



FREMONT SIPHON

replacement project



King County

Department of
Natural Resources and Parks
Wastewater Treatment Division

Community Meeting May 15, 2012



MWH

JACOBS ASSOCIATES

Meeting purpose



- ▶ Provide project update
- ▶ Provide important new information
 - Potential construction areas and activities
 - Proposed locations for new structures
- ▶ Provide next steps and opportunities for public participation

Agenda



Team introduction

Fremont Siphon background

Project status

Recommended project proposal

Project areas and elements

- Fremont
- Queen Anne

Construction overview

Project timeline and next steps

Working with the community

Overview: wastewater conveyance in the project area



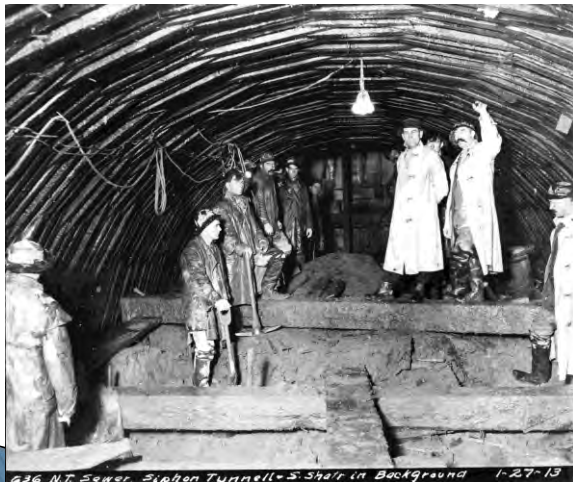
- ▶ Seattle Public Utilities collects most residential and commercial flow
- ▶ King County receives flow from SPU's system
- ▶ Both SPU and King County have CSO facilities that discharge into the Ship Canal



Fremont Siphon background

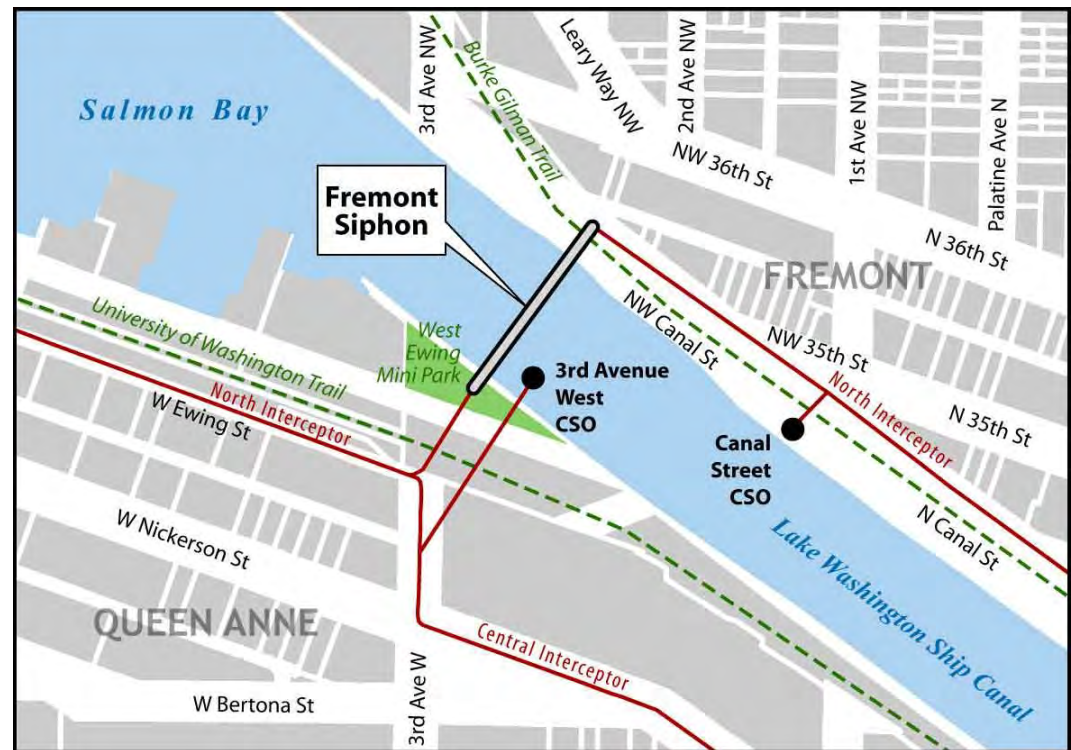


- ▶ Located under the Lake Washington Ship Canal, west of the Fremont Bridge
- ▶ Pipes were constructed as the North Trunk Sewer from 1907–1913
- ▶ 48" and 60" cast iron pipes

