

Florida Department of Environmental Protection



Lower St. Johns River Tributaries I and II Basin Management Action Plans

2014 Annual Progress Reports

March 5, 2015





Presentation Overview

- Progress Toward Implementation Milestones
- Source Identification Sampling Results
- BMAP I Second Iteration
- Next Steps for BMAP II



Progress Towards Implementation Milestones



BMAP I Milestone Progress

- Based on data from 2010 through 2014:
 - Exceeding this 50% improvement milestone:
 - Newcastle Creek.
 - Hogan Creek.
 - Miramar Creek.
 - Deer Creek.
 - Terrapin Creek.
 - Goodbys Creek.
 - Improvements have occurred in:
 - Miller Creek.
 - Big Fishweir Creek.
 - Open Creek.
 - Butcher Pen Creek continues to require improvement.



Summary of BMAP I Medians

WBID Number	WBID Name	TMDL Median (#/100 mL) (1996-2003)	Median (#/100 mL) (2010-2014)	% Reduction	Monitored By
2235	Newcastle Creek	2,500	950	62.0%	COJ
2252	Hogan Creek	5,000	1,200	76.0%	COJ
2322	Butcher Pen Creek	2,400	2,600	-8.3%	FDEP
2287	Miller Creek	5,000	4,400	12.0%	COJ
2304	Miramar Creek	7,000	1,041	85.1%	COJ
2280	Big Fishweir Creek	3,000	2,600	13.3%	FDEP
2256	Deer Creek	2,765	360	87.0%	COJ
2204	Terrapin Creek	1,367	670	51.0%	FDEP
2326	Goodbys Creek	3,000	490	83.7%	FDEP
2299	Open Creek	1,000	570	43.0%	FDEP



BMAP II Milestone Progress

- Based on data from 2010 through 2014:
 - Exceeding 50% improvement milestone:
 - McCoy Creek.
 - Fishing Creek.
 - Deep Bottom Creek.
 - Moncrief Creek.
 - Blockhouse Creek.
 - Cormorant Brach.
 - Wills Branch.
 - Sherman Creek.
 - Greenfield Creek.
 - Pottsburg Creek.
 - Middle Trout River.
 - Lower Trout River.
 - Improvements have occurred in:
 - Craig Creek.
 - Williamson Creek.
 - Hopkins Creek.



Summary of BMAP II Medians

WBID Number	WBID Name	Data Period in TMDL	TMDL Median (#/100 mL)	Median (#/100 mL) (2010-2014)	% Reduction	Monitored By
2297	Craig Creek	2001-2007	3,000	2,400	20.0%	FDEP
2257	McCoy Creek	1995-2007	2,510	751	70.1%	JEA
2316	Williamson Creek	1991-2002	2,400	2,100	12.5%	JEA
2324	Fishing Creek	2001-2007	1,300	450	65.4%	COJ
2361	Deep Bottom Creek	1991-2007	2,200	991	55.0%	COJ
2228	Moncrief Creek	1991-2002	2,600	585	77.5%	FDEP
2207	Blockhouse Creek	1991-2006	2,200	906	58.8%	N/A
2266	Hopkins Creek	2001-2007	1,200	896	25.4%	COJ, AB, NB, JB
2381	Cormorant Branch	2001-2007	1,500	400	73.3%	COJ
2282	Wills Branch	1991-2002	4,000	540	86.5%	N/A
2227	Sherman Creek	1996-2008	1,400	270	80.7%	COJ, AB, Mayport
2240	Greenfield Creek	2001-2007	1,354	240	82.3%	N/A
2265B	Pottsburg Creek	2001-2007	800	300	62.5%	N/A
2203	Middle Trout River	1996-2007	1,184	360	69.6%	FDEP
2203A	Lower Trout River	1998-2000	1,000	110	89.0%	N/A



Source Identification Sampling Results



Approach

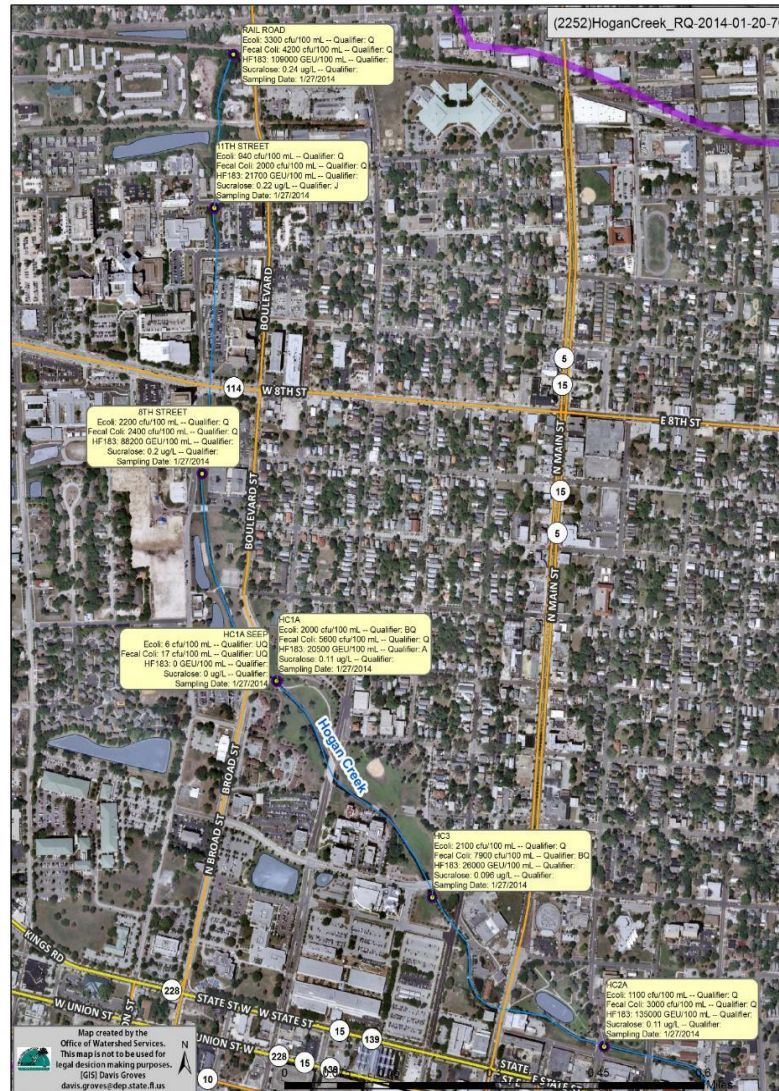
- Sample multiple segments of the stream.
- Zero in on sources by following persistent hits starting with upstream sources
- For each of the creeks sampled todate, follow up studies are ongoing.



