Multiple Benefits of Stormwater Capture and Reuse Projects
Wednesday, June 9, 2021
2:00 - 4:00pm Eastern
How to Participate Today

• Audio Modes
  • Listen using Mic & Speakers
  • Or, select “Use Telephone” and dial the conference (please remember long distance phone charges apply).

• Submit your questions using the Questions pane.

• A recording will be available for replay shortly after this webcast.
Multiple Benefits of Stormwater Capture and Reuse Projects

A webcast to advance the national conversation about stormwater capture and use under Water Reuse Action Plan Action 3.3.

Co-sponsors:
- Water Environment Federation
- U.S. Environmental Protection Agency
- National Municipal Stormwater Alliance
- Re-Inventing the Nation’s Urban Water Infrastructure
- WateReuse Association
- Johnson Foundation at Wingspread
Advancing Stormwater Capture and Use

Water Reuse Action Plan builds capacity to reuse wastewater and capture/use stormwater

Broad partnerships to integrate water management, spur recycling

WRAP Action 3.3: Stormwater Capture and Use

Four webcasts: Improve understanding of stormwater capture opportunities/challenges

National convening at Wingspread Fall 2021
Time Is Right for Multiple Benefit Projects

• Well-planned projects meet many needs
• More funding for stormwater management
  - Overflow and stormwater grant program
  - Infrastructure bill (?)
• Increasing focus on capture for use- don’t waste the water!
• More funders are looking to fund multiple benefit projects
• Multiple benefits also build public/decision-maker support
• Today we’ll hear about several great examples!
What We Heard From You!

Thank you for responding to our questions!

Note: not a scientific sample!
Where are you from? (%)
Who Are You? (%)
Key Barriers to Stormwater Capture Projects (%)

- Funding (planning, etc.): 24%
  - 8% Funding
  - 10% Planning
- Public Support: 20%
- Regulatory: 20%
- Org. Issues: 8%
- Staff Limitations: 7%
- Technology: 3%
How do you fund projects now? (%)
Thank You!

David Smith
US Environmental Protection Agency
smith.davidw@epa.gov
415-972-3464
Stormwater reuse at the Promega Component Manufacturing Center

Fitchburg, Wisconsin

Rob Montgomery, EOR
Cottage Grove, Wisconsin

Incorporating data from Mike Aumann
New industrial facility on 18-acre site in Fitchburg, Wisconsin.

Located in a closed depression watershed subject to flooding.

Site-specific stormwater performance standards include no increase in runoff volume.

Runoff volume control achieved using reuse in building.

Reuse water used for cooling tower make-up, toilet flushing and landscape irrigation.
Stormwater Runoff Performance Criteria

The CMC project site is in a closed depression that became flooded by 2017 due to urban development.

State of Wisconsin stormwater performance criteria specify TSS reduction, volume reduction

City of Fitchburg specifies peak discharge control, and additional volume reduction performance in this watershed.

Resulting site-specific stormwater performance standards:

1. Sediment control for water quality: 80% reduction compared to no controls
2. Peak discharge control through 100-year event
3. Runoff volume reduction: retain 100% of increased runoff volume for specified runoff analysis year (1981)
1. Peak discharge control: detention basins.

2. Water quality control: infiltration and wet detention basins.

3. Runoff volume reduction:
   - Infiltration facilities alone cannot meet performance criteria, would not completely address the closed basin flooding problem, and would require a “practicability” argument for a reduced performance standard.
   - Promega, based on previous experience and site-specific standards, chose to meet stormwater volume reduction goal using capture and reuse within the CMC building.
System layout:

- 15-acre drainage area
- Runoff storage in pond with strong aesthetic design
- Reuse water pumped to building for treatment
Stormwater volume reduction from reuse pumping

Mass-balance daily water model of watershed runoff and pond response with reuse pumping, using regulatory analysis year 1981

Additional reuse water available under 12-month operation

Figure 2-0: Wet Pond Stage Over the Regulatory Rainfall Series

- Pond Max Elev
- Pond Min Elev
- Large storm produces pond overflow
- Drawdown from reuse pumping
- Regulatory runoff reduction analysis period is March – November 1981
Despite limited storage, the pond is efficient as a water reuse supply.
For 1981 regulatory analysis year:

