



Planning for the Future

Olympia City Council
January 17, 2023

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LOTT Executive Director

LOTT Clean Water Alliance

- Collaboration of four local governments
 - Lacey
 - Olympia
 - Tumwater
 - Thurston County
- Regional wastewater utility
- Mission to protect public health and the environment by cleaning and restoring water resources

Board of Directors



Lisa Parshley, Olympia



Tye Menser, Thurston County



Leatta Dalhoff, Tumwater



Carolyn Cox, Lacey

Budd Inlet Treatment Plant

- LOTT's main treatment facility
- Treats 13 million gallons per day
- Discharges to Budd Inlet; southernmost point of Puget Sound
- Meets strict discharge limits to protect water quality



Wastewater Resource Management Plan



- Long-term strategy:
 - Planning effort in late 1990s
 - Extensive public engagement
 - Considered how to manage wastewater decades into future
- Public values:
 - Meet future wastewater needs
 - Treat wastewater as a valuable resource
 - Maximize benefits to the environment
 - Provide multiple community benefits

Original Management Strategies



Flow reduction



Continued to discharge to Budd Inlet

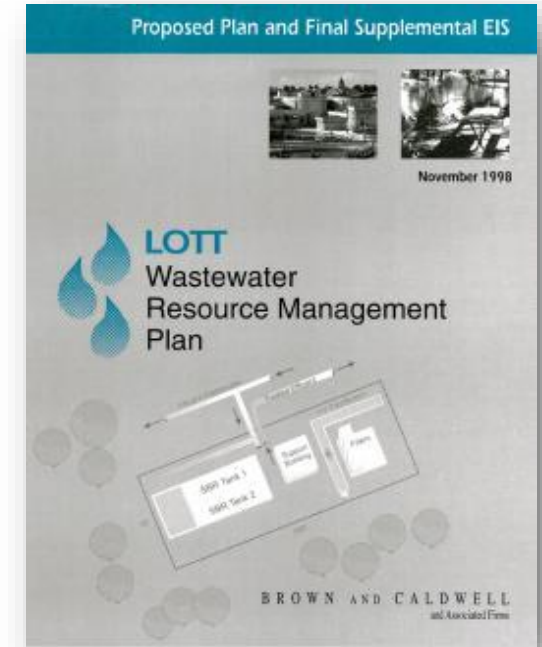


Reclaimed water

- Decentralized satellite plants
- Reuse and groundwater infiltration



Continuous planning approach

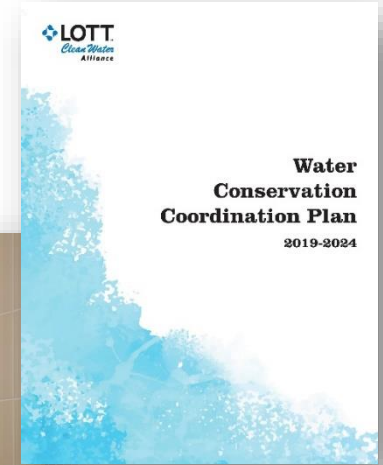


“The Highly Managed Plan”



Flow Reduction

- Reduce flows into system to delay need for new capacity
- Regional water conservation program
 - 1997-present: saved over 1.3 million gallons per day
 - So successful it is reaching the limit of additional savings
- Education & outreach
 - Major focus of WET Center and schools programs





Budd Inlet Discharge

- Highest level of treatment on Puget Sound
 - Advanced secondary treatment
 - Nutrient (nitrogen) removal
 - Meet stringent discharge permit limits
- Major upgrade underway
 - Second generation nutrient removal
 - Performance ranks among best in nation