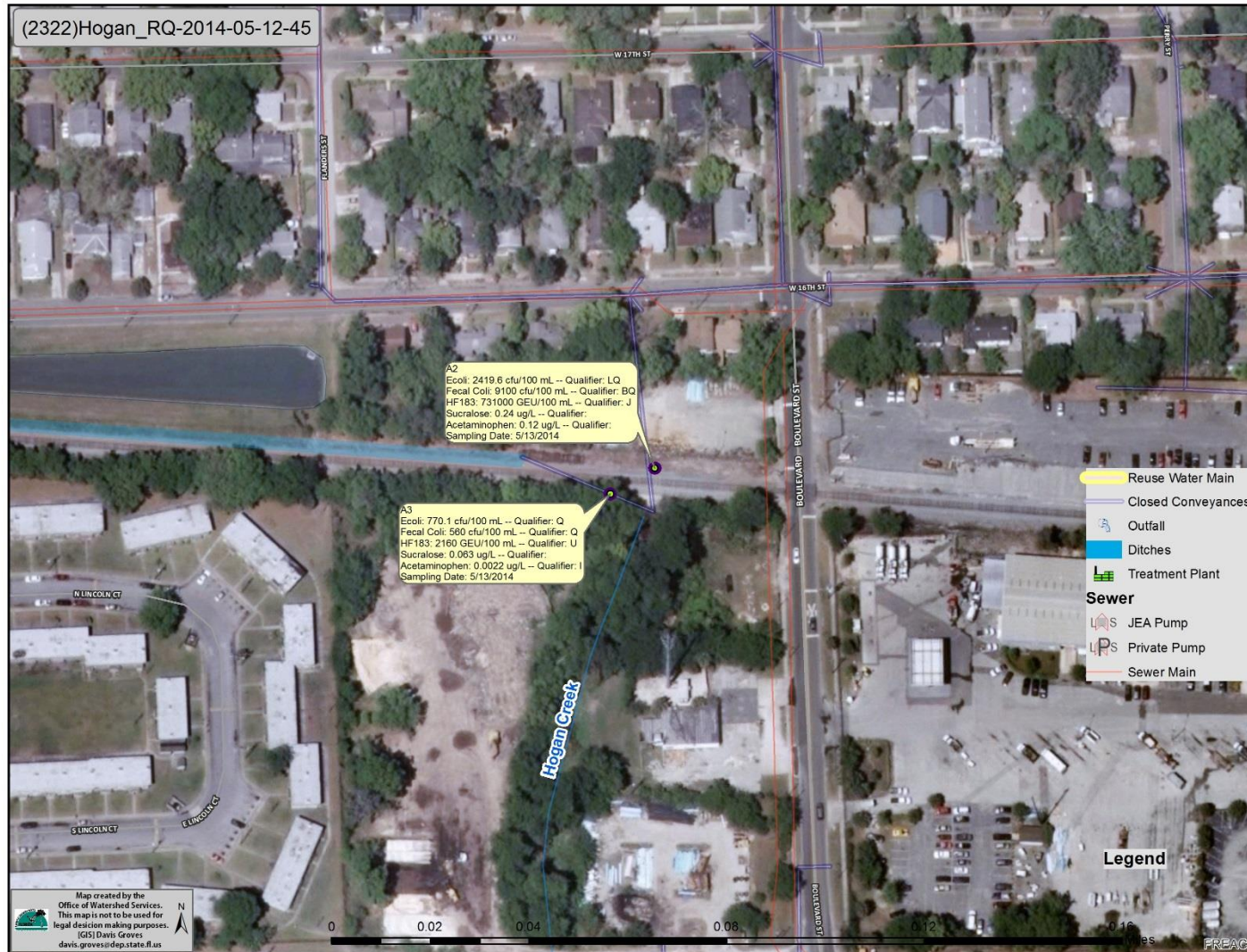
Hogan Creek Results

- Sampling occurred on December 12, 2013; January 27, 2014; and May 13, 2014.
- The team decided to first address the headwaters near the railroad.
 - The highest results from north conveyance.
 - After this source is addressed, stations downstream with persistent elevated levels will be addressed

