



King County

Department of Natural Resources and Parks
Wastewater Treatment Division

TREATMENT PLANT FLOWS AND LOADINGS STUDY

Presentation to MWPAAC Engineering and Planning Subcommittee
February 1, 2018

Presentation Overview

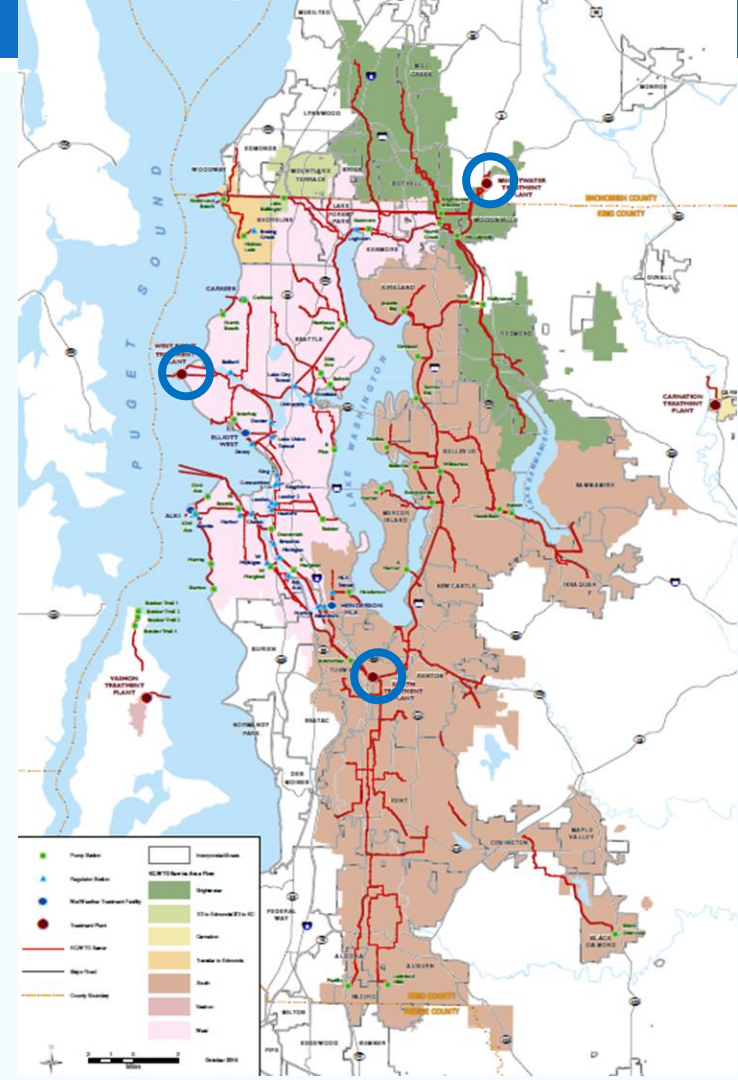
- Background
- Scope of study
- Schedule



Background

WTD Service Area

- 3 regional treatment plants (West Point, South Plant, Brightwater)
- 2 small treatment plants (Carnation, Vashon)
- 391+ miles of pipe;
47 pump stations
- ~1.7 million residents over
a 424 mi² service area



Background

Assessing treatment plant capacity: flows and loadings

- Flow
 - Flow – hydraulic
 - Traditionally used as a proxy for treatment plant capacity
- Loadings
 - Solids – total suspended solids (TSS)
 - Dissolved organics – biochemical oxygen demand (BOD)



Background – RWSP Review

2013 Regional Wastewater Services Plan (RWSP) review

- Updated planning assumptions (planning horizon, population forecast, water use, infiltration/inflow (I/I))
- Updated flow & loading projections from service area to regional treatment plants
- Findings:
 - Regional population continues to increase
 - 15% reduction in flows due to water conservation
 - Solids loading rates remain proportional to population & employment

Background – RWSP Review (cont.)

- Outcome:
 - Flow projections are less than previously forecasted
 - Loading rates will continue to grow in proportion with population growth
 - Treatment plants will reach loading capacity before reaching flow capacity



Treatment Plant Flows and Loadings Study

Scope – Flows and Loads Study

- Assess flow & loading capacity of each process within each regional treatment plant
- Review projections, existing & design capacity, operations data
- High-level review
 - Sampling – wastewater characterization
 - Model calibration & analysis
 - Existing capacity
- Detailed analysis
 - Scope partially dependent on results of high-level review
 - Additional field testing



Scope – Flows and Loads Study (cont.)

Determine:

- Current capacity & performance of each major process
- Timing of when each major process will reach capacity
- Space or other constraints which may impact ability to expand



Scope – Flows and Loads Study (cont.)

- Review solids treatment technologies & assess applicability at each treatment plant
- Identifying potential regulatory changes that may impact treatment requirements
- Review nutrient removal technologies & assess applicability at each plant



Schedule

4Q2017		1Q2018	2Q2018	3Q2018	4Q2018
Review data	★ Conduct model calibration & high-level review		★ Conduct detailed analysis		★ Report Development and Review
			Solids treatment technologies review and assessment		
			Nutrient removal technologies review and assessment		
			Potential regulatory impacts identification		



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