King County Wastewater Treatment Division – Key Capital Investments

Regional Water Quality Committee (RWQC)

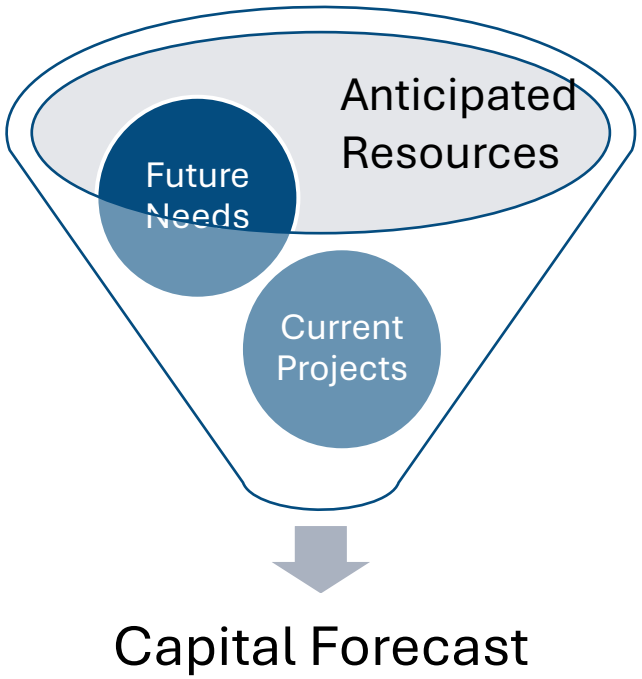
July 2, 2025

Agenda

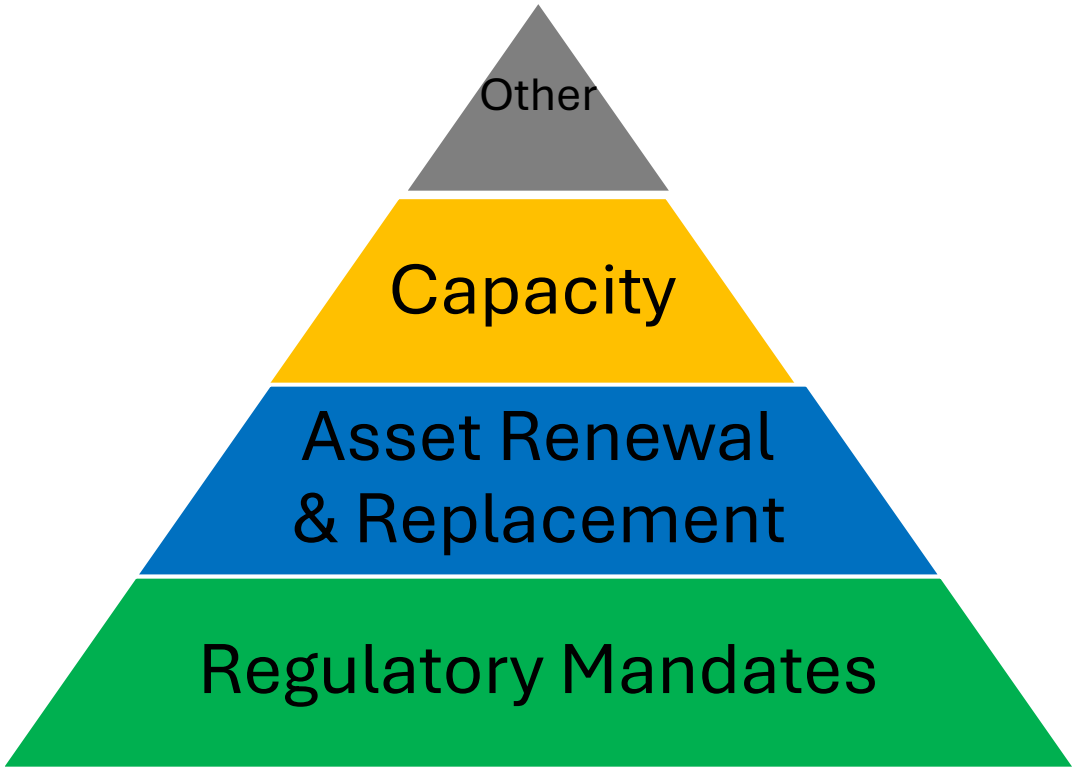
- Introduction
- Capital Forecasting Process
- Summary of the Top Five Projects in the 2026-2035 Capital Forecast
- Individual Project Deep Dives (x5)
- Wrap-Up & Questions

Capital Forecast Process

- **Current Projects** are those already committed to, with approved budgets and assigned teams.
- An **Anticipated Resource** limit over the entire forecast period is defined, based on anticipated capital delivery capacity.
- **Future Projects** are sequenced so that the total over the period does not exceed the anticipated resource limit.
  - Future Projects are sequenced in the 10-year forecast using portfolio prioritization data.
  - Actual sequencing will depend on available resources at the time of the initial budget request.
  - Priorities are confirmed with WTD leadership before requesting budget.
  - Approval is required by KC Executive and Council.

