FREMONT SIPHON
replacement project

King County
Department of Natural Resources and Parks
Wastewater Treatment Division

Fremont Neighborhood Council briefing
February 22, 2016

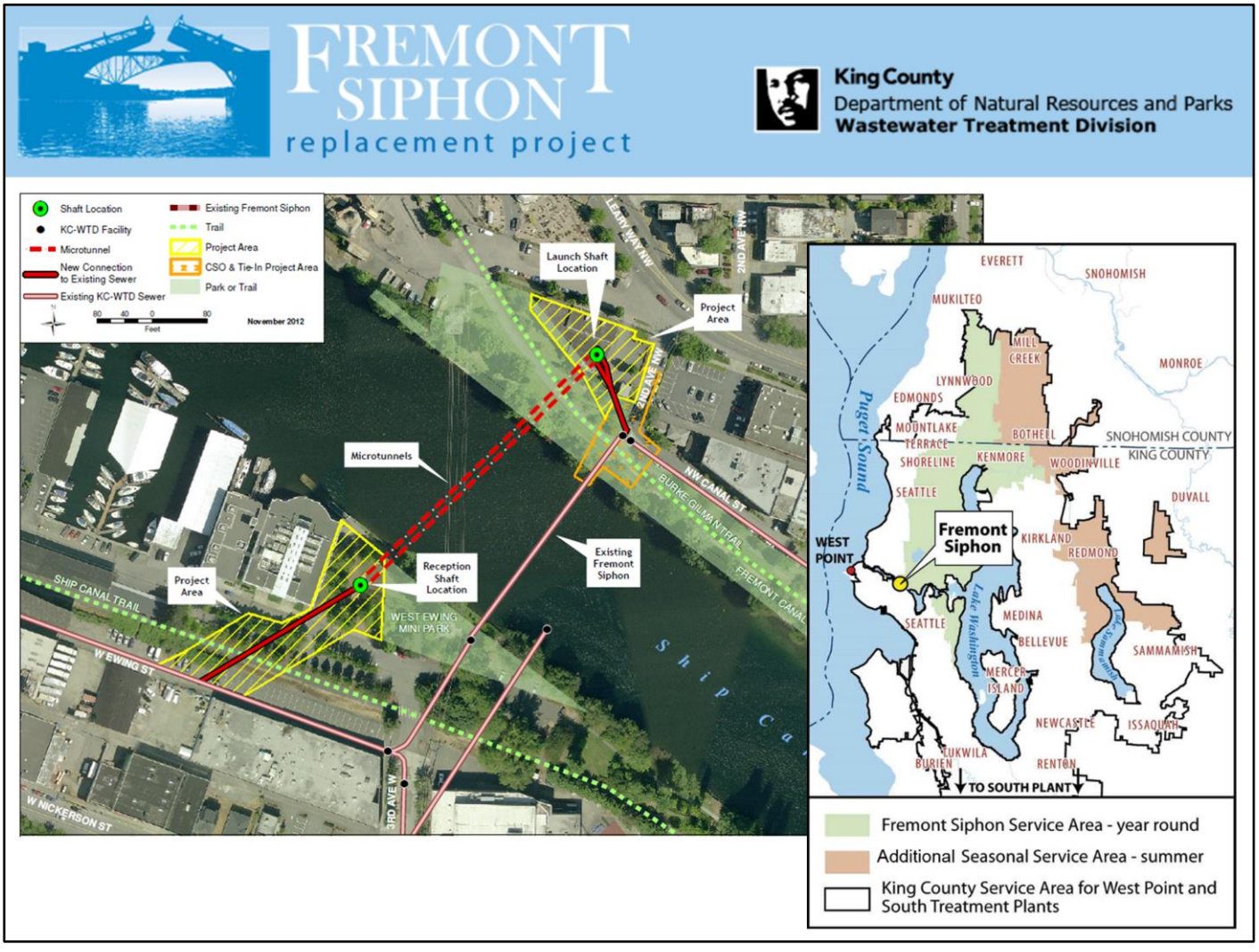
King County began replacing the Fremont Siphon last year.

The existing Fremont Siphon is actually 2 pipes : 1 5-foot diameter pipe and 1 4-foot diameter pipe that passes under the Ship Canal to the County treatment plant in Magnolia.

