

# **Ship Canal Water Quality Project Semiannual Report**

Prepared in accordance with  
Ordinance 18313, Section 2

January 2019



**King County**

Department of Natural Resources and Parks  
Wastewater Treatment Division

## Table of Contents

Introduction .....	3
Executive Summary .....	3
Background.....	4
Project Summary .....	4
Facility Ownership.....	4
Project Components .....	4
Cost Monitoring and Change Control.....	4
Annual Cash Flow Projections .....	4
Summary of Major Approved and Proposed Changes.....	4
Current Activities.....	4
Project Schedule.....	4
Potential Use of Contingency and Management Reserve.....	4
Attachment A: Ship Canal Water Quality Project Semiannual Report Annual Cash Flow Projections and Actual Expenses for King County Share of Ship Canal Water Quality Project	

## **Introduction**

King County Ordinance 18313, Section 2 requires the King County Executive to transmit a report to the Council semiannually as a project status update on the Ship Canal Water Quality Project.

Specifically, the Ordinance requires the report to summarize:

- Project budget status and anticipated cash flow through construction phases;
- Key upcoming activities that demonstrate progress on design and construction of county-focused elements;
- Major schedule milestones and the project status in achieving those milestones; and
- Potential uses of contingency and management reserve.

This report addresses each requirement under a separate heading that corresponds to the particular requirement.

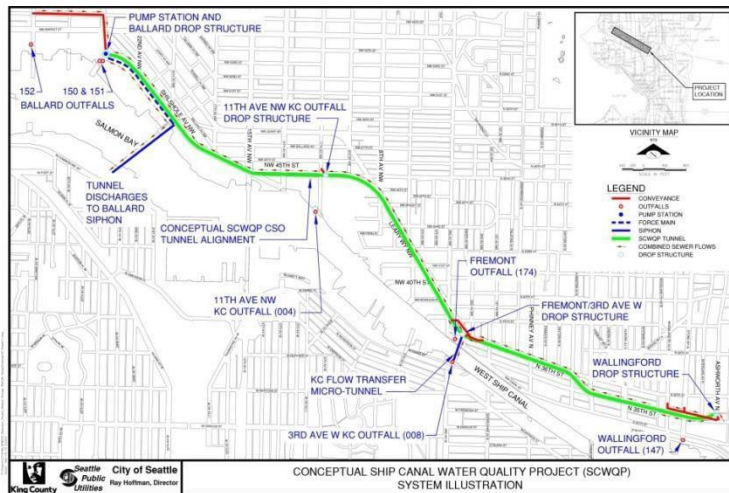
## **Executive Summary**

This fifth semiannual report shows that this project continues to meet or exceed the milestones required under King County's federal Consent Decree with the Washington State Department of Ecology (Ecology) and U.S. Environmental Protection Agency (EPA). There have been six approved changes to the joint project budget, with five of those requiring an increase to the total project budget. With the most recent approved change, King County's cost share for the joint project resulting from these changes has increased by \$48.2 million from the original Joint Project Agreement (JPA) as of this report. This includes the impact of both the new total project estimate (previously presented to Council) and an incremental cost share increase due to recently updated system flow modeling. The total King County capital contribution is now estimated at \$178.2 million; this will ensure the County's share of the tunnel capacity needed to achieve combined sewer overflow (CSO) compliance for its 3rd Ave W outfall and 11th Ave NW outfalls as required by its Consent Decree. This cost share is consistent with the analysis included in the King County Wastewater Treatment Division's (WTD) 2019 Sewer Rate. King County and Seattle Public Utilities (SPU) continue to work to minimize project cost increases.

## **Background**

Ordinance 18313 authorizes King County and SPU to partner on the Ship Canal Water Quality Project, and requires semiannual project status reports. This fifth report covers the period of July 1 through December 31, 2018.

## **Project Summary**



This project will be designed and constructed to control CSOs to the Lake Washington Ship Canal, as approved by both King County's and the City of Seattle's respective Consent Decrees. SPU is responsible for completion of the construction, subsequent operation and maintenance, periodic repair, replacement, and permitting of the Ship Canal Project.

The JPA approved by Ordinance 18313 chartered a Project Review and Change Management Committee (PRCMC), comprised of executive and management staff from SPU and King County, to provide project oversight and to monitor and approve formal changes of project scope, schedule, and budget among other governance responsibilities.

## **Facility Ownership**

SPU will own and operate all facilities once constructed. King County retains ownership of its 3rd Ave W outfall and 11th Ave NW outfall, to meet compliance with the Consent Decree for its two CSOs within the system. King County will pay for a fractional increase in the portion of tunnel storage capacity it will own. The King County capacity was originally guaranteed in the JPA at 6.03 million gallons in the completed facility, but has been adjusted to 10.76 million gallons of the tunnel's 29.2 million gallon total capacity, based on more comprehensive recently completed modeling.

