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Ship Canal Water Quality Project - Frequently Asked Questions

The Ship Canal Water Quality Project is currently in preliminary design, so many design details have not been finalized. These FAQs are intended to provide as much information as way have today, and where we do not have final information, to explain our goals and design principles. More detail will be added as design progresses.

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Project overview

What is the Ship Canal Project?

Seattle Public Utilities and King County are working together to build an underground storage tunnel that will improve the water quality in the Ship Canal and Lake Union. During storms, this tunnel will hold polluted water from Ballard, Fremont, Wallingford, and north Queen Anne, preventing it from overflowing into the Lake Washington Ship Canal.

The 2.7-mile, approximately 14-foot diameter tunnel will capture and temporarily hold more than 15 million gallons of stormwater mixed with some sewage that currently overflows during heavy rains. When the storm passes, flows will be sent to King County's existing West Point Wastewater Treatment Plant in Magnolia. Watch a short [video](#) to learn more.

Why is this project needed?

Sewage and stormwater from many older parts of the city – including Ballard, Fremont, Wallingford, and north Queen Anne – all funnel into one set of pipes. In dry weather conditions,

all sewage and stormwater flows to King County's treatment plant in Magnolia. During wet weather conditions, polluted runoff can exceed the pipes' capacity and send a mixture of stormwater and sewage to the nearest body of water. These combined sewer overflows or "CSOs" contain contaminants that could make people sick and harm fish, wildlife, and the environment.

Where is the project located?

The tunnel will run from Shilshole Avenue Northwest and Northwest 24th Street in Ballard to near Seattle Public Utilities' North Transfer Station in Wallingford. [This map](#) shows the project location and the areas where the project will address Ship Canal water quality. The tunnel will primarily run under public right-of-way. The location of the tunnel is based on the location of existing sewer infrastructure, including where outfalls are located.

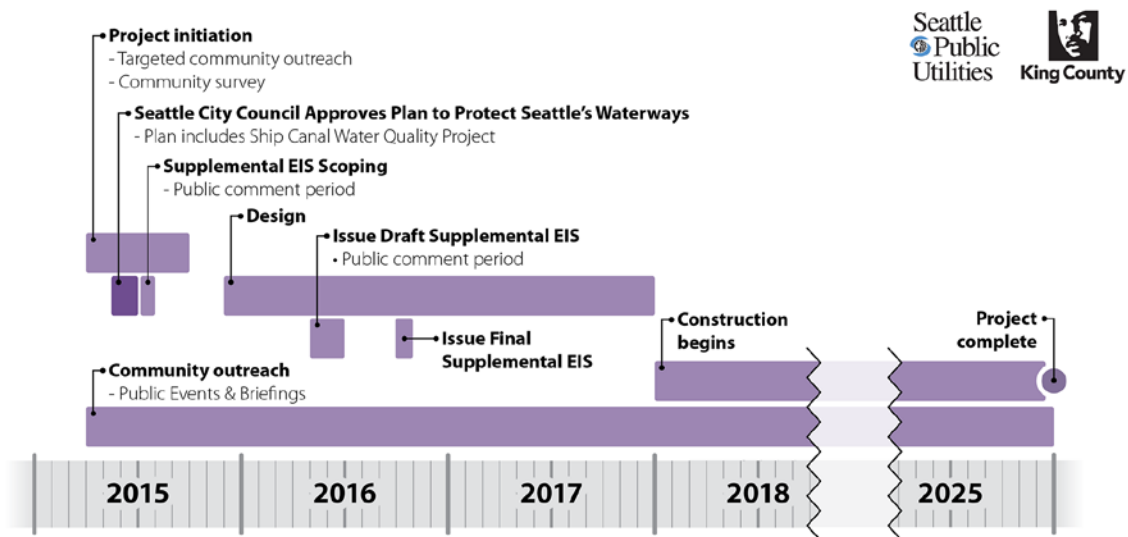
Who approved this project?

The Seattle Mayor and City Council, Washington State Department of Ecology, and U.S. Environmental Protection Agency have all approved the Plan to Protect Seattle's Waterways, which includes the Ship Canal Water Quality Project.

What are the benefits of this project?

The benefit is cleaner water and a lot less pollution in the Ship Canal, Salmon Bay and Lake Union. CSOs in Ballard, Fremont, Queen Anne, and Wallingford send sewage and stormwater into the Ship Canal 130 times per year on average. This project will store enough to limit those overflows to less than one overflow per outfall per year on average. More than 50 million gallons of raw sewage and polluted runoff will be kept out of the Lake Washington Ship Canal each year.

What is the project timeline?



