



Watershed Management Plan

April 27, 2012

Presentation To The Big Cypress
Basin





Watershed Management Plan

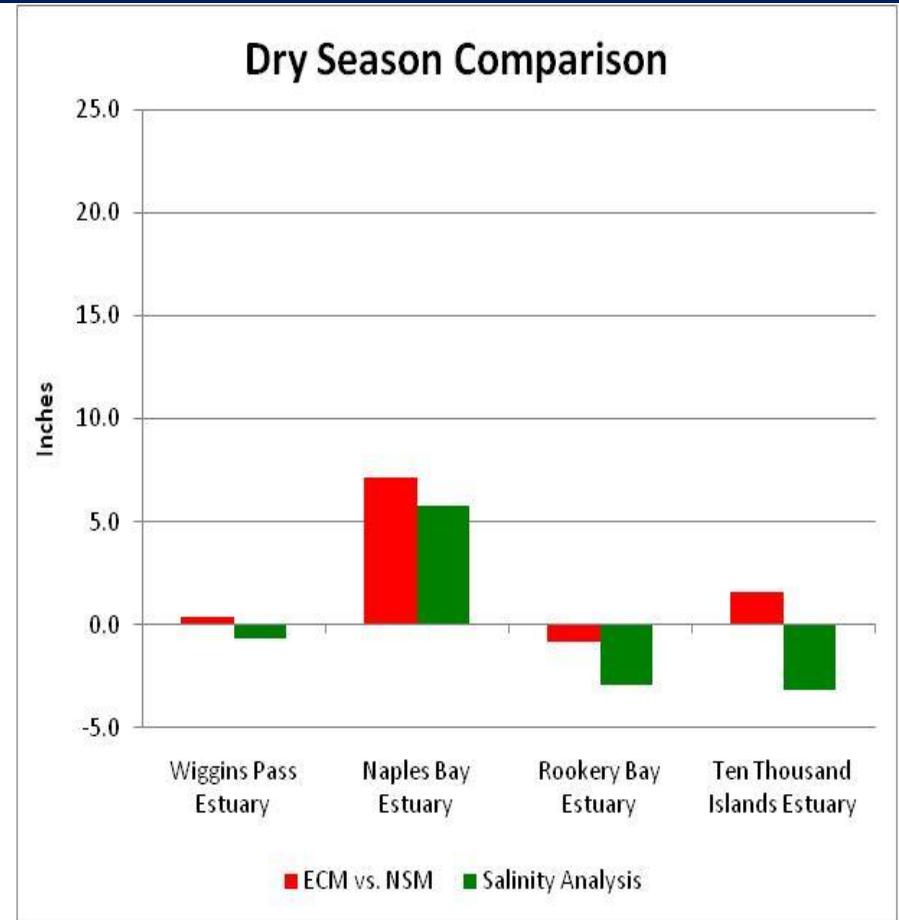
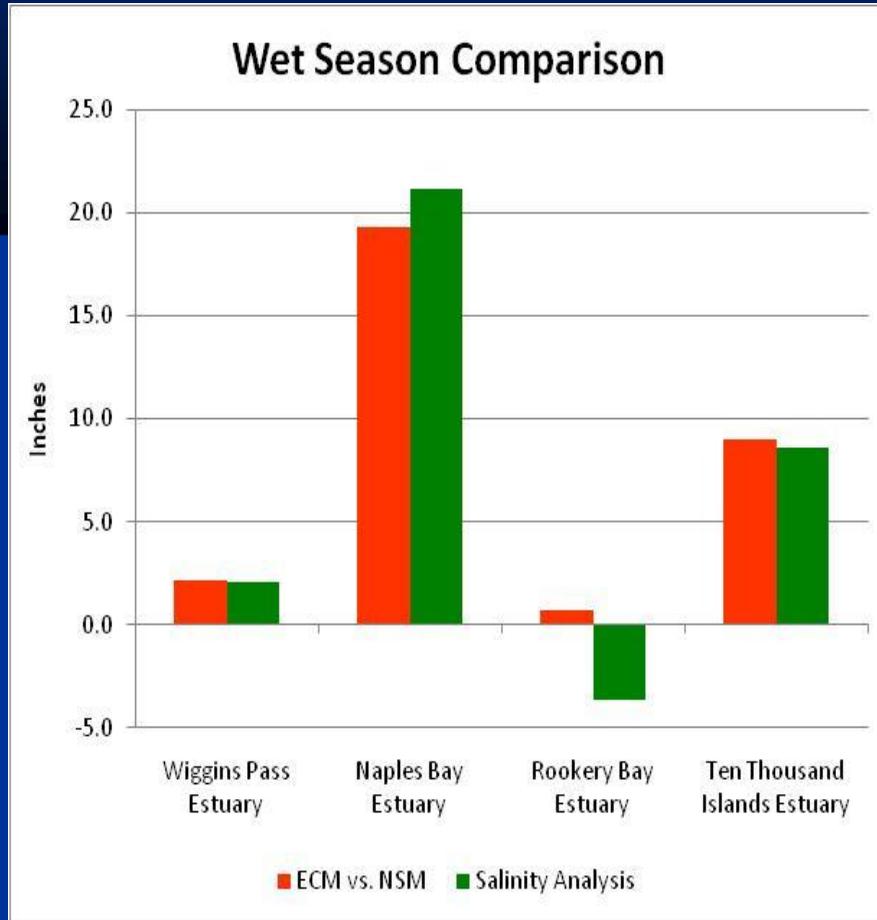
- Approved By the Board of County Commissioners on December 13, 2011
- No Fiscal Impact at this time
- No Regulatory Standards Are Changing at This Time
- Future Implementation of Initiatives Publically Vetted, Board Approved, Subject to Available Funding, Goal of Cost Neutral