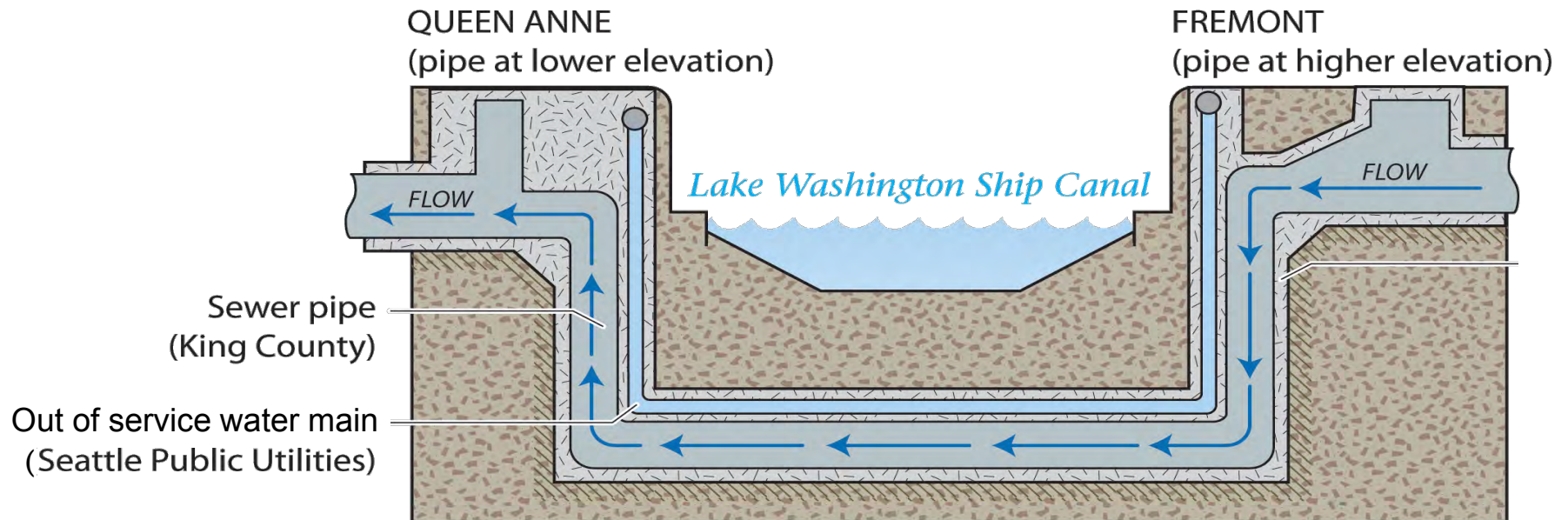


636 N.T. Sewer Siphon Tunnel - S. Shear in Background 1-27-13

Photo courtesy of Seattle Municipal Archives

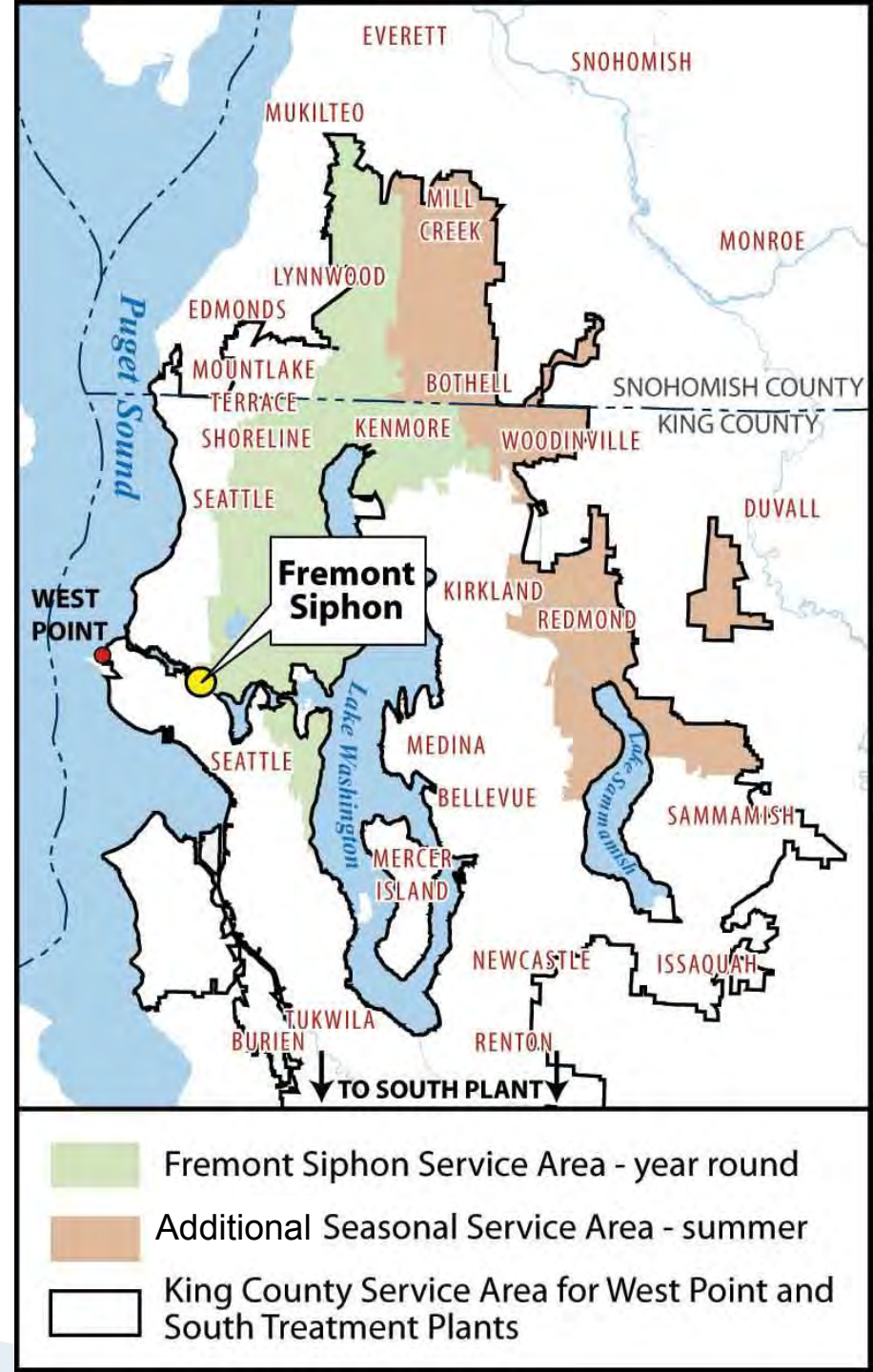


The Fremont Siphon is installed under the Lake Washington Ship Canal



The Fremont Siphon is critical infrastructure

- ▶ Service area of 60 square miles year round
- ▶ Additional 54 square miles in the summer
- ▶ Carries up to 220 million gallons per day, half the capacity of the West Point Treatment Plant



