

disaster recovery: practicing resilience

THE SOUTH DADE WATERSHED PROJECT: WIN Plan

Hurricane Andrew flattened this 500 square mile area creating the opportunity to re-pattern future development so that it responds to the challenges of storm surge and sea level rising. The approach was to understand the fit between urban, agricultural and natural system needs - based on the natural carrying capacity of the region - and then create sustainable community patterns capable of including an additional 200,000 people while adjusting to terrestrial land use changes.

Adversity to Opportunity - this GIS based plan, resolves the challenges of the competing interests of urban and agricultural water resource use with the protection of the Everglades and the Biscayne National Park at a time when storms and sea level rising challenge the status quo. The WIN Plan creates urban greenways and blueways, aquifer recharge, transit orientated developments, agriculture preservation areas, flood and storm surge protection, while suppling Dade County users with a sustainable potable water storage and creating livable-walkable urban patterns.

The Process: Learn and Adapt

a) Reconnects the regional natural systems

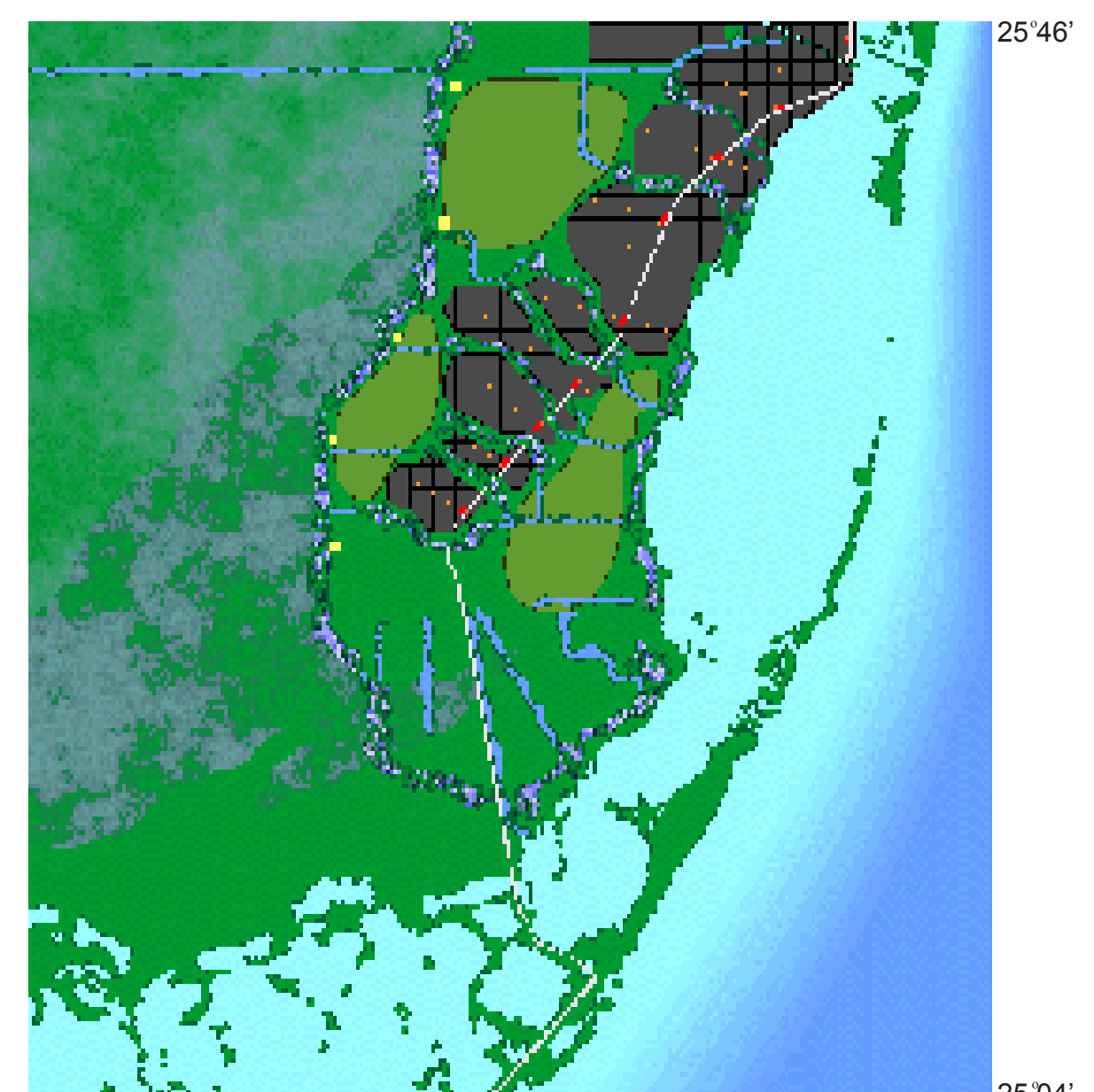
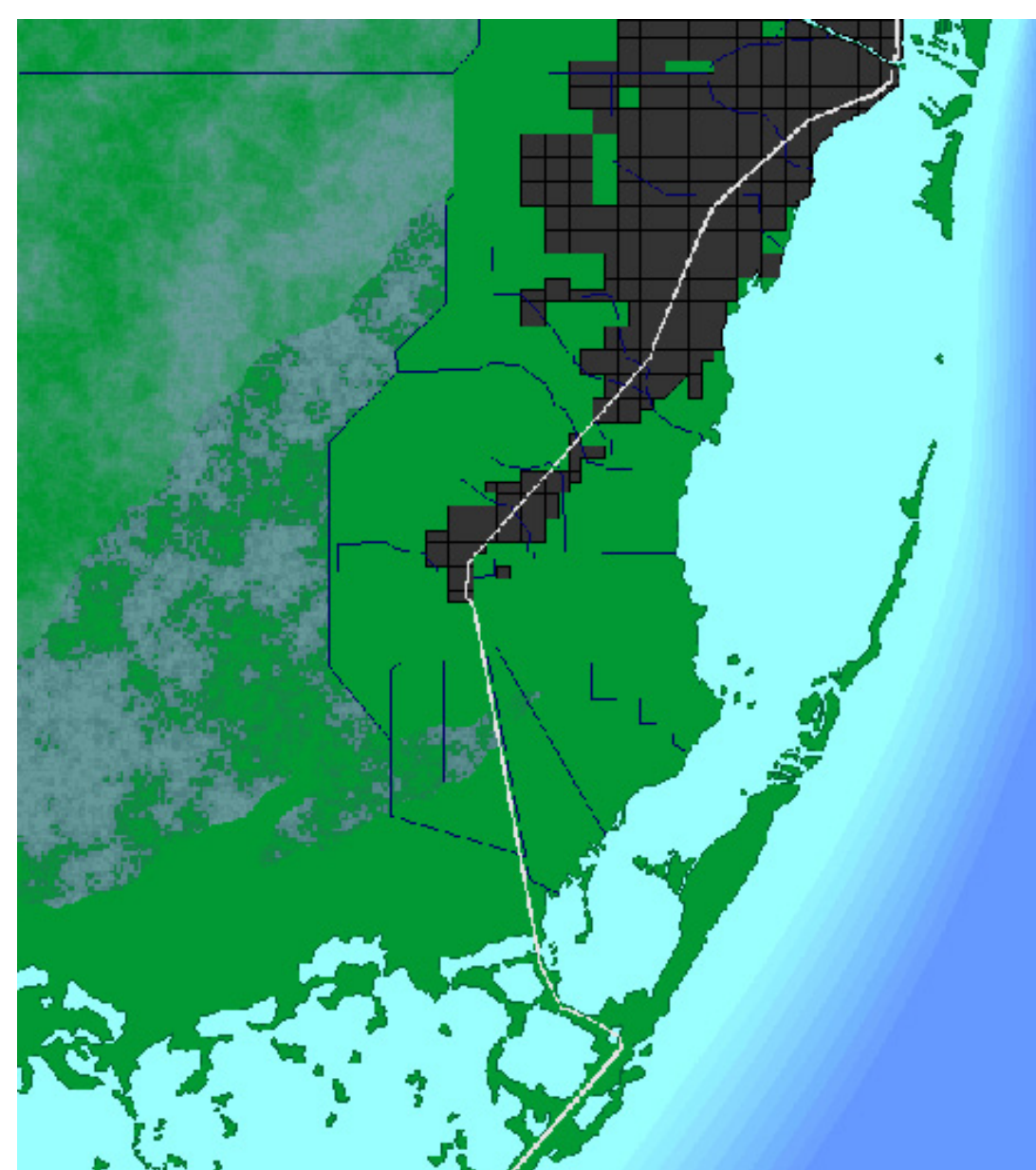
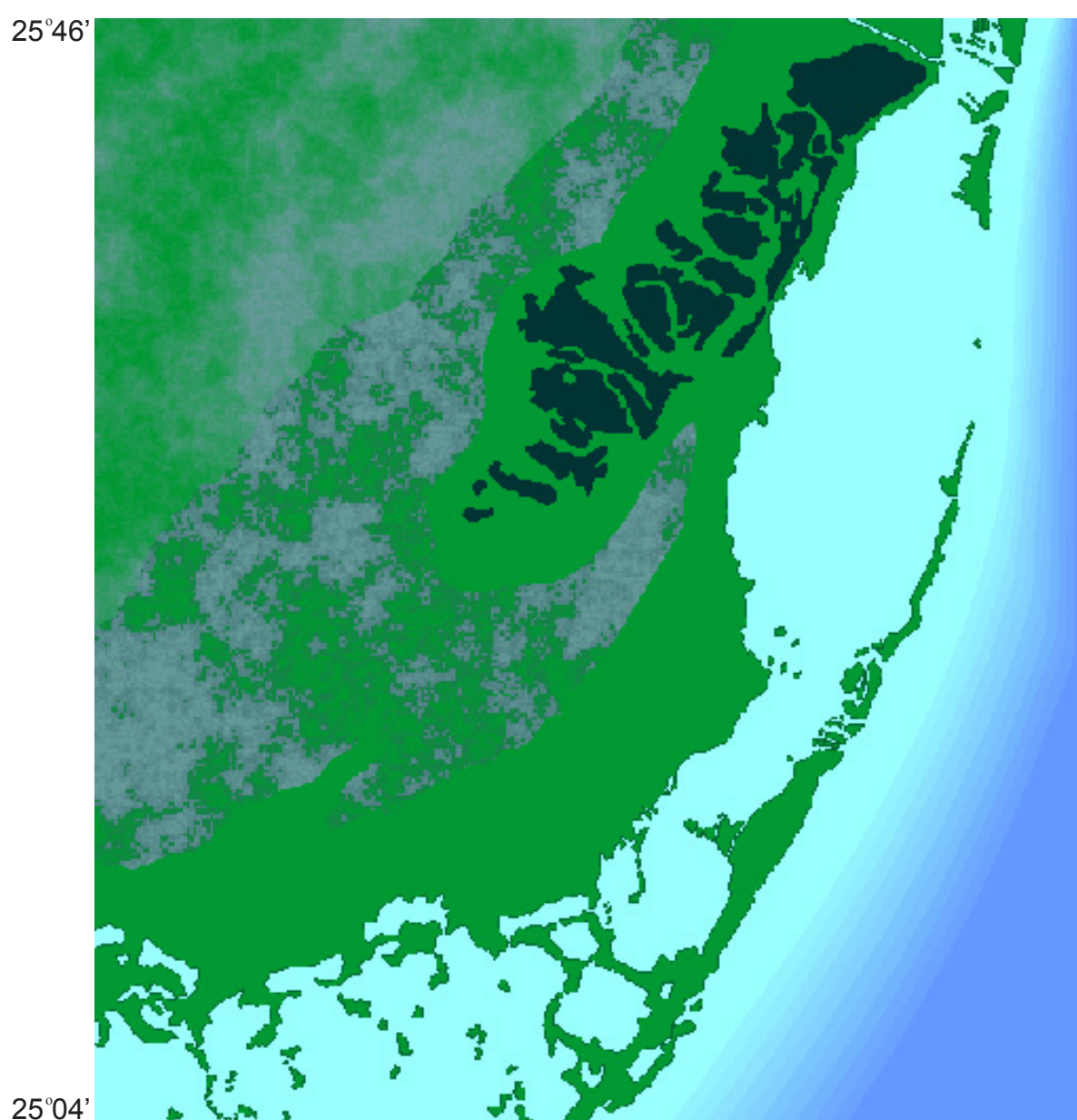
Below illustrates the historic conditions and natural systems. Shown are areas along the coastal ridge above 8 feet (dark areas), the Everglades (to the left), and the coastal waters. The transverse glades cut through the coastal ridge and are the historic connections between Biscayne Bay and the Everglades and historically received and distributed rainfall.