Purpose of the Watershed Management Plan

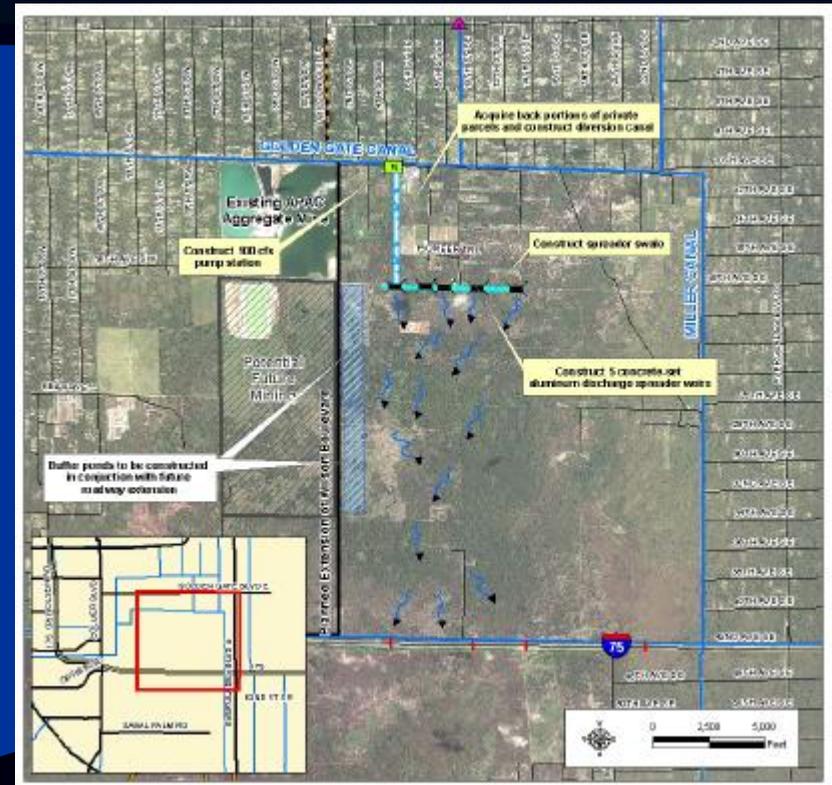
- Protect Water Resources
- Meet Growth Management Plan Goals
- Help Meet Regulatory Requirements
- Blueprint for achieving restoration goals
 - Structural Projects and Non-Structural Initiatives
 - Prioritization and Assessment of Fiscal Impacts

Calculated Flow Deficit/Surplus (inches)