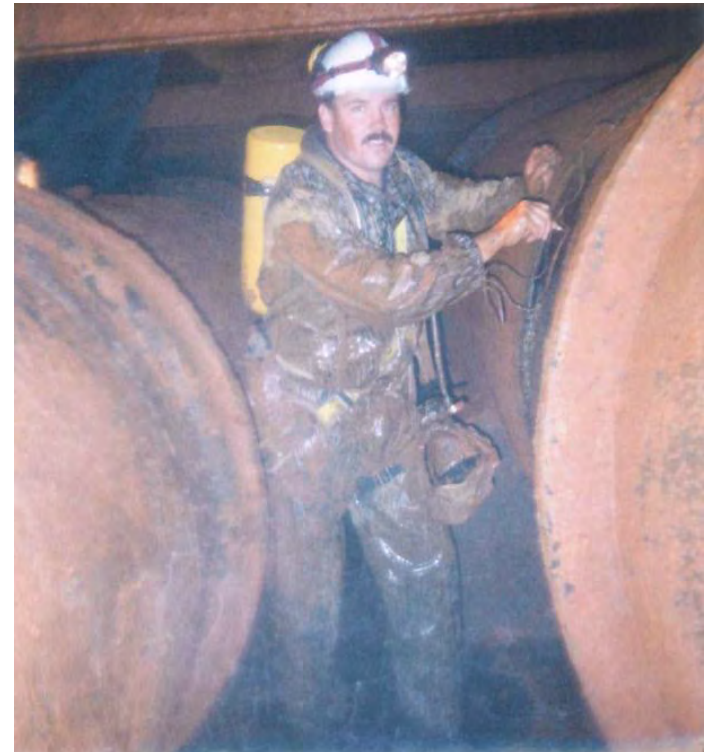
Why the project is needed now



Siphon pipelines need replacement after almost 100 years of service



Photo courtesy of Seattle Municipal Archives



Project status– where we're at now

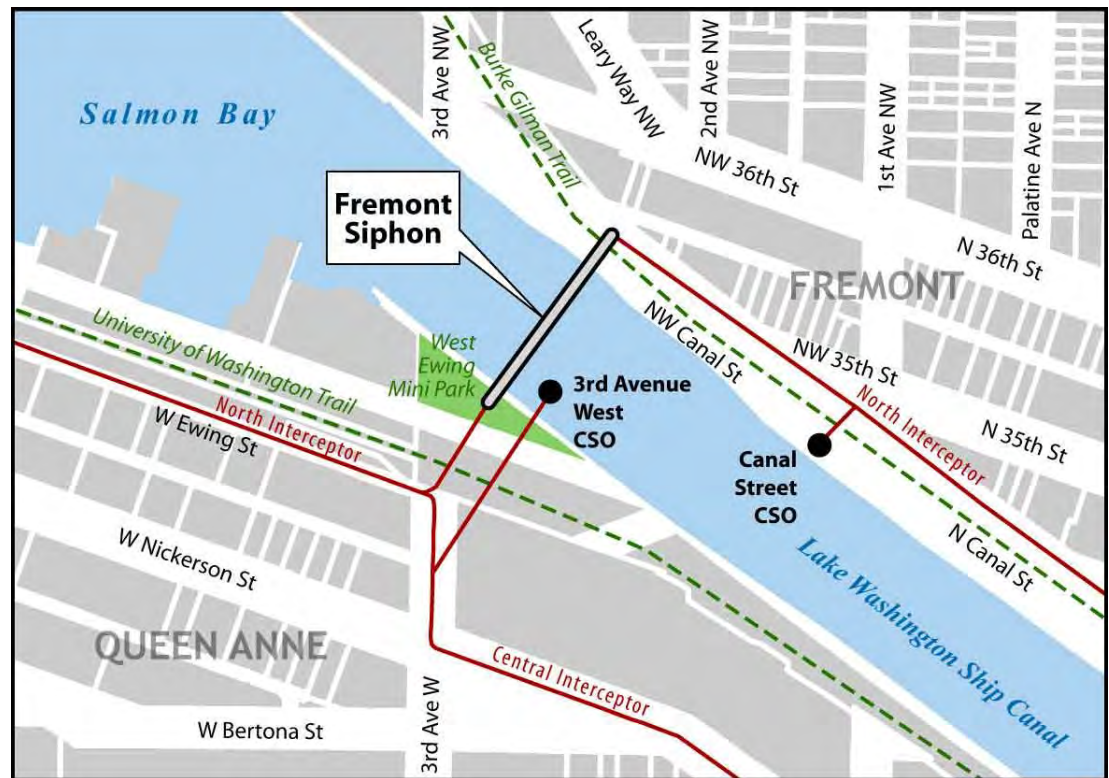


- ▶ 2010
 - Planning phase
- ▶ Summer 2011
 - King County recommends siphon replacement
- ▶▶ 2012
 - Early design continues
- ▶ 2013
 - Final design
 - Permitting
- ▶ 2014
 - Final design complete
 - Construction begins