Site Rainfall: 42.7 ac-ft
Pre-development Runoff: 3.2 ac-ft
Post-development Runoff no controls: 14.5 ac-ft

Runoff reduction from Infiltration BMPs: 3.7 ac-ft
Runoff reduction from reuse: 8.9 ac-ft

Total post-development runoff: 1.9 ac-ft

Stormwater reuse is key to meeting runoff volume reduction standard
Stormwater reuse strategy

Potable water to be from City of Fitchburg

Reuse supply:
~ 2.9 Million gallons / ~9 months
~ 10,000 gpd

Reuse applications:

- Toilets (low population density building)
- Cooling tower evaporation and blowdown (~124,000 GPD maximum)
- Landscape watering (highly variable use)

Each reuse has treatment standards, all include TSS and BOD5 limitation

<table>
<thead>
<tr>
<th>Wisconsin Admin. Code SPS 382.6 Table 382.70–1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plumbing Treatment Standards</td>
</tr>
<tr>
<td>Cooling water</td>
</tr>
<tr>
<td>pH 6 - 9</td>
</tr>
<tr>
<td>&lt; 50 mg/L BOD5</td>
</tr>
<tr>
<td>&lt; 30 mg/L TSS</td>
</tr>
<tr>
<td>Free chlorine 1.0 - 10.0 mg/L</td>
</tr>
<tr>
<td>Surface or spray irrigation using stormwater</td>
</tr>
<tr>
<td>and clearwater</td>
</tr>
<tr>
<td>&lt;10 mg/L BOD5</td>
</tr>
<tr>
<td>&lt; 5 mg/L TSS</td>
</tr>
<tr>
<td>Toilet and urinal flushing</td>
</tr>
<tr>
<td>pH 6 - 9</td>
</tr>
<tr>
<td>&lt;200 mg/L BOD5</td>
</tr>
<tr>
<td>≤ 5 mg/L TSS</td>
</tr>
<tr>
<td>Free chlorine .1 mg/ L - 4.0</td>
</tr>
<tr>
<td>mg/L</td>
</tr>
</tbody>
</table>
Reuse design

Reuse treatment, storage and controls to meet WI code for toilets, cooling tower, and landscape supply

City of Fitchburg potable water backup.
Pond Intake

Submerged self-cleaning intake

Duplex pump set for supply to building
TSS (& BOD) control: 50 and 25 µm filters

UV disinfection
Disinfection: chlorination

Storage and distribution to cooling tower, flushing fixtures, irrigation
Cooling tower makeup and blowdown is the main reuse
Avoided cost: Softening is needed for City water used for cooling towers
Observations

Stormwater reuse driven by requirement to control off-site stormwater runoff volume

Reuse water was most valuable in the cooling towers

Reuse water would be even more valuable with a larger facility or at a location where municipal water supply rates were higher
Multiple Benefits of Stormwater Capture and Reuse Projects

An example:

St. Columba Nursery School, Washington, DC

J. Chris Earley, Principal
June 9th 2021
Greening Urban, LLC

• Public / Private Partnership (grant funding)

• School applied to DOEE. Received teacher training regarding the RiverSmart program and stormwater management

• Project included design, permitting, construction, and maintenance support

DC Department of Energy and Environment’s (DDOE) RiverSmart Schools program funded the design, permitting, and construction of the stormwater management retrofit resulting in the transformation of the St. Columba’s Nursery School’s play area to address erosion issues and provide educational opportunities for students
Greening Urban, LLC

- Roof runoff to cistern
- Captured runoff to stream (infiltration trench)
- Discharged to repurposed existing BMP
- Water pumped through UV for reuse as flowing stream
ST. COLUMBA'S NURSERY SCHOOL
BIOFILTER CONCEPT

EXIST. DRAIN INLET TO BE CONVERTED TO OVERFLOW INLET

DRY STREAM BED @ TRENCH DRAIN OUTFALL W/ MORTARED STONE ALONG FULL LENGTH, SOME PAINTED

LIMIT OF BIOFILTER / INfiltration BED AT ELEV 350

NEW WOOD RET. WALL TO PROTECT EX. RIVER BIRCH

PRE-TREATMENT CELL W/ PLANTINGS

MULCH OR CRUSHED STONE PATH W/ WOODEN OR RAIL TIE STEPS (TYP)

FOOTBRIDGE

VARIOUS TYPES OF TIRES SET INTO GROUND AND FILLED W/ COLORED PEBBLES OR PLANTS

FLAGSTONE PATH

CONCEPTUAL PLANT LIST:
APPROX. 5 SHADE TREES
APPROX. 15 LARGE SHRUBS
APPROX. 500 GROUND COVER/ GRASSES/ PERENNIALS

APPROX. 790 SF OF INFILTRATION AREA AT 3’ TOTAL DEPTH USING EXISTING STORM INLET CONVERTED TO OVERFLOW INLET.

