King County
Department of
Natural Resources and Parks

Wastewater Treatment Division Construction Contractor Forum

Wastewater Treatment Division
April 6, 2017

Today's Presentation

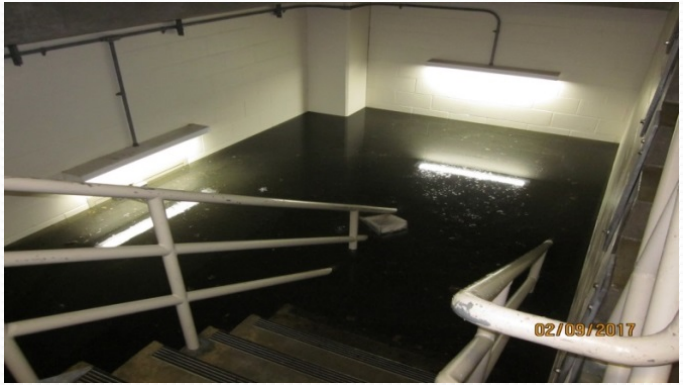
- West Point Treatment Plant flooding, plant restoration, and contracting – Stan Hummel
- Upcoming WTD Construction projects including:
  - Georgetown Wet Weather Treatment Station – Stan Hummel
  - West Point Oxygen Generation and Dissolution – Crystal Fleet
  - Loop® Fleet Maintenance Facility – MaryBeth Gilbrough
- Overview of Community Workforce Agreements – Daniel Peterson

West Point Treatment Plant

- Averages 90 million gallons a day during dry months
- Wet weather design capacity of 440 million gallons a day
- Serves City of Seattle's combined stormwater and sewer system
- 14 years of perfect compliance with its discharge permit

February 9, 2017

- Severe flooding caused by power and equipment failure led to flooding inside the plant
- 180 million gallons of stormwater-sewage discharged to Puget Sound
- Damage temporarily reduced plant capacity, treatment level



February 9, 2017

Flooded equipment galleries

Immediate Response

- Mobilized crews and equipment for 24/7 response
- Employee safety paramount
- Diverted flows to other facilities
- Posted beaches and monitored water quality to protect public
- Implemented a plan to use primary plants and avoid future bypasses

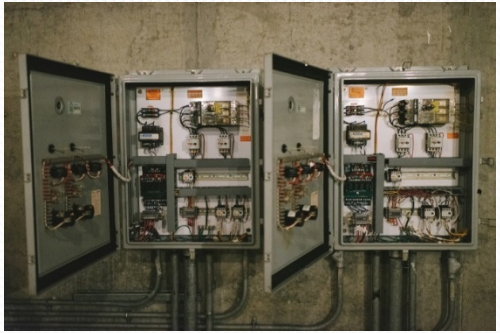
Flashlight shows water line

Restoration Makes Progress

- Plant dewatering and cleanup is complete.
- Repairing and replacing pumps, motors and electrical equipment; repairing building damage.
- Priority is restarting the secondary biological treatment process by April 30

Damage & Repairs Ongoing

Type of Equipment Damaged	Equipment Count
12 x 12-foot tunnels	1 Mile
Electric Motors	149
Pumps	127
Electrical Motor Control Centers Buckets	200
Electrical Panels	125
Electrical Transformers	25
Local Electrical Control Stations	125
Light Fixtures	>2000
Outlets and Switches	>1200
Instruments	>125
Solenoids	>200
Equipment Control Systems	3



Twin Equipment Control Panels – Cleaned, inspected, and ready for repair/replacement

