

Collier County Comprehensive Watershed Improvements Plan

Project Team in Attendance:

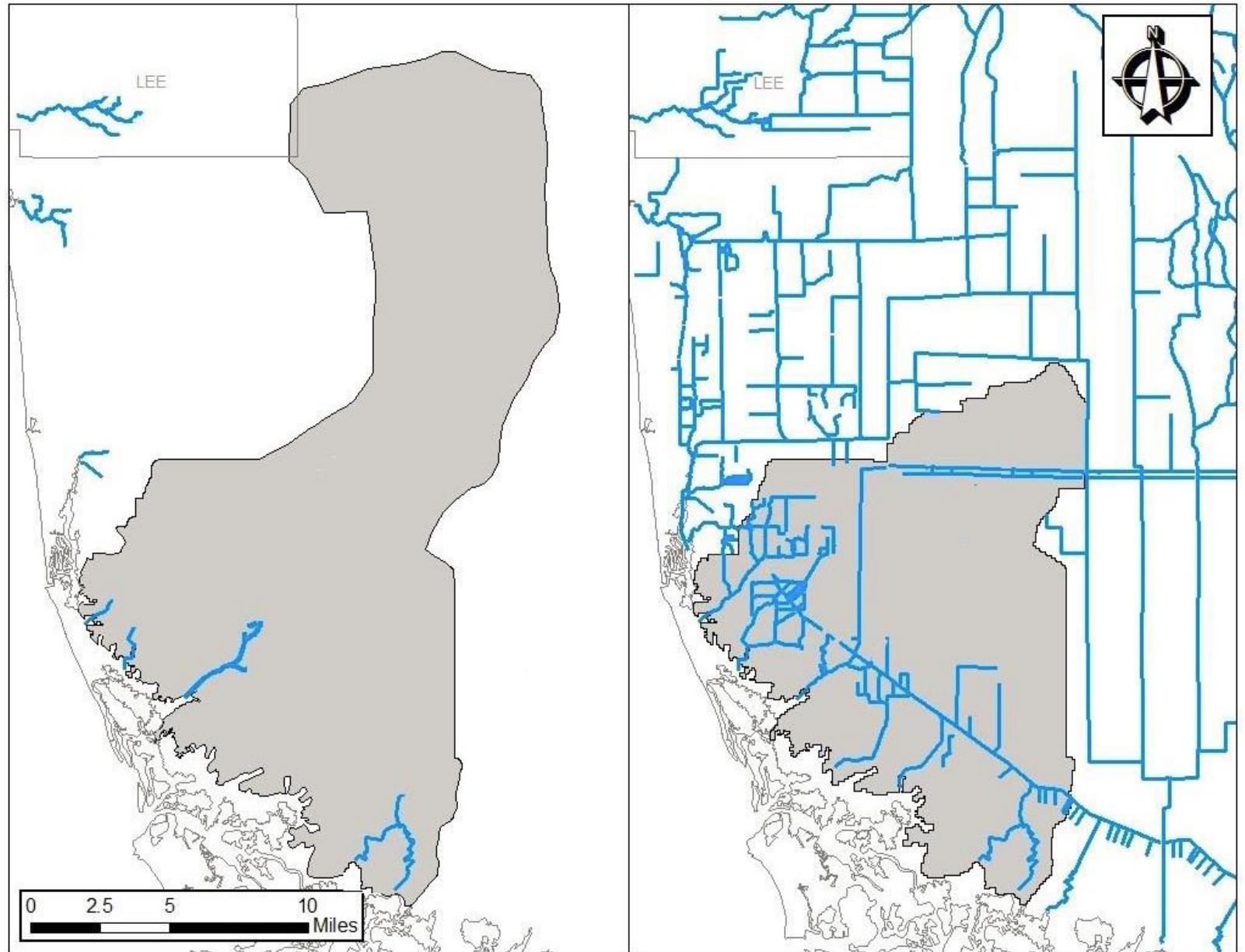
- Gary McAlpin, Collier County
- Mindy Collier, Collier County
- Kris Van Lengen, Collier County
- Michael Bosi, Collier County
- Clarence Tears, SW FL Land Preservation Trust
- John Loper, Taylor Engineering, Inc.
- Jenna Phillips, Taylor Engineering, Inc.
- Emilio Robau, Robau and Associates, LLC
- Sean Allen, Florida Forest Service



