

- + FLUX ZONING
- + SOFT INFRASTRUCTURE
- + MARINE CULTURE

INLAND SEA




LIVING WITH THE TIDE

Can coastal communities thrive in a constantly changing landscape?

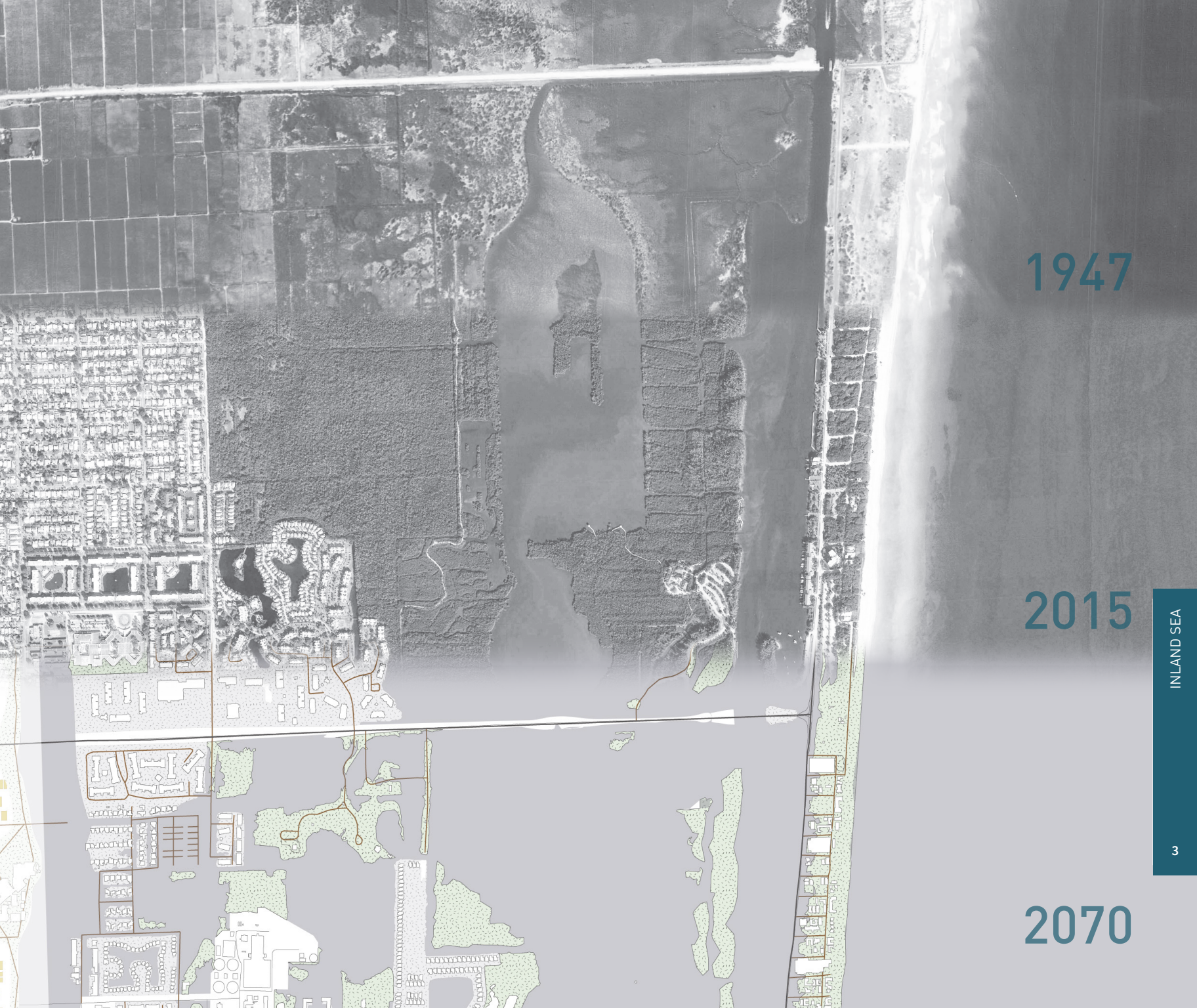
Broward’s low-lying coastal neighborhoods-- including more than 19,000 residential units* east of I-95 and south of I-595--idle on the frontline of extreme weather events. Whether a king tide, a ten inch rainstorm, a hurricane surge, or the slow creep of sea level rise, climate change promises to increase these events in both frequency and volume.