Project Proposal: new crossing under the Ship Canal



- ▶ Siphon continues operating during construction
- ▶ Install using trenchless technology
- ▶ New system will maintain existing capacity
- ▶ Odor control
- ▶ Community supported option



Predesign update– Project locations



- ▶ ***Planning phase*** – proposed trenchless construction staging in Queen Anne
- ▶ ***Early design*** –project team proposes trenchless construction staging be located on Fremont side
- ▶ **Mining activities will be located primarily in Fremont due to**
 - ▶ Truck access
 - ▶ Size of site needed for construction staging

Considerations for project locations in Fremont



- ▶ Hydraulic constraints limit potential locations
- ▶ Construction activities will extend up to two years
- ▶ New at grade and above ground structures will be needed for siphon access and odor control
- ▶ Long-term operations and maintenance access

WTD's recommendation



- ▶ Multidisciplinary project team reviewed full range of community considerations and project requirements
- ▶ **WTD recommends proposal to locate new siphon and odor control facility on the property located at 2nd Avenue Northwest and Northwest 36th Street**
- ▶ WTD is in the process of defining this proposal
- ▶ Environmental review will be conducted on the proposal under the State Environmental Policy Act (SEPA) in summer 2012

Project Design Update

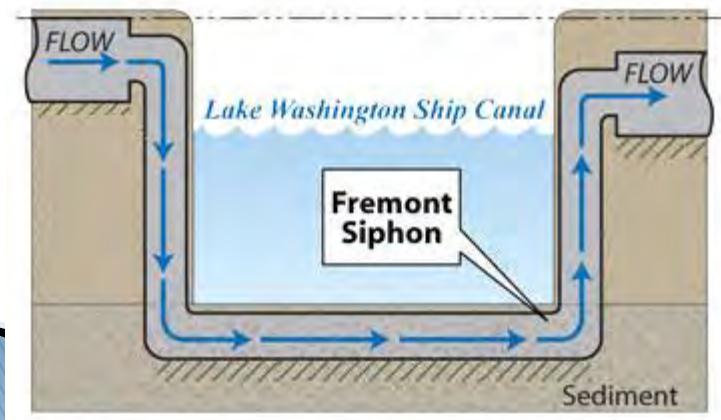


- ▶ How we will build project
 - ▶ Key constraints involved
- ▶ Odor control
- ▶ Utility relocation

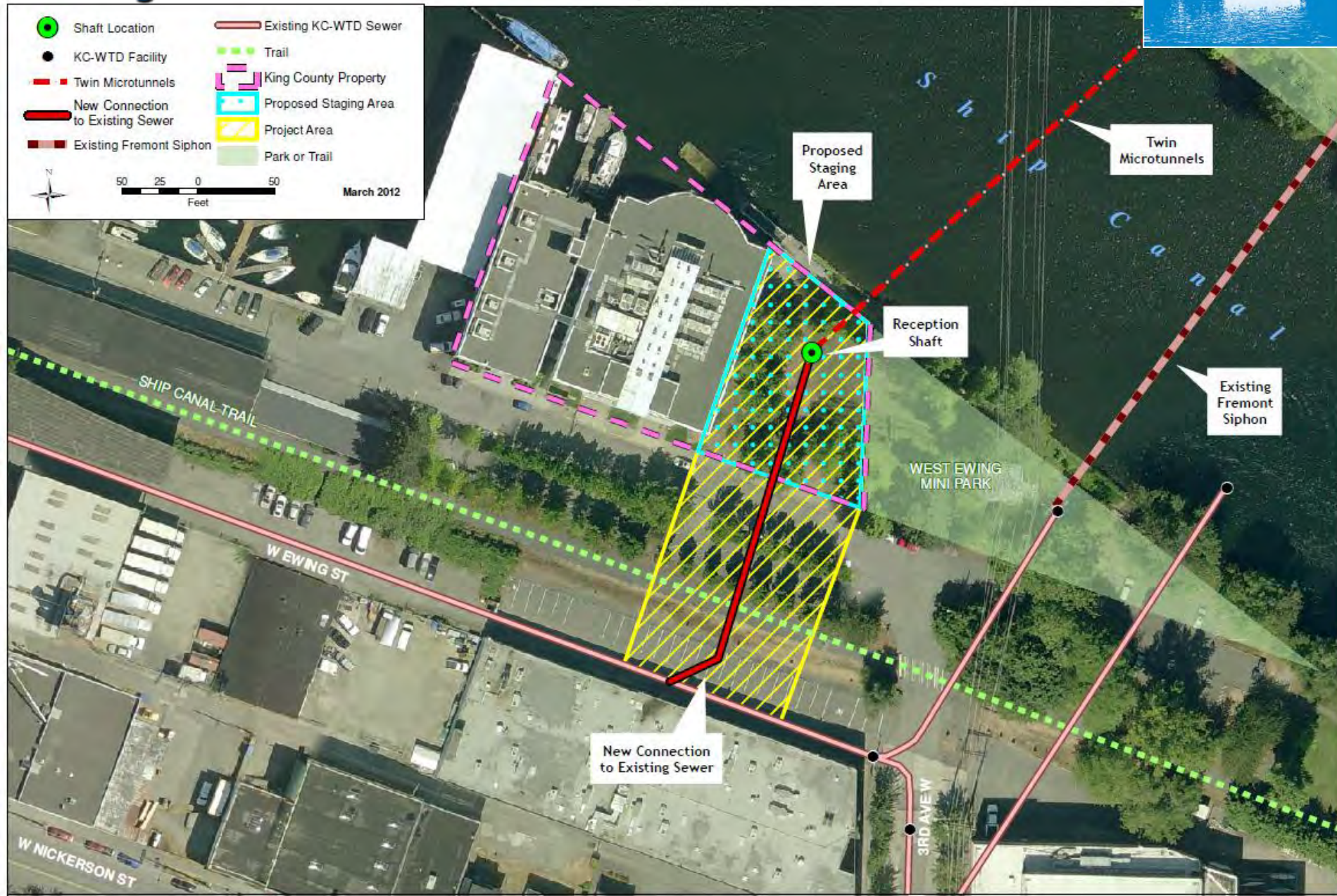
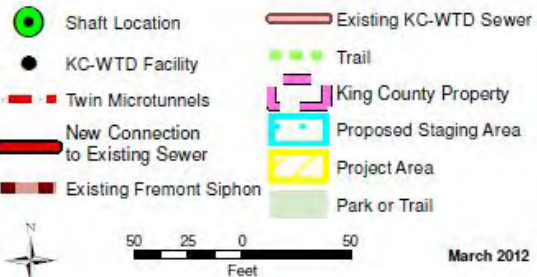


