

PRESENTATIONS
I. ITEM B.



AGENDA REPORT
April 18, 2019

Utilities Services Department

SUBJECT:

Utility Services Department Presentation

DEPT/OFFICE:

County Manager

ATTACHMENTS:

Description

- **USD Presentation**

Brevard County Utility Services Department

April 18, 2019

Edward Fontanin, PE, Director



How Can Utilities Improve the IRL?

- **Reduce Inflow and Infiltration (I&I)**
- **Focus on preventative maintenance**
 - Valve Exercise
 - Lift Station inspections
 - Sewer assessment
- **Reduce nitrogen in reclaimed water**

Opportunities with SOIRL

- **Septic to sewer conversions**
 - Force Main Expansion
- **Connecting private package treatment plants to County system**
 - Force Main Expansion
- **Reducing nitrogen of reclaimed water**
 - Upgrading Rapid Infiltration Basin and Spray Fields
- **Smoke testing**
 - Lateral Lines
 - Lateral Service Caps

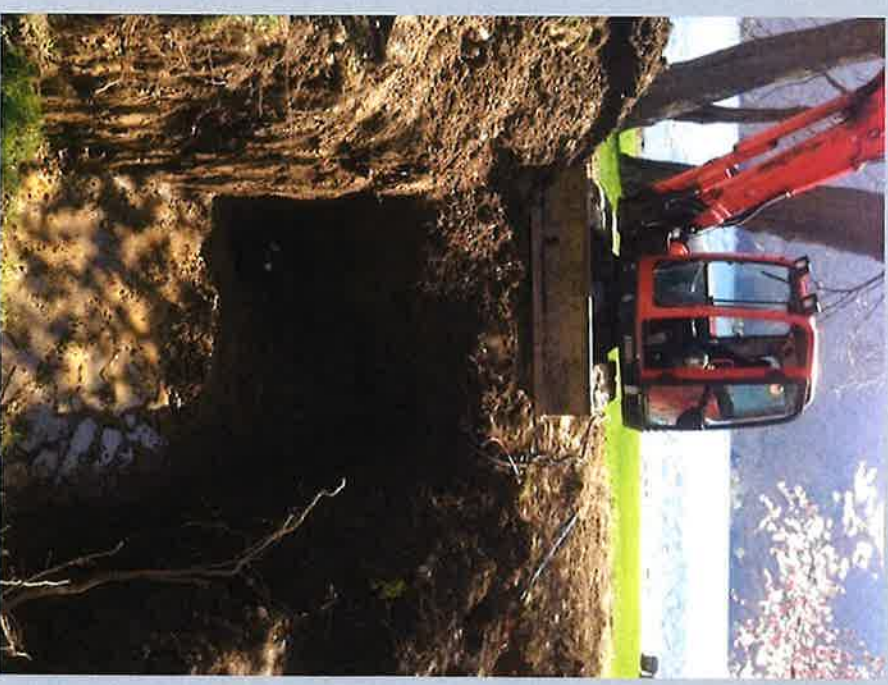
Septic to Sewer

➤ Benefit:

- Reduce contamination in waterways
- Allows more land use options

➤ Cons:

- Increase utility operation costs
- Sewer bill for residents
- Need to increase plant capacity



Connecting Private Package Treatment Plants to County System

- **Benefits:**
 - Greater control of quality of discharge
 - Better daily operations/maintenance
- **Cons:**
 - Capital cost for connection
 - Increase utility operation and maintenance costs



Reclaimed Water Nitrogen Reduction

➤ Benefits:

- Less nitrogen runoff in canals/lagoon
- Lawn less reliant on constant nitrogen application, reducing fertilizer needs

➤ Cons:

- Investment in treatment plant process to remove more nitrogen
- Increase operating cost

Smoke Testing

➤ Benefits:

- Reduce wet weather discharge
- Identify cracked sewers
- Identify cracked laterals

➤ Cons:

- Private property access to locate leaks and deficiencies
- Lack of regulatory compliance
- Mandate to repair



Ongoing Utility Services Initiatives to Reduce I&I and Discharge

- Sewer assessment/lining
- Lift station improvements
- Force main replacement/expansion
- Treatment plant capacity
 - Population projection analysis
 - Engineering assessment for future expansion

Sewer Lining/Assessment

- Focus is 8, 10, and 12 inch sewers
- FY 13/14 to FY 18/19
 - 69 miles lined (\$185K per mile)
 - 490 miles remaining to be lined = \$ 90 M
- FY 18/19 assessing 150 miles in South Beaches and Barefoot Bay
- Benefit:
 - Identify critical areas
 - Develop sewer lining program to focus funds on worst leaks

Lift Station Improvements

- Since FY 13/14:
 - 40 Lift stations rehabilitated
 - 11 Lift station reconstructed
 - 8 Lift station rehabilitations in current design
- FY 19/20 Seven Lift station rehabilitations in progress
- Average cost per lift station = \$750 K

