

Florida Department of Environmental Protection



Water Quality Restoration Program

Silver Springs BMAP Meeting

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Activities Since September - Updates



Project Summary



Project Categories

- Funded – either complete or in progress.
- Planned – funded or within a plan that is expected to have funding.
- Conceptual – projects which do not have committed funding, but as opportunities arise this is a project that should be started.



Stormwater Project Summary

Urban Fertilizer - stormwater

Project type	Number of Projects-Funded	Number of Projects - Planned	Number of Projects - Conceptual
Urban Structural BMP	38	5	2
Urban Non-Structural BMP	12	--	--
Regulation /Ordinance	7	--	--
Planning Designations	5	--	--
Education/Outreach	20	--	--

Total number of projects= 89



Stormwater Loading

Table 23: Summary of Strategies that Address Urban Fertilizer

Source Category	Number of Projects	Number of Planned Project	Number of Conceptual Project	Total Nitrogen Loading Reduction pounds N/yr
Urban Fertilizer	51	4	2	72,423
Structural BMP	21	2	2	6,354.58
Street Sweeping	4	--	--	6,316
Operation and Maintenance	7	--	--	27,484.5
Education and Outreach ¹	19	--	--	30,844
Drainage Wells	2	2	--	1,424

¹Assumes 3% credit for education and outreach – that percent is being refined.



Calculation of Education Credits

Activity	Included?	Activity Details
Florida Yards and Neighborhoods Program	☐ YES	--
Landscaping local code/ordinance	☐ YES	--
Irrigation local code/ordinance	☐ YES	--
Fertilizer local code/ordinance	☐ YES	--
Pet waste management local code/ordinance	☐ YES	--
Public Service Announcements	☐ YES	--
Informational pamphlets	☐ YES	--
Website	☐ YES	--
Inspection program and call-in number for illicit discharges	☐ YES	--



Crediting scheme

- If all activities are conducted, then the full 6% reduction is assigned.
- If only PSAs, websites, brochures, and the inspection program are provided, a 1% reduction credit is assigned.
- If only the FYN program is implemented, a 3% reduction credit is assigned.
- If only the four ordinances are implemented, then a 2% reduction is assigned.
- Credit scheme based on work done by Center for Watershed Protection (Maryland).
- Same credit scheme used for all BMAPS.



Wastewater Source Summary

Table 18: Wastewater Management Strategies Summary

Management Strategy	Total Number of Projects	Number of Planned Projects	Number of Conceptual Projects	TN Loading Reduction at Land Surface lbs-N/yr
Reuse	6	--	1	173,893
Wastewater Collection System Maintenance	14	1	--	--
Wastewater Service Area Expansion	3	--	--	20,373
Wastewater System Upgrade	8	2	1	71,445
Totals	31	4	3	265,711

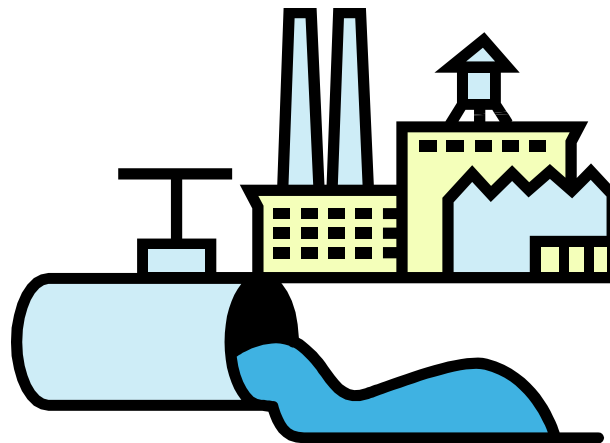


Draft Loading Reductions

Category	Estimated TN Load Reduction (lbs/yr)*	Total TN Land Surface Load (lbs/yr)*	Percent Loading Reduction
Wastewater Land Application includes Reuse	265,711	321,083	82.8
OSTDS	24,300	1,592,560	3.9
Urban Fertilizer	72,423	1,028,117	7.0

*All numbers are provisional

Proposed Wastewater Effluent Standards for Permitted Facilities





Marion County Land Development Code

**Table 19: Marion County Wastewater Effluent Standards –
current Land Development Code**

Designed Average Daily Flow (MGD)	Effluent Disposal System		
	Rapid Rate Land Application	Slow Rate Land Application	Public Access Reuse
<i>Primary Protection Zone</i>			
Greater than 0.5 MGD	3 mg/L	3 mg/L	10 mg/L
Less than 0.5 and greater than or equal to 0.01	3 mg/L	6 mg/L	10 mg/L
Less than 0.01	10 mg/L	10 mg/L	10 mg/L
<i>Secondary Protection Zone</i>			
Greater than or equal to 0.5 MGD	3 mg/L	3 mg/L	10 mg/L
Less than 0.5 but greater than or equal to 0.1 MGD	3 mg/L	6 mg/L	10 mg/L
Less than 0.1 but greater than or equal to 0.01 MGD	6 mg/L	6 mg/L	10 mg/L
Less than 0.01 MGD	10 mg/L	10 mg/L	10 mg/L



Marion County LDC

- By January 1, 2019, code requires existing WWTFs using rapid rate land application (“RRLA”) or RIBs to either:
 1. Connect to a central sewer system that does not utilize RRLA, or
 2. Meet a 10 mg/L TN and convert to a slow rate land application system, or
 3. A public access reuse system;
 4. Code provides for waivers for RIBS disposal systems unable to meet the code requirements.
- Within unincorporated Marion County, the code requires facility operators to test effluent for nitrate and TN concentrations on a monthly frequency for facilities discharging greater than 0.1 MGD and quarterly sampling for facilities less than 0.1 MGD.