How the siphon will be built

- ▶ Microtunneling under the Ship Canal
- ▶ Two shafts needed to:
 - Launch microtunnel machine in Fremont
 - Retrieve microtunnel machine in Queen Anne
 - Install pipes to complete siphon



Project location - Queen Anne



Work in Queen Anne



Work focused on King County's Environmental Labs property and right-of-way:

- ▶ Excavation of microtunnel retrieval pit, removing machine after drilling
- ▶ Connecting new siphon to existing sewer adjacent to Seattle Pacific University
- ▶ Relocating utilities
- ▶ Restoration



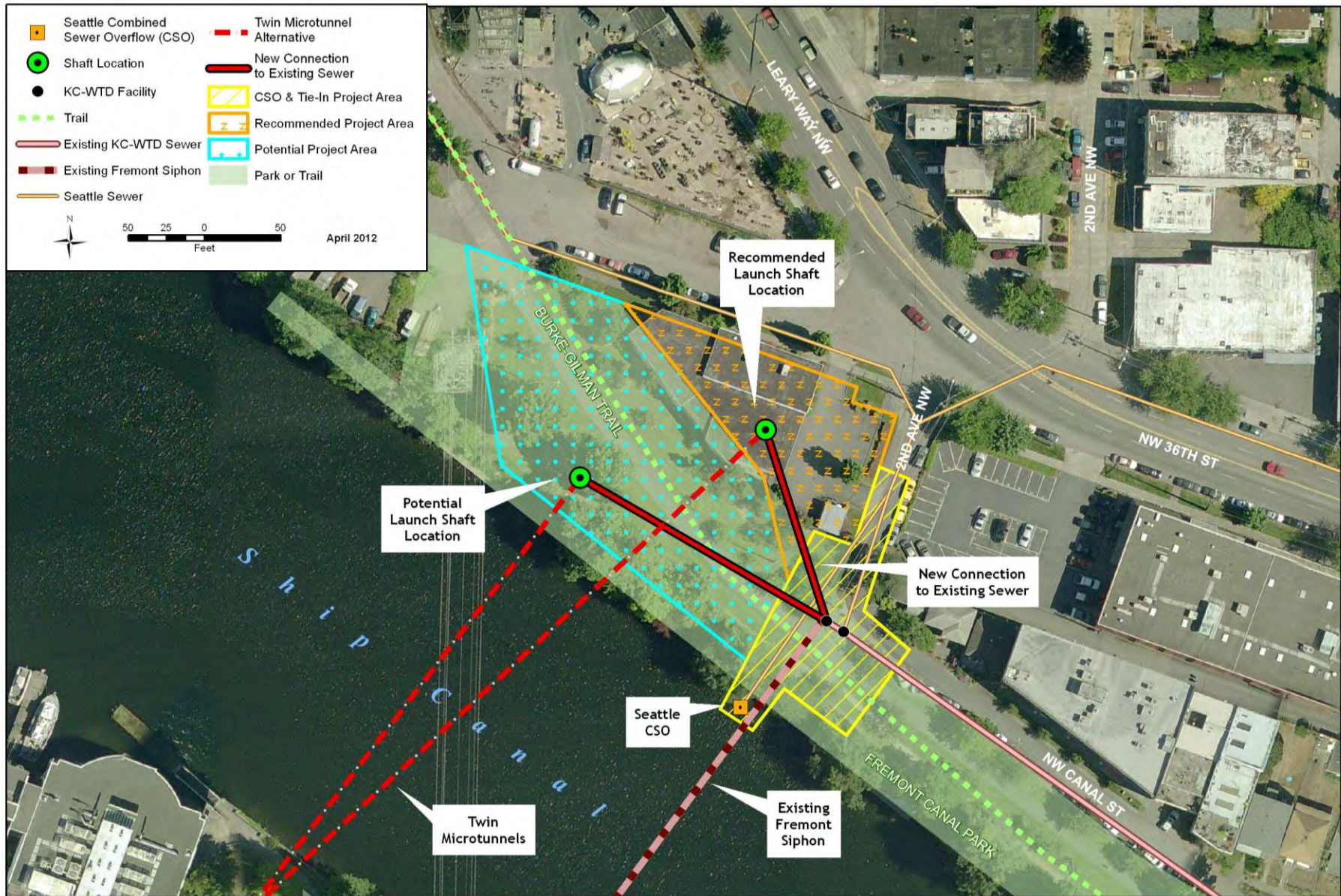
New structures in Queen Anne