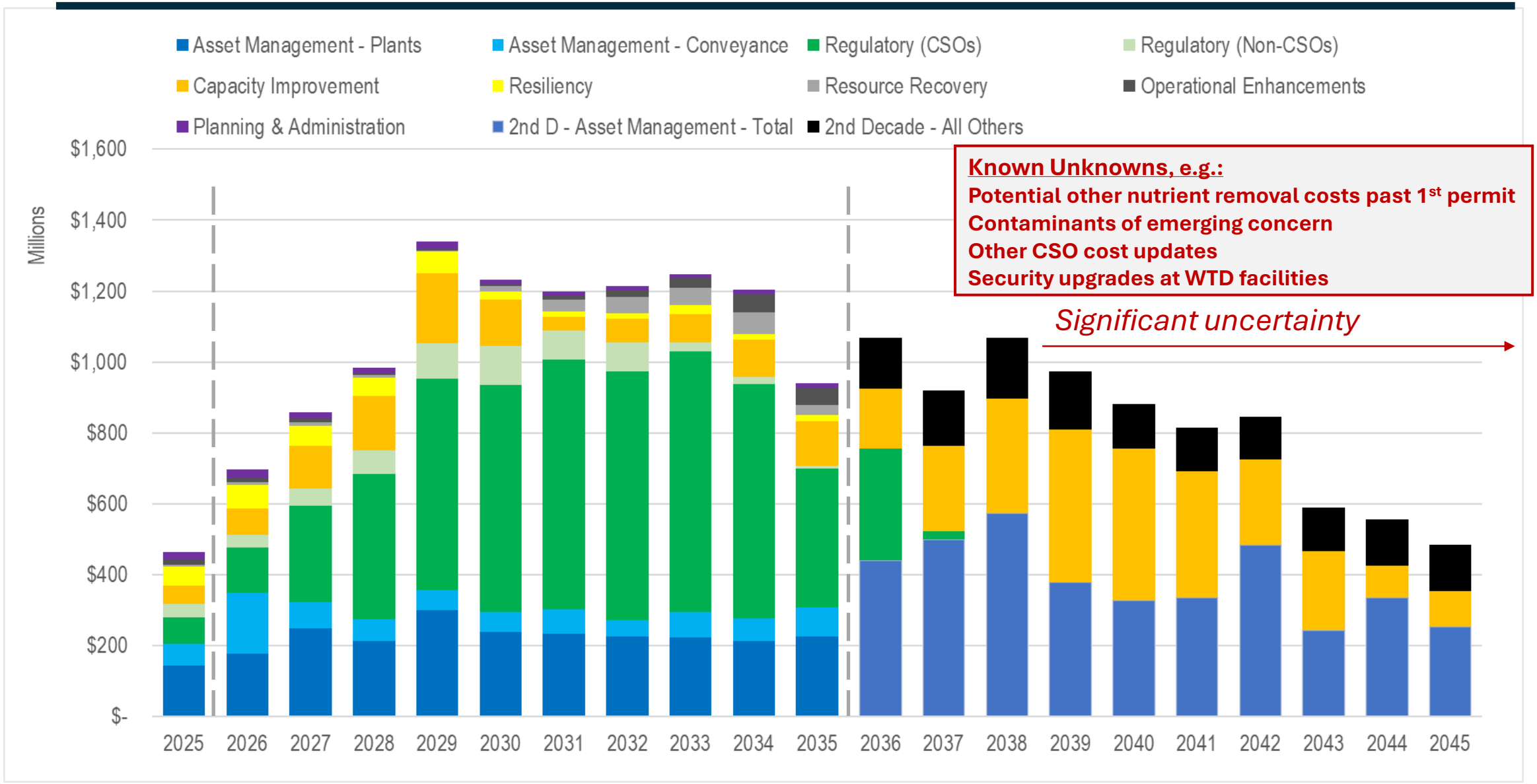


Capital Forecast Components



Projects related to natural hazard resilience, recover resources from wastewater, reduce GHG emissions, and/or reduce operating costs
Projects to meet regional growth needs and/or prevent permit violations due to capacity, projects sequenced based on latest data
High-risk (Poor Condition, High Criticality) Asset Renewal and Replacement projects; projects sequenced based on latest data
Projects required by consent decree, regulatory order, and/or permit condition