Proposed BMAP Effluent Standards

- These are draft!
- Require reporting of effluent discharge for total nitrogen.
- Require at least quarterly sampling of effluent discharge for TN.
- Apply the effluent standards described in Table 19 to all new and expanded WWTFs within the **Primary Protection Zone** that have a permitted nutrient discharge (regardless of whether the facility is located in incorporated or unincorporated Marion County – BMAP mirrors existing code).
 - Includes industrial wastewater permits if they have nutrient limits.



Proposed Effluent Standards

- Require existing WWTFs within the **Primary Protection Zone** to evaluate the **feasibility** of connection to central sewer where available and connect to central sewer or alternatively improve wastewater treatment to meet the effluent standards in Table 19 (regardless of whether the facility is located in incorporated or unincorporated Marion County).
 - **DEP needs to define feasibility.**



Proposed Effluent Standards

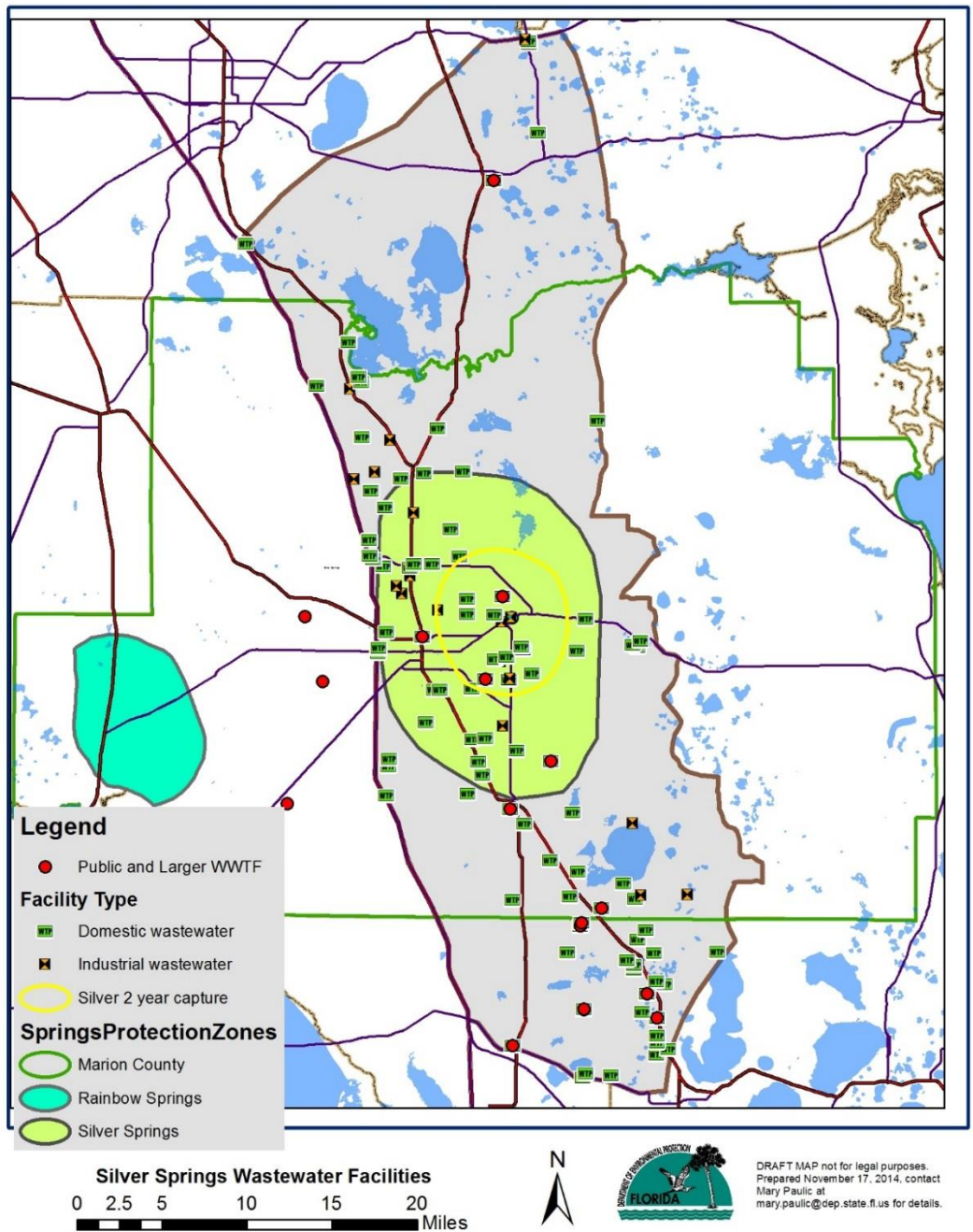
- Require existing WWTFs within the BMAP area using rapid rate land application, **as a primary disposal method**, to connect to a central sewer system or to convert to a slow rate land application system or public access reuse system.
 - Marion County facilities have a date identified in land development code as January 1, 2019.



