Stormwater 401

Fourth in a series

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Chad Butzow, Public Works
Sia Mollanazar, Public Works
Tom Gerstenberger, Public Works
Myra Prater, Public Works
Charlie Hunsicker, Parks and Natural Resources
Rob Brown, Parks and Natural Resources
Greg Blanchard, Parks and Natural Resources
Scott Browning, Parks and Natural Resources
Jeff Eger, HDR
Dan Suarez, HDR
Henry Thomas, PRMG
Start With A Brief Recap Of Stormwater 101, 201, 301

• Utility Ordinance established in 1991.
• Stormwater was a component of the ordinance.
• A dedicated fee was never put in place to fund it.
• Several discussions over the past decade have shown interest in a dedicated funding source.
• October 2017 work session the BCC requested staff investigate a stormwater fee.
• January 2018 work session with consultants discussing elements of a stormwater fee.
Two Major Stormwater Issues

• Quantity
  – All drainage related assets that drain rain water to the gulf, bay, rivers

• Quality
  – Assuring our surface and ground waters meet state and federal quality standards
What Is Your Stormwater System?

• Streams (natural, critical but not maintained)
• Canals
• Ponds
• Ditches (roadside)
• Pipes
• Inlets
Natural Streams
181 Miles Maintained Canals
503 Miles Of Storm Pipe
655 Miles Of Roadside Ditches
758 Acres Of Maintained Storm/Permitted Stormwater Ponds
## Existing Levels Of Service

<table>
<thead>
<tr>
<th>Task</th>
<th>ASSET</th>
<th>Quantity</th>
<th>Unit</th>
<th>4-Year Average</th>
<th>Annual Interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>canal cleaning</td>
<td>canals</td>
<td>181</td>
<td>miles</td>
<td>12.1</td>
<td>14.9</td>
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<tr>
<td>ditch cleaning</td>
<td>ditches</td>
<td>655</td>
<td>miles</td>
<td>31.7</td>
<td>20.7</td>
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<tr>
<td>pond spraying</td>
<td>ponds</td>
<td>758</td>
<td>acres</td>
<td>635.0</td>
<td>1.2</td>
</tr>
<tr>
<td>pipe cleaning</td>
<td>pipes</td>
<td>503</td>
<td>miles</td>
<td>29.0</td>
<td>17.3</td>
</tr>
<tr>
<td>inlet cleaning</td>
<td>inlets</td>
<td>14669</td>
<td>each</td>
<td>1552.7</td>
<td>9.4</td>
</tr>
<tr>
<td>street sweeping</td>
<td>curb miles</td>
<td>1219</td>
<td>miles</td>
<td>8083.0</td>
<td>0.2</td>
</tr>
</tbody>
</table>
What Is Not In The Current Program?

• Maintenance for function not appearance
  – There will likely be water in a ditch at times
• Drainage system mapping continues, not complete
• Active litter/pollution control projects
  – Trash interceptors
  – Floatable debris collectors
• Betterment projects
• Many “natural” areas of canals
Summary Of Existing Program Activities

• Stormwater system is all infrastructure that drains away rain water (natural and man made)
• The stormwater program includes all the tasks taken by the County to:
  – Maintain drainage infrastructure and conservation lands at existing service levels
  – Prevent pollutant discharge
  – Enforce current standards
• Manatee County has a stormwater ordinance
• Manatee County has not implemented a dedicated fee to fund stormwater
## Existing Stormwater Program Costs

<table>
<thead>
<tr>
<th>Primary Tasks</th>
<th>Fiscal Year 2019</th>
<th>Fund #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canal and pond maintenance, spraying and mowing</td>
<td>$4,473,865</td>
<td>460</td>
</tr>
<tr>
<td>Pipe, inlet and roadside ditch maintenance, street sweeping</td>
<td>$3,004,628</td>
<td>101 and 199</td>
</tr>
<tr>
<td>Stormwater Engineering, GIS, project design, development review, SWFWMD permits</td>
<td>$1,982,024</td>
<td>460</td>
</tr>
<tr>
<td>NPDES Compliance and monitoring</td>
<td>$607,950</td>
<td>460</td>
</tr>
<tr>
<td>Basin &amp; Watershed Management Planning and Implementation</td>
<td>$471,143</td>
<td>001</td>
</tr>
<tr>
<td>Preserves and Land Management</td>
<td>$594,662</td>
<td>120</td>
</tr>
<tr>
<td>Total Fiscal Year 2019 Operating Budget</td>
<td>$11,134,272</td>
<td></td>
</tr>
<tr>
<td>Capital Projects from CIP</td>
<td>$2,537,500</td>
<td></td>
</tr>
<tr>
<td>Total Stormwater Expenditures</td>
<td>$13,671,772</td>
<td></td>
</tr>
</tbody>
</table>
Current Funding Levels By Revenue Source