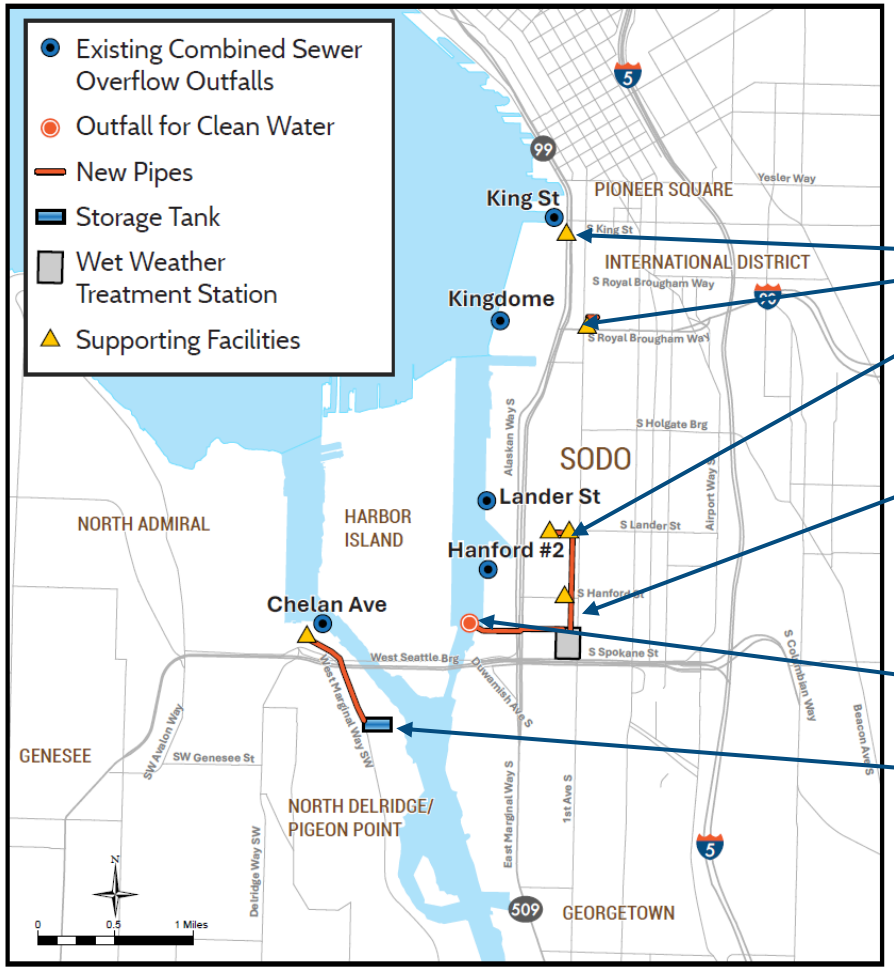
20-Year Capital Forecast by Portfolio Category



At a Glance: Top Five Capital Projects

Mouth of the Duwamish	East Ship Canal	Elliott West	Offsite Level Controls	West Point Electrical
• $3.4B • 2034 Completion • Consent Decree • Best Apparent System Alternative Selected April 2025	• $1.8B • 2037 Completion • Consent Decree • Conducting Planning Level Options Analysis through 2026	• $800M • 2031 Completion • NPDES Permit Condition • Project Baseline Costs Set May 2026	• $500M • Programmatic Delivery through 2035 • Obsolete Equipment • Programmatic Options Analysis Complete June 2026	• $400M • 2031 Completion • Aged Equipment • Preliminary Design, Baseline Anticipated Q1 2026

Mouth of Duwamish Wet Weather Facilities



Recommended Best Apparent System Alternative (BASA) Overview

- **Objective:** Control King County CSO outfalls at the Mouth of the Duwamish River in Seattle to meet regulatory (RCW 90.48 and WAC 173-245) requirements and comply with consent decree deadline of December 31, 2024.
- Missing deadline creates risk of penalties.

Influent Conveyance with EBI Diversion

Wet Weather Treatment Station in SODO Neighborhood

Effluent Conveyance and outfall in East Waterway

Chelan Storage Facility and associated conveyance in West Seattle (Industrial District West)

Alternatives Considered and Risks of Deferral

CSO Long Term Control Plan (LTCP):

