

working for clean rivers



## Authorize Alternate Contracting Method Columbia Boulevard Wastewater Treatment Plant Secondary Treatment Expansion Program

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ENVIRONMENTAL SERVICES  
CITY OF PORTLAND

NICK FISH, COMMISSIONER  
MICHAEL JORDAN, DIRECTOR

**Council Item 1072**  
**September 27, 2017**

# Secondary Treatment Expansion Program

- Overview
- Need
- Schedule
- Request for an alternate contracting method





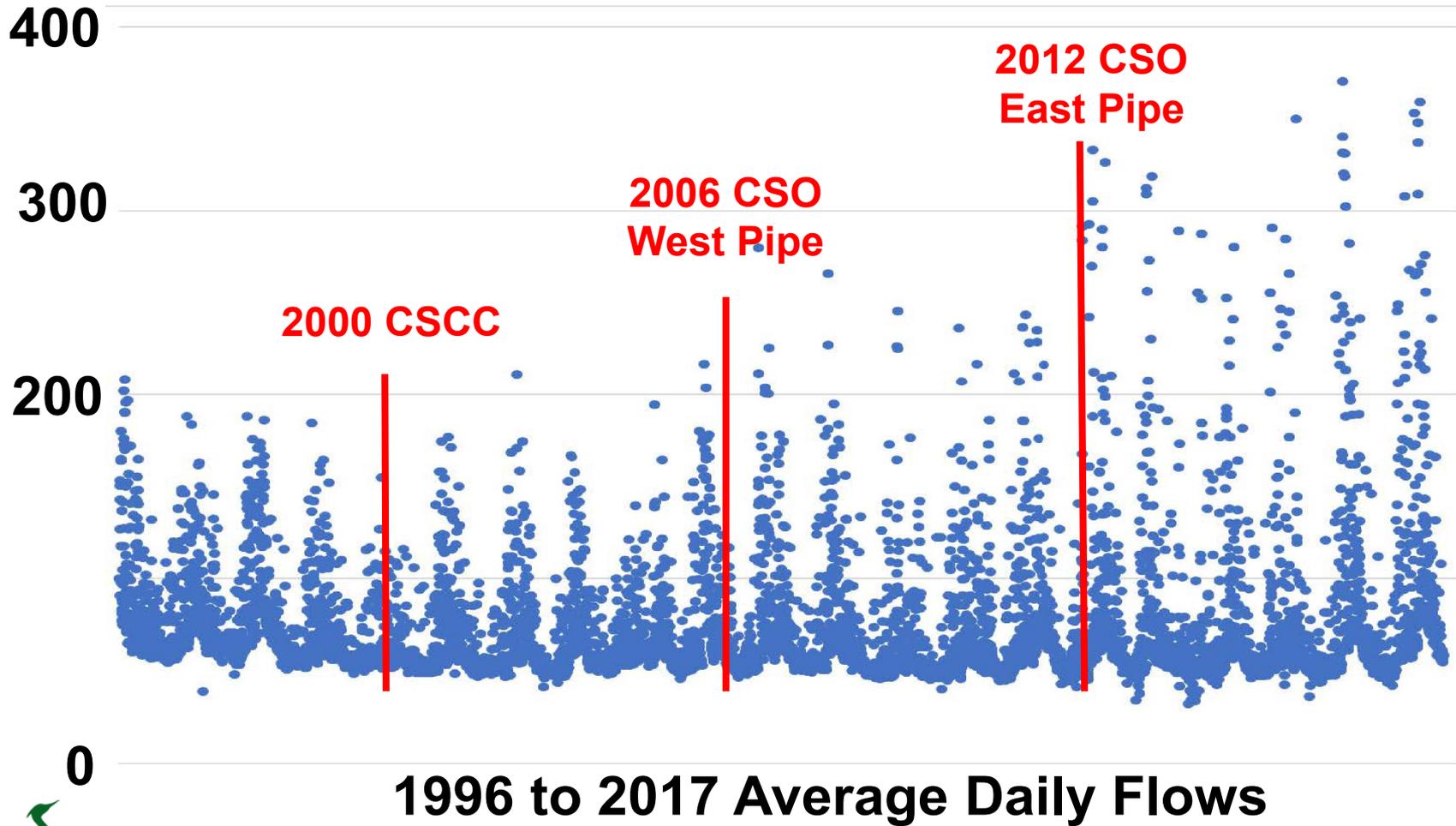
**Built 1952**

**More than 600,000**  
Population served

**76 million gallons**  
Daily average

**450 million gallons**  
Peak instantaneous flow

# Increased Captured CSO goes to CBWTP



# Secondary Treatment Expansion Program

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- Expansion is mandated by Oregon Department of Environmental Quality with a completion by December 2024
- Included in planning efforts for more than 20 years, including the 2016 Facilities Plan (Council agenda item #1079, October 2015)
- Expansion provides more biological treatment during high rain events, and added resiliency