This project is focused on shifting the conversation around these neighborhoods from floods threatening dry property to one that embraces ecosystem as an opportunity for protection and tourism. A series of three soft infrastructures will protect Broward’s urban area based on existing and borrowed landscape. The first infrastructure, the Barrier

Island, will have lost significant beachfront property but gained in natural parkland, tourism, and marine hotels. Behind this lays the Inland Sea, whose dynamic expanse of water, island habitats and sandbars respond to every tide and mitigate storm surge energy. The last protective infrastructure is a flexible terrain—never permanently wet nor permanently dry—that soaks up saltwater before it can cascade into critical areas. Marina villages and boardwalk communities flourish here, enjoying a uniquely Floridian experience adapted to the area’s new role as a coastal sponge.

CODING FOR RESILIENCE			
	HIGH ZONE	FLUX ZONE	LOW ZONE
ZONE			
USE	critical infrastructure; dry residential, commercial, civic	water-based residential, commercial, civic	green buffer, recreation, water storage
DENSITY	high density: up to 50 units per acre	low density: up to 25 units per acre	no build

FLUX ZONING SAVES \$8.2B FROM 2015-SCALE DAMAGES AND CULTIVATES FUTURE RESILIENCE



1947

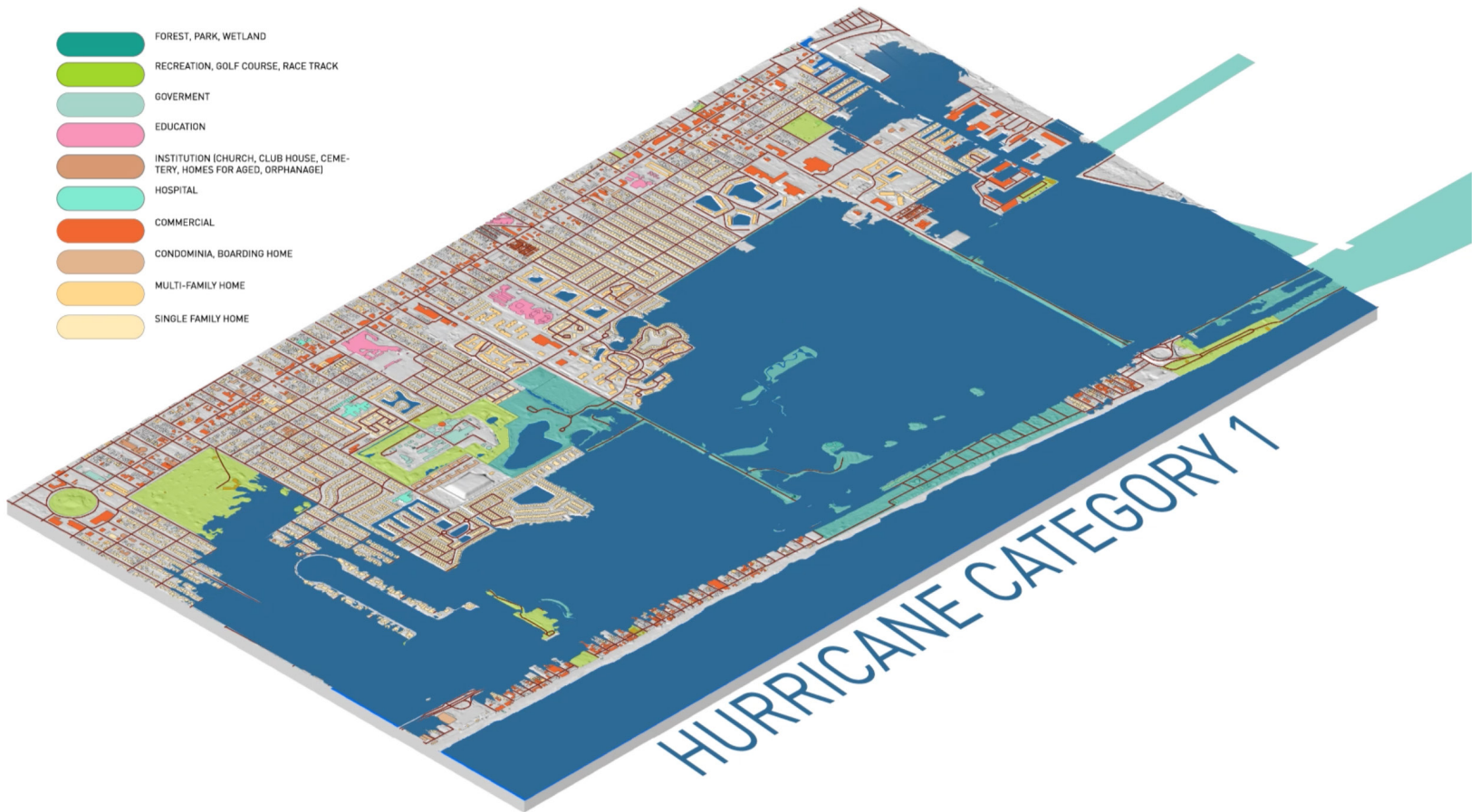
2015

2070

Coastal Area Flood Model

\$8.2b property at risk from storm surge east of I-95

A five-foot sea level rise would cover nearly the entire coastal area, but even something comparatively benign as a category 1 hurricane surge would put most of the Hollywood Lakes, large swaths of the Barrier Island, and even the Jai Alai parking lot underwater.



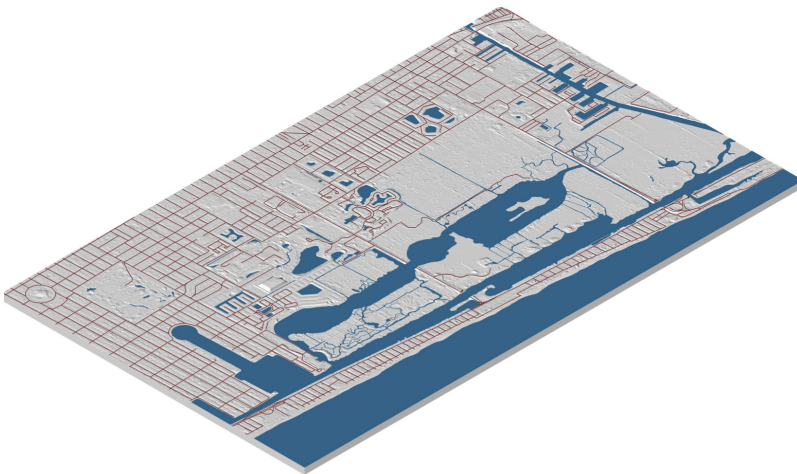
Coastal Area Topography + Land Use

Hard land use lines obscure the actual character of water

Grids of single-family and multi-family housing, public schools, churches, the Jai Alai casino, golf courses, strip-mall commercial, hotels, and impermeable transportation and parking are superimposed on top of a gentle, sloping landscape that wants to act as a dynamic coastal ecosystem that can accommodate shifting volumes of water. The area's lowest-lying land use consists of a large conservation area and single-family developments from the 1920s, including many historically significant structures on the Barrier Island and Hollywood Lakes neighborhood.



