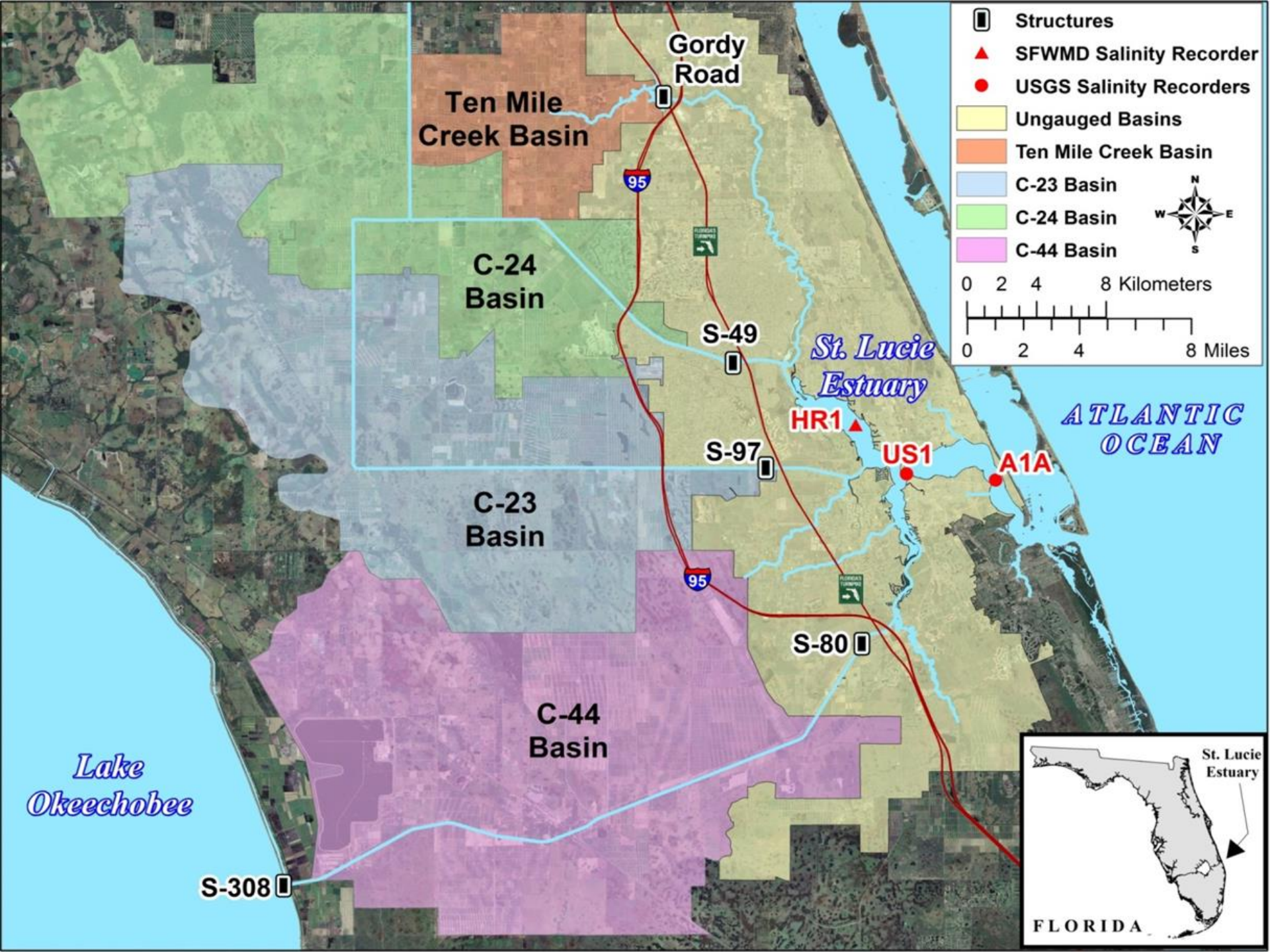


An aerial photograph of a coastal waterway in Martin County, Florida. The water is a mix of deep blue and turquoise, with visible seagrass beds and sandbars. A central island is covered in dense green vegetation. In the background, a residential area with houses and palm trees is visible along the shore. The sky is clear and blue.

Water Quality Project Accomplishments and Future Needs: Martin County, Florida

Rivers Coalition
June 22, 2017

Deborah Drum, Manager
Martin County Ecosystem Restoration and Management Division





