

# City of Pensacola Stormwater Program Update

Public Works and  
Facilities Department

February 2019



PENSACOLA

# Introduction


- **Stormwater Management Strategies adopted by City Council in October 2000 to set long-term goals for successful stormwater management program focused on enhancing Water Quality of area waterways.**
- **Stormwater Utility Fee adopted in 2001 to provide an established funding mechanism to support the stormwater management program.**
- **Update is centered around activities over past 5 years due to the significant volume of projects that have taken place.**
- **Three (3) Main Project Categories: Budgeted Capital, Grant Improvement and Grant Emergency Repair totaling approximately \$33,134,613 over the past 5 years.**

# Introduction

## COMMITTEE MEMORANDUM ITEM #1

### FOR DISCUSSION

**COMMITTEE:** Committee of the Whole

**FROM:** Thomas J. Bonfield, City Manager 

**DATE:** October 24, 2000

**SUBJECT:** Stormwater Management Strategies

**RECOMMENDATION:** That City Council provide input on the Stormwater Management Strategies for further refinement by the City Manager into a Comprehensive Stormwater Management Policy.

**SUMMARY:** In response to City Council's request for information on the City's efforts to improve water quality of those water bodies affected by City stormwater, an overview of stormwater management and potential strategies has been developed. The strategies incorporate principles that may be adopted by the City for both stormwater management/flood control and water quality. The strategies incorporate elements of planning, administration, capital projects, enforcement, maintenance, and public education that may be adopted by the City of Pensacola as a means of protecting property and improving water quality.

**PRIOR ACTION:** Adoption of FY 2001 City Budget incorporating maintenance and capital improvement items. Acceptance of the Dames and Moore Final Report on the Carpenters Creek/Bayou Texar Watershed and Stormwater Management Assessment and the Stormwater Management Financial Plan prepared by GSG.

**CURRENT ACTION:**

**FUNDING:** Budgeted: N/A

City of  
Pensacola



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# Introduction

- Update is centered around activities over past 5 years due to the significant volume of projects that have taken place.
- **Three (3) Main Project Categories**
  - **1) Budgeted Capital**                      **\$8,654,471**
  - **2) Grant Improvement**                      **\$14,061,530**
  - **3) Grant Emerg. Repair**                      **\$10,418,612**
- **Totaling approximately**                      **\$33,134,613**



# Budgeted Capital Projects

- **Stormwater projects that are primarily funded from the Stormwater Utility Fee and approved by City Council via 5-year revolving plan as part of the annual budget process.**
- **Stormwater Utility Fee generates approximately \$2.5M/year and can be increased by City Council incrementally.**
- **Projects are generally identified to address both water “Quality” (treatment) and “Quantity” (flooding) where the need is most prevalent and feasible to perform projects within allocated budgets.**
- **Professional Engineering studies are utilized as a “guide” for developing and prioritizing project lists for the 5-year revolving plan, especially in sensitive drainage basins that directly impact Pensacola Bay, Carpenter Creek, Bayou Texar and Bayou Chico.**

# Budgeted Capital Projects

• 19 <sup>th</sup> Ave. and Blackshear Ave. Outfall at Bayou Texar	\$ 918,455
• Bayou Chico North Stormwater Enhancement	\$ 304,319
• Bayou Chico South Stormwater Enhancement	\$ 192,060
• Clematis Street at Carpenter Creek Stormwater Enhancement	\$ 414,589
• Baywoods Gully Erosion Stabilization	\$ 315,553
• 12 <sup>th</sup> Ave. @ Bayou Texar Stormwater Enhancement	\$1,047,455
• Desoto Street @ Bayou Texar Stormwater Enhancement	\$ 373,666
• Northmoor Court Stormwater Enhancement	\$ 62,288
• 'B' and Main Street Stormwater Enhancement	\$ 171,131
• Davis Hwy @ Valley Drive Stormwater Enhancement	\$ 375,505
• Manolete Drive Stormwater Enhancement	\$ 304,889
• Carpenter Creek at Bayou Blvd Stormwater Enhancement	\$ 293,763
• Bayou Drive @ Bayou Chico Stormwater Enhancement	\$ 257,745
• Bayou Blvd at Tyler Stormwater Enhancement	\$ 793,780
• Carpenter Creek @ 9 <sup>th</sup> Avenue Stormwater Enhancement	\$ 343,609
• Gaberonne Swamp Stormwater Improvements	\$1,246,381
• Woodcliff Dr. at Livingston Outfall Stormwater Enhancement	\$ 363,286
• Pipe Rehabilitation Project A Street	\$ 875,997