4-5 RECYCLED TIRES OF VARYING SIZES, SET INTO SURFACE OF INFILTRATION AREA AND FILLED W/ COLORED GRAVEL OR PLANTS

APPROX. 65 SF PRETREATMENT CELL W/ 6’ PONDING & 12’ PLANTING MEDIA

APPROX. 62 LF DRY STREAMBED W/ MORTARED STONE

APPROX. 33 LF TIMBER RETAINING WALL, 1-3’ HT.

RELOCATED FOOTBRIDGE

APPROX. 200 LF MULCH OR STONE DUST PATHS

APPROX. 27 WOODEN STEPS

APPROX. 55 LF FLAGSTONE PATH
Greening Urban, LLC

- Esthetics important as driver for owner
- Education components included: rainwater harvesting, bioretention / rain gardens (cycle of life), and plantings
Greening Urban, LLC

- Existing site erosion issues resulting from stormwater runoff
Greening Urban, LLC

500 Gallon Poly-Mart Rain Harvesting Tank
Includes 3" overflow and 2" outlet with plug.
Standard with 10" strainer.
Product Code: PM500RH
Storage tanks are seamless with one piece construction
Available in Dark Blue, Light Blue, Light Brown, Dark Brown, Red Brick, Light Green, Dark Green, Dark Grey, Light Grey, Natural, and Black
3/4" Bulkhead fitting for easy spigot installation
2" Bottom bulkhead with plug
12" Stainless steel strainer basket
3" Stainless steel screened overflow assembly
(4) 9" X 9" Top dome flats
(4) 9" X 9" Bottom flats
Hard-plumbing of plastic tank is not recommended due to the expansive/contractive characteristics of polyethylene. Use elbows to allow flex.
A concrete pad is recommended for installation. However, tanks may be placed on any flat level "compacted" surface
Designed for containment of water (8.5 lbs./gal.)
Dimensions: 48" Dia. X 71" High
Weight: 95 lbs. (approx.)

Rain Harvesting Pty First Flush Diverter for Post or Wall Mounting
The Rain Harvesting first flush diverter treats large volumes of water, so in many cases one unit is sufficient. The diverters can be mounted on a wall, post or stand, and can be adapted to suit a wide range of applications. They receive single or multiple pipes coming from the roof.
Product Code: WDPW99

Little Giant Simply Falls Pump Vault
Item Number: 566410
Little Giant lets you add a waterfall to your garden without pond installation using the new Simply Falls Waterfall Pump Vault. This unit holds your submersible pump out of debris, keeping the pump submerged. The openings throughout allow water to enter and keep the pump submerged. This vault accommodates horizontal or vertical pumps. A great way to add a waterfall to your garden without creating a pond.
Outlet: 3" Construction: polyethylene

ClearFlo 3200, With 2000 GPH Pump & Filter Kit With Built In UV And Backwash System
Item #: PT-266
ClearFlo 3200 is suitable for ponds up to 12000 L (3200 U.S. gal).
ClearFlo 3200 includes:
- Laguna Max-Flo 2000/7600 Solids Handling Waterfall & Filter Pump (P6244)
- Laguna Pressure-Flo 3200 Pressure-Flo Pressurized Pond Filler System (PT5006)
Greening Urban, LLC

- “Design Build” cistern change
- Semi-clear cistern to show rainwater capture from roof
Greening Urban, LLC

Project Stakeholder Drivers

• DOEE promoting stormwater awareness and expanding voluntary stormwater management projects district wide

• School needing to fix existing runoff caused site issues

• School promoting stormwater management related educational programs that fit with other curricula

• School reduced DC stormwater fees
Greening Urban, LLC

UDC Bertie Bachas Campus

- Site ground level rainwater capture
- Pre-treated through infiltration trench and bioretention and discharged to below grade vault
- Pumped to cistern for use for irrigation for native plant hoop house
- Driven by sustainable educational goals by the University of District of Columbia
## Stormwater Management Plan Compliance Data

