

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

Presented to  
MWPAAC's Rates and Finance and Engineering and  
Planning Subcommittees  
October 6, 2016



**King County**

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

# Today's Presentation

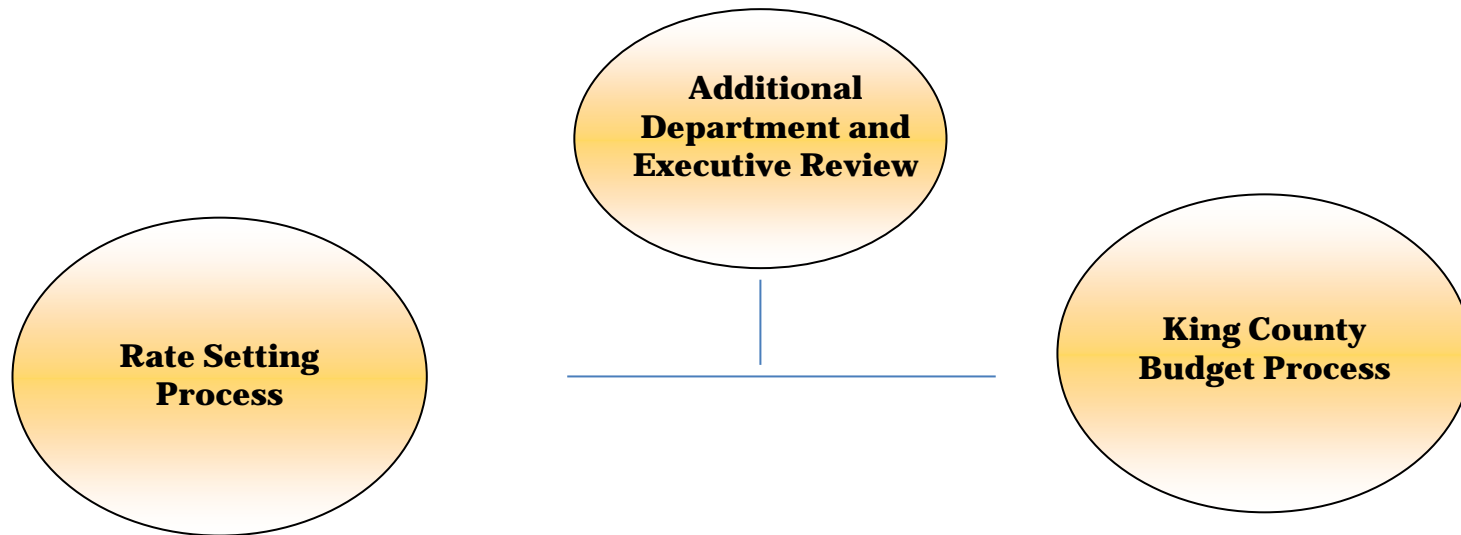
- Share information about the Six-Year WTD CIP Budget as Submitted as Part of King County Executive 2017-2018 Budget Submittal
- Share Information on Specific Key Capital Projects

# 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
<b>Total WTD CIP</b>	<b>408,322,873</b>	<b>525,656,002</b>	<b>536,496,693</b>	<b>1,470,475,568</b>