# 1995 : \$70,000,000 expansion (2 Clarifiers)



Columbia Boulevard  
Wastewater Treatment  
Plant Campus

WEST  
PROPERTY

TO DOWNTOWN  
PORTLAND

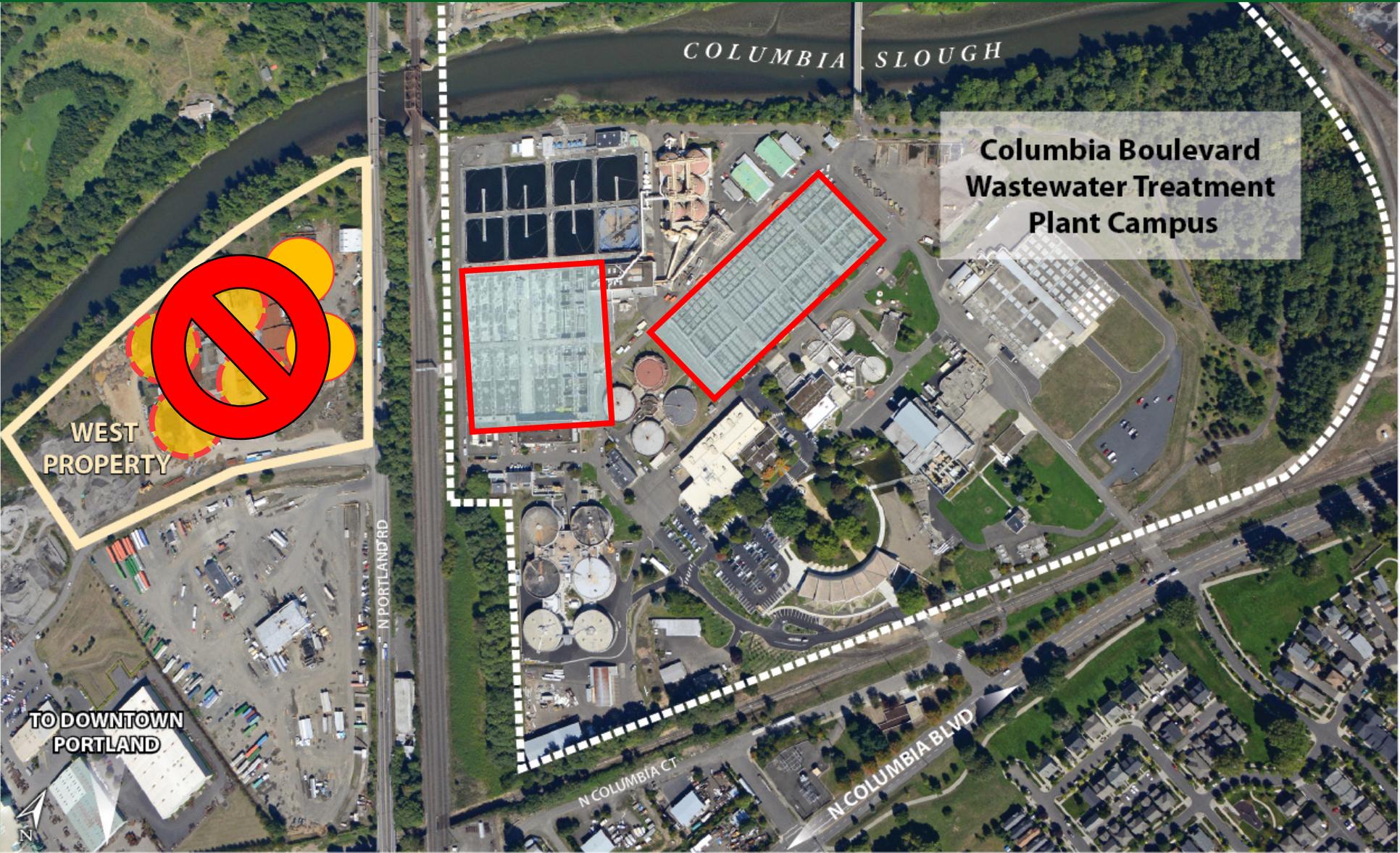
COLUMBIA SLOUGH

N PORTLAND RD

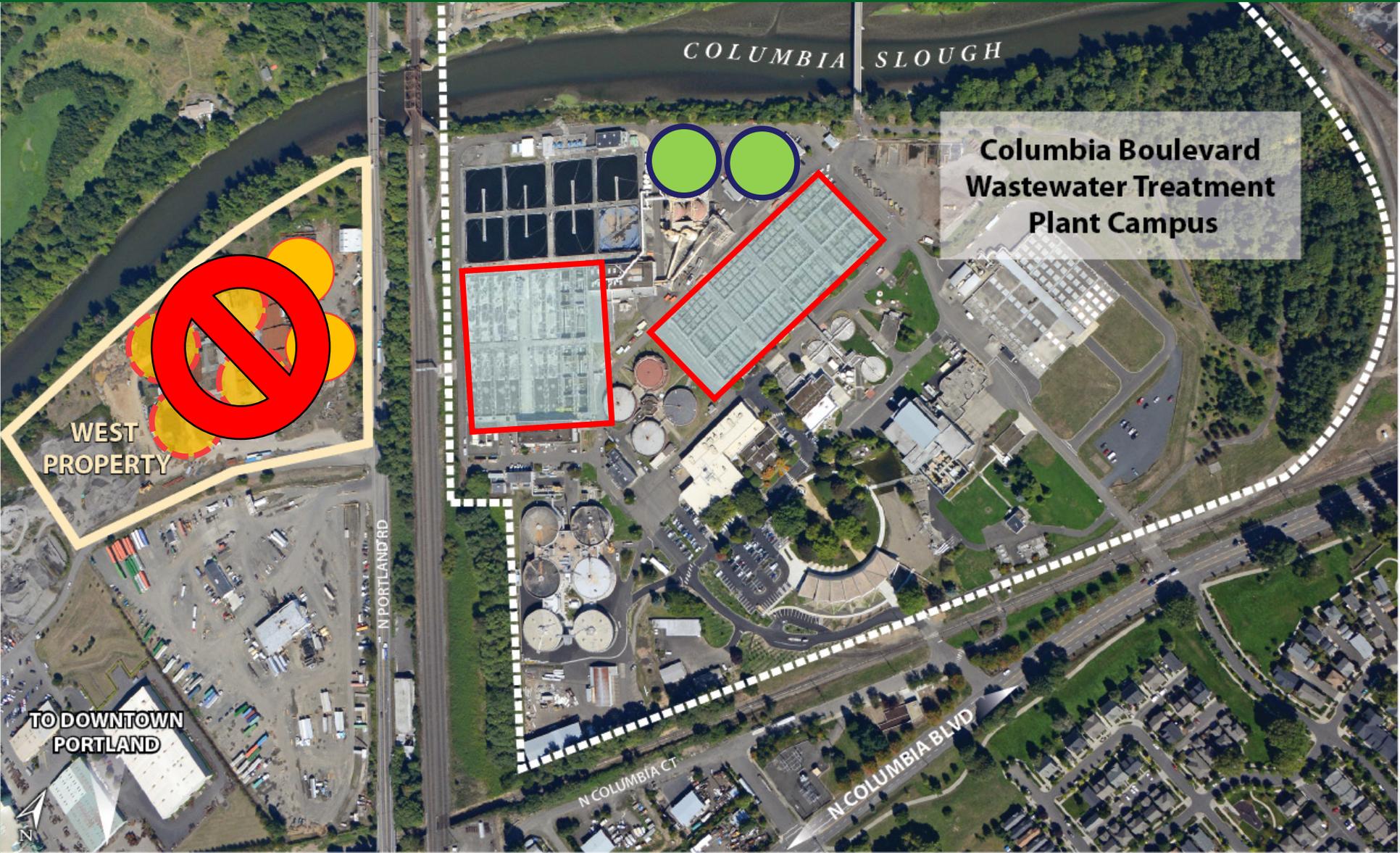
N COLUMBIA CT

N COLUMBIA BLVD

# 2011: Mutual Agreement and Order Signed



# 2016 Facilities Plan - Approved Plan

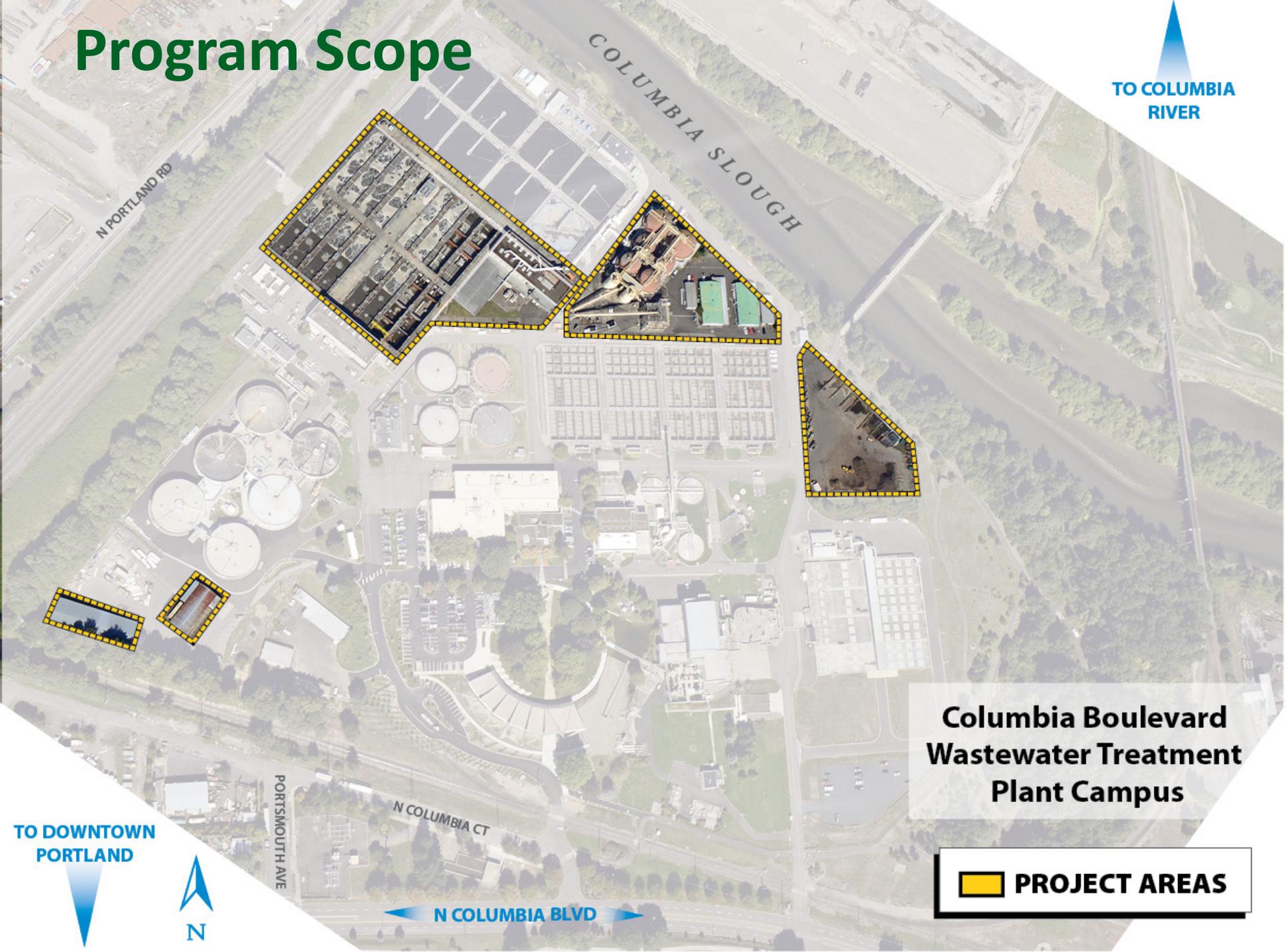


# Project Delivery Considerations

- Program is based on secondary clarifiers addition
- “Domino effect”
- Other critical planned projects are adjacent, connected, and on the same timeline
- Program approach optimizes design and reduces constructability, construction sequencing, and operational risks