**Total**

**\$8,654,471**

# Budgeted Capital Projects 5-Yr Plan

PROJECT	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
1 Clubbs Street Outfall to Pensacola Bay		45,000	482,800		
2 Bayou Blvd, Lee, Lloyd and Stanley St. Outfalls to Bayou Texar	60,000	415,000			
3 Land Acquisition for Stormwater Facility Sites	50,000	50,000	50,000	50,000	50,000
4 9th Avenue Outfall to Pensacola Bay			75,000	750,000	
5 Bayou Blvd, Perry, Blount and Avery St. Outfalls at Bayou Texar	55,000				425,000
6 Scott, Yates, Lakeview and Strong Outfalls at Bayou Texar	65,000	412,000			
7 E. Cross, Yates, Escambia and Osceola Outfalls at Bayou Texar	460,000				
8 Texar Drive, 17th and 18th Avenue Outfalls at Bayou Texar	445,000				
9 Scenic Heights Discharge (Langley into Escambia Bay)	50,000				
10 Stormwater Vaults Citywide	296,100	296,100	321,100	321,100	321,100
11 Davis Hwy @ Carpenter's Creek (North Side)	415,000				
12 Stormwater Capital Maintenance	350,000	375,000	375,000	375,000	375,000
13 NPDES Permit Monitoring	115,000	125,000	125,000	125,000	125,000
14 Alcaniz Street Outfall to Pensacola Bay	75,300	618,300			
15 South 'E' and 'F' Street Outfalls to Pensacola Bay		45,000	490,300		
16 Spring Street Outfall to Pensacola Bay		55,000	517,200		
17 East and West Cervantes Outfalls at Bayou Texar Bridge				500,000	
18 Cordova Square Pond at 12th Avenue Pond Rehabilitation				315,300	
19 Cove, Endor and Hyde Park Road Outfalls at Bayou Texar					500,000
20 Spring Street Pipe Rehabilitation					640,300
21 Stormwater Grant Match-Funding	140,000	140,000	140,000	140,000	140,000
<b>TOTAL FOR STORMWATER PROJECTS</b>	<b>2,576,400</b>	<b>2,576,400</b>	<b>2,576,400</b>	<b>2,576,400</b>	<b>2,576,400</b>



# Spanish Trail Stormwater Pond (Site 1)





# Spanish Trail Stormwater Pond (Site 1)





# Cypress Street Stormwater Enhancement





# 9th Ave. and Texar Stormwater Project





# Davis Hwy @ Valley Drive Stormwater Proj.





# Davis Hwy @ Valley Drive Stormwater Proj.





# Carpenter Creek at Bayou Blvd Project





# Clematis Street @ 9<sup>th</sup> Ave. Project





# Woodcliff and Livingston Project





# Woodcliff and Livingston Project





# 'A' Street Pipe Rehabilitation Project



# Grant Improvement Projects

- **Stormwater projects that are primarily funded from federal and state sources include EPA 319, Florida Forever, FDEP TMDL, etc.**
- **Stormwater projects that are funded by “other” sources include BP settlement funds (Restore Act), etc.**
- **Projects are typically derived from specific environmental benefit identified through observation and study.**
- **Project scopes normally address direct benefit and improvement of delicate ecosystems, socio-economic benefits, recreation and public education/awareness.**



# Grant Improvement Projects

• Gaberonne Swamp Stormwater Improvements EPA 319	\$1,784,118
• PNS Airport Stormwater Pond FDOT	\$3,249,384
• Government Street @ Corinne Jones Park NFWF	\$2,106,500
• BP Settlement Funds	\$1,212,099
• Bill Gregory Park Stormwater Project NFWF	\$1,723,565
• 'R' Street @ Maggie's Ditch Stormwater Project NFWF	\$ 597,719
• 4190 Rommitch Lane Demolition HMGP	\$ 166,073
• 12 <sup>th</sup> and Cross Street Stormwater Project HMGP*	\$1,307,982
• 'L' Street and Zaragossa Stormwater Project HMGP*	\$ 756,123
• Lee Street Stormwater Project HMGP*	\$ 742,221
• Drainage Improvements for Localized Flooding BP Settlement funds	\$ 415,746