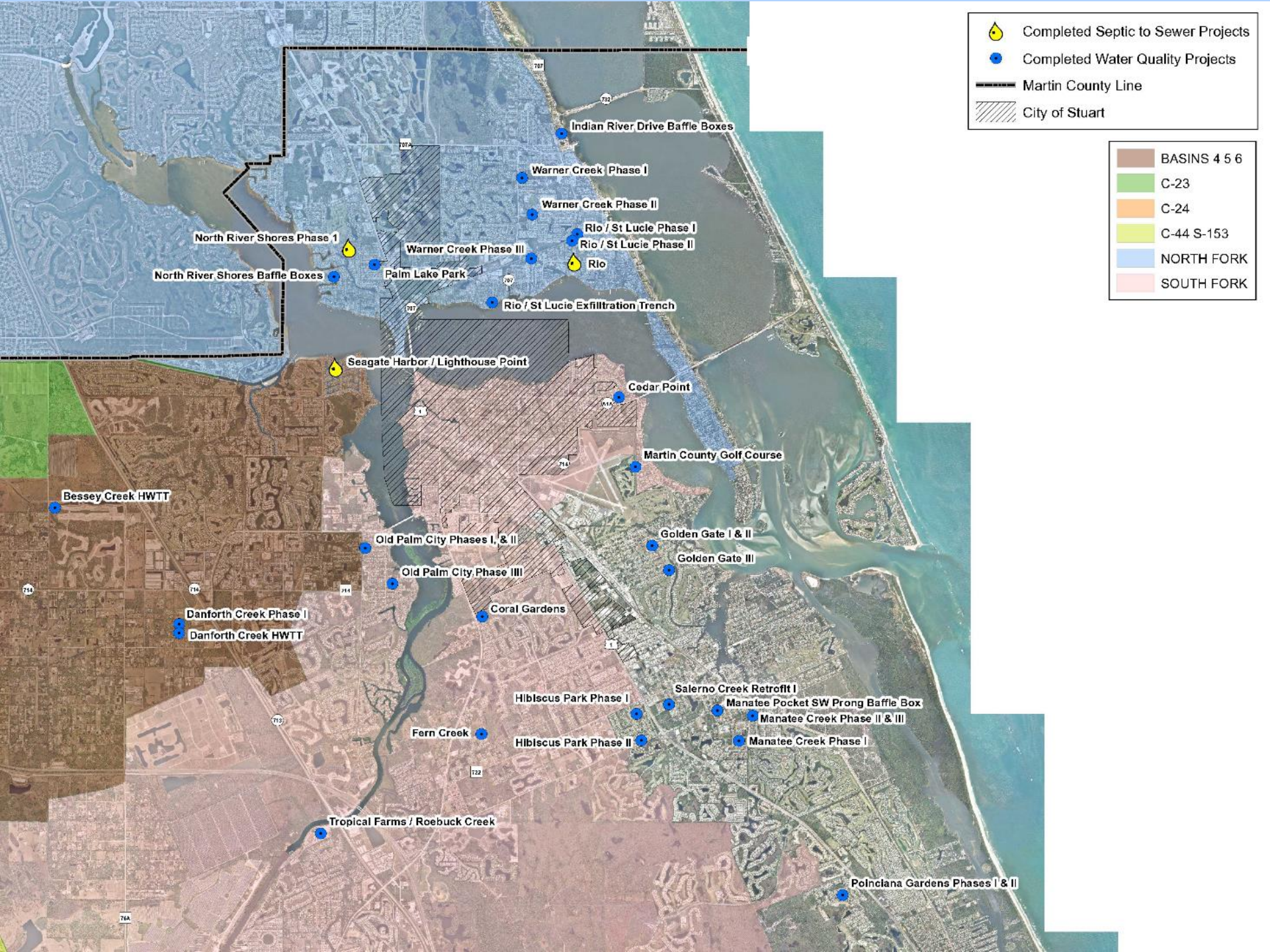
Completed Projects

- 36 Stormwater Projects
- \$72.8 million spent
- 47% Martin County
- 41% State
- 12% Federal
- 27,388 lbs. TN reduced annually
- 8354 lbs. TP reduced annually
- 4 Septic to Sewer Projects
- \$11.2 million spent
- 17,275 lbs. TN reduced annually

Martin County Stormwater Quality Improvement Completed Project List						
Revised May 2016						
Project	Construction Finish	Total Costs	Local Funds	State Funds	Federal Funds	
1	North River Shores Baffle Boxes	Jun-01	\$ -	\$ -	\$ -	\$ -
2	Hibiscus Park Phase 1	Sep-02	*	*	*	*
3	Palm Lake Park	Nov-02	\$ 1,741,098	\$ 1,176,098	\$ 565,000	\$ -
4	Golden Gate Phase 1 & 2	Apr-03	\$ 2,630,515	\$ 1,241,489	\$ 970,060	\$ 418,966
5	Salerno Creek Retrofit Phase 1	Jun-03	\$ 4,715,074	\$ 2,921,006	\$ 1,299,068	\$ 495,000
6	Poinciana Gardens Phase 1 & 2	Jul-03	\$ 2,960,547	\$ 2,129,297	\$ 831,250	\$ -
7	Old Palm City Phase 1 & 2	Nov-03	\$ 1,544,600	\$ 1,232,681	\$ -	\$ 311,919
8	Golden Gate Phase 3	Mar-04	*	*	*	*
9	Cedar Pointe	Mar-04	\$ 398,027	\$ 271,027	\$ 127,000	\$ -
10	Fern Creek	Apr-05	\$ 2,660,200	\$ 2,127,966	\$ 532,234	\$ -
11	Coral Gardens	May-05	\$ 2,321,860	\$ 1,308,110	\$ 1,013,750	\$ -
12	Tropic Vista	Aug-05	\$ 4,786,046	\$ 4,545,046	\$ -	\$ 241,000
13	Manatee Creek Phase 1	Sep-06	\$ 2,795,085	\$ 961,094	\$ 1,833,991	\$ -
14	Rio St Lucie Phase 1	Sep-06	\$ 354,161	\$ 225,179	\$ 128,982	\$ -
15	Little Club Phase 1 & 2	Apr-07	\$ 2,075,593	\$ 1,075,593	\$ 400,000	\$ 600,000
16	Kitching Creek / Flora Ave	May-07	\$ 1,143,144	\$ 391,796	\$ 325,000	\$ 426,348
17	Hibiscus Park Phase 2	Jul-07	\$ 1,390,574	\$ 1,240,574	\$ 150,000	\$ -
18	Rio St Lucie Phase 2	Oct-08	\$ 998,170	\$ 510,170	\$ 488,000	\$ -
19	Indian River Drive Baffle Boxes	May-10	\$ 763,578	\$ 368,441	\$ 395,137	\$ -
20	Warner Creek / Leilani Heights Phase 1	Nov-10	\$ 497,430	*	*	*
21	Tropical Farms / Roebuck Creek	Sep-11	\$ 4,047,219	\$ 1,454,130	\$ 2,593,089	\$ -
22	Warner Creek / Leilani Heights Phase 2	Jan-12	\$ 1,753,827	*	*	*
23	Old Palm City Phase 3	Mar-12	\$ 3,031,873	\$ 938,590	\$ 1,499,730	\$ 593,553
24	Manatee Creek Phase 2 & 3	Mar-12	\$ 4,231,353	\$ 1,445,356	\$ 1,363,417	\$ 1,422,580
25	Warner Creek / Leilani Heights Phase 3	Jun-12	\$ 2,110,706	\$ 2,273,963	\$ 1,529,375	\$ 558,625
26	Danforth Creek Phase 1	Apr-13	\$ 1,869,255	\$ 834,139	\$ 1,035,116	\$ -
27	Rio / St Lucie Exfiltration Trench	May-14	\$ 696,765	\$ 190,692	\$ 506,073	\$ -
28	Kitching Creek Central Flowway	Aug-15	\$ 6,000,000	\$ 749,400	\$ 2,300,000	\$ 2,950,600
29	Bessey Creek HWTT	Apr-15	\$ 3,000,000	\$ -	\$ 3,000,000	\$ -
30	Manatee Pocket SW Prong Baffle Box	Mar-16	\$ 232,505	\$ 132,505	\$ 100,000	\$ -
31	Martin County Golf Course	Apr-16	\$ 156,255	\$ 106,255	\$ 50,000	\$ -
32	Danforth Creek HWTT	Jun-16	\$ 3,000,000	\$ -	\$ 3,000,000	\$ -
Total Costs			\$ 63,905,460	\$ 29,850,597	\$ 26,036,272	\$ 8,018,591
Percentages				46.7%	40.7%	12.5%
* Costs included in other phase of project						

