



King County

Department of Natural Resources and Parks
Wastewater Treatment Division

Treatment Plant Flows and Loadings Study

Results summary and next steps

Presentation to MWPAAC E&P

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Tiffany Knapp, P.E., MPA, Project Manager

John Conway, Water Quality Planner

Presentation Overview

- Background
- Scope of study
- Summary of capacity limitations
- Planned next steps



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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)



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Initiation of Study – why?

In 2014, Regional Wastewater Services Plan (RWSP) review:

- Updated flows and loading projections **to** the treatment plants
- Found that:
 - Flow projections are less than previously forecasted
 - Loading rates will continue to increase with population growth

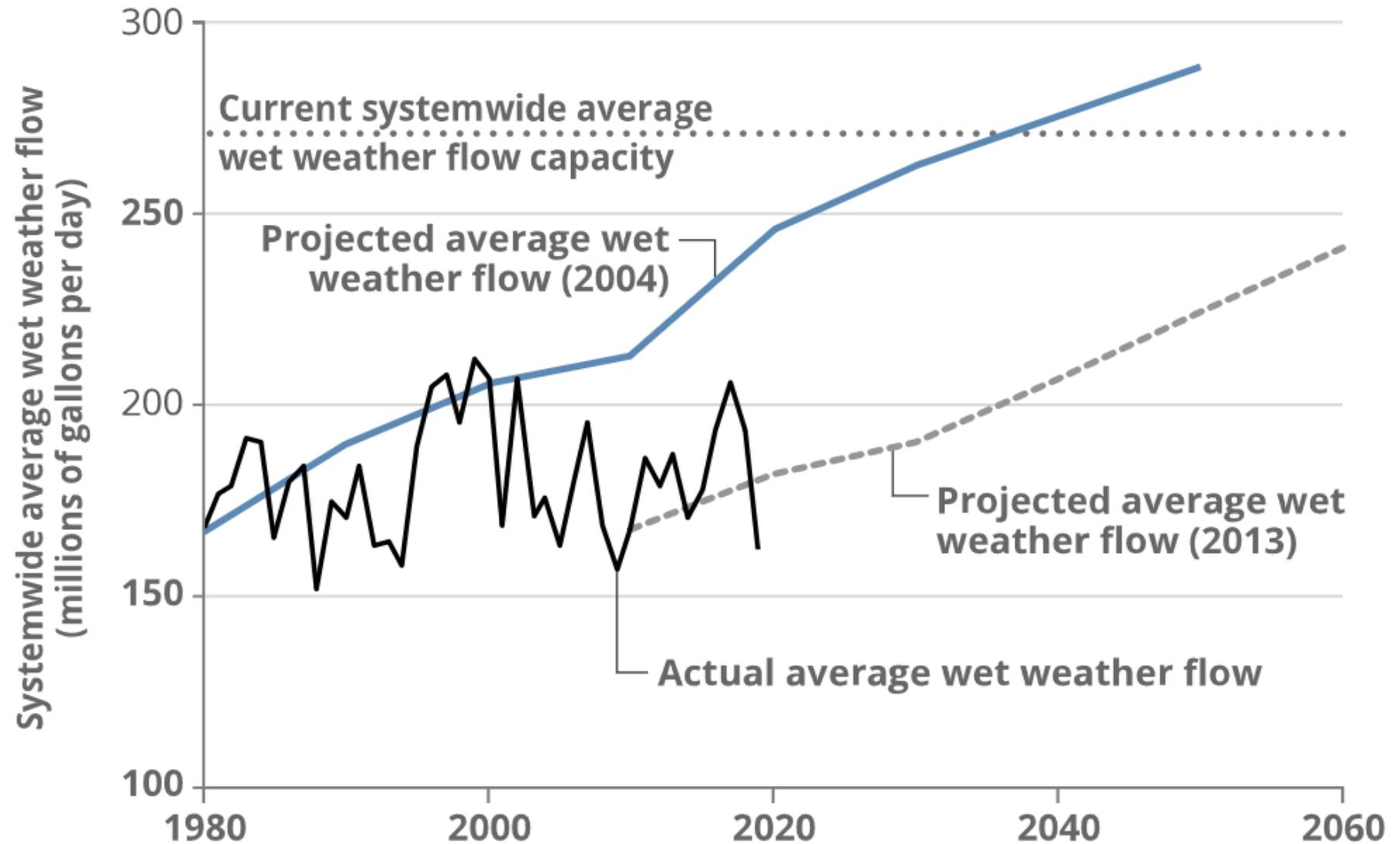


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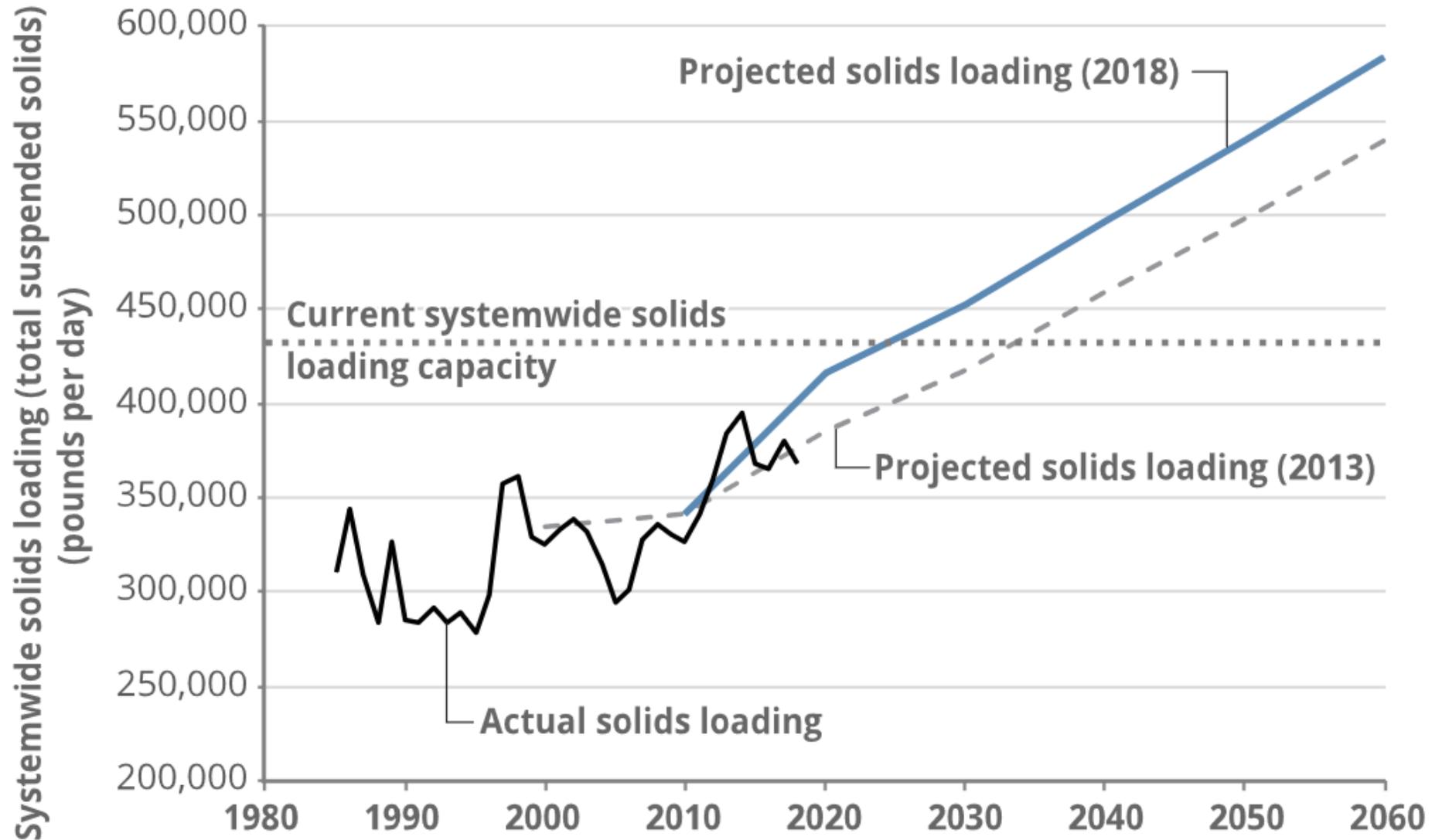
Changes to Flow and Loading Projections

Flow
projections are
less than
previously
forecasted



Changes to Flow and Loading Projections

Loading
continues to
increase with
population



Initiation of Study – why?

In 2014, Regional Wastewater Services Plan (RWSP) review:

- Updated flows and loading projections **to** the treatment plants
- Found that:
 - Flow projections are less than previously forecasted
 - Loading rates will continue to increase with population growth
 - **Treatment plants will reach loading capacity before reaching flow capacity**

RWSP review identified the need to understand individual process capacity **within** the treatment plants



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Scope of Treatment Plant Flows and Loadings Study

For each regional treatment plant (South Plant, West Point, Brightwater), determine:

- **Capacity** of each major process **within** the treatment plant
- **Timing** of when each major process **will reach capacity**

Study **does not** include:

- Alternatives analysis
- Project definitions
- Costs



Determining process capacity is complicated

Factors affecting capacity:

- Influent wastewater characteristics
- Regulatory requirements
- Operating configuration
- Process performance
- Operating constraints
- Reliability and redundancy



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Process Capacity Limitations

Near-term

Longer-term

Within next 10 years (now-2030)

Between approx. 2030-2040

Approx. 2040 and beyond

Projected to occur within next 10 years
(between now and approximately 2030)