- ▶ Concrete slabs and manholes at surface needed to provide access for inspections and maintenance to new siphon and connections to existing pipeline



Project location – Fremont



Work in Fremont



Work activities in Fremont include:

- ▶ Excavating a shaft to launch the microtunnel machine
- ▶ Operate a soil separation facility to process tunneling spoils
- ▶ Connect the new siphon to existing sewer
- ▶ Relocate utilities
- ▶ Replace and reconfigure the City's CSO outfall
- ▶ Build new access and odor control structures

New structures in Fremont

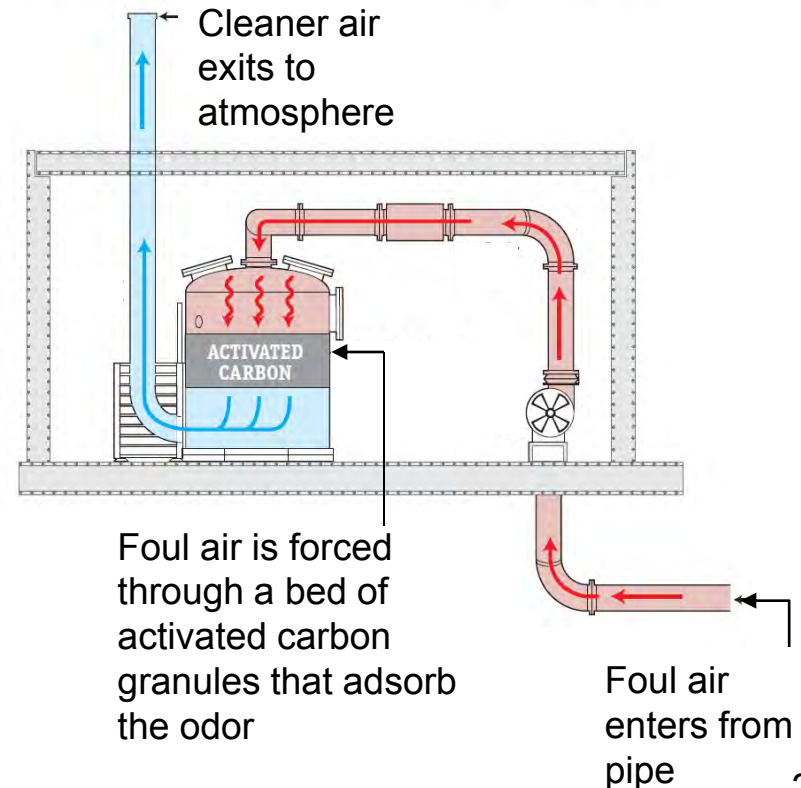


- ▶ Lift slabs and manholes needed to provide access for inspections and maintenance
- ▶ Odor control included to address concerns