Planned Water Diversions

- Projects Proposed to Divert Flow from NGGE System to Rookery Bay

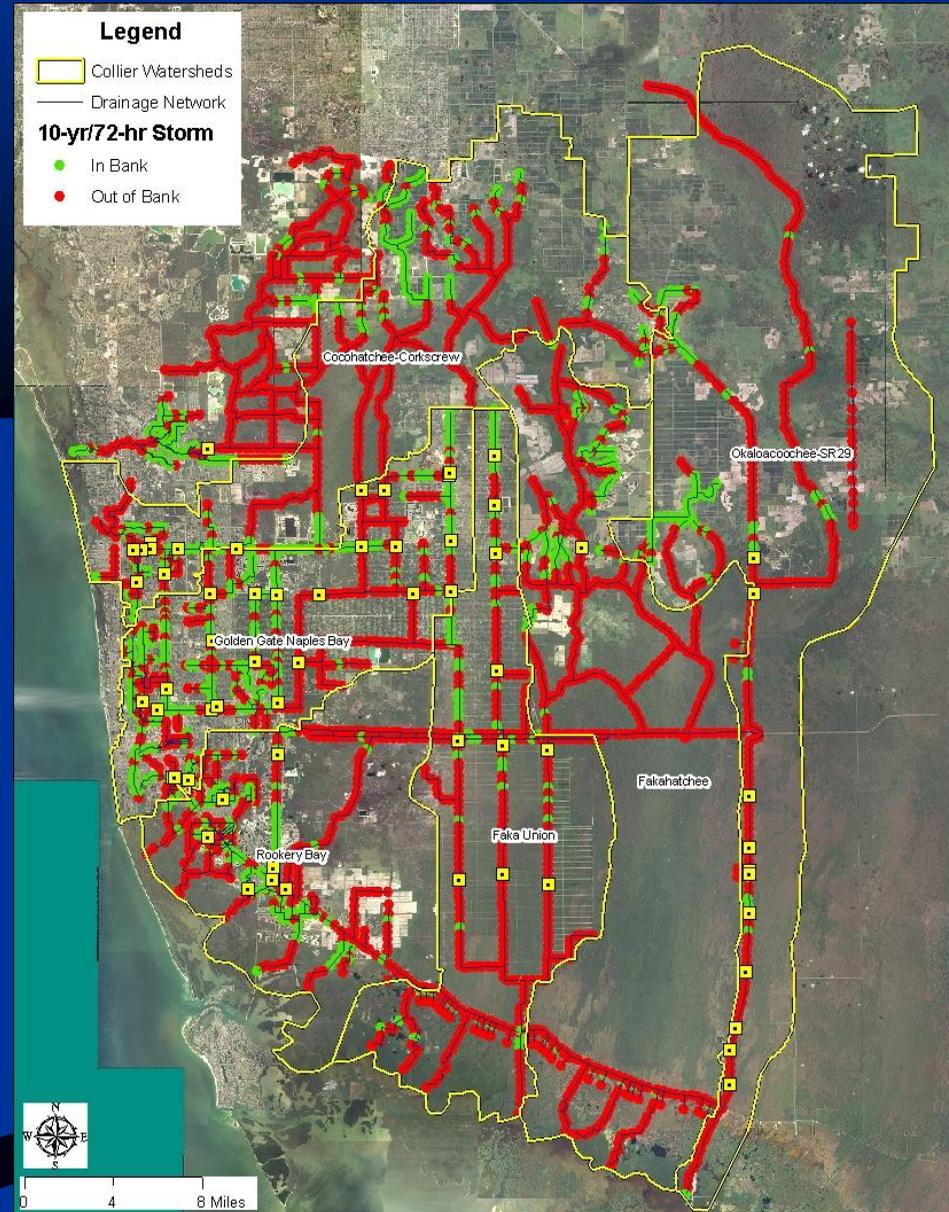


Total Basins With Water Quality Impairments

- 9 Dissolved Oxygen
- 4 Fecal Coliform (3 Class 2 estuaries)
- 4 Iron
- 3 Nutrient (Nitrogen or Phosphorus)
- 1 Copper
- Mercury (Florida Gulf Coast - Fish Advisory)