Martin County Septic to Sewer Conversion Completed Project List

Revised April 2016			
Project	Construction Finish	Cost	
1	North River Shores Phase 1	Mar-11	\$ 2,970,698
2	Rio	Jan-10	\$ 1,031,641
3	Seagate Harbor / Lighthouse Point	Jun-11	\$ 3,087,403
			\$ 7,089,742





Essential Phases of Project Development & Implementation

- Identification of Problem
- Create Conceptual Scope
- Funding Identification (grant applications, budget approval)
- Bid the Project
- Design / Permitting
- Construction
- Operations & Maintenance
- Monitoring (test effectiveness)





Water Quality Needs Assessment

- Need and Focus Areas
- Projects:
 - St. Lucie River and Estuary
 - Loxahatchee River
 - Public Education and Outreach
- Economic Value and Return on Investment



Water Quality Needs Assessment for Martin County, Florida

April 2017 | Purchase Order: P1702590



Prepared by:
TETRA TECH
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Tallahassee, Florida 32309
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Prepared for:
Martin County
Engineering Department/Ecosystem
Restoration and Management Division
2401 SE Monterey Road
Stuart, Florida 34996





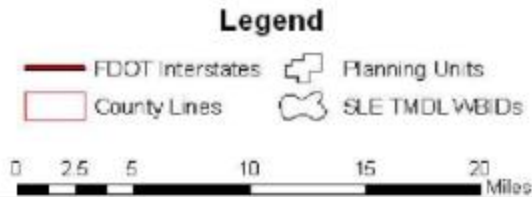
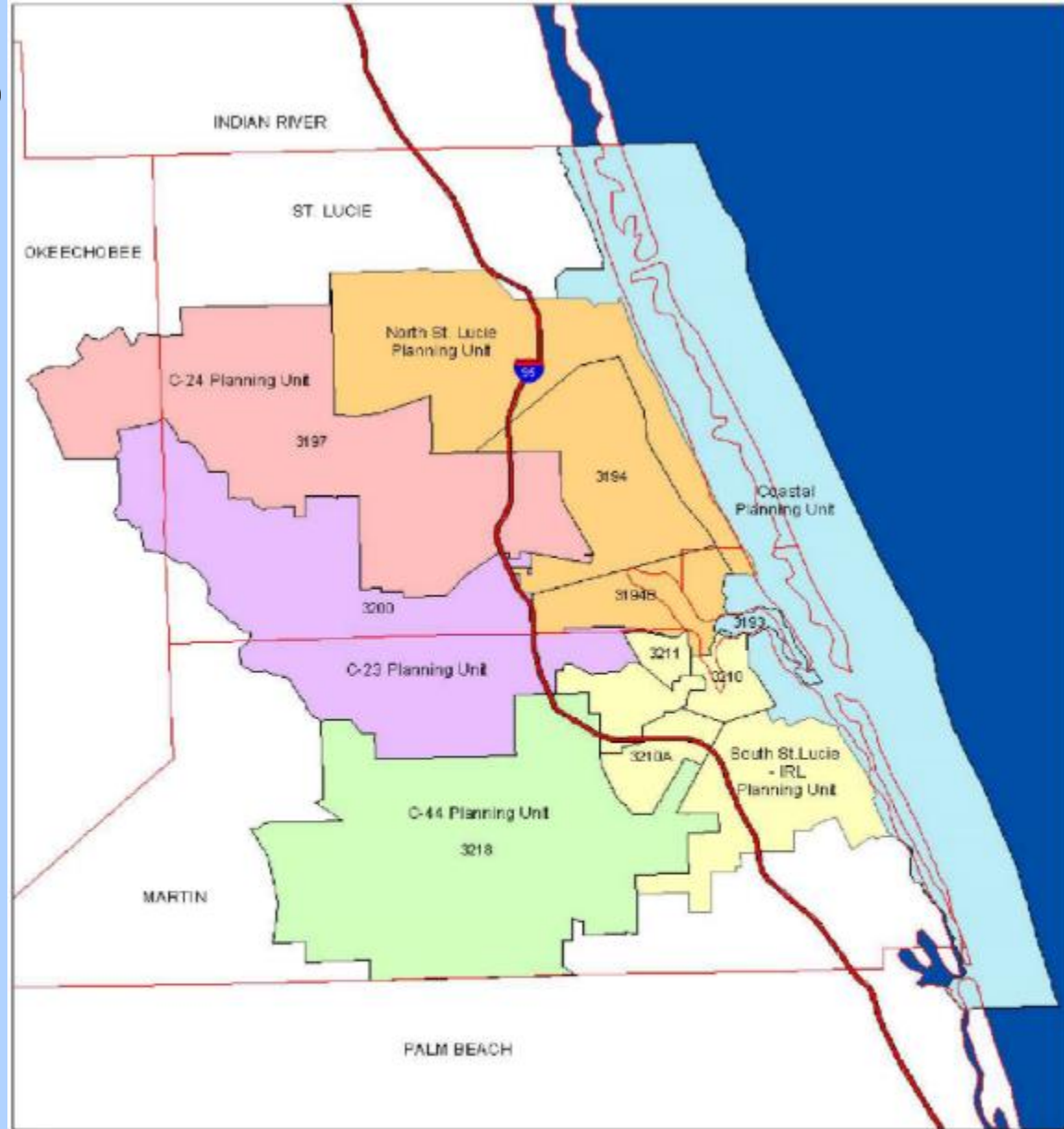
Water Quality Needs and Focus Areas

- St. Lucie River and Estuary and Loxahatchee River are major tributaries to the Indian River Lagoon (IRL)
- Both waterbodies are impaired by excessive nutrient inputs that are causing algal blooms and low dissolved oxygen conditions
- Although existing rules, regulations, and projects have helped improve water quality, additional projects are needed
- Restoration plans:
 - St. Lucie River and Estuary Basin Management Action Plan (BMAP) – required total nitrogen (TN) and total phosphorus (TP) reductions
 - Lake Okeechobee BMAP – focus on large-scale, regional projects
 - Loxahatchee River Reasonable Assurance Plan (RAP) – requirements being determined