Proposed Effluent Standards

- For WWTFs within the BMAP area but outside of the Primary Protection Zone, apply a permit effluent standard of 6 mg/L TN average or 10 mg/L TN for reuse. **If local codes or ordinances contain more stringent effluent requirements, those more stringent local effluent standards will apply.**
- New effluent requirements take effect at the time of permit renewal.

Facility Locations





Potential OSTDS Strategy



OSTDS Distribution

Table 20: Distribution of OSTDS by County and Recharge Rate

County	Septic Systems in High Recharge	Septic Systems in Medium Recharge	Septic Systems in Low Recharge	Total Number by County
Alachua	818	1,299	587	2,704
Lake	3,341	3,818	532	7,691
Marion	28,088	17,926	3,732	49,746
Sumter	748	1,803	184	2,735
Putnam	372	1,551	1,715	3,638
Total BMAP	33,367	26,397	6,750	66,514

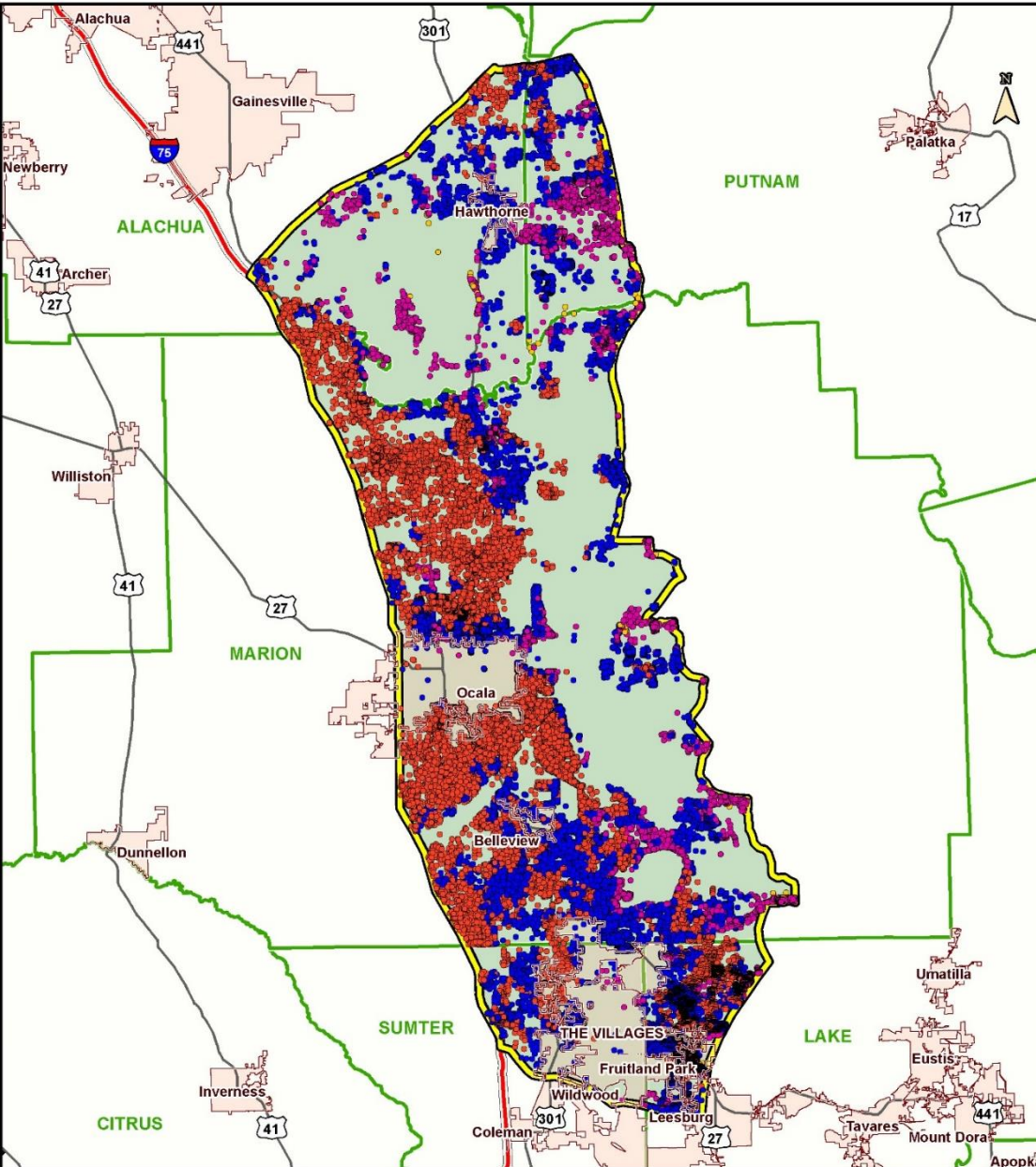
OSTDS and Recharge

Ground Water Loading

1,592,560 lbs-N/yr

OSTDS Loading

629,954 lbs-N/yr



Silver River and Springs BMAP
Ocklawaha Group 1 Basin
Septic Tanks and Recharge

Recharge Rate

- Discharge
- Low (< 4 inches /yr)
- Med (> 4 in/yr and < 12 in/yr)
- High (> 12 in/yr)