# 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

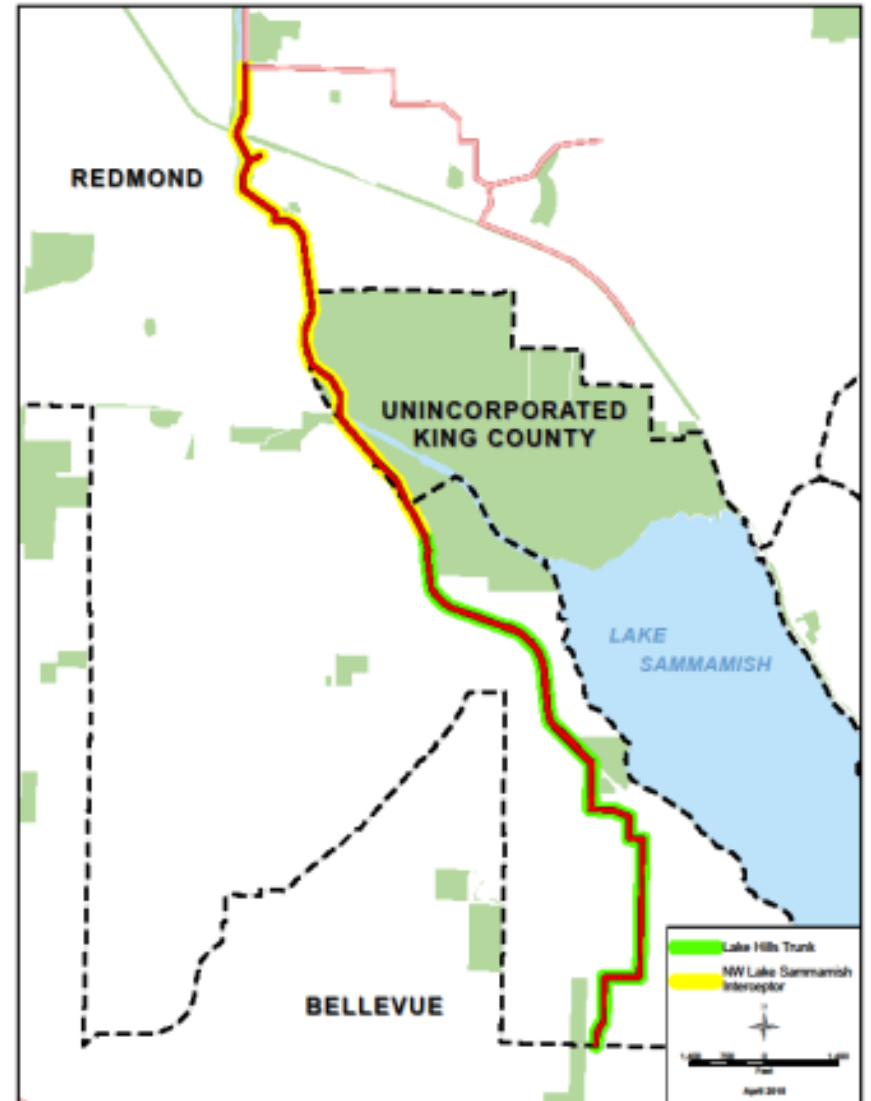


# Sunset & Heathfield Pumping Stations and Force Main Upgrades

- 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.



