

Asset Management Project Update Wastewater Treatment Division

Presented to the Metropolitan Water Pollution Abatement Advisory Committee April 27, 2022



Overview

- Asset Management Decision Making AM Prioritization Criteria
- Asset Management Tier 1 Definition
- New Asset Management Tier 1 Projects in 2023-2032 Rate Plan
- New FTEs and Recent Project Launches



AM Decision Making – AM Prioritization Criteria

Asset Management Plants

Asset Criticality

Probability and consequence of failure

Organizational Impacts

• Impacts of failure to operations

Asset Condition

Condition assessment and maintenance records

Asset Obsolescence

 Availability of parts, vendor support, support hardware, software version/support, and cyber security

Asset Management Conveyance

Asset Criticality

 Probability and consequence of failure

Asset Condition

 Pipeline Assessment Certification Program Codes, Structural Defects

Asset Management Tier 1 Projects

- Asset Management Tier 1 investments:
 - Equipment or pipeline that is currently in poor condition, or unserviceable
 - Not meeting all intended functions
 - At risk of catastrophic failure due to condition
 - Spare parts unavailable
 - Increased maintenance needs
- The 2023 Proposed Sewer Rate plan includes
 - \$1.6 billion Tier 1 priority projects to be completed by 2033
 - \$438 million in newly identified or reprioritized
 Tier 1 projects





New AM Tier 1 Projects – Process Equipment & Piping



- West Point Grit Classifier Replacement
- West Point Boiler Replacement
- West Point Heat Loop Refurbishment
- West Point C1/C2 Pipeline Replacement
- West Point Oxygen Generation System Refurbishment
- Process equipment and piping replacements throughout WPTP to address critical assets in poor condition, some accelerated to be concurrent with RSP replacement to gain efficiencies
- Consequences of failure include process upsets and/or permit violations

New AM Tier 1 Projects – Process Equipment & Piping



- South Plant Biogas Scrubbing System Upgrade
 - Failure would result in flaring of biogas, potential PSCAA permit violations
- South Plant Return Activated
 Sludge (RAS) Pods 1-4 Piping and
 Component Replacement
 - Pipe has failed several times, physical and non-destructive testing showed excessive corrosion/erosion
 - Nitrogen reduction optimization will likely add stress to this system

New AM Tier 1 Projects – Instrumentation and Control

Ovation Evergreen Control Systems Lifecycle Management Program

 Replace critical hardware components and obsolete software in the Ovation control systems at the 3 Regional Treatment Plants

Vashon and Carnation TP Controls Replacement

- Replace the aging controls system at Vashon and Carnation Plants including equipment controllers, operator interface stations, and networking to the central hub
- Obsolete systems could lead to control failures, permit violations and cyberattack





New AM Tier 1 Projects – Electrical Equipment



- Uninterruptable Power Supply Lifecycle Management Program
 - Replace power supply assets once every ten years
- Standby Power SystemsReplacement
 - Replace generators and other backup power equipment
- Consequences of failure include overflows during power outages



New AM Tier 1 Projects – HVAC

- Brightwater Operations Center Roof & HVAC Replacement
 - Existing system is reaching its end of life and the building has several decommissioned systems that should be removed – the building was repurposed from the business that was originally on the plant site
 - Leaks in the roof cause damage to equipment and disrupt O&M work





New AM Tier 1 Projects – Conveyance Pipes



Force Main Inspection Access

- Inspection access is critical in order to plan and implement needed repairs and replacements
- Pipe failures lead to potential overflow and permit non-compliance
- Medina Pump Station Pump Room Header Replacement
 - Header in poor condition and there is currently no way to isolate pumps

New AM Tier 1 Projects – Wastewater Gates

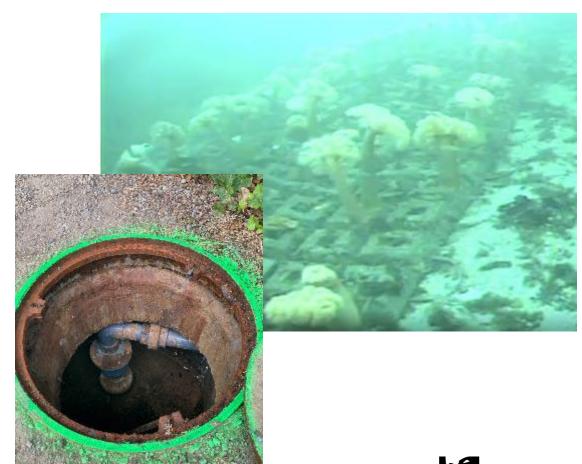


- South Plant Influent Gates & Actuators Replacement
- West Point Critical Gate Refurbishment
- Denny Way Regulator Station Outfall Gate Replacement
- Many gates are in corrosive environments
- Gates have deteriorated significantly
- Gates control plant flow, isolate facilities, and perform critical emergency plant bypasses - failure consequences range from manual workarounds to permit violations

New AM Tier 1 Projects – Outfalls

Vashon WWTP Outfall Upgrade

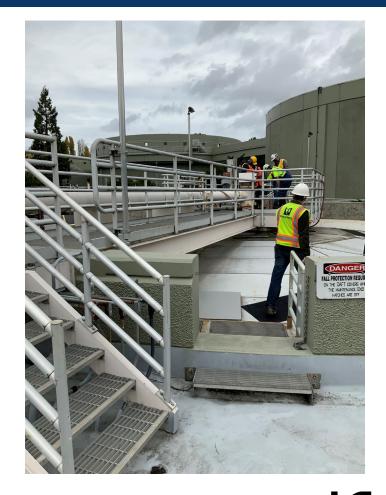
 Outfall is in an area prone to landslides and there is a potential for NPDES permit violation and impact to resident access resulting from a break in the pipe caused by landslides





New Asset Management FTE Positions

- As part of the 2022 Sewer Rate Proposal, WTD requested 13 additional FTEs phased over 2021-2023 to increase delivery capacity for additional Asset Management projects
- 2021: 6 new positions in PM, Engineering,
 Conveyance Inspection and Permitting/ROW
- New staff are fully integrated with existing capital delivery staff
- With the additional capacity, WTD was able to launch several large AM projects and start on backlog of smaller (<\$2.5M) AM projects over the past year
- Additional staff to be hired in 2022 include additional PM, Project Control, Engineering, and Construction Management





Recently Launched AM Projects

- Lakeland Hills PS Replacement
- M Street Trunk Rehabilitation
- South Plant Dewatering Chemical Odor Reduction Tower and Dewatering Carbon Scrubber Improvements
- South Plant Dissolved Air Floatation Thickener (DAFT)
 Tank Rehabilitation
- West Point Electrical Improvements
- West Point Intermediate and Effluent Pump Refurbishment
- West Point Effluent PS Isolation Gate Rehabilitation
- West Point Grit Classifier Replacement
- Several smaller asset replacement projects located throughout the wastewater system





Questions?

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