

WTD Capital Improvement Program Submitted as Part of King County 2017-18 Budget

Presented to
Metropolitan Water Pollution Abatement Advisory Committee
General Meeting
October 26, 2016



King County

Department of
Natural Resources and Parks
**Wastewater Treatment
Division**

Today's Presentation

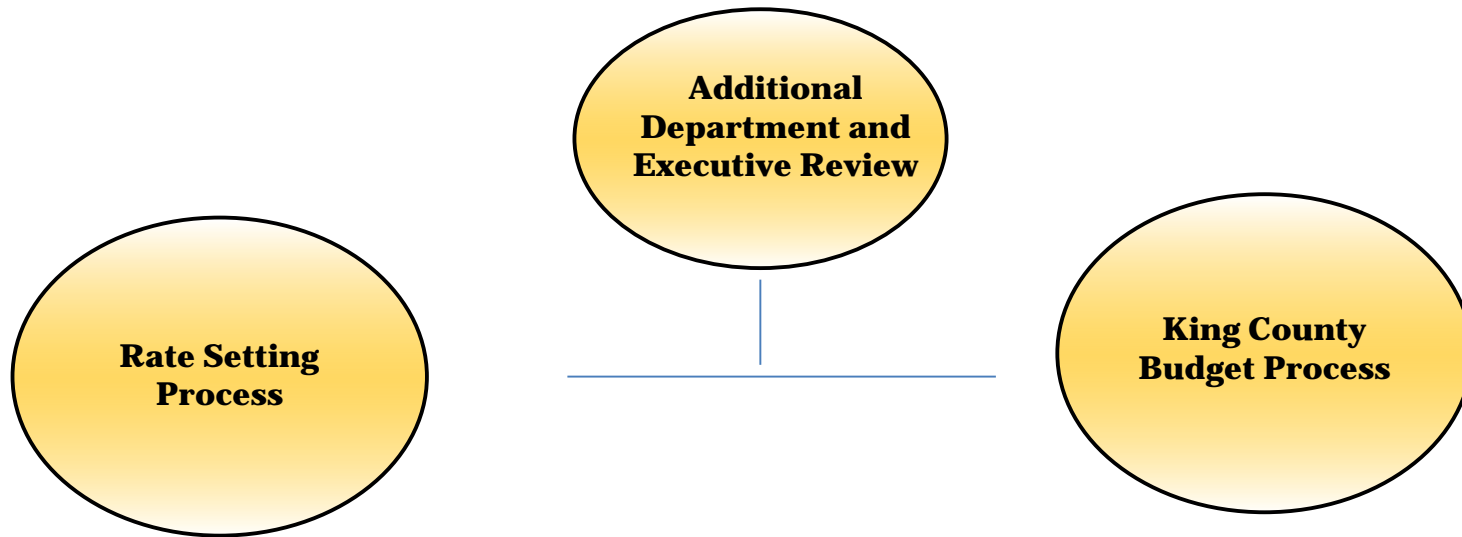
- Share information about the Six-Year WTD CIP Budget as Submitted as Part of King County Executive 2017-2018 Budget Submittal
- Share Information on Specific Key Capital Projects

Objectives of capital program

- Ensure continued and efficient operation and reliability of existing wastewater assets
- Enhance regional water quality in compliance with regulations
- Provide capacity sufficient to meet long-term needs of people and businesses in service area
- Facilitate creation of resources from wastewater



WTD CIP Budget – Interrelated Processes



Rate Setting determines revenue

- **Program-level capital spending**
- **Cashflow based**
- **Accomplishment rate**
- **Project-level budget still developing**

Budget process sets appropriation

- **Project-level capital needs**
- **Balances to rate process spending plan**
- **Full budget**
- **Appropriation is authority to spend**

WTD CIP Budget – monitoring planned and actual

- Performance is monitored on an on-going basis
- Each year (Q1) all projects are reviewed, prioritized and reforecast
- Each June and Q3 all projects are discussed, evaluated and updated for progress and outlook
- Project spending is tracked monthly

