



LONG HILL TOWNSHIP CAPACITY ASSURANCE REPORT UPDATE

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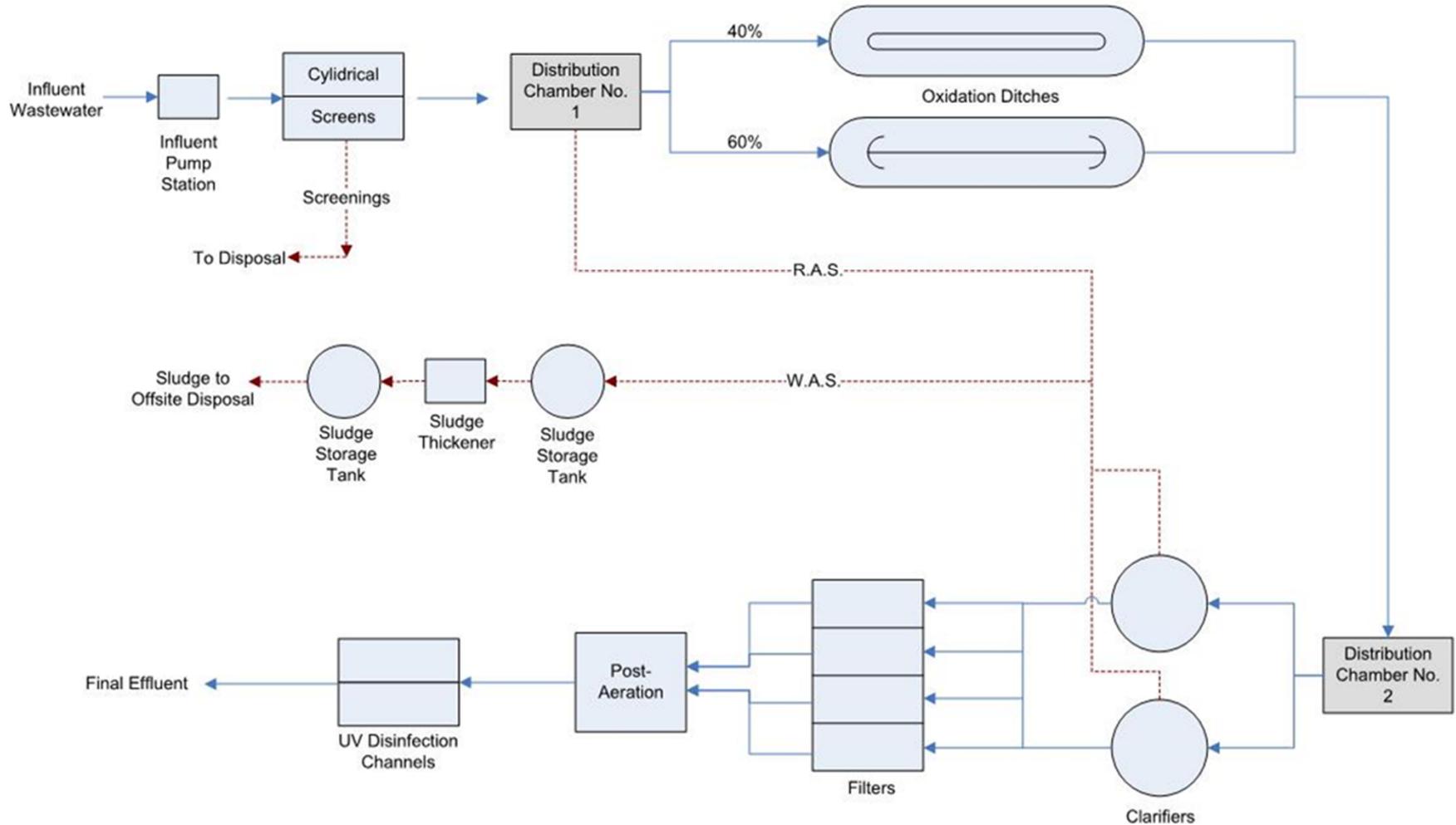
Presentation Outline

- Purpose of a Capacity Assurance Report (CAR)
- Existing Wastewater System
- Conclusions and Outcome of 2010 CAR
- Objective of CAR Update
- Update of Current and Future Flows
- Update of Improvements and Costs
 - Accommodate future flow
 - Comply with the future effluent limit for total Phosphorus (TP)