Need for Project

Approximately 80 sq. miles of Rookery Bay Watershed diverted to Naples Bay

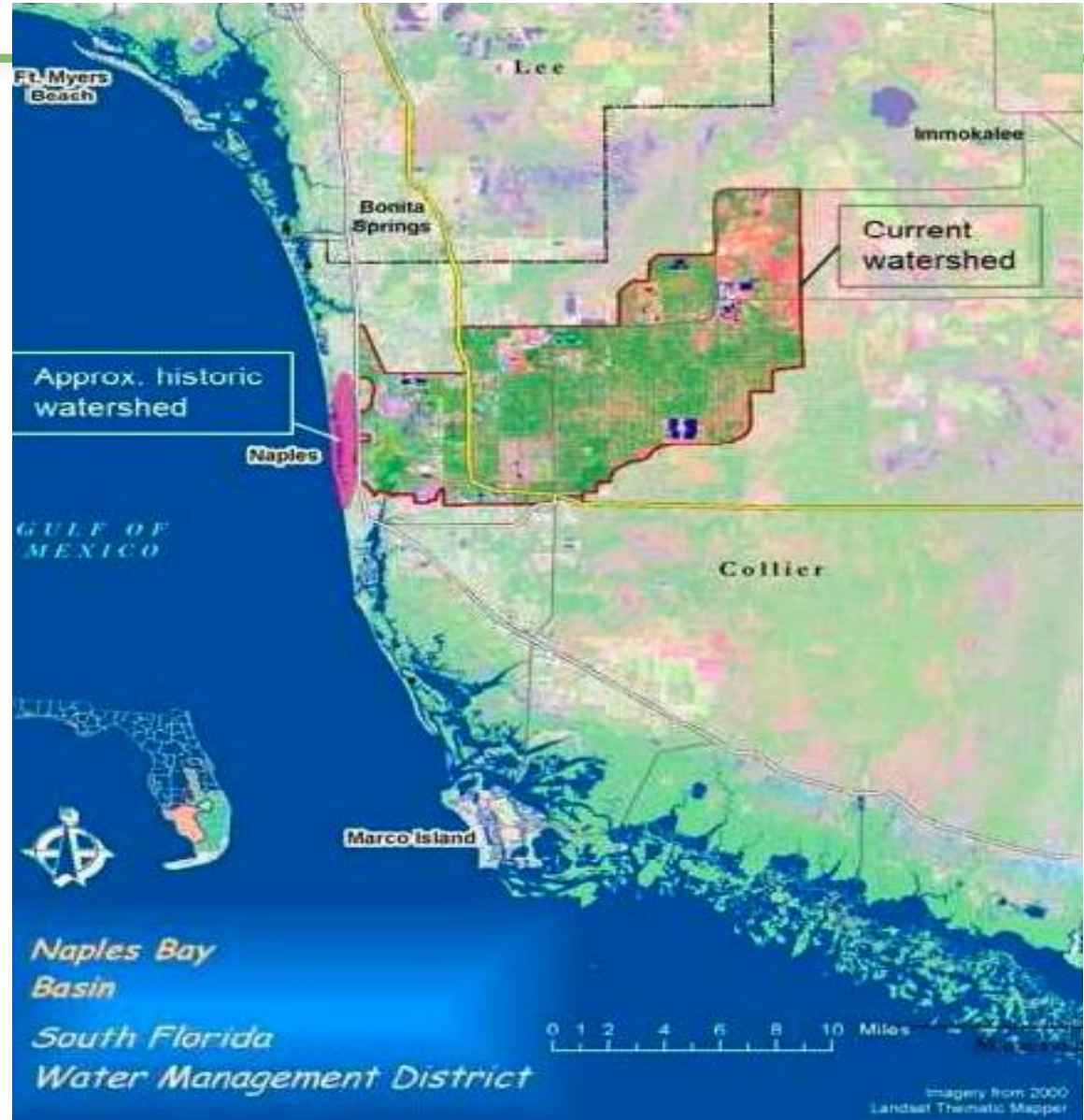
- Naples Bay receives too much fresh water via GGC
- Impacts to aquatic habitat (e.g., seagrass, oysters)



From Interflow Engineering Inc. and Taylor Engineering (2014)

Need for Project

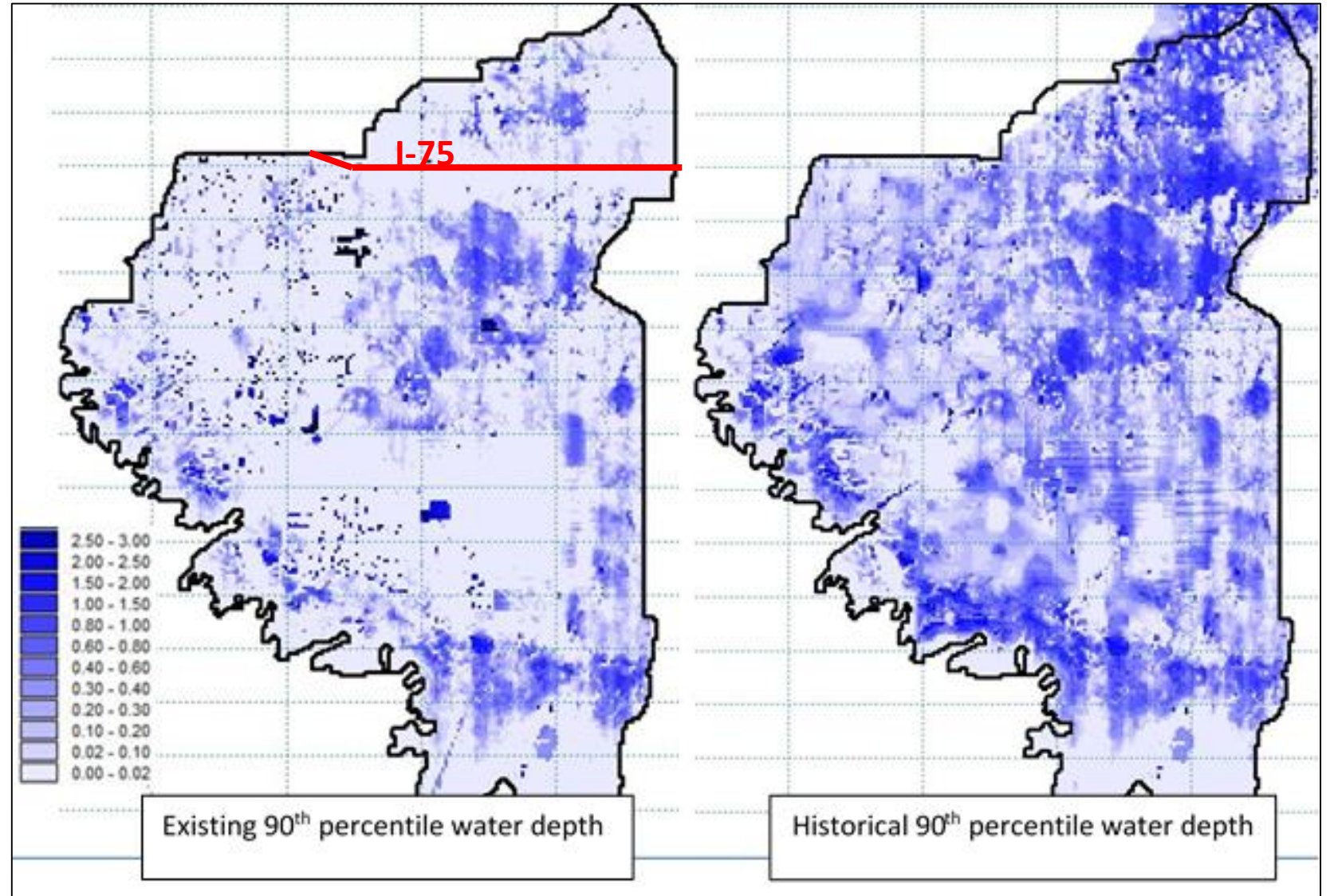
Naples Bay watershed highly modified; increased by about 100 square miles



From Cardno (2015)