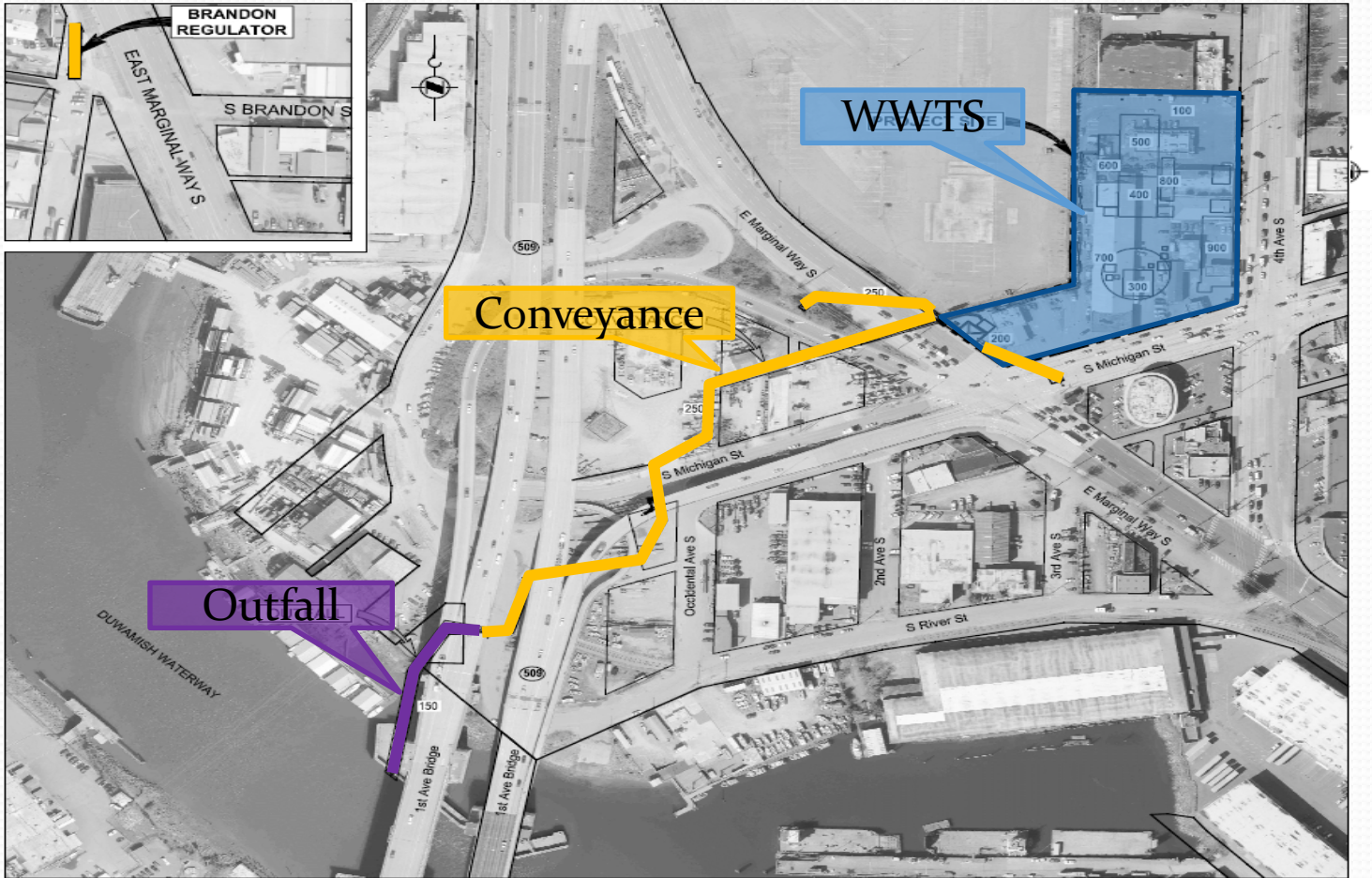
Gravity Belt Thickener Feed Pumps - Ready for replacement motors

Pumps being repaired

What's Next

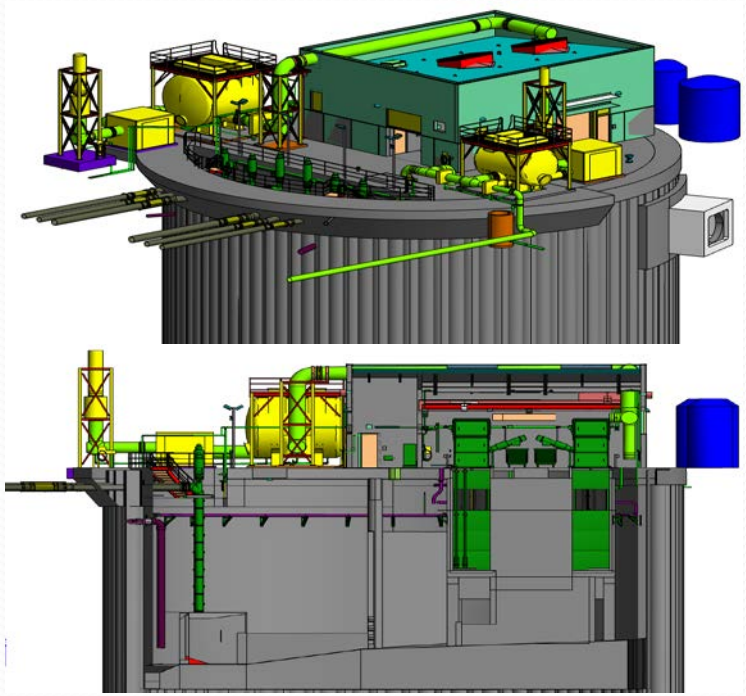
- Secondary treatment online – April 30
- Complete work to return plant to full service
- Council Independent Review
- Identify future upgrades and projects to improve plant resiliency