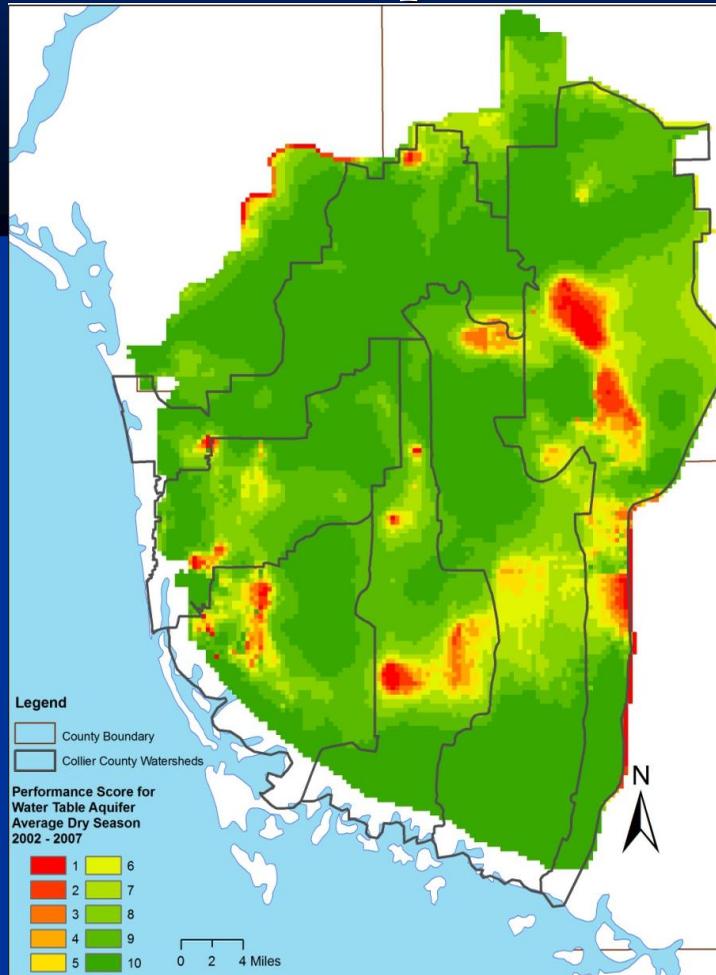
Current Canal Capacity

- Model results show limited conveyance capacity in numerous canal segments

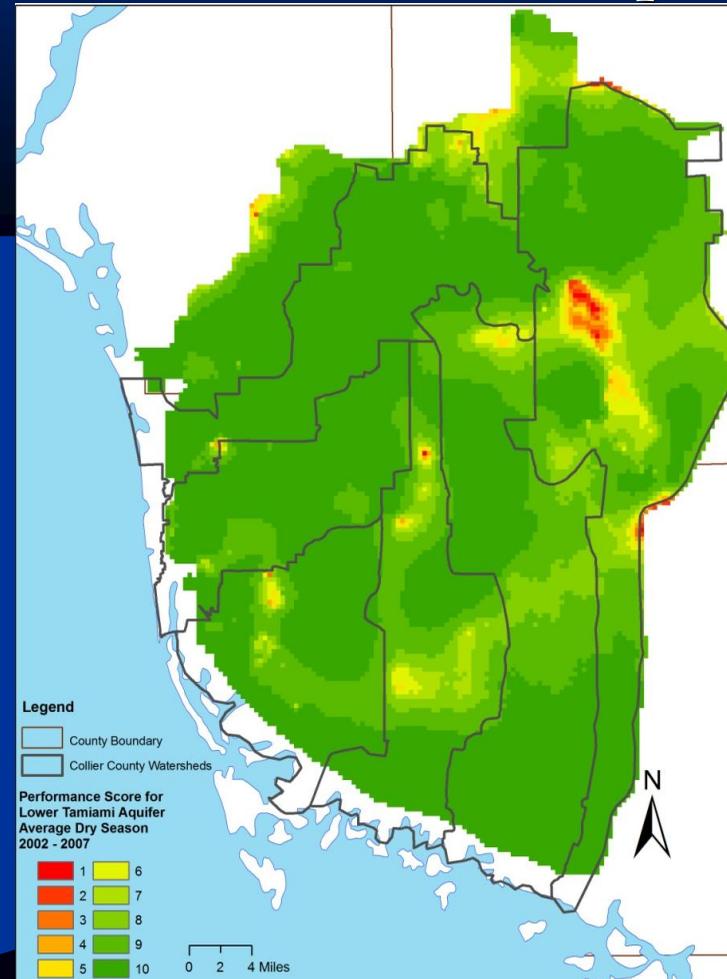


Aquifer Impacts and Reduced Recharge

Surficial Aquifer



Lower Tamiami Aquifer



Conclusions

- Excessive Fresh Water Discharge to Bays and Estuaries
- Pollutant Loads such as Nitrogen, Phosphorus, and Copper
- Inadequacy of Primary and Secondary Canals
- Aquifer Impacts and Reduced Recharge