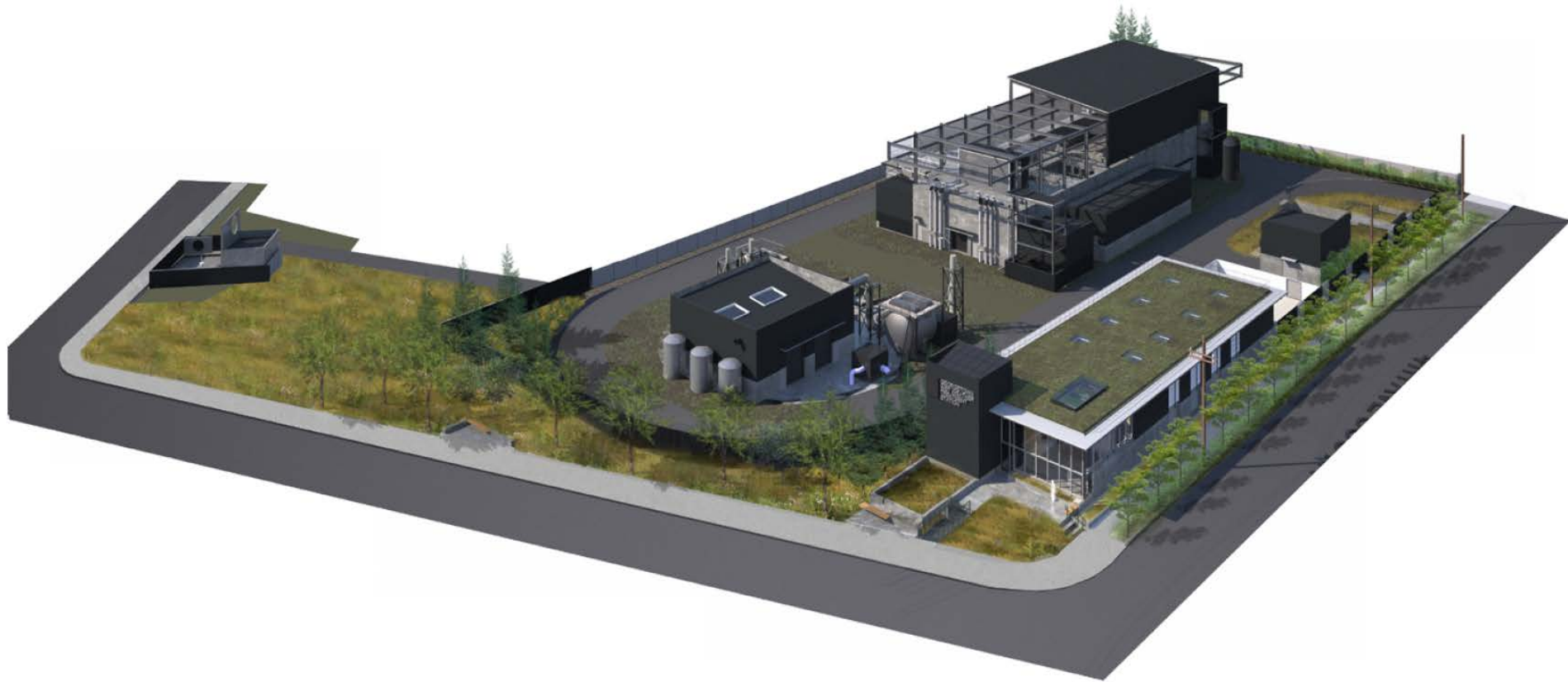


# Continued: Lake Hills/NW Lake Sammamish Sewer Upgrade

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



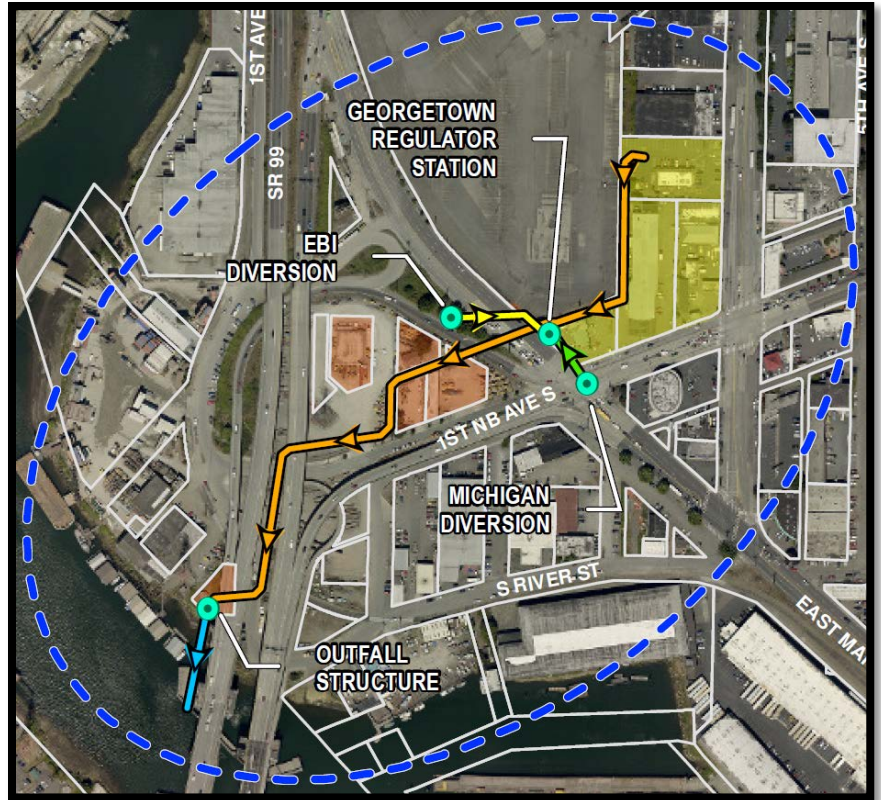
# Georgetown CSO Control Project



