Outline

- Project Background
- Central Basin
- Rilling Road Storage 30% Design
SAWS by the Numbers

- 7th largest city in the nation
- 1.8 million customers
- 1,700 employees

Sustainable Affordable Water Services
Project Background

- SAWS entered into Consent Decree with USEPA
  - 2007-2013 Negotiations
  - 10-12 Year Duration
- 8 Major Components
  - Capacity, Management, Operation & Maintenance (CMOM)
  - Early Action Program
  - Lift Stations
  - Force Mains
  - Water Quality Program
  - Reporting
  - Condition Assessment and Remedial Measures
  - Capacity Assessment and Remedial Measures
Central Basin

- Drains Residential and Commercial
- Main Stem Sewer conveys flow along creeks and drainage ways
- Rilling Road Transfer Station
  - Inlet = 78”, 2 x 84”
  - Outlet = 90”
- Dos Rios Water Reclamation Center (WRC)
  - 250 MGD Capacity
  - Additional Peak Flow Storage
Central BPC Plan - Methodology

10% Design
- Constraint Area Alternative Analysis
- Design Assessment
- 30% Design Recommendation

30% Design
- Perform field verifications/evaluations
- Develop cost data
- Allows rapid progress in final Design & Construction
Central BPC Plan – Methodology

- Alternative Analysis - InfoWorks Model
  - 5-year, 6-hour assessment storm
  - 2014 Condition
  - Central Basin assumes no appreciable population growth for 2040 condition
- 30% I/I reduction
- Assumed early action projects were constructed and operational

Approximately 80 MGD Reduction in Peak Flow with 15 MG Rilling Rd Offline Storage Facility
Storage Alternatives Evaluated

- Evaluated 5 Alternatives (all upstream of Rilling Road Flow Transfer Station)
  
  A. Offline storage at two locations
  
  B. **Conveyance improvements & offline storage at Rilling Road location**
  
  C. Tunnel parallel to main stem
  
  D. Offline storage (Two locations) and offline storage at Rilling Road location
  
  E. Offline storage at two locations and Rilling Road with less storage volume and additional surcharging in main stem sewers

### Alternatives Analysis Wet Weather Peak Flow to Dos Rios WRF from Central Basin

<table>
<thead>
<tr>
<th>Alternative</th>
<th>A</th>
<th>B</th>
<th>C</th>
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<td>Wet Weather Peak Flow (mgd)</td>
<td>202</td>
<td>185</td>
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Chosen Alternative Reasoning

- Condition constraints reduced via main stem improvements
- Rilling Road is a key hydraulic location
  - Rilling Road Storage provides wet weather flexibility for operation in collection and treatment at Dos Rios WRF
- SAWS owns the property
- Avoids construction of parallel sewer to Dos Rios WRF
Rilling Road Site History
Rilling Road Site
Rilling Road Storage – 30% Design

- Storage Volume
- Type of Storage
- Filling and Draining
- Diversion method
- Return method
- Covering of basin/tank
- Site layout

Evaluated
Rilling Road Storage Size

- Determined optimal volume based on I/I removal sensitivity analysis
- 15 MG Volume MG, expandable to 30 MG

Flow Diversion Weir Level Set Not to Exceed DS Pipe Capacity
Type of Storage & Method for Filling and Draining

30% Design Analysis
- Earthen basin
  - Gravity fill, pumped drain
  - Pumped fill, gravity drain
  - Hybrid gravity/pumped fill, pumped drain
- Below grade tank, gravity fill, pumped drain
  - Pumped fill, gravity drain
  - Hybrid gravity/pumped fill, pumped drain
- Above grade tank
  - Pumped fill, gravity drain

Final Design
- Earthen basin
  - Gravity fill, pumped drain
- Below grade tank
  - Gravity fill, pumped drain
Reference Facilities

Conducted Site Visits July 2017
Earthen Basin
Below Grade Tank
Filling and Draining Rates

- Design Storm Hydrograph Duration = 6 hours = Filling Rate
- Draining rate was set at 12 hours to have storage available to SAWS for multiple wet weather storm events
  - Back-to-back Assessment Storm events
  - Return pump station will be designed to allow slower drain rate that will be controlled by Dos Rios WRF operators
Diversion Method

Diversion structure to be constructed on existing 90-inch sewer

Three, 10 ft weir gates for diversion rate & upstream sewer surcharging
Flow Return Method

- Remotely Operated Drain Gate
- Gravity Flow to Outlet Pump Station
  - Wet Well #1 = 30 MGD
  - Wet Well #2 = 60 MGD buildout
  - VFDs for pump/drain rate variability
- Pumps:
  - 4 – 15 MGD – 250 HP
  - 480V / 3 phase / 60 Hz
Covering of Basin/Tank

Earthen Basin is uncovered only
- Covering of basin cells would add cost due to foundation considerations

Tank option considers:
- Uncovered tank
- Uncovered tank that will be covered in the future
- Covered tank
- Covered tank, buried with at least 3 feet of soil
Site Layout – Earthen Basin Option

- 215-feet by 262-feet, per cell.
- 25-feet deep
Site Layout – Buried Tank Option

- 200-feet by 156-feet, per cell.
- 35-feet deep
Rilling Road Storage Summary

- **LOCATION, LOCATION, LOCATION**

- **Flexibility**
  - Convey wet weather flows well into the future wet weather flows

- **Expandability**
  - 15 MG to 30MG

- Prevents need to increase capacity of 90-inch sewer to Dos Rios WRC with a parallel sewer
SAWS Consent Decree Timeline

- **CMOM (Focus on O&M Programs)**
  - Capacity & Condition Assessment
  - Alternatives Analysis & 30% Design
  - Capacity and Condition Remedial Measures: Design & Construction
  - Phase I & II Early Action Program
  - CIP Project Implementation

- **Today**
  - Remedial Measures Plans January 2019
  - Condition/Capacity Assessment Reports April 2018

- **2023**
  - ROW projects

- **2025**
  - Post-Consent Decree Work
Wastewater Tsunami

Forest Hunt, EIT
Freese and Nichols, Inc.

2018 Fall Conference
Dalton, Georgia
November 6th