# Resilient Infrastructure Update

**County Administration**

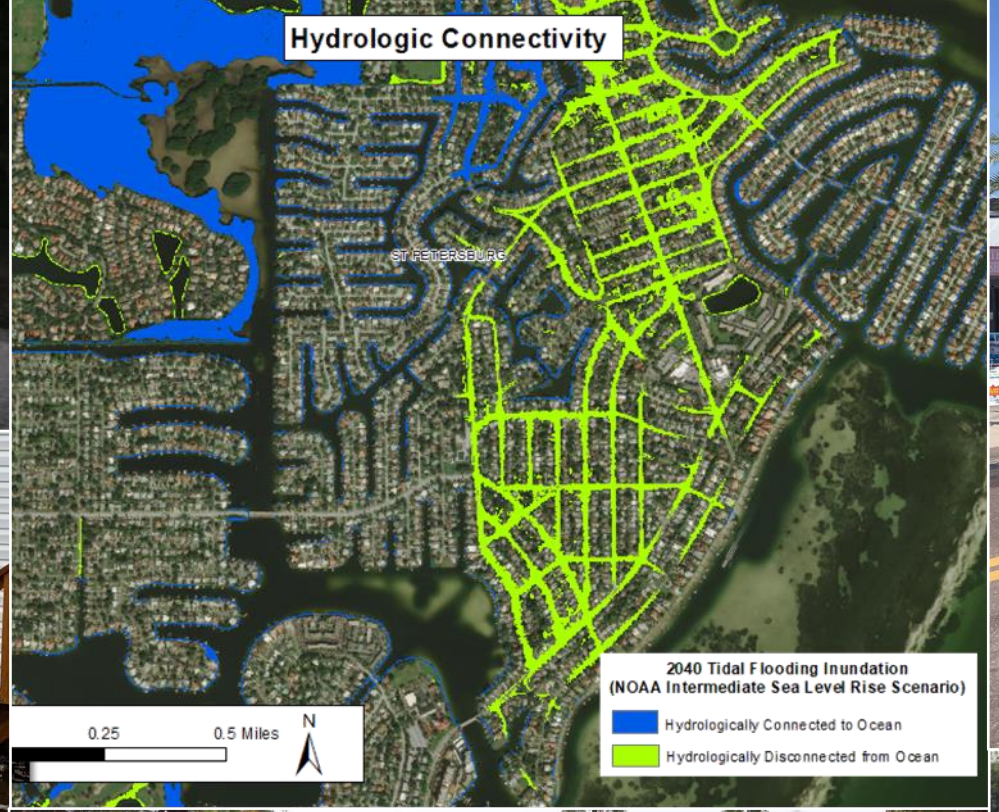
**Hank Hodde, MS, CFM, ENV SP**

Sustainability & Resiliency Coordinator


PINELLAS COUNTY, FLORIDA
BOARD OF COUNTY COMMISSIONERS

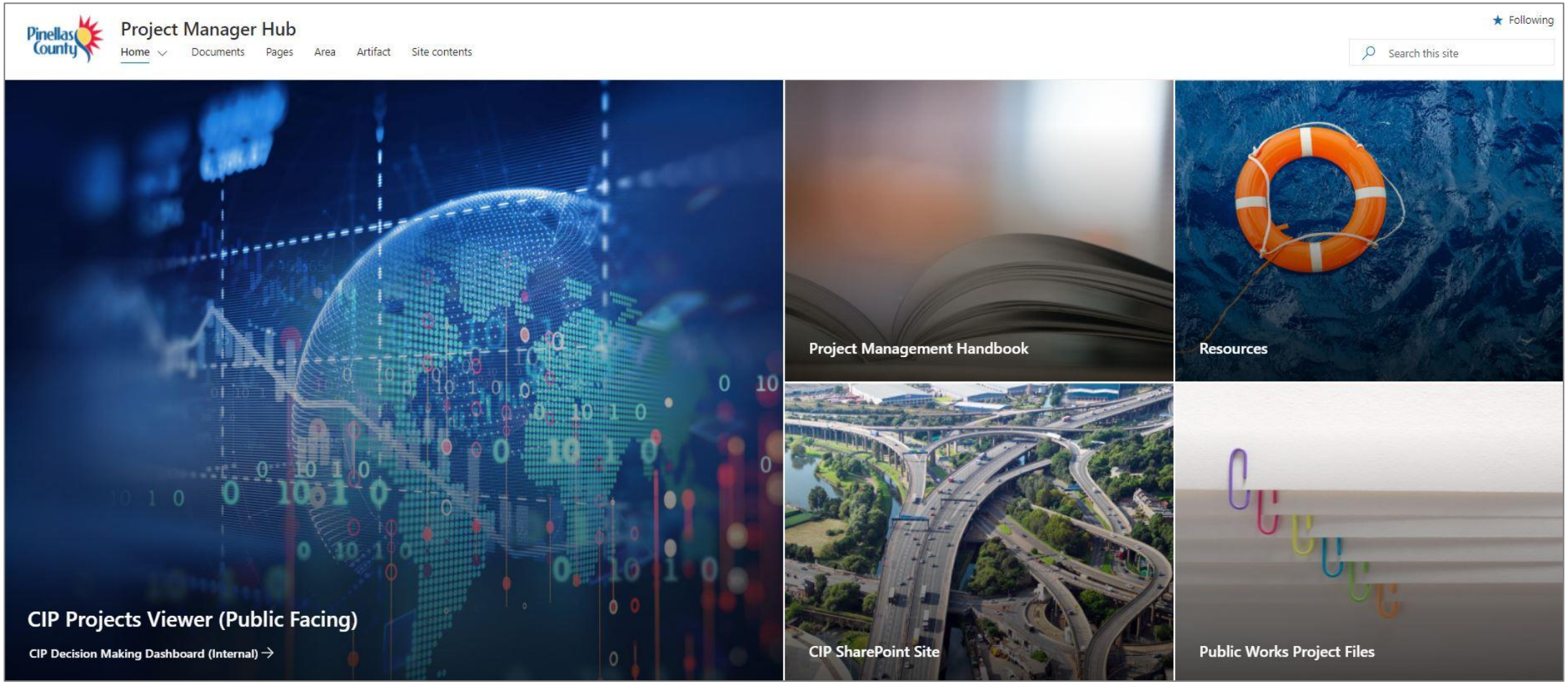
