

Wastewater Treatment Division's Asset Management Program

Presented to Metropolitan Water Pollution Abatement Advisory Committee Rates and
Finance and Engineering and Planning Subcommittees

June 4, 2020



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Presentation Overview

1. Asset Management Principles
2. WTD's History of Asset Management
3. The Life of an Asset



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Asset Management Principles



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What Defines an Asset?

- WTD defines a “capital asset” as a:
 - Tangible or intangible possession
 - Acquired for the use of operations
 - Estimated useful life exceeding one year



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WTD's Assets

- WTD manages over 50,000 Assets valued at almost \$5 Billion total
- Common WTD Assets:
 - Fixed Equipment (pumps, motors, transformers, switchgear, instrumentation)
 - Infrastructure (pipelines, tanks)
 - Buildings and grounds (roofing)
 - Vehicles (Loop trucks)
 - Technology and Software (controls systems, databases)



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What is Asset Management?

- The procurement, maintenance, repair, refurbishment and replacement of sewer lines and equipment at our pump stations and treatment plants to:
 - Avoid sewer overflows
 - Meet regulatory requirements
 - Meet customer's expectations
 - Minimize the total costs of ownership



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Asset Management Program Key Components

- Asset inventory (registry or list)
- Scheduling of equipment maintenance, repair, and replacement to manage risks
- Condition assessments (visual, predictive)
- Financial planning



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WTD's History of Asset Management



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WTD's History of Asset Management

- Pre-2000's: Informal asset management
 - 1998: computerized maintenance management system (CMMS) acquired - application for managing equipment maintenance data
- 2002: WTD establishes a formal asset management program



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WTD's History of Asset Management

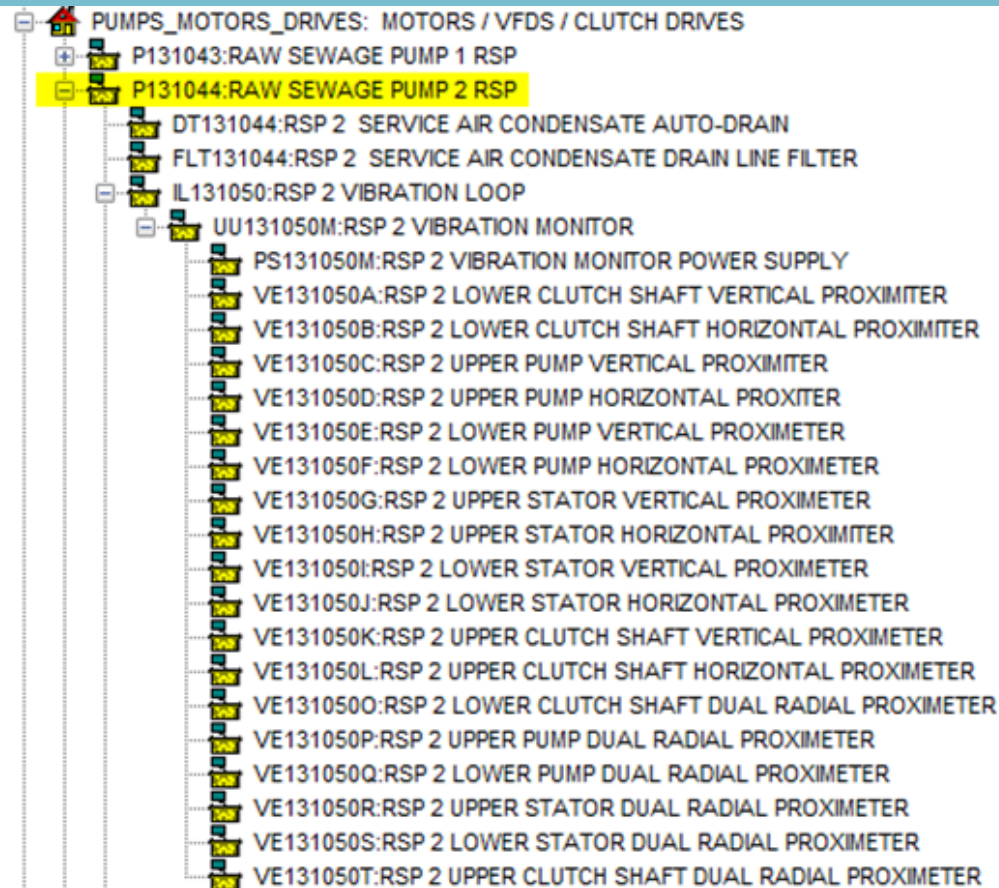
- 2005: RWSP amended to include policy guidance for the County to establish and implement an asset management program and develop asset replacement plans.
- 2005: First WTD Strategic Asset Management Plan (SAMP). Established:
 - Asset Management Steering Committee (AMSC) - headed by senior management
 - Formalized asset hierarchy - shows the relationship of assets to each other



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WTD's History of Asset Management