• **Total** **\$14,061,530**

\* denotes pending final funding approval from DEM

# PNS Airport Regional Stormwater Facility





# Gaberonne Swamp Project



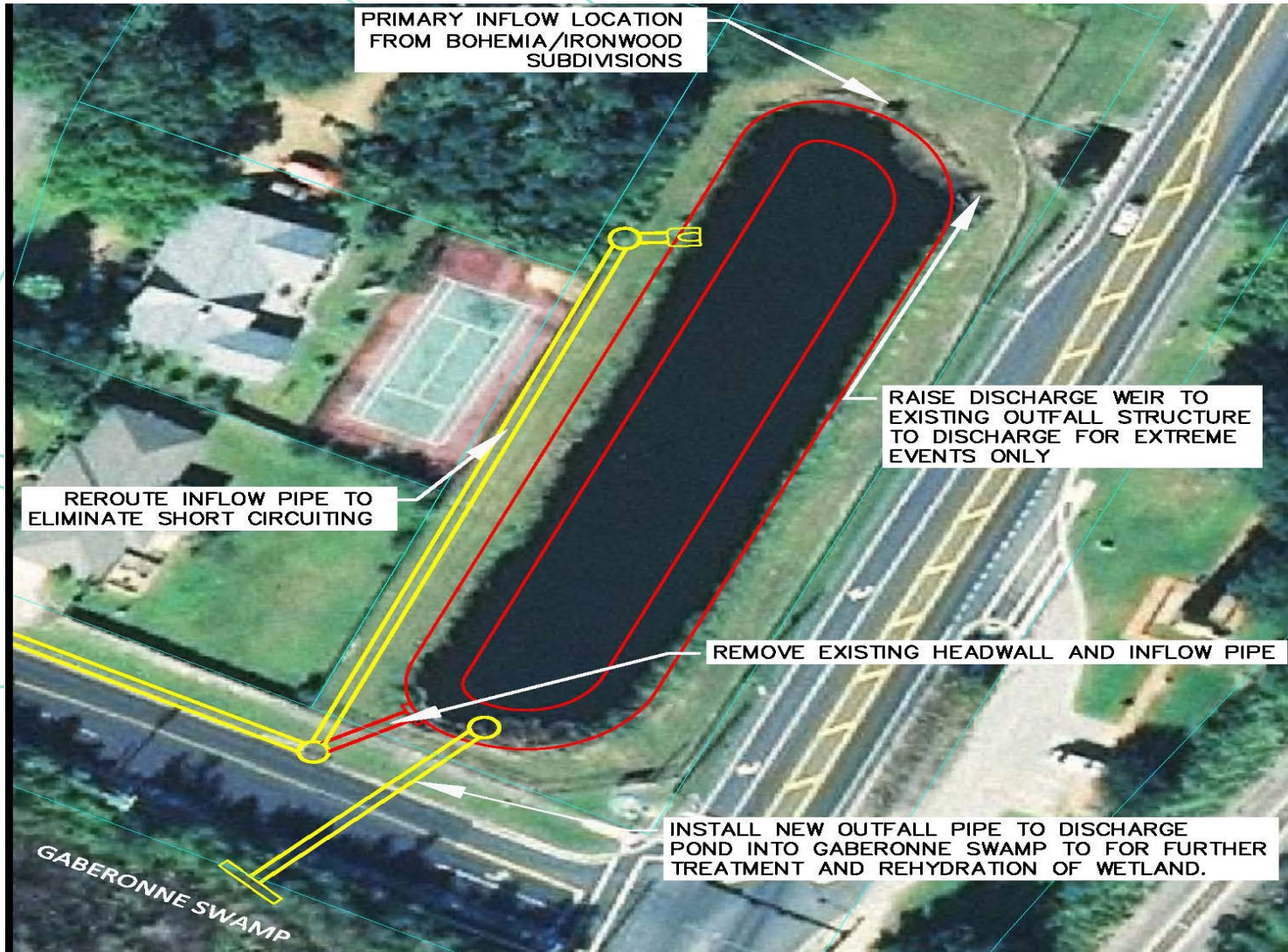


# Gaberonne Swamp Project





# Gaberonne Swamp Project





# Gaberonne Swamp Project





# Gab. Swamp Project (Spanish Trail –Site 2)





# Government Street @ Corrine Jones Park





# Government Street @ Corrine Jones Park





# Government Street @ Corrine Jones Park





# Government Street @ Corrine Jones Park





# Bill Gregory Park Stormwater Project





# 'R' Street at Maggie's Ditch Project





# Grant Emergency Repair Projects

- **Stormwater projects that are primarily funded from federal and state sources FEMA, NRCS, FHWA and FDEM.**
- **Projects are typically derived from catastrophic occurrences and primarily include atypical rainfall events and tropical system events.**
- **The April 29, 2014 rainfall event statistically rated between a 500 and 1000 year occurrence with over 25” of rainfall within a 72 hour period causing significant devastation to stormwater infrastructure.**
- **Project scopes normally address direct repair/replacement of damaged infrastructure and certain grants allow for improvements and/or “mitigation” to harden and provide improved long-term resiliency.**

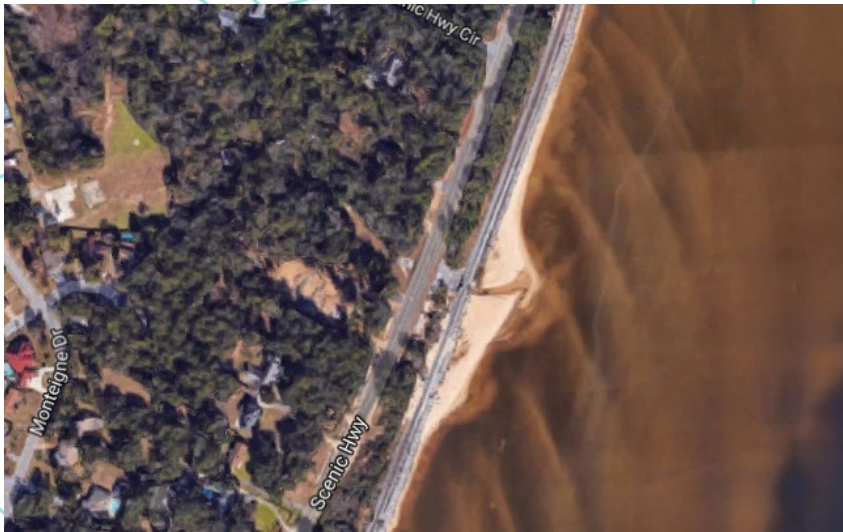


# Grant Emergency Repair Projects

• Baywoods Gully Stabilization FEMA/NRCS	\$ 2,952,224
• Piedmont Road Repair FEMA	\$2,164,206
• Spanish Trail Pond Repair FEMA	\$1,165,709
• DeSoto Street Repair FAMA	\$ 94,966
• Seville Drive Stormwater Outfall FEMA	\$ 60,530