- Solid Waste Fund (460) - $9,601,339
- Gas Tax Fund (101,199) - $3,004,628
- Phosphate Mining Fees (120) - $594,662
- General Fund (001) - $471,143
- Total Amount Funded - $13,671,772
Current Funding Levels By Revenue Source

STORMWATER FUNDING SOURCES

- Solid Waste Fund (460), $9,601,339, 70%
- Gas Tax Fund (101, 199), $3,004,628, 22%
- Phosphate Mining Fee (120), $594,662, 4%
- General Fund (001), $471,143, 4%
Your Stormwater System Serves:

- Old neighborhoods
- New neighborhoods
- Shopping centers and Business parks
- Schools and Churches
- Commercial and Industrial sites
- Institutional properties
- Road network
Today’s Goals

• Review stormwater billing and collection methodologies
• Discuss land development code stormwater regulations
• Discuss key components of proposed watershed studies to identify needed Level of Service
• Discuss stormwater utility rates and fees for other Florida communities
• Introduce public engagement and education strategies
Stormwater Rate & Fee Structures

• What is the charge basis for the rates?
  – Fairness and equity
  – Administrative feasibility
• How many customer classes?
• What should the mix of funding sources be?
• Rate/fee policy issues
  – Billing method (monthly utility bill vs. special assessment)
  – Exemptions, i.e., agricultural properties
  – Low income relief
  – Credits for certain actions
Stormwater Fee

How is the Fee Developed?

• Traditional stormwater fees are allocated based on the amount of impervious land cover per parcel

• Since impervious surfaces generate more runoff, this is considered the most equitable way to distribute stormwater management costs

• Examples of impervious surfaces include:

  - Rooftops
  - Parking Lots
  - Non-Residential Paved Plazas and Walkways
Stormwater Fee

What is an ERU?

• Equitable stormwater fees are based on an Equivalent Residential Unit (ERU), which equals the average amount of impervious area on a single-family parcel

• Rate structure – two major classes
  – SF Residential: Single tier or Multi-tier
  – Non-residential
Land Development Code
Stormwater Regulations
New Concepts Ahead

• **Water quality treatment:** Removal of some pollutants from stormwater runoff to protect receiving waters

• **Attenuation of excess runoff:** Temporary storage of runoff to limit peak discharge downstream and mimic pre-development condition

• **Runoff rate of discharge:** Measure of runoff released per unit time
Modern Stormwater Systems

Modern stormwater design and permitting originated from state regulations implemented in 1985. As evident from this aerial comparison, the more recent development includes retention ponds.
Modern stormwater retention ponds are needed to provide water quality treatment and attenuation of excess runoff.
Stormwater Design Criteria

• Retention ponds attenuate (store) the volume and discharge runoff for a 25-year/24-hour storm frequency event which equates to 8 inches of rainfall.

• As a standard practice, runoff rate of discharge in proposed condition can not exceed runoff in a pre-development condition.

• Runoff rate of discharge is typically controlled by the weir and orifice openings associated with an Outfall Control Structure.
Stormwater Design Criteria

• For certain watersheds in the County prone to flooding, the County imposes a reduction in allowable runoff rate of discharge.

• 50% reduction in allowable runoff has been required for Bowlees Creek, Buffalo Canal, Rattlesnake Slough, and Pearce Drain since 1989.

• 50% reduction in allowable runoff has been required for Sugarhouse Creek, Slaughter Drain, and a portion of Mill Creek since 2005.

• 25% reduction in allowable runoff has been required for Braden River since 1999.

• Flow reduction is essentially a safety factor.
Watershed Studies

• The County has adopted watershed studies for Braden River (including Rattlesnake Slough), Buffalo Canal, and Gamble Creek.