Lift slab and access hatches, Alki Beach

Activated Carbon Scrubber



Utility relocations

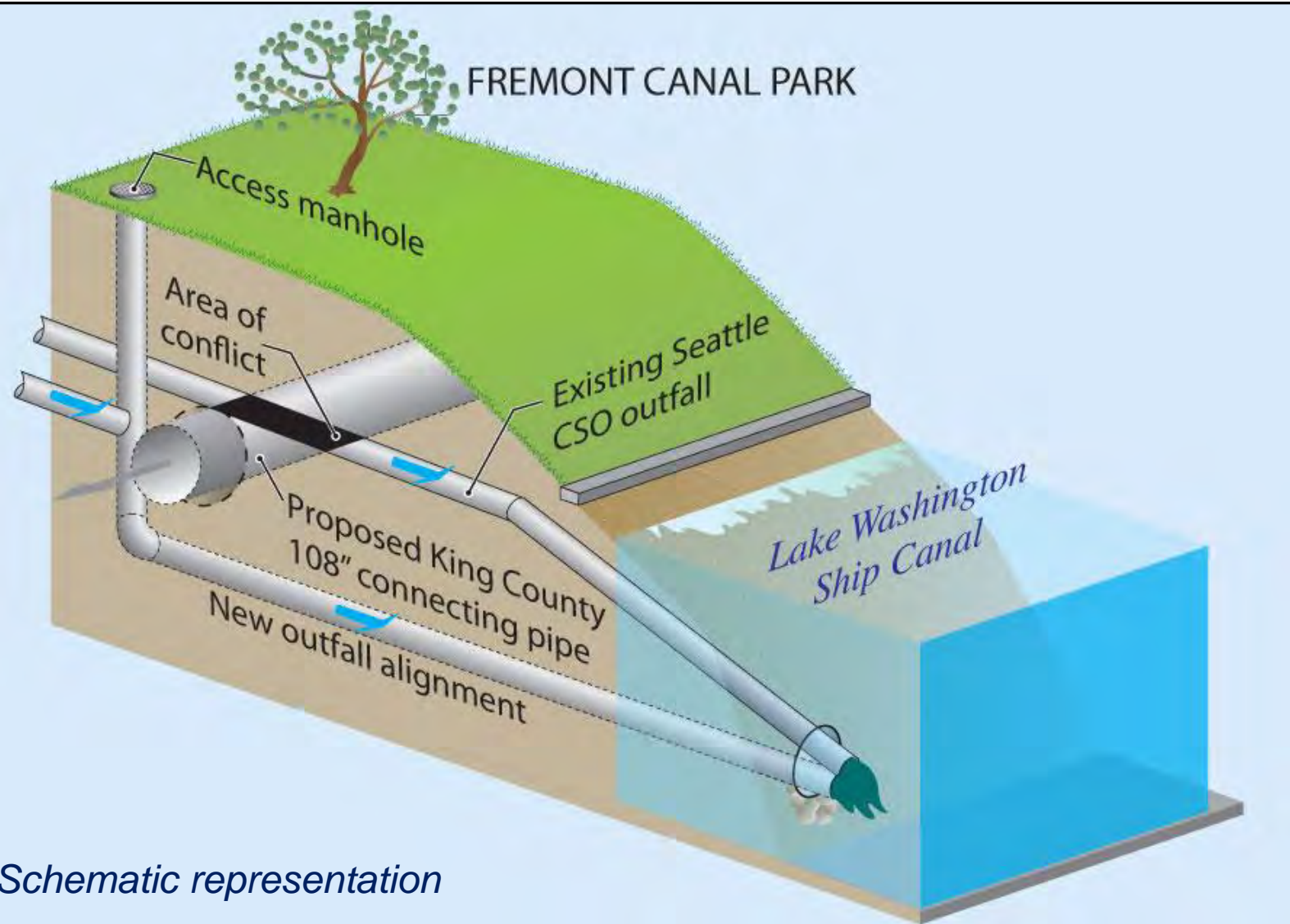


Potential utility relocations are needed in the project area including:

- ▶ Power
- ▶ Water
- ▶ Gas
- ▶ Sewer
- ▶ Combined sewer overflow (CSO) outfall



Replacement & reconfiguration of Seattle's CSO outfall



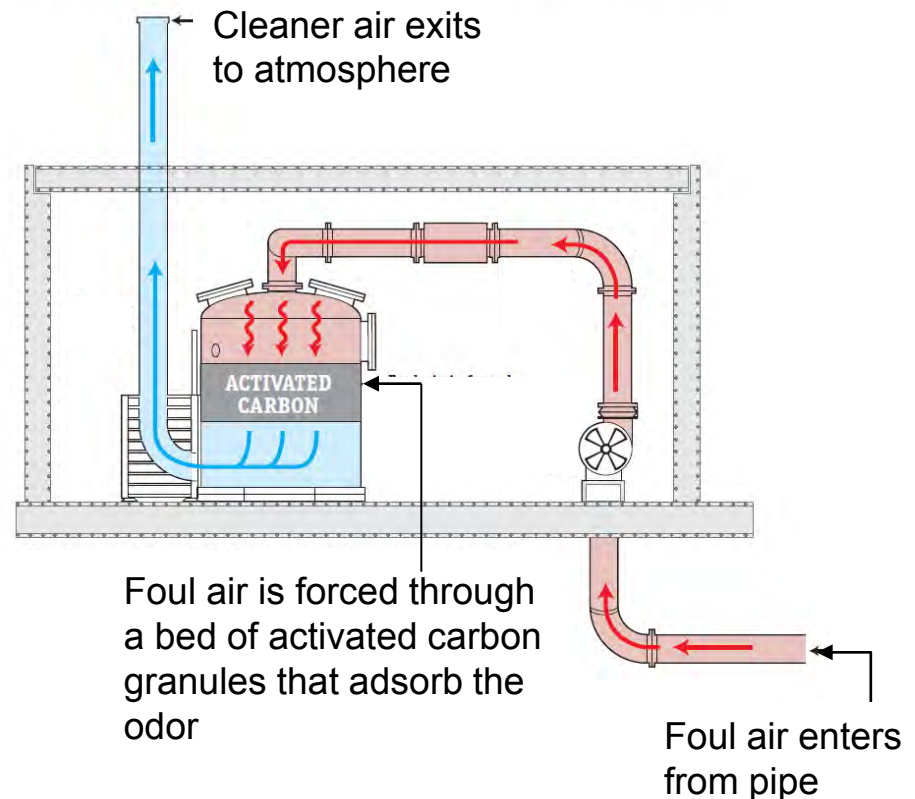
Schematic representation

Odor control



- ▶ Included in project due to community concerns
- ▶ Will serve both the existing and new system
- ▶ Active scrubbing system
- ▶ Configuration and design developed during final design phase

