Asset Management & Capital Projects Overview

City of Tacoma | Environmental Services

Environmental Services Commission

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PRESENTATION OVERVIEW

• Asset Management Basics
• CIP Ranking Overview
• Stormwater Watershed Planning Tool
• Delivery of Capital Projects Overview
• Highlight Recently Complete and Upcoming Projects
• Long Range Funding Model
Inventory
  • What do we own?

Likelihood of Failure
  • What condition is it in?

Consequence of Failure
  • What are the impacts if it fails?

Risk = Likelihood of Failure x Consequence of Failure
  • How do we mitigate risks?

Funding
  • How do we pay for it?
Wastewater
- 700 miles pipe
- 50 Pump Stations
- 2 Wastewater Treatment Plants
  - 13,000+ Assets

Stormwater
- 480 miles pipe
- 32 Holding Basins/Ponds
- 3 Pump Stations
- 19,000 Catch Basins
- 400+ Treatment Devices

Solid Waste
- 135 acres landfill cap
- Onsite Facilities
• Remaining Useful Life
• Maintenance History
  – Preventative & Corrective
• Video inspections
• Modeling
• Material Testing
LOF – STORMWATER PIPE AGE

Stormwater Total Linear Footage Installed Each Year
CONSEQUENCE OF FAILURE

- Location
  - Steep slopes
  - Under buildings/highways/railroad tracks
  - Wetlands
- Flooding impact
- Size of Pipe
PROJECT RANKING TOOLS

• Individual Assets → Project
• Methods of Grouping Assets into a Project:
  • Location and/or Process Area
  • Various Areas of Similar Work
  • Operational Impact
  • Bypassing
  • Sustainability
  • Other
• Alternatives Analysis
• Selected Alternative → CIP
• Next Step: Project Rankings
### Project Ranking Tools

#### Project Name
CTP Thermophilic Digester Tower - Quad C

#### Project Description
Recoat the inside of each of the four towers, replace or rehabilitate the sludge distribution box, rebuild each of the mixers, recoat the handrails, replace the grating and drain piping, and repair the exterior Dryvit insulation system.

#### Project Challenges
Ingress for coating. Use lessons learned from A quad rehab.

### COF (Consequence of Failure)
- Impact to Interconnected Processes: 0
- Impact to Hydraulic Capacity (Flow only, not treatment): 0
- Impact on Redundancy: 7
- Impact to Regulatory Permits (NPDES, Air Quality, Biosolids): 0
- Impacts to Safety: 7
- Impact of Delay: 7

### LOF (Likelihood of Failure)
- System Reliability: 7
- Condition or Remaining Useful Life: 7

### OTHER
- Sustainability: 0
- Efficiency Improvements: 0
- Customer Exp/Satisfaction: 5
- Equity Index: 0
- Community & Econ Development: 0
- Grant Funding: 0

### Scores
- Consequence of Failure (COF): 3.5
- Likelihood of Failure (LOF): 7
- Other Factors: 5
- Risk: 24.5
## CRITERIA OVERVIEW (WW FACILITIES)

### COF

<table>
<thead>
<tr>
<th>COF</th>
<th>Impact to Interconnected Processes</th>
<th>Impact to Hydraulic Capacity (Flow only, not treatment)</th>
<th>Impact on Redundancy</th>
<th>Impact to Regulatory Permits (NPDES, Air Quality, Biosolids)</th>
<th>Impacts to Safety</th>
<th>Impact of Delay</th>
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<td>3</td>
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<td>Major impact to one other process</td>
<td>5</td>
<td>0</td>
<td>3</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>No impact to other processes</td>
<td>7</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>

### OTHER

| 0   | No impact on sustainability       | 3                                                      | 5                    | 0                                                           | 0                | 0              |
| 3   | Moderate impact on sustainability  | Moderate impact on sustainability                      | 5                    | 0                                                           | 0                | 0              |
| 5   | Significant impact on sustainability | Significant impact on sustainability                 | 5                    | 0                                                           | 0                | 0              |

### TOOLTIP

- Reduce energy use
- Reduce toxic chemical usage
- Reduce number of unsewered homes
- Increase on-site energy generation
- Reduce greenhouse gas emissions
Ranking priority neighborhoods based on watershed goals:

Goal 1: Clean Water
  1.1 Prioritize high pollutant concentrations of COCs:
      - Phthalate
      - PAHs (Phenanthrene, Pyrene)
      - Metals (Copper, Zinc)
      - Nutrients (Nitrogen, Phosphorus)
      - Total Suspended Solids
  1.2 Focus on areas with less existing treatment devices

Goal 2: Climate Resilience
  2.1 Target Urban Heat Islands
  2.2 Known Pipe capacity issues

Goal 3: Sensitive Habitat Protection
  3.1 Presence of Open space/Biodiversity Corridors

Goal 4: Health Equity
  4.1 Apply Equity Index and Livability Criteria
  4.2 Roadway Condition
Stormwater/Watershed Focus Areas

Top priority watershed neighborhoods:

- **Lower Puyallup** LP-01
- **Tideflats** TF-03, TF-05
- **Flett Creek (South Tacoma)** FL-10, FL-08, FL-07, FL-05
- **Thea Foss Waterway (Tacoma Mall, Lincoln District & Downtown)** FS-12, FS-10, FS-09, FS-07, FS-05, FS-02
- **North Tacoma (Schuster/Stadium)** NT-11, NT-10
Urban Waters Protection (UWP) Plan framework for priority areas:

- List of potential regional stormwater system retrofits or new capital facilities

- List of Stormwater Management Program activities to enhance:
  - Street Sweeping
  - Public Outreach and Engagement
  - Business Assistance
DELIVERING CAPITAL PROJECTS

Surveyors ● Engineering Technicians ● Engineers ● Construction Managers ● Inspectors
WASTEWATER CATEGORIES & COSTS

6 Year Total Cost (2025-2030) = $217M
Annual Average = $36.2M

- Central Treatment Plant Improvements: $65.5M
- North End Treatment Plant Improvements: $26M
- Trunk System Improvements: $31.8M
- Collection System Improvements: $44.1M
- Pump Station Improvements: $14.8M
- City Labor Expenses: $26.2M
- Rolling Stock & Misc.: $8.6M
RECENTLY COMPLETED WASTEWATER PROJECTS

- **Secondary Clarifier #5 Mechanical Improvements & Coating**
  - Cost: $2M
  - Year: 2023

- **South Tacoma Pump Station Rehabilitation Phase 1**
  - Cost: $6.2M
  - Year: 2023

- **NETP Solids Holding Tank Bioscrubber Project**
  - Cost: $1.5M
  - Year: 2024
Concrete Rehab – Secondary Clarifier Tank
FUTURE SIGNIFICANT WASTEWATER PROJECTS

- **CTP Concrete Repairs/Coatings**
  - $22M
  - 2025-2030

- **NETP Trickling Filter Project**
  - $20M
  - 2025-2027

- **Approximately 2.3 Miles of Misc. Underground Pipe Improvements**
  - $49.7M
  - 2025-2030

- **Puyallup Avenue Wastewater Trunk Line Replacement Project**
  - $26.3M
  - 2024-2027
North End Wastewater Treatment Plant
Second Trickling Filter Project
STORMWATER CATEGORIES & COSTS

6 Year Total Cost (2025-2030) = $103.5M
Annual Average = $17.3M

- City Labor Expenses: $11.4M
- Rolling Stock & Misc.: $4.5M
- Collection System Improvements: $16.1M
- Trunk System Improvements: $45.2M
- Facility Improvements: $19.3M
- Treatment & Low Impact Development: $7M

Facility Improvements

Trunk System Improvements

Collection System Improvements

City Labor Expenses

Rolling Stock & Misc.

Treatment & Low Impact Development

25
RECENTLY COMPLETED STORMWATER PROJECTS

Manitou District Green Infrastructure Project
$3.4M
2024

Jefferson/Hood Stormwater Interceptor Project
$36M
2023

Larchmont District Pervious Pavement Project
$9M
August 2024

Madison District Green Infrastructure Project
$8.2M
2024
GREEN STORMWATER PERVIOUS PAVEMENT
FUTURE SIGNIFICANT STORMWATER PROJECTS

Titlow Park Regional Treatment
$7M
2026-2027

Approximately 0.5 Miles of Misc. Underground Pipe Improvements
$4.7M
2025-2030

Storm Sewer Upgrades in Partnership with Public Works Street Improvement Projects
$6.5M
2025-2027

Puyallup Avenue Stormwater Trunk Line Project
$39.3M
2024-2027
SOLID WASTE CATEGORIES & COSTS

6 Year Total Cost (2025-2030) = $64.6M
Annual Average = $10.7M

- Facility Improvements: $16.7M
- Rolling Stock & Misc.: $46.7M
- Special Projects: $0.9M
- Environmental Remediation: $0.3M
RECENTLY COMPLETED SOLID WASTE PROJECTS

Downtown Compactors
Sites A&B
$1.5M
2024

Facility Master Plan
$400K
2024

Flare Station Landfill Cap Repair
$200K
2023
**FUTURE SIGNIFICANT SOLID WASTE PROJECTS**

- **Downtown Compactor Site C**
  - $1.1M
  - 2024-2025

- **CNG Fueling Expansion**
  - $1.2M
  - 2024-2025

- **Main Receiving Building**
  - **Backup Generator**
  - $900K
  - 2024-2026
What we know:
• Thousands of Existing Assets
• Different Design Life
• System built in Waves
• Construction Cost Increasing
• Aging Infrastructure

Questions:
• How do we know if we are adequately funding the renewal/replacement of our existing assets now and into the future?

• What risk is there to the utilities?

• What steps can we take now to better position the utilities to address future needs?
LONG RANGE FUNDING MODEL
WW Collection System
LONG RANGE FUNDING MODEL
WW Collection System
Next Steps:

- Complete Model for all Assets
- Work with Budget/Rates Team to Evaluate Strategies to Increase Spending Rate.
QUESTIONS & DISCUSSION