Reclaimed Water: Production and Reuse

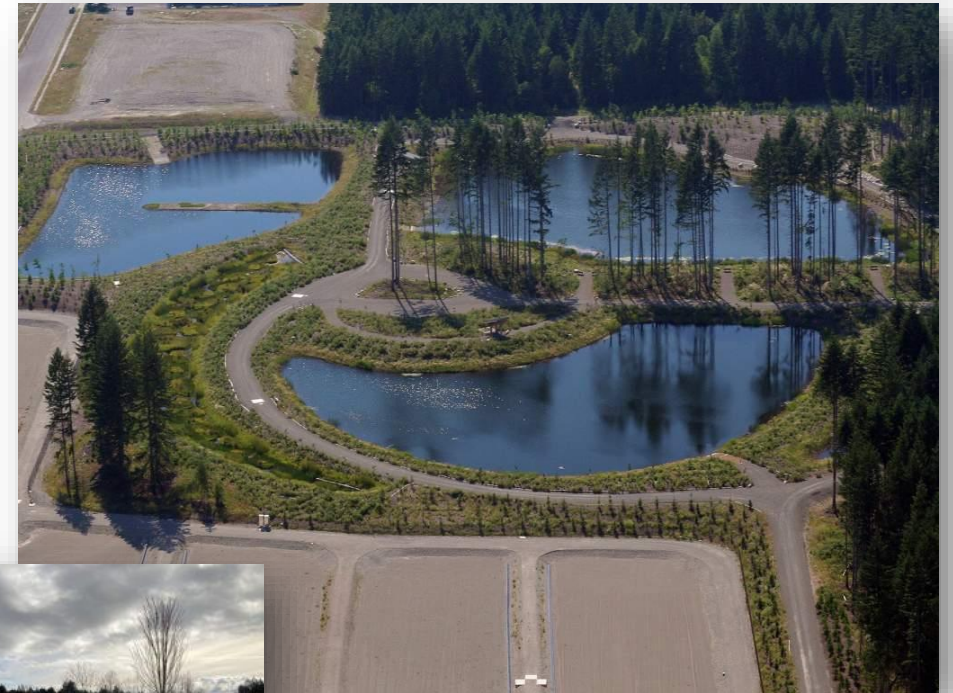
- Two facilities that produce reclaimed water
 - Budd Inlet Reclaimed Water Plant: 1.5 MGD
 - Martin Way Reclaimed Water Plant: 1.5 MGD
- Local reuse
 - Irrigation of parks and streetscapes
 - Irrigation at Tumwater Valley Golf Course
 - East Bay Plaza water feature





Reclaimed Water: Groundwater Recharge

- Hawks Prairie Ponds and Recharge Basins
 - LOTT-owned recharge facility
 - Recently completed scientific study at this site
- Woodland Creek Groundwater Recharge Facility
 - Cities of Lacey and Olympia own and operate
 - Provides mitigation for municipal water rights



Why Master Planning?

- New and more accurate information
 - Population projection accuracy
 - Septic to sewer conversion rate
 - Reclaimed water infiltration study
- Lessons learned
 - Operation of decentralized facilities
 - Testing of new technologies
- Changing conditions
 - Permit regulations
 - Climate/weather events



2050 Master Planning Process

Phase 1 Site Plan

- Focus on Budd Inlet Treatment Plant
- Assess treatment process needs

Phase 2 Capacity Strategy

- Review overall system capacity
- Weigh strategies to meet future needs

Phase 3 Public Review

- Share planning progress
- Refine long-term plan for the future

Phase 1: Budd Inlet Treatment Plant

- Which treatment processes need expansion through 2050?
- Which ones need upgrades?
- How do we handle sea level rise and more intense storms?
- Is the existing plant footprint adequate?
- How can we stay flexible as things change?