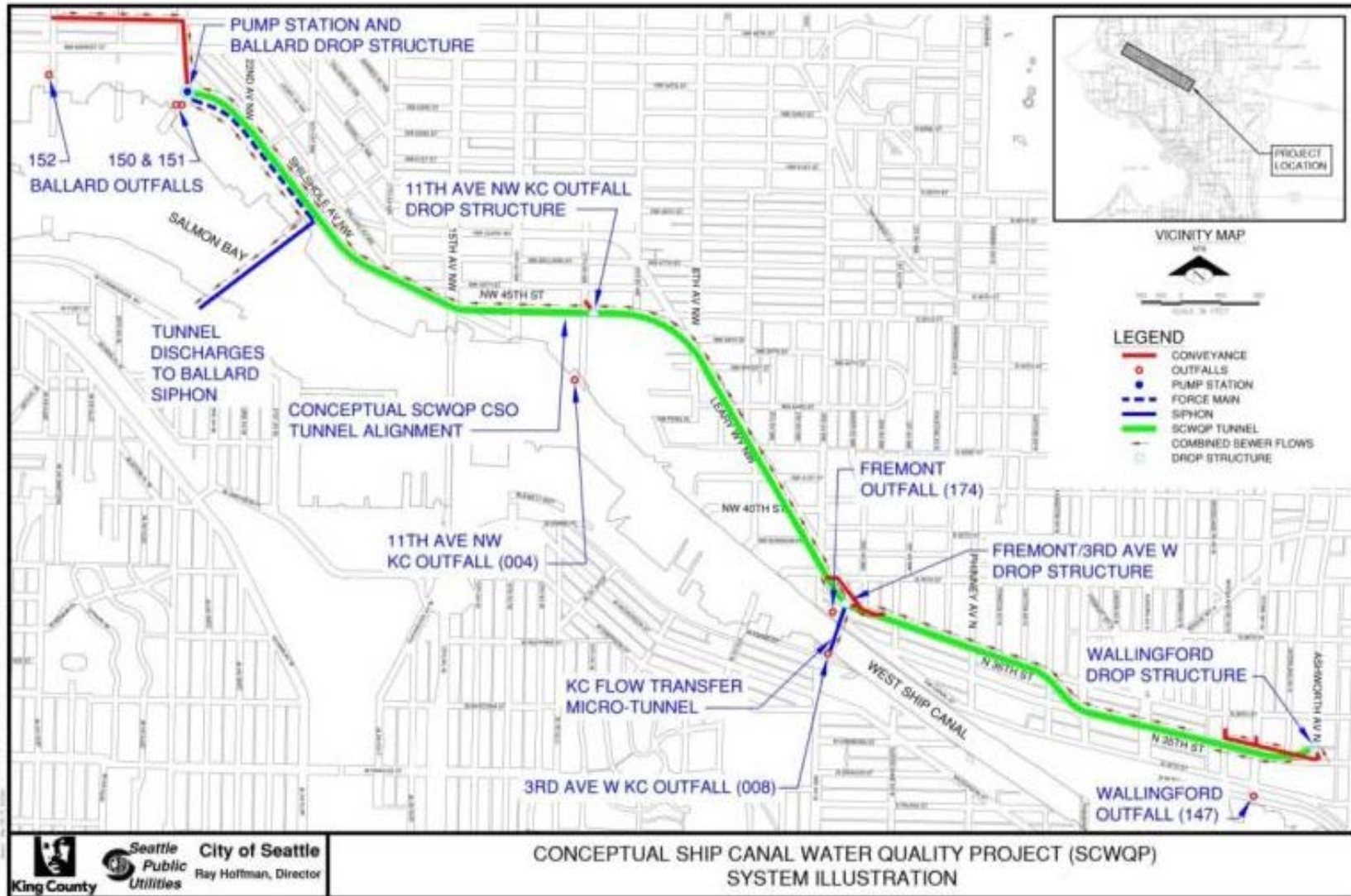


# Georgetown CSO Control Project

- 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](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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