Background on WTD CIP Budget Request

- There is no change to the bottom-line capital spending between the 2017 rate and the 2017-18 budget
- Drivers for capital program are the same as those identified in the rate process:
 - Ensure continued regulatory compliance
 - Provide base level of asset management for all infrastructure
 - Continue support for key initiatives

2017/2018 WTD Six-Year CIP Expenditure Plan

2017/2018 WTD CIP 6 Year Expenditure Plan

| Project Title | 2017/18 | 2019/20 | 2021/22 | Total |
|--|--------------------|--------------------|--------------------|----------------------|
| South Treatment Plant Total | 33,013,126 | 18,597,557 | 2,544,342 | 54,155,025 |
| West Point Treatment Plant Total | 29,428,325 | 38,565,628 | 24,817,579 | 92,811,533 |
| Local Treatment Facilities Total | 4,179,074 | 7,273,440 | 8,277,198 | 19,729,711 |
| Conveyance Pipelines and Storage Total | 123,020,549 | 142,537,309 | 163,256,850 | 428,814,709 |
| Conveyance Pump Station Total | 3,442,203 | 12,918,630 | 11,964,236 | 28,325,069 |
| Combined Sewer Overflow Control Total | 126,957,792 | 228,743,412 | 262,956,515 | 618,657,719 |
| Inflow & Infiltration Total | 768,582 | 62,265 | - | 830,847 |
| Biosolids Total | 8,918,063 | 3,426,405 | 4,051,395 | 16,395,863 |
| Water Reuse Total | 4,764,447 | 3,990,428 | 3,331,348 | 12,086,222 |
| Environmental Lab Total | 6,514,788 | 1,776,977 | 2,190,358 | 10,482,123 |
| Central Functions Total | 21,180,402 | 29,826,216 | 23,013,314 | 74,019,932 |
| Minor Asset Management Total | 46,135,521 | 37,937,735 | 30,093,558 | 114,166,814 |
| Total WTD CIP | 408,322,873 | 525,656,002 | 536,496,693 | 1,470,475,568 |

Project Examples by CIP Category

- South Plant
 - South Plant Biogas and Heat System Improvements
- West Point Plant
 - OGADS Replacement project
- Conveyance System Improvements
 - Sunset & Heathfield Pump Stations Replacement and Force Main Upgrade
 - Lake Hills and NW Lake Sammamish Interceptor Upgrade
- CSO Control Program
 - Georgetown Wet Weather Treatment Station
 - Ship Canal Water Quality CSO Control Project with SPU
- Environmental Laboratory
 - Laboratory Fume Hood Replacement
- Central Functions
 - Resiliency and Recovery Program
 - Project Formulation

South Plant Biogas and Heat System Improvements

- Improves biogas utilization and energy recovery at the South Treatment Plant
- Replaces old and obsolete equipment in service since 1987
- Alternatives evaluated generate about \$5 million per year in bio methane sales revenue and export more energy than they consume.
- Project baseline (30% design) anticipated for Spring 2017
- Supports targets and goals established by King County's Climate Action Plan and ordinances
- Estimated total project cost: \$24.7 million



Existing Biogas Treatment System



Scrubbing Towers



Custody transfer system



Binax control panel

West Point OGADS Replacement Project

- Project to replace oxygen generation and dissolution system equipment used in secondary treatment process with energy efficient equipment
- Oxygen generation and dissolution systems accounts for 37% of plant energy consumption
 - Of the high purity oxygen generated, 27% is wasted to the atmosphere
 - Oxygen dissolution system motors unable to be turned down
- Energy consumption of new OGADS anticipate reduction of ~50% from old
 - Testing throughout project to ensure energy targets are met
- Selected alternatives are anticipated to reduce WTD energy footprint by 10%
- Estimated total project cost: \$52.9 million