<table>
<thead>
<tr>
<th>Site Address</th>
<th>Site Name</th>
<th>Plan Number</th>
<th>BMP</th>
<th>BMP Type</th>
<th>Total Area (sq ft)</th>
<th>Vehicle Access Area (sq ft)</th>
<th>Infiltration (sq ft)</th>
<th>Impervious (sq ft)</th>
<th>BMP (sq ft)</th>
<th>Total (sq ft)</th>
<th>Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>5172 South Avenue Rd</td>
<td>Greening Urban, LLC</td>
<td>BMP</td>
<td>BMP</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

### Requirements Summary
- BMPs
- BMPs
- Stormwater treatment achieved

### Site BMP Compliance Data

**Site BMP Compliance Data**

<table>
<thead>
<tr>
<th>BMP ID</th>
<th>BMP Type</th>
<th>BMP Impervious (sq ft)</th>
<th>BMP Total Area (sq ft)</th>
<th>BMP Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMP 1</td>
<td>BMP 1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

### Site Drainage Area Compliance Data

<table>
<thead>
<tr>
<th>Site Drainage Area ID</th>
<th>Public Right of Way</th>
<th>Total (sq ft)</th>
<th>BMP (sq ft)</th>
<th>Infiltration (sq ft)</th>
<th>Impervious (sq ft)</th>
<th>BMP (sq ft)</th>
<th>Total (sq ft)</th>
<th>Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>15,500</td>
<td>6,370</td>
<td>17,875</td>
<td>1,575</td>
<td>1,527</td>
<td>740</td>
<td>17,875</td>
<td>11,422</td>
</tr>
</tbody>
</table>

**Site BMP Compliance Data**

<table>
<thead>
<tr>
<th>BMP ID</th>
<th>BMP Type</th>
<th>BMP Impervious (sq ft)</th>
<th>BMP Total Area (sq ft)</th>
<th>BMP Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMP 1</td>
<td>BMP 1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

### Site BMP Compliance Data

**Site BMP Compliance Data**

<table>
<thead>
<tr>
<th>BMP ID</th>
<th>BMP Type</th>
<th>BMP Impervious (sq ft)</th>
<th>BMP Total Area (sq ft)</th>
<th>BMP Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMP 1</td>
<td>BMP 1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

No records were retrieved.
Greening Urban, LLC
UDC Bertie Bachas Campus

DDOE database demand input and volume calculations

- Treatment train part of owner SWM maintained agreement. Previously heath department involved, and rainwater harvesting was dissuaded / and sometimes needed a special permit.

Storage Volume Summary: Results for a P" Storm, where P" = 1.7"

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>226</td>
<td>7.1</td>
<td>274</td>
<td>37</td>
</tr>
<tr>
<td>1,000</td>
<td>470</td>
<td>46.2</td>
<td>529</td>
<td>71</td>
</tr>
<tr>
<td>1,500</td>
<td>710</td>
<td>201</td>
<td>790</td>
<td>116</td>
</tr>
<tr>
<td>2,000</td>
<td>944</td>
<td>0</td>
<td>1,256</td>
<td>141</td>
</tr>
<tr>
<td>2,500</td>
<td>1,165</td>
<td>0</td>
<td>1,335</td>
<td>178</td>
</tr>
<tr>
<td>3,000</td>
<td>1,374</td>
<td>0</td>
<td>1,626</td>
<td>217</td>
</tr>
<tr>
<td>3,500</td>
<td>1,576</td>
<td>0</td>
<td>1,924</td>
<td>257</td>
</tr>
<tr>
<td>4,000</td>
<td>2,143</td>
<td>0</td>
<td>2,655</td>
<td>382</td>
</tr>
<tr>
<td>5,000</td>
<td>2,956</td>
<td>0</td>
<td>3,504</td>
<td>522</td>
</tr>
<tr>
<td>6,000</td>
<td>3,657</td>
<td>0</td>
<td>3,903</td>
<td>729</td>
</tr>
</tbody>
</table>

Note: Cistern Volume does not include detention for larger storm events. Detention volume that will be drawn down after each storm event should be modeled separately.
It’s all Connected…

• Building
• Site
• Neighborhood
• Community
• Planet

greeningurban.com

GREENING URBAN LLC
1701 Rhode Island Ave NW
Washington DC, 20036
Orange Memorial Park
Storm Water Capture Project

Matthew Fabry, P.E.