1 : Prioritized Projects

Project Name	Total Normalized Project Score	Estimated Project Cost (Million\$)	Benefit-to-Cost Ratio
North Golden Gate Estates Flowway Restoration	30.09	2.37	12.71
North Belle Meade Spreader Swale(1)	25.24	7.03	3.59
Henderson Creek Diversion (1)	20.00	5.71	3.50
South I-75 Canal Spreader Swale	10.49	3.13	3.35
Wolfe Road Wetland Treatment System	3.45	1.42	2.44
Corkscrew Regional Ecosystem Watershed	2.01	0.10	20.95
Upper Golden Gate Estates Canal Weir Construction	0.67	0.55	1.21
Orange Tree Canal Control Structure Installation	0.67	0.55	1.21
Henderson Creek Off-Line Storage Reservoir	2.33	2.93	0.79
US HWY 41 Stormwater Treatment Area	0.15	0.54	0.28

■ **Recommendation: Accept Prioritized Projects**

2: Low Impact Development

- Management of stormwater using site-specific water quality and recharge BMPs
- Incentivize through LDC relaxation to reduce impervious areas
- **Recommendation: Evaluate incentives and benefits of developing LID program**



3: Stormwater Retrofit Program

- Create improvement program using existing funds from stormwater budget. Supplement funds with State and Federal grants
 - Public facilities
 - Local treatment systems
 - MSTU projects
- **Recommendation: Support creation of a stormwater retrofit program when funds are available**



4: Fee-Based Stormwater Utility

- Convert ad-valorem tax revenues to a fee based on runoff volume per parcel
- Consider 5-year credit to businesses to incentivize retrofits
- **Recommendation: Evaluate benefits of economic feasibility study to determine a cost neutral Utility fee schedule**



5: Flood Protection Standards

- Current drainage systems lack capacity even for storms with a 5-year return period.
- Adjust basin discharge rates
- Require analysis of discharge quantity impacts to downstream properties and floodplain
- **Recommendation: Develop flood protection LDC requirements for new development**

Stormwater Subbasins	Current Maximum Allowable Discharge	Recommended Maximum Allowable Discharge
	cfs/acre	cfs/acre
951 Canal Central Basin	0.15	0.15
951 Canal North Basin	0.15	0.11
Airport Road North Canal Basin	0.04	0.04
Airport Road South Canal Basin	0.06	0.06
Barron River Canal Basin (North)	0.15	0.15
C-4 Basin	0.15	0.11
Cocohatchee River Canal Basin	0.04	0.04
Corkscrew Canal Basin	0.15	0.04
Cypress Canal Basin	0.15	0.06
East Branch Cocohatchee Basin	0.15	0.15
West Branch Cocohatchee Basin	0.15	0.15
Faka Union Canal Basin (North of I-75)	0.15	0.09
Gateway Triangle Basin	0.15	0.15
Gordon River Extension Basin	0.15	0.09
Green Canal Basin	0.15	0.15
Haldeman Creek Basin	0.15	0.15
Harvey Canal Basin	0.15	0.11
Henderson Creek Basin	0.15	0.08
I-75 Canal Basin	0.15	0.06
Imperial Drainage Outlet Basin	0.15	0.12
Island Walk Basin (aka Harvey Basin)	0.055	0.055
Lely Canal Basin	0.06	0.06
Lely Manor Canal Basin	0.15	0.06
Main Golden Gate Canal Basin	0.15	0.04
Miller Canal Basin (North of I-75)	0.15	0.15
Palm River Canal Basin	0.15	0.13
Pine Ridge Canal Basin	0.15	0.13
Upper Immokalee Basin	0.15	0.15

0.15 = Modified Discharge

6: Modify Flood Protection LOS

- Modify the FPLoS approach to consider road type and storm return period
- Improve identification of critical needs
- **Recommendation: Evaluate the benefit of altering LOS to consider road type**

Roadways	Storm Return Period (years)		
	10	25	100
A. Evacuation Routes	None	None	None
B. Arterials	None	None	6 inches
C. Collectors	None	6 inches	9 inches
D. Neighborhood	6 inches	9 inches	12 inches
Open Space			
Flooding of open space is acceptable if it does not compromise public health and safety			

7: TDR Program in the Golden Gate Watershed

- Incentivize TDR transfers to receiving areas
- Helps implement Northern Golden Gate restoration
- Encourage aggregation of small parcels
- **Recommendation:**
Evaluate creation of TDRs by establishing a
Committee to vet issues

