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Department of Natural Resources and Parks  
**Wastewater Treatment Division**

ATTACHMENT 2

# Treatment Plant Flows and Loadings Study

Presentation to the Regional Water Quality Committee

February 3, 2021

# 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
  - *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 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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# Key Assumptions

- Projections based on 20-year recurrence period for peak flows & loads
- South Plant only receives flows from its service area
- All flows from Brightwater service area go to Brightwater



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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)



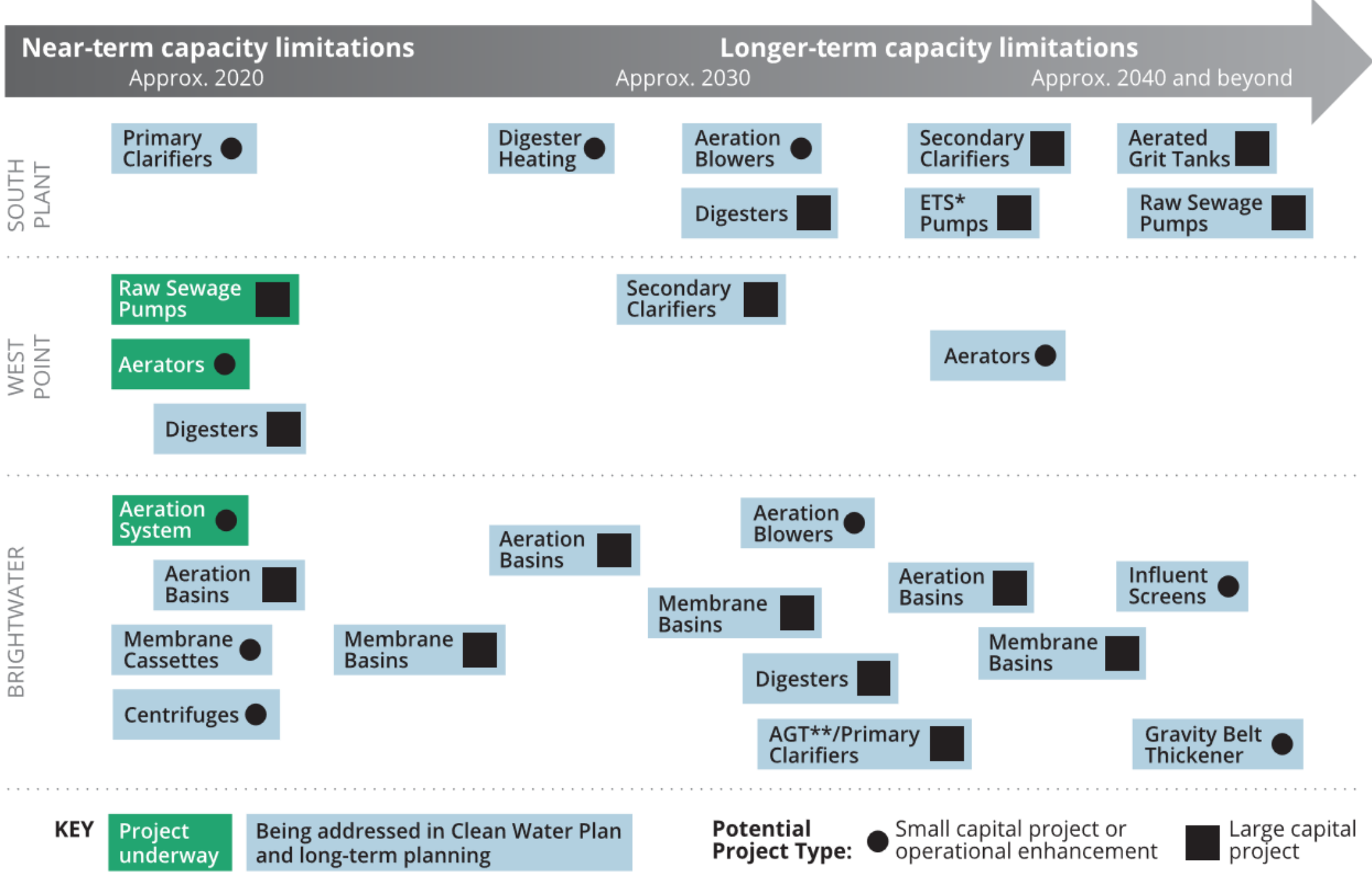
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# Summary of Process Capacity Limitations



**KEY** Project underway Being addressed in Clean Water Plan and long-term planning **Potential Project Type:** ● Small capital project or operational enhancement ■ Large capital project

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

# Next Steps

- 3 projects underway
- Treatment Planning Program (*approved in 2021-22 budget*) underway to define near-term projects (alternatives, costs)
- Projects will consider context of other system needs, opportunities, & priorities:
  - asset management, resiliency
  - nitrogen removal requirements
  - impacts of climate change
  - energy, sustainability, reduced climate impacts
- Study results incorporated within Clean Water Plan



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# Questions?

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