

TECHNICAL DOSSIER

Title of the project Occupying the Amphibious Edge: Reframing Managed Retreat to Establish Resilient Coastal Settlement Strategies
Authors Megan Spoor '23
Title of the course Gulf Design Research Studio Pilot: Climate Futures
Academic year 2022-2023
Teaching Staff Prof. Margarita Jover and Prof. Liz Camuti
Department / Section / Program of belonging Landscape Architecture Department / School of Architecture
University / School Tulane University School of Architecture



Written statement, short description of the project in English, no more than 250 words

Our current methods of inhabiting the Gulf Coast region presume a permanence of land and a predictability of risk. We have sought to maintain our stability-seeking occupation patterns by governing this coastal landscape through structural interventions. This has created a path dependency on hard infrastructure that is unsustainable in the long term, particularly as the oil and gas industry continues to destroy natural surge and inundation buffers. We are unable to secure Louisiana's coastline in its current form, but as the oil and gas industry declines, we may begin to establish new occupation strategies and regenerate coastal ecologies that have the capacity to operate in future conditions of uncertainty. The proposed project aims to address the challenges posed by flood risks in coastal communities by reframing current occupation patterns in order to reduce risk, minimize displacement, and restore coastal ecosystems. To achieve these goals, the project proposes the establishment of a community land trust to promote collective stewardship of the coastal zone and its infrastructure through conservation-led land acquisition. Land on which housing is removed will be turned into collective space for profit-generating activities, such as food production and energy generation. The project also includes a strategy of partial retreat, where densification is encouraged on "higher ground" within the immediate area to reduce displacement, and the development of a new housing typology called the "meta home" to increase square footage and generate profit for the trust. The coastal edge will be transformed into an ecological buffer to restore coastal habitats.