Georgetown Wet Weather Treatment Station


BRANDON REGULATOR
EAST MARGINAL WAY S
S BRANDON S
WWTS
Conveyance
Outfall
E Marginal Way S
S Michigan St
S River St
Occidental Ave S
2nd Ave S
3rd Ave S
4th Ave S
1st Ave Bridge
DUWAMISH WATERWAY
509
100
500
600
800
400
700
900
300
200
250
150

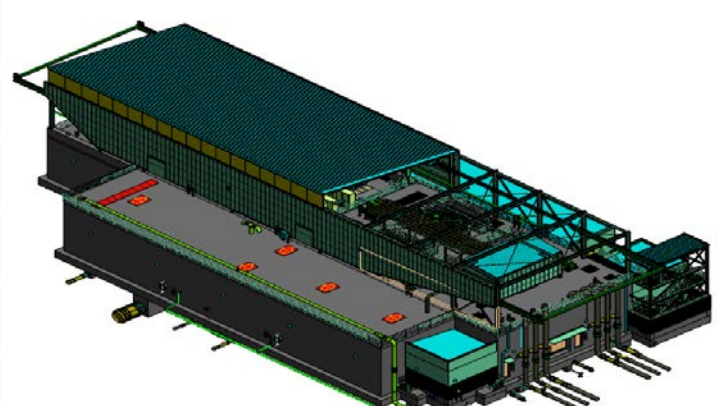
Flow Equalization/Pump Station

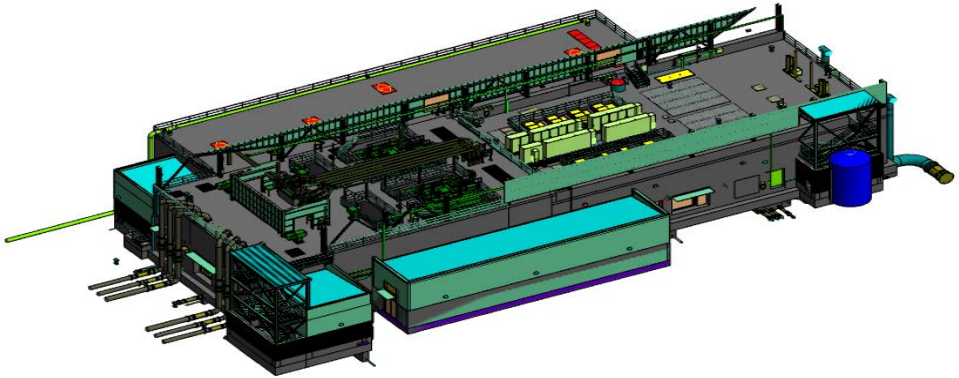
- Screening removal process
- Below grade, secant pile construction, 1.1 million gallon flow equalization tank
- 70 million gallon per day vertical turbine solids handling pump station
- Odor control



Process Areas

- Ballasted sedimentation clarification system (Kruger Actiflo) and temporary solids storage
- Ultra-violet disinfection (Suez Aquaray 3x)





Ancillary Facilities

- Odor control
- Operations/maintenance support building
- Essential service generator
- Chemical storage
- Landscaping

Contract Packages

The project is in final design by CH2M. Project to be completed via four (4) construction contracts:

Contract	Estimated Duration (months)	Estimated Advertisement	Preliminary Cost Estimate Range (millions)
Demolition, Remediation, and Site Preparation	Contract Awarded		
Georgetown Wet Weather Treatment Station	48-52	Mid-2017	$90-100
Conveyance Pipelines	12-18	Early 2018	$12-16
Outfall	12-18	Mid-to-Late 2017	$3-5

Project Requirements

- Minority Women Business Enterprise (M/WBE) goals consistent with federal requirements
- Small Contractor/Supplier Participation (SCS)
- Community Workforce Agreement