**Our Vision: To Be the Standard for Public Service in America**

Pinellas County

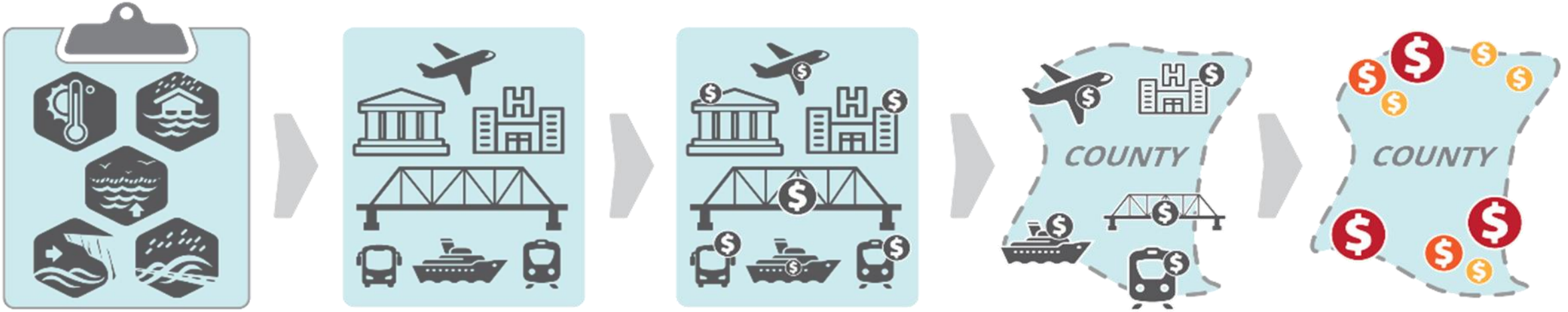

Hydrologic Connectivity
ST PETERSBURG
0.25
0.5 Miles
N
2040 Tidal Flooding Inundation
(NOAA Intermediate Sea Level Rise Scenario)
Hydrologically Connected to Ocean
Hydrologically Disconnected from Ocean