- Interstates
- US Routes
- Silver Springs BMAP
- City Limits





Projects that Address TN Loading from OSTDs

Project Type	Project Title	Lead Entity	Project Description	Project Partners	Start Date/Status
Septic System Connection / S035	Leonardo Estates Septic Tank Abatement	City of Ocala	This project includes the connection of an estimated 850 septic tank systems within the Silver Springs springshed at no cost to the homeowners. Elimination of the septic tanks in this project is estimated to provide a reduction in nitrogen loading to Silver Springs by approximately 20,321 pounds of nitrogen per year.	None	TBD/ Not started
Septic System Connection / S096	Septic System Connection Removal in County Parks	Marion County Parks	This project focuses on the removal of on-site sewage treatment and disposal (septic) systems and connection to centralized wastewater facilities. There are a few parks within this BMAP area which are in close proximity to existing or planned wastewater facilities (Brick City Adventure Park, Rotary Sportsplex, and Baseline Road Trailhead). The goal of this project would be to remove as many septic systems within this area as possible.	None	TBD/ Not started conceptual
Wastewater Service Area Expansion / S034	US 441 Sewer Main Expansion	City of Belleview	Construction of new sewer line south of City along US 441. Sewer line will allow commercial and residential area to hook up to centralized system. This project is estimated to provide 79 central sewer connections to a rapidly developing corridor, with potential for up to 60 more connections.	None	2014/ Not started



OSTDS Projects

Project Type	Project Title	Lead Entity	Project Description	Project Partners	Start Date/Status
Septic System Connection / S090	Silver Springs State Park Management Plan Amendment - State Park Sewer Connection	FDEP, Division of Recreation and Parks	The management plan for Silver Springs State Park was formally amended in May 2014 to account for the inclusion of the former Silver Springs attraction into the Silver River State Park. In addition to a change in park name, management goals were developed to connect park services in the former Silver River State Park to central sewer, thus eliminating nitrate inputs to the aquifer and Silver River.	None	2014/ complete 2015

- In addition to sewerage Silver Springs State Park, DEP has paid for a collection system on Sharpes Ferry Road and a lift station.
 - Installs infrastructure that could be used for future conversion of OSTDS areas.



Wastewater Projects

- DEP and SJRWMD assisted Marion County Utilities with installation of collection System on SR 35 connecting Silver Springs Regional WWTF to Silver Springs Shores WWTF.
 - Project number S037 and S038.
 - Silver Springs Regional removed from service.
 - Puts infrastructure in place for future connection.



What we know

- Tied with agriculture as largest potential TN source to Upper Floridan aquifer.
- Overall OSTDS projects proposed with this BMAP will remove **24,300 lbs TN/yr as applied to the drainfield discharge. (before attenuation applied)**
 - Actions that address this source are underway.
 - 1.5% of load at discharge to drain field addressed
- Distribution by land use type:



OSTDS by Land Use

- Joined 2009 mapped land uses to OSTDS coverage. There are a large number of OSTDS not associated with residential or urban land use.

Landuse	# of OSTDs
Commercial	1,208
Industrial	121
Institutional	208
Low density residential	22,366
Medium density residential	31,836
High density residential	1,190
Other urban	324
Non-urban	9,261