For further information

Máster d'Arquitectura del Paisatge - UPC

Contact via email at:
master.paisatge.comunicacio@gmail.com

biennal.paisatge@upc.edu

Máster d'Arquitectura del Paisatge - UPC

Sede ETSAB - Universitat Politècnica de Catalunya

Calle Jordi Girona, 15. Edificio Omega 1-3
08034 Barcelona - Spain

COAC - Colegi oficial d'Arquitectes de Catalunya

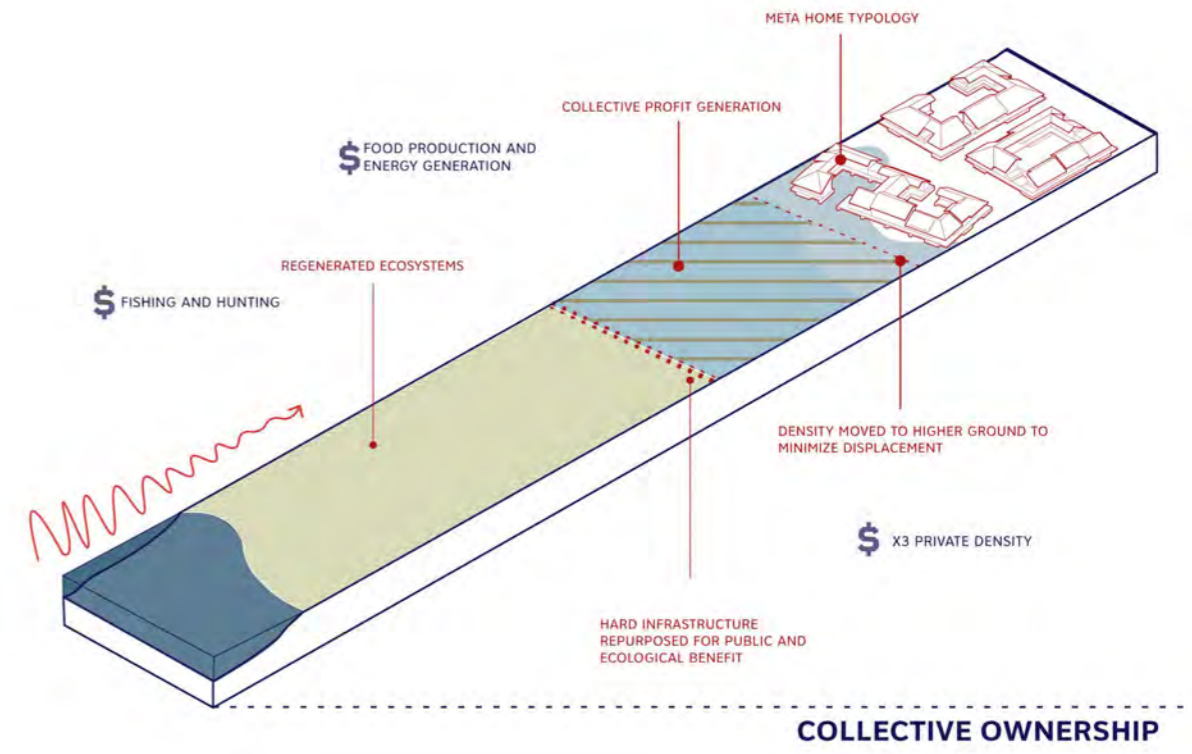
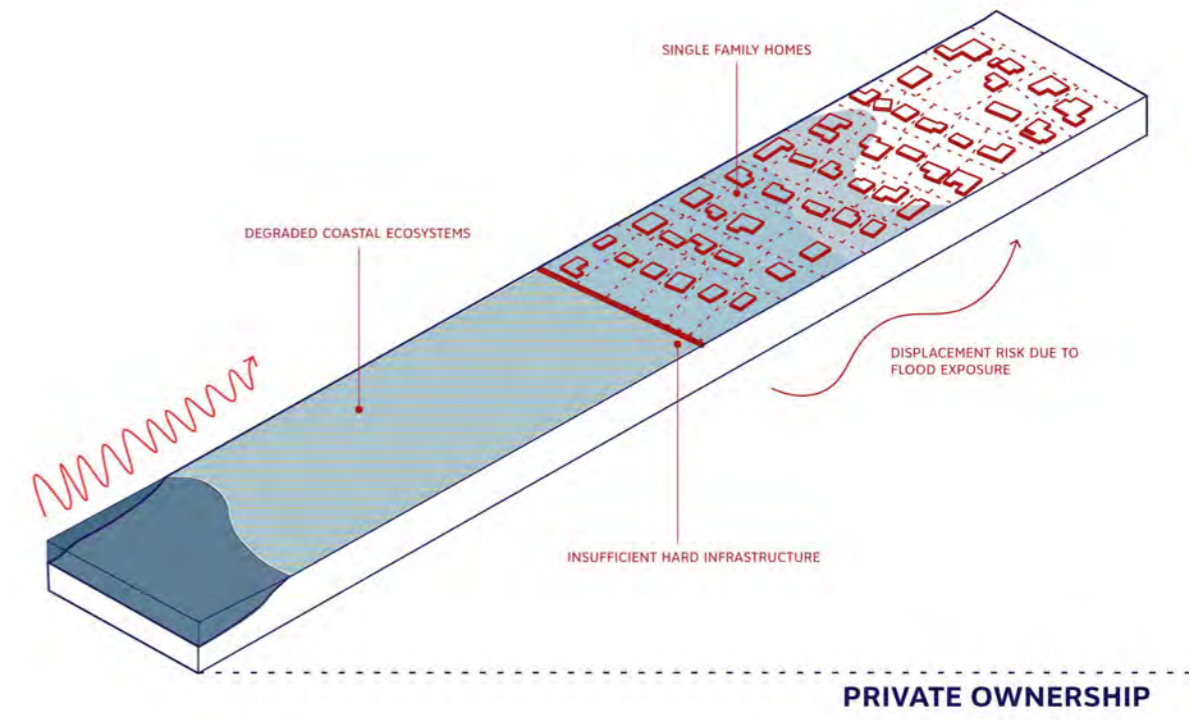
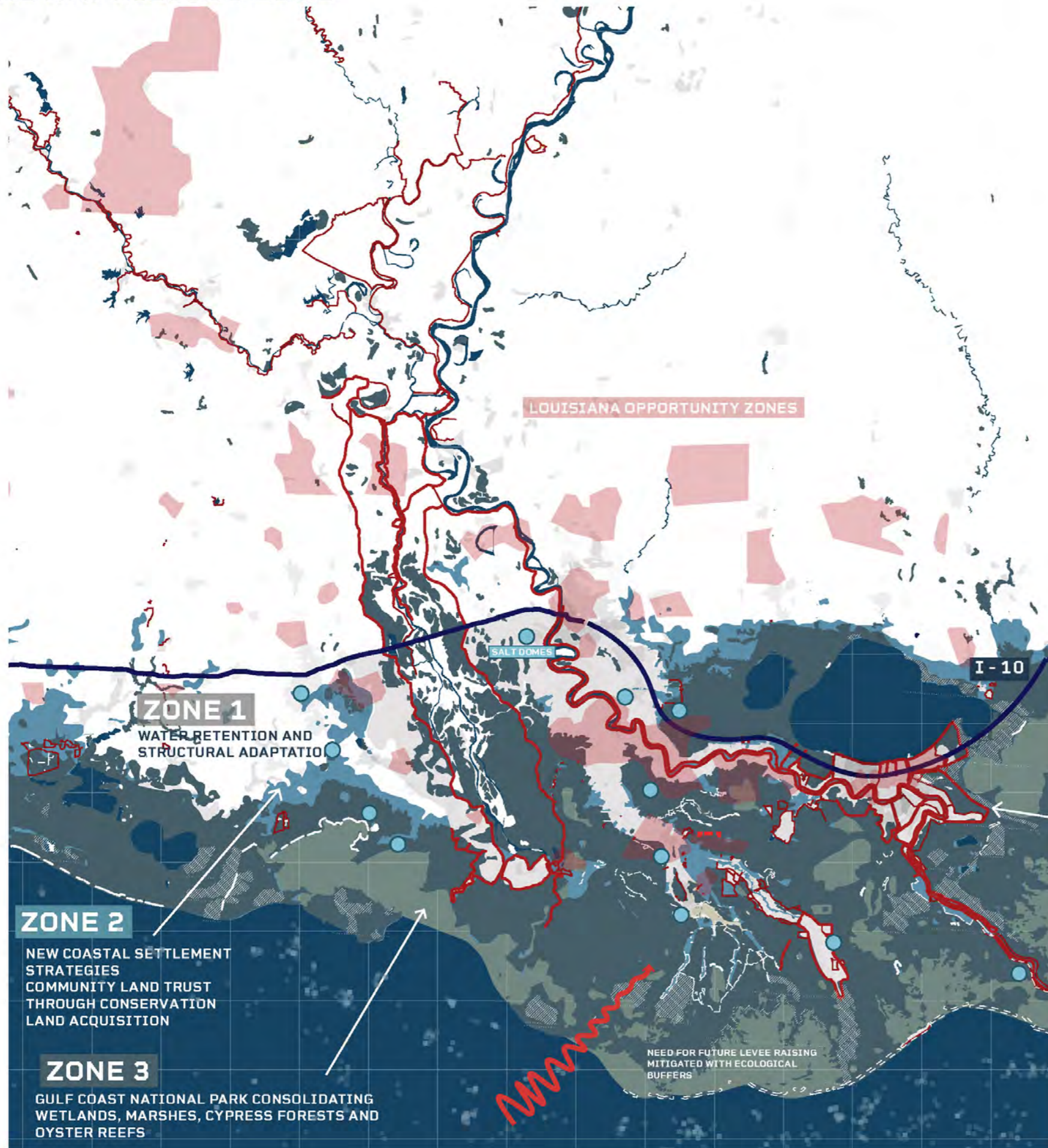
Carrer Arcs, 1-3
08002 Barcelona - Spain