• The County has three watershed studies underway for Mill Creek, Bowlees Creek and Pearce Drain.

• These studies complete a multi-functional Watershed Management Plan.

• Supplemental tasks identify and evaluate opportunities to meet regulatory water quality requirements and control pollution.

• Results suggest appropriate Level of Service
Watershed Studies

Manatee County Existing and Proposed Watershed Studies

Future Development Boundary
Existing Watershed Study Area
Proposed Watershed Study Area

This map was developed by Manatee County Government. It is provided for general reference and is not warranted in any way. Errors from non-coincidence of features from different sources may exist. The Manatee County BOCC shall bear no liability for inappropriate or unintended uses of the information.
Runoff Generation

Stormwater runoff is generated from all forms of development. Either residential or commercial. Either from public or private development.
Runoff Generation

ALL stormwater runoff flows into the same watersheds and drainage systems.
Runoff Generation

Whether public or private development, ALL stormwater runoff flows into tributaries which require maintenance.
Runoff Conveyance

Drainage from public streets is routinely comingled with runoff from private gated subdivisions. In this aerial example, drainage from Tuttle Avenue flows through Magnolia Point Subdivision.
Caveats on Utility Comparisons

- Rates and fees shown for other Florida communities reflect the individual requirements of the community.
- Requirements may have changed over time (e.g. City of Miami).
## Pros and Cons of Utility Based Fee Billing System vs. Assessment Non-Ad Valorem Based Billing System

<table>
<thead>
<tr>
<th></th>
<th>Non-Ad Valorem Assessment (Annual)</th>
<th>Utility Bill (Monthly)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pros</strong></td>
<td>• Highest collection rate (95 – 98%)</td>
<td>• Deadlines set by local government</td>
</tr>
<tr>
<td></td>
<td>• One bill with all charges</td>
<td>• Timeframe set by local government</td>
</tr>
<tr>
<td></td>
<td>• Use tax roll data from PA</td>
<td>• Easier to charge exempt property</td>
</tr>
<tr>
<td></td>
<td>• Revenue received within 6 months of start of fiscal year</td>
<td>• Can be used to bill government properties</td>
</tr>
<tr>
<td></td>
<td>• Rate/fee annual assessment</td>
<td>• Can use bill to communicate with customers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• May be able to piggyback on other government bills</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Easier to amend rate/fee</td>
</tr>
<tr>
<td><strong>Cons</strong></td>
<td>• Strict statutory requirements regarding public notice</td>
<td>• Difficult to correlate utility accounts to property uses (methodology issues)</td>
</tr>
<tr>
<td></td>
<td>• Strict statutory timeframes</td>
<td>• Collection issues regarding non-payment</td>
</tr>
<tr>
<td></td>
<td>• Supplemental billing required for tax-exempt properties</td>
<td>• Utility bill numerous lines</td>
</tr>
<tr>
<td></td>
<td>• May not allow for County-wide rates related to specific capital projects (special benefit rule)</td>
<td>• May miss property without utility account</td>
</tr>
<tr>
<td></td>
<td>• Increased Assessment &amp; Tax Collection Costs</td>
<td>• Revenue received on monthly basis</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Billing and administrative expenses</td>
</tr>
</tbody>
</table>
Benchmarks of Other Florida Communities (Cities)

How do other stormwater programs compare?