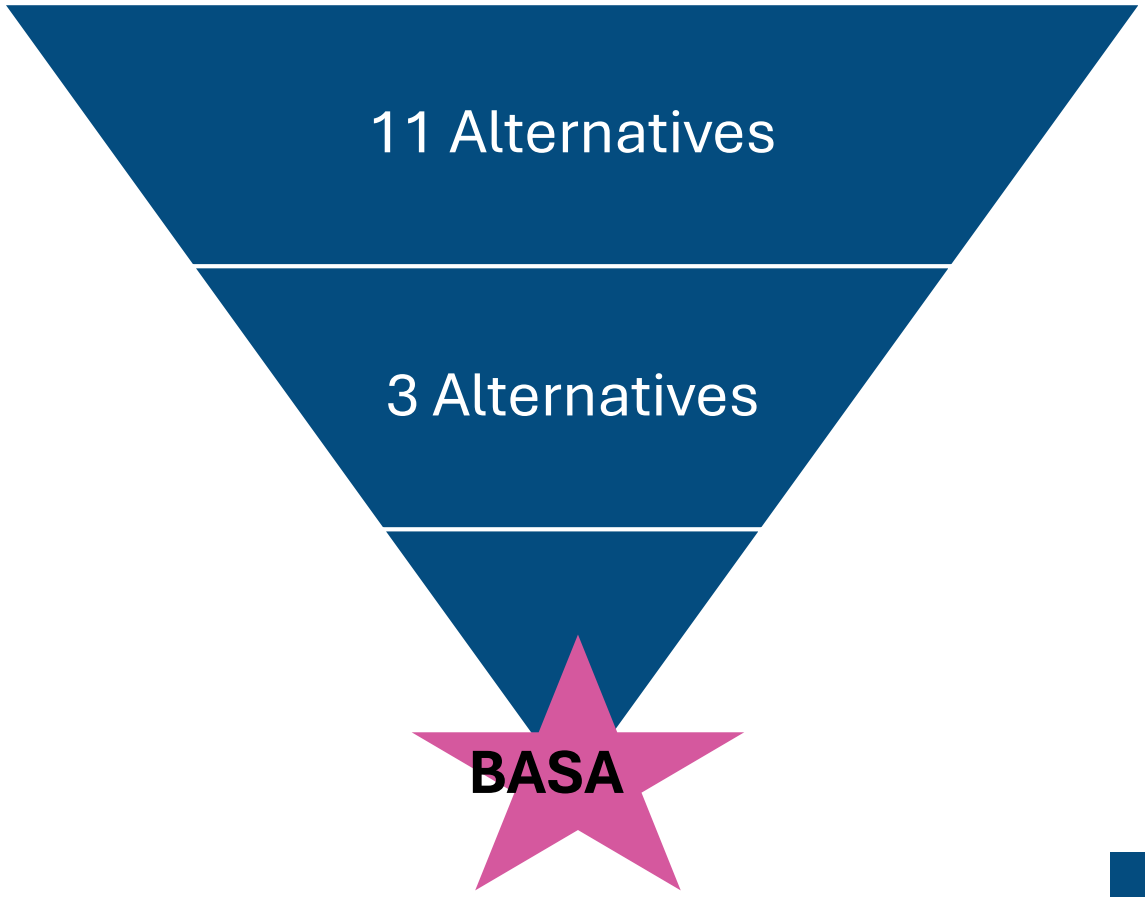
Since the 2012 LTCP, WTD has narrowed from over **60 planning level concepts.**

Alternatives considered wide **range of CSO control methods**:

- Wet weather treatment stations
- Storage tanks/tunnels
- Green stormwater infrastructure
- Sewer separation

Consent Decree deadline is December 31, 2024. Missing deadline creates risk of penalties.

Mouth of Duwamish Engineering Report: Detailed alternative evaluation building on LTCP studies.



Cost and Timeline

Estimated Cost at Completion:
$3.4B

Class 5 Range:
Low: $1.7B
High: $6.8B
(All costs escalated to year of forecasted expenditure)

AACE ESTIMATE CLASS	DEGREE OF PROJECT DEFINITION	END USAGE *(Typical purpose of estimate)*	METHODOLOGY *(Typical estimating method)*	EXPECTED ACCURACY RANGE
Class 10 / Unclassified	0% *(Long-Term Planning)*	Strategic Planning	Order of magnitude, historical comparisons, parametric models	L: -20% to -50% H: +100% to +300%
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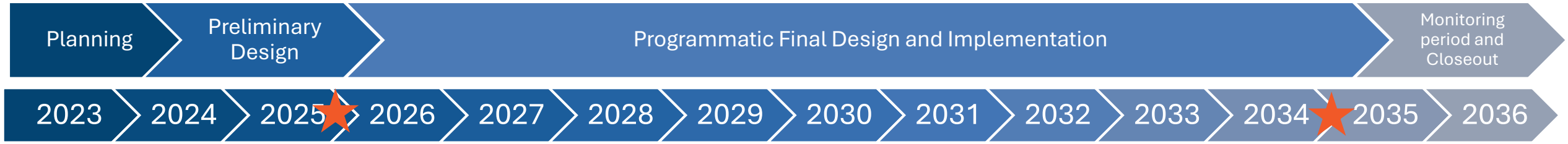