• Long Hollow Pond Berm Repair FEMA	\$ 159,004
• Scott Street Repair FEMA	\$ 59,254
• Main Street Repair FHWA	\$ 65,215
• Southern Bulkhead Mitigation Site FEMA	\$ 57,225
• Maxwell Street Repair FEMA	\$ 132,105
• Wright Street Repairs FEMA	\$ 11,706
• Coyle Street Repair FEMA	\$1,433,174
• L Street Stormwater Repair FEMA	\$ 188,894
• 12 <sup>th</sup> Avenue Repair FEMA	\$ 190,341
• Bayou Texar Dredging FEMA	\$ 654,619
• Various Smaller Repair Sites FEMA	\$ 700,731
• Carpenter Creek Repair & Stabilization NRCS	\$ 328,709
• Total	\$10,418,612



# Baywoods Gulley Project





# Baywoods Gulley Project





# Piedmont Road @ Hallmark Road Repairs





# 20<sup>th</sup> Ave and Lloyd Street Repairs





# 12<sup>th</sup> Ave and Euclid Street Repairs





# Main Street at Coyle Street Repairs





# Stormwater Quantity and Quality

- **Stormwater Management Strategies** typically focus on addressing water **Quality** (treatment) and/or water **Quantity** (flooding) aspects.
- **Focus** is primarily on addressing **Stormwater Quality** due to ready availability of technology and resources.
- **Stormwater Quantity or Flooding** is also addressed on every project where feasible and possible to do so.
- **Projects** are identified through both professional **Engineering studies** and public input based upon actual field observations/occurrences.
- **Proposed projects** are programmed into the 5-year revolving capital plan and grant funding opportunities are also pursued.
- **Stormwater improvement projects** are often incorporated into other types of capital projects to maximize public benefit, like roadway projects, etc..