Lift Station Generators

- **County System consists of 297 lift stations**
 - **20 Lift stations have generators**
 - **35 portable generators**
- **All lift stations meet former FDEP requirement (through grandfathering provision) of generators at lift stations**
- **FY 19/20- 13 lift stations to get generators per new FDEP requirements**
 - **Cost to install generator = \$175 K/lift station**
- **Monthly preventive maintenance checks done**

Force Main Replacement/Expansion

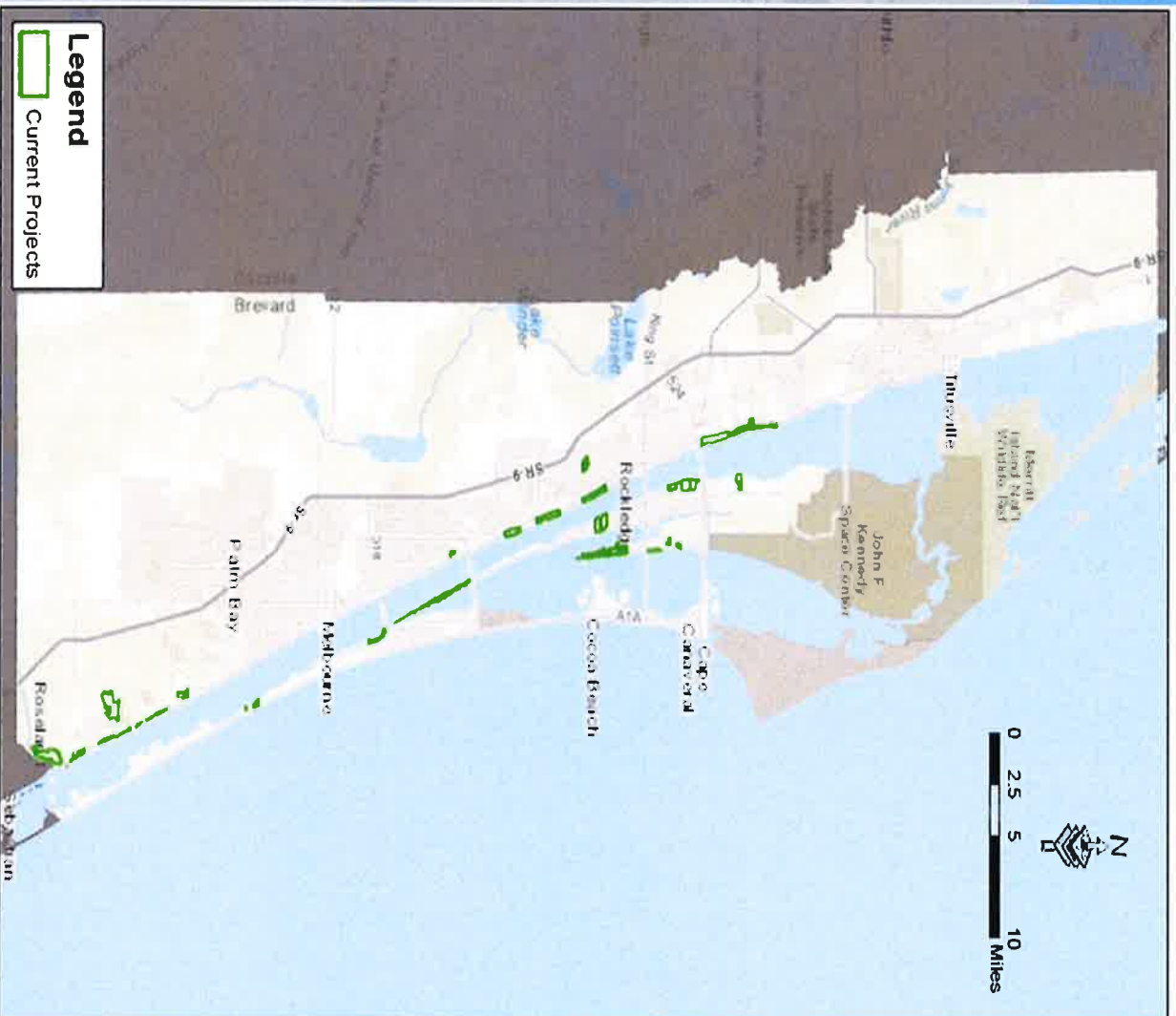
- Since FY 13/14:
 - 14 Miles of replacement (\$1-3M per mile)
 - 5 Miles of expansion
- Upcoming construction projects
 - North Courtenay Force Main, Phase 3 (\$4M)
 - 5 Year CIP
 - Riverside force main (\$12M)
 - Completion December 2020
 - Micco force main (\$2.5M)
 - Design in progress

SOIRL Septic to Sewer Program

- SOIRL plan funded 13 Septic to sewer areas in Brevard County service areas
- How SOIRL determines funding:
 - Project receives \$33K per unit connected if cost is < \$1500/lbs. of Nitrogen reduced



SOIRL Current Projects



Current Programmed Septic-to-Sewer Projects

➤ SOIRL funded Projects: 13

➤ Unfunded Projects: 22
35 total projects

Using SOIRL Criteria:

- 2 of the 13 projects meet SOIRL criteria
- 11 of the 13 projects do not have enough funding
- Lack of funds range from \$380 K to \$2.8 M per project