Need for Project

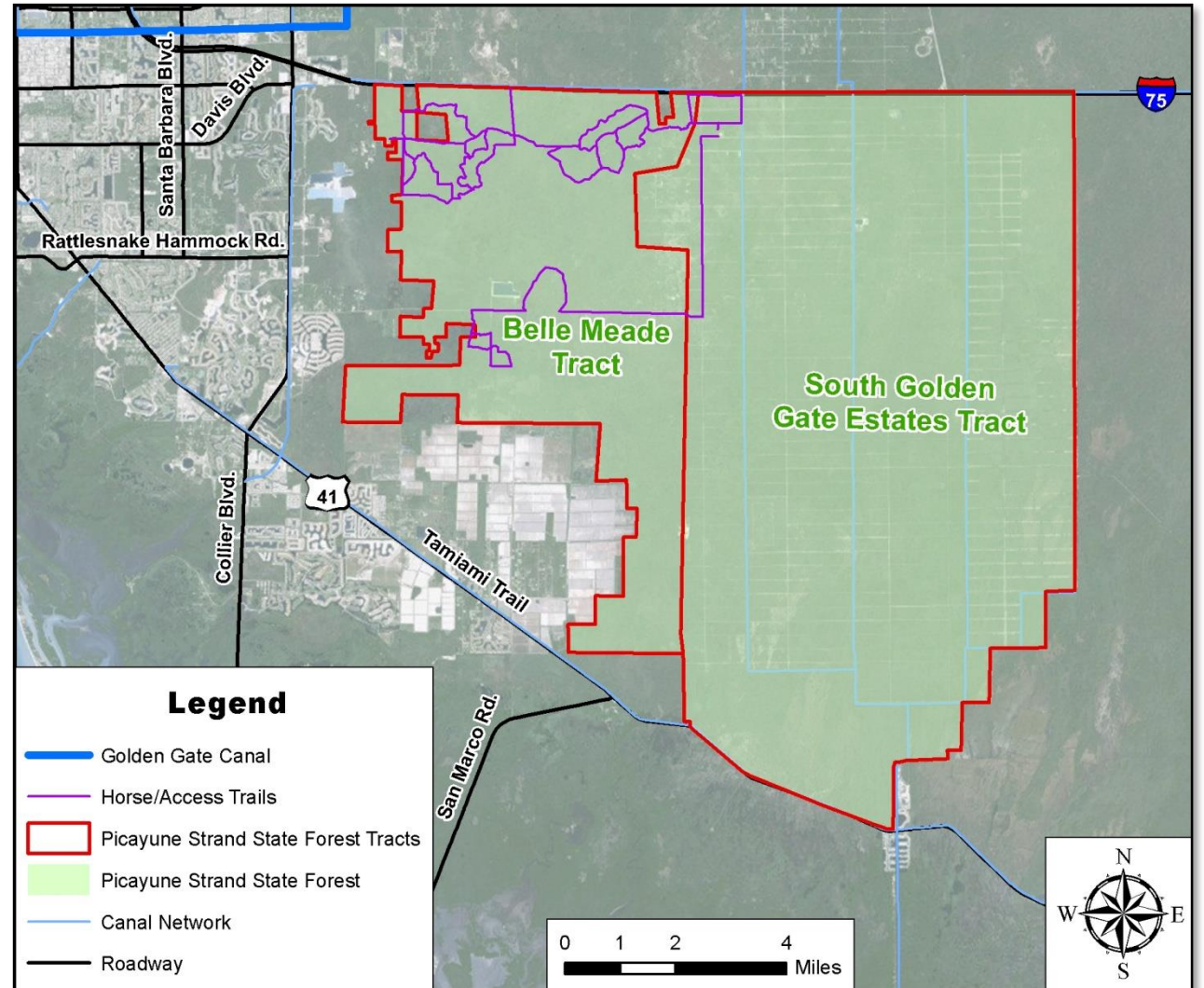
- Historically, the Belle Meade Flow-Way was much wetter than it is today
- Coastal areas in eastern portions of Rookery Bay have freshwater deficits



Need for Project

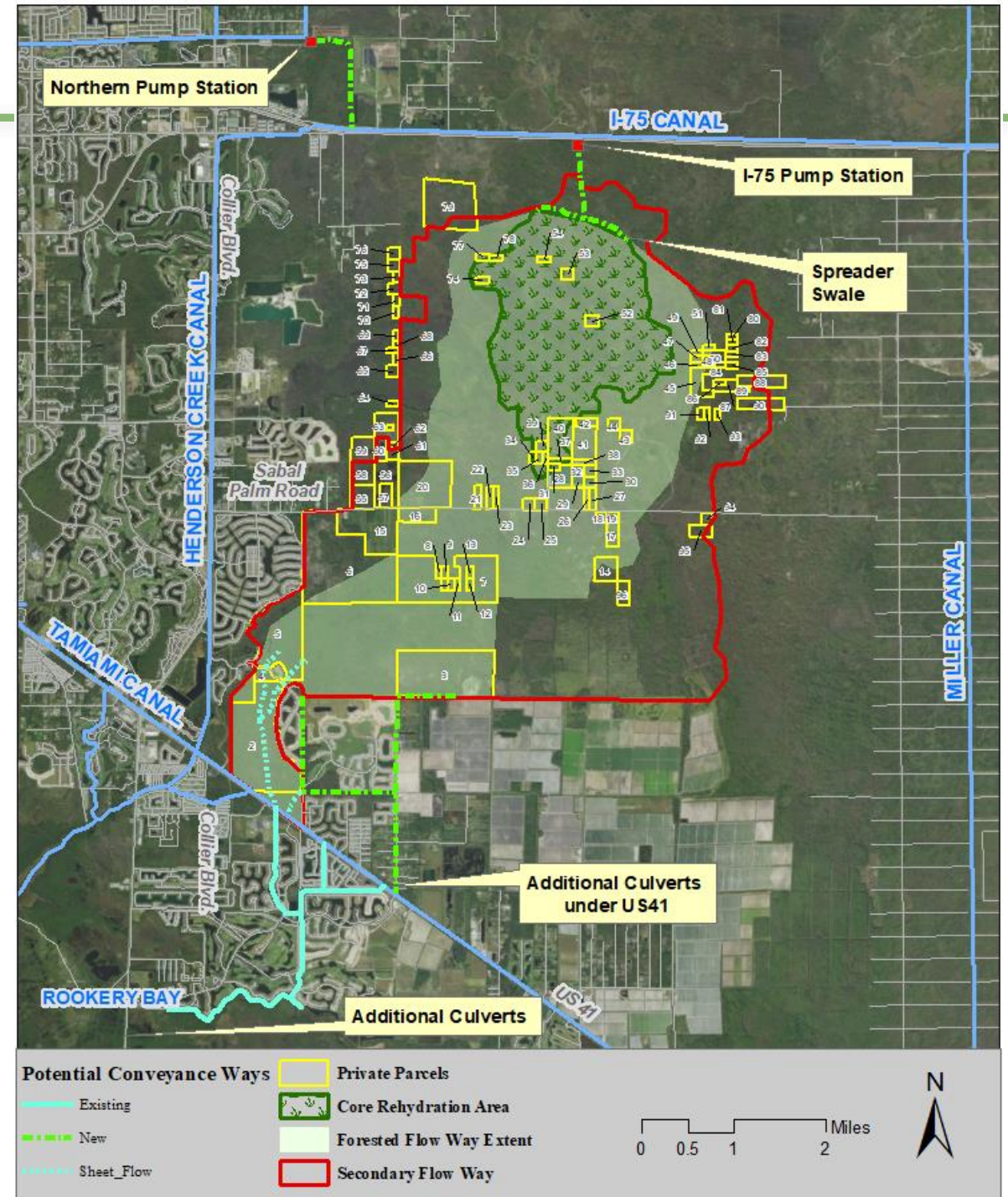
Picayune Strand State Forest (PSSF)