# Stormwater Quantity (flooding) -facts

- **Stormwater quantity or flooding issues are most challenging due to high cost and limited resources available to make a significant difference or improvement.**
- **Most flood-prone areas of the City are located near water bodies (Pensacola Bay) where tidal influence is a significant factor/challenge.**
- **Significant Flood-prone areas also occur where upstream contributions cannot be controlled by the City (i.e. Long Hollow).**
- **Most existing stormwater infrastructure has been in place for decades and has very limited capacity to convey stormwater during significant rainfall events.**
- **Efforts are made on every project to upgrade stormwater infrastructure to current standards and address localized flooding issues to greatest extent possible.**



## **Stormwater Quantity (flooding) -accomplishments**

- **City has successfully conducted in-depth stormwater studies in areas of most significant flooding issues to identify specific causes and proposed solutions. Study areas include Long Hollow, Aragon, Downtown and Piedmont Road. Total approx. cost was \$355,000 for the studies.**
- **City has recently revised the Land Development Code stormwater attenuation requirements from the 25 yr. event to the 100 yr. event for new development projects. Change will significantly help with current flood-prone areas when new projects are developed.**
- **City is currently updating Stormwater Master/Management Plan and will be completed in FY 2019. Plan will provide and identify updated infrastructure needs to address City-wide flooding comprehensively and prioritize efforts going forward. Updated plan will also allow City to be more attractive in the receipt of grants for new projects and will help lower CRS number.**



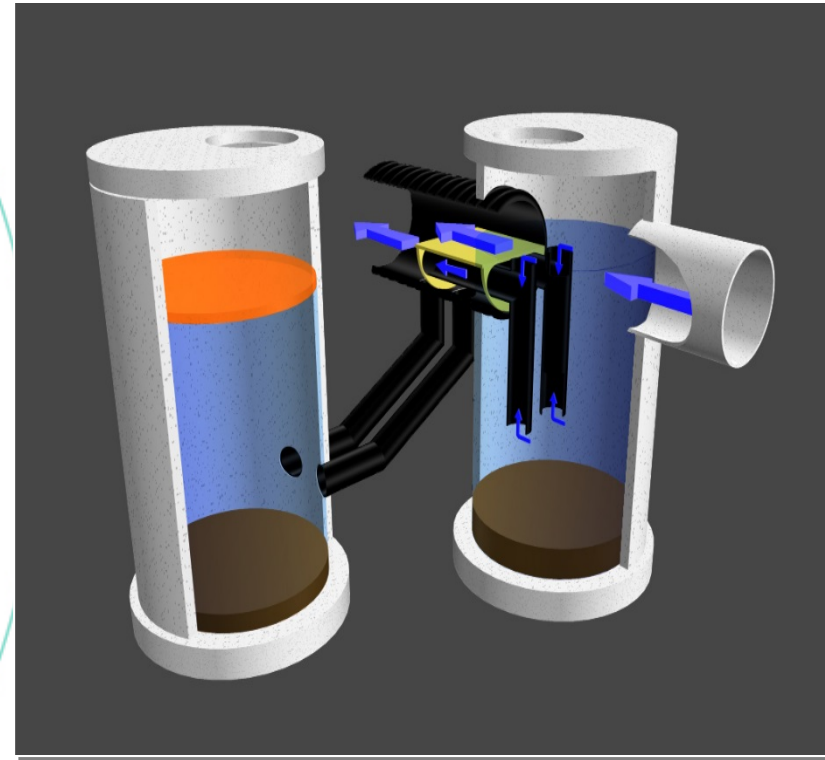
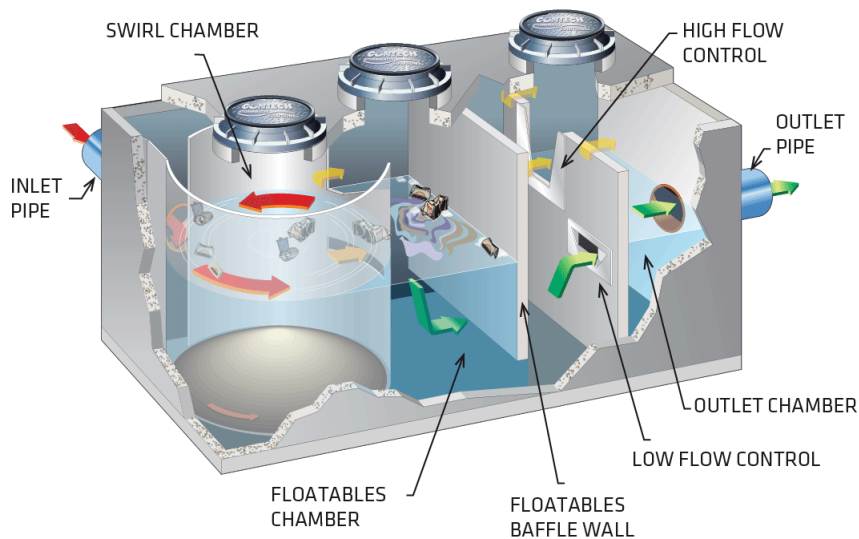
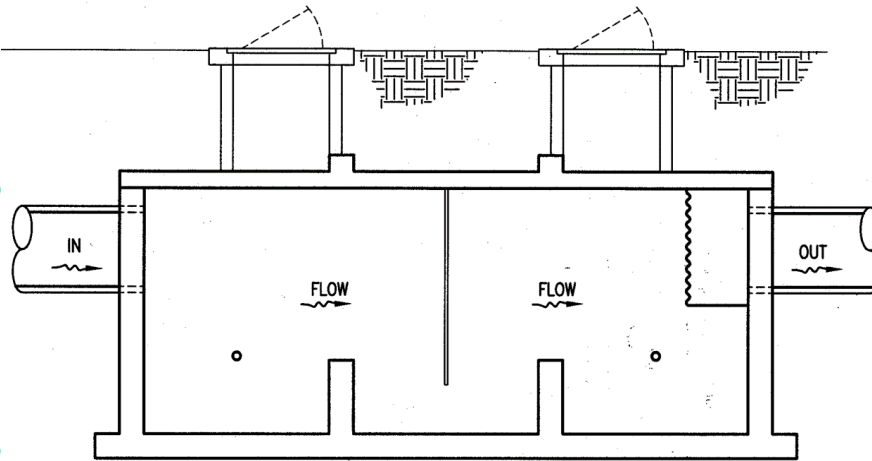
# Stormwater Quality (treatment) -facts