Hogan Creek



Hogan Creek Sample Locations

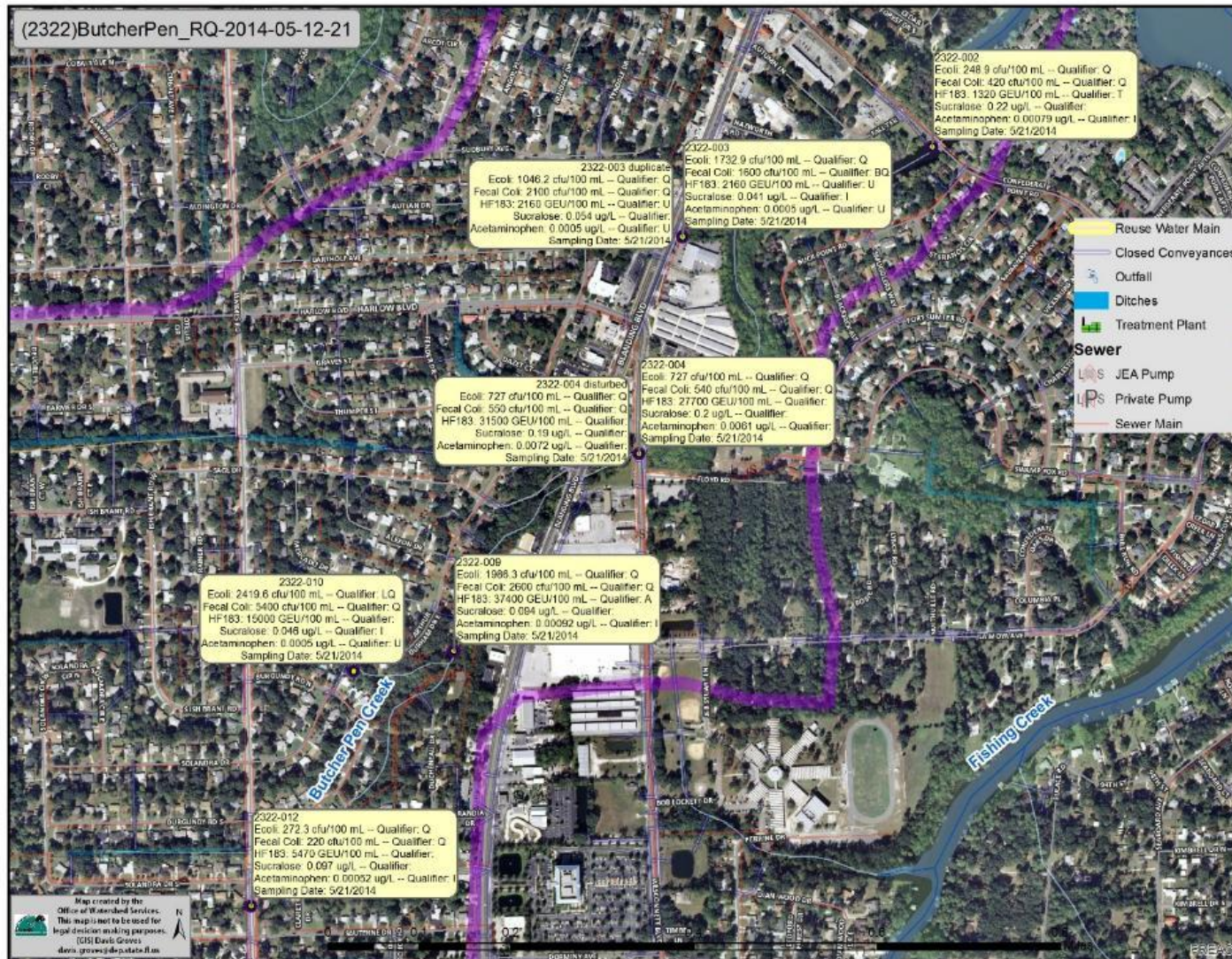




Butcher Pen Creek Results

- Sampling occurred on April 9, 2014 and May 21, 2014.
- The results for acetaminophen, sucralose, and HF-183 suggest untreated human waste is reaching the creek.

Butcher Pen Creek Sample Locations





Miller Creek Results

- Sampling occurred on January 28, 2014 and September 10, 2014.
- The two HF-183 hits are very low for this analyte.
- Sucralose levels suggest a wastewater influence in the 1-5% range.