YOUR SPEED
SPEED LIMIT 30

# Advancing Policy and Practice



# SLR & Storm Surge Vulnerability Assessment




Develop Full Inventory of Stressors: SLR, Surge, Groundwater Rise, Precipitation

Determine Impacts on County Facilities, Assets, Community Features

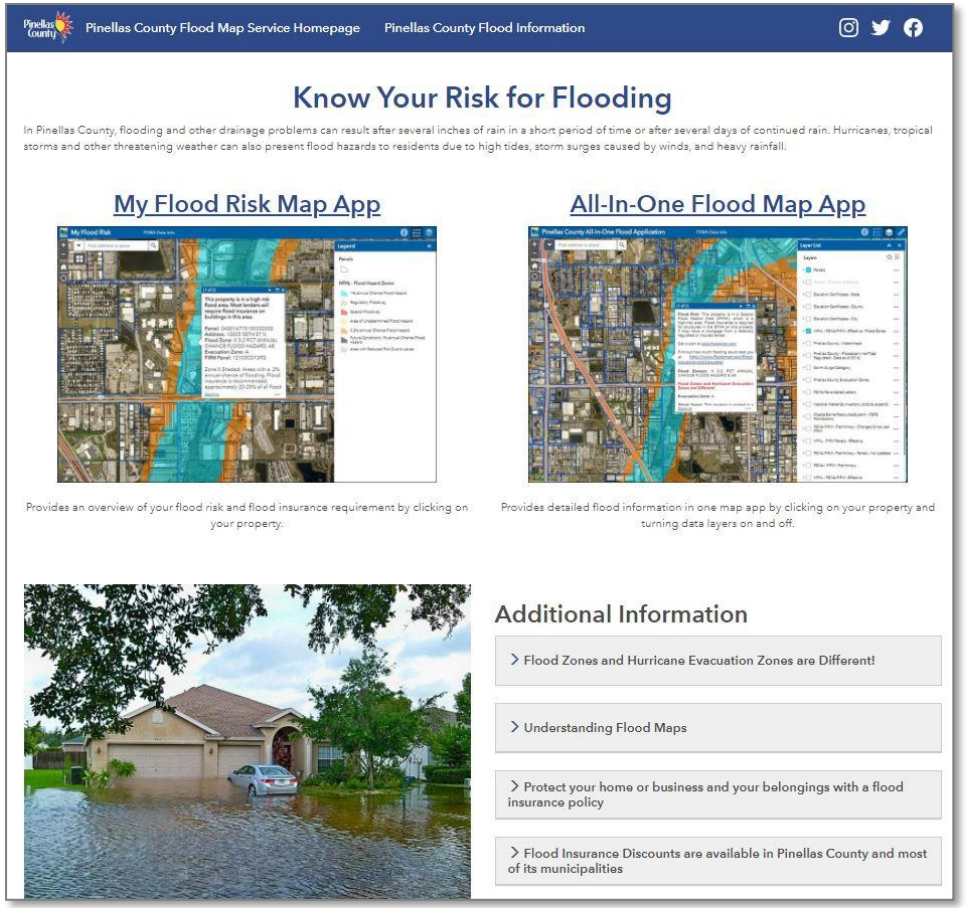
Monetize Risks in Today's Dollars for Every Asset

Develop Present Value Costs for Areas at Risk County-wide

Focus Investment Where Most Effective

# Flood Risk Management

- FEMA Community Rating System
  **$7.94M Annual Flood Insurance Savings!**
- Realtor Training Course
- Flood warning & response
- Data acquisition and utilization
- Floodplain preservation
- Stormwater operations & maintenance