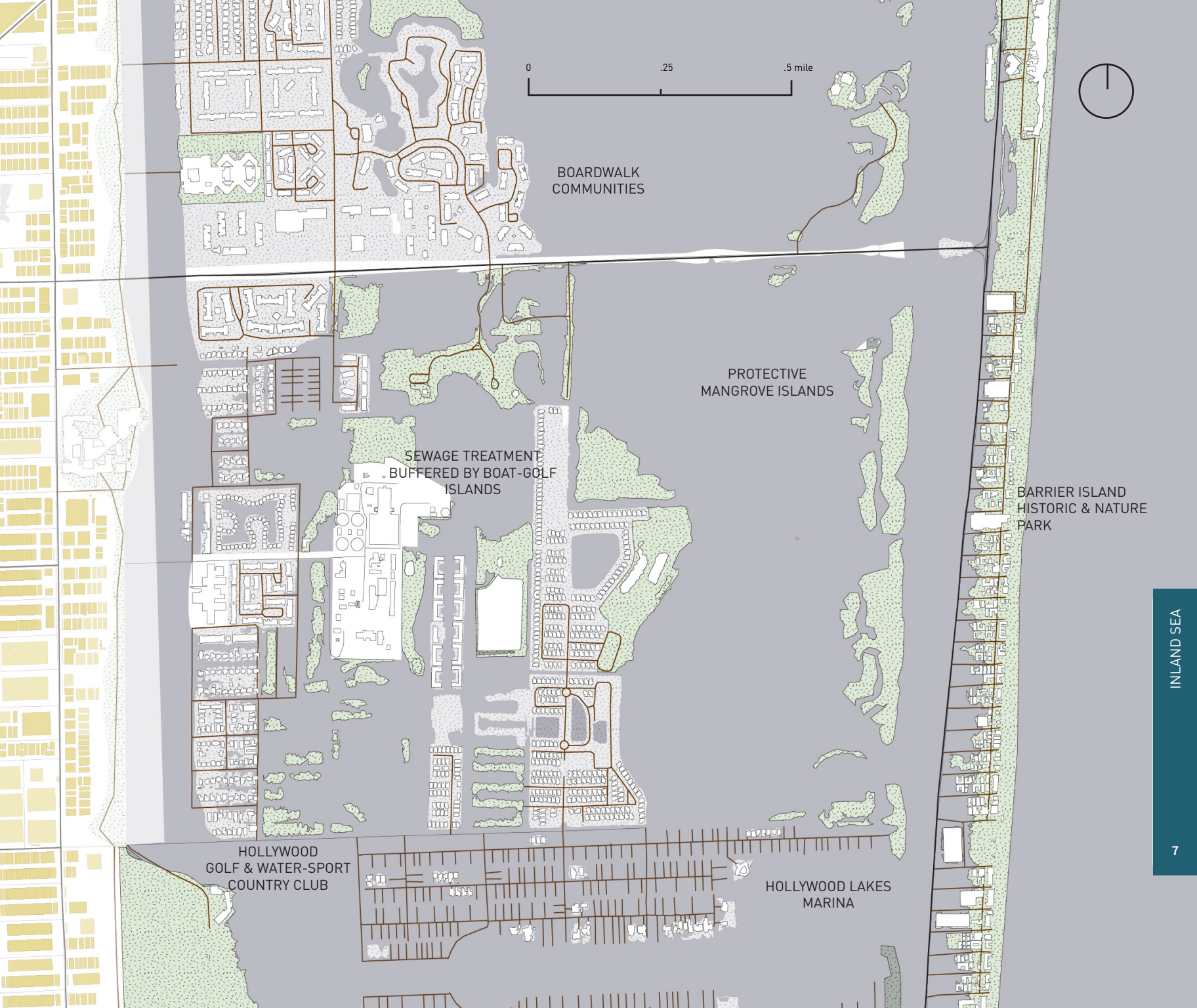
site location / master plan



Inland Sea Master Plan + Insert

- HIGH ZONE
- FLUX ZONE
- LOW ZONE





BOARDWALK
COMMUNITIES

PROTECTIVE
MANGROVE ISLANDS

SEWAGE TREATMENT
BUFFERED BY BOAT-GOLF
ISLANDS

