

DEP Wekiva Septic Tank Study

presented December 15, 2016

Department of Environmental Protection

Septic Tank Study Objectives

This study would help us better understand:

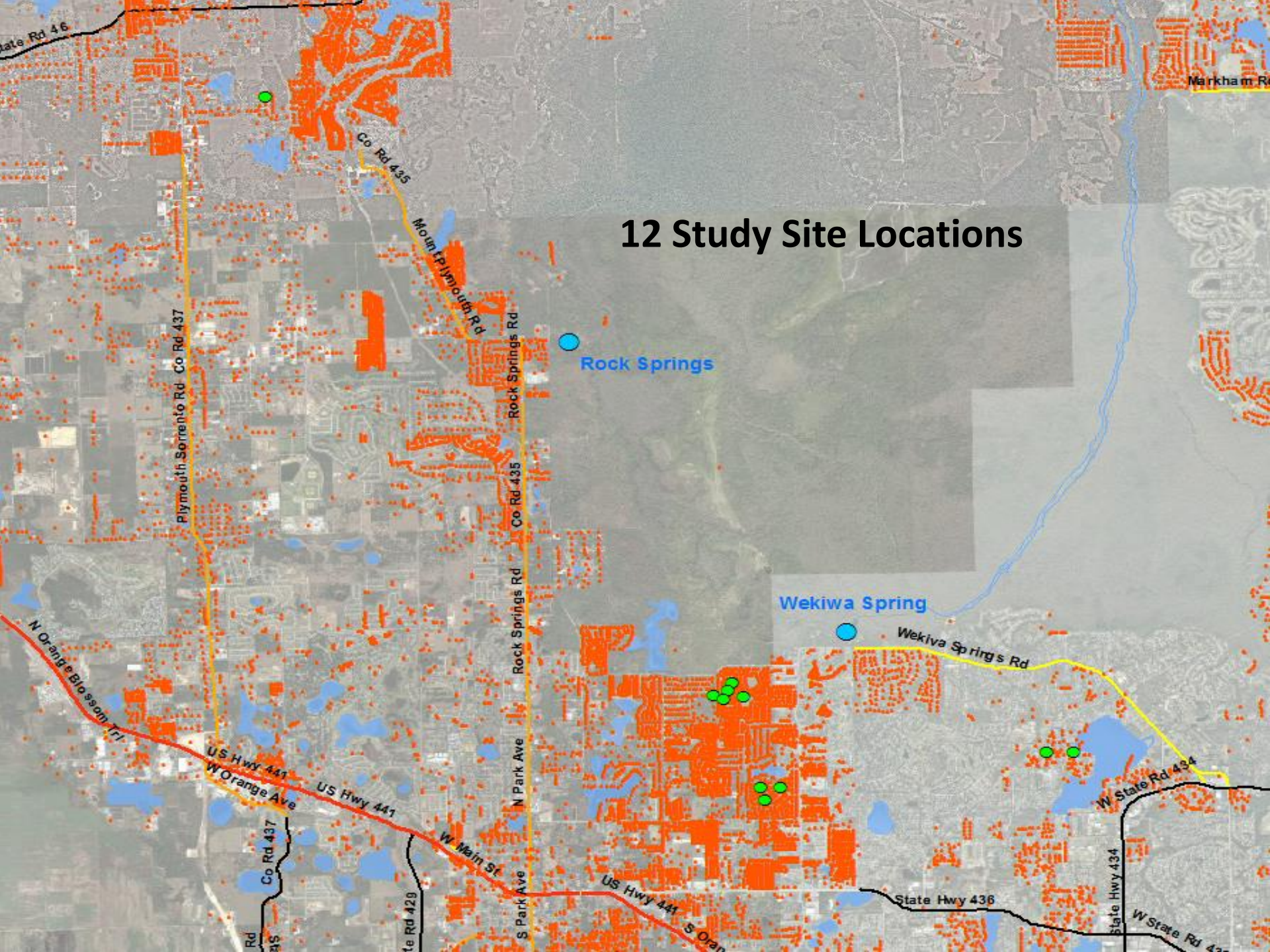
- Attenuation and leaching of nitrogen from existing septic systems into the soil and ground water
- Other sources of nitrogen in residential areas
- Conditions that may influence nitrogen attenuation local to this area
- **Findings can be used to help us all understand how to best prioritize efforts and money spent to reduce nitrogen loads to the system.**