St. Lucie BMAP

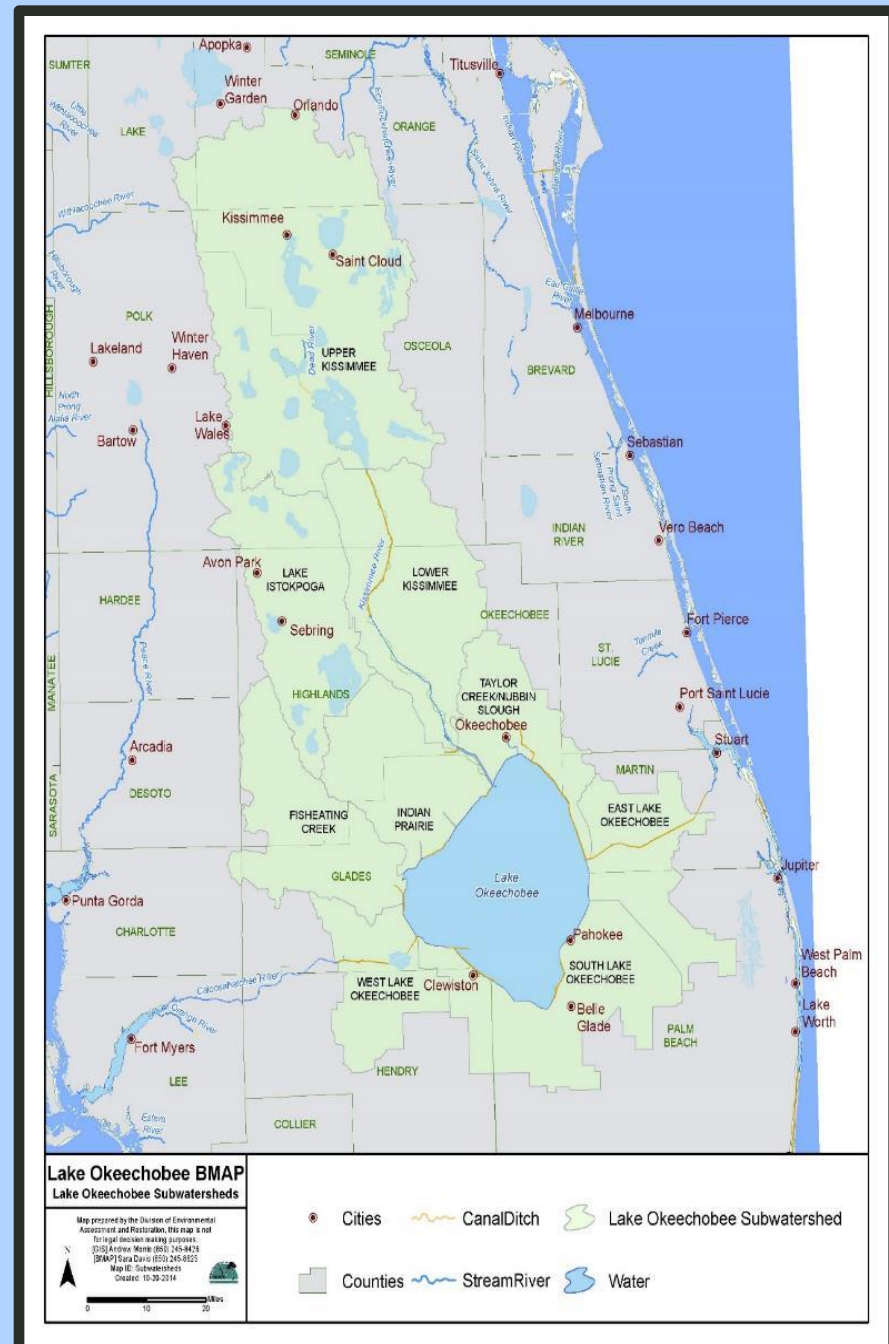
- Current BMAP includes the following planning units: North St. Lucie, C-24, C-23, C-44, and South St. Lucie – IRL
- FDEP is evaluating whether to include Coastal Planning Unit in next BMAP
- Projects are included in Water Quality Needs Assessment for all planning units





Lake Okeechobee BMAP

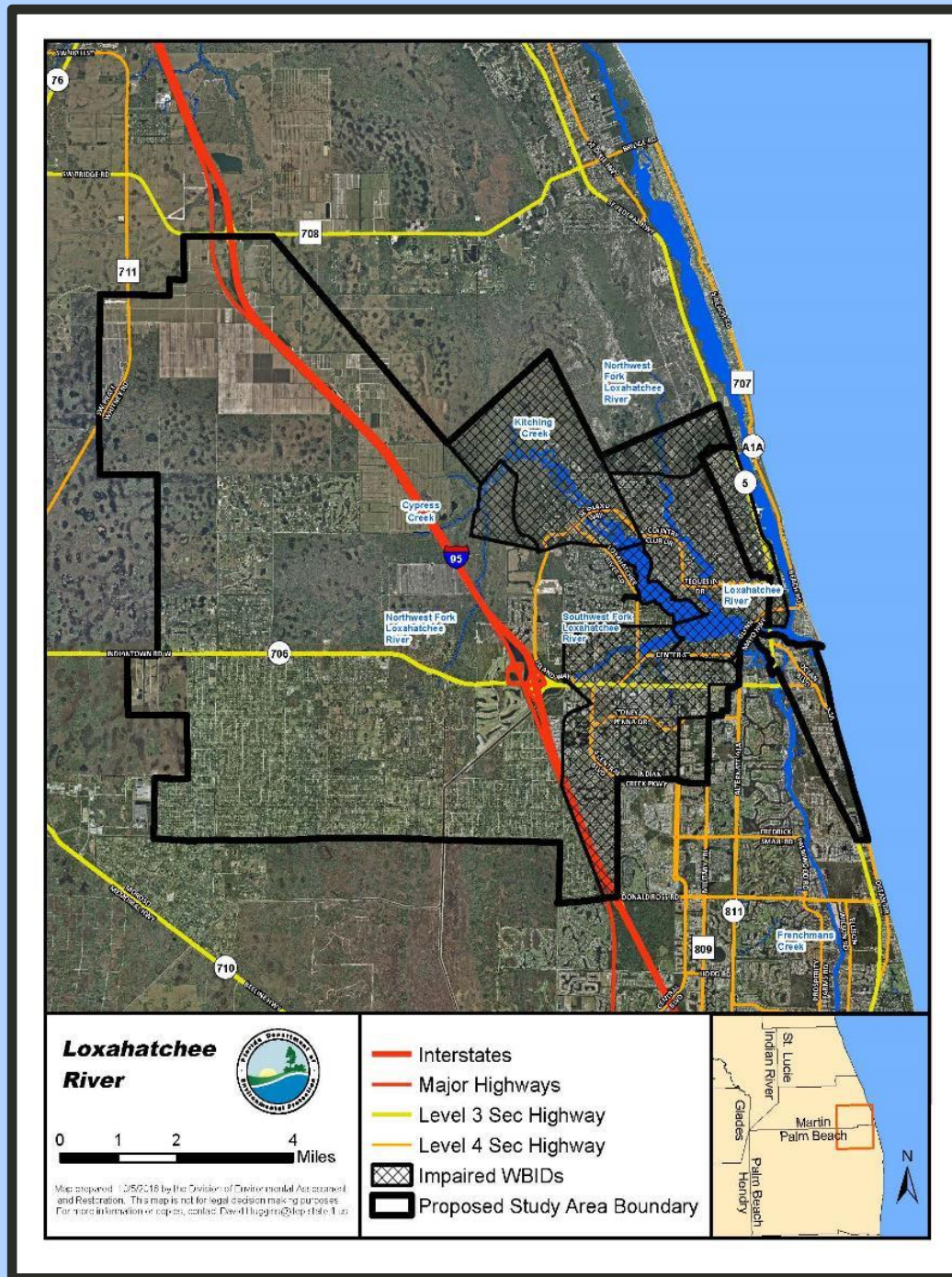
- Current BMAP focus is on large-scale regional projects
- No allocation reductions were assigned to stakeholders
- County is a stakeholder in the BMAP and may have future BMAP reduction requirements