Current Programmed Septic-to-Sewer Projects (continued)

- **If SOIRL Funding = \$55K/Unit Cost**
 - 17 of the 35 Projects will be fully funded
 - 2623 units connected
 - Total cost of 17 of the 35 projects = \$113 M
 - 2 of the 17 projects = \$38 M

Options to Completely Fund Septic to Sewer

➤ Option 1:

- Increase Utility/SOIRL partnership shared funding

➤ Option 2:

- State appropriations

- Lobby for additional funding cost

- HB 4629, HB 141, SB 1758/HB 1395

➤ Option 3:

- Increase utility rates

- 1% increase = \$350 K revenue = 45 cents in single family home monthly bill

➤ Option 4:

- Create Municipal Service Benefit Units

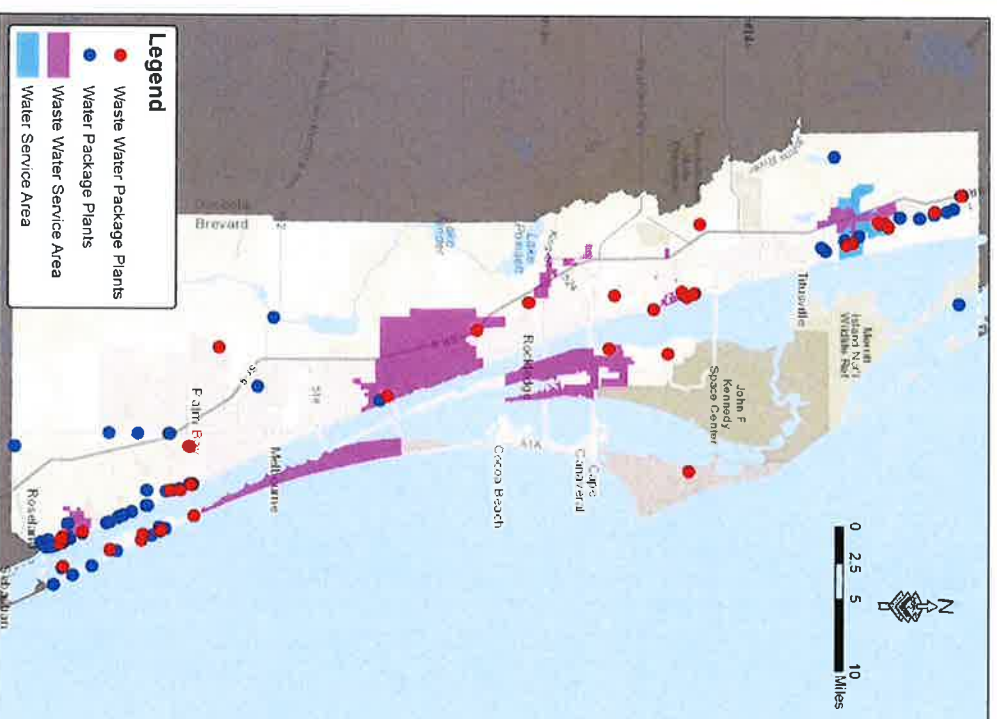
Additional Opportunities for Utility/SOIRL Projects

- **Connect private package treatment plants to County system**
- **Converting all wastewater treatments plants to AWT standards**
 - **5 – Total suspended solids (ppm)**
 - **5 – Biological oxygen demand (ppm)**
 - **3 – Nitrogen (ppm)**
 - **1 – Phosphorus (ppm)**

Cost Comparison

- Connect private package treatment plants to County system
- Total connection cost to system= \$75K/unit
- Cost to convert package plant to lift station.
- Force Main to County System
- Cost to purchase plant

Package Plants



Cost Comparison (continued)

- **Convert all wastewater treatment plants to AWT standards**
 - Estimated cost = \$8-10 per gallon of treatment
 - Example: 1 MGD = \$8 - 10M
 - **Total WWTP flow=15 MGD**
 - 4 MGD does not meet AWT
 - **Partial SOIRL funding may be available for AWT conversion and/or expansion**



Ordinance Opportunities

- **Mandatory hook-up to gravity or low pressure system**
 - Florida Statute 381.0065 only applies to gravity system with no mention of a penalty if not implemented
- **Mandatory repair of sewer laterals/caps**
 - Satellite Beach and Indian Harbour Beach smoke testing done at 10,100 homes identified 30 leaks. SOIRL grants were offered. Three homes have made repairs. Six more homes are interested.
 - 240 missing/damaged caps identified

Ordinance Opportunities (continued)

➤ **FOG Ordinance**

- **Fats, Oils and Grease**
- **Reduces sewer blockages and lift station malfunctions**
- **Catered to restaurants**

➤ **Conservation of reclaimed water**

- **Require individual meters with monthly rates**
 - **Discourages over watering**

Goals of Utility Services related to Indian River Lagoon

- Sewer assessment/lining
- Smoke Testing
- Expand treatment capacity (AWT standards)
- Expand septic-to-sewer
- Continue with R&R Program
- Connect private WWTP to County System