Water Environment Federation: Multiple Benefits of Stormwater Capture and Use

June 9, 2021 Webinar
PROJECT BACKGROUND

• San Mateo County is in the SF Bay Area, just south of San Francisco

• 21 municipal permittees under a Phase I MS4 permit

• Trash reduction and TMDLs for mercury and PCBs in SF Bay key drivers

• C/CAG supports 21 agencies in meeting permit requirements
PROJECT BACKGROUND

- Original project concept is from San Mateo County Stormwater Resource Plan
- Project in Colma Creek watershed
- Concept attracted $15.5M funding from Caltrans to help address its statewide TMDL obligations
- Construction began in March 2021
PROJECT GOALS

- **DIVERT** flows from Colma Creek for treatment, beneficial reuse, and local flood reduction
- **CLEAN** contaminants from creek using green infrastructure (settling, infiltration, reuse)
  - Mercury
  - PCB’s
  - Trash
- **REUSE** treated water for irrigation, water trucks, and groundwater recharge
- **INTEGRATE** with Park Master Plan

6,500+ acres across 7 jurisdictions
Colma Creek Flood Control Channel

Upstream View at 1st Pedestrian Bridge

Downstream View at 1st Pedestrian Bridge
Project Configuration

1. Divert
2. Clean
3. Store
4. Reuse
5. Recharge
6. Return
Project Layout

Project Elements

- Instream Diversion
- Grit/Trash Chamber
- Diversion Pipe
- Flow Splitter
- Cistern & Infiltration Gallery
- Water Quality Treatment Shed
Project Layout

Project Elements

- Instream Diversion
- Grit/Trash Chamber
- Diversion Pipe
- Flow Splitter
- Cistern & Infiltration Gallery
- Water Quality Treatment Shed
Project Layout

Project Elements

- Instream Diversion
- **Grit/Trash Chamber**
- Diversion Pipe
- Flow Splitter
- Cistern & Infiltration Gallery
- Water Quality Treatment Shed
Project Layout

Project Elements

- Instream Diversion
- Grit/Trash Chamber
- **Diversion Pipe**
- Flow Splitter
- Cistern & Infiltration Gallery
- Water Quality Treatment Shed
Project Layout

Project Elements

- Instream Diversion
- Grit/Trash Chamber
- Diversion Pipe
- Flow Splitter
- Cistern & Infiltration Gallery
- Water Quality Treatment Shed
Project Elements

- Instream Diversion
- Grit/Trash Chamber
- Diversion Pipe
- Flow Splitter
- Cistern & Infiltration Gallery
- Water Quality Treatment Shed
Project Layout

Project Elements
- Instream Diversion
- Grit/Trash Chamber
- Diversion Pipe
- Flow Splitter
- Cistern & Infiltration Gallery
- Water Quality Treatment Shed
NOTES:
1. PNEUMATIC ACTUATED BUTTERFLY VALVE IS NORMALLY OPEN BUT IS SPRING SHUT UNDER ANY OF THE FOLLOWING CONDITIONS:
   A. WATER LEVEL IN OISTERN IS AT VERY Top OF TANK.
   B. HYDROCARBON SENSOR READS HIGH LEVEL.
   C. TURBIDITY SENSOR READS HIGH LEVEL.
   D. ELECTRICAL SERVICE IS DOWN DUE TO POWER OUTAGE.
   E. MANUAL OVERRIDE WHEEL SHUTS IT.

NON-POTABLE WATER SCHEMATIC DIAGRAM
Estimated Benefits

- Water quality treatment of 969 acres of impervious area
- 640 acre-feet of water diverted and cleaned annually
- 45 acre-feet of potable water offset per year; $140,000 annually in water savings
- 240 acre-feet of groundwater recharge annually
- Annually removes:
  - 100 tons of sediment
  - 10 grams of PCBs
  - 30 grams of mercury

Diagram:

- Total Annual Runoff
  - 16% Diverted
  - 84% Bypass
  - 9% Treated
  - 6% Infiltrated
  - 1% Irrigation
- 93% Flows Reach the Bay
## Operations & Maintenance