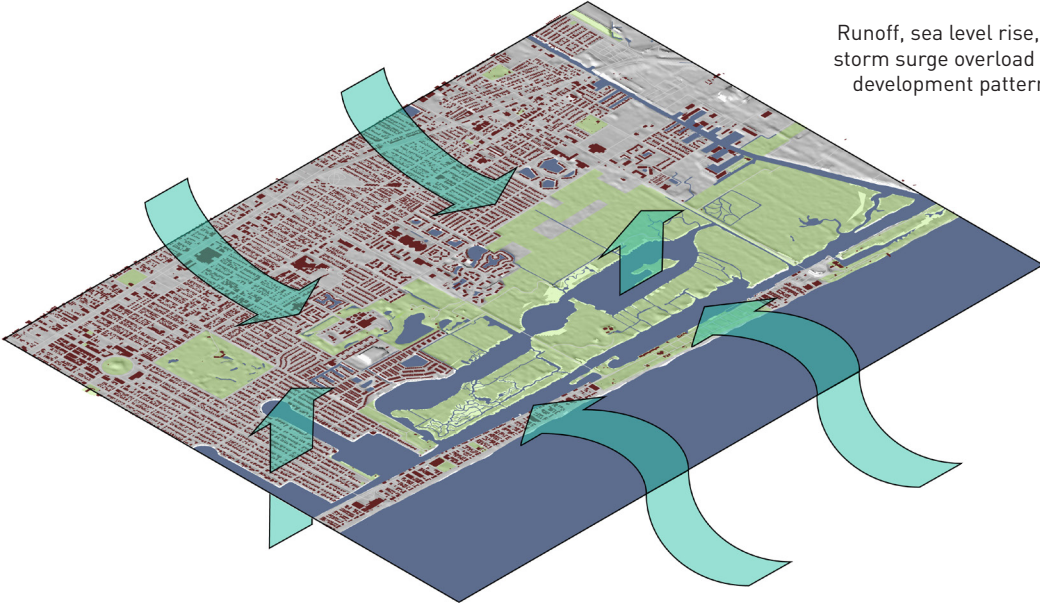
BARRIER ISLAND
HISTORIC & NATURE
PARK

HOLLYWOOD
GOLF & WATER-SPORT
COUNTRY CLUB

HOLLYWOOD LAKES
MARINA

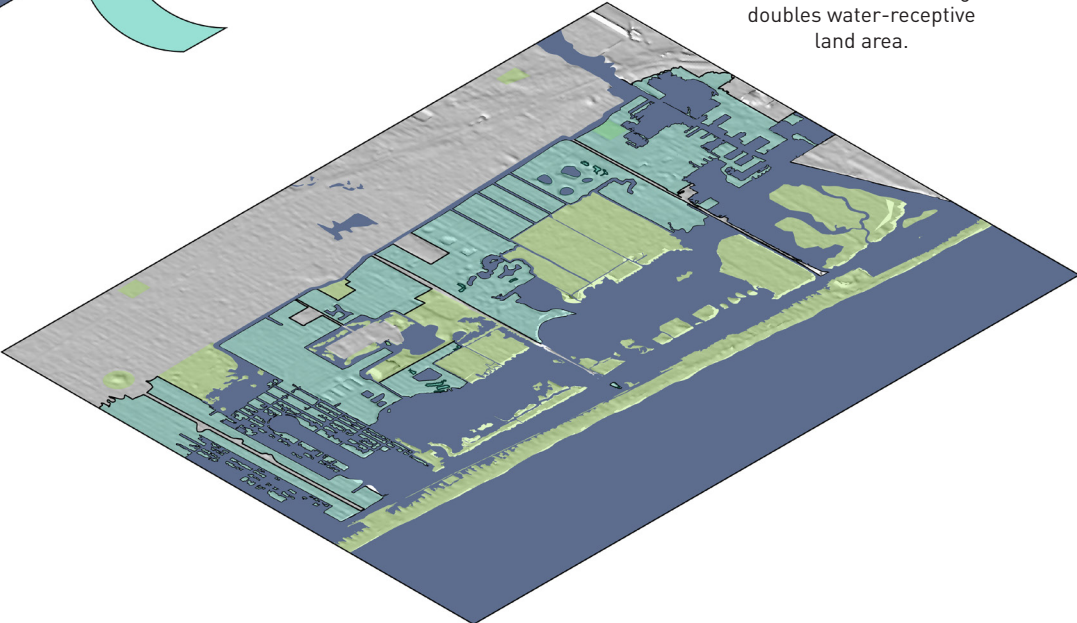
2015

Runoff, sea level rise, and storm surge overload rigid development patterns.