## **Project Components**

SPU is designing and constructing a storage tunnel and associated facilities, including diversion structures for diverting influent CSO flow away from existing CSO outfalls to the tunnel, four drop structures to convey influent CSO flow into the storage tunnel, gravity sewer lines to convey flows from King County's diversion structure at 11th Ave NW, a siphon microtunnel under the Ship Canal to convey flows from King County's 3rd Ave W diversion structure to the new Fremont drop shaft to

the tunnel, conveyance lines to drain flows from the tunnel effluent pump station to King County's existing Ballard Siphon structure, and conveyance facilities related to the Fremont, Wallingford and Ballard Outfalls.

Wallingford/Ballard work is not a King County shared cost.

### **Cost Monitoring and Change Control**

<b>King County Budget Status (King County Capital Share only)</b> <i>(All figures in millions of dollars, escalated to year of expenditure)</i>	<b>Total JPA Planned Capital Cost, County Share (A)</b>	<b>Total County Budget<sup>1</sup> (B)</b>	<b>Amount Expended (C)</b>	<b>Remaining Budget Balance<sup>1</sup> (B-C)</b>
	\$133.7	\$178.2 <sup>2,3</sup>	\$24.6	\$153.6 <sup>2,3</sup>

<sup>1</sup> Includes changes approved by the PRCMC.

<sup>2</sup> Values as of 12/31/2018 actuals through July plus projected.

<sup>3</sup> Note that SPU carries approximately \$3.7 additional in capital costs to commission the facilities, which the County budgets as operating costs for each of our facilities.

### **Annual Cash Flow Projections**

See table: Attachment A.

### **Summary of Major Approved and Proposed Changes**

Changes approved by the PRCMC without a total project cost increase:

- Salmon Bay Property cost increase: + \$3.46 million (funded from existing contingency, no total project cost increase)
  - Increase based on agreement reached through alternative dispute resolution by mediation with the property owner.

The following PRCMC approved changes increased the total project budget (only King County cost impacts are shown):

- Project schedule resequencing: + \$0.9 million
  - Holds on advancing to final design for portions of the project were awaiting confirmation of integrated system modeling. The final modeling results inform tunnel capacity and flows that can be managed and treated at West Point. This resequencing impacted future year cash flows, which with escalation created the noted cost impact.
- Increased overall project inflation factor: + \$5.0 million
  - The SPU inflation assumption was corrected to more appropriately reflect then anticipated market conditions and better align with assumptions used by WTD.

- Property surplus adjustment: + \$2.5 million
  - SPU accounting was corrected to reflect the cost to the project from surplus property obtained for construction.
- Sales tax increase: + \$0.4 million
  - Reflects a City local sales tax increase of 0.1 percent and Regional Transit Authority (RTA) sales tax increase of 0.5 percent, which were not included in the baseline budget.
- Program cost rebaselining: + \$39.4 million
  - In summer 2018, SPU released an updated cost estimate that included the results of reviews from cost consultants Value Management Services and King County staff, examining the factors driving proposed cost increases on the project. These included design refinements, a proposed larger tunnel diameter to increase total capacity, adjustments for a more competitive regional construction market, and related impacts to sales tax and cost reserves. The Regional Water Quality Committee was briefed on these cost increases on June 6, 2018.
  - King County has elected to purchase less than the proportional increase of available capacity for the upsized tunnel diameter, preferring to keep to the modeled control volumes required to meet the Consent Decree and Washington State Ecology standards. As a result, the total shared project costs will be slightly less than the original JPA proportion of 35 percent.

#### Proposed Changes:

A new design scope change will be formally presented to the PRCMC for approval in January 2019. This would eliminate a proposed large conveyance pipe that in the current design discharges most of the tunnel flows to the Ballard Siphon when capacity exists at the West Point Treatment Plant to receive these flows. Instead, the scope change would use smaller existing SPU pipelines that already connect to the Ballard Siphon. Current modeling analysis shows this change would still meet requirements for CSOs controlled by the tunnel, though drain times would increase in some circumstances. While there would be a small incremental increase in resultant control volume needed by King County, that cost would be more than offset by significant project savings (including King County's share).

<b>Current Activities</b>
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- Proceeding with 100 percent design review for tunnel storage and conveyance for Fremont, 3rd Ave W, and 11th Ave NW outfall diversions, having submitted the tunnel 90 percent design to Ecology in December.
- Preparing bid documents to advertise the major tunneling contract in second quarter 2019.