LOTT Budd Inlet Treatment Plant

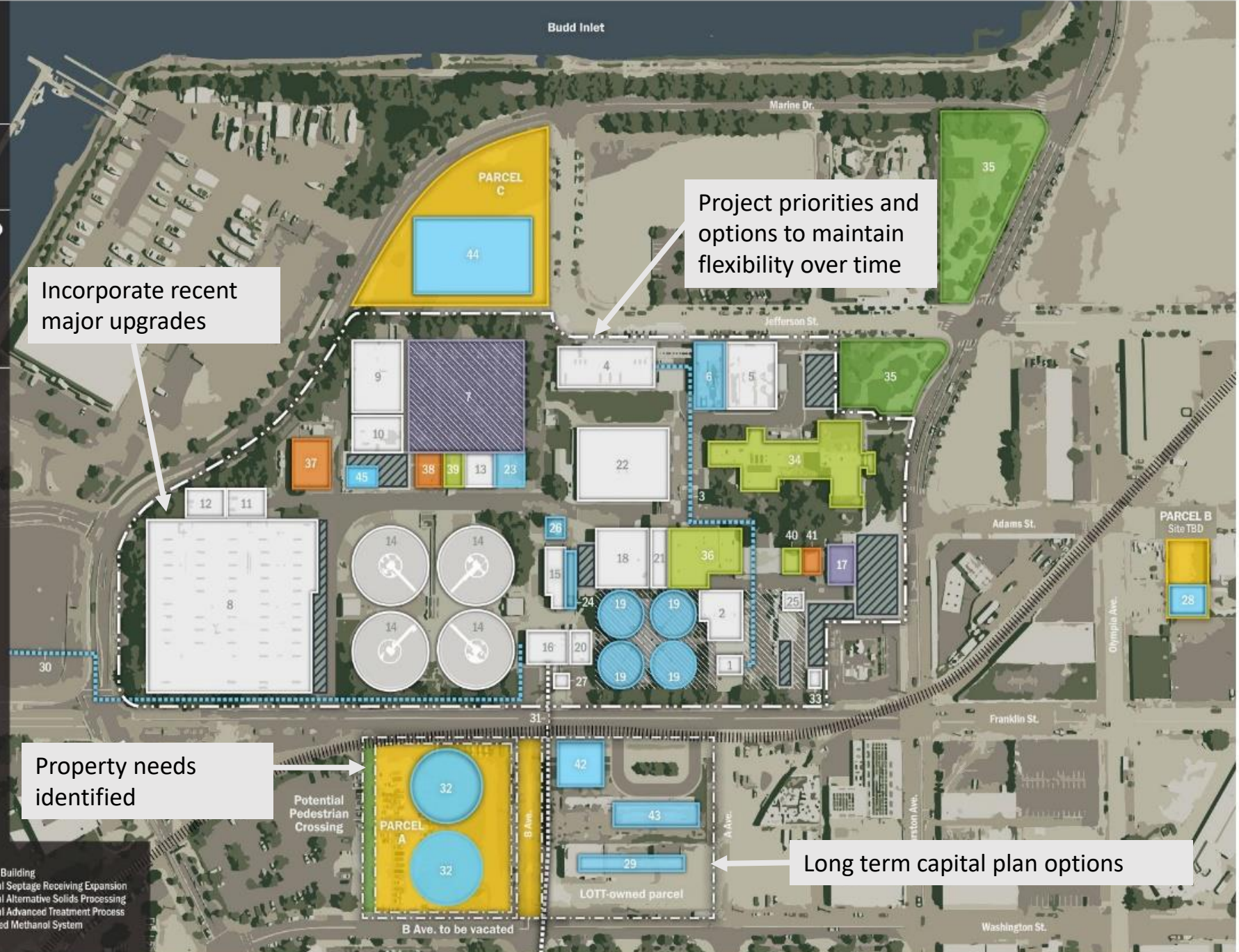
Olympia, Washington

FIGURE C:
2050 Site Plan

Legend

- | | | | |
|---|--|---|----------------|
|  | Existing |  | Administrative |
|  | Existing & Potential Reclaimed Water Production Facilities |  | Public Spaces |
|  | Future Capital Project |  | Storage |
|  | Properties Considered for Acquisition |  | Parking Areas |
| | |  | EQ Basins |

1. Influent Pump Station
2. Headworks
3. Influent Pump Station Forcemain Expansion
4. Primary Clarifiers
5. Primary Clarifier Odor Control & Electrical
6. Primary Chemical Storage & Pumping, Potential CEPT
7. Potential Reclaimed Water Expansion
8. Biological Nutrient Removal Basins
9. Second Anoxic Basin
10. Final Aeration Basin
11. Intermediate Pump Station & Blower Room
12. BNR Mechanical/Electrical Building
13. Old Blower Room, Future Use TBD
14. Secondary Clarifiers
15. UV Disinfection
16. Effluent Pump Station
17. Reclaimed Water Filters
18. Solids Thickening
19. Digesters, Future Conversion to Thermophilic
20. Cogeneration
21. Sludge Dewatering
22. Centrate Storage and Handling
23. Potential Centrate Treatment
24. Potential Struvite Facility
25. South Odor Scrubber
26. Enclosed Waste Gas Flare
27. Septage Receiving Station
28. Wet Weather Pump Station
29. Wet Weather Treatment
30. Forcemain to North Outfall
31. Forcemain to Fiddlehead Outfall
32. Secondary Clarifier Expansion
33. Switchgear
34. Admin Building, WET Center, Lab
35. East Bay Plaza
36. Maintenance
37. Maintenance Storage
38. Parts and Storage Warehouse
39. Outback Control Room
40. Control Systems
41. Storage Building
42. Potential Septage Receiving Expansion
43. Potential Alternative Solids Processing
44. Potential Advanced Treatment Process
45. Relocated Methanol System