# Program Scope

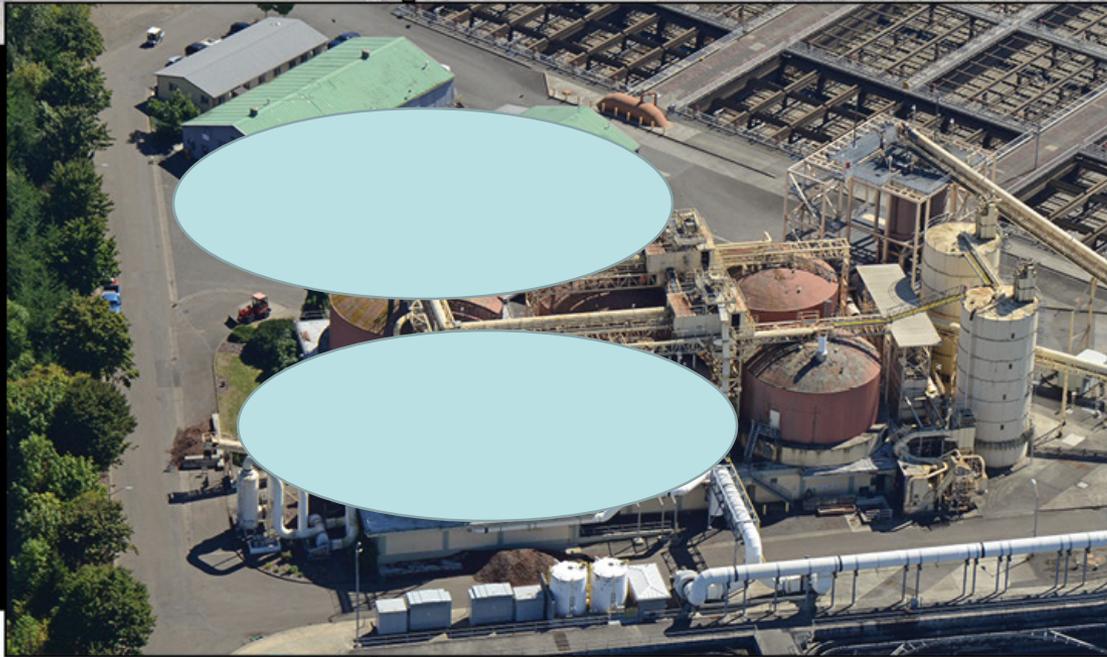
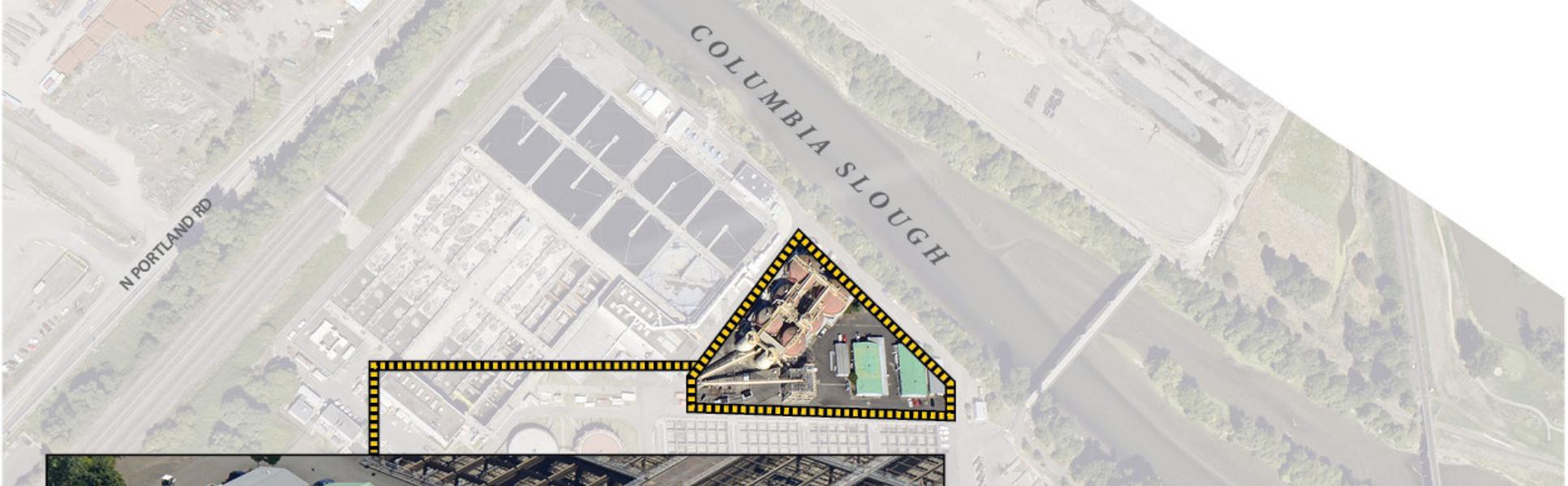


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 **PROJECT AREAS**



**N COLUMBIA BLVD**



## New Clarifiers

- Demo and relocations
- Soil stabilization, excavations
- Complex tie-ins
- Odor control system replacement

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SMOUTH AVE

COLUMBIA CT

N COLUMBIA BLVD

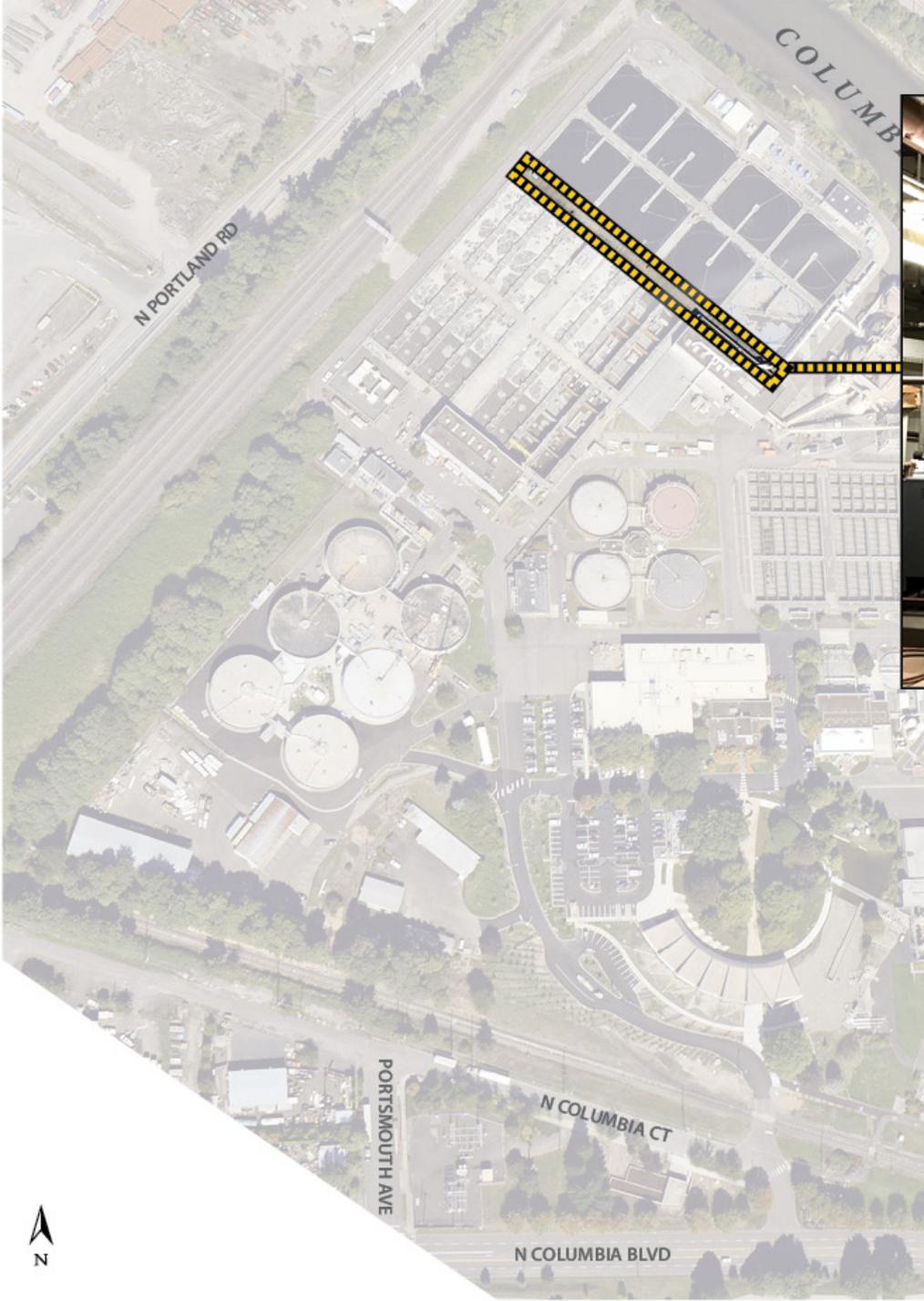


## New Storage and Staff Buildings

- Replacement of the composter area facilities
- 5,000 square feet staff space
- 15,000 square feet storage
- Adjacent to public trail