- **Stormwater quality projects typically have a design target pollutant removal efficiency of 70-80% total suspended solids (TSS).**
- **Projects primarily include underground treatment systems or “Proprietary Units” and stormwater ponds, swales and ditches.**
- **Due to the very limited availability of open land for the construction of stormwater ponds, proprietary units are most commonly used in treatment projects.**
- **The City currently has 54 stormwater ponds and 108 proprietary units in-place.**
- **Proprietary units are typically placed near outfall locations at water bodies in order to provide for the most effective pollutant removal.**
- **Pollutants removed typically consist of floating trash/debris, hydrocarbons (oil, greases, etc.), heavy metals and nutrients.**



# Stormwater Quality (treatment) -facts

## Typical Proprietary Units





# Stormwater Quality (treatment) -accomplishments

- **Stormwater retro-fit program is very aggressive in comparison to other communities throughout the state of similar size and function.**
- **Overall noticeable improvement in water quality for local area waterways and long-term adopted goals are being met.**
- **Program continues to be very effective in the removal of pollutants to prevent them from entering area waterways and has removed approximately 6100 cubic yards or 16M lbs (8000 tons) over the past five (5) years.**
- **This removal would equate to approximately 350 dump-truck loads of heavily pollulated material removal that would have otherwise been discharged to area waterways.**



# Quality (treatment) -accomplishments



**X 350**





# Summary –moving forward

- **Much progress has been made in both the areas of stormwater Quality and Quantity due to established priorities/commitments and availability of funding from local, state and federal sources (key).**
- **Continued aggressive efforts by the Mayor's office and City Council will provide both long and short term benefits to the stormwater program and ensure future progress.**
- **Program is making a positive difference in the community with less flooding impacts during routine/nominal rainfall events (311).**
- **Numerous significant stormwater projects currently underway including Davis Hwy. @ Carpenter Creek and Gaberonne Swamp (final phase).**
- **More significant funding opportunities coming online with stormwater projects being planned like Hollice T. Williams Greenway Park and Sander's Beach Community Center locations.**





# Discussion