Loxahatchee River Reasonable Assurance Plan

- Martin County is working with other stakeholders in the area to prepare a RAP for the Loxahatchee River
- Requirements for the RAP are still being determined
- The assessment includes projects that benefit the Loxahatchee River





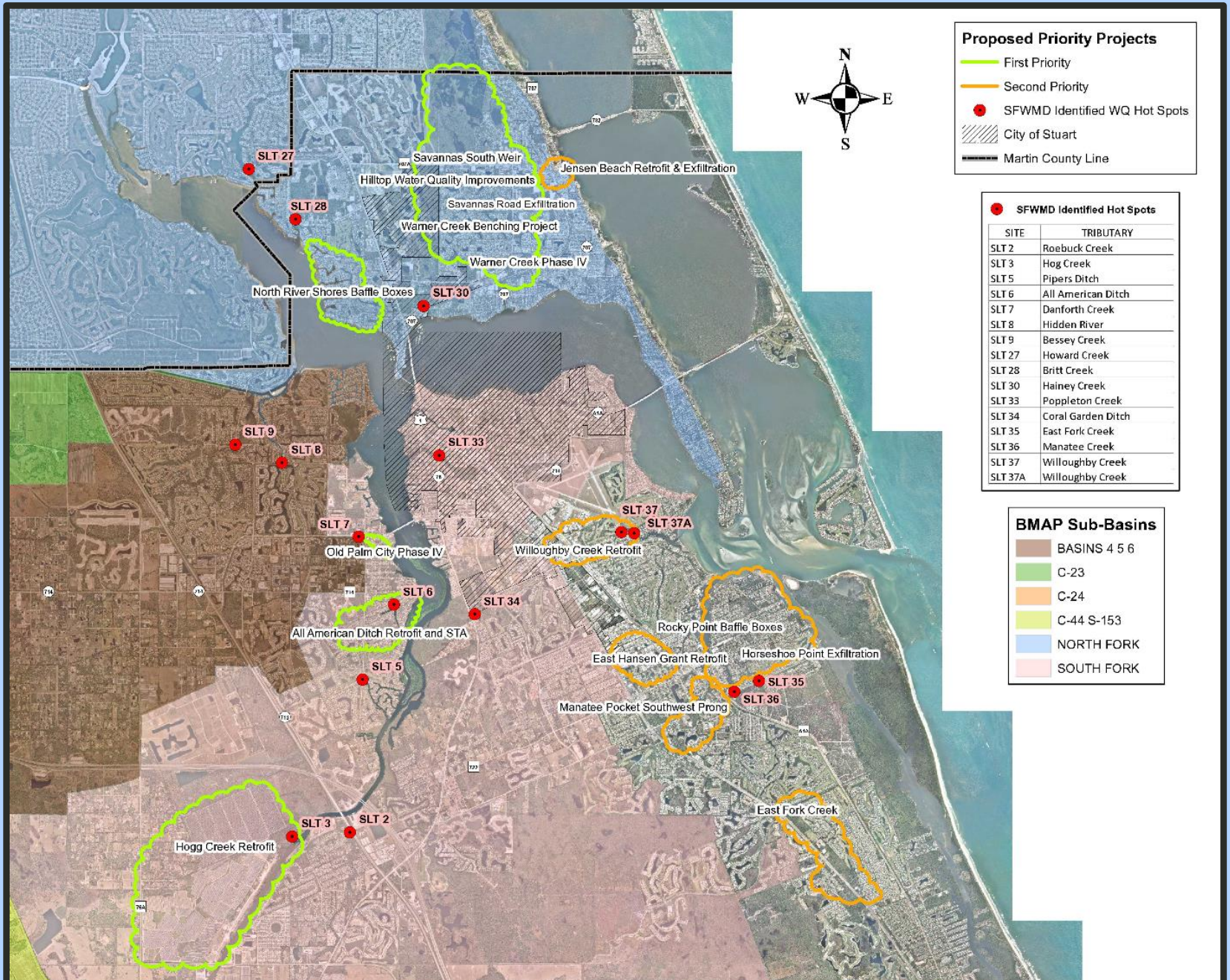
Focus on All Sources of Nutrients

- Water Quality Needs Assessment focuses on projects to address nutrient loads from:
 - Urban stormwater runoff
 - Stormwater Treatment Areas (STAs)
 - Septic systems
 - Excess fertilizer applications
- Focus on nutrient reductions from a variety of projects to address the various sources
 - Addressing only one source of the nutrient loading will be insufficient to achieve restoration



Photo: Greg Nolte

Water Quality Hot Spots Help to Focus Projects





St. Lucie River and Estuary Proposed Projects

- Stormwater treatment projects:

Priority	Project Name	Cost	TN Reductions (lbs/yr)	TP Reductions (lbs/yr)	Cost/lb of TN	Cost/lb of TP
First	Hogg Creek Retrofit	\$2,000,000	5,815.7	3,256.3	\$343.90	\$614.19
First	North River Shores Baffle Boxes	\$500,000	133.9	21.5	\$3,734.13	\$23,255.81
First	Old Palm City - Phase 4	\$1,200,000	50.6	18.7	\$23,715.42	\$64,171.12
First	Savannah Road Exfiltration	\$650,000	246.4	51.8	\$2,637.99	\$12,548.26
First	Warner Creek Retrofit - Phase 4	\$3,175,000	1,687.6	671.5	\$1,881.37	\$4,728.22
Second	East Fork Creek STA	\$2,350,000	2,570.2	1,121.5	\$914.33	\$2,095.41
Second	East Hansen Grant Retrofit - Phase III	\$2,275,000	430.1	320.5	\$5,289.47	\$7,098.28
Second	Horseshoe Point Road Exfiltration	\$250,000	102.1	21.7	\$2,448.58	\$11,520.74
Second	Jensen Beach Retrofit and Exfiltration	\$3,800,000	134.3	29.3	\$28,294.86	\$129,692.83
Second	Manatee Pocket Southwest Prong STA	\$1,725,000	540.9	208.7	\$3,189.13	\$8,265.45
Second	Rocky Point Exfiltration and Baffle Boxes	\$1,000,000	104.8	22.2	\$9,541.98	\$45,045.05
Second	Willoughby Creek Retrofit	\$1,860,000	746.5	256.0	\$2,491.63	\$7,265.63
O&M	Street Sweeper Truck	\$201,685	225.0	144.0	\$896.38	\$1,400.59
O&M	Vacuum Truck	\$339,103	407.0	250.0	\$833.18	\$1,356.41
Total	Total	\$21,325,788	13,195.1	6,393.7	\$6,158.02 (average)	\$22,789.86 (average)



St. Lucie River and Estuary Proposed Projects

- **Septic to sewer conversions:**

Ranking	Communities	# of Parcels	Total Sewer System Cost	TN Reduction (lbs/yr)	Cost/lb of TN
1	Indian River Drive*	40	\$940,000	390	\$2,411.15
2	Martin Downs/Sunset Gardens (Old Palm City) Area	1,078	\$17,180,000	10,507	\$1,635.16
3	Golden Gate Subdivision	775	\$9,850,000	7,553	\$1,304.04
4	Coral Gardens	599	\$5,675,000	5,838	\$972.07
5	Beau Rivage Subdivision	256	\$5,989,000	2,495	\$2,400.33
6	Gaines Ave Area	277	\$6,680,000	2,700	\$2,474.31
7	Port Salerno/New Monrovia Area	878	\$10,750,000	8,557	\$1,256.24
8	Salerno/Manatee Pocket Area	478	\$5,700,000	4,659	\$1,223.50
9	North Mapp Road Area*	164	\$2,750,000	1,598	\$1,720.47
10	Evergreen Golf & Country Club (Hideaway Isles/Mid Rivers)	885	\$12,400,000	8,626	\$1,437.59
11	Hibiscus Park Area	750	\$8,500,000	7,310	\$1,162.83
12	South Mapp Road*	37	\$1,060,000	361	\$2,939.42
13	South Fork Area	272	\$6,000,000	2,651	\$2,263.29
14	Town of Sewall's Point	931	\$11,750,000	9,074	\$1,294.93
15	Rio/St. Lucie (East)	331	\$4,950,000	3,226	\$1,534.38
16	Rosewalk/Galleon Bay*	25	\$500,000	244	\$2,052.05
17	Stuart Yacht & Country Club	504	\$7,250,000	4,912	\$1,475.93
18	Four Rivers Subdivision*	106	\$2,850,000	1,033	\$2,758.65
19	Crane Creek Country Club	381	\$6,750,000	3,713	\$1,817.76
20	Tropical Farms Area	652	\$13,100,000	6,355	\$2,061.49
21	River's End Subdivision*	113	\$2,950,000	1,101	\$2,678.56
22	Vista Salerno/U.S. 1 Area	234	\$4,600,000	2,281	\$2,016.97
23	Rio/St. Lucie (West)*	97	\$1,675,000	945	\$1,771.74
24	Captain's Creek Subdivision*	167	\$2,770,000	1,628	\$1,701.85
25	Lake Grove Subdivision*	76	\$1,880,000	741	\$2,538.06
26	Phipps Park	71	\$510,000	692	\$737.00
N/A	Total	10,177	\$155,009,000	99,189	\$1,832.30 (average)