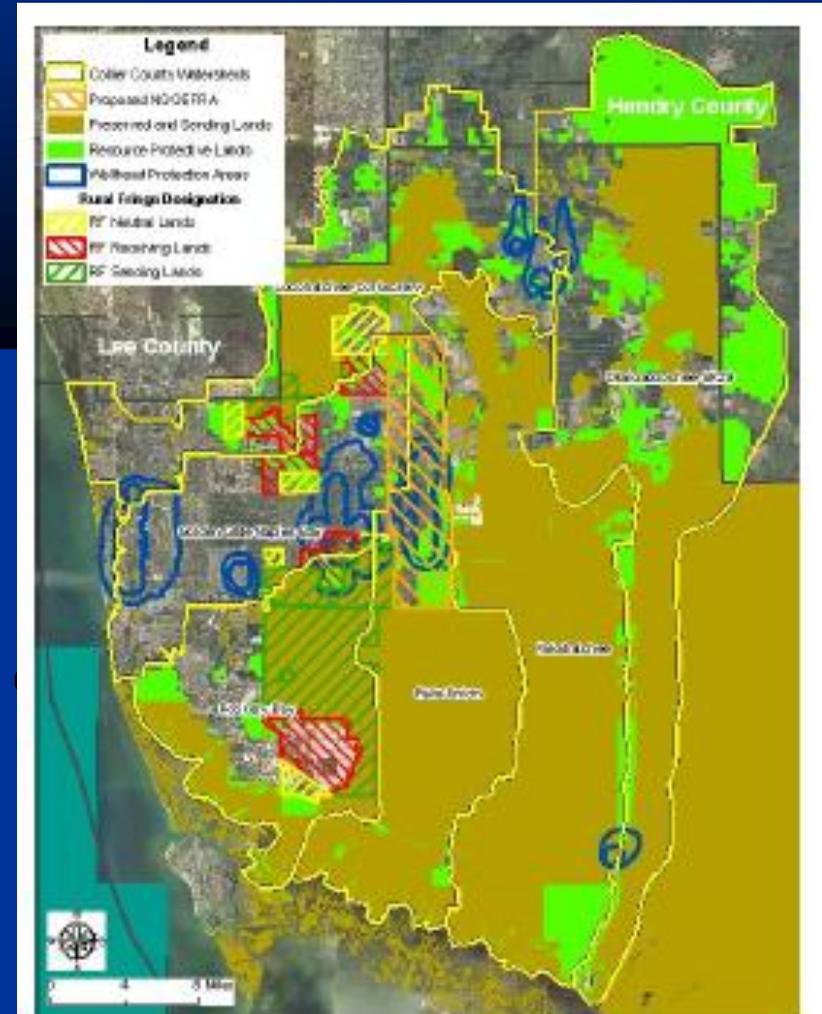


Figure 3-5. Location of the North Golden Gate Flowway Protection Area (NGGFPA)

8: Golden Gate Estates Mitigation Bank

- Allows mitigation within functional watershed. Helps implement restoration project
- Cost recovered by mitigation bank sales
- **Recommendation:**
Evaluate mitigation bank benefits as part of TDR Committee