b) Locates opportunities and fits

The current conditions are shown below. Developed urban areas (dark squares), the Everglades (to the left), canals (dark lines), and highway US 1 (white line) are depicted. Urban development has covered over the wetland connections between the Bay and the Everglades. In their place, canals now remove water - this water, critical to recharge, is permanently lost to tide.

c) Sets the incremental steps for the future

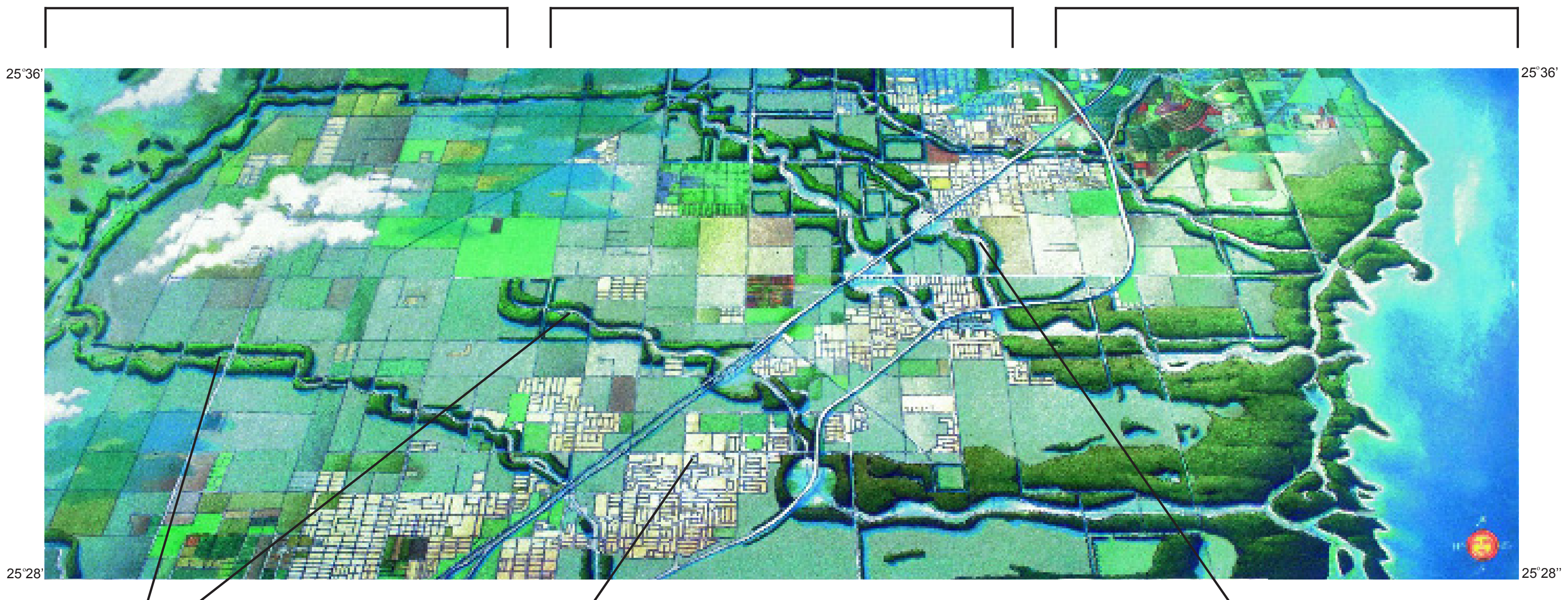
Redevelopment must occur as "urban infill" in areas such as the coastal ridge. Agriculture and historic wetland connections are reestablished on the lower ground, while urban connections are made with an integrated transit system. Sewage treatment plants are strategically located to recycle/reuse water and nutrients while additional storage within the coastal ridge, maximizes potential gravity fed



EVERGLADES-AGRICULTURAL ZONE: a water storage and aquifer recharge area. Locate new sub-regional wastewater treatment plants with 100% reuse. Recharge the aquifer at the "rate of use" creating a sustainable supply of nutrients for the agricultural industry and potable water for Dade County's immediate and future needs.

COASTAL RIDGE DEVELOPMENT ZONE AND TRANSVERSE GLADES: the urban development area. This zone receives the highest amount of rainfall but has the most amount of impervious surface. The collecting, cleaning and distributing of this water and storing it underground will increase the total available supply of water while reducing the losses to evapotranspiration.

BISCAYNE BAY COASTAL ZONE: a coastal transition-protection area. Provides a natural buffer from hurricane storm-surge and sea-level rise, while enhancing the distribution, timing, quantity, and quality of freshwater flows. Improving the fishing industry while planning for changes to land use - this plan is a win-win for the economy and the environment.



Linear "hydric parks" combine the recreational and aesthetic benefits of "greenways and blueways" with water resource objectives. These parks help create strong edges that define neighborhoods and communities while reconnecting habitat and increasing land value.

The greatest potential for additional water storage lies within the coastal ridge. The development of neighborhood "hydric parks" increases local aquifer recharge, reduces local flooding, enhances community identity and increases property value.

Water storage areas, located within communities, will recharge local wellfields and reduce the saltwater intrusion while creating neighborhood parks. The largest new storage of water for regional use would occur here in underground and surface storage.

Mimicking the historic function of the transverse glades as management of stormwater - these planned-resilience areas adapt to climate change impacts. Establishing a 100 year community-based plan assures all communities the least impact and greatest gain.