



*Florida Department of
Environmental Protection*

Everglades West Coast BMAP Technical Meeting

March 9, 2011

South Florida Water Management District
2301 McGregor Boulevard, Ft. Myers Florida



Agenda

1. Welcome and Opening Remarks
2. Summary of Updated Loading Analysis & Interim Targets
3. Comments Received
4. Monitoring Plan





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Everglades West Coast BMAP

Summary of Updated Loading Analysis



Loading Model Calculations

- Data Sources
 - Land Use: 2004 WMD coverage
 - Runoff coefficients and loading factors: Janicki Environmental (2010)



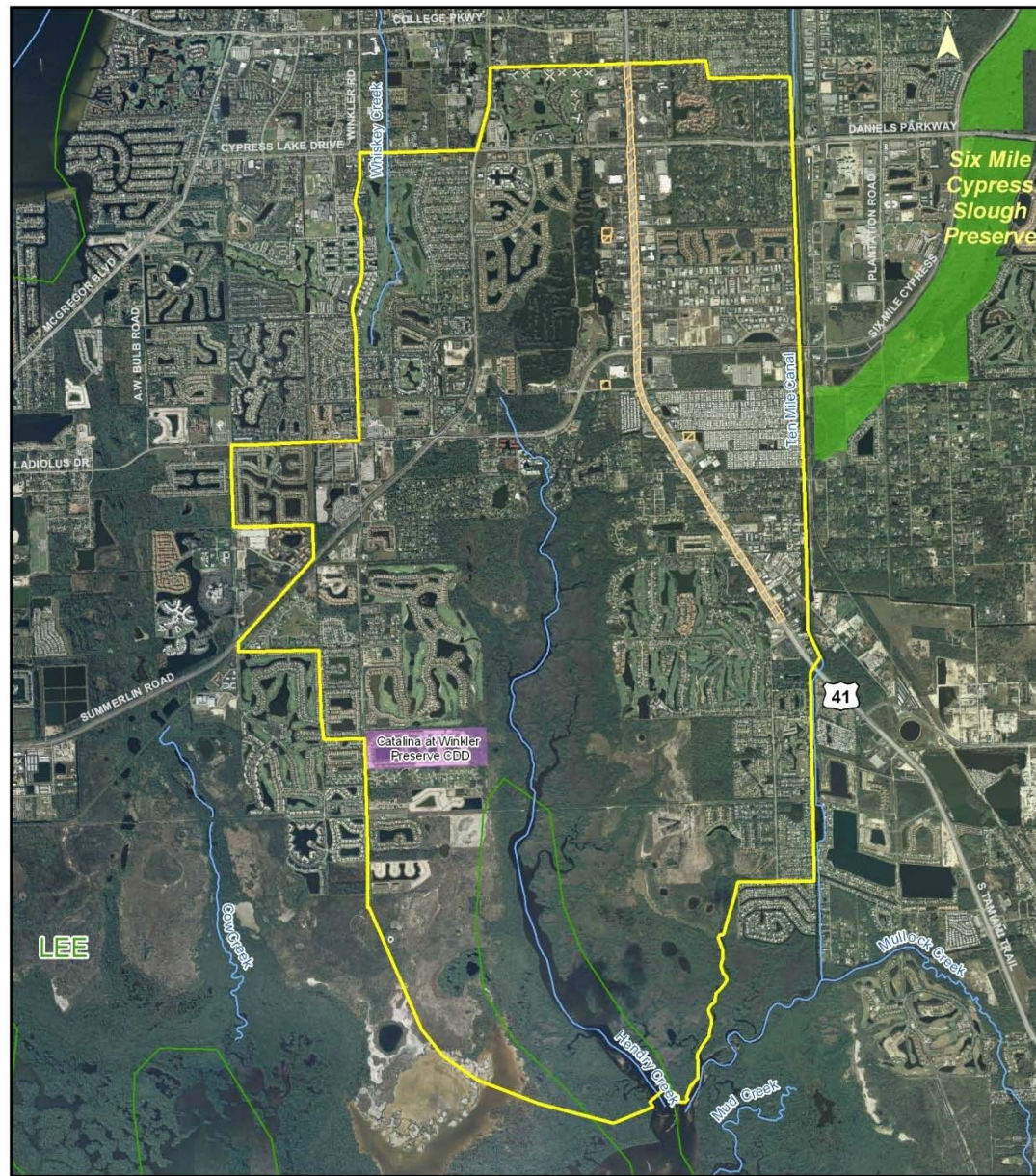


Loading Model Calculations

Key	Category	Included FLUCCS	Lee #/ac
1100	Single Family Residential	1100s	3.27
1200	Medium Density Residential	1200s	6.55
1300	Multifamily Residential	1300s	10.37
1400	Commercial	1400	12.87
1550	Industrial	1550	12.15
1610	Mining	1610, 1620, 1630, 7400, 7430	1.72
1660	Mining - Holding Ponds	1660	-
1700	Institutional/Transportation/Utilities	1700, 1710, 8140, 8310, 8320	3.60
1800	Golf Courses and Parks	1800, 1820, 1850	2.27
1900	Rangeland	1900, 1920, 3100, 3200, 3210, 3300	1.53
2000	Agriculture	2000s	-
4000	Upland Forested	4000s	0.41
5000	Freshwater - Open Water	5000s	-
6120	Forested - Freshwater Wetlands	6120-6300	4.30
6410	Non-forested Freshwater Wetlands	6410, 6430, 6440	3.47
6420	Saltwater Wetlands	6420, 6510	-



Hendry Creek Watershed



**Hendry Creek Watershed
Sub Basin Aerial Map
Catalina - FDOT Jurisdictions**



0 0.5 1 Miles

Map prepared August 12, 2010 by the Bureau of Watershed Restoration, Division of Environmental Assessment and Restoration. This map is not for legal decision-making purposes. For more information or copies, contact Ronald Hughes at (850) 245-8541, or ronhughes@dep.state.fl.us

- US Routes
- Local Roads
- Rivers and Larger Streams
- FDEP Hendry Basin
- Catalina at Winkler Preserve Special District
- FDOT ROW and Ponds
- County Boundaries





Hendry Creek Total Loads

					Previous Load
Jurisdiction	Area (acres)	Existing TN (lbs/yr)	Background (lb/yr)	% of Non-Background	TN (lbs/yr)
Lee	10,166	60,942	30,719	97.7%	68,623