# Green Infrastructure Program

Green Infrastructure

A great solution for Pinellas County

*In Pinellas County, we're surrounded by water. Protecting the quality of that water is a top priority. Clean beaches and bays are critical not only to wildlife, but also to residents and tourists and the overall economy.*

*Our countywide Strategic Plan calls upon us to practice superior environmental stewardship. One way we can do that is to increase the use of green infrastructure.*

**What is Green Infrastructure?**

Green infrastructure describes practices that create habitat and allow rainwater to filter through vegetation and soil rather than running into storm drains. When rain falls in undeveloped areas, the water is filtered by plants and the ground. In traditionally built areas, much of the rainwater can't soak into the ground because of pavement or buildings (impervious cover). Green infrastructure helps rainwater be filtered more naturally, minimizing the impacts of development on the environment and reducing long-term costs of treatment and maintenance. Green roofs, bioswales, pervious pavement and living shorelines are examples of green infrastructure.

**Green Infrastructure vs. Gray Infrastructure**

Gray infrastructure describes older methods of stabilizing shorelines and managing rain water by collecting and directing it away from developed areas using curbs/gutters, pipes and storm drains. Gray infrastructure lacks habitat and dumps stormwater into nearby waterbodies—a major cause of pollution in lakes, bays and the Gulf of Mexico.

Managing stormwater and shoreline protection with green infrastructure not only reduces water pollution, but also creates a healthier urban environment by providing habitat for wildlife, flood protection, cleaner air and cleaner water.

**How Impervious Cover Affects the Water Cycle**

| Natural Ground Cover | 10-20% Impervious Surface | 35-50% Impervious Surface | 75-100% Impervious Surface |
|---|---|---|---|
| 40% Evapo-Transpiration | 38% Evapo-Transpiration | 35% Evapo-Transpiration | 30% Evapo-Transpiration |
| 10% Runoff | 20% Runoff | 30% Runoff | 55% Runoff |
| 25% Shallow Infiltration | 21% Shallow Infiltration | 20% Shallow Infiltration | 10% Shallow Infiltration |
| 25% Deep Infiltration | 21% Deep Infiltration | 15% Deep Infiltration | 5% Deep Infiltration |

**Economic, Environmental and Social Benefits**

**Green infrastructure has many benefits, including:**

- **Improved water quality:** Stormwater filters through plants and soil at or near its source, reducing pollutants.
- **Reduced flooding and erosion:** Runoff is greatly reduced because more water is absorbed where it falls, which in turn reduces flash flooding and erosion issues.
- **Habitat restoration:** Florida-Friendly plants provide food and/or a place to live for wildlife in an increasingly urban environment where non-native turf grass dominates the landscape.
- **Increased groundwater recharge:** Rainwater filters through soil at its source, replenishing groundwater.
- **Cooler temperatures:** Less asphalt and concrete reduces the urban heat island effect.
- **Less impact on the climate:** Plants absorb carbon dioxide, a greenhouse gas.
- **Enhanced community aesthetics:** Landscapes with green infrastructure can result in higher property values and faster property sales.
- **Reduced energy use:** Tree shading and green roofs lead to lower air conditioning use. More planted areas require less lawn mowing. Less gray infrastructure reduces the amount used on making/transporting materials like concrete.
- **Decreased air pollution:** Trees and plants clean the air. Reduced energy use leads to lower power plant emissions.
- **Educational opportunities:** Green infrastructure sites can include informational signs and be used as outdoor classrooms, which educate the public about important environmental issues.
- **Expanded community value:** More green space can lead to greater recreational opportunities.