- The entire PSSF is about 73,000 acres
- In 1985 the first parcels were purchased as part of the Conservation and Recreational Lands (CARL) program
- Hydrologic and Ecologic restoration for the PSSF was identified as part of the CERP
- Hydrologic restoration is one of the goals of the PSSF 10-year resource management plan
- FFS concerns with restoration within the PSSF are being addressed as part of the CWIP



Proposed Project

- Divert up to 100 cubic feet per second (about 3 swimming pools per minute) from Golden Gate Canal when excess water is available:
 - 2 pump stations,
 - I-75 canal improvements
 - 2 linear flow ways and 1 spreader
- Sheet flow through western PSSF (a.k.a. Belle Meade Flow-Way)
- Increases in evapotranspiration and groundwater recharge
- Flow accommodations around 6Ls Agricultural Area, and into coastal fringes/eastern Rookery Bay



Project Benefits

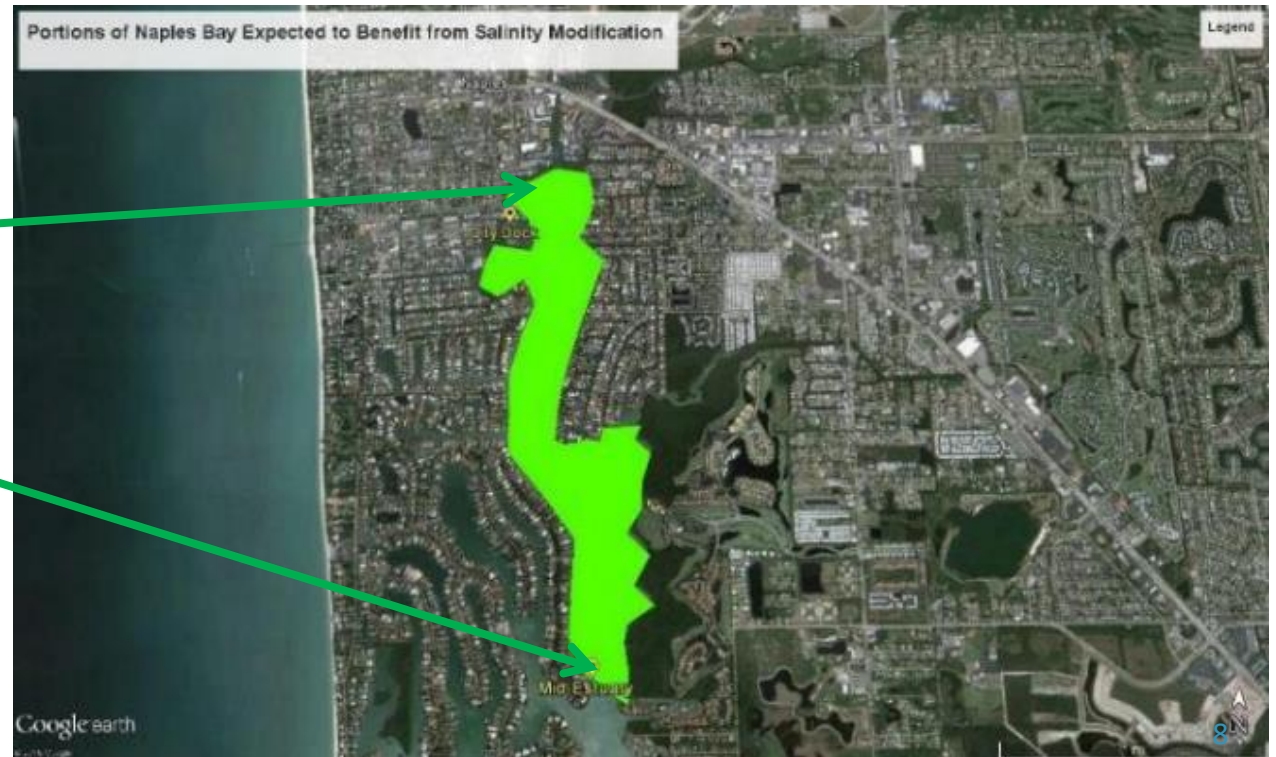
- **Naples Bay** (from Atkins, 2016)
 - Changes in salinity regimes create positive conditions for habitat development
 - Expected water quality benefits associated with nutrient load reductions
 - Turbidity reductions
- **Picayune Strand State Forest**
 - Increase water depth and duration to previously impacted wetlands, with minimal changes to vegetation
 - Benefit to about 10,000 acres of mostly cypress and hydric (wet) flatwoods
 - Reduce potential for forest fires
- **Rookery Bay**
 - Restore freshwater inflows from forest to Rookery Bay
 - Will maintain water quality of current watershed