Catalina	111	203	202	0.0%	248
Agriculture	98	668	150	1.7%	668
Roads	89	313	133	0.6%	721
Total	10,464	62,127	31,204	100.0%	70,261

Background Load = Total Load from Natural Land Uses





Allocation Process

- Start with The TMDL Requirement
- Calculate Background Load
- Difference Between the Two is Non-Background Load
- Allocate by Stakeholders Percent of Non-Background Load
- Add Background Load
- Result is Allocated Loading





Hendry Creek TMDL Requirements

- TMDL Based on Reference Site Analysis is 0.74 mg/l
- TMDL Load Results
 - Load at 0.74 mg/l = 52,772 lb/yr
 - Current Load – TMDL Load = 9,355 lb/yr
 - 1st 5-Year Reduction Required = 3,119 lb/yr





Hendry Creek Allocation

Jurisdiction	Area (acres)	Existing TN (lbs/yr)	Background (lb/yr)	Non-Background (lb/yr)	% of Non-Background	Portion of Non-Background	Allocation	% Reduction	1st 5-yr Load Reduction (lb/yr)
Lee	10,166	60,942	30,719	30,224	97.7%	21,080	51,799	15.0%	3,048
Catalina	111	203	202	1	0.0%	0	202	0.5%	0
Agriculture	98	668	150	518	1.7%	362	511	23.5%	52
Roads	89	313	133	180	0.6%	125	258	17.4%	18
Total	10,464	62,127	31,204	30,923	100.0%	21,567	52,771	15.1%	3,119

Previous 1st
5-yr Load
Reduction

Jurisdiction	1st 5-yr Load Reduction (lb/yr)
Lee	11,491
Catalina	0
Agriculture	142
Roads	19
Total	11,653



**Imperial River
Sub Basin Aerial Map
Bonita Springs - FDOT**

-  Interstates
-  US Routes
-  Local Roads
-  Rivers and Larger Streams
-  Imperial River Basin
-  FDOT Jurisdiction
-  Bonita Springs
-  Counties

Imperial River
Watershed

0 0.5 1 2 Miles



Map prepared August 11, 2010 by the Bureau of Watershed Restoration,
Division of Environmental Assessment and restoration. This map is not for legal
decision making purposes. For more information or copies,
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Imperial River Total Loads

					Previous Load
Jurisdiction	Area (acres)	TN (lbs/yr)	Background (lb/yr)	% of Non-Background	TN (lbs/yr)
Lee	26,113	97,679	95,879	1.5%	95,653
Bonita Springs	7,154	36,998	18,960	14.7%	43,265
Agriculture	11,597	120,084	17,743	83.6%	120,084
Roads	96	317	140	0.1%	739
Total	44,960	255,078	132,723	100.0%	259,741