History of the Study

- Discussion on data sufficiency for decision making
- Collaborative study plan development, DEP and Committee for Property Rights (winter 2014/2015)
- Outreach to volunteer homeowners to participate in study (Feb-March 2015)
- Hire septic tank contractor/recon 18 candidate sites (June 2015)
- Select 12 sites for instrumentation, install lysimeters and effluent sampling ports (July-September 2015)
- Lysimeter and effluent monitoring
- SF6 ground water tracer study
- Completed monitoring October 2016
- Incorporate DOH STUMOD-FL modeling product in analysis
- Final Report Spring 2017

Summary of Information on Study Sites

Site ID	City	No. residents	Drainfield repair/replacement history	Maintenance info	Lawn fertilizer use	Soil
A	Sorrento	2	infiltrators (original)	pumped regularly	yes, self applied	Candler fine sand
B	Apopka	3	infiltrators (2009)	pumped in 2013	yes, self applied	Candler fine sand
C	Apopka	3	infiltrators (2010)	septic tank pumped in 2013	yes, self applied	Candler fine sand
D	Apopka	2	pipe in gravel (original)	not pumped out lately	yes, commercial service	Candler fine sand
E	Apopka	2	pipe in gravel (1989)	not pumped	yard mostly mulched beds	Candler fine sand
F	Apopka	4	infiltrators (2010)	pumped in 2014	not lately	Candler fine sand
G	Apopka	3	pipe in gravel (original)	pumped in 2014	yard mostly mulched beds	Candler fine sand
H	Apopka	2	pipe in gravel (original)	not pumped	yes, commercial service	Candler fine sand
I	Longwood	2	infiltrators (1989)	pumped in 2015	yes, commercial service	Urban land
J	Longwood	2	mounded pipe in gravel bed	pumped regularly	yes, commercial service	Urban land
K	Apopka	2	pipe in gravel (original)	pumped in 2015	yard mostly mulched beds	Candler fine sand



12 Study Site Locations

Rock Springs

Wekiwa Spring

Wekiva Springs Rd

W State Rd 434

State Hwy 436

W State Rd 435

Plymouth Sorrento Rd Co Rd 437

Co Rd 435

Mountain Plymouth Rd

Rock Springs Rd

Co Rd 435

Rock Springs Rd

N Park Ave

S Park Ave

W Main St

US Hwy 441

S Orange Ave

US Hwy 441
W Orange Ave

Co Rd 437

State Rd 46

Markham Rd

Scope

- Lysimeters to monitor soil pore water below drainfield and background
- Riser installation and effluent monitoring
- Monitoring wells at some locations
- Collect data on water use to estimate loading

Other Activities

- **Evaluate changes in septic tank treatment after pumpouts.**
 - By selectively sampling septic tank effluent, pre and post pumpout we hope to help provide some actual data on the potential benefit of tank pumping.
- **Conduct alternative nitrogen reducing drainfield study.**
 - Bold and Gold or other similar reactive media
 - Passive low-cost construction
 - Wekiwa Springs State Park location
 - Orchard Drive location

Current Status Summary

- 11 sites selected and instrumented with shallow lysimeters (August-September).
- Risers installed on 8 septic tanks (September).
- Regular sampling program (October 2015-October 2016 bimonthly sampling).
- Installed deeper lysimeters at some locations.
- Deep geologic borings and monitoring well installation at 2 sites.
- Incorporate DOH STUMOD-FL model analysis
- Report to be produced in Spring 2017