St. Lucie River and Estuary Proposed Projects

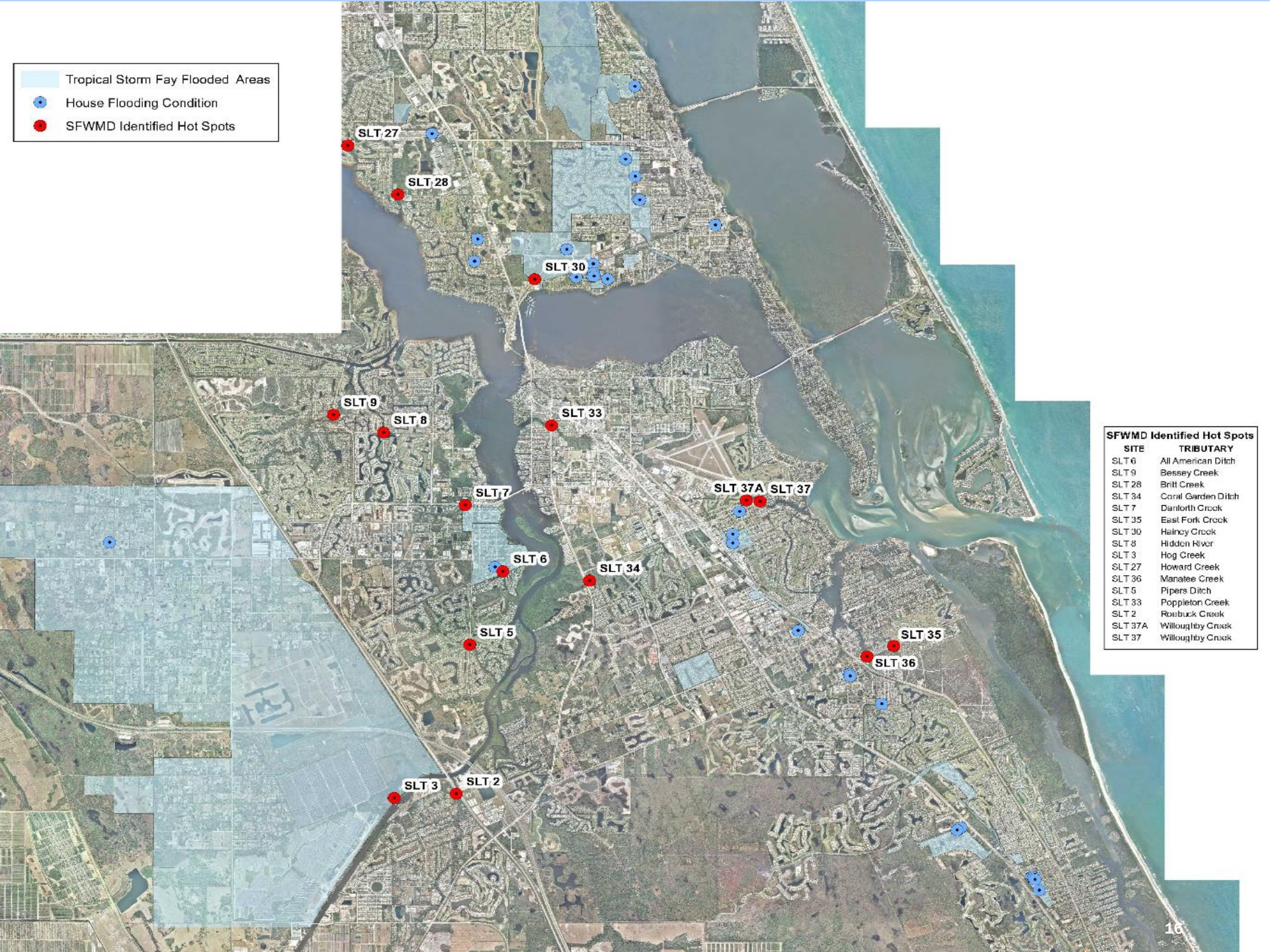
- **Flood control projects:**

Project Name	Project Type	Project Cost
Southwest 30 th Street improvements	Drainage Improvements	\$540,000
Southwest Cornell Avenue County Road 714 to All American	Detention Retrofit	\$420,000
Southeast Conch Bar Avenue	Flood Control	\$400,000
Holly Creek, Timberwick, Pine Crest	Retrofit/Drainage Improvements	\$1,000,000
Southeast Grouper and Southeast Flounder Avenues	Drainage Improvements	\$200,000
Commerce Avenue Central	Drainage Improvements	\$375,000
Western Golden Gate	Drainage Improvements	\$500,000
Southeast Westfield Drainage	Drainage Improvements	\$35,000
Danforth Creek Outfall	Flood Control	\$250,000
Palm City Farms: Bessey Creek Basin	Detention Retrofit	\$4,100,000
Palm City Farms: Danforth Creek Basin	Detention Retrofit	\$3,200,000
Ridgeway Terrace	Drainage Improvements	\$550,000
Elaine Street Outfall	Detention Retrofit	\$500,000
West Jensen	Retention Retrofit	\$80,000
County Road 707/Florida East Coast Railway/Julia Court	Flood Abatement/Septic to Sewer	\$270,000
Southeast Orange Blossom Trail	Drainage Improvements	\$300,000
Rio North	Detention Retrofit	\$500,000
Northeast Hyline Drive/Pitchford Pond	Detention Retrofit/Septic to Sewer	\$1,000,000
Martin Highway	Culvert and Drainage Improvements	\$500,000
Savannas Regional Restoration Project	Water Management and Natural Systems Evaluation Model	\$291,500
Commerce Avenue South	Drainage Improvements	\$620,000
Savannas South Weir	Flood Control	\$600,000
Total	Total	\$16,231,500