- Progressing to 60 percent design completion for the tunnel effluent pump station (TEPS), which had been on hold while final tunnel design decisions were resolved.
- Updating program management and controls, document management, quality management, safety, and role/responsibility.
- Continuing development of the joint TEPS operational strategy to coordinate effective communications and operations between agencies once the project is completed.
- Integrating the selected construction management (and program support services) consultant Jacobs Engineering into the project team.
- Continuing 3<sup>rd</sup> W and 11th Ave NW shaft mechanical and electrical facility design to coordinate with conveyance designs.
- Preparing an amended addendum to the previously approved Final Facility Plan, which incorporates technical updates, chiefly the modeling results and their impact on design parameters, and the design change related to eliminating the conveyance pipe that discharges the tunnel stored volume (and instead routing it through existing local conveyance infrastructure).
- Continuing progress on the first construction package for the project, the Ballard Early Works. This will provide site preparation for the future TEPS facility, construction of a new pier to handle barging needs for removing construction spoils during tunneling, and related initial construction work.
- Continuing Fremont Conveyance design for inclusion with tunnel storage construction package, including coordination with King County's Fremont Siphon property.
- Initiating the project team task force (which includes King County staff) to provide input and documentation in preparation for applying for the Envision Rating System Platinum award for environmental design.
- Conducting quarterly Risk Review Workshops to update and prepare for identified project risks.
- Finalizing obtaining the remaining temporary and permanent easements required for the project's construction and operation.
- Continuing to conduct briefings with community stakeholders, including neighborhood district councils.

***Project Schedule***

<b><i>Key Consent Decree (CD) Milestones</i></b>	<b><i>CD Compliance Date</i></b>	<b><i>Current Project Schedule</i></b>	<b><i>Variance from CD Schedule (years)</i></b>
Draft Engineering Report (Facility Plan)	3/31/2017	1/22/2016 (actual)	(1.2)
Final Engineering Report for Approval	12/31/2017	3/30/2017 (actual)	(0.7)
Draft Plans and Specs to Ecology for Review	3/31/2020	3/13/2020	(0.05)
Final Plans and Specifications for Approval	12/31/2020	12/14/2020	(0.05)
Construction Start (Notice to Proceed)	7/1/2021	11/20/2019 <sup>1</sup>	(1.6)
Construction Completion	12/31/2025	11/14/2024	(1.1)
Achieve Controlled Status	12/31/2026	12/31/2026	0

All consent decree milestones are on track to be met. The draft and final plans and specifications submittals to Ecology are both very close to their consent decree deadlines. This is due to the two elements of the project that have no King County financial contribution, Ballard and Wallingford Conveyance packages. These are relatively minor parts of the project and were delayed because they are not on the project critical path, but are required for the plan submittals to be considered complete. SPU is very aware of the consent decree milestone dates and has committed to ensuring they will be met.

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<sup>1</sup> Because of the size of this project, the delivery will be split into five separate sequenced construction packages. To ensure the project completion and all consent decree dates are met, some individual packages will still be in design after the start of the tunnel construction package (which triggers the construction NTP CD date). All packages must be done with draft and final design to qualify as having met the respective draft and final design CD milestones. That is why design milestones are completed after the tunnel construction start date. All CD milestones are on track to be met.



<b><i>Potential Use of Contingency and Management Reserve</i></b>
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No new proposed changes for use of reserves were submitted to the PRCMC for review and approval during the period July 1, 2018, through December 31, 2018.

**Ship Canal Water Quality Project Semiannual Report**  
**Annual Cash Flow Projections and Actual Expenses for King County Share of Ship Canal Water Quality Project**

*Note: All figures are in millions of dollars (except percentages).*

<b>Total Project Cost per Joint Project Agreement</b>	<b>423.4</b>
<b>Total Current Approved Budget</b>	<b>570.1</b>
<b>Total Current Joint Shared Cost</b>	<b>527.0</b>
<b>Total Current Approved King County Share</b>	<b>178.2</b>
<b>King County % of Total Shared Cost</b>	<b>34%</b>

<b>KC WTD Share (escalated):</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023</b>	<b>2024</b>	<b>2025</b>	<b>Total</b>
Annual Forecast/Actuals	0.5	5.0	5.4	3.9	9.8	17.6	32.3	30.7	35.8	19.7	12.6	4.9	178.2
Cumulative forecast	0.5	5.5	10.9	14.8	24.6	42.2	74.5	105.2	141	160.7	173.3	178.2	178.2
% of King County Total Share	0.3%	2.8%	3.0%	2.2%	5.5%	9.9%	18.1%	17.2%	20.1%	11.1%	7.1%	2.7%	<b>100%</b>
Cumulative % of King County Total	0.3%	3.1%	6.1%	8.3%	13.8%	23.7%	41.8%	59.0%	79.1%	90.2%	97.3%	100.0%	<b>100%</b>

The above cash flow reflects a cost share for King County that has been approved by the Project Management and Change Review Committee (through Change #6) and is based on the portion of required storage tunnel volume for King County, which is less than a 35 % share as currently being designed (18'10" Tunnel Diameter).