER PLAN FUTURE WITH ACTION

1% ANNUAL EXCEEDANCE PROBABILITY - MEDIAN ESTIMATE - YEAR 50  
LOWER PROJECT SELECTION SCENARIO - S07





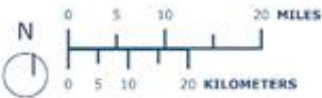


**FLOOD DEPTH DIFFERENCE FROM FWOA**

- 9+ FEET
- 6 TO < -9 FEET
- 3 TO < -6 FEET
- 1 TO < -3 FEET
- +1 TO +3 FEET
- +3+ FEET

**2023 COASTAL MASTER PLAN  
FUTURE WITH ACTION**

1% ANNUAL EXCEEDANCE PROBABILITY - MEDIAN ESTIMATE - YEAR 50  
LOWER PROJECT SELECTION SCENARIO - S07



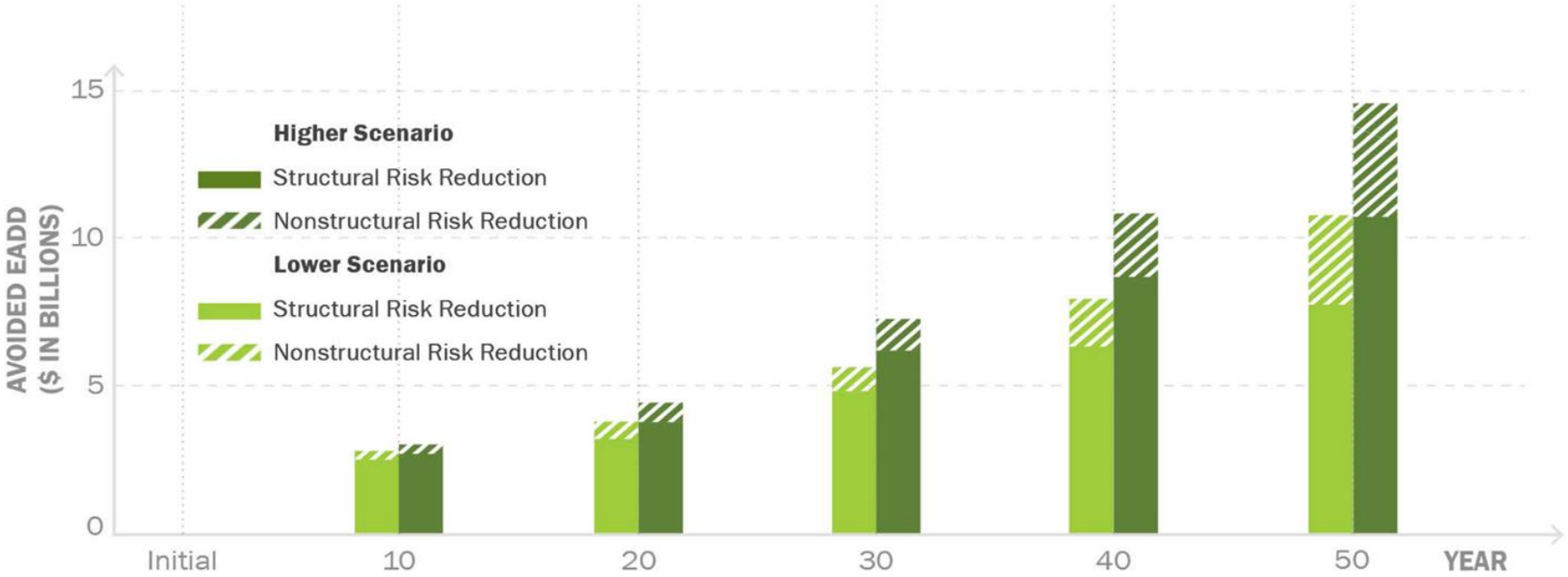






# THE 2023 COASTAL MASTER PLAN

## RISK REDUCTION PROJECTS



Risk reduced at year 50 compared to a future without action...

Lower Scenario

Higher Scenario

70%

60%

\$10.8 B

\$14.6 B

Measured in expected annual damage in dollars (EADD)

Measured in expected annual structural damage (EASD) the plan reduces coastwide risk by up to **78%** under the lower scenario and **65%** under the higher scenario.



# THE 2023 COASTAL MASTER PLAN

## RISK REDUCTION PROJECTS

This level of investment could mean that in 50 years, under the lower environmental scenario, Louisiana has less flood risk from hurricanes and tropical storms than we do today.

Risk reduced at year 50 compared to a future without action...

Lower Scenario	Higher Scenario
----------------	-----------------

70%	60%
-----	-----

\$10.8 B	\$14.6 B
----------	----------

Measured in expected annual damage in dollars (EADD)



# PUBLIC COMMENTS

ACCEPTED THROUGH MARCH 25, 2023

## In-Person

- Public comment cards and statement request cards are available to submit comment

## Email

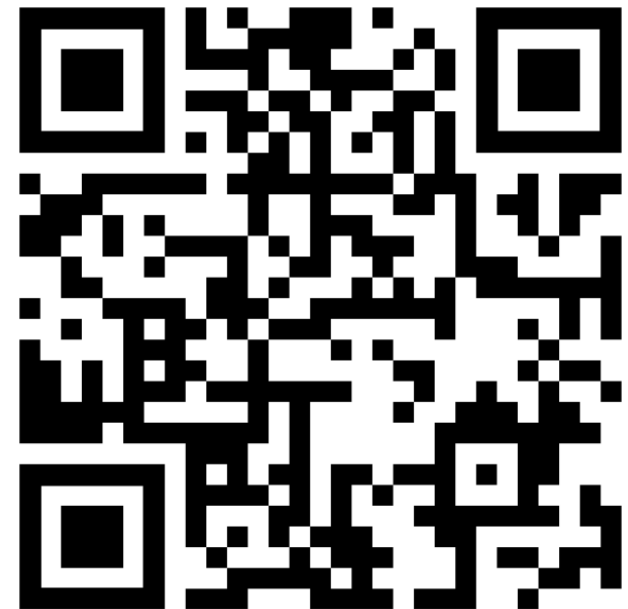
- Send with “Public Comment” in the subject line to [masterplan@la.gov](mailto:masterplan@la.gov)

## Online

- Submit comments online using the QR Code

## Mail

- Send comments to:  
Master Plan Public Comment  
150 Terrace Avenue  
Baton Rouge, LA 70802



\* Note that letters must be postmarked to arrive by March 25, 2023



**THANK YOU**