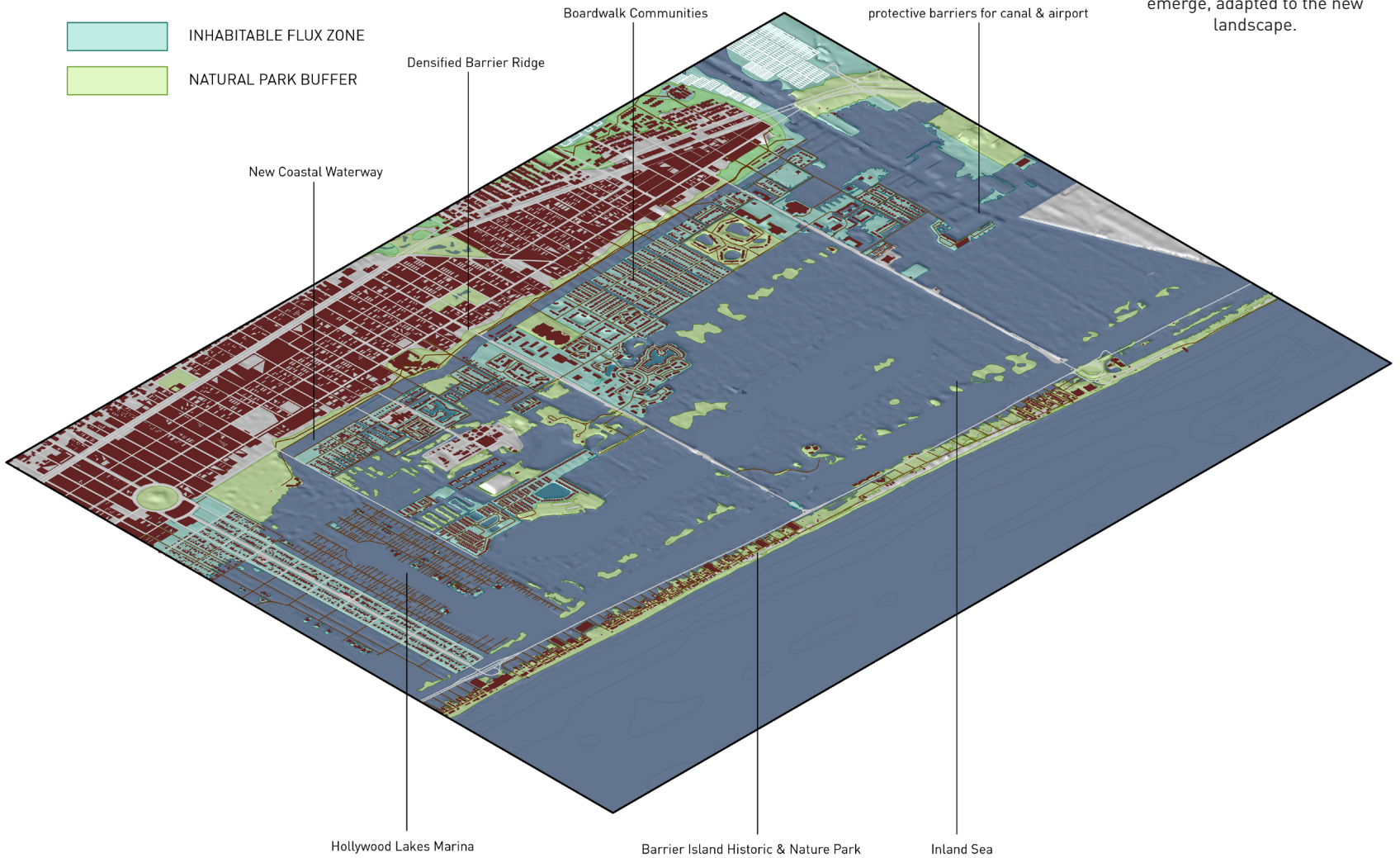
2040

Creation of Flux Zoning doubles water-receptive land area.



2070

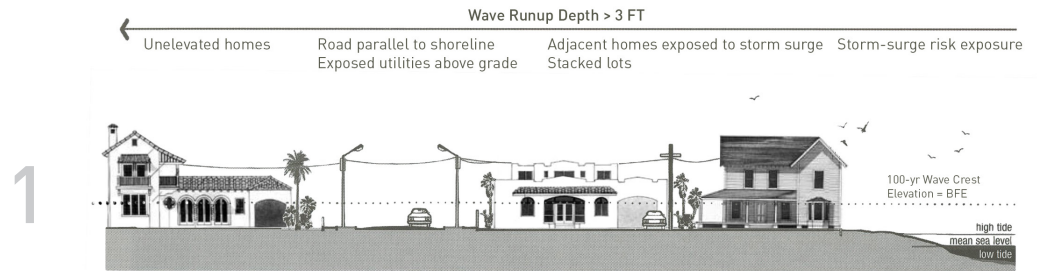
New neighborhood typologies emerge, adapted to the new landscape.