GEORGETOWN
WET WEATHER TREATMENT ST

West Point Treatment Plant Oxygen Generation and Dissolution System Replacement

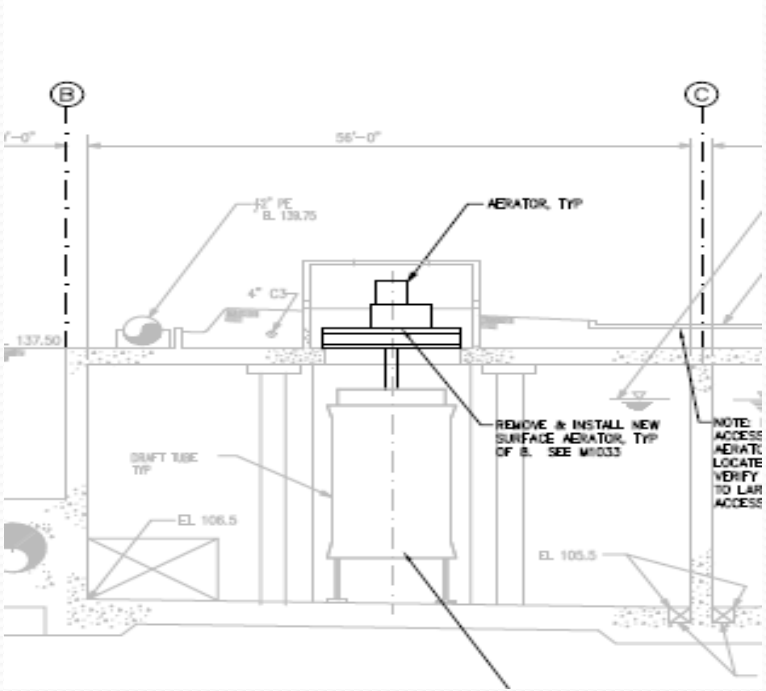
West Point Treatment Plant Oxygen Generation and Dissolution System

- Existing system installed at West Point Treatment Plant in Seattle in 1990's, provides high purity oxygen (HPO) as part of the secondary wastewater treatment process
- Primary objective is to reduce energy consumption
- Oxygen Dissolution: Replace existing surface aerators with variable speed aerators
- Oxygen Generation: Replace existing Vacuum Swing Adsorption (VSA) equipment with smaller units

