Warren, Rhode Island

Wastewater Treatment Facility
Facilities Plan Amendment Report

Public Hearing
September 10, 2014

COMMITMENT & INTEGRITY DRIVE RESULTS

Overview

Recommended Plan:

- Improvements for Regulatory Compliance
- Improvements for Reliability & Efficiency

Overview

- Background
  - Wastewater Treatment Facility (WWTF)
  - WWTF Discharge Permit
  - Consent Agreement
  - Permit Modification
- Facility Plan Evaluations and Recommendations
- Estimated Cost
- Funding
- Schedule
- Questions and Comments

Wastewater Treatment Facility (WWTF) Background

- Originally constructed in 1940
- Underwent major upgrade in 1981
- Mechanical and electrical equipment are beyond the design life

Discharge Permit Background

- WWTF discharges into the Warren River
- State regulates discharge - RIPDES Permit Program
- New permit issued September 30, 2010
- Included **nitrogen** and **flow** limits which could not be met
- Warren negotiated and entered into a Consent Agreement

Background on Consent Agreement

- Finalized in September 2011
- Negotiations Warren, United Water, Woodard & Curran and State (DEM)
- Lays out steps for compliance:
  - √ Phase 1 – Design Flow Report
  - √ Permit Modification (DEM)
  - ➢ **Phase 2 – Planning - Facility Plan**
  - Phase 3 – Engineering and Permitting
  - Phase 4 – Construction

Background on Permit Modification

- Issued by DEM on August 28, 2013
- Contains limits that are **less stringent** than the September 2010 Permit
- Flow and nitrogen limits are **seasonal versus monthly**
  - Provide a great deal of flexibility for compliance
  - Provide capital and operations cost savings

Phase 2 - Facility Plan

- Recommended Plan
  - Improvements for Nitrogen Removal (i.e. Regulatory Compliance)
  - Improvements for Reliability and Efficiency
- Approach
  - Alternatives cost analysis
  - Maximize existing infrastructure
  - Team with Operators

Nitrogen Removal Alternatives Analysis

- Considered the “no-build” option
- Started with spectrum of technologies
- Short-listed three for detailed cost comparison (capital and operations & maintenance)
  - BioMag System (proprietary)
  - Integrated Fixed-Film Activated Sludge (proprietary)
  - **Variable Operating Mode (non-proprietary)**
- Worked closely with operations staff
  - Solicited input
  - Conducted training workshop
  - Staff toured WWTF with similar technology

Recommended Nitrogen Removal Technology

- Variable Operating Mode
  - Maximum flexibility for responding to various condition
  - Lowest capital cost
  - Lowest O&M costs
  - Not a proprietary process

Improvements for Reliability and Efficiency –Why?

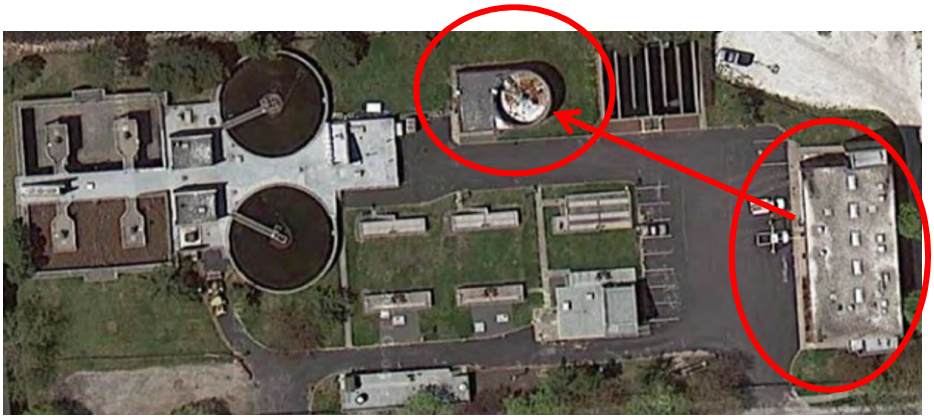
- Operator safety
- Equipment beyond design life
- Remove risk - high $ for failure
  - Emergency repairs
  - Regulatory violations or fines
  - Funding questionable
- Higher efficiency (power, chemical, sludge)

Improvements for Reliability and Efficiency

- Add influent screening
- Replace most mechanical process equipment, piping and valves
- Increase intermediate pump station capacity
- New sludge storage tank and processing facilities
- New electrical service, distribution and emergency generator
- Energy efficiency improvements (lighting & HVAC)
- Minor architectural and structural rehab