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WTD's History of Asset Management

- 2010: SAMP updated and established:
 - Maintenance Best Practices program - standardized preventative maintenance and predictive maintenance programs, asset performance and condition assessments
 - Standard definition of criticality - A measure of the likelihood and consequences of an asset's failure
 - Creation of key performance indicators (KPIs) for asset management program - Accomplishment rates, Preventative : Reactive maintenance



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WTD's History of Asset Management

- 2015: SAMP updated and established:
 - Integration of linear asset (pipelines) into the CMMS
 - Standardized bill of materials (BoM) - list of parts that are required to completely refurbish an asset.
 - Scheduled asset refurbishments - Proactively replacing or restoring equipment components or wearable parts at fixed intervals



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WTD's History of Asset Management

- 2017: Independent review of SAMP after West Point flood
- 2018: SAMP updated. Top priorities:
 - Complete full asset inventory (ongoing since 2005)
 - Develop risk assessment framework to link level of service goals to asset criticality
 - Improve tools to better manage asset data
 - Upgrade the Computerized Maintenance Management System (CMMS)



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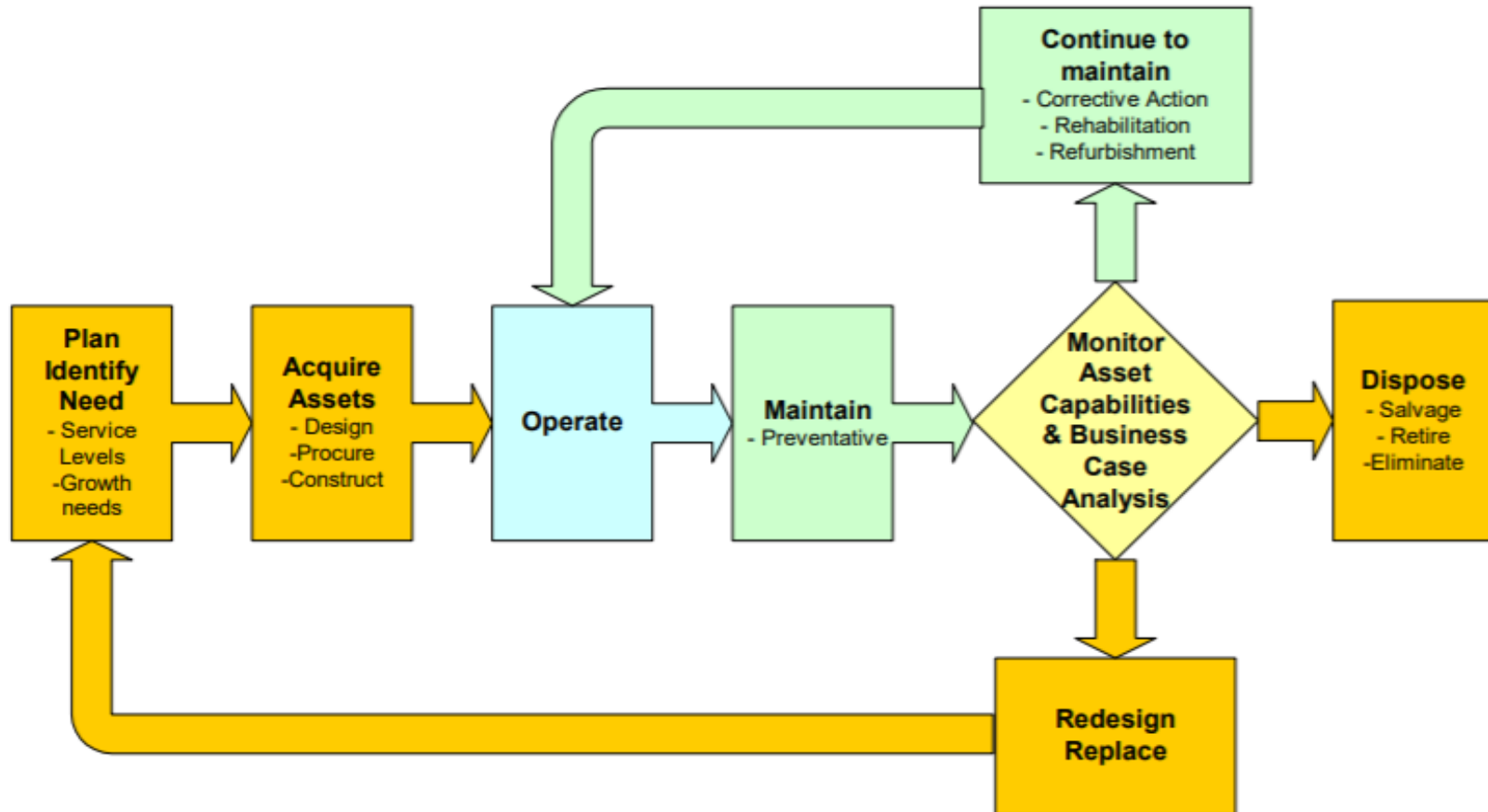
Asset Life-Cycle