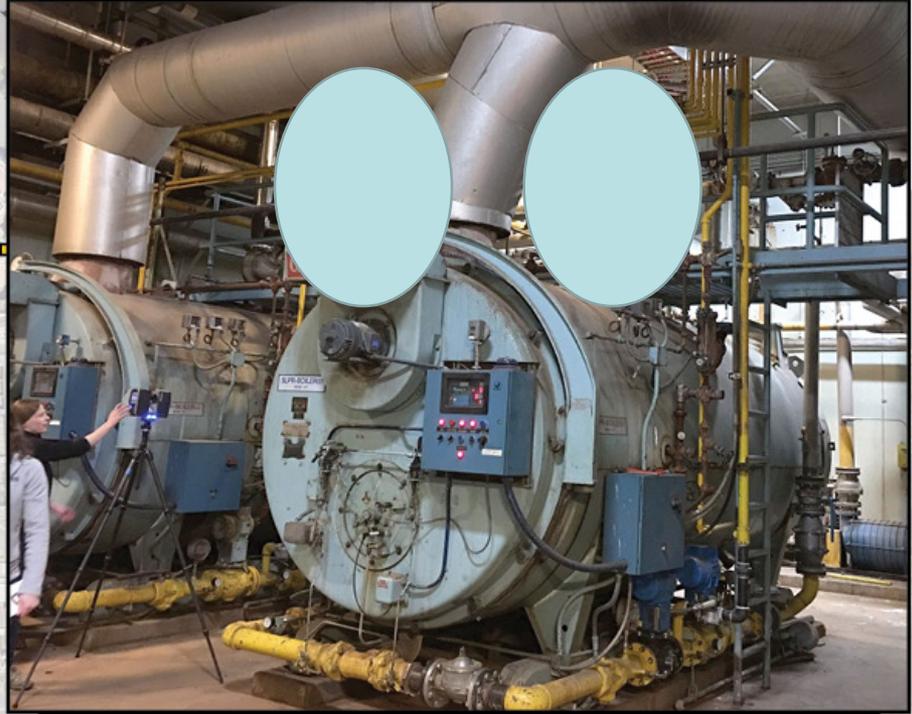
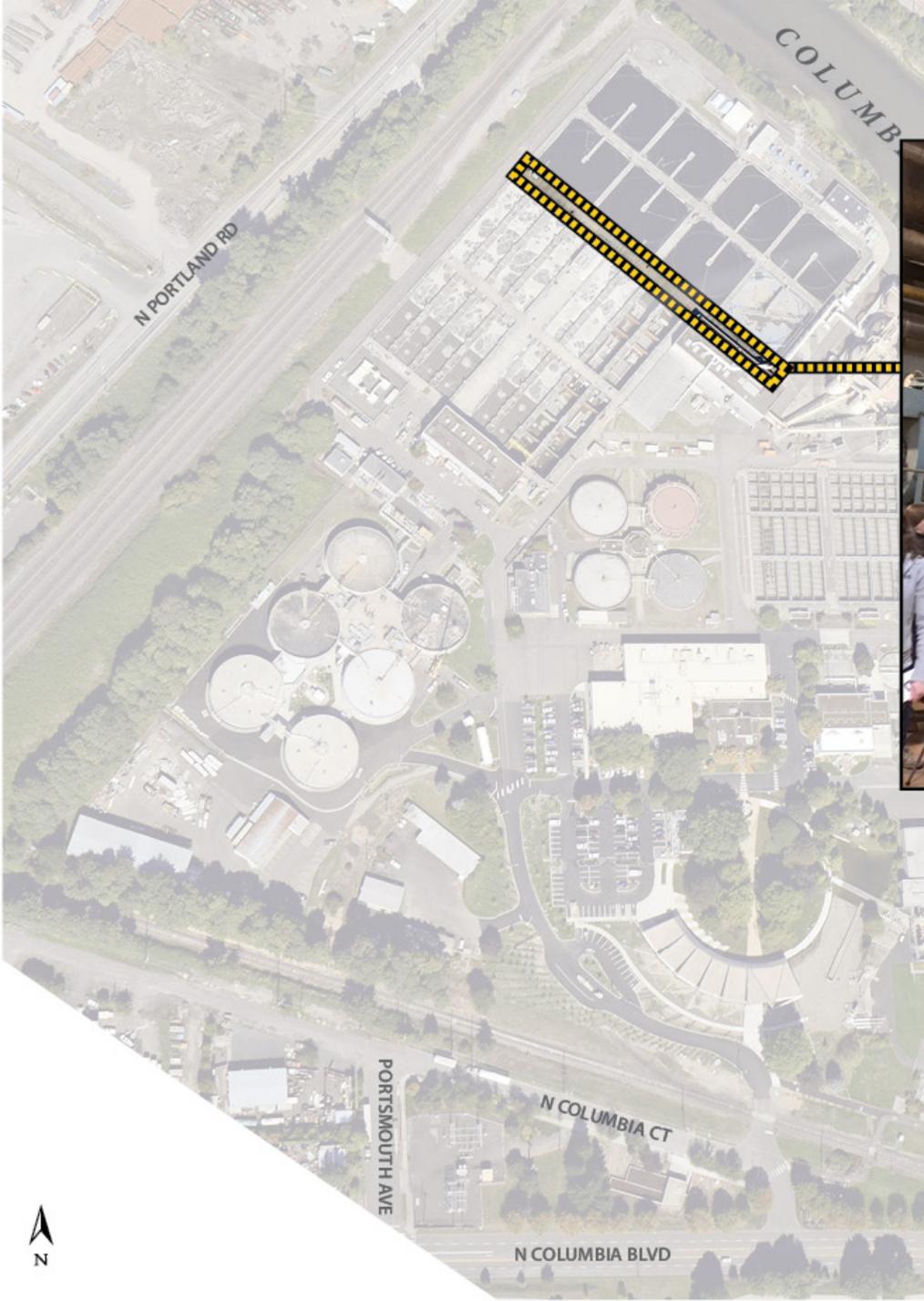