Draft Engineering Report Completion 2025

Substantial Completion 2034

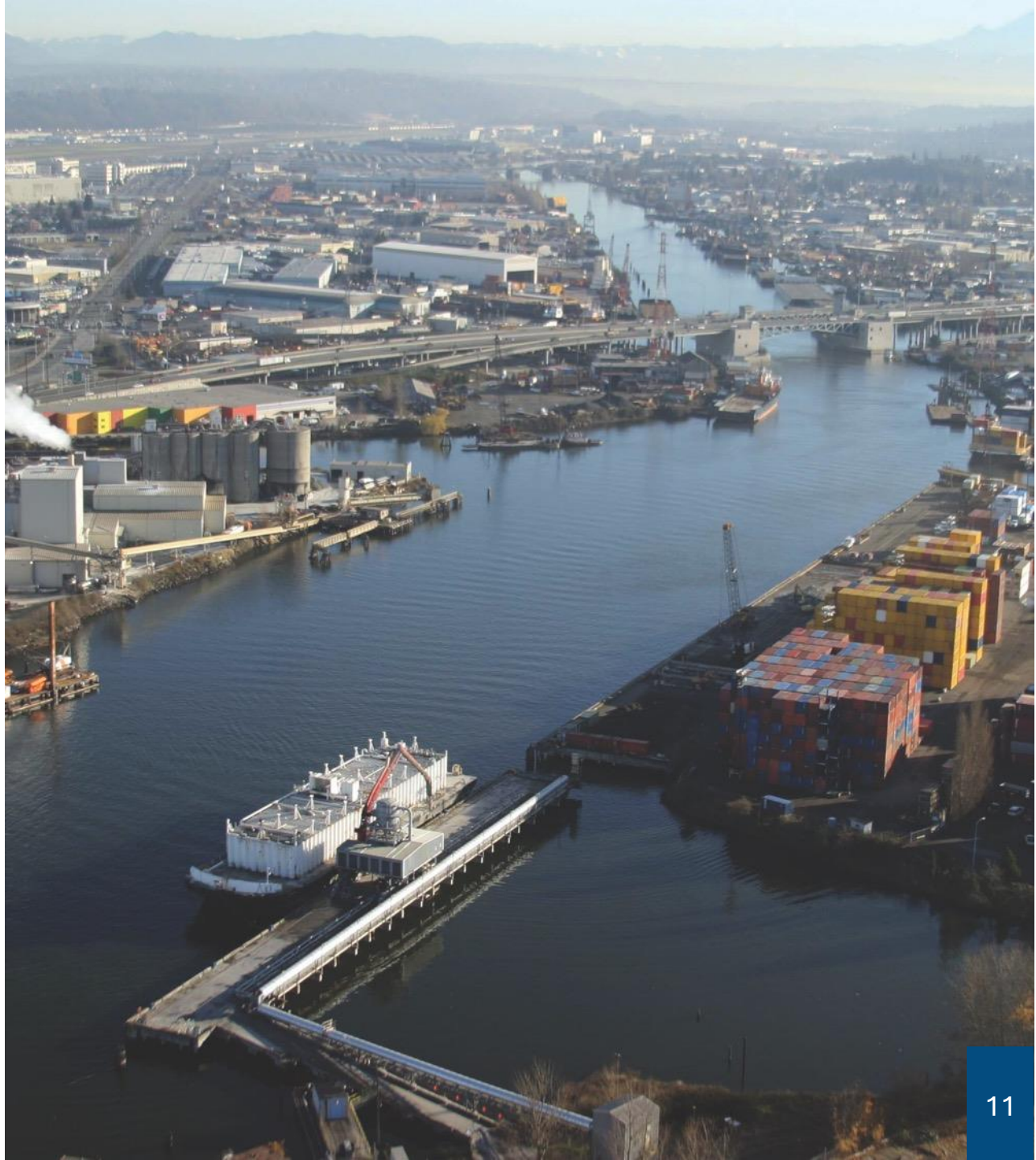
East Ship Canal (University / Montlake) Wet Weather Facilities

Overview

- The University Regulator Station (RS), Montlake RS and Belvoir Pump Station (PS) outfalls do not meet the CSO control performance standard of no more than one event per year on a 20-year moving average.
- **Objective:** Control the University RS, Montlake RS and Belvoir PS CSO outfalls to the CSO control performance standard.
- Conducting a planning-level options analysis through 2026 that will lead to a program recommendation to progress into design and construction.
- This project will fulfill requirements in the Consent Decree (CD) with U.S. Environmental Protection Agency and Washington State Department of Ecology. CD modification included compliance schedule for completion of the project by 2037.
- This project will also fulfill West Point NPDES permit requirements for Belvoir Pump Station.