Sunset & Heathfield Pumping Stations and Force Main Upgrade Project

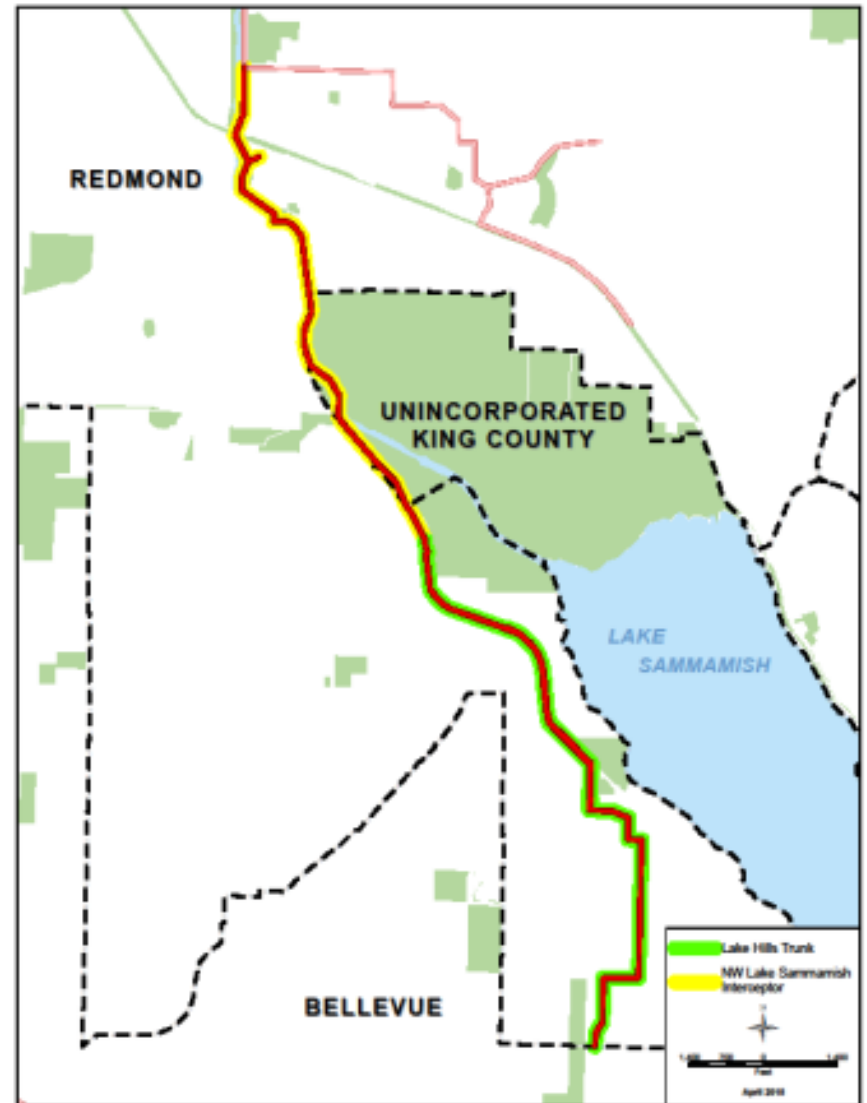


Sunset & Heathfield Pumping Stations and Force Main Upgrades

- Increases pumping capacity to 30 mgd
- Project is nearing design completion
- Construction anticipated to begin January 2017
- Estimated total project cost - \$69.7 million

Lake Hills/NW Lake Sammamish Sewer Upgrade

- Increase capacity of 4.5 miles of existing gravity sewer.
- Replace pipe based on condition assessment.
- Selected alternative mostly follows existing pipe alignment.