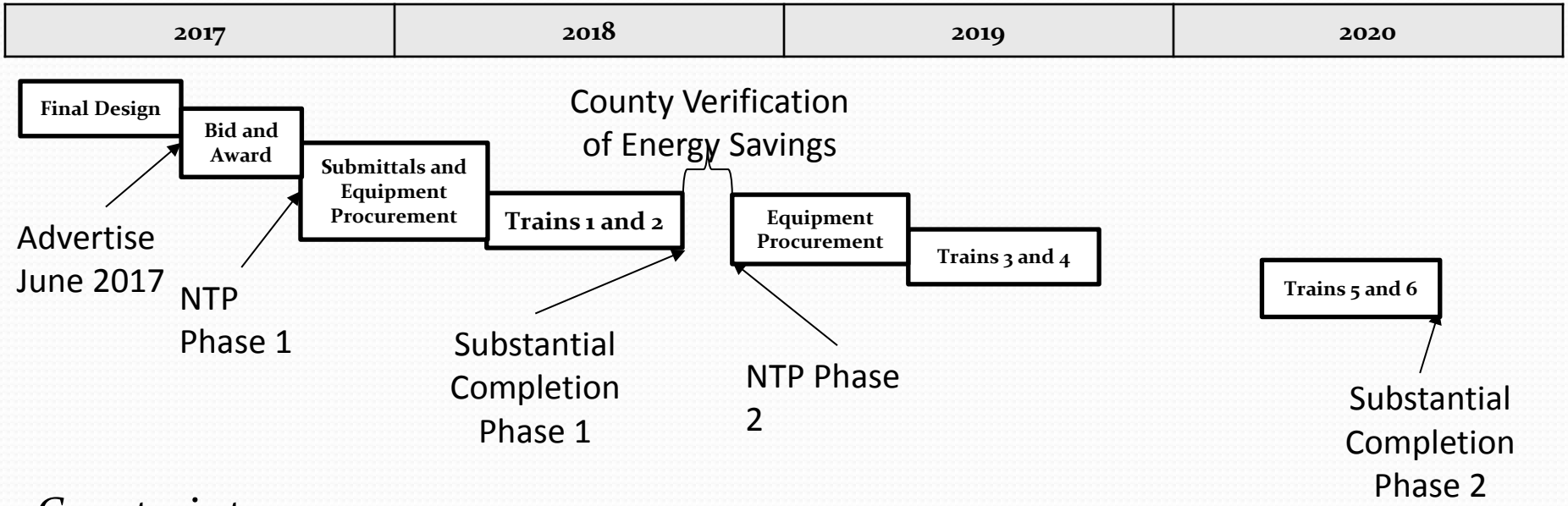
Aerator Replacement

- 6 Aeration trains with 4 stages each. Total of 24 new aerators.
- Replace aerators, gearboxes and motors, demolish draft tubes, and furnish and install new variable speed drives with motor control center.
- Construction Cost Estimate:
  - Aerator Equipment: $3M
  - Installation: $6M
  - Total $9M

Existing Surface Aerators



Aerator Replacement Schedule



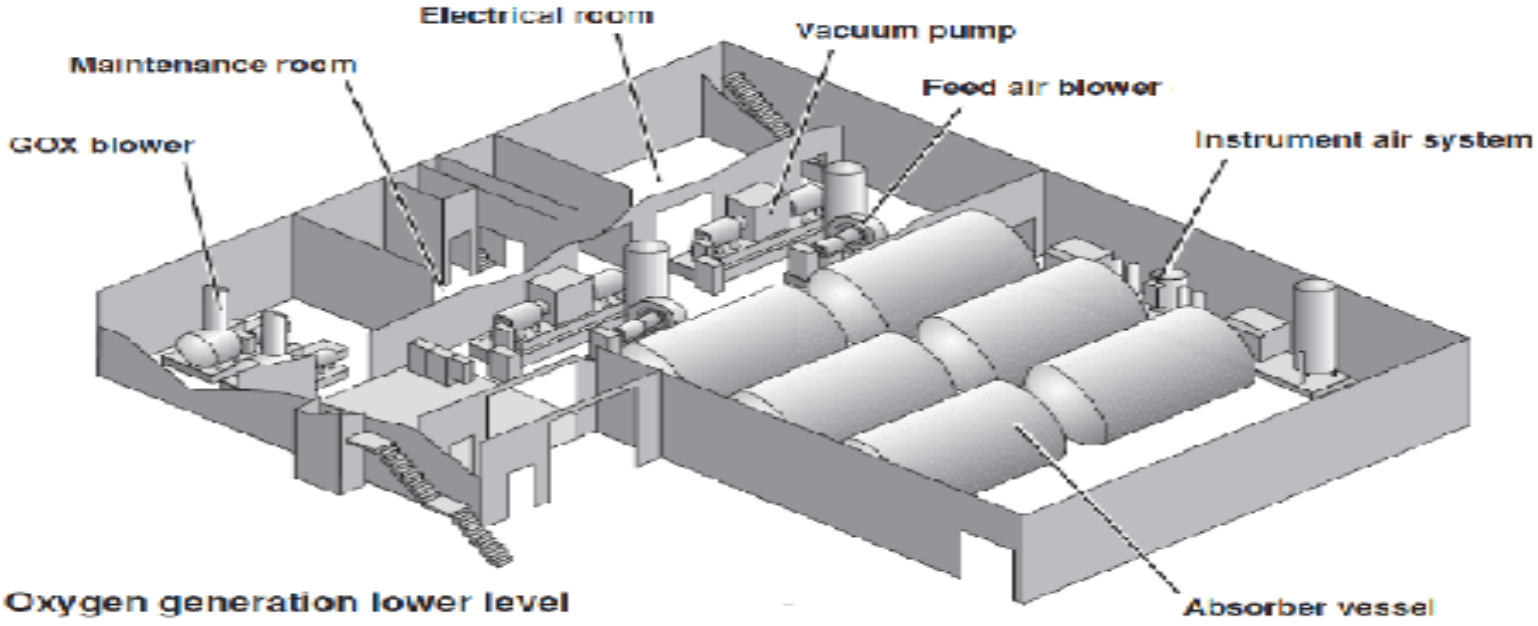
Constraints:

- No more than two aeration trains out at same time
- Aeration train outages constrained to dry weather season