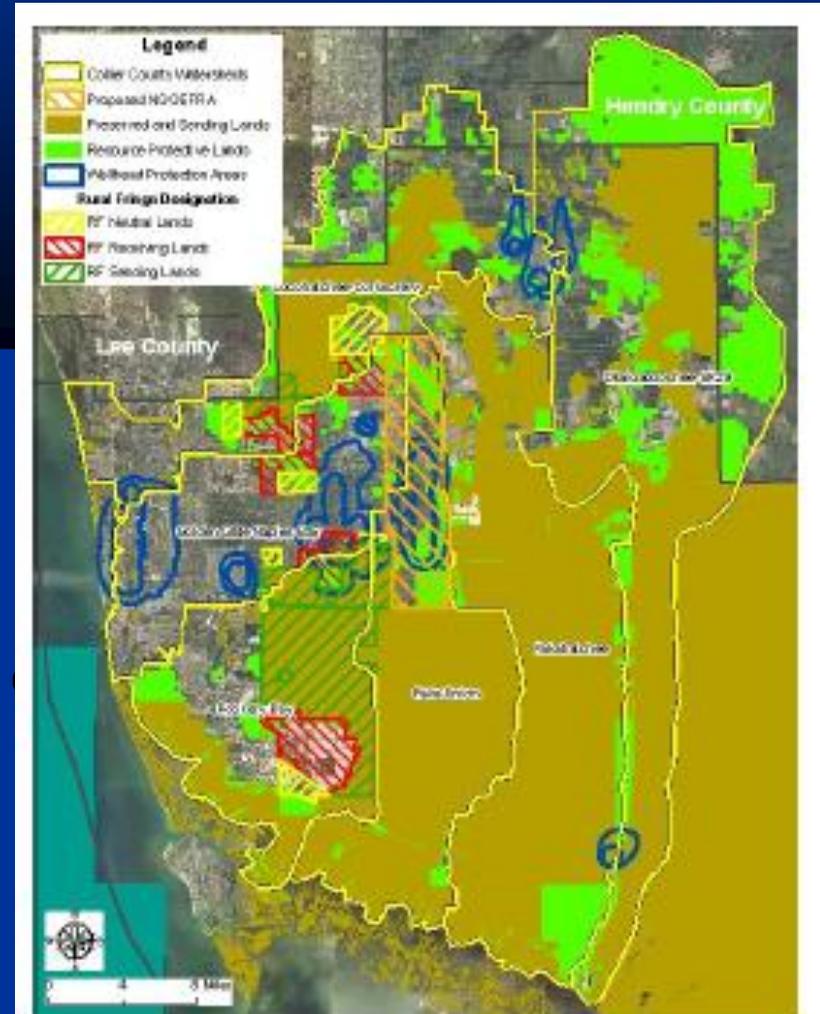
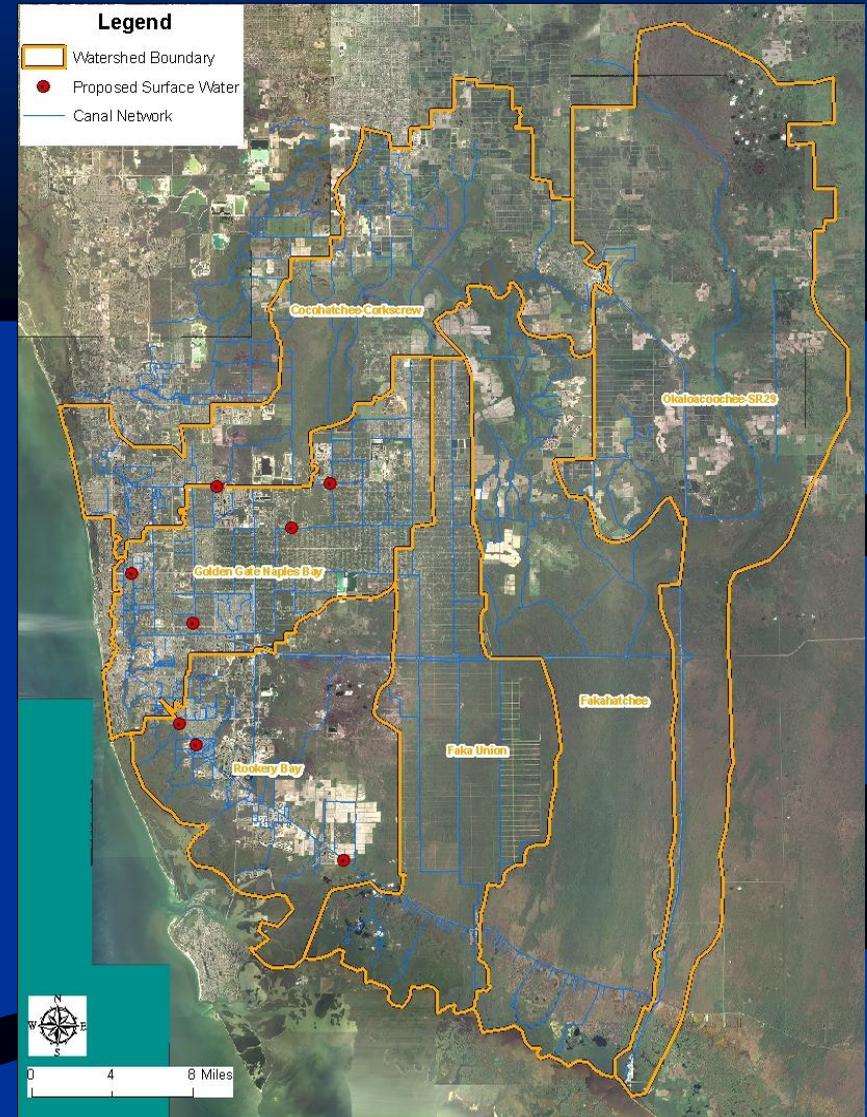


Figure 3-5. Location of the North Golden Gate Flowway Protection Area (NGGFPA)