**Columbia Boulevard  
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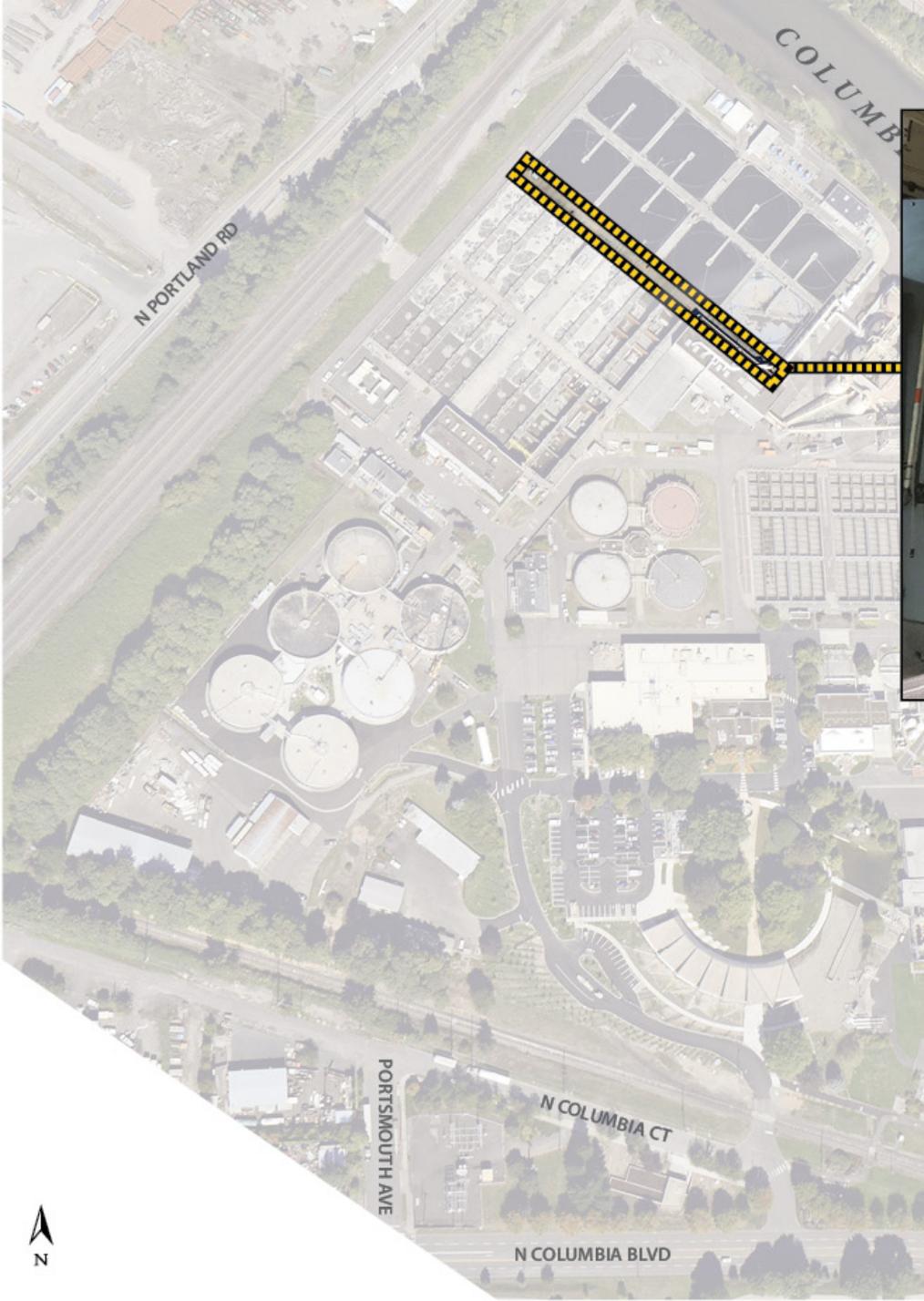
## Utility Tunnel Work

- Return Activated Sludge piping replacement
- Mixed Liquor piping expansion
- Tie-in between new and old
- Constrained area