Project Benefits

Naples Bay – area benefited is about 400 acres (from Atkins, 2016)

- Diverts ~2.5 Billion Gallons per year (~170,000 swimming pools)
- Removes tens of thousand of pounds of Nitrogen and Phosphorus, equivalent to 3,000 20-lb bags of lawn fertilizer (on average) per year
- Expectation of 20% increase in salinity and an average salinity difference of 2 ppt or higher
- Sets the stage for future sea grass and oyster bed increases

After diversions implemented, potential locations for “jump starting” restoration via seagrass transplanting and oyster reef deployment



Benefits to Picayune Strand State Forest

- Increase water depth and duration to previously impacted wetlands, with minimal changes to flora and fauna
- Benefit to about 10,000 acres of mostly cypress and hydric flatwoods
- Reduce potential for forest fires



Benefits to Rookery Bay

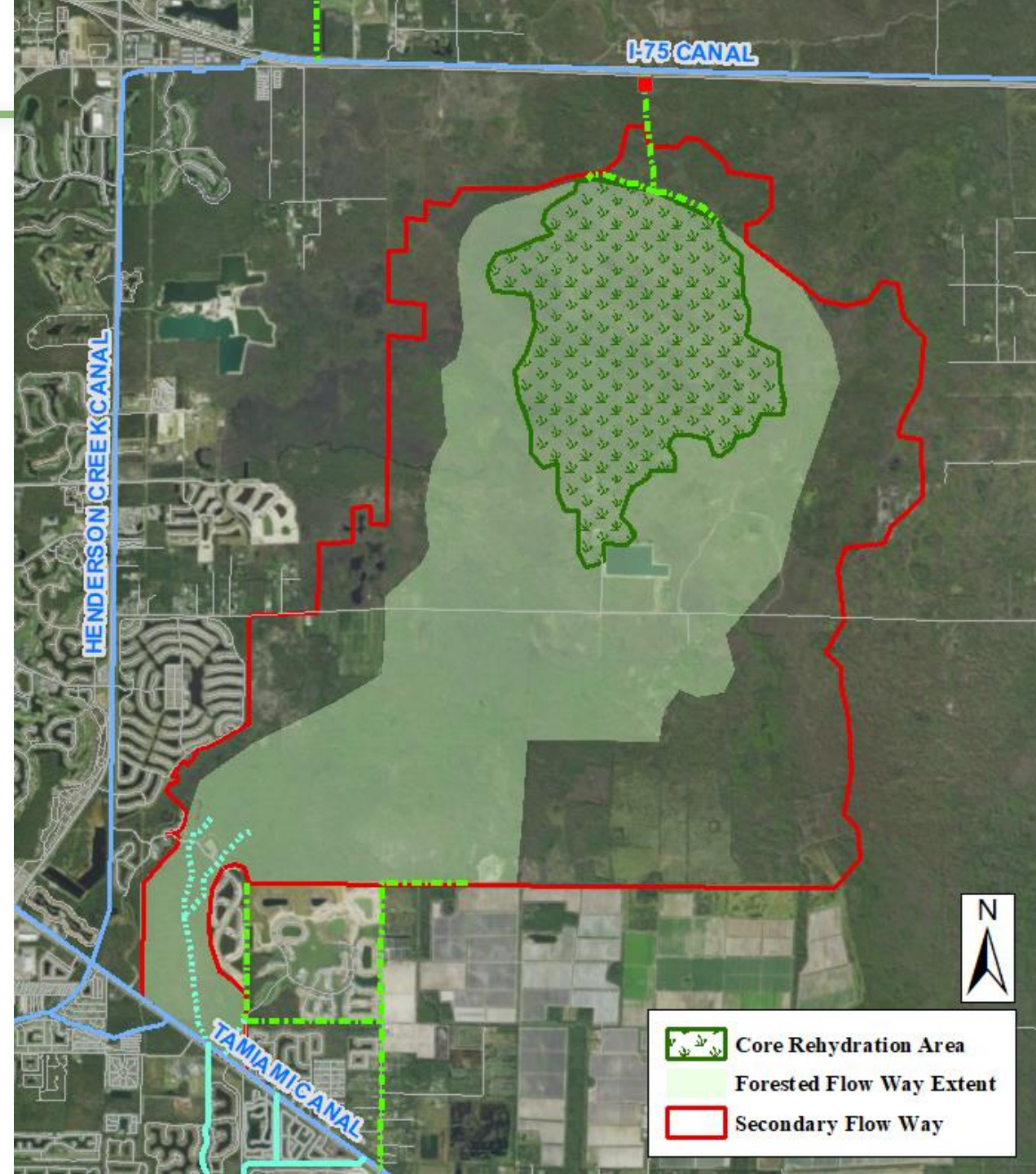
- Restore freshwater inflows from forest to coastal wetlands fringing Rookery Bay
- 1,500 to 2,000 acres of coastal wetlands rehydrated
- Sufficient combination of water storage and sheet flow to maintain water quality of current watershed