Projected to occur within 10-20 years
(between approximately 2030 and 2040)

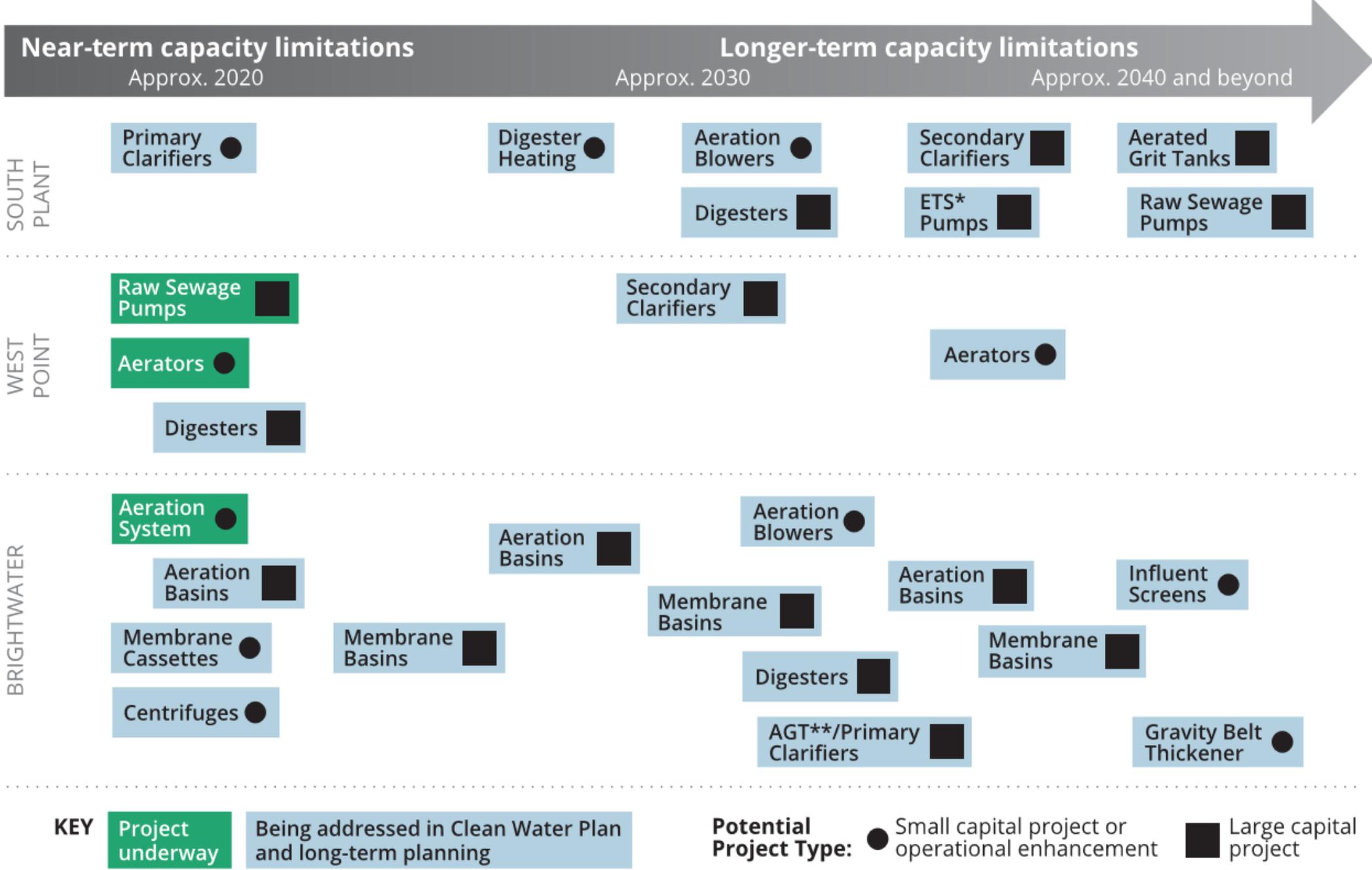
Projected to occur 20 years or more from now
(in the 2040's)



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Summary of Process Capacity Limitations



* Effluent Transfer System ** Aerated Grit Tanks Note: Boxes indicate approximate timing of process capacity limitation, not projects or project sequencing.

Next Steps

- Continue 3 projects underway
- Submitted near-term limitations to WTD's Capital Portfolio process for consideration as projects in future capital budgets
- Initiate Treatment Planning Program to define projects that consider capacity in context of other system needs, opportunities, & priorities:
 - asset management
 - regulatory changes
 - climate change impacts
- Consider treatment capacity within context of Clean Water Plan



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Questions?

Tiffany Knapp, P.E., MPA

tiffany.knapp@kingcounty.gov

Project Manager – Comprehensive Planning
King County Wastewater Treatment Division