Incorporate recent major upgrades

Project priorities and options to maintain flexibility over time

Property needs identified

Long term capital plan options

Phase 2: Capacity Strategy

Two key options were evaluated:



Reclaimed water expansion per the original plan



A new option: enhanced treatment at the BITP



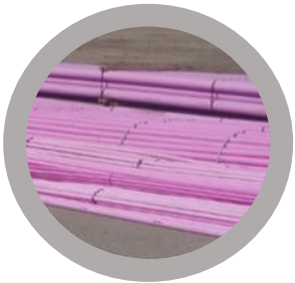


Reclaimed Water Option

Original Plan



Multiple satellite plants and infiltration sites



Extensive purple pipe network for reuse

New Considerations



Challenge to manage decentralized facilities (e.g. staffing and flow limitations)



Most undeveloped infiltration sites have limited capacity

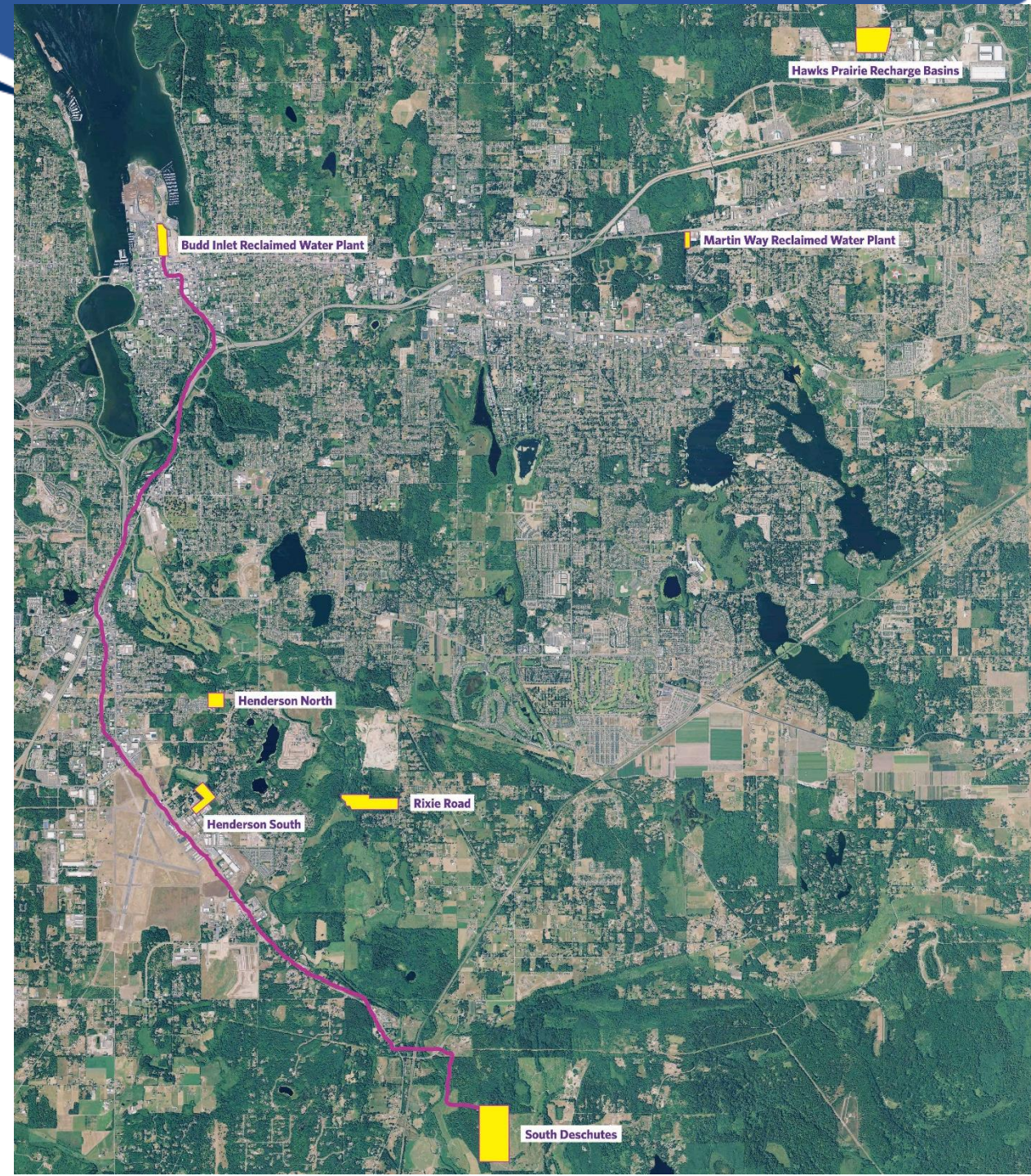


Reuse limited to areas near pipe network



Reclaimed Water Option

- Expand reclaimed water at existing facilities
 - Budd Inlet Reclaimed Water Plant
 - Martin Way Reclaimed Water Plant
 - Hawk's Prairie Recharge Basins
- Develop new infiltration
 - New infiltration basin(s)
 - Long, costly conveyance pipeline needed





New Option: Enhanced Treatment

- New technologies could expand capabilities at Budd Inlet Plant
 - Further reduce nitrogen and biochemical oxygen demand
 - Treat and discharge more flow and remain in compliance with strict permit limits

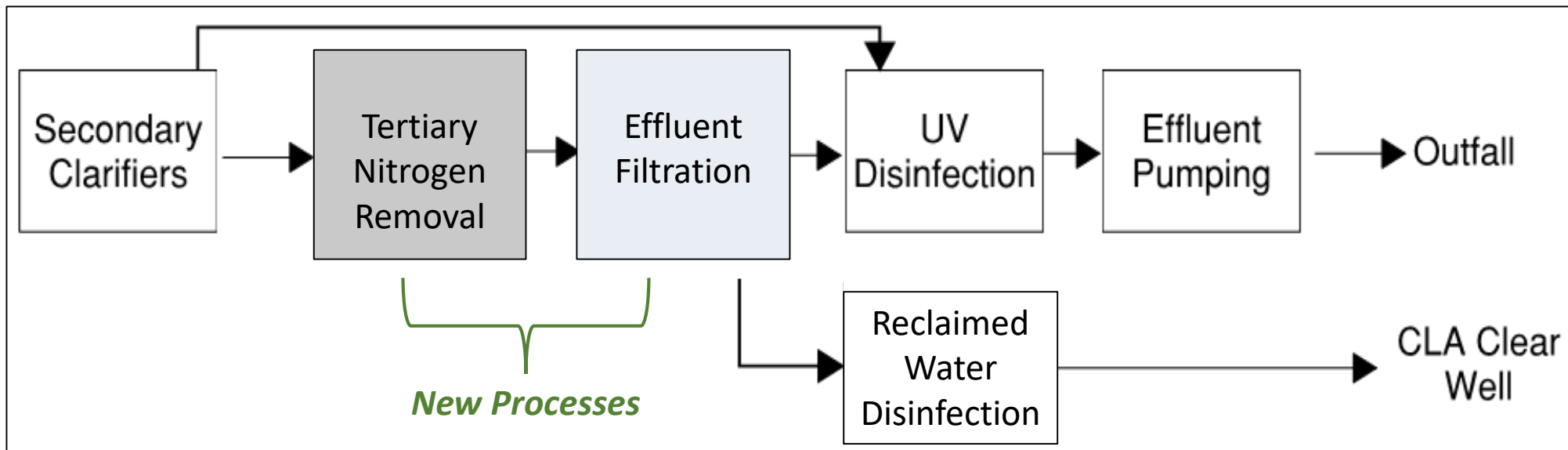
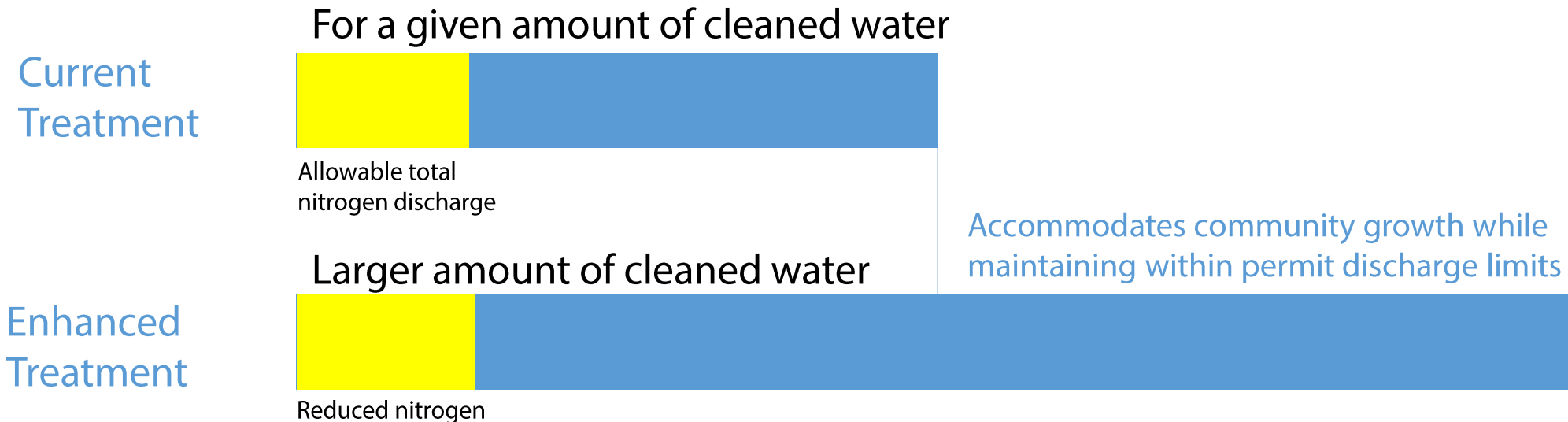