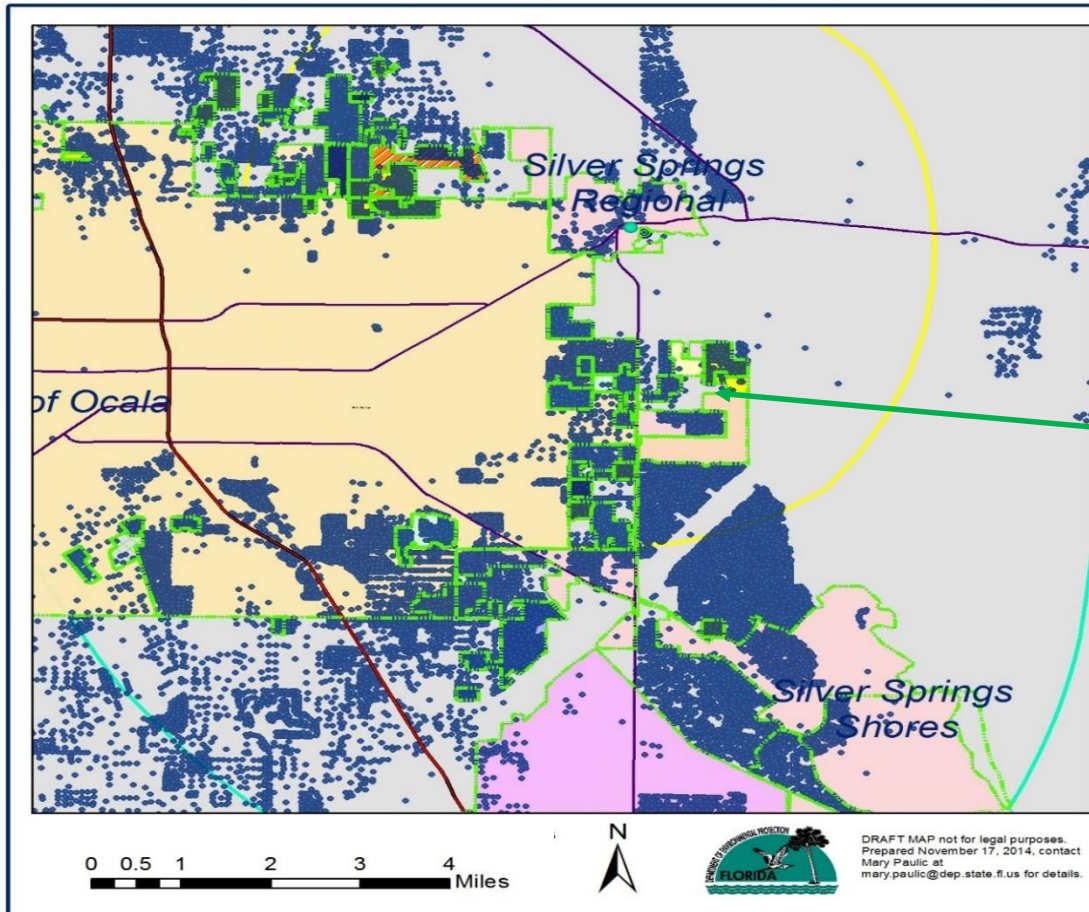


Knowns

- Study underway by DOH to evaluate alternative OSTDS treatment systems- results currently not available.
- DEP has a separate small study underway evaluating a drainfield amendment that increases denitrification.
- Marion County land development code requires connection if sewer available within 400 feet - new development addressed.
- Marion County Utility prioritization study (2009).

Complicating Factors

- Multiple utility jurisdictions. Not sure which is water supply and which is sewer.
 - Private utility areas need delineation refined.



Silver Springs Water/
Wastewater Utilities

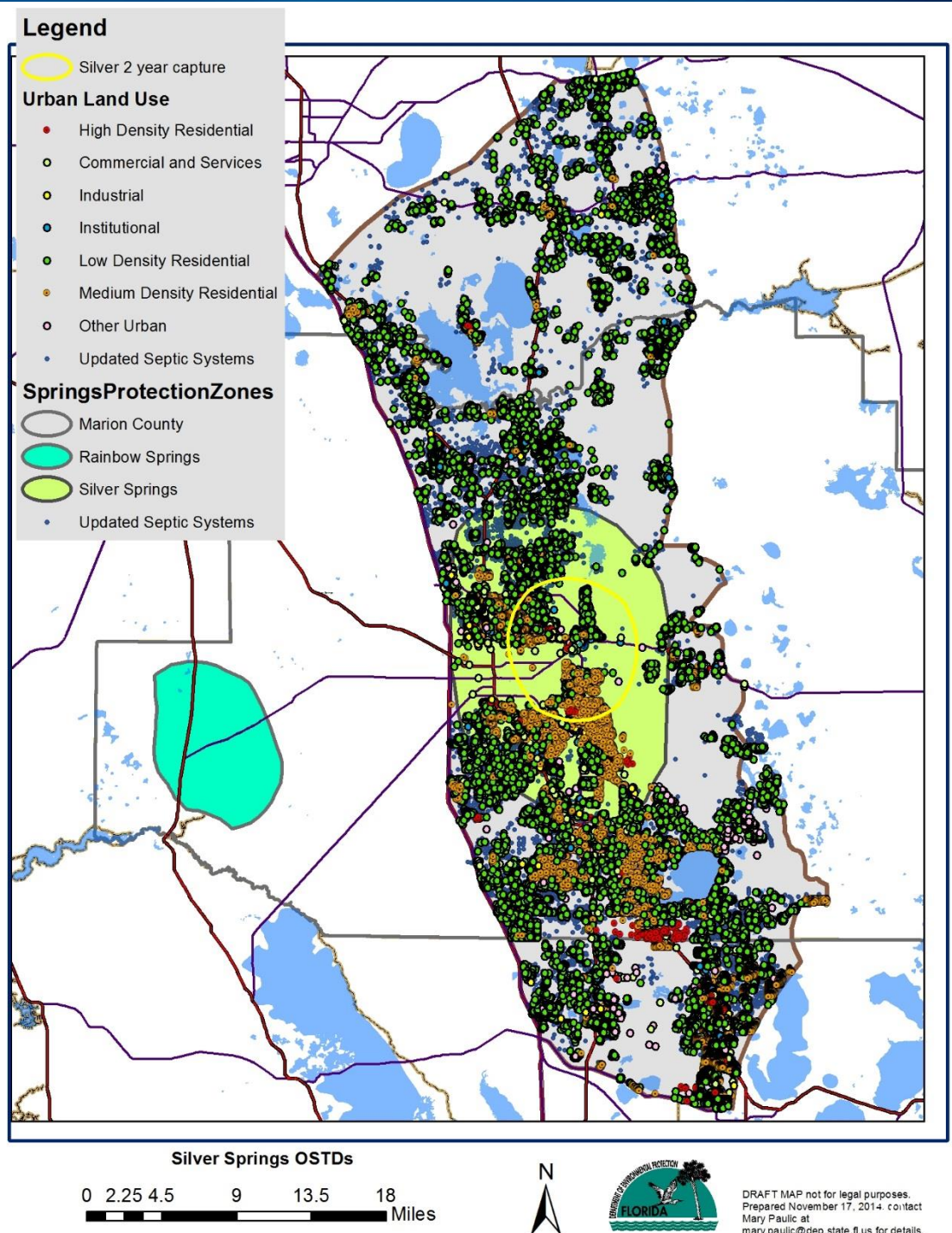
Service area defined with
green boundary.