Tropical Storm Fay Flooded Areas

House Flooding Condition

SFWMD Identified Hot Spots

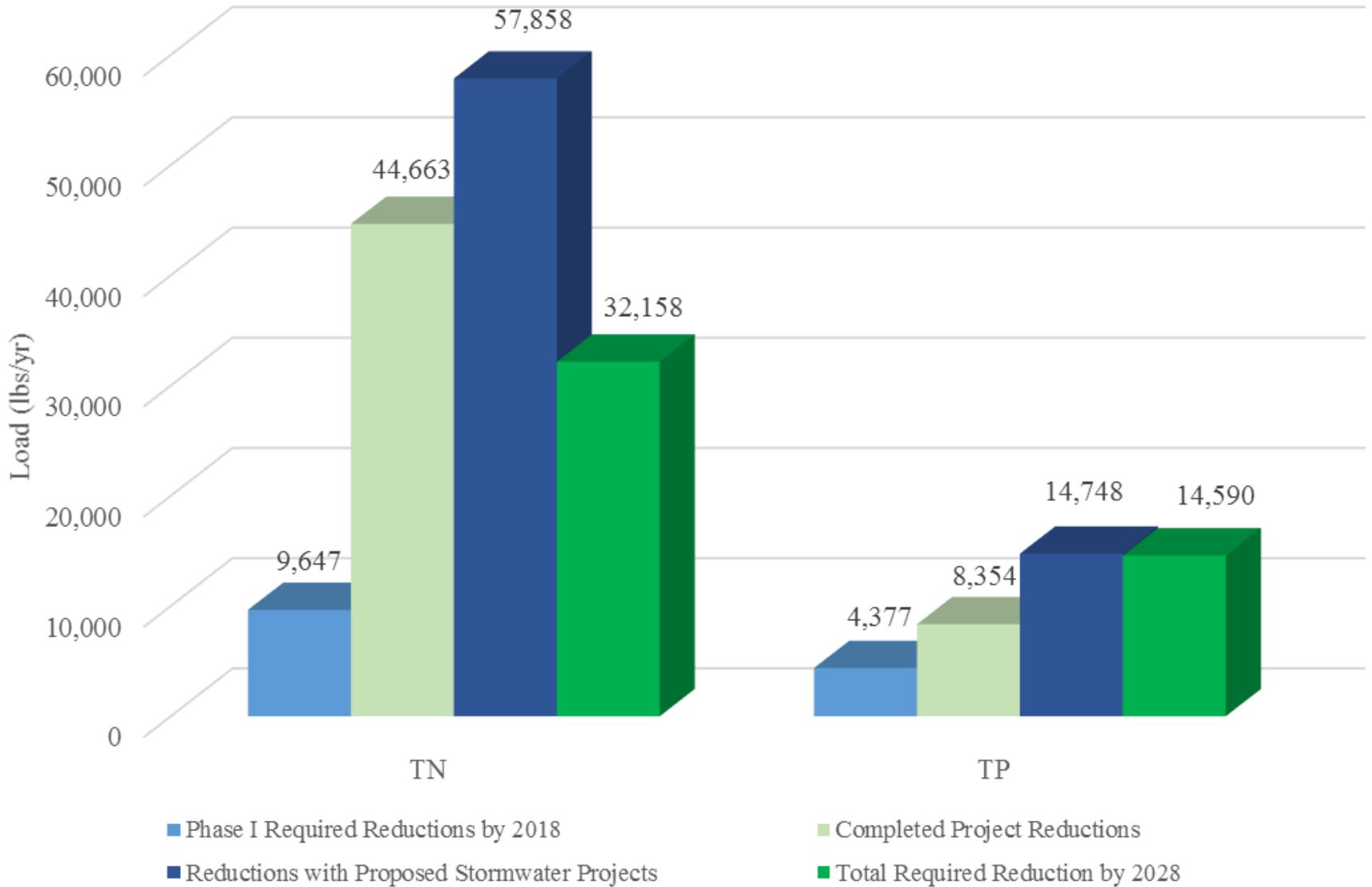


SFWMD Identified Hot Spots

SITE	TRIBUTARY
SLT 6	All American Ditch
SLT 9	Bessey Creek
SLT 28	Britt Creek
SLT 34	Corral Garden Ditch
SLT 7	Danforth Cruck
SLT 35	East Fork Cruck
SLT 30	Haincy Cruck
SLT 8	Hidden River
SLT 3	Hog Creek
SLT 27	Howard Creek
SLT 36	Manatee Creek
SLT 5	Pipers Ditch
SLT 33	Poppleton Creek
SLT 2	Roebuck Cruck
SLT 37A	Willoughby Cruck
SLT 37	Willoughby Cruck



How Close Are We?





Loxahatchee River Proposed Projects

- **Stormwater treatment projects:**

Project Name	Project Cost	TN Reductions (lbs/yr)	TP Reductions (lbs/yr)
Cypress Creek Weir	\$875,000	TBD	TBD
Turtle Creek Stormwater Quality Improvement	\$800,000	TBD	TBD
Ranch Colony Culpepper Berm - Phase II	\$1,000,000	TBD	TBD
Kitching Creek/Flora Avenue - Phase II	\$850,000	TBD	TBD
<i>Total</i>	<i>\$3,525,000</i>	<i>TBD</i>	<i>TBD</i>

- **Flood control projects:**

Project Name	Project Type	Project Cost
Hobe Heights	Pump Station/ Septic to Sewer	\$1,100,000
Hobe Hills/Papaya Village	Drainage Improvements/ Septic to Sewer	\$1,300,000
Sandcastle Estates	Pump Station	\$300,000
<i>Total</i>	<i>Total</i>	<i>\$2,700,000</i>



Loxahatchee River Completed Projects

- 8 completed stormwater treatment projects
- 2 completed septic to sewer conversion projects
 - 156 septic systems removed

Project Category	Cost	TN Reductions (lbs/yr)	TP Reductions (lbs/yr)
Stormwater	\$12,982,659	TBD	TBD
Septic to Sewer	\$2,321,091	968	N/A
<i>Total</i>	<i>\$15,303,750</i>	<i>TBD</i>	<i>TBD</i>



Public Outreach and Education

- Fertilizer public education and outreach:
 - Increase compliance with the County fertilizer ordinance
 - Reduce nutrient loading at the source
- Be Floridian Now: \$30,000/year
 - Implemented since 2015 to provide education on lawn care practices and products
 - TC Palm ads, ads in TC Palm search providers, Facebook page, promotional items, and educational booth toolkit
- Water Ambassador Training Program: \$30,000/year
 - Implemented since 2016
 - Purpose is to increase awareness about the IRL and St. Lucie watersheds and foster behavioral changes related to the reduced use of fertilizer and pesticides
 - Hold 10 workshops each year, with up to 15 people attending each workshop (more than 130 people educated to date)
 - Next steps will be secret shopper surveys
- Total cost of education and outreach programs over next 11 years: \$660,000



Economic Value of Good Water Quality

- The St. Lucie River and Estuary, Loxahatchee River, and IRL system are important to Martin County's economy
- When these waterbodies are healthy, there are major economic benefits from tourism, recreation, fishing, and real estate values
- When these waterbodies are impacted by algal blooms and fish kills, the economy of the County is negatively impacted



Photo: Phil Owen



Water Quality Projects Return on Investment

- Total annual economic benefit = \$754,459,668
- Cost of proposed projects and ongoing education = \$202,781,288
- Cost per year (for 11 years) for projects = \$18,434,662.55
- Return on investment is 25:1
 - For every dollar spent in project implementation, there is a return of \$25 in economic value (does NOT include values associated with defense and aerospace of \$469,460,387, which would increase ROI to 41:1)
- Implementing the projects in the Water Quality Needs Assessment will provide a positive return on investment in terms of the economic benefits to the County.



Martin County One Cent Sales Tax Proposal

- **On Tuesday, June 20, the Board of County Commissioners voted to put a one cent sales tax referendum on the August 29, 2017 ballot**
- **If approved by voters, the local sales surtax would become effective on January 1, 2018 and expire on December 31, 2027.**
- **What is a Local Sales Tax?**
 - Currently, the county receives one cent of the six cents collected for sales tax but this money is used for operating expenses. By state statute, a Local Sales Tax of one-half or one-cent may be added to the current State Sales Tax of six cents to be used for certain infrastructure projects.
- **Do any other counties in Florida implement a local sales tax?**
 - 61 of Florida's 67 counties levy an additional local sales tax, of these, 28 counties have no expiration date. 55 counties have a one-cent surtax and 6 counties have a half-cent surtax. All the counties surrounding Martin County have a sales surtax.
- **Will the sales tax apply to all purchases?**
 - No, necessities like groceries, prescription drugs, and residential rentals would be exempt. In addition, there is also a cap limiting the tax to the first \$5,000 of a single purchase for big ticket items like cars and boats.



Martin County One Cent Sales Tax Proposal

- **How is the money spent? Will the public have any input?**
 - A sales surtax will provide funding for water quality, infrastructure rehabilitation (roads, bridges, and drainage), and to construct and reconstruct county facilities as identified in the County's Capital Improvement Plan, which is adopted annually at a public hearing.
- **At least 35% of the funds collected will be used for water quality projects.**
- **Projects will be prioritized and all expenditures of sales tax proceeds must be approved by a majority of the Board of County Commissioners at an advertised public hearing at which the public will have an opportunity to provide comment.**
- **What are the specific projects to be completed?**
 - The list of potential projects for which sales tax funds may be used is comprised of projects previously approved by the Board of County Commissioners in the County's Capital Improvement Plan. Examples of some projects include, but are not limited to –
 - St. Lucie River & Estuary Watershed
 - Septic to Sewer Conversions
 - Intersection and sidewalk repairs
 - Road resurfacing
 - Culvert replacements
 - Neighborhood restorations (coordinate water and road projects at same time; includes roadway resurfacing, new sidewalks, traffic signs, pavement marking, drainage, etc.)
 - Reroofing public facilities

**Thank you for the opportunity!
Questions?**