10: Water Quality Monitoring Program

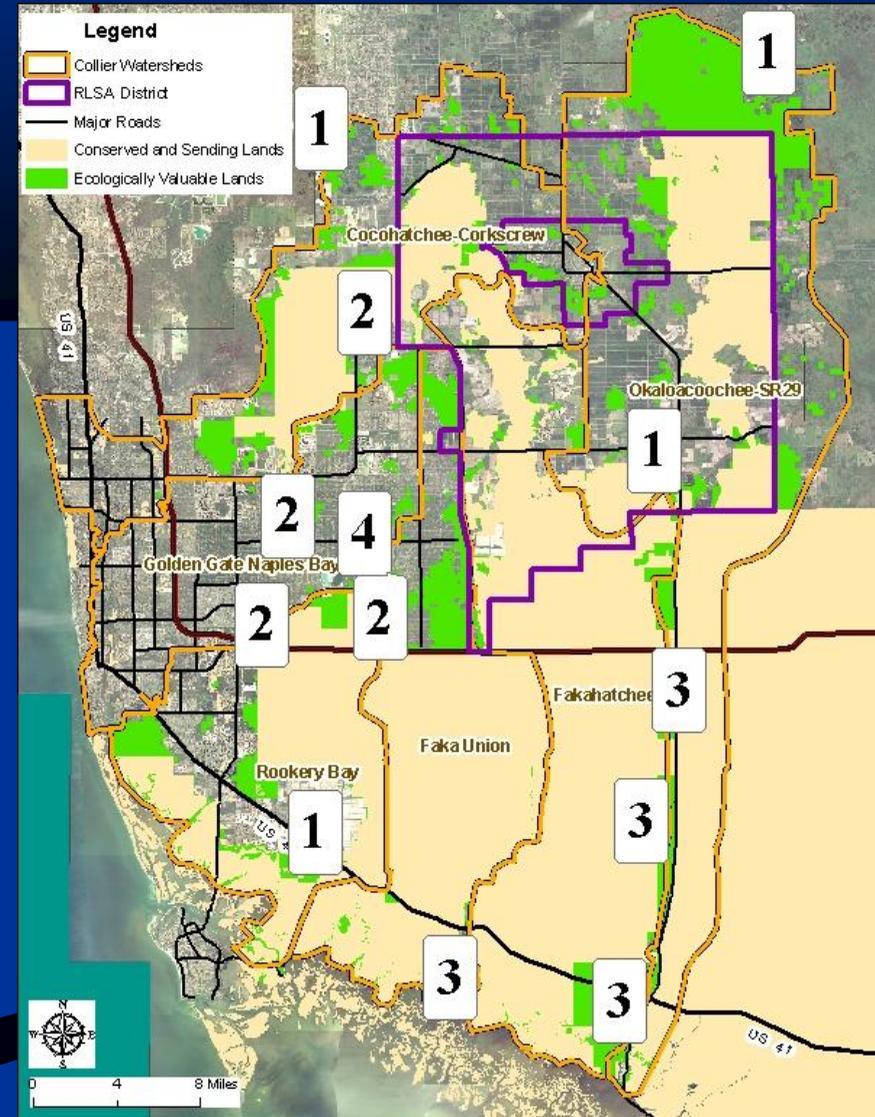
- Refine WQ Monitoring:
 - Prioritize to address impairments
 - Plan with BCB and FDEP
- Expand Sampling Program:
 - Address TMDL Issues
 - Improve pollution load estimates
- **Recommendation: Refine monitoring to prioritize impaired basins as part of FDEP WQ assessment**



11: Additional Protection Programs

1. Recyclable Water Containment Areas
2. Evaluation of Rural Fringe Neutral Lands
3. Land Acquisition (State or Federal)
4. Modify Preservation Standards

Recommendation: Evaluate proposed programs as LDC and or GMP amendments



12: Stormwater System Maintenance & Certification

- Purpose: Proper Operation
- Annual inspection (no submittal)
- Consider recommendations in proposed stormwater rule

Recommendation: Develop review and reporting standards



13: Implement Florida-Friendly Fertilizer Ordinance

- BCC Approved Ordinance July 26, 2011
- Pollution Control Dept. – Education Efforts
- Greenscape Alliance – Commercial Training
- County webpage
- Develop Education Program

Summary and Conclusions

- The WMP is a general guide to address system deficiencies and manage future growth in a sustainable manner while achieving environmental goals.
- Structural improvements provide significant restoration benefits, but does not address long-term sustainability
- Non-Structural initiatives will be critical to meet long-term environmental sustainability needs
- Accept the Watershed Management Plan. Recommend the initiatives for further vetting and refinement to policies and or regulations.