Complicating Factors

- Need improved accounting of location and number of OSTDS.
- Currently don't have all the tools necessary to address source.
- Some areas with high and medium density residential land uses that are currently on OSTDS are outside existing service areas.

OSTDS by Land Use Category





Solution

- Propose “OSTDS 9-1-1 Strategy”.
 - Project will be included in BMAP.
 - Continuing discussion with Utility Directors on developing a strategy for addressing this source.
 - Draft strategy will be presented to BMAP stakeholders for comment.



Focus Areas



Location of Sources

- Locations within BMAP area where “sources” of TN loading are concentrated.
- Particularly true for agriculture and OSTDS.
- These are also typically high recharge areas.

Legend

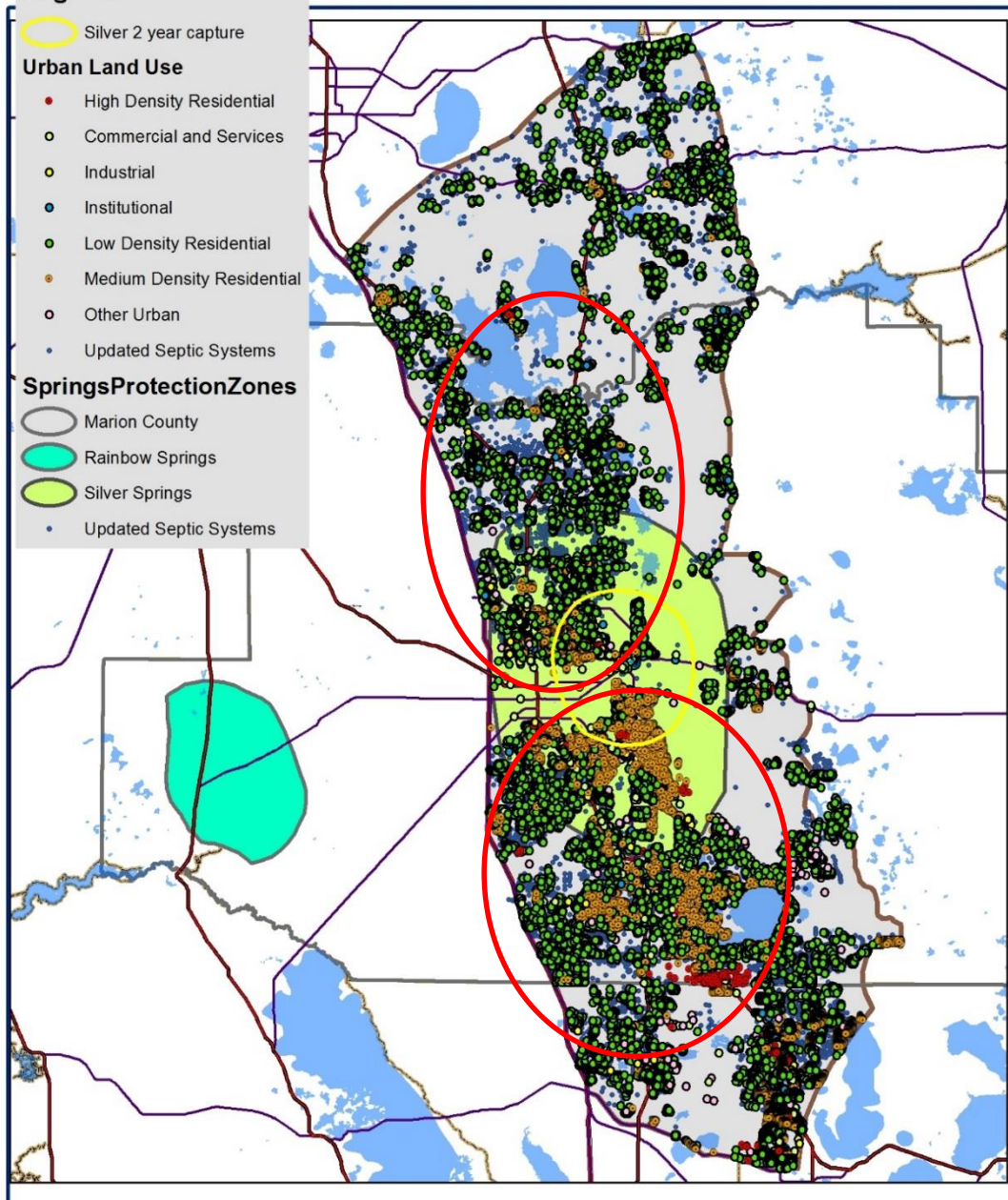
○ Silver 2 year capture

Urban Land Use

- High Density Residential
- Commercial and Services
- Industrial
- Institutional
- Low Density Residential
- Medium Density Residential
- Other Urban
- Updated Septic Systems