Improvements for Reliability

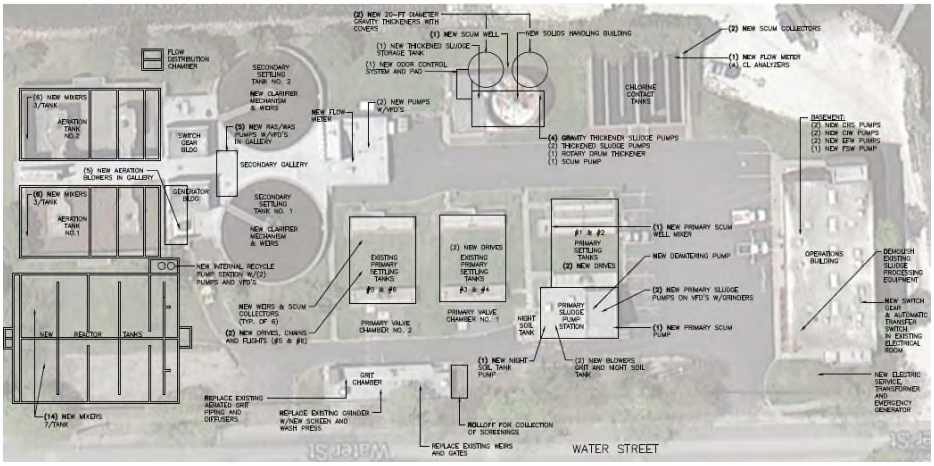
- Sludge Processing



Improvements for Reliability

- Sludge Processing
  - Currently located in basement of Operation Building.
  - Extremely corrosive and unsafe environment
  - Building is not up to code for this environment
  - Need to move sludge equipment outside of this building
  - Recommend installing a new sludge storage tank and processing facilities building.

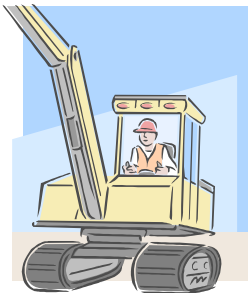
Recommended WWTF Upgrades



Capital Cost Estimate

- **Total Estimated Capital Cost** **$20.0 M**

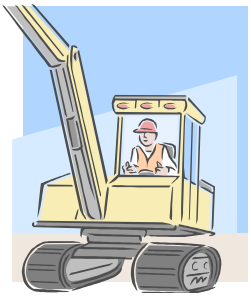
- Comparison with Other RI Communities:
  - Warren (3.43 MGD) $4.03 / gallon
  - Smithfield (1.4 MGD) $4.14/ gallon
  - Woonsocket (9 MGD) $3.92/ gallon
  - E. Providence (14.2 MGD) $3.66/ gallon



Capital Cost Estimate

- Total Estimated Capital Cost
  - **Warren, RI (3.43 MGD) $20.0 M**

- Comparison with CT Communities:
  - Simsbury, CT (2.85 MGD) $21.2 M
  - Westport, CT (2.85 MGD) $37.1M
  - Plainville, CT (3.8 MGD) $22.9 M
  - Glastonbury, CT (3.64 MGD) $23.7 M
  - South Windsor, CT (3.75 MGD) $36.0 M
  - Ansonia, CT (3.5 MGD) $41.7 M



How Much Will This Cost Individuals?

- $20,000,000 capital cost
- 2.6% SRF interest rate
- 30 year term
- $1,000,000/year debt service

- **Estimated Tax Rate Increase: $0.93 per thousand dollars per year**

- For Example, a house valued at $200,000 would see their taxes increase by $16 per month.

Funding

- The State Revolving Fund (SRF)
  - Co-managed by the R.I. Clean Water Finance Agency (RICWFA) & DEM
  - Provides below market rate loans for wastewater facilities
  - Every major treatment facility upgrade in RI to date has received funding through this program
- Energy Efficiency Grants

Schedule

- Draft Facility Plan submitted to DEM – May 2014
- DEM reviewed and submitted comments – July 2014
- Public Hearing – September 10, 2014 (Today!)
- Woodard & Curran to submit final Facility Plan – September 23, 2014
- Preliminary Design – January 2015
- Design and Permitting – July 2015 to December 2016
- Bidding and Construction - January 2017 to April 2018

Questions and Comments