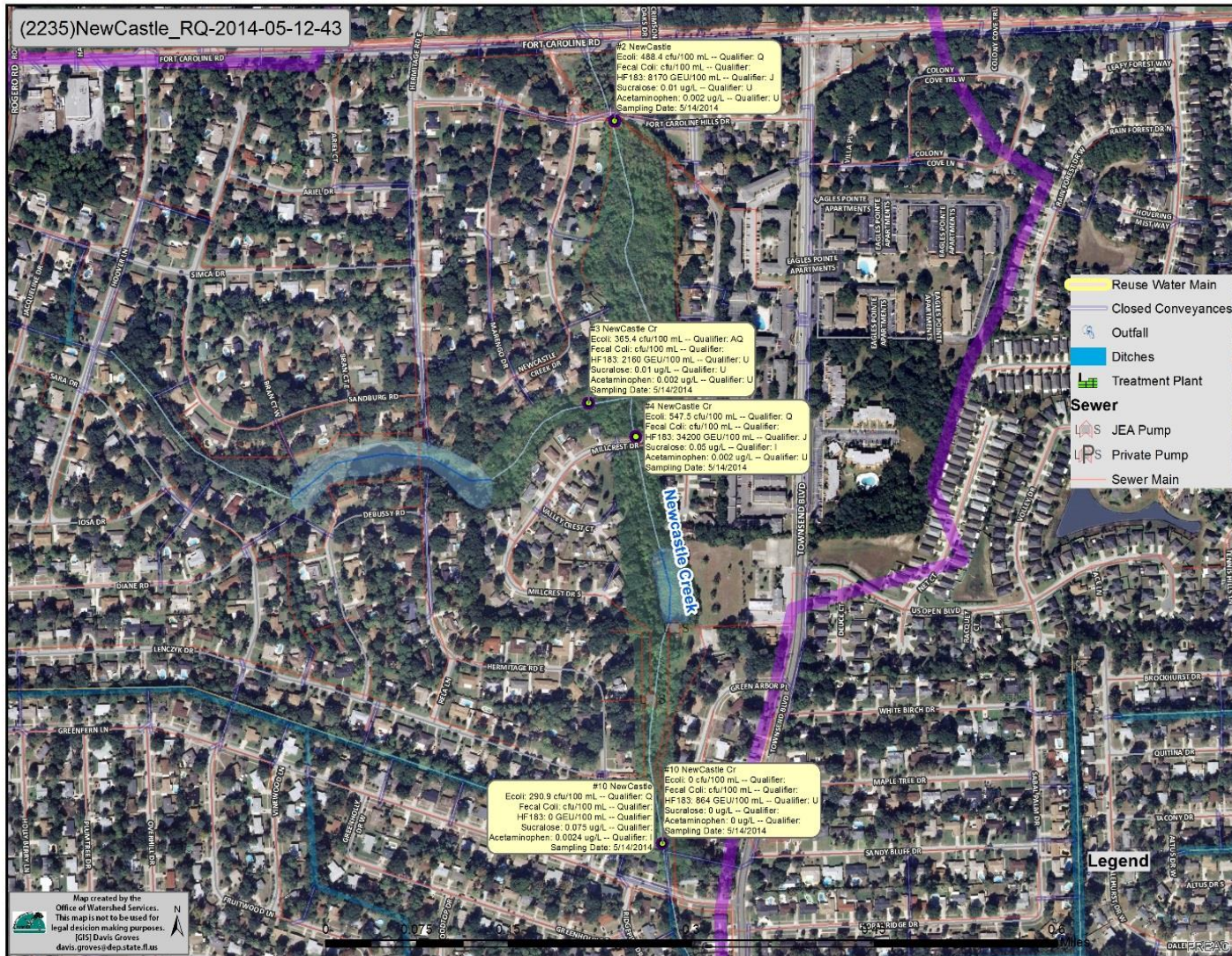


Newcastle Creek Results

- Sampling occurred on May 14, 2014.
- Results suggest an untreated human wastewater source.
 - The HF-183 marker was not detected in half of the samples. Two samples had presence.
 - Acetaminophen was detected at a low level in one sample
 - Sucralose detected at low levels at two stations
- Fecal coliform levels were near the standard of 400 CFU and E. coli was relatively low at all stations with slight elevation at station #4.



Newcastle Creek Sample Locations



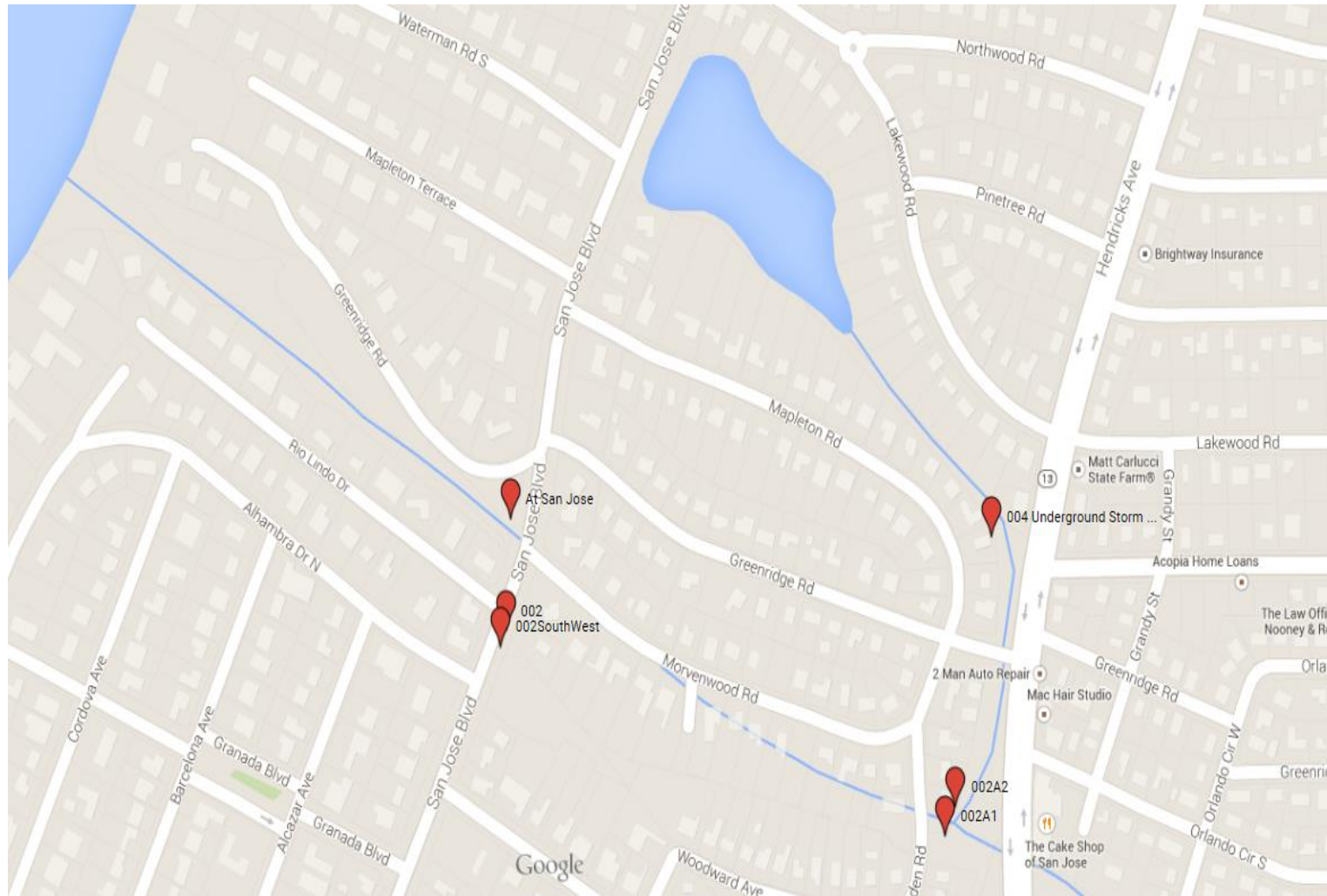


Miramar Creek Results

- Sampling occurred on May 14, 2014
- Results suggest an untreated human wastewater source may be present.
 - Two samples detected low levels of the HF-183 marker.
 - Acetaminophen was detected at Miramar @ San Jose at a low level.
 - Sucralose was detected at all three stations
 - Presence of acetaminophen, HF-183, and sucralose at San Jose