Activated Carbon Scrubber



Major construction elements and approximate duration



- ▶ Two microtunnels under the Ship Canal ~ 6 months
- ▶ Launch and retrieval shafts ~ 6 months
- ▶ Connection to existing pipelines ~ 6 months
- ▶ Utility relocations ~ 3 months
- ▶ Odor control facility ~ 3 months

Restoration of affected areas



- ▶ Streets and trails
- ▶ Trees and other vegetation
- ▶ King County property
- ▶ Fremont Canal Park



Working to reduce construction impacts



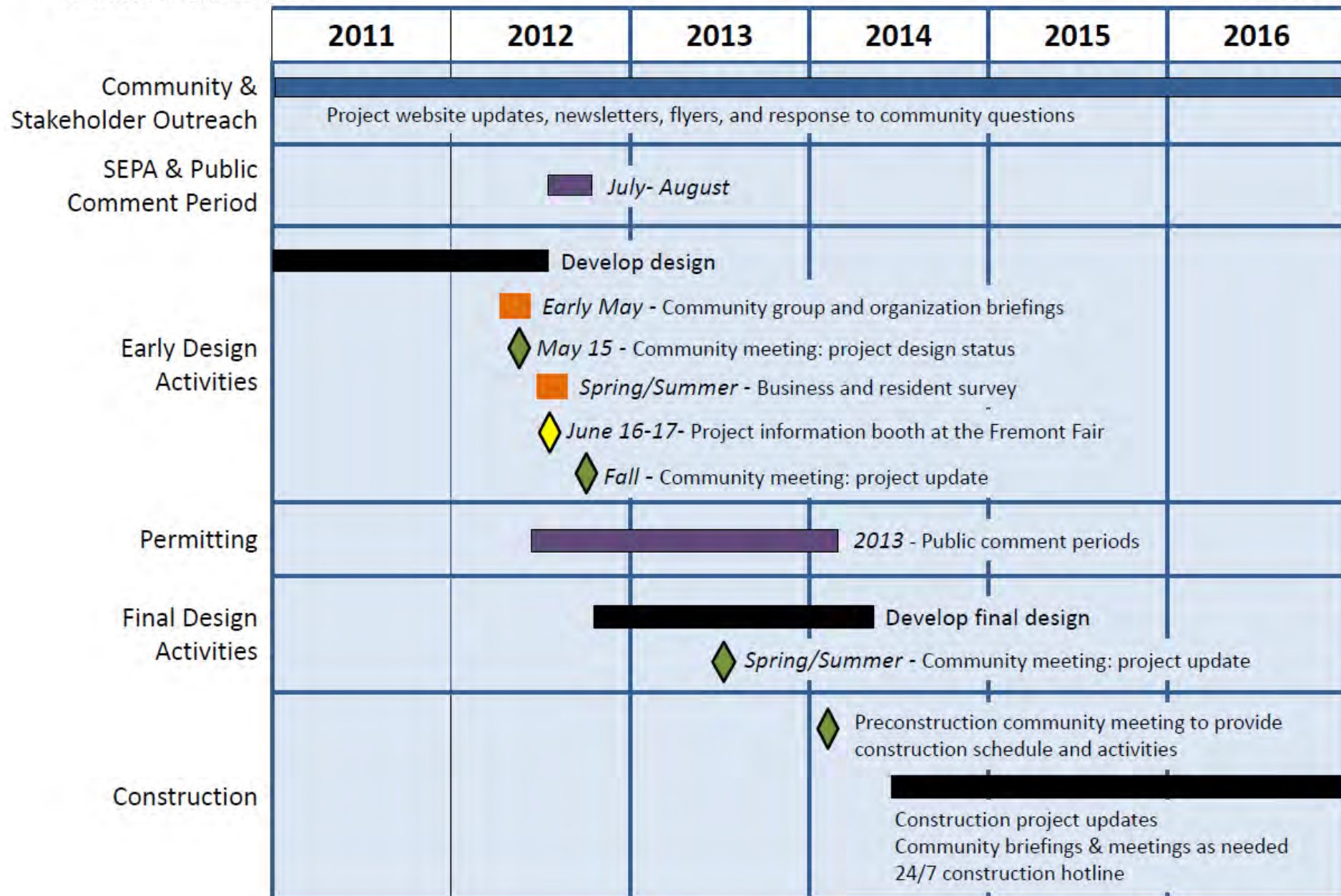
- ▶ Construction duration 2 years
- ▶ Construction activities
 - ▶ Truck and worker traffic
 - ▶ Working hours
 - ▶ Noise, light, dust
- ▶ Access–
 - ▶ Local businesses and residences
 - ▶ Services and deliveries
 - ▶ Parks
 - ▶ Bike trails
 - ▶ Seattle Pacific University student activities





Fremont Siphon Replacement Project Timeline

MAY 2012



King County works with communities



- ▶ *During design* – Contract specs and permit conditions are established to limit impacts
- ▶ *Before construction* – Community is given an overview of construction work and schedule
- ▶ *During construction* – Community relations staff is on-call and works with construction team and contractor to address issues

Contact us



Website:

www.kingcounty.gov/environment/wtd/Construction/Seattle/FremontSiphon

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For hard copies of the website, please contact Monica Van der Vieren