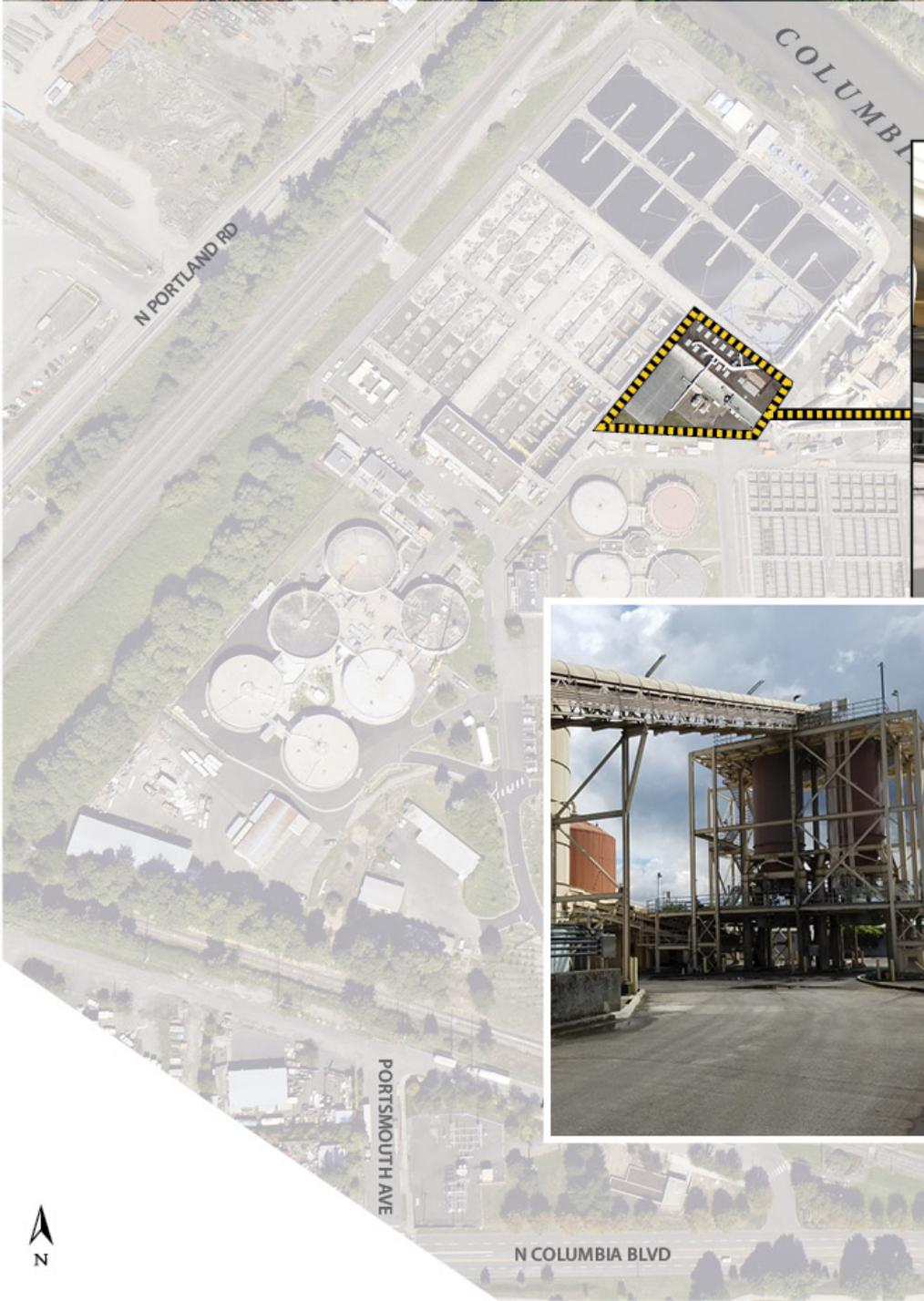
## Utility Tunnels/Heating

- Steam boilers replacement
- Provide building heat across the plant
- 1970's, using Bioga\$
- In the way of new pipes



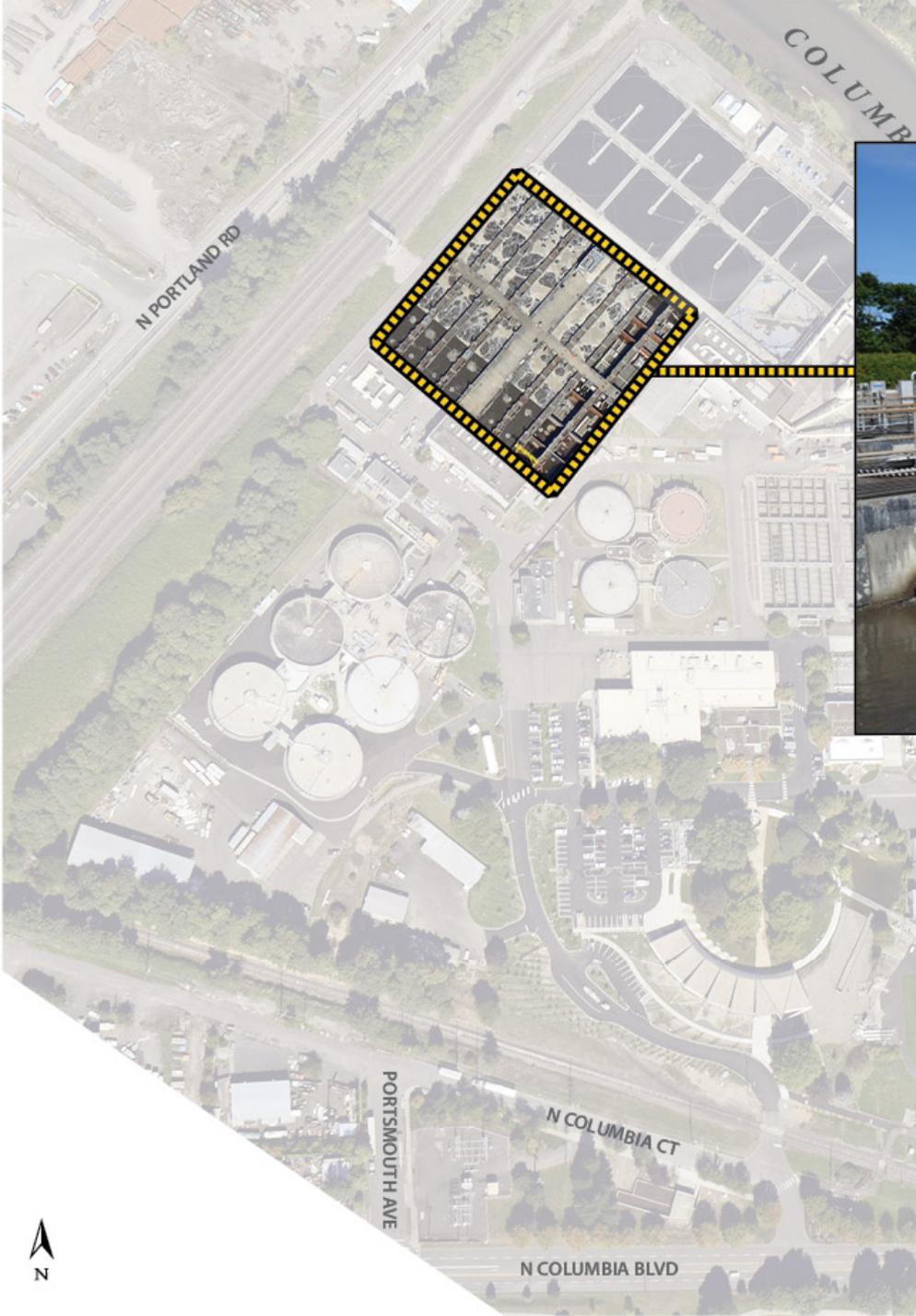
## Electrical Resiliency

- Motor Control Centers and transformers need to be moved out of flooding zone
- Transformers need to be moved out from the composter area