TMDL Requirements

- TMDL Based on Reference Site Analysis is 0.74 mg/l
- Target Load Results:
 - TMDL Load at 0.74 mg/l = 195,029 lb/yr
 - Current Load – TMDL Load = 60,049 lb/yr
 - 1st 5-Year Reduction Required = 20,016 lb/yr





Imperial River Allocation

Jurisdiction	Area (acres)	TN (lbs/yr)	Background (lb/yr)	Non-Background (lb/yr)	% of Non-Background	Portion of Non-Background Allocation	% Reduction	1st 5-Year Reduction (lb/yr)
Lee	26,113	97,679	95,879	1,800	1.5%	916	0.9%	294
Bonita Springs	7,154	36,998	18,960	18,038	14.7%	9,185	23.9%	2,951
Agriculture	11,597	120,084	17,743	102,341	83.6%	52,114	41.8%	16,742
Roads	96	317	140	177	0.1%	90	27.4%	29
Total	44,960	255,078	132,723	122,355	100.0%	62,306	23.5%	20,016

Previous 1st
5-yr Load
Reduction

Jurisdiction	1st 5-Year Reduction (lb/yr)
Lee	819
Bonita Springs	7,684
Agriculture	32,219
Roads	27
Total	40,750





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Monitoring Program



Purpose of Monitoring

- Milestones
 - Trends Regarding Ambient TN Concentrations in Hendry Creek and Imperial River
 - Trends in Ambient DO
- Research
 - Data to Update and Upgrade Nutrient Analysis





Milestone Monitoring

- Are we succeeding in reducing loads to the water bodies?
 - Pick out areas with the greatest input
 - Calculate loads using ambient data and flows



Research Monitoring

- Answer unknowns
 - Refinement of Model Inputs
 - Effect of BMPs
 - Groundwater Monitoring



Existing Monitoring Data

Multiple Sources:

- Lee County
- SFWMD
- FDEP

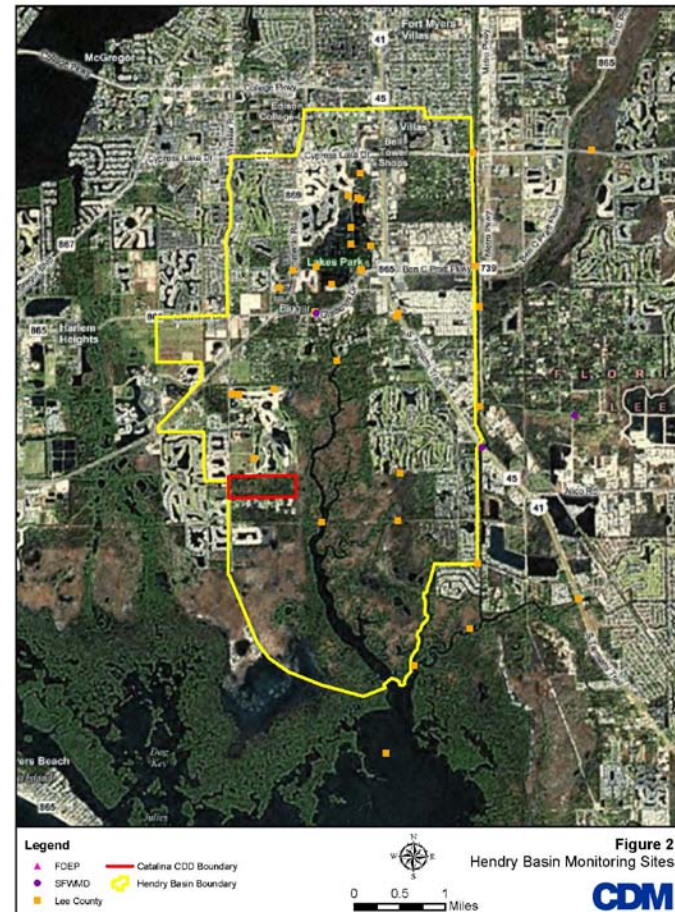
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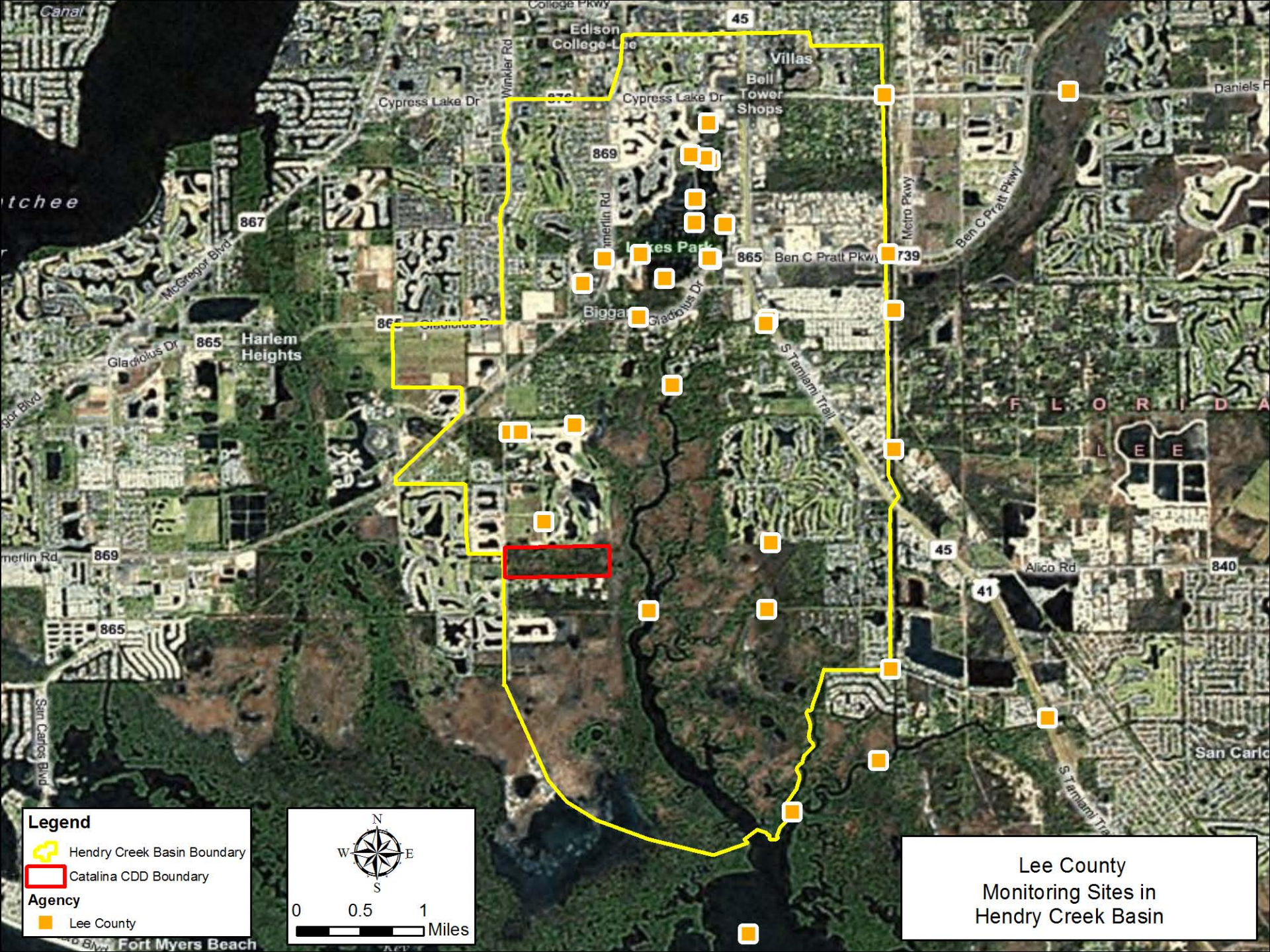
- Chlorophyll A
- Color
- Dissolved Oxygen
- Nitrogen Species
- Phosphorus Species
- Many Others