One of the busiest pipes in King County's entire service area, which extends from southern Snohomish County all the way to northern Pierce County.

The pipe carries sewage and stormwater from 60 square miles year round, 114 square miles in summer. Half of the sewage and stormwater cleaned and discharged at the County treatment plant in Magnolia every day flows through these pipes.

So these are very important pipes. They're also very old. The existing siphons have been in use for over a century and need to be replaced.



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What happened in 2015

Prepared work sites

Built shafts

Installed connecting pipe (Queen Anne)

The project made good progress last year.

The County contractor spent the first part of 2015 preparing the sites in Fremont and Queen Anne.

- Cleared away the old Praxair building
- Relocated a City drain pipe so that it was out of the way of the new pipes that will connect the new siphon
- Installed a new retaining wall to support the city drain pipe along the Ship Canal
- Identified and relocated utilities

The contractor also completed work on both access shafts for the tunneling machine.

- Built the shafts using secant piles as shoring – created a watertight ring of concrete cylinders
- Fremont shaft is 90 feet deep and 32 feet across
- Queen Anne shaft is 80 feet deep and 29 feet across

Finally, the contractor installed most of the pipe necessary to connect the new siphons to the existing sewer system on the Queen Anne side. The connecting pipe was about 9 feet in diameter.

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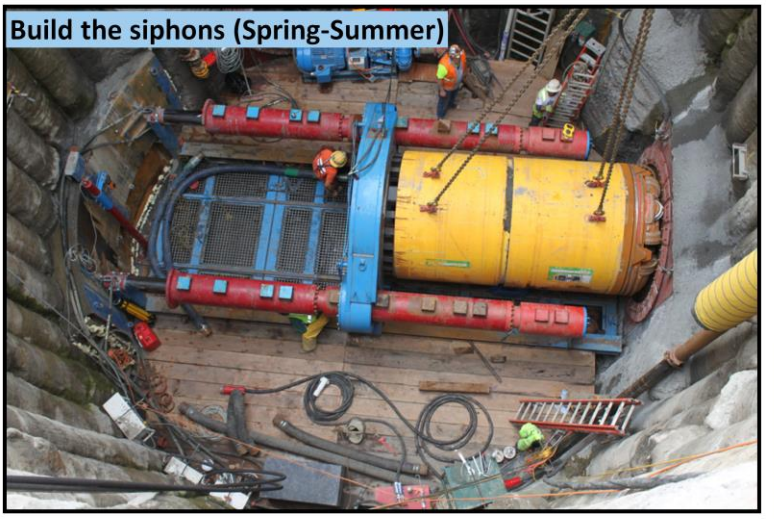
What's in store for 2016

Build the siphons (Spring-Summer)



Connect to sewer system (Fall)

Build odor control building (Winter)

Most of this year will be focused on building the siphons themselves. Crews will use a microtunneling machine to drill two 7-foot diameter tunnels under the Ship Canal.

Each tunnel will be about 450 feet long. The tunnels will be finished in the fall.

The drill will start work on the Fremont side of the Ship Canal, and finish up on the Queen Anne side. A 7-foot diameter steel casing will be pushed in behind the drill to secure the tunnel. Two five-foot pipes will be installed inside the casings and then the casings will be filled with grout.

Crews will also install the 9-foot diameter connecting pipe on the Fremont side, which will close 2nd Ave N.W. at N.W. Canal St. for a few months.

By the end of the year, we expect to be building the odor control building which will sit on top of the Fremont site tunnel shaft.

- The drill costs $1.6 million
- It c an dig around one to four inches per minute
- The drill will ultimately remove about 1300 cubic yards of dirt on each drive - enough soil to fill 130 dump trucks.
- SWIZY is 7 feet in diameter, smaller than the one used to successfully dig the Ballard Siphon - and one-eighth the size of Bertha.

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What to expect

- **Work hours**
  - Weekdays: 7:00 a.m. - 6:00 p.m.
  - Saturdays: 9:00 a.m. - 6:00 p.m. *(if necessary)*
- **Trucks, activity and noise**
- **Trail, street detours**

Stay safe, stay informed!

24/7 Project hotline: 206-205-5428

Web: kingcounty.gov/fremontsiphon

Email doug.marsano@kingcounty.gov or via project web page