Alternatives Considered and Risks of Deferral

- This project is currently in the planning phase to recommend design criteria for system options and will go through further alternatives analysis once chartered.
- Delaying this project may lead to violations of the CD.
- Delaying this project will delay efforts to reduce pollution entering our local waterbodies through CSOs, impacting our communities and wildlife.



Cost and Timeline

Estimated Cost at Completion:
$1.8B
(Based on long term control plan concept of storage tanks to control University and Montlake Outfalls)
Class 10 Range:
Low: $900M
High: $5.4B
(All costs escalated to year of forecasted expenditure)

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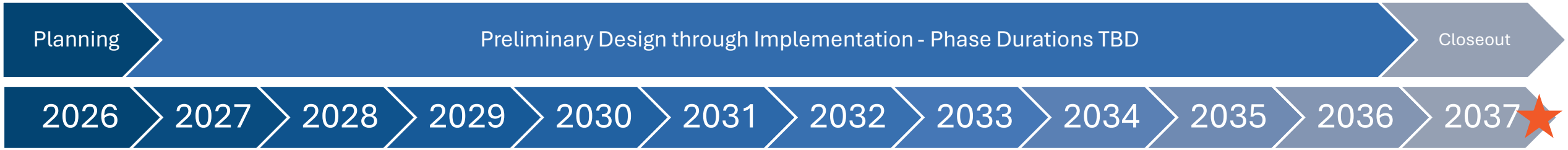
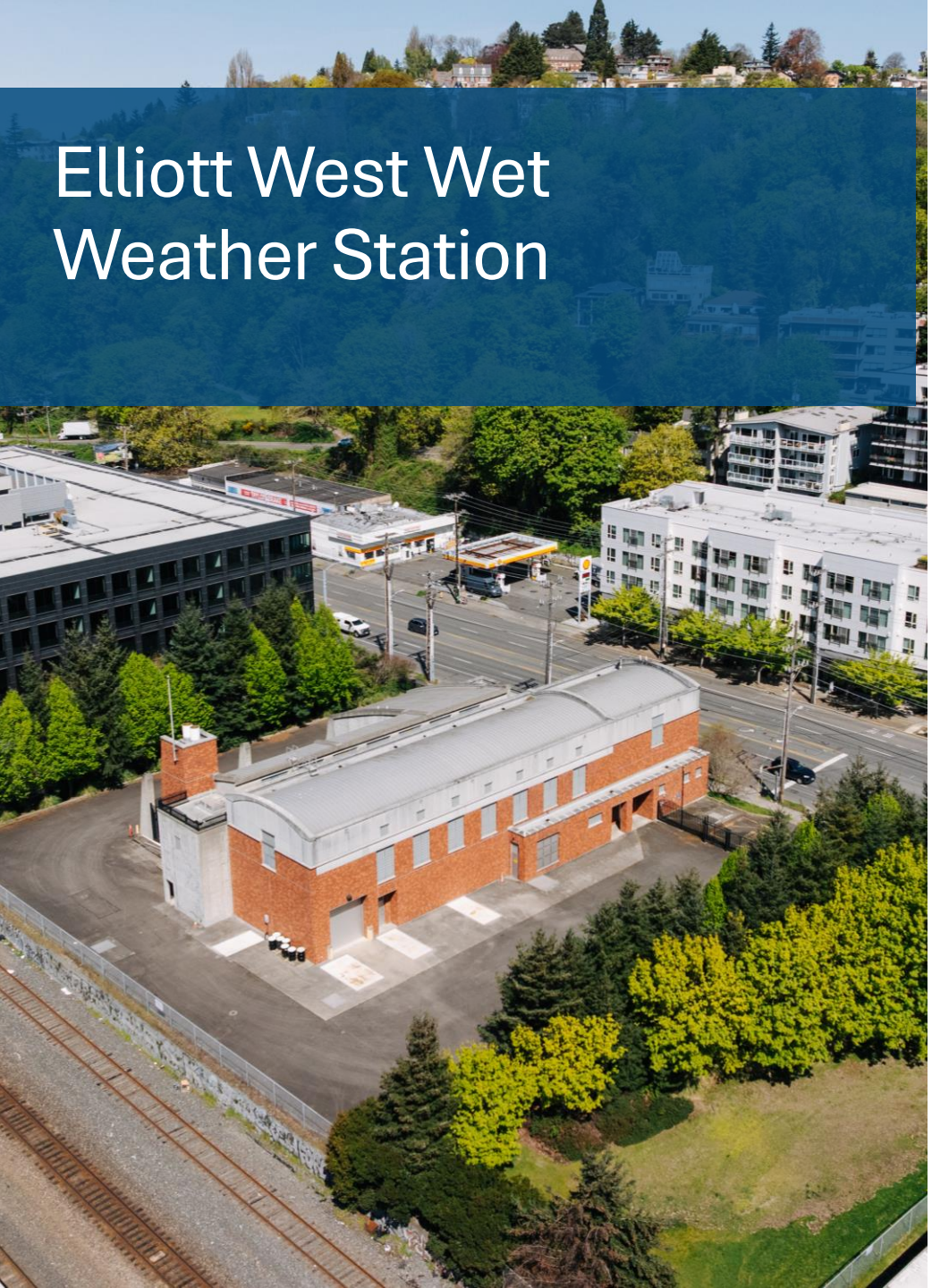