Springs Protection Zones

- Marion County
- Rainbow Springs
- Silver Springs
- Updated Septic Systems



Silver Springs OSTDs

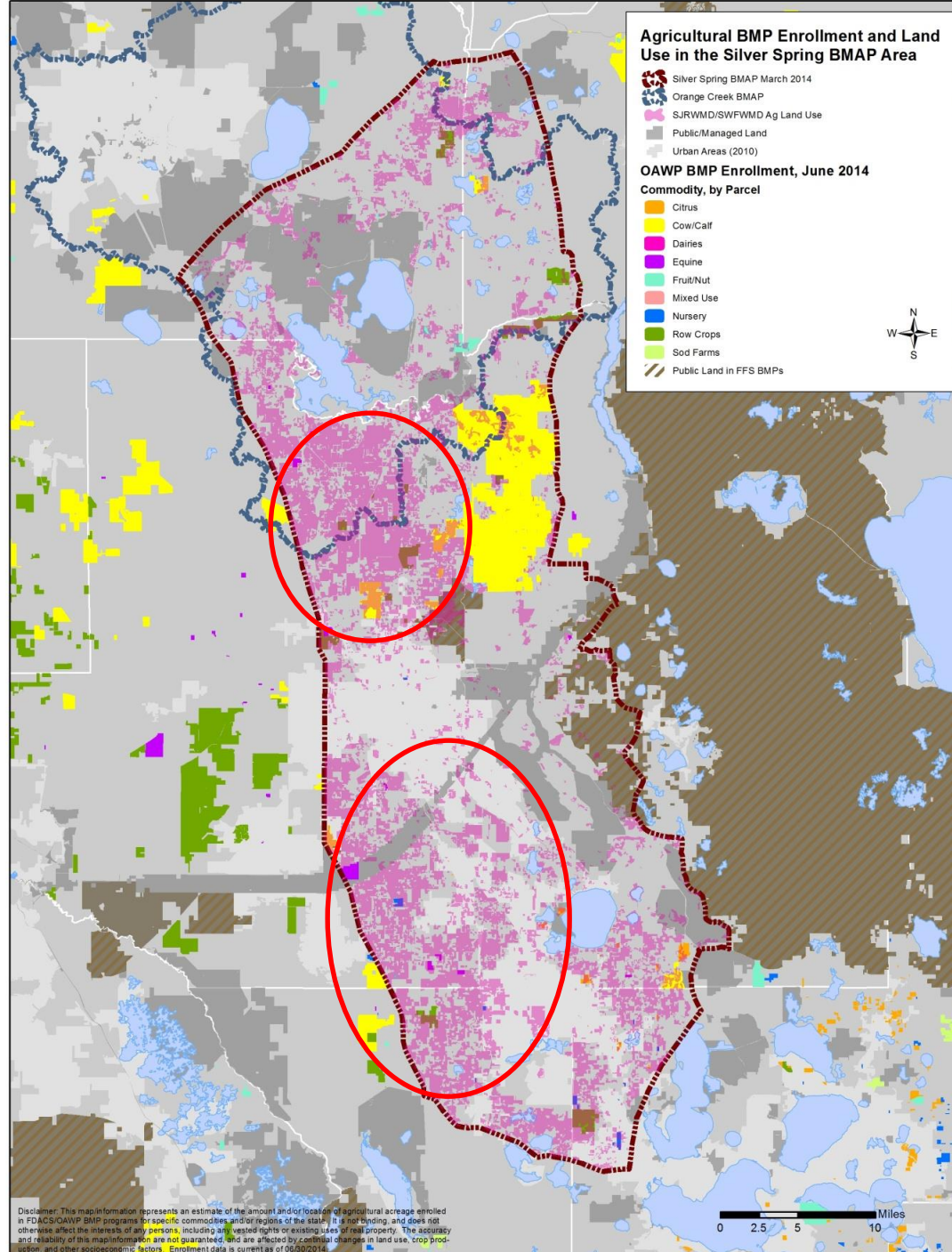
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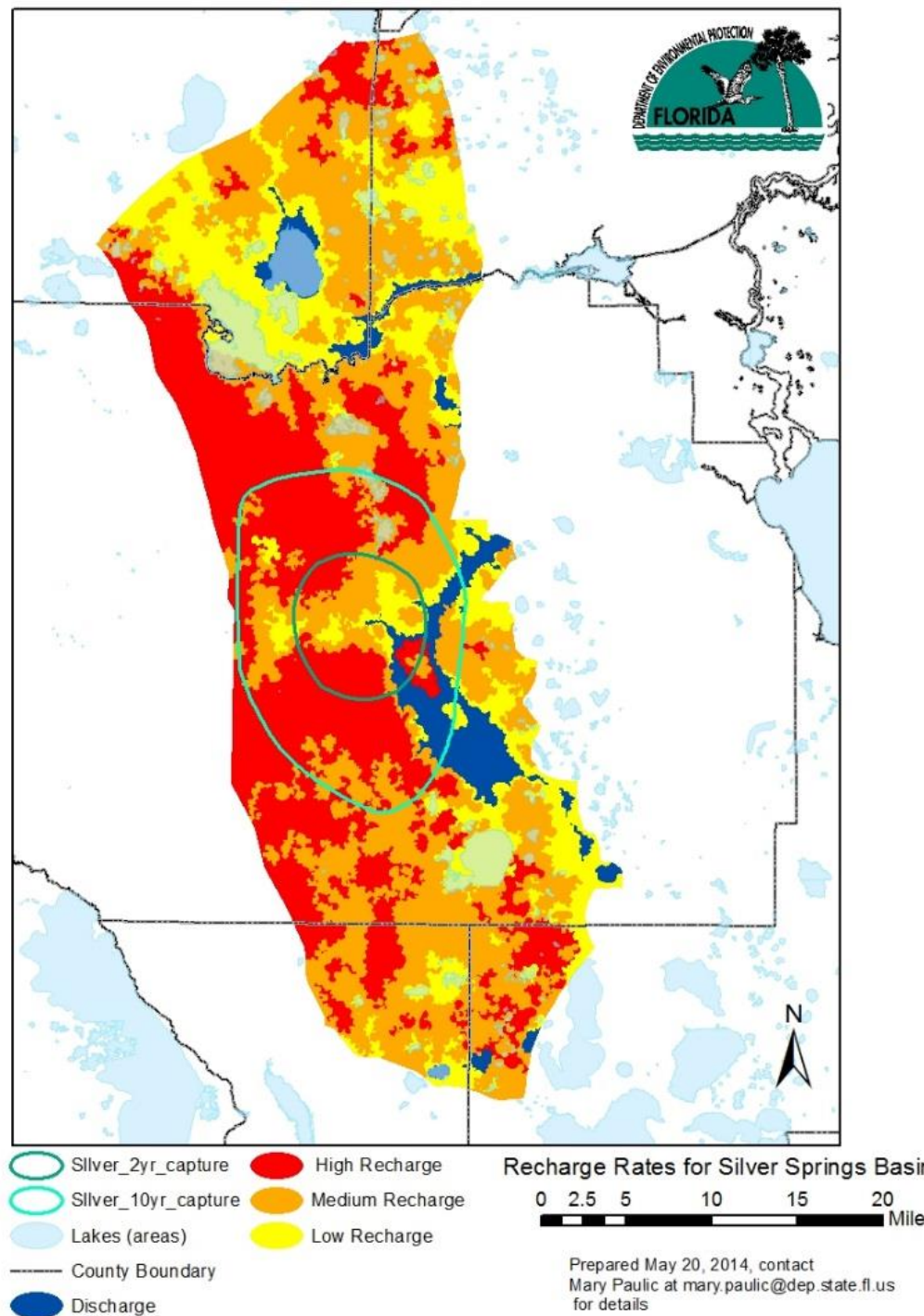


DRAFT MAP not for legal purposes.
Prepared November 17, 2014, contact
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Areas with NOI

- Information provided by DACS.







BMAP: Strategies

- 3 proposed strategies or projects:
 - Public education outreach – stormwater springs forum.
 - Small farm equine BMP implementation.
 - OSTDS 9-1-1.



Next Steps

- Possibility of another meeting before the end of the year, but most likely in January.
- BMAP is in internal review, but will distribute to stakeholders as soon as possible.
- DEP will continue talking with public works staff to finalize projects and complete the drafting of an OSTDS strategy.
- Still need to schedule at least one public meeting to present the BMAP.

Questions?





Website and FTP Addresses

- <http://www.dep.state.fl.us/water/watersheds/bmap.htm> - website for meeting announcements.
- http://www.dep.state.fl.us/water/tmdl/final_tmdl.htm - website for TMDL documents, under Ocklawaha Basin.
- http://publicfiles.dep.state.fl.us/DEAR/BMAP/Silver_springs/ - FTP site for meeting notes and presentations.