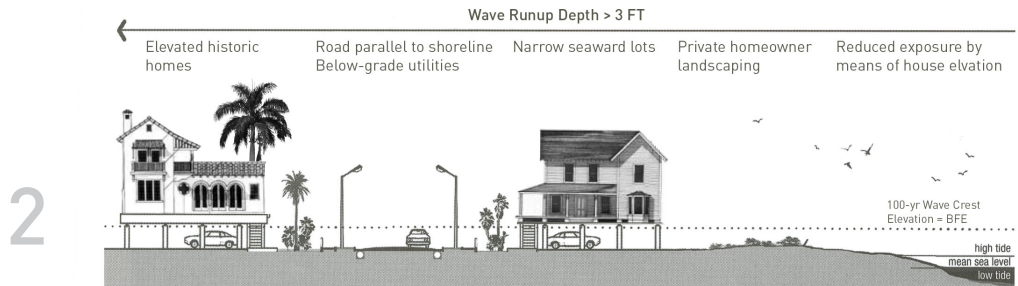
Low Zoning

100 year flood + wave action (VE) adaptation

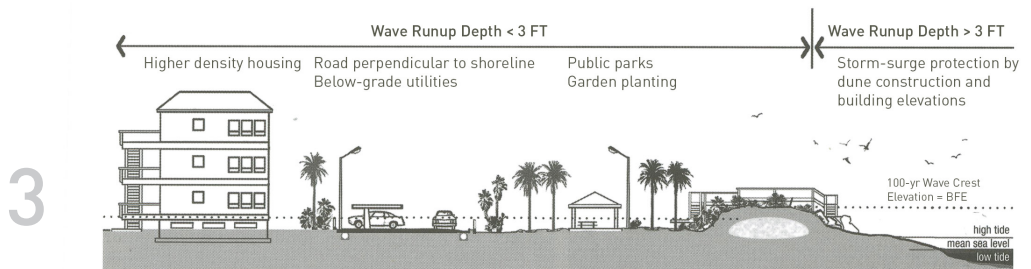
Depending on condition, historic buildings along the coast and Hollywood Lakes are either elevated or relocated to restore a protective infrastructure of sand dunes packed with woody vegetation, public park space and water storage areas.



2015: Existing development fully exposed to coastal storm and flood hazard



2040: Wave-ward homes removed and rear homes elevated to NFIP requirements



2070: Buildings removed from shoreline with restored dune and vegetative coastal buffer zone

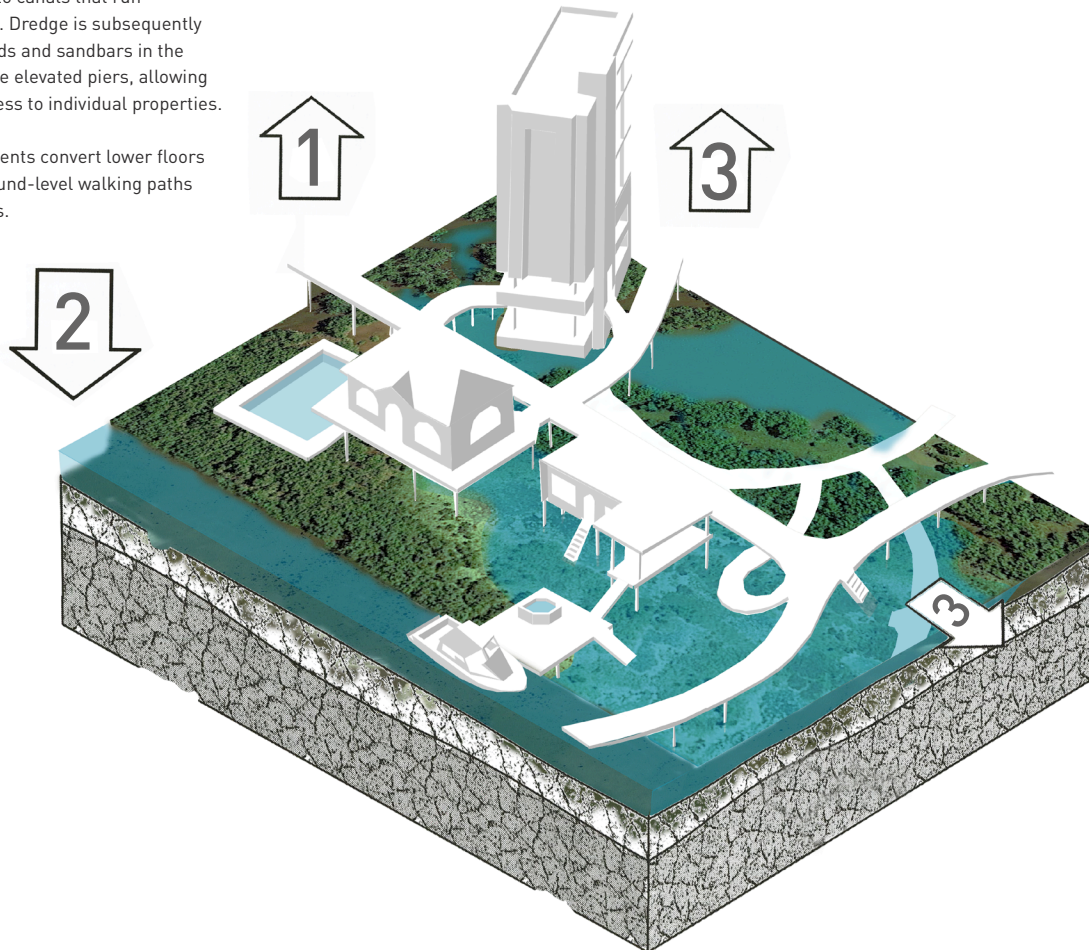
Phased plan of shoreline community retreat and reconstruction (Watson, Adams, Design for Flooding 2011)