<table>
<thead>
<tr>
<th>Florida Utilities - Cities</th>
<th>Monthly Stormwater Rate per One ERU</th>
<th>Impervious Surface per One ERU</th>
<th>Non-Residential Price Per Sq Ft</th>
<th>Fee Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>City of Miami Beach</td>
<td>$23.30</td>
<td>791</td>
<td>0.02946</td>
<td>Utility Bill</td>
</tr>
<tr>
<td>City of Palm Coast</td>
<td>15.55</td>
<td>3,682</td>
<td>0.00422</td>
<td>Utility Bill</td>
</tr>
<tr>
<td>City of Tampa - O&amp;M and Capital Costs</td>
<td>11.92</td>
<td>3,310</td>
<td>0.00360</td>
<td>Assessment</td>
</tr>
<tr>
<td>City of Winter Park</td>
<td>11.56</td>
<td>2,324</td>
<td>0.00497</td>
<td>Utility Bill</td>
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<tr>
<td>City of Maitland</td>
<td>10.39</td>
<td>2,532</td>
<td>0.00410</td>
<td>Utility Bill</td>
</tr>
<tr>
<td>City of St. Petersburg</td>
<td>10.00</td>
<td>2,719</td>
<td>0.00368</td>
<td>Utility Bill</td>
</tr>
<tr>
<td>City of Fort Myers</td>
<td>7.60</td>
<td>2,500</td>
<td>0.00304</td>
<td>Utility Bill</td>
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<tr>
<td>City of Tampa - O&amp;M Only</td>
<td>6.83</td>
<td>3,310</td>
<td>0.00206</td>
<td>Assessment</td>
</tr>
<tr>
<td>City of Venice</td>
<td>5.00</td>
<td>9,489</td>
<td>0.00053</td>
<td>Utility Bill</td>
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<tr>
<td>City of Bradenton</td>
<td>4.87</td>
<td>1,700</td>
<td>0.00286</td>
<td>Utility Bill</td>
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<tr>
<td>City of Palm Bay</td>
<td>4.47</td>
<td>4,602</td>
<td>0.00097</td>
<td>Assessment</td>
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<td>City of Bradenton Beach</td>
<td>4.40</td>
<td>N/A</td>
<td>N/A</td>
<td>Assessment</td>
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<tr>
<td>City of St. Pete Beach</td>
<td>3.92</td>
<td>3,813</td>
<td>0.00103</td>
<td>Assessment</td>
</tr>
<tr>
<td>City of Miami</td>
<td>3.50</td>
<td>1,191</td>
<td>0.00294</td>
<td>Utility Bill</td>
</tr>
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</table>
Benchmarks of Other Florida Communities (Counties)

How do other stormwater programs compare?

<table>
<thead>
<tr>
<th>Florida Utilities - Counties</th>
<th>Monthly Stormwater Rate per One ERU</th>
<th>Impervious Surface per One ERU</th>
<th>Non-Residential Price Per Sq Ft</th>
<th>Fee Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pinellas County</td>
<td>$9.81</td>
<td>2,339</td>
<td>0.00419</td>
<td>Assessment</td>
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<tr>
<td>Pasco County</td>
<td>7.92</td>
<td>2,890</td>
<td>0.00274</td>
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<td>Sarasota County</td>
<td>7.55</td>
<td>3,153</td>
<td>0.00239</td>
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<td>Leon County</td>
<td>7.08</td>
<td>3,272</td>
<td>0.00216</td>
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<tr>
<td>Volusia County</td>
<td>6.00</td>
<td>2,775</td>
<td>0.00216</td>
<td>Assessment</td>
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<tr>
<td>Brevard County</td>
<td>5.33</td>
<td>2,500</td>
<td>0.00213</td>
<td>Assessment</td>
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<td>Miami-Dade County</td>
<td>5.00</td>
<td>1,548</td>
<td>0.00323</td>
<td>Utility Bill</td>
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<td>Hillsborough County</td>
<td>3.50</td>
<td>1,800</td>
<td>0.00194</td>
<td>Assessment</td>
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<td>Alachua County</td>
<td>2.50</td>
<td>2,250</td>
<td>0.00111</td>
<td>Assessment</td>
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<tr>
<td>Polk County</td>
<td>1.50</td>
<td>1,000</td>
<td>0.00150</td>
<td>Assessment</td>
</tr>
<tr>
<td>Marion County</td>
<td>1.25</td>
<td>2,275</td>
<td>0.00055</td>
<td>Assessment</td>
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Desired Level of Service

How do we choose a Level of Service?

• While ERU method determines individual costs, Level of Service drives overall program cost

• Is current LOS adequate?

• What program maintenance or betterments are wanted?
Enhanced Level of Service Goals

• Public safety improvements
• Reductions in flooding and erosion
• Transportation and mobility enhancements
• Pollution reductions
• Improvements to private and public property protection
• Reduced disruption to life and business activities
What does a higher LOS look like?

LEVEL OF SERVICE

Reactive

Existing LOS
Inventory & Mapping
Condition Assessment
Proactive Maintenance

Proactive

Betterment Investments
Inventory & Mapping

Confirming the assets we operate and maintain is an important first step to improve LOS.