Miramar Creek Sample Locations

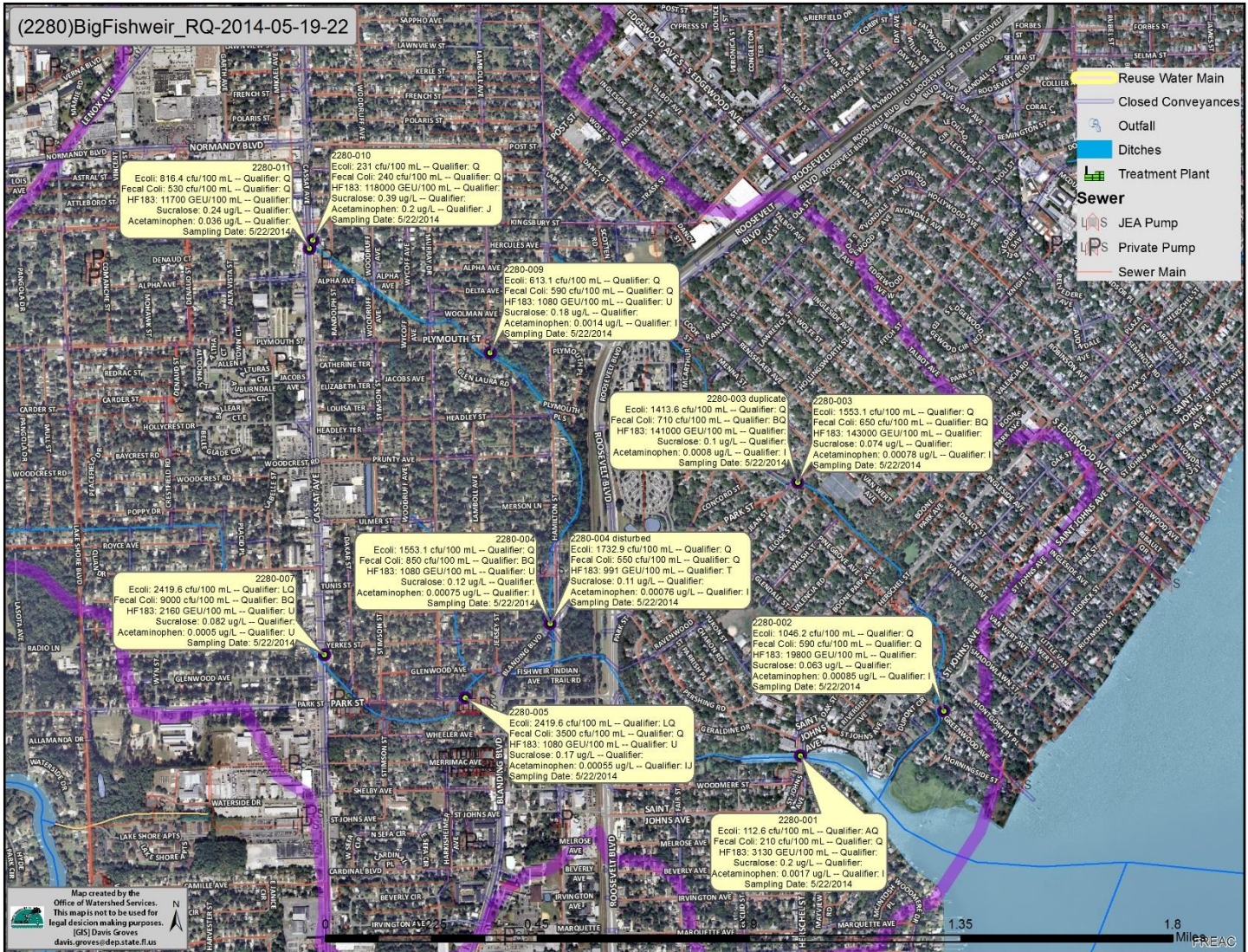




Big Fishweir Creek Results

- Sampling occurred on May 22, 2014.
- Results suggest an untreated human wastewater source may be present.
 - Station 2280-010 on Big Fishweir Creek, the HF-183 result was in the hundreds of thousands of GEU/100 mL.
 - Acetaminophen and sucralose results were present in similar concentrations.
 - Site 2280-003 on Little Fishweir Creek also had high HF-183 results.