Substantial Completion
Target Dec 2037

Elliott West Wet Weather Station



Overview

- **Objective:** Bring Elliott West facility into full compliance with NPDES discharge permit and meet water quality standards.
- Since facility was completed in 2005, effluent quality has not always complied with NPDES permit (Total Suspended Solids, pH, coliform bacteria).
- **Scope:** Upgrade treatment at existing Elliott West facility to include ballasted sedimentation and ultraviolet disinfection.
- 2024 West Point NPDES permit includes a compliance schedule with clearly defined interim milestones, targeting full completion by December 2031.

Alternatives Considered and Risks of Deferral

- Alternatives evaluation concluded that enhanced primary clarification paired with UV disinfection was the only reliable alternative to meet permit requirements.
- When compared to Chlorine disinfection, UV had the lowest regulatory and schedule risks, and eliminated risks related to chlorine residual permit requirements.
- Inaction/delay increases risk of permit violations and penalties and reduced operability due to aging equipment.

Cost and Timeline

Estimated Cost at Completion:
$800M

Class 3 Range:
Low: $640M
High: $1.04B

(All costs escalated to year of forecasted expenditure)

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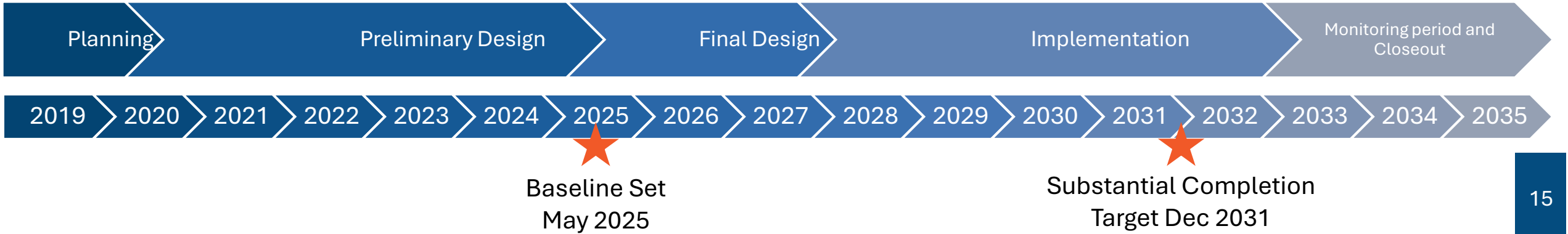