Potential Changes

Expected Water Level Changes

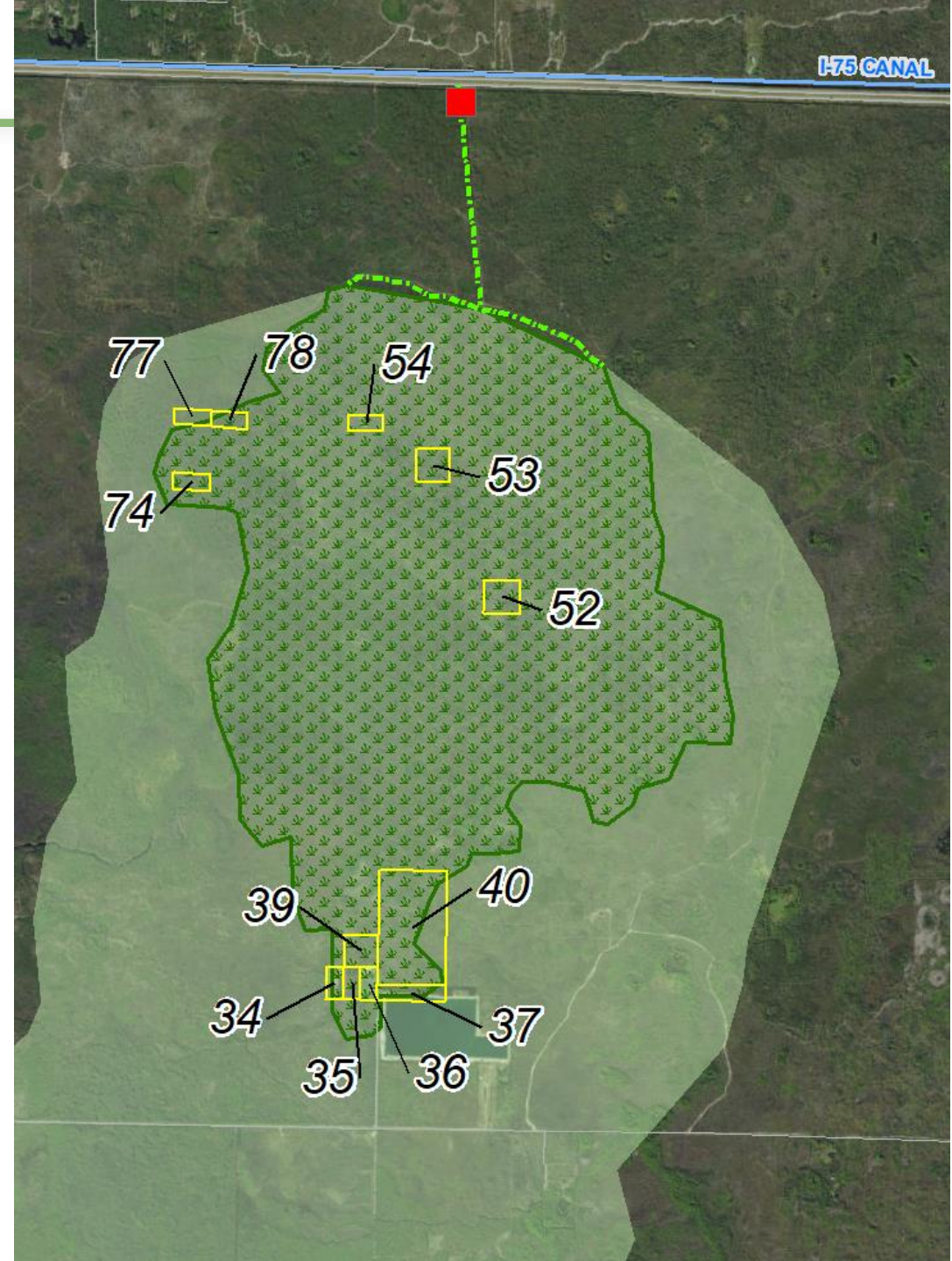
- Inside Core Rehydration Area:
 - ▣ 2-8 inches of additional standing water
 - ▣ Duration extended to ~10 months per year
- Outside Core Rehydration Area but in Primary Flow-Way:
 - ▣ Less than 2 inches additional standing water
 - ▣ ~1-2 months per year increase in duration
- Outside Primary Flow-Way but inside secondary Flow-Way:
 - ▣ Less than 1 inch increase
 - ▣ Less than 1 month increase in duration