Big Fishweir Creek Sampling Locations

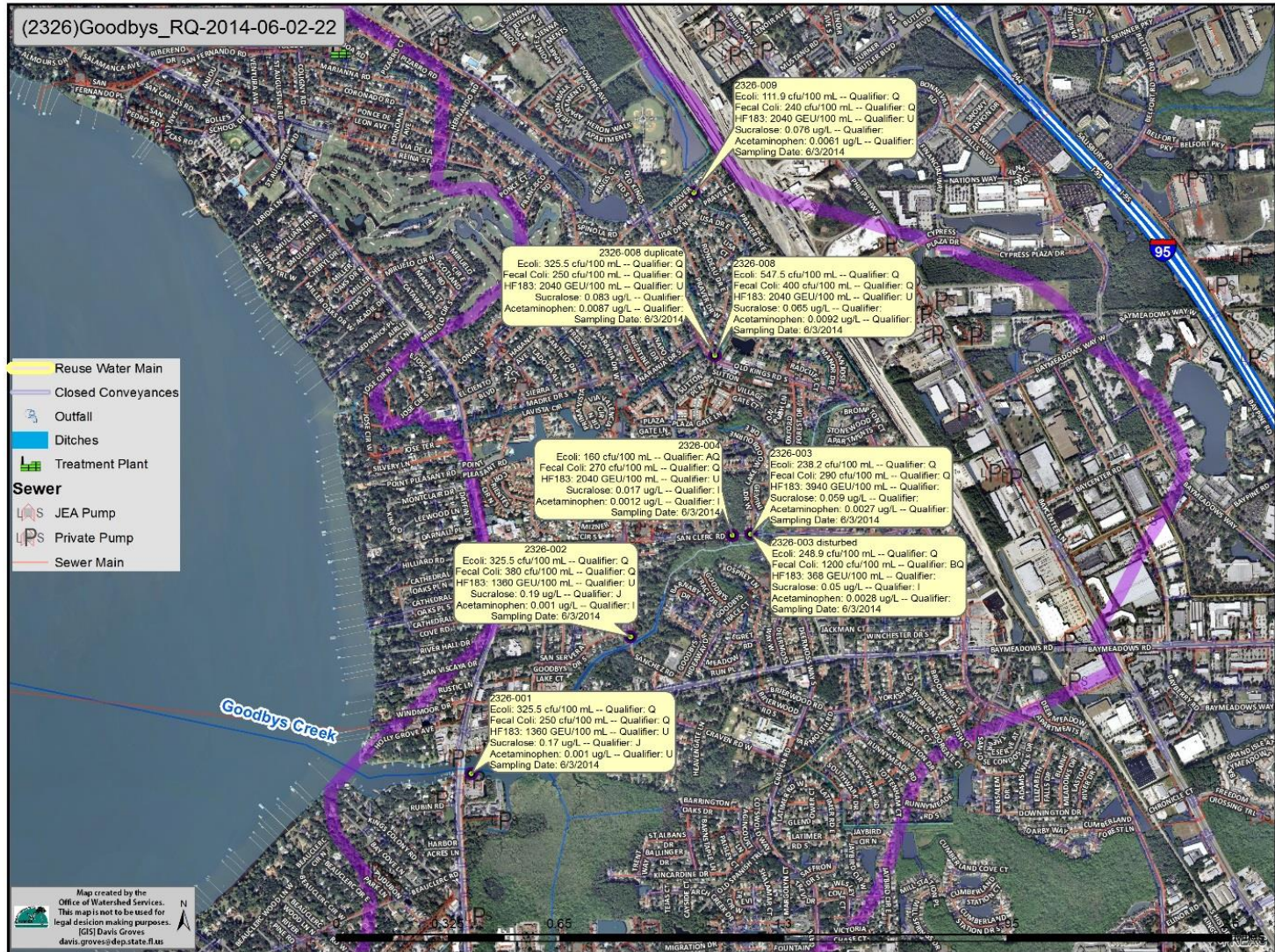




Goodbys Creek Results

- Sampling occurred on June 3, 2014.
- The widespread co-occurrence of sucralose and acetaminophen suggest an untreated or undertreated human wastewater source may be present.
 - The HF-183 marker was detected in two samples from one site (2326-003 and 2326-003 disturbed).
 - Acetaminophen was detected at low levels in all but one sample
 - sucralose was detected at all stations.
 - The “disturbed” sample is used to determine if bacteria in the settled floc layer is contributing to the fecal indicator results.
 - Much higher fecal coliform value, which suggests that non-enteric bacteria may contribute.

Goodbys Creek Sampling Locations





Deer Creek Results

- Sampling occurred on May 27, 2014.
- Results suggest an untreated human wastewater source may be present.
 - Acetaminophen was found in all three samples
 - Sucralose was found at low levels in all three stations.
 - Fecal coliform results for station 2256-001 were very high, and moderately high for this area at stations 2259-002 and 2256-003
 - Escherichia coli (E. coli) levels were relatively high at all three stations.