The project is still in preliminary design, so the construction schedule and project design may change. As such, we will continue to reach out to the community to provide updates and use your feedback in the design process. Your input is important to us in addressing regional pollution in Ballard, Fremont, Wallingford, and north Queen Anne, as well as providing a healthy future.

What is the construction schedule?

Preliminary schedule:

- Sept. 2015: Begin pre-construction activities to prepare the site for construction
- 2016-2017: Begin site preparation for Ballard Yankee Diner Site
- 2017-2022: Relocate and replace utilities along tunnel alignment
- 2017-2020: Pump station construction
- Late 2018-2019: Excavate tunnel launch pit (Ballard Yankee Diner Site)
- 2018-2020: Fremont Conveyance
- 2019-2021: Excavate tunnel drop shafts
- 2019-2022: Tunneling (from Ballard to Wallingford)
- 2020-2022: 3rd Avenue. (Queen Anne) Conveyance
- 2020-2021: 11th Avenue Northwest conveyance
- 2021-2022: Wallingford conveyance
- 2021-2022: Ballard conveyance
- 2022-2025: Commissioning and System Integration

What are the project components?

The storage tunnel requires:

- Drop shafts, which are vertical structures that bring flows into the tunnel, and contain access shafts for maintenance
- Facilities for vac-trucks to clean out sewer pipes and grit removal structures
- Conveyance pipes to bring flows from the existing sewer pipe network to the tunnel
- Pump station and odor control facility in Ballard
- Odor control equipment in Fremont and Wallingford
- Flow regulators to control the speed of flow into the tunnel

- Back-up power generators

Why are SPU and King County working together on this project?

Both agencies manage outfalls in Ballard, Fremont, Wallingford and north Queen Anne and are required to meet the same state and federal regulations for CSOs. By working together, SPU and King County can get water pollution out of the Ship Canal faster, with less disruption to the community. Working together also allows us to shrink the overall footprint of the facilities necessary to meet federal and state obligations.

About Combined Sewer Overflows or CSOs

Why do we have the outfalls? Why wasn't a storage tunnel constructed decades ago, instead of building outfalls?

Outfalls were built when the combined sewer system was constructed, about 100 years ago. The outfalls were originally used to convey untreated sewage to waterbodies. As local lakes and creeks became polluted, interceptors were built to divert sewage flows to larger receiving waters. Wastewater treatment plants were constructed between the 1940s and late 1950s. By 1965, King County had constructed the West Point Sewage Treatment Plant, the Kenmore interceptor and Elliott Bay interceptor, which eliminated most of the direct discharges to the Seattle waterfront. As the City expanded, additional capacity was needed and the City started to separate the drainage flows from the sewage flows. In 1968 the Forward Thrust Bond issue was approved and the City moved forward with extensive sewer separation through 1977. The 1980s marked a change in CSO reduction policy away from separation. Recognizing that street runoff likely contains undesirable contaminants, CSO reduction projects since the 1980s have primarily involved temporary storage facilities. The outfalls are meant to serve as a "relief valve" in case the pipes and storage facilities fill up. Without the outfalls, polluted water could back up into peoples' homes or into the street via maintenance holes.

What are the regulatory standards this project must meet?

Both the Washington State Department of Ecology and the U.S. Environmental Protection Agency require Seattle Public Utilities and King County to reduce combined sewer overflows to a long-term average of no more than one per outfall per year.

Combined sewer overflows in Ballard, Fremont, Queen Anne, and Wallingford currently send sewage and stormwater into the Ship Canal an average of more than 130 times per year at seven outfall locations. The Ship Canal Water Quality Project's goal is to reduce the number of overflows at each outfall to an average of about one time per one and a half years. This is what we mean by "0.6 flows per year."

To make sure we can meet this goal, our project team uses models that incorporate climate change impacts, and include the most frequent and largest storms.

Do overflows affect our drinking water?

No. Seattle's drinking water comes from large protected watersheds in the Cascade Mountains.

Why are some CSO basins managed by King County, and others managed by SPU?

Management responsibility is based on the size of the drainage basin served by each CSO outfall (a drainage basin is an area defined by hydrology and hydraulics that drains to a common outfall or outfalls). King County manages CSOs from basins greater than 1,000 acres.

Public involvement

How has the community been involved?

There were multiple opportunities for the public to weigh in during the Plan to Protect Seattle's Waterways (Plan) environmental review process. The Plan defined CSO and stormwater projects that would be implemented, including this project. SPU is preparing a project-level Supplemental Environmental Impact Statement (EIS) to better understand how the project will affect the environment and community. There was a scoping public comment period in summer 2015 to gather input on the range of alternatives to evaluate in the Supplemental EIS.