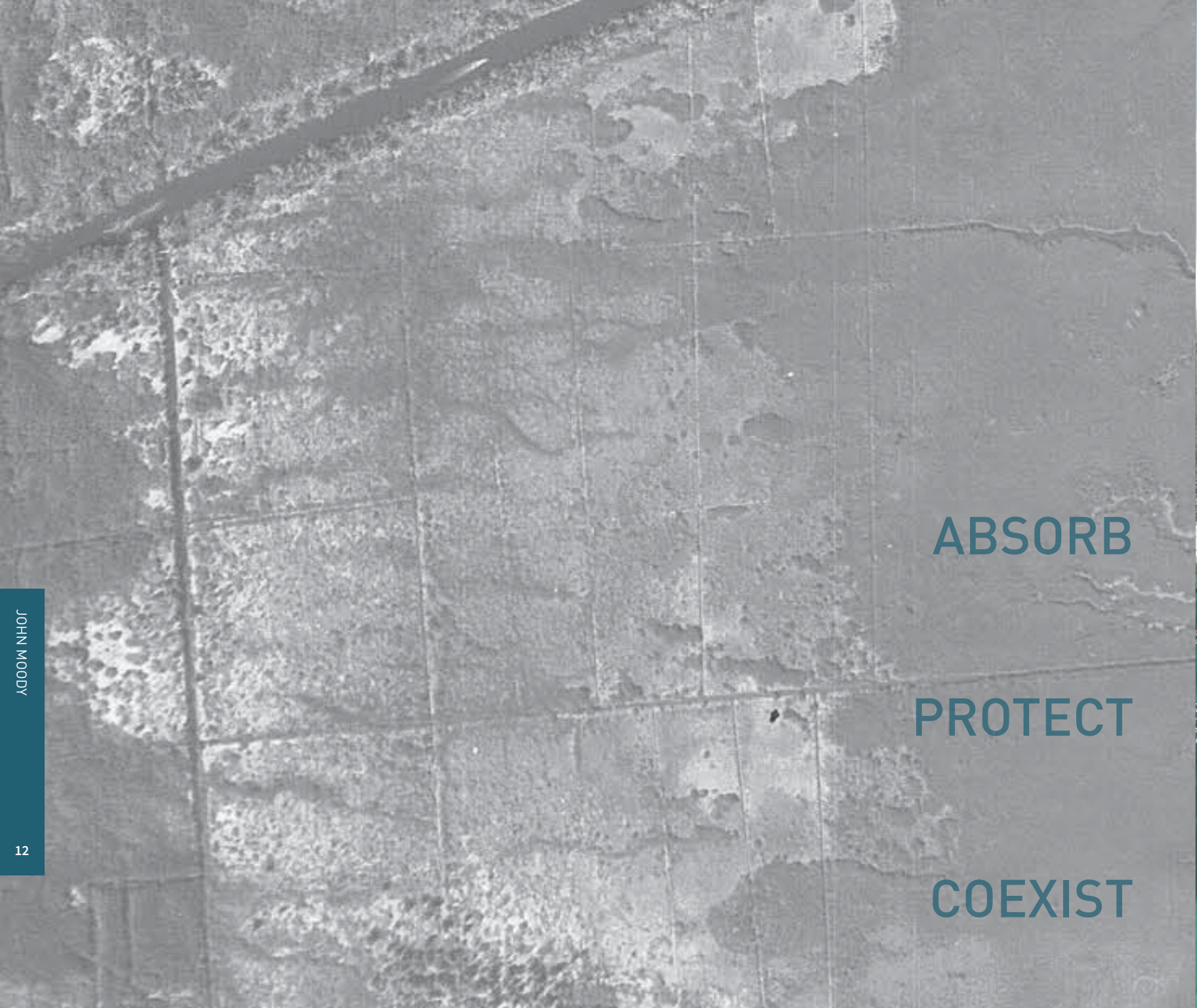
Flux Zoning

100-year flood (AE) adaptation

Water-receptive zoning measures in the flux zone restore soggy lawns and impermeable parking lots to marshland that echoes the area's original spongelike condition. The recommended restoration sequence would include:

1. Private homeowners begin to elevate houses.
2. Public-private capital projects aid in the transition to elevated living by converting the most floodable infrastructure, surface roads, to canals that run perpendicular to the shoreline. Dredge is subsequently used as fill for protective islands and sandbars in the Inland Sea. Back alleys become elevated piers, allowing dry as well as amphibious access to individual properties.
3. Larger apartment developments convert lower floors to car parking and provide ground-level walking paths through dynamic public spaces.





ABSORB

PROTECT

COEXIST