Existing Monitoring Stations

Discuss Each
Agency





Legend

 Hendry Creek Basin Boundary

 Catalina CDD Boundary

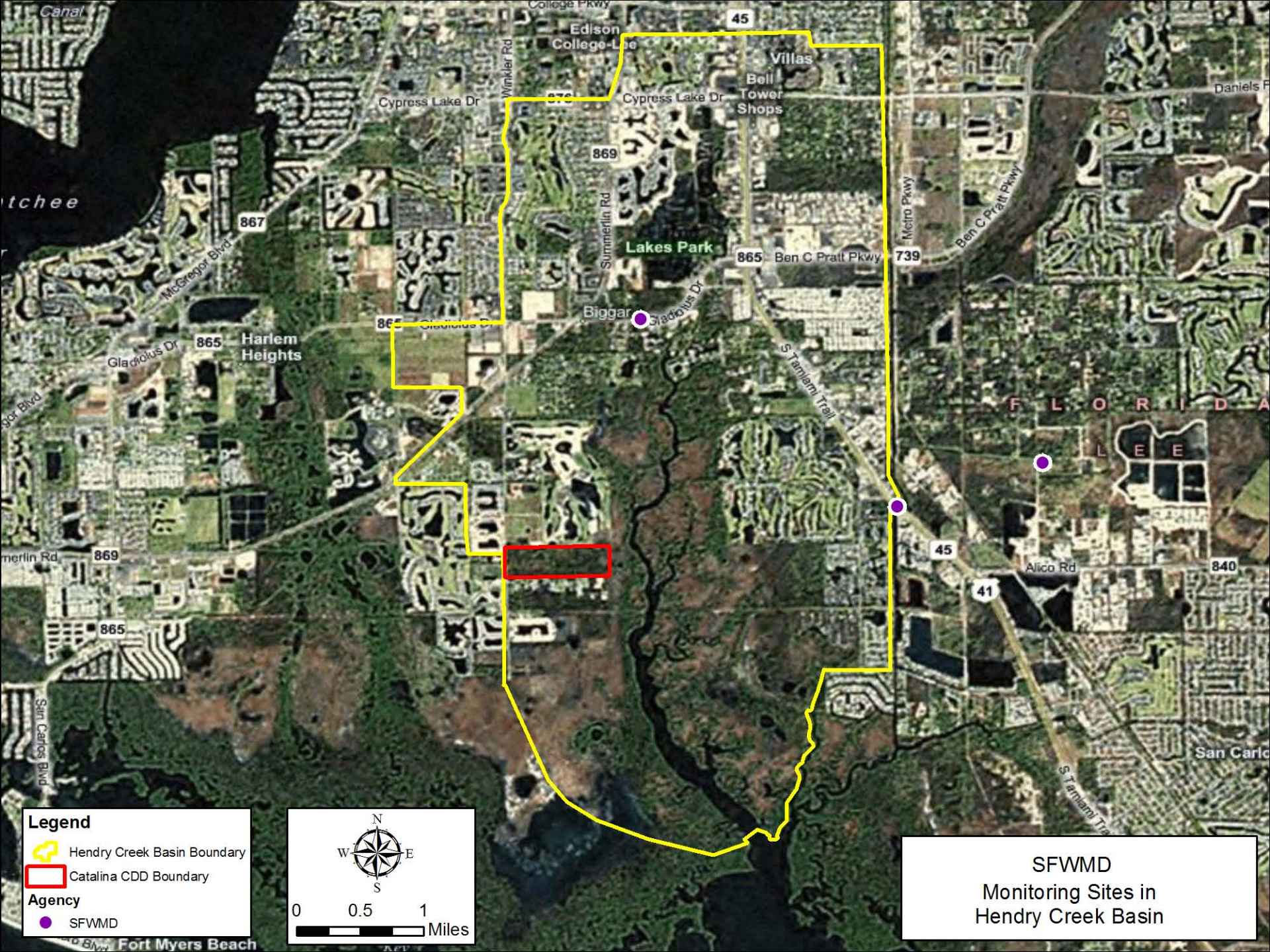
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 Lee County