How can the public get information and be involved in the project?

There will be more opportunities for public input as the project advances. We are conducting targeted outreach early, including briefings and drop-in sessions, to understand and consider community interests. Public input will help inform key decisions, including where to build conveyance pipes (moving flows from existing pipes to the tunnel) in Ballard between 28th Ave NW and the tunnel launch site near NW Market Street and Shilshole Avenue NW.

SPU will release the draft Supplemental EIS in early 2016, and work with the community on design details later in 2016. More information about the public involvement process will be shared on the [project website](#). [Sign-up](#) to receive email updates or request a briefing for your organization, by contacting Daniel Enrico, Project Manager, at SPU_ShipCanalProject@seattle.gov or 206-684-7413.

Why is Seattle building a tunnel to address overflows?

Why is SPU building a tunnel instead of individual storage tanks?

The tunnel will serve as a large underground storage facility, built using tunneling technology. King County, working with SPU, has successfully built and operated tunnels carrying sewage and stormwater over the years. Tunnels require less maintenance to run, fewer disruptions during construction and operation and fewer above ground facilities to build. Compared to building four individual storage tanks, the tunnel is a better option because it:

- Requires less open-trench construction
- Requires less excavation and hauling
- Generates significantly fewer truck trips and localizes soil excavation and hauling to a single site
- Requires a smaller footprint (1.3 acres for the tunnel vs. 4.3 acres for the individual tanks)

- Provides operational flexibility to meet future needs, either from growth or climate change.

Have SPU and King County built a tunnel before?

Yes. King County Wastewater Treatment Division has built sewage tunnels in coordination with Seattle Public Utilities near South Lake Union/Queen Anne and in southeast Seattle. Many tunnels of comparable size have been built already in Seattle. Since the 1880s, 150 tunnels (70+ miles) have been built in Seattle for sewers, utilidors, and transit tunnels.

Is this tunnel going to be the same kind of tunnel as “Bertha”?

SPU will use a conventional tunnel boring machine to construct the ship canal tunnel, similar to the Sound Transit’s tunnel boring machine for the Northgate Link Extension. Bertha is the world’s largest tunnel boring machine. Bertha is 16 times larger than the ship canal tunnel-boring machine.

Will the storage tunnel be built to withstand an earthquake?

All SPU facilities are built to guard against seismic damage. Tunnels are typically more resilient than above ground structures in earthquakes. We will complete geologic and geotechnical studies to better understand soil conditions and build a seismically sound facility.

Why can’t green stormwater infrastructure (GSI) be used to manage overflows?

GSI is a valuable tool for controlling smaller volumes of stormwater and slowing the flow of stormwater into the system. SPU and King County are using GSI to reduce stormwater in Ballard and other parts of the city. For this area, the need to control nearly 60 million gallons of water each year is simply too big for GSI to handle on its own. GSI will be used to provide extra overflow control to ensure that wetter, warmer weather will not result in overflows above what is allowed by state and federal law.

Construction

How will SPU minimize impacts to parking and business access during construction?

Building a tunnel will reduce the number and duration of traffic impacts that would come with building multiple storage tanks. Construction impacts are still being identified and will be refined once a contractor is hired. We will strive to incorporate guidelines that minimize impacts to parking and business access during construction into our construction specifications and contracts to the extent feasible. We will work closely with the community to understand potential impacts. Community feedback will be shared with the project design team to help reduce traffic impacts to the extent possible.

How will noise be minimized during construction and operation?

We are working with you and your neighbors now to understand as much as we can about the community before we start construction. This will help us set noise guidelines for our contractor. Ways that we may be able to deal with noise include limiting hours for the noisiest construction and looking for ways to shield noise. We are aware that many residents live near future work

sites. We will be mindful and respectful of the neighborhood, and will look for ways to mitigate noise.

Construction noise is also regulated by city ordinance and we build noise standards into our construction contracts. When the facility is operating, there will be minimal noise from blowers that are part of the main drop shaft's air ventilation systems for the underground odor control facility, located on SPU-managed property. Seattle Public Utilities crews will be on site occasionally to make sure everything is operating well.

How will dust be minimized during construction?

The primary method that the contractor will use to control dust is by keeping the soil wet. This prevents dust particles from being blown away from the construction site. We will use and specify safe Best Management Practices to minimize dust.

Operation and Maintenance

How will odor be minimized?

Our odor control is an industry standard and proven technology. We will have an active odor control system that will treat air at the pump station and drop shafts. Our goal is to minimize odor from leaving the site.

Funding

How much will this project cost?

The estimated project cost is about \$430 million (in 2025 dollars). The project will be paid for by sewer rates and bonds backed by sewer rates.