Potential Changes

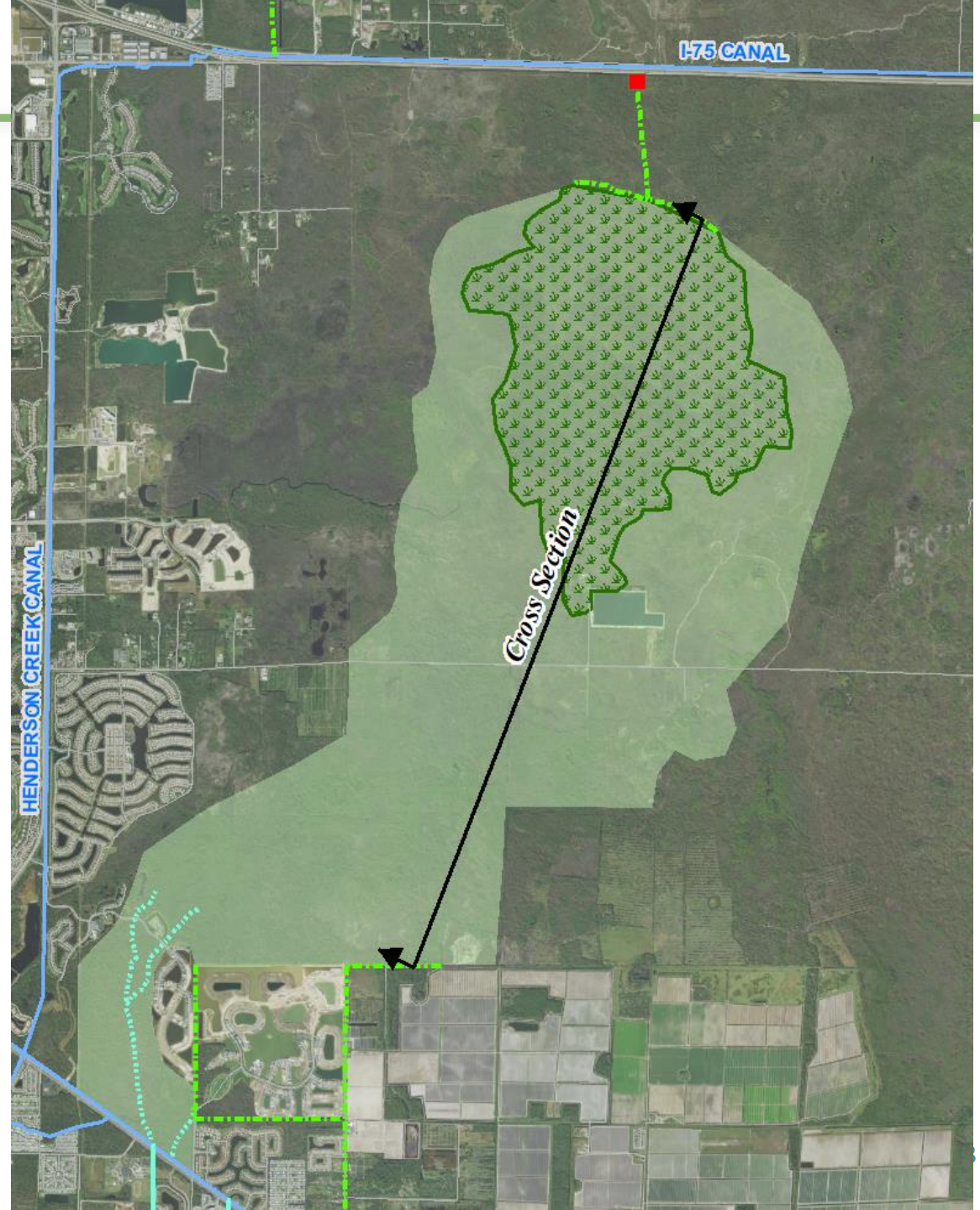
12 Properties in Core Rehydration Area

- Possible to protect these properties from flooding through construction of berms, ditches, and pumps.
- County would prefer to obtain the necessary property rights to rehydrate these areas