12th International Biennial Landscape Barcelona

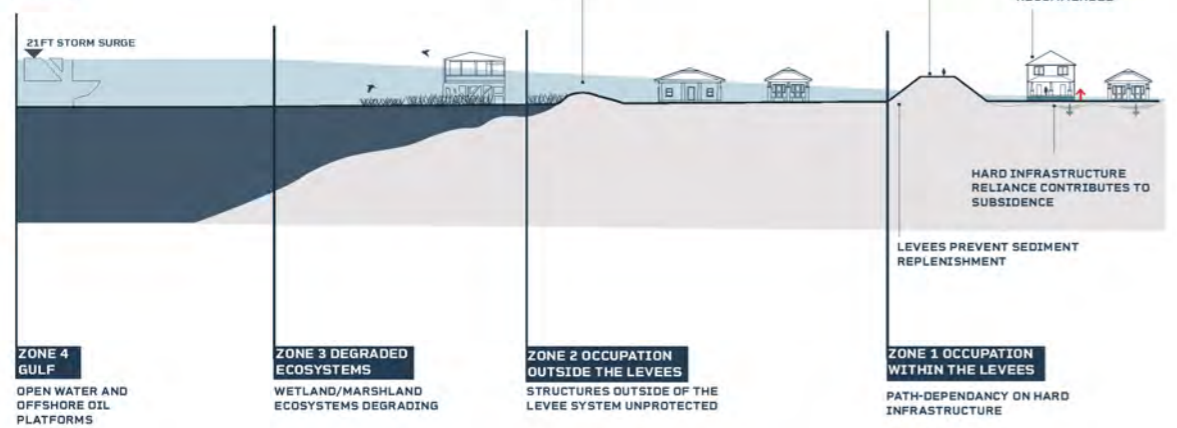
Barcelona November 2023

SCHOOL PRIZE

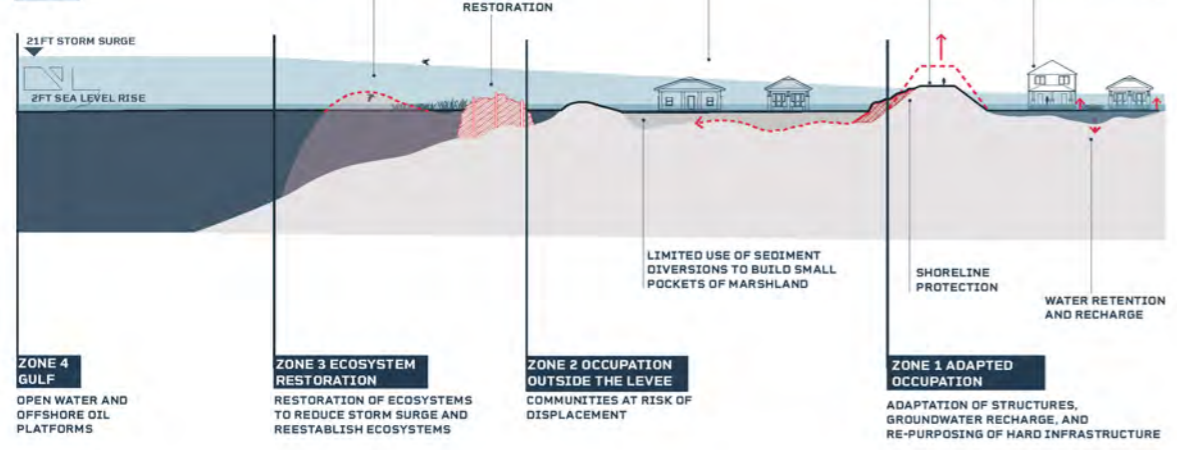
THE AMPHIBIOUS EDGE



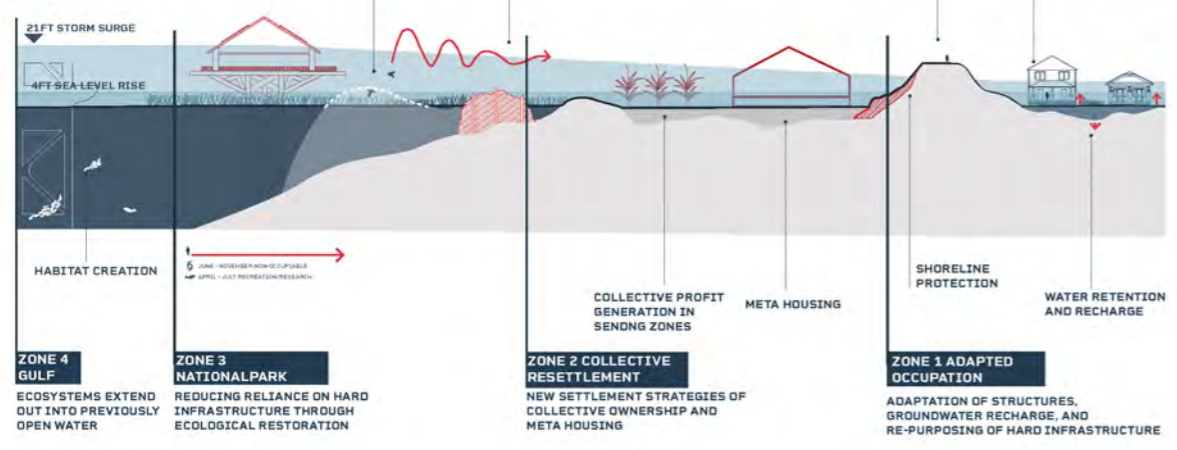
2020



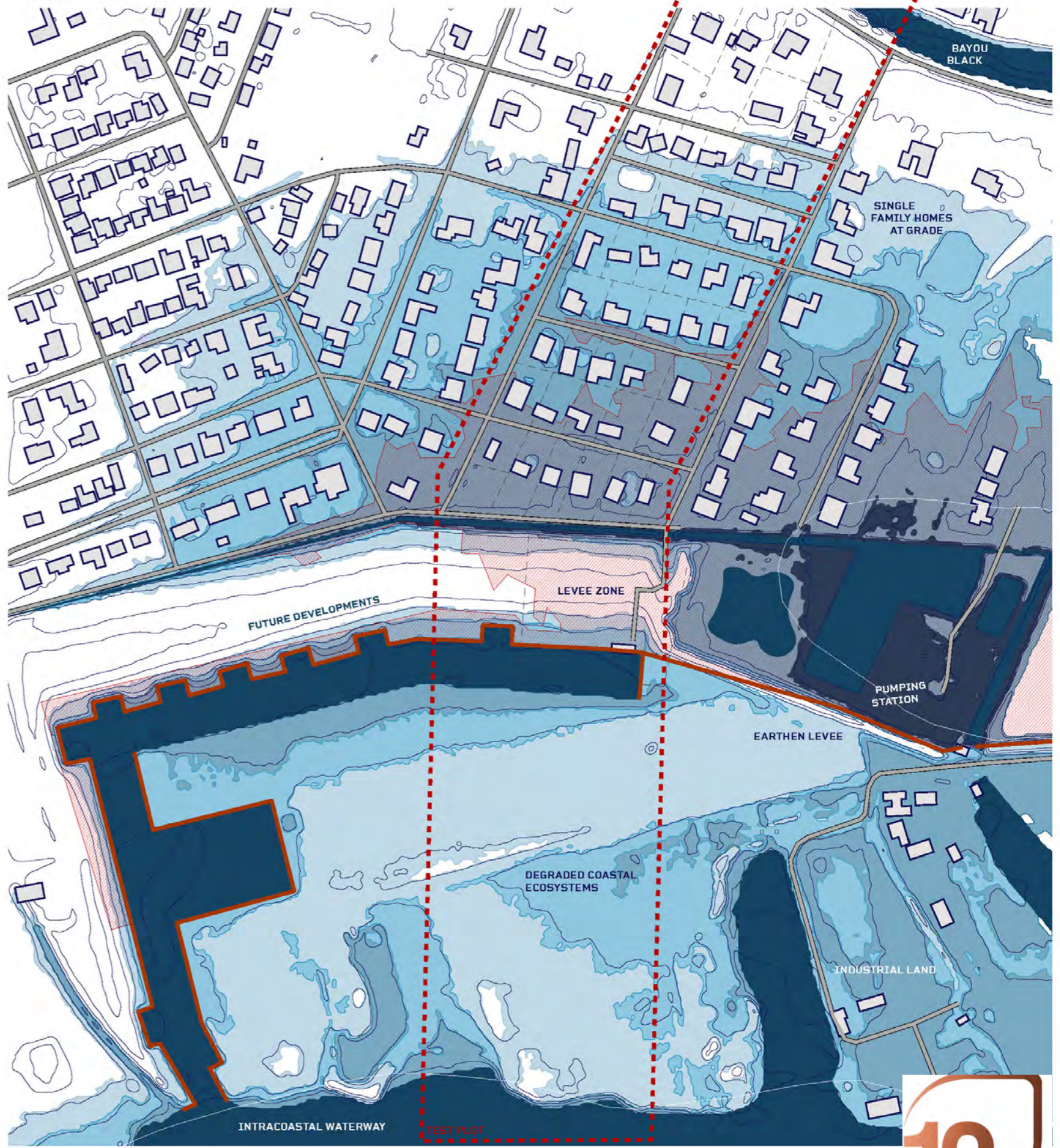
2050



2080



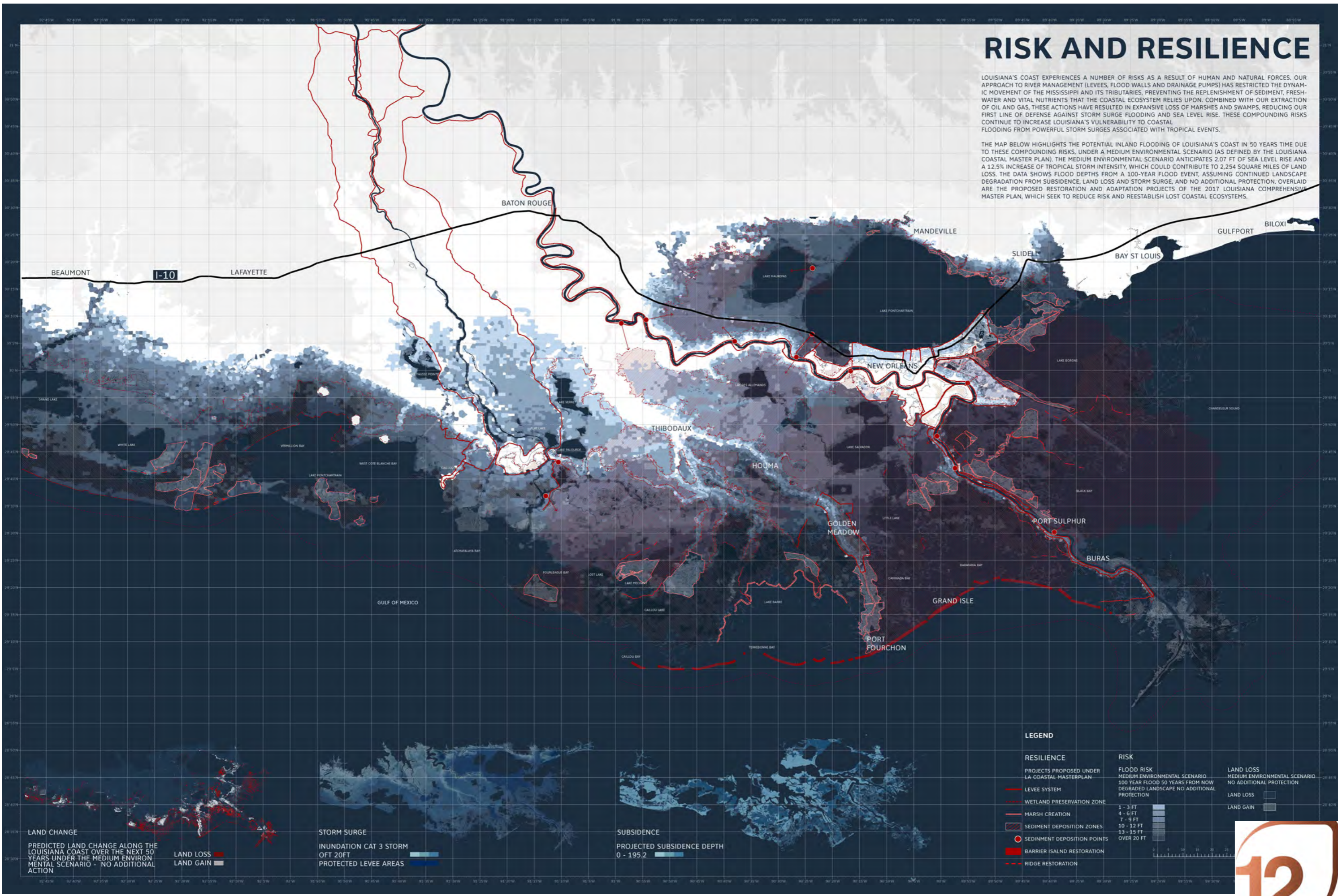
HOUMA TEST SITE



RISK AND RESILIENCE

LOUISIANA'S COAST EXPERIENCES A NUMBER OF RISKS AS A RESULT OF HUMAN AND NATURAL FORCES. OUR APPROACH TO RIVER MANAGEMENT (LEEVES, FLOOD WALLS AND DRAINAGE PUMPS) HAS RESTRICTED THE DYNAMIC MOVEMENT OF THE MISSISSIPPI AND ITS TRIBUTARIES, PREVENTING THE REPLENISHMENT OF SEDIMENT, FRESH-WATER