<table>
<thead>
<tr>
<th>Element</th>
<th>Intensity</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instream Diversion</td>
<td>Low</td>
<td>After large storms</td>
</tr>
<tr>
<td>Grit/Trash Chamber</td>
<td>High</td>
<td>1-2 per year</td>
</tr>
<tr>
<td>Flow Splitter</td>
<td>Low</td>
<td>After large storms</td>
</tr>
<tr>
<td>Cistern</td>
<td>High</td>
<td>1 per year</td>
</tr>
<tr>
<td>Infiltration Gallery</td>
<td>High</td>
<td>1 per decade</td>
</tr>
<tr>
<td>Water Quality Treatment Building</td>
<td>Medium</td>
<td>Daily</td>
</tr>
</tbody>
</table>
Schedule - Design, Bid, and Construction

**Storm Water Capture Project**
- Completed design, bid SW capture
- Start Construction SW capture
- Complete construction SW capture

**Sportsfield Renovation Project**
- Planning ballfield replacement
- Design ballfield replacement
- Start Construction ballfield replacement
Construction Photos
Urban Stormwater Capture & Reuse: Lake Lawne Regional Stormwater Facility

Mitchell Katz, Ph.D.
Water Sciences Section
Natural Resource Management

Orange County Government, Florida
Environmental Protection Division
Lake Lawne Regional Stormwater Facility (RSF)

- BMP Motivators & Selection
- Project Design and Rollout
- Project Benefits
- Look Backs
Lake Lawne Regional Stormwater Facility (RSF)

- BMP Motivators & Selection
- Project Design and Rollout
- Project Benefits
- Look Backs
Managing Stormwater Runoff

- > 50 inches of Rainfall / Year
- Surficial Aquifer Near the Surface
- Flood Control
Regulatory & Non-Regulatory Drivers

- Clean Water Act
- TMDL Adopted for Lake Lawne
- Wekiva River BMAP Area
- Reduced Freshwater Use
- Livable Ecosystems
Lawne RSF Preconstruction
Lake Lawne Regional Stormwater Facility (RSF)

• BMP Motivators & Selection

• Project Design and Rollout

• Project Benefits

• Look Backs
Some Project Design Requirements

• Treat nutrient pollutants in urban stormwater runoff
• Enhance and complement current park amenities
• Ease of performance monitoring
• Reduced reliance on freshwater for irrigation
• Per-pound removal competitive for grant resources
Project Support Network

- Contractors
- OC Parks Department
- Granting Agencies
- EPD Senior Staff
- OC Design Engineering
- OC Highway Construction
Project Funding Sources

- FL Senate: $250,000 (13%)
- OC BCC: $439,246 (22%)
- FDEP: $649,607 (32%)
- SJRWMD: $671,633 (33%)
Lawne Regional Stormwater Facility (RSF)
Earth Day Rollout

Celebrate Earth Day
Orange County Mayor Jerry L. Demings and District 6 Commissioner Victoria P. Siplin invite you to attend the Lake Lawne Water Quality Improvement and Reuse Pond Ribbon-Cutting Ceremony
Saturday, April 20, 2019 at 11:30 a.m.
Barnett Park
4801 W. Colonial Drive, Orlando, FL 32808
Lake Lawne Regional Stormwater Facility (RSF)

• BMP Motivators & Selection

• Project Design and Rollout

• Project Benefits

• Look Backs
Benefits Provided by the RSF

- Stormwater Reuse
- Improved Water Quality
- Increased Biodiversity
- Urban Livability
- Local Green Jobs
RSF Benefits

IMPROVED SAFETY

CONTINUAL OUTREACH
Lake Lawne Regional Stormwater Facility (RSF)

• BMP Motivators & Selection

• Project Design and Rollout

• Project Benefits

• Look Backs
Some Takeaways

• Identify and communicate project drivers early
• Include project attributes that resonate with stakeholders
• Map micro-depressions if there is a history of nuisance flooding
• Are design storms predictive?
• How will reductions be recorded and reported?
• Is the design expandable?
• Plan resources for the operation and maintenance of BMP.
Many Thanks to ...

- OC Department of Parks & Recreation, OC Engineering Design
- Orange County Mayor & the Board of County Commissioners
- SJRWMD, FDEP, & USEPA

for more information visit:

orange.wateratlas.usf.edu
Stormwater Capture & Reuse Made Beautiful
Q and A