Deer Creek Sampling Locations

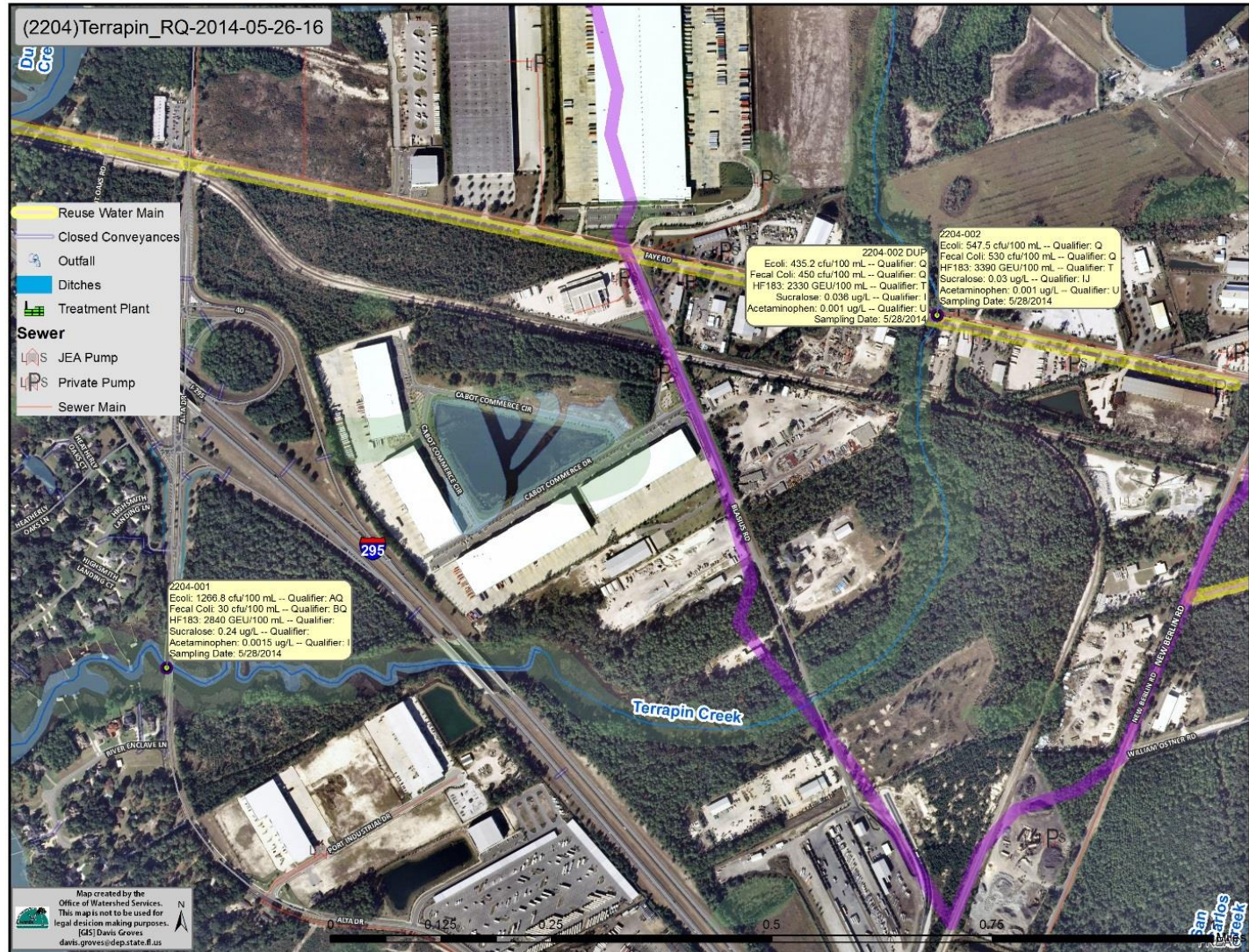




Terrapin Creek Results

- Sampling occurred on May 28, 2014.
- Results suggest an untreated human wastewater source may be present.
 - In most samples, the marker HF-183 was detected at very low levels,
 - Very low level acetaminophen was detected in one of the samples,
 - Sucralose was found at low levels three of the four stations.
 - Fecal coliform levels were relatively low
 - E. coli levels were relatively low at all stations with slight elevation at station 2204-001.