Illustration of Enhanced Treatment Gains

- LOTT is regulated on the total amount of nutrients in the cleaned water (e.g. nitrogen)
- Enhanced treatment could reduce concentration of nutrients, allowing discharge of more flow



Key Master Plan Strategies



Focus on enhancing treatment at Budd Inlet Treatment Plant

- Promising new technologies to manage more flow
- Room at the plant to add these treatment steps
- Could significantly increase discharge capacity







Expand reclaimed water at existing facilities

- Martin Way RWP as wastewater flow becomes available
- Hawks Prairie Recharge Basins as needed for additional infiltration
- Budd Inlet RWP as demand for reclaimed water develops



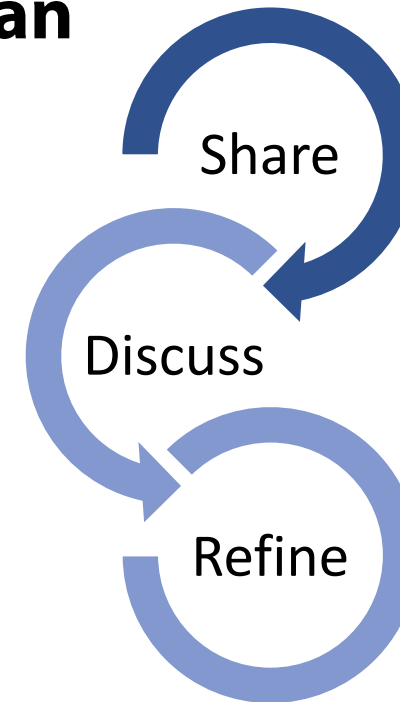
Master Plan Outcomes

-  **Cost efficiency** through a focus on existing infrastructure
 - Avoids cost of excess staffing and extensive pipelines to new infiltration sites
 - Allows for surplus of most of LOTT's undeveloped properties
-  **Adaptability** through alignment with partner jurisdiction reclaimed water needs
 - Retains flexibility to increase production
 - Creates option of adding treatment to produce potable quality water in the future
-  **Support of public values**
 - Reclaimed water as a valuable resource
 - Meet future wastewater needs; multiple community benefits
-  **Flexibility** by providing multiple options to meet capacity needs through 2050

Next Steps

- Community presentations
 - Community groups
 - Partner jurisdictions
- Community Forum #2
 - In-depth look at master planning effort
 - February 27, 2023
- Environmental and public review
- Refine and finalize updated plan

Master Plan



Questions?

- To receive notice about the upcoming Community Forum, email: info@lottcleanwater.org
- For more information about LOTT and master planning, visit: lottcleanwater.org

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