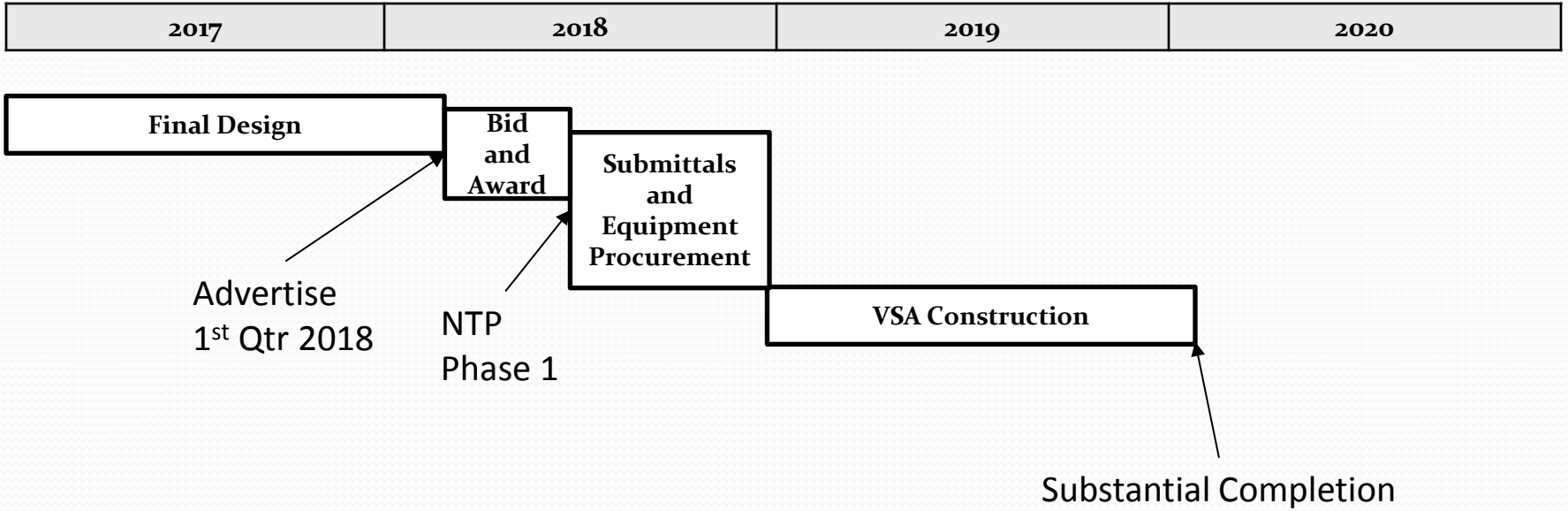
VSA Replacement

- Replace two existing 70 TPD VSA units with two 40 TPD skid-mounted VSA trains.
- During construction, plant secondary aeration process will run on the the Liquid Oxygen (LOX) backup system.
- VSA equipment procured by County, equipment contract will be assigned to the Construction Contractor.
- Construction Cost Estimate:
  - Equipment: $5M
  - Construction: $8M
  - Total: $13M