Terrapin Creek Sampling Locations

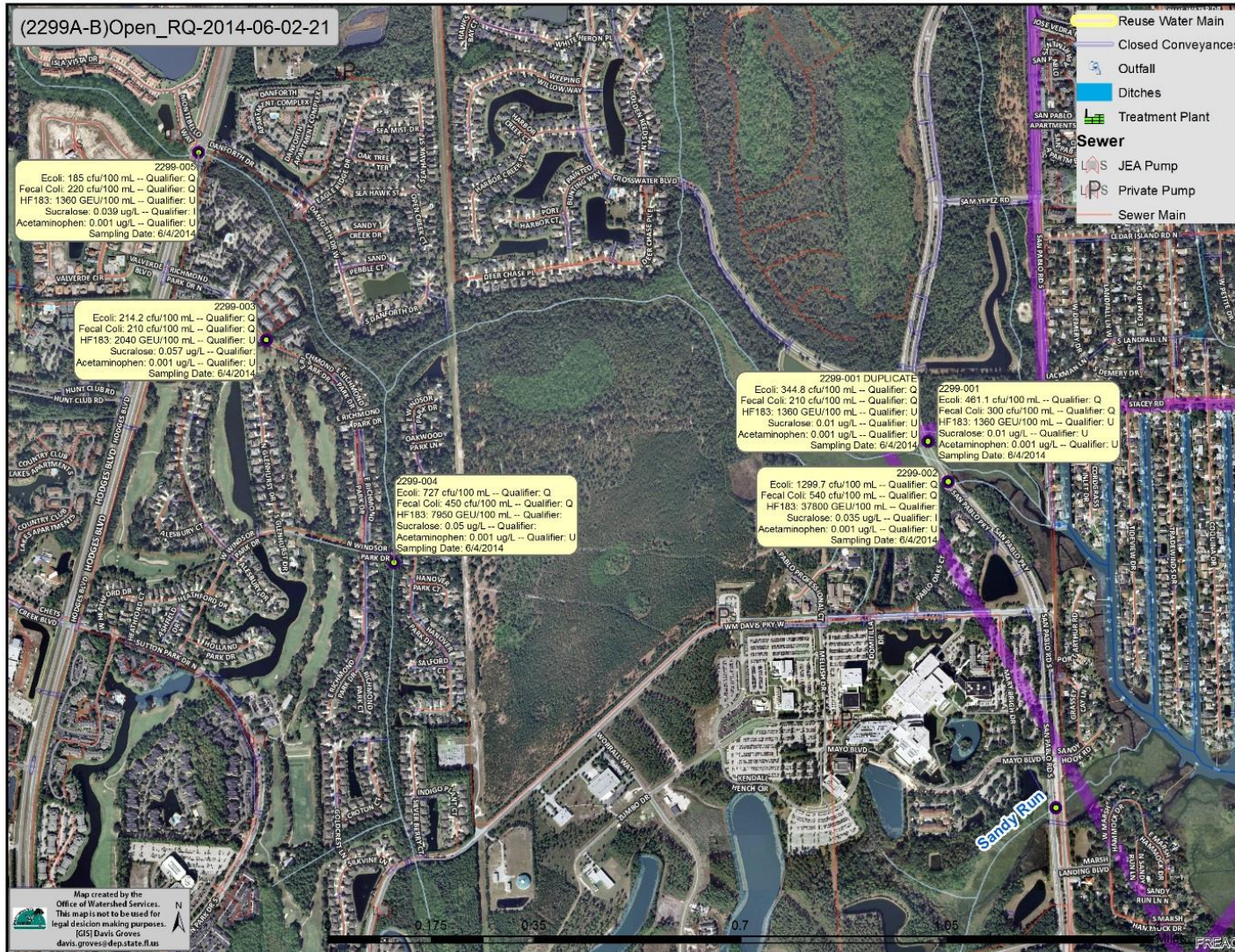




Open Creek Results

- Sampling occurred on June 4, 2014.
- Three samples detected very low levels of the HF-183 marker
- Acetaminophen was not found in any of the samples
- Sucralose was found at low levels at five stations.
- Fecal coliform levels were relatively low
- E. coli levels were relatively low at five stations with slight elevation at stations 2299-006 and 2299-002.

Open Creek Sampling Locations





BMAP I Second Iteration Phase 2



BMAP Overview

- The second iteration BMAP for the LSJR Tributaries BMAP I contains the following sections:
 - Section 1: Context, Purpose, and Scope of the Plan.
 - Section 2: Water Quality and Source Assessment.
 - Section 3: Countywide Programs in the LSJR Basin.
 - Section 4 through Section 13: WBID-specific activities.

Section 1

- Introduction that this is the second phase BMAP.
 - The first phase of the BMAP remains in effect and the ongoing and planned strategies are still required.
- Total maximum daily loads (TMDLs) for the 10 impaired WBIDs.
- Responsible parties and key stakeholders.





Section 1 Continued

- Progress towards implementation milestones.
 - Status based on the five years of BMAP data.
 - New 75% milestone for the second BMAP iteration.
- Water quality trends:
 - Sections for each WBID.
 - Based on data from 2010-2014 (same as the 2014 Progress Report).



Section 2

- Water quality monitoring plan by WBID.
- Walk the WBID and source identification sampling:
 - Summary of the Walk the WBID process and types of data collected through the sampling.
 - Details from the walks and sampling are included in separate Walk the WBID reports.



Section 2, continued

- WBID boundary modifications:
 - Newcastle Creek.
 - Butcher Pen Creek.
 - Miller Creek.
 - Big Fishweir Creek.
 - Open Creek.
 - Goodbys Creek.
- Also split between marine and freshwater segments:
 - Big Fishweir Creek.
 - Open Creek.
 - Goodbys Creek.
- Maps in Appendix A.



Section 3

- Countywide programs by entity.
 - Same text as the original BMAP and progress reports.
- Walk the WBID follow up commitments by all entities:
 - Continue Tributaries Assessment Team participation.
 - Assist the Department on follow up based on source identification results.
 - Follow up on actions identified during the Walk the WBIDs.
 - Create a dumpster inspection program.



Section 3, continued

- Additional actions for JEA:
 - Continue to prioritize improving and repairing sewer infrastructure near surface waterbodies.
 - Continue to run 32 samples per month for the Department's Northeast District and add *Escherichia coli* (E. coli) and *Enterococcus*, as appropriate.
- Additional actions for COJ:
 - Continue BMAP monitoring, and add E. coli and *Enterococcus*, as appropriate.
 - Promote community awareness of the waterbodies' health, organize annual community clean ups, and inspect for illicit connections.
 - Evaluate options to re-route stormwater back to the tributaries to follow the natural path, where possible.



Sections 4 through Section 13

- WBID-specific activities by entity.
- Project tables include:
 - Projects added since the original BMAP was adopted (as part of the annual progress reports).
 - Projects submitted to the Department by the stakeholders for the second BMAP iteration.



Next Steps

- Stakeholder comments and edits on the second iteration BMAP I are due by **INSERT DATE**.
- Comments on annual reports due April 5th, 2015.
- The Department will revise the BMAP and present it to upper management.
- The Department's Secretary will adopt the second iteration BMAP I through Secretarial Order.



Next Steps for BMAP II



Five-Year Assessment

- BMAP II was adopted in August 2010.
- Florida Statutes 403.067(7):
 - “An assessment of progress toward these milestones shall be conducted every 5 years, and revisions to the plan shall be made as appropriate.”
- The Department will begin the process to work towards assessment and update.



Need for Investigation

- Human waste is the greatest carrier of pathogens that affect humans.
- Elimination of human health risk is the first priority.
- Intensive investigative sampling may be the next best step to determining future needs.
- The Department laboratory provides monitoring tools to determine presence of human waste in waterbodies.
- Walk the WBID.



Prioritizing WBIDs

WBID Number	WBID Name	Median (#/100 mL) (2010-2014)
2297	Craig Creek	2,400
2316	Williamson Creek	2,100
2361	Deep Bottom Creek	991
2207	Blockhouse Creek	906
2266	Hopkins Creek	896
2257	McCoy Creek	751
2228	Moncrief Creek	585
2282	Wills Branch	540
2324	Fishing Creek	450
2381	Cormorant Branch	400
2203	Middle Trout River	360
2265B	Pottsburg Creek	300
2227	Sherman Creek	270
2240	Greenfield Creek	240
2203A	Lower Trout River	110



Path Forward During 2015

- For BMAP II WBIDs:
 - Identify waterbodies for Walk the WBID and source identification sampling.
 - Regular teleconferences for planning.
 - Source identification sampling investigations.
 - Walk the WBID investigations.
 - Respond to items discovered by investigations, as needed.
 - Identify future management strategies.
 - Develop second iteration BMAP.
 - Target adoption in August 2015.



Questions?

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