Purpose of a CAR

- Identify what improvements, if any, are required to accommodate anticipated growth within the sewer service area and to ensure reliable permit compliance
- In so doing, establish a facility plan for addressing future needs and water quality protection
- NJDEP requires that permittees prepare a CAR when flows approach permitted capacity

Wastewater Treatment Plant (WWTP)



WWTP

- Originally constructed in 1930s
- Permitted capacity: 0.9 mgd
- Actual flow has exceeded permitted capacity for many years
- Due to groundwater and rainwater entering the wastewater collection system, referred to as infiltration and inflow (I&I)



Wastewater Collection System

○ Components

- 286,290 feet of LHT-owned sanitary sewers
- 221,325 feet of privately owned service laterals
- 1,260 manholes
- 8 pumping stations
- 15,200 feet of force mains

○ Age

- Original portions date to 1930s and 1940s
- Significant additions in 1970's
- As systems age and progressively deteriorate, I&I increases

Conclusions of 2010 CAR

- Based on a cost comparison of various combinations of plant improvements and sewer system rehabilitation to reduce I&I it is not cost effective to remove I&I to provide sufficient capacity for future growth

System Upgrade Alternative	Budgetary Capital Cost
No I&I Reduction	\$4,140,000
25% I&I Reduction	\$8,270,000
50% I&I Reduction	\$16,760,000

- The No I&I reduction alternative was based on construction of a flow equalization tank to temporarily store peak flow during rain events
- Because I&I will increase over time as the system continues to age and deteriorate, a program of periodic sewer rehabilitation was also recommended
- Addition of a coagulant storage and feed system recommended to comply with future effluent limit for Total Phosphorus (TP)

Outcome of 2010 CAR

- Defer implementation of improvements to accommodate future flow
- Defer implementation of improvements to comply with the future TP limit until specifically required by NJDEP
- Proceed with a project to:
 - Implement two needed improvements at the WWTP
 - Proceed with the first phase of a sewer rehabilitation program
 - 13,150 feet or 4.6% of system
 - Project cost - \$2.6 million

Objectives of CAR Update

- Update the current wastewater characteristics
- Update the projected future wastewater characteristics
- Update the assessment of plant capacity
- Update the assessment of improvements and costs needed to accommodate future flow
- Update the assessment of costs to comply with the future effluent limit for TP

Current and Future Flow Update

Flow Condition	Current	Future
Annual Average	1.04 mgd	1.24 mgd
Maximum Monthly Average	1.8 mgd	2.27 mgd
Maximum Daily Average	3.47 mgd	4.14 mgd
Peak Hourly	4.4 mgd	5.2 mgd

- Future annual average flow consistent with the Interim Draft Morris County Wastewater Management Plan (WMP)
- No measureable decrease in I&I before and after rehabilitating 4.6% of the wastewater collection system
 - I&I reduction in the 4.6% of the system that was rehabilitated was offset by I&I creep in the 95.4% of the system not rehabilitated

Update of Capacity Improvements for Future Flow

- Two alternatives Identified

Alternative	Budgetary Capital Cost
Flow Equalization	\$4.4 million
Plant Expansion	\$2.8 million

- Key component of the Flow Equalization Alternative is a new 1.6 million gallon storage tank
- Key component of the Plant Expansion Alternative is replacement of the existing effluent filters with a newer filter technology that is more compact and efficient than the existing sand filters
- To prevent future increases in I&I that would exceed the capacity of the identified alternatives, a program of periodic sewer rehabilitation is also recommended to compensate for ongoing collection system deterioration as the system continues to age

Update of Improvements for Future TP limit

- Only one viable alternative – addition of a coagulant storage and feed system to enable the chemical precipitation of phosphorus
- Updated budgetary capital cost – 0.8 million
- Annual chemical cost – conservatively \$146,000/year
 - Site-specific testing required to confirm optimal coagulant, coagulant dose and corresponding cost
- New TP effluent limit will be incorporated into the renewed NJPDEP discharge permit which NJDEP is currently drafting

Summary of Needs and Budgetary Costs

Improvement	Budgetary Capital Cost
Plant Expansion for Future Flow	\$2.8 million
Compliance with new TP Limit	\$0.8 million
Total	\$3.6 million

- Total implementation time for design, permitting, bidding and construction – 30 months
- Low interest financing available through the New Jersey Environmental Infrastructure Financing Program
- Budgetary capital cost does not include periodic sewer rehabilitation

Questions