0 0.5 1 Miles



Lee County
Monitoring Sites in
Hendry Creek Basin



Legend

 Hendry Creek Basin Boundary

 Catalina CDD Boundary

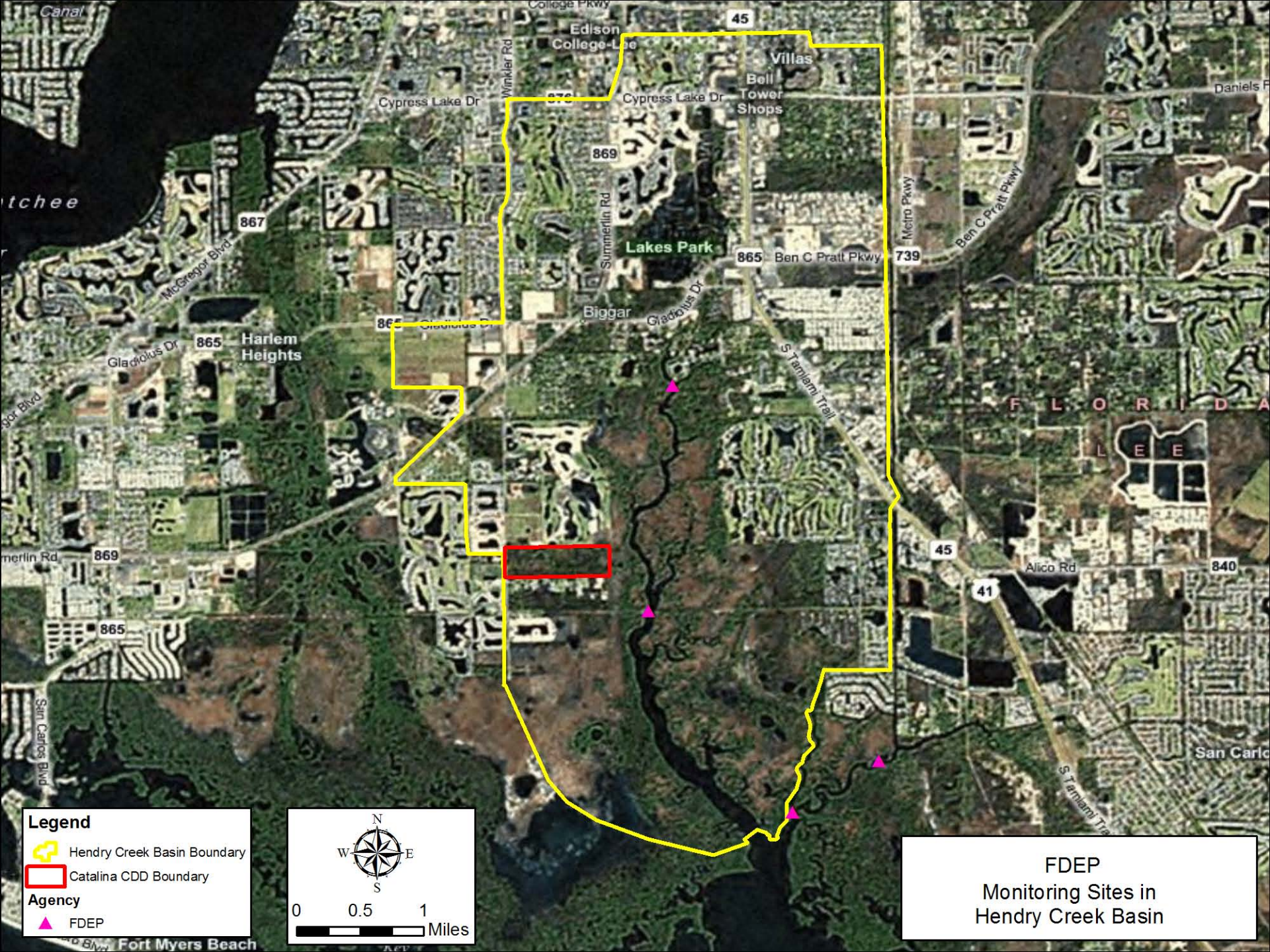
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 SFWMD



0 0.5 1 Miles

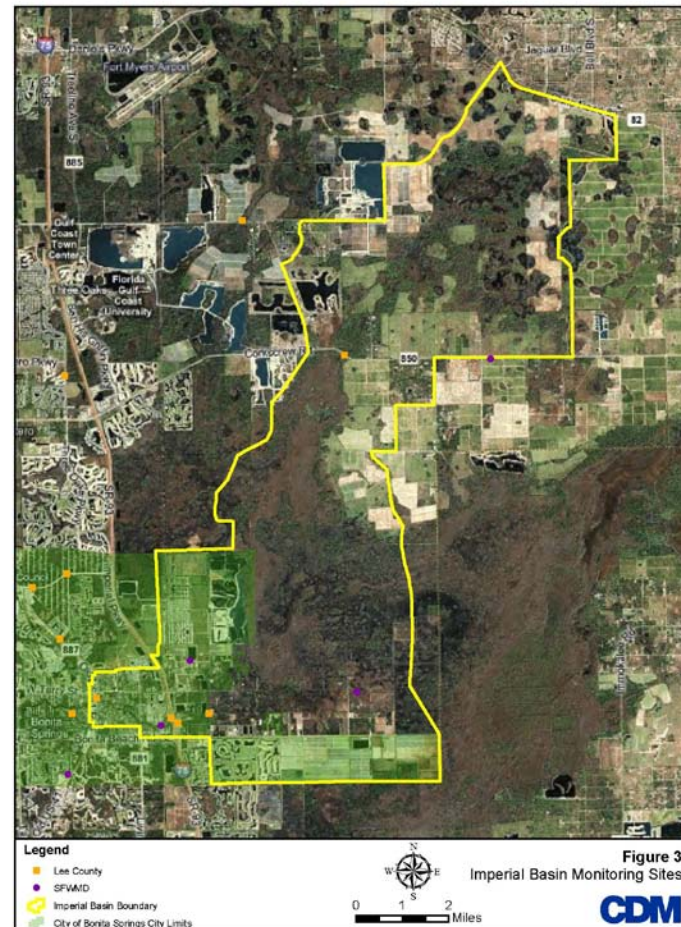
SFWMD
Monitoring Sites in
Hendry Creek Basin