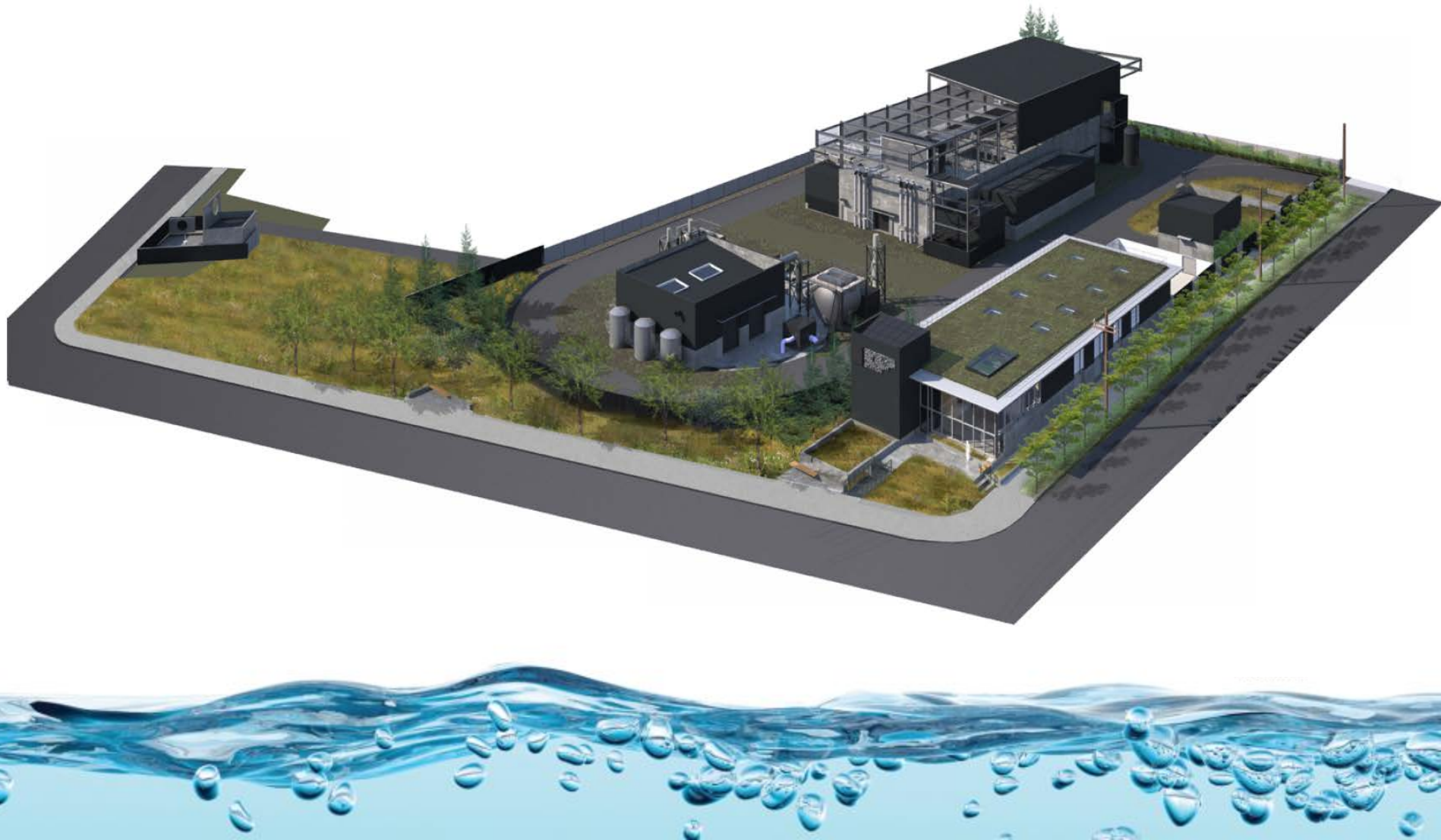


Continued: Lake Hills/NW Lake Sammamish Sewer Upgrade

- Establish project baselines in Q1 2017
- Design and permitting - 2017 – 2018
- Construction – 2019-2021
- Estimated total project cost: \$92.4 million