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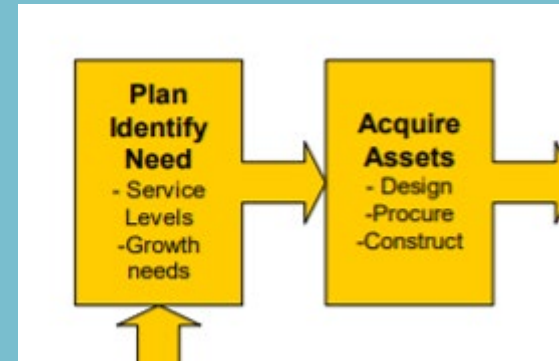
Asset Life-Cycle



-  Asset Management Function
-  Engineering Design & Construction Function
-  Maintenance Function
-  Operations Function

Asset Life-Cycle Example: West Point Intermediate Pumps

- Plan - Identify Need
 - Plan: Secondary treatment to West Point Treatment Plant
 - Need: Intermediate pump station to pump all flows from primary treatment to new secondary treatment
 - Three large pumps needed, each with a capacity of 150MGD
- Acquire Assets
 - Pumps 1-3 were acquired and installed in 1993
 - When assets are acquired, they are entered into the inventory (CMMS - post 1998)



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Asset Life-Cycle Example: West Point Intermediate Pumps

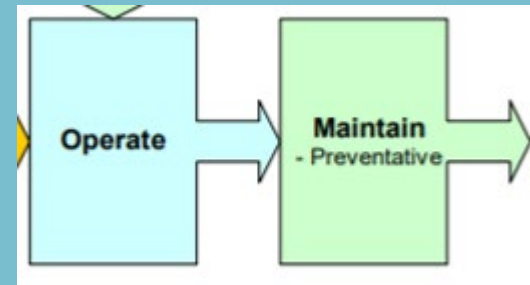


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Asset Life-Cycle Example: West Point Intermediate Pumps

- Operate
 - Pumps have been in good operation since installed
- Maintain
 - Preventative and unplanned (reactive) maintenance have been needed
 - Maintenance type and cost tracked in the CMMS

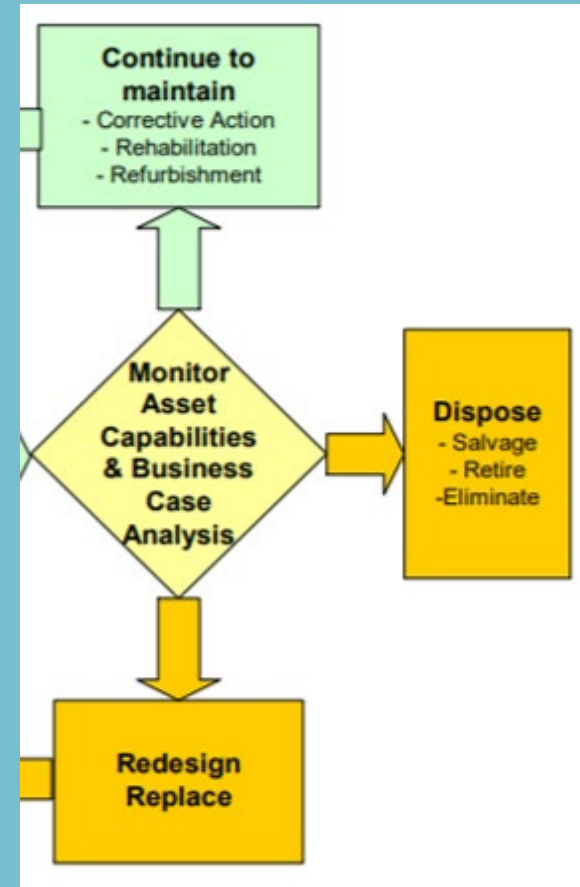


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Asset Life-Cycle Example: West Point Intermediate Pumps

- Monitor Asset Capabilities - Tracked in CMMS
 - Age
 - Condition (visual, predictive, performance)
 - Break-In Work (reactive work)
 - Vibration shutdowns
 - Seal water leaks
- Business Case Analysis
 - Data and staff indicate capital investment is needed to maintain level of service
 - Initiated a new project request
 - Project request was prioritized against other projects and will be in 6 Year CIP budget proposal
 - Alternatives analysis with life cycle cost analysis will be performed to evaluate refurbishment vs. replace
 - Preferred alternative will be implemented



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Asset Life-Cycle Example: West Point Intermediate Pumps

- Once new pump is installed, or the pump undergoes a major refurbishment, the cycle starts again
 - Asset data will be entered into the CMMS
 - Asset data will be tracked moving forward
 - WTD will continue to:
 - Maintain the asset
 - Monitor the asset data and use it to inform decisions



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Questions?

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