Existing VSA Layout



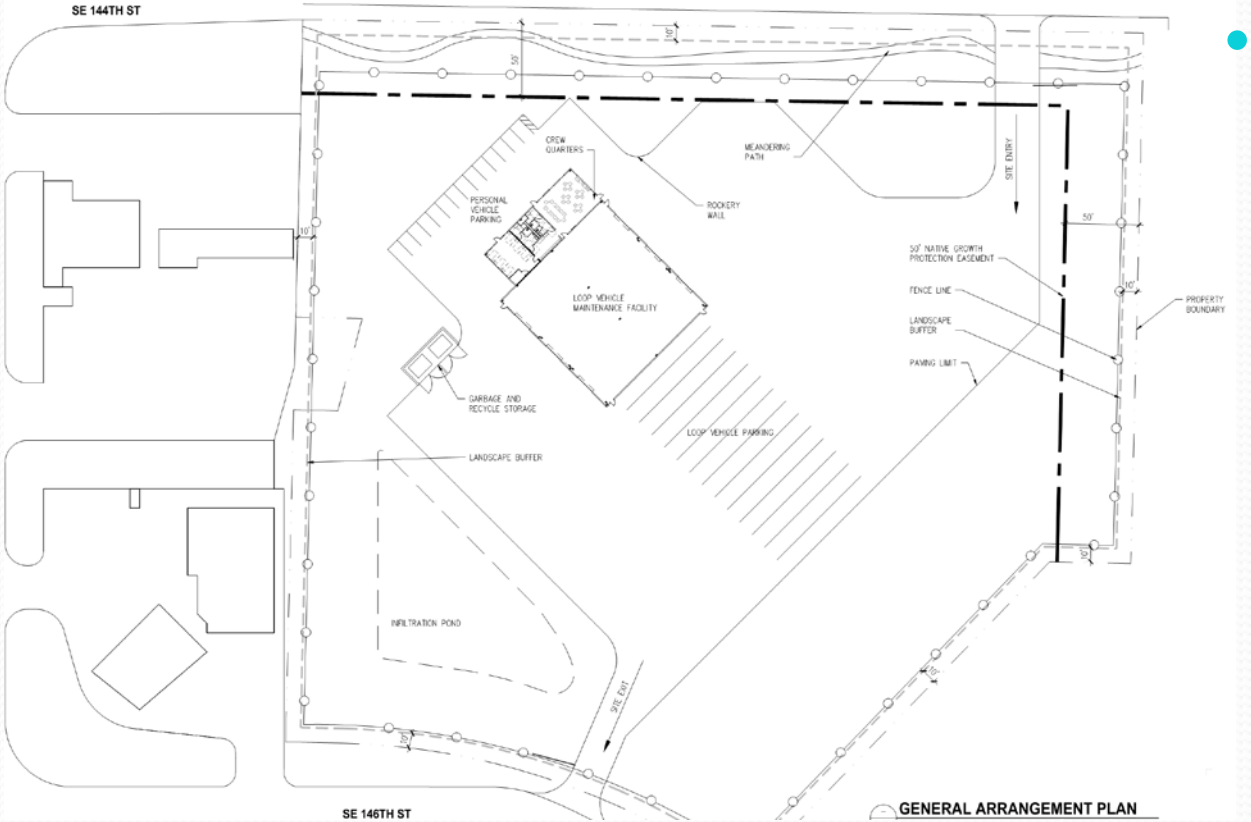
VSA Replacement Schedule



Loop® Fleet Maintenance Facility

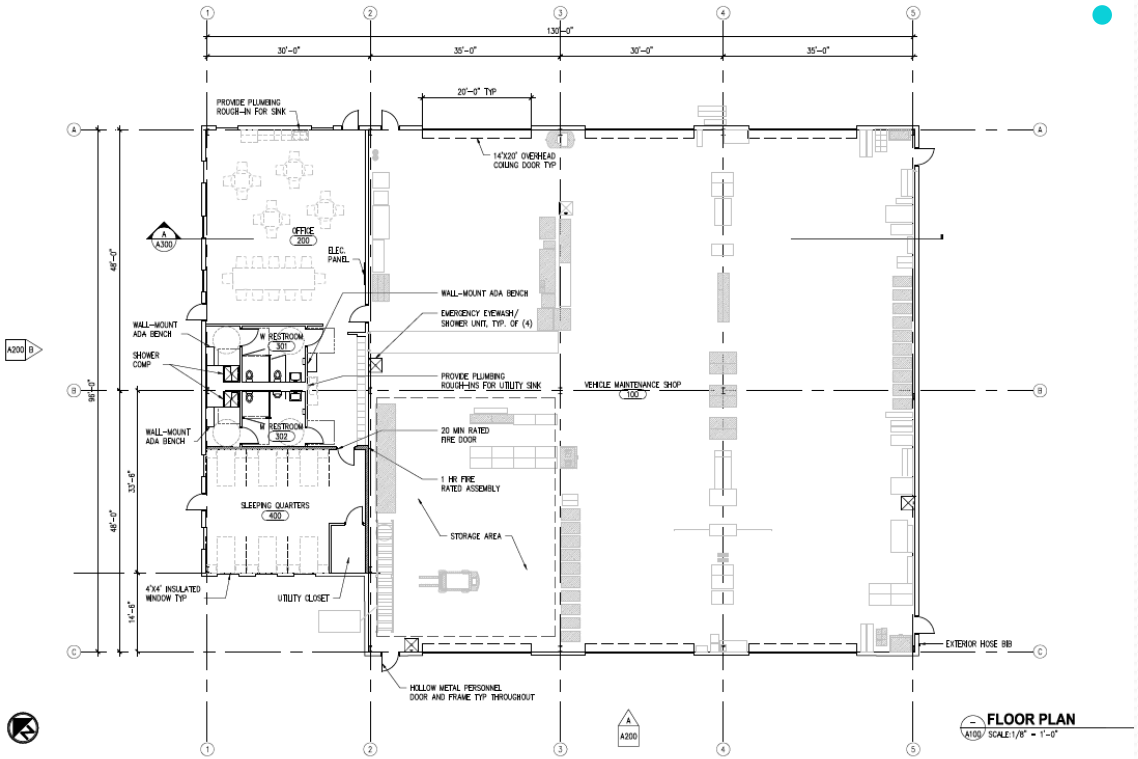
- WTD Loop® fleet transports between treatment plants, project sites, and the Repair & Maintenance Facility
- Fleet consists of 33 trucks and trailers
- Fleet operated and maintained through a contract with Skagit Trucking