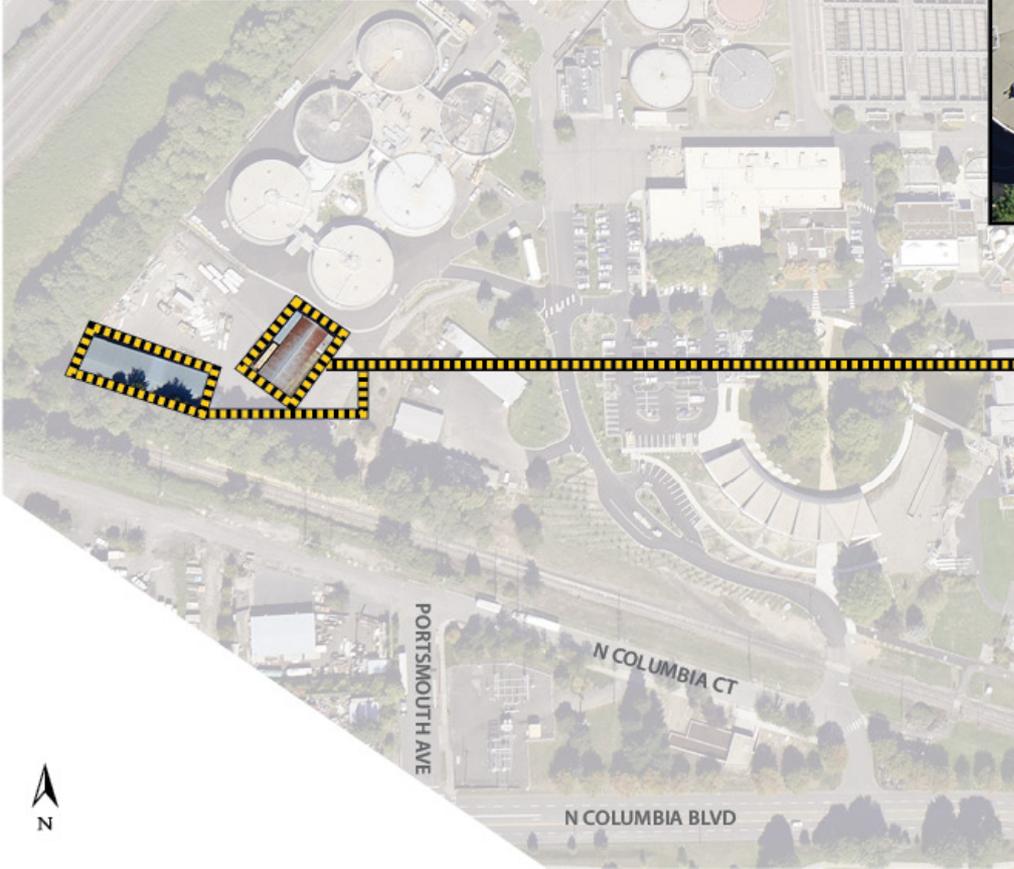
## Biosolids Processing

- Thickening and dewatering systems
- Odor control system
- Chemical feed system
- Building retrofit
- Biosolids hoppers



## Aeration Basins

- Surface rehabilitation of vertical walls
- One pair of basins at a time
- Summer construction only



## Storage Buildings

- Building demolition
- Metal siding and roofing replacement, lighting



# Program Budget

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- Construction Cost Estimate = \$89M
- Total Program Cost Estimate = \$146M
  - Low Level of Confidence
  - 7 year project: escalation not included at project level



# CM/GC Contracting Method Drivers

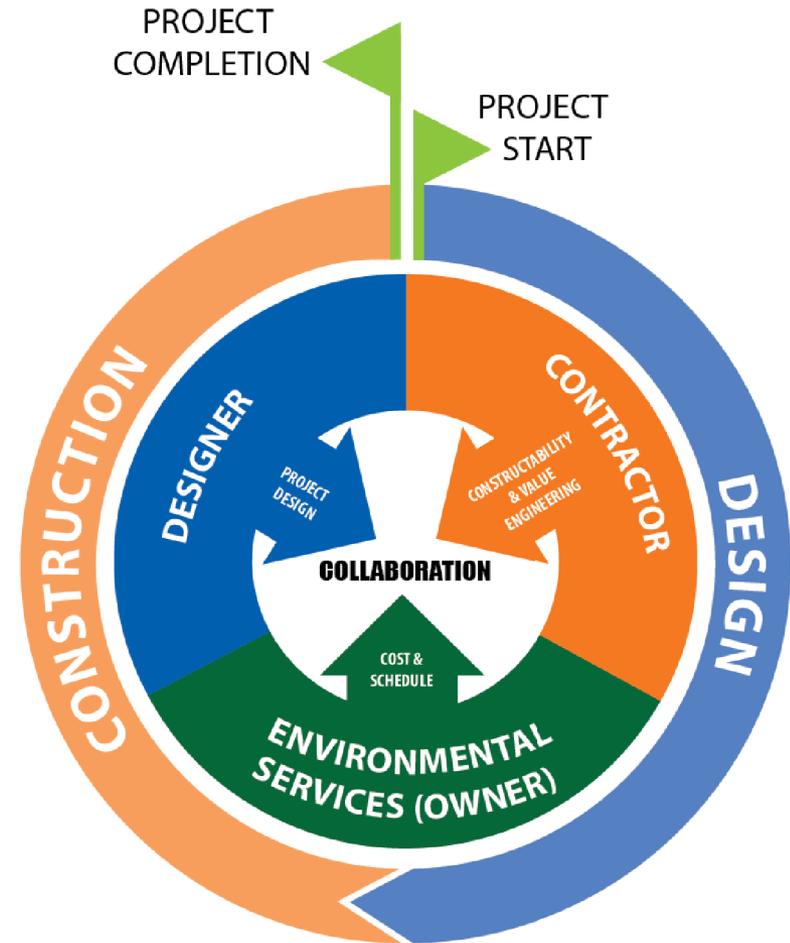
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- December 2024 Completion (mandate)
  - Increased schedule certainty with sequenced construction packages
- Complex sequencing and maintenance of operations considerations
- Early field investigations will reduce construction risk
- Early cost estimating will increase cost certainty



# CM/GC Contracting Method Key Findings

- Allows qualifications-based selection for specialty work
- Enhances opportunities for achieving D/M/W/ESB goals
- Likely to reduce project costs:
  - Contractor constructability review and value engineering assistance
  - Encourages Owner/Designer/Constructor collaboration
  - Early involvement to minimize change orders and impacts to ongoing treatment plant operations



# Next Steps

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- September 30 Notice to DEQ “City has begun implementing the work”
- Professional, Expert and Technical Services Procurement
  - Design Services
  - Program Support
- With the Exemption approved, CM/GC Procurement



# Reporting on Our Progress and Transparency

- Portland Utility Board (PUB) updates will be provided as requested as the Program progresses
- CBWTP Citizens Advisory Committee (CAC) – Will continue involving and updating the CAC
- Citizens Utility Board (CUB) updates will be provided as requested
- City Council- will report to Council as required for contract requirements, and as otherwise requested



# Questions?

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Thank you