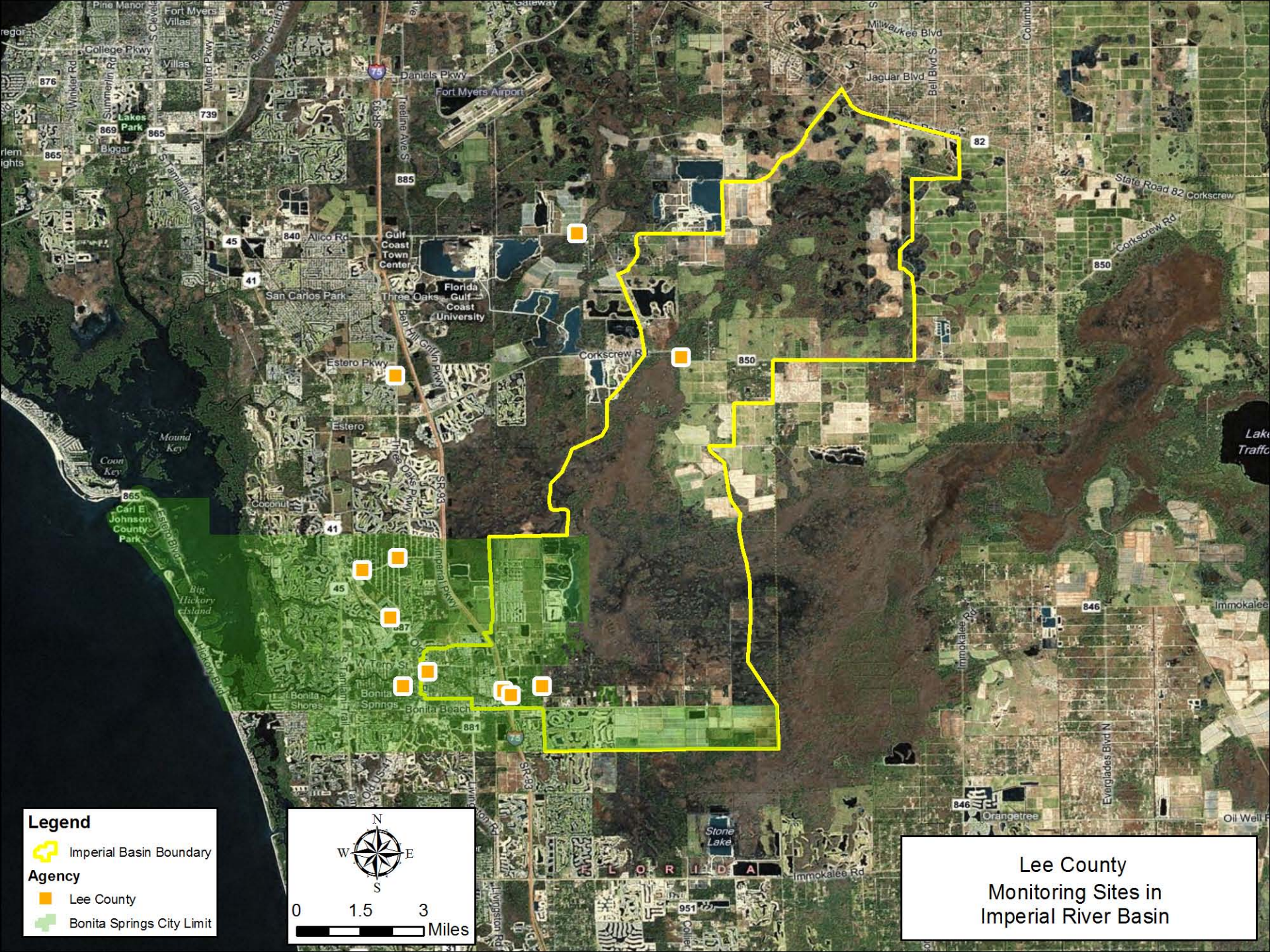




Existing Monitoring Stations

Discuss Each
Agency





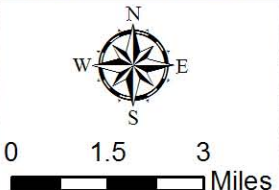
Legend

 Imperial Basin Boundary

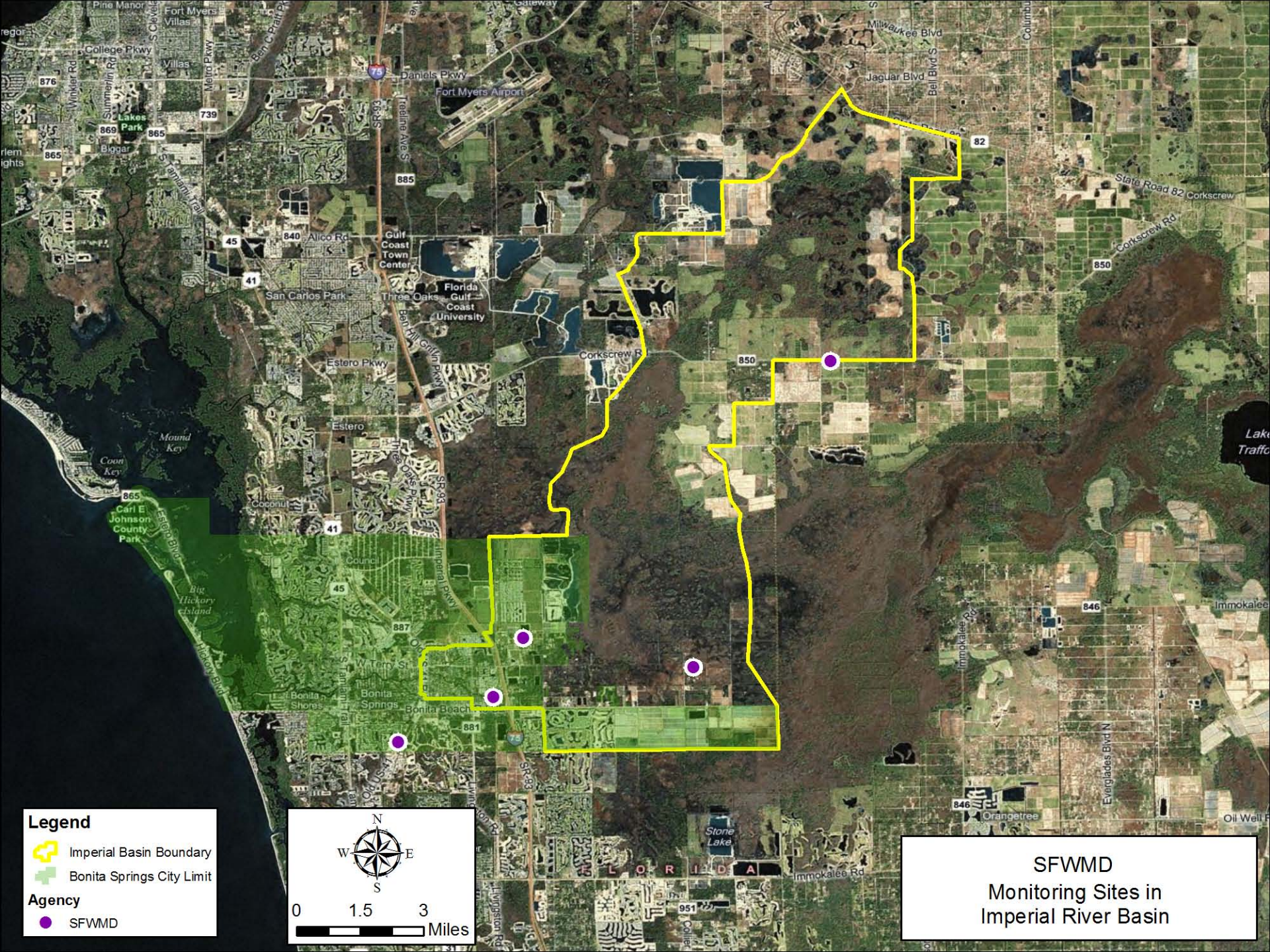
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 Lee County

 Bonita Springs City Limit



Lee County
Monitoring Sites in
Imperial River Basin



Legend

- Imperial Basin Boundary
- Bonita Springs City Limit
- Agency**
- SFWMD

0 1.5 3 Miles

SFWMD
Monitoring Sites in
Imperial River Basin



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NEXT STEPS



Action Items

- Provide Additional Comments by End of April
- Finalize list of Projects By Next Meeting
- Identify Priorities for Actions for the First 5-Year Phase





Next Meeting

- May or June
- Potential Topics to Consider
 - Refinement to Monitoring Plans
 - Priorities for 1st 5-Year Phase





Questions & Comments?