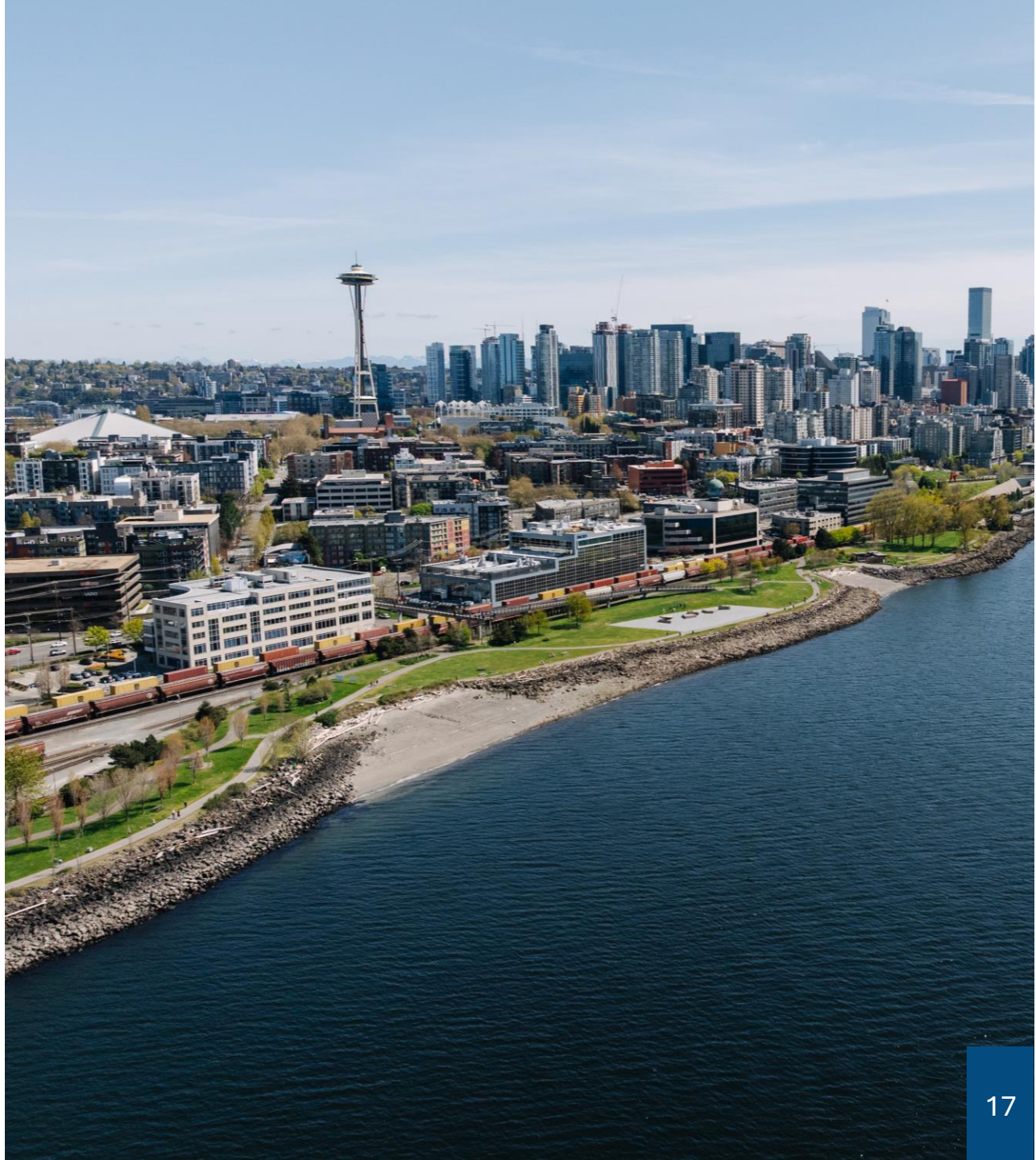
Division-Wide Offsite Level Control and Communication Upgrade

Overview

- **Objective:** Bring all offsite facility wet well level controls and communications equipment into conformance with modern design standards.
- WTD relies on controllers for managing water levels within wet well levels at offsite facilities. They help prevent overflows, keep systems running efficiently, and can alert operators when something's wrong, even when no one's on site.
- Existing controllers were retired by the manufacturer in 2017; no direct replacements are available. WTD is facing increasing challenges sourcing parts, often resorting to surplus and auction sites.
- **Scope:** Programmatic upgrade of obsolete level control, telemetry, and communication systems at approximately 70 facilities in the separated and combined sewer conveyance systems.
- **Benefits:** Improved system reliability, maintenance, and operability.

Alternatives Considered and Risks of Deferral

- While no in-kind direct replacement exists for these assets, options are limited.
- High-level alternatives analysis was conducted to identify a standard technology for system-wide use.
- Evaluation criteria included maintenance, integration with existing systems, cost, and schedule. The recommended solution, new programmable logic controllers, were selected for their advantages in reliability, ease of maintenance, and long-term support, while being cost effective.
- Long-term deferral of this program would present a growing risk of system failure, which could lead to sewer overflows.



Cost and Timeline

Estimated Cost at Completion:
$500M

Class 5 Range:
Low: $250M
High: $1B

(All costs escalated to year of forecasted expenditure)

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Initial Subproject Baseline Set
Q3 2026

West Point Electrical Improvements

Overview

- **Objective:** Modernize and enhance electrical infrastructure.
- Electrical assets installed in West Point's original construction (1960s) and secondary treatment expansion (1990s) are beyond or near end of expected life.
- **Scope:** Replace approximately 330 aged electrical assets.
- **Benefits:**
  - Risk reduction by replacing aged assets.
  - Enhances system resiliency by reducing single points of failure and relocating critical assets out of flood-prone areas.

Alternatives Considered and Risks of Deferral

- Primarily in-kind replacement of existing assets.
- Nine assets to be relocated out of flood vulnerable areas to improve natural hazard resilience.
- Delaying replacement increases risk of system failures that could disrupt facility operations, reduce service reliability, and lead to violations of NPDES permit.

Cost and Timeline

Estimated Cost at Completion:
$400M

Class 4 Range:
Low: $280M
High: $600M

(All costs escalated to year of forecasted expenditure)

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Baseline Set
Q1 2026

Q & A

King County | Wastewater Treatment

Thank you

Crystal Fleet, KC WTD Capital Portfolio Planning and Analysis Unit Manager

Stan Hummel, KC WTD CSO Delivery Unit Manager

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