- Track assets
- Maintain historical records
- Sustain accurate inventory
Condition Assessment

Understanding infrastructure condition will help us prioritize our maintenance efforts.

• Do we know the condition of pipes, culverts and inlets?

• Do we know the condition of canals and ditches?

• Are our assets operating as expected?
Hydrologic/Hydraulic Modeling

Modeling allows us to make smart decisions on how to enhance our Level of Service.

• Typically part of basin study
• Understand how existing system is operating
• Identify problem areas within system through simulation of different scenarios
  • Storm events, time horizons, and sea level rise conditions
• Evaluate the benefits of specific solutions
• Prioritize stormwater system betterments
## Unified Sea Level Rise Projection

### Southeast Florida Regional Climate Change Compact, 2015

<table>
<thead>
<tr>
<th>YEAR</th>
<th>IPCC AR5 Median (Inches)</th>
<th>USACE High (Inches)</th>
<th>NOAA High (Inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2030</td>
<td>6</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>2060</td>
<td>14</td>
<td>26</td>
<td>34</td>
</tr>
<tr>
<td>2100</td>
<td>31</td>
<td>61</td>
<td>81</td>
</tr>
</tbody>
</table>

![Graph showing projected sea level rise](image-url)
Risk Assessment
Provides Mechanism to Focus Resources and Prioritize/Justify Asset Maintenance and Renewal Decisions

<table>
<thead>
<tr>
<th>Consequence of Failure</th>
<th>Likelihood of Failure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Severe</td>
<td>High Consequence</td>
</tr>
<tr>
<td>Moderate</td>
<td>Low Consequence</td>
</tr>
<tr>
<td>Low</td>
<td></td>
</tr>
<tr>
<td>Negligible</td>
<td></td>
</tr>
</tbody>
</table>

- High Consequence, Low Likelihood
- Low Consequence, High Likelihood
- Low Consequence, Low Likelihood
- High Consequence, High Likelihood
Why Proactive Maintenance?

- Boost an asset’s condition beyond its current state.
- Increase an asset’s useful function or service capacity.
- Perform a required extension of “useful life”.
- Enhance the quality of services.
- Reduce future operating costs.
- Upgrade essential parts of the asset.
Water Quality LOS Elements

• MS4 Compliance / Water Quality Service
  – Prevent stormwater pollutant discharges
  – Enforce local stormwater regulations
  – Support water quality monitoring
  – Support public education

• Maintain Conservation Lands protected from development and providing ecological benefit

• Prevent environmental crises
PUBLIC ENGAGEMENT / EDUCATION
PLAN OF ACTION
Addressing Public Perception
Gaining support for critical investments
Today’s public deserves…

» transparency

» brevity

» and a voice
Public Communications

• Seek Input
  – Identify stakeholders and key thought leaders (businesses, residents, community organizations)
  – Determine opportunities for public input
  – Leverage existing relationships

• Be Responsive
  – Respond to concerns thoroughly, correctively and immediately
Benefits of Stakeholder Engagement

• Enlightenment / education
• Sustain credibility
• Add value
• Continue transparency
• Build future support
• Understand stakeholder views
• Confirm community priorities
Stakeholder Engagement Strategies

• One on one meetings with key leaders
• Focus groups / charrette sessions
• Values survey
• Advisory panels
• Social media
• Editorial board meetings
• NPR radio interviews
• Interactive virtual / web meetings
Community Engagement – Broad Outreach

As program alternatives are identified...

High touch

High tech
Online Content Accessible 24/7

Traditional Public Meeting Times
Recap of Stormwater 401

- Review stormwater billing and collection methodologies
- Discuss land development code stormwater regulations
- Discuss stormwater utility rates and fees for other Florida communities
- Discuss key components of proposed watershed studies to identify needed Level of Service
- Introduce public engagement and education strategies
Future Major Policy Decisions

• Level of Service – maintenance activities
• Credits, deductions, special considerations – HOA, large commercial, etc.
• Method of billing
  – non ad valorem assessment
  – utility billing
• Mix of funding sources
• Rate differentials related to development regulations / newer vs older developments
• Base ERU rate
Your Questions