Site Layout



- Facility design includes:
  - Parking for 13 trucks with power and air stands
  - Parking for 15 personal vehicles
  - Fenced site with security system
  - On-site stormwater treatment

Building Layout



- Building includes:
  - 2 Truck maintenance bays
  - Storage space for tires, parts, oils & lubricants
  - Mezzanine for storage
  - Bathroom and shower facilities
  - Room for meeting/kitchen

Building Rendering

Schedule

Milestone	Date
Advertise Construction Contract	December 2017
Construction NTP	March 2018
Construction Substantial Completion	March 2019

KING COUNTY

PRIORITY HIRE PROGRAM

Presentation Overview

- Priority Hire – What and Why?
- Priority Hire Goals and Benefits
- When is Priority Hire Used?
- Questions

Priority Hire: What is it? Why it is important

Workforce and economic development strategy that provides livable-wage employment opportunities in the construction industry for economically distressed areas of King County, and areas of Pierce and Snohomish counties where King County has rate payers.

The Priority Hire Program is an important component of King County's Equity and Social Justice goals .

Priority Hire Goals and Benefits

- Provide contractors access to a **trained workforce**
- Create **career pathways** to construction jobs
- Build a **diverse workforce** and more opportunities for participation by women and people of color
- Create **economic growth** in economically distressed areas

Priority Hire Goals and Benefits

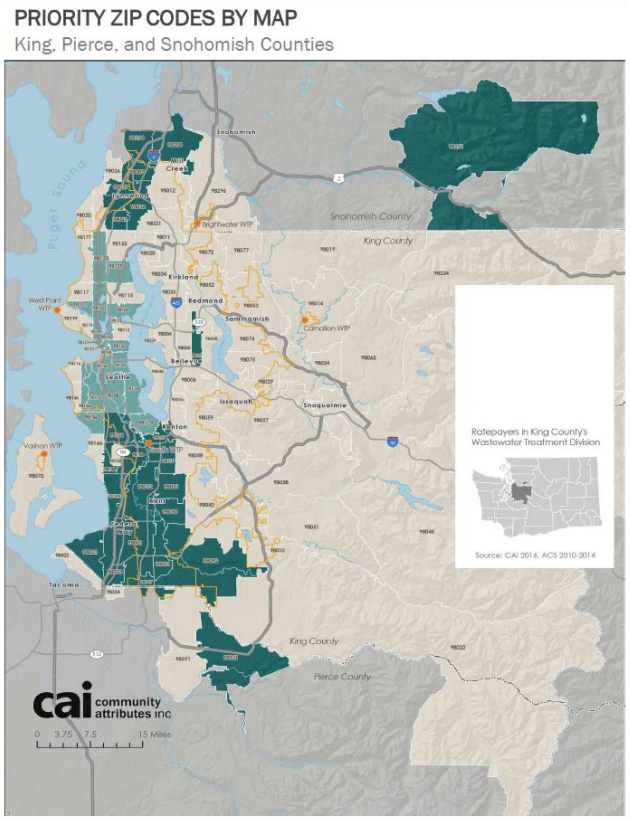
Prioritizes certain qualified individuals for hire by contractors **on projects covered by a Project Labor Agreement:**

- Individuals residing in economically distressed ZIP codes
- Women
- People of Color
- Registered apprentices
- Pre-apprenticeship graduates who are registered apprentices

King County Priority Hire ZIP Codes

King County Priority Hire ZIP codes are areas that have high concentrations of:

- **People living under 200% below the Federal poverty level**
- **High level of unemployment**
- **People 25 or older with less than a college degree**



When is Priority Hire Used?

The Priority Hire Program can be implemented on construction projects subject to a Project Labor Agreement (PLA).

For More Information on the King County Priority Hire Program:

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Questions:

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