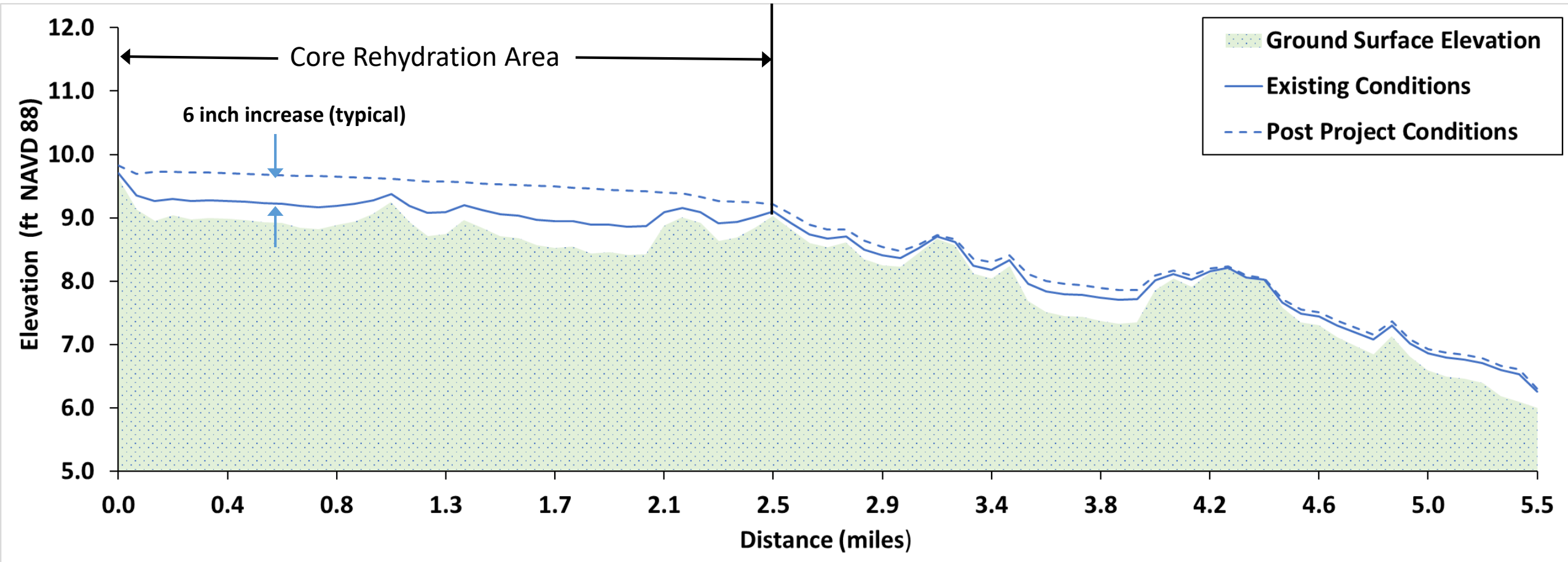
Potential Changes

Expected Water Level Changes - Cross Section Views



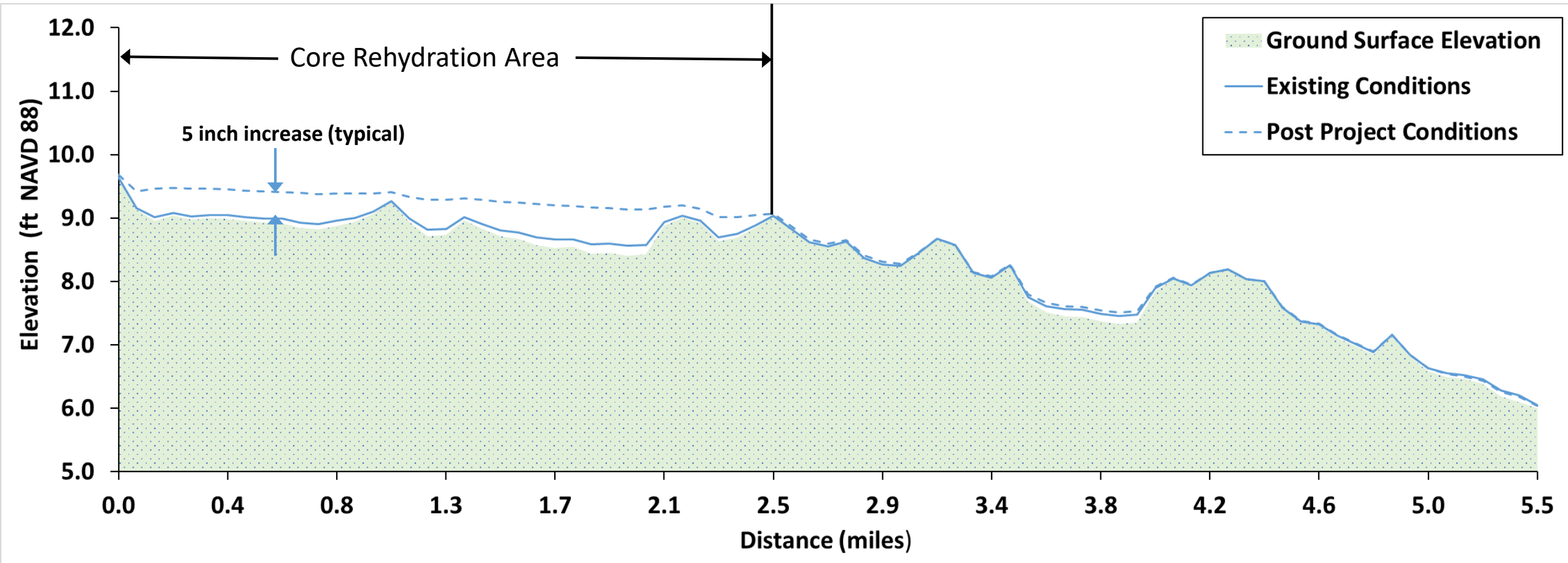
Potential Changes

Wet Season Average Water Levels



Potential Changes

Dry Season Average Water Levels



Potential Changes

No Impacts to Subdivisions

Including, but not limited to:

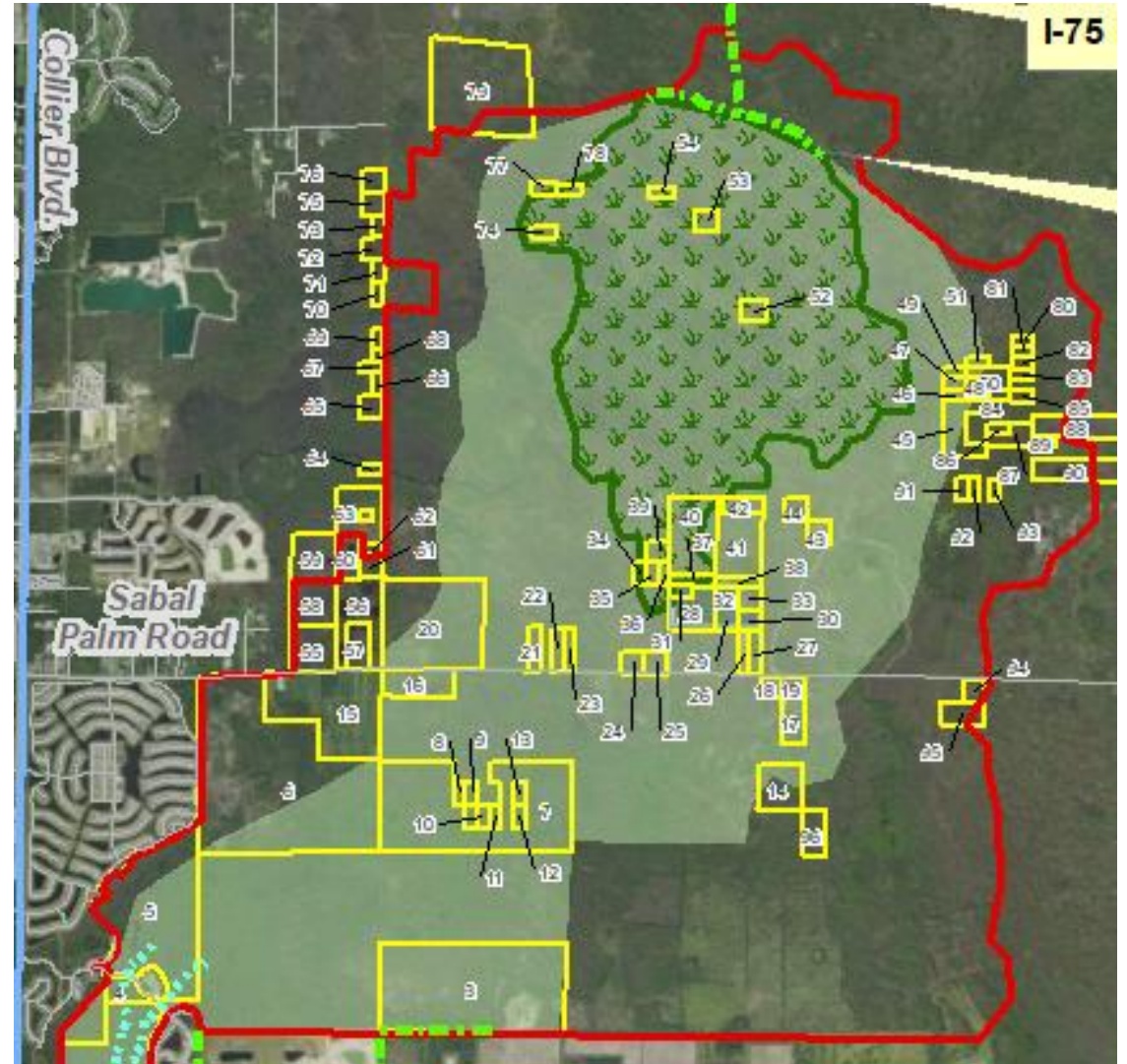
- Winding Cypress
- Verona Walk
- Naples Reserve
- Reflection Lakes
- Greenway Road
- Fiddler's Creek



Potential Changes

Flow-way Property Incentives: Transfer of Development Rights (TDR)

- County may give incentives to owners of property within the primary or secondary flow-way:
 - Owners would execute an agreement to allow rehydration to occur.
 - One new TDR credit per 5 acres, in addition to the 4 credits currently available.
 - Owners eligible to apply during a 2-year period



Potential Changes

Flow-way Property Incentives: Transfer of Development Rights (TDR)

- What is a TDR Credit?
 - Represents the ability to add one unit of density in an area designated for higher density (receiving area)
 - Property owners in receiving areas will need TDR credits to develop at higher densities, creating demand for TDR credits.
 - Fair market value of a TDR credit was estimated in 2016 as about \$13,000.
 - The value of TDR credits can go up or down in response to supply and demand.

Activities Underway and Planned

- Monitoring and Mapping
 - Groundwater elevations
 - Water quality
 - Vegetation
- Agency Coordination
 - FDEP, SFWMD, FFS, FFWCC
 - USACE, USFWS, NMFS, EPA
- Modeling and Analysis
 - Surface Water / Groundwater
 - Water Quality
- Preliminary Design
- Permitting – Conceptual ERP



THANK YOU
Questions?