AND VITAL NUTRIENTS THAT THE COASTAL ECOSYSTEM RELIES UPON. COMBINED WITH OUR EXTRACTION OF OIL AND GAS, THESE ACTIONS HAVE RESULTED IN EXPANSIVE LOSS OF MARSHES AND SWAMPS, REDUCING OUR FIRST LINE OF DEFENSE AGAINST STORM SURGE FLOODING AND SEA LEVEL RISE. THESE COMPOUNDING RISKS CONTINUE TO INCREASE LOUISIANA'S VULNERABILITY TO COASTAL FLOODING FROM POWERFUL STORM SURGES ASSOCIATED WITH TROPICAL EVENTS.

THE MAP BELOW HIGHLIGHTS THE POTENTIAL INLAND FLOODING OF LOUISIANA'S COAST IN 50 YEARS TIME DUE TO THESE COMPOUNDING RISKS. UNDER A MEDIUM ENVIRONMENTAL SCENARIO (AS DEFINED BY THE LOUISIANA COASTAL MASTER PLAN), THE MEDIUM ENVIRONMENTAL SCENARIO ANTICIPATES 2.07 FT OF SEA LEVEL RISE AND A 12.5% INCREASE OF TROPICAL STORM INTENSITY, WHICH COULD CONTRIBUTE TO 2,254 SQUARE MILES OF LAND LOSS. THE DATA SHOWS FLOOD DEPTHS FROM A 100-YEAR FLOOD EVENT, ASSUMING CONTINUED LANDSCAPE DEGRADATION FROM SUBSIDENCE, LAND LOSS AND STORM SURGE, AND NO ADDITIONAL PROTECTION. OVERLAID ARE THE PROPOSED RESTORATION AND ADAPTATION PROJECTS OF THE 2017 LOUISIANA COMPREHENSIVE MASTER PLAN, WHICH SEEK TO REDUCE RISK AND REESTABLISH LOST COASTAL ECOSYSTEMS.



LAND CHANGE
 PREDICTED LAND CHANGE ALONG THE LOUISIANA COAST OVER THE NEXT 50 YEARS UNDER THE MEDIUM ENVIRONMENTAL SCENARIO - NO ADDITIONAL ACTION

LAND LOSS
 LAND GAIN

STORM SURGE
 INUNDATION CAT 3 STORM OFT 20FT
 PROTECTED LEEVEE AREAS

SUBSIDENCE
 PROJECTED SUBSIDENCE DEPTH
 0 - 195.2

LEGEND

RESILIENCE

- PROJECTS PROPOSED UNDER LA COASTAL MASTERPLAN
- LEVEE SYSTEM
- WETLAND PRESERVATION ZONE
- MARSH CREATION
- SEDIMENT DEPOSITION ZONES
- SEDIMENT DEPOSITION POINTS
- BARRIER ISLAND RESTORATION
- RIDGE RESTORATION

RISK

- FLOOD RISK
- MEDIUM ENVIRONMENTAL SCENARIO
- 100 YEAR FLOOD 50 YEARS FROM NOW
- DEGRADED LANDSCAPE NO ADDITIONAL PROTECTION
- 1 - 3 FT
- 4 - 6 FT
- 7 - 9 FT
- 10 - 12 FT
- 13 - 15 FT
- OVER 20 FT

- LAND LOSS
- MEDIUM ENVIRONMENTAL SCENARIO
- NO ADDITIONAL PROTECTION
- LAND LOSS
- LAND GAIN