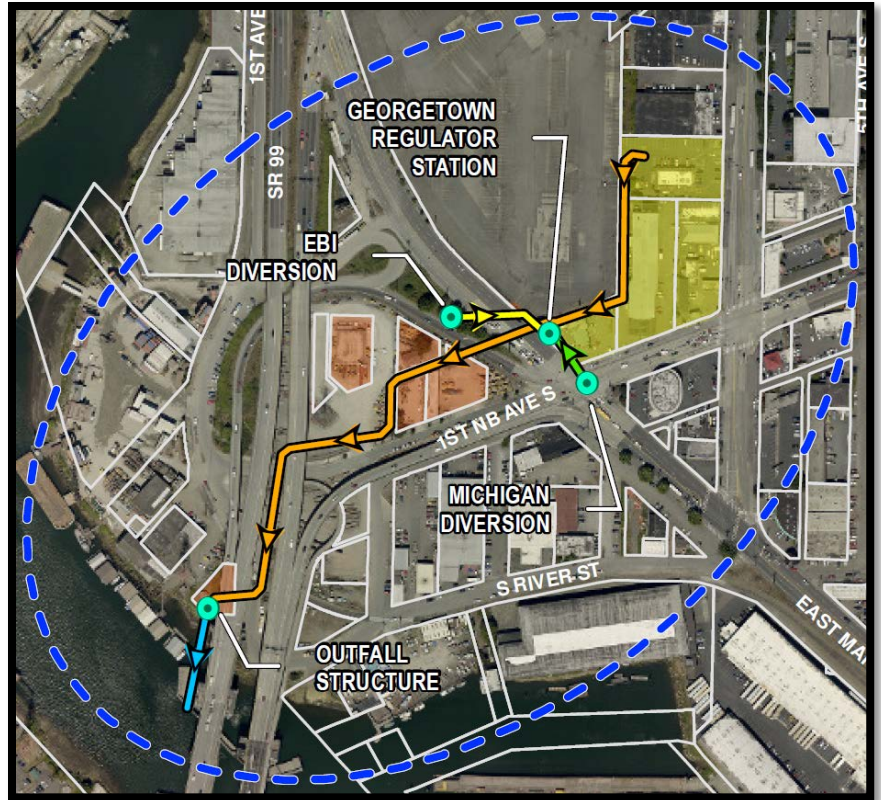


Georgetown CSO Control Project

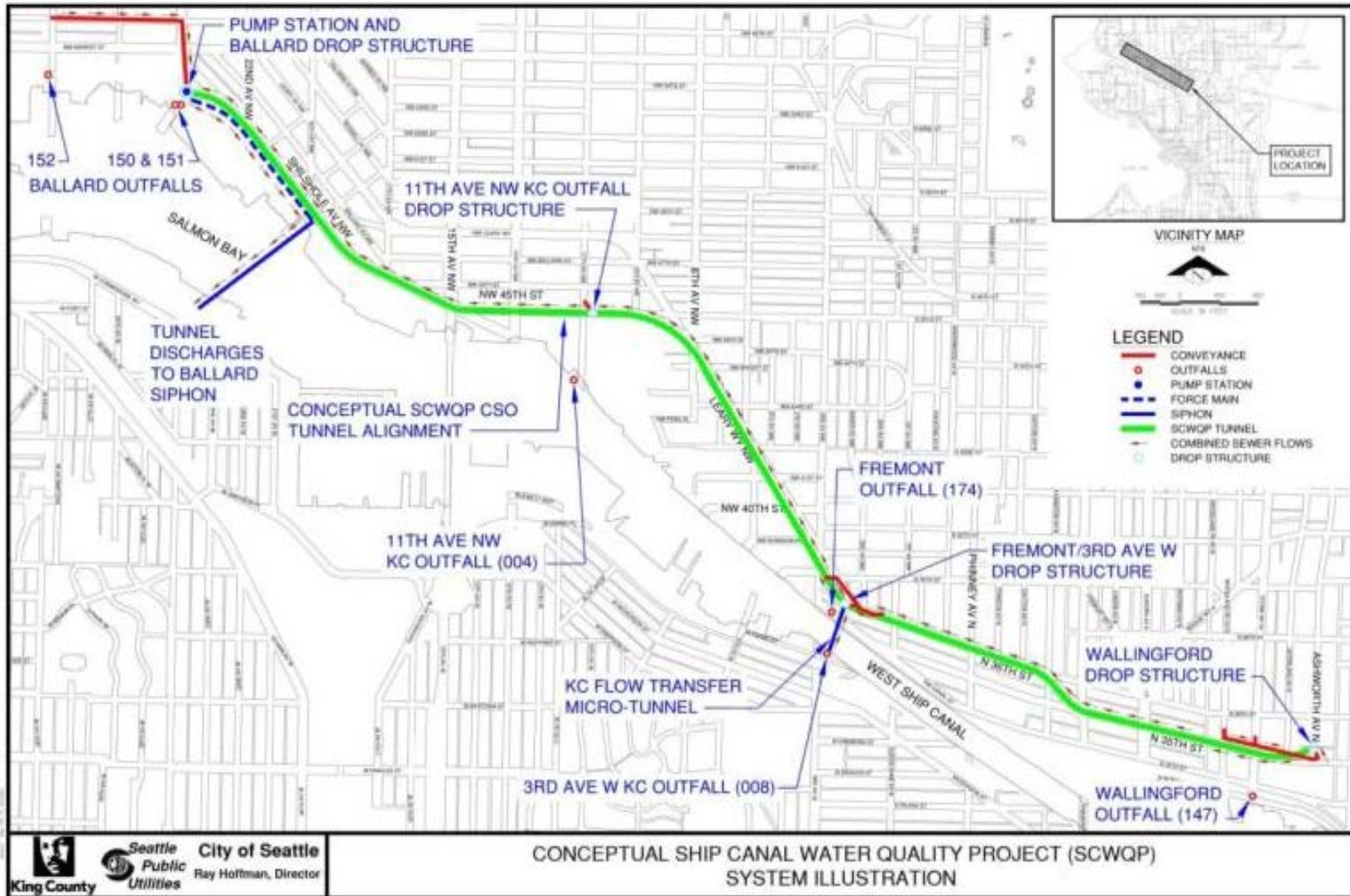


Georgetown CSO Control Project

- 70 mgd wet weather treatment facility
- High-rate clarification and ultra-violet disinfection
- Site Preparation to begin Spring 2017
- Treatment Station construction late-2017
- Estimated total project cost: \$260.7 million



Ship Canal Water Quality Project



CSOs to be Controlled by Ship Canal Water Quality Project



Ship Canal Water Quality Project Benefits

- Construction of a single storage tunnel replaces the need to construct multiple independent storage facilities in the Wallingford/Ballard area
- Storage Tunnel construction will cause fewer construction disruptions across the project area
- WTD's estimated share of overall project cost: \$133.1 million



Master Plan for Resiliency and Recovery

Scope: Develop comprehensive strategy to address a major earthquake, identify vulnerabilities and mitigations to limit damage and speed up recovery

- Consultant team selected
- MWPAAC technical review group formed and currently reviewing Draft Scope of Work
- Signed consultant contract expected Oct. 2016
- Plan and prioritized improvements complete Dec. 2017

Environmental Laboratory

- Improve and enhance energy efficiency
 - Replace aging fume hoods with energy efficient equipment
 - Estimated total project cost: \$5.8 million
 - Construction 2017/2018





Project Formulation

- ▶ Improved definition of scope and cost for new project requests
- ▶ Projects include both facility upgrades and projects supporting strategic initiatives
- ▶ Provide better information when budgeting and appropriating the project
 - ▶ Reduce the volatility of expected project costs
 - ▶ More stable planning of our multi-year program

King County Budget Information

- More details on the Executive's Biennium Budget Submittal for 2017/2018 can be found at <http://www.kingcounty.gov/depts/executive/performance-strategy-budget/budget/2017-2018.aspx>
- Information on WTD Capital Program can be found starting on page 74 in this document: http://www.kingcounty.gov/~media/depts/executive/performance-strategy-budget/budget/2017-2018/17-18BudgetBook/PE_Book_Pages_final.ashx?la=en

Questions?

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