## 2019

**SITING TOOLBOX**

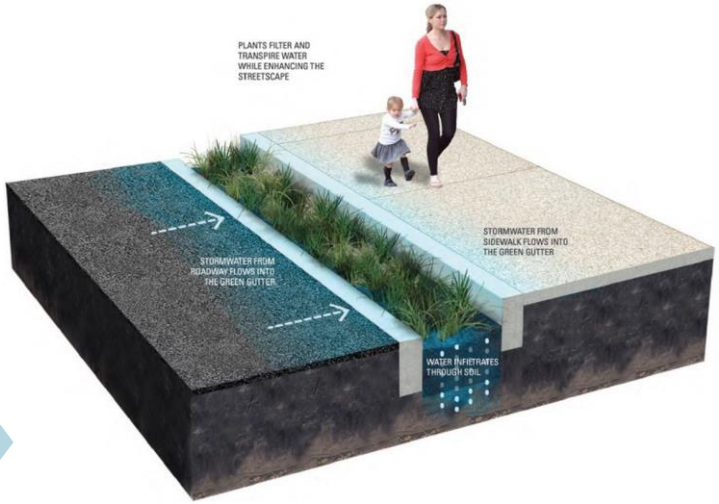
Geosyntec consultants

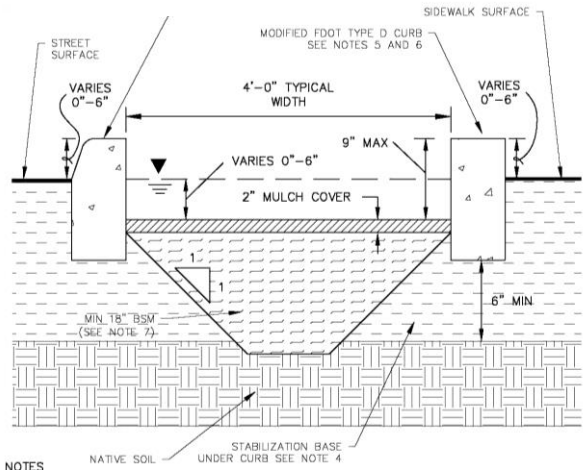
engineers | scientists | innovators

## 2020

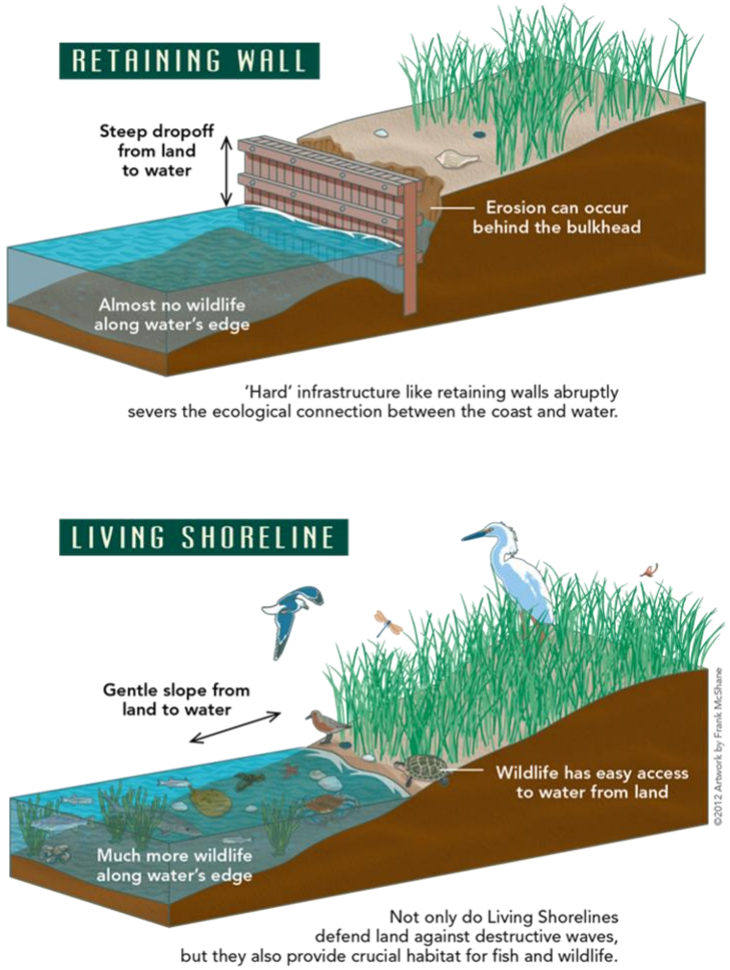
**DESIGN TEMPLATES**

APPLIED SCIENCES



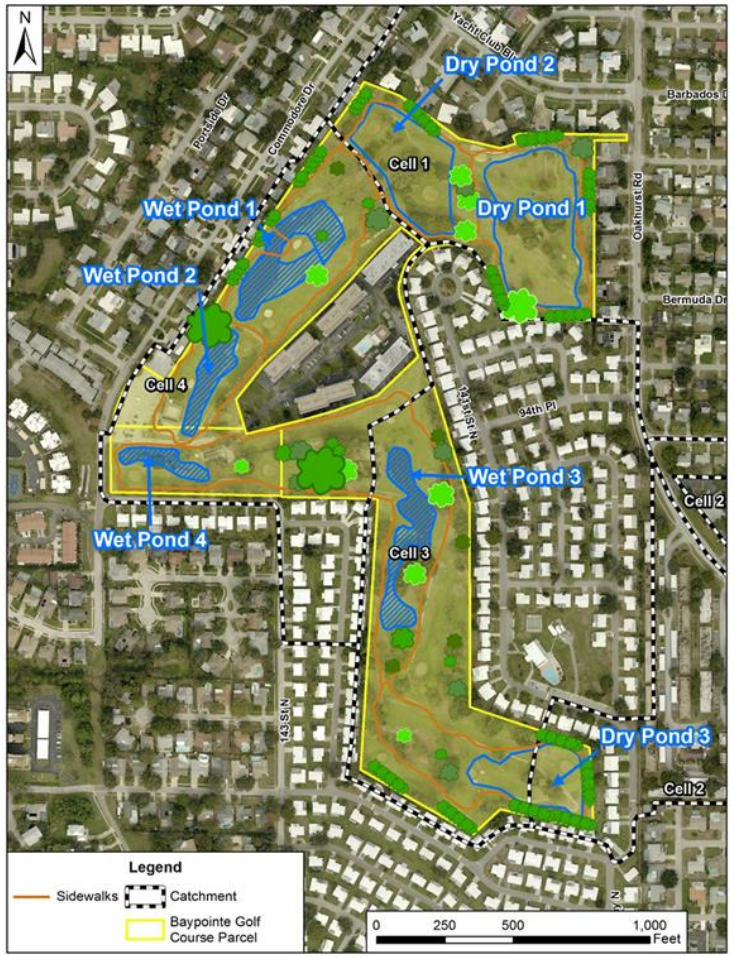



# Creating Living Shorelines



# Baypointe Stormwater Park

- Former 42-acre golf course
- County purchased it in 2020
- Improve flood control
- Improve stormwater quality
- Provide passive park elements
- Provide native habitat



# Recent Infrastructure Upgrades

# Planning Integration

# Resilient Florida Program *(380.093, F.S)*

| | |
|---|---|
| 1 **Resilient Florida Grant Program** | • **$520M** in FY21-22 for planning and infrastructure grants<br>• Due Sept 1, 2021 |
| 2 **Comprehensive Statewide Flood Vulnerability Data Set and Assessment** | • **$4M** in FY21-22 for collection and aggregation of data<br>• Data due July 1, 2022 \| Assessments due July 1, 2023 |
| 3 **Statewide Flooding and Sea Level Rise Resilience Plan** | • Up to **$100M** in FY22-23 for a 3-year statewide planning initiative<br>• Initial plan due to Legislature Dec. 1, 2021 |
| 4 **Regional Resilience Entities** | • **$2M** for technical assistance for multijurisdictional projects<br>• Due Sept 1, 2021 |
| 5 **Florida Flood Hub** | • Established central research center at **USF College of Marine Sciences**<br>• Annual report due by July 1, 2022 |

# THANK YOU!

**Hank Hodde**

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hhodde@pinellascounty.org

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