



Annual Report 2021

*Cleaning and restoring water
resources for our communities*

LOTT's Performance in 2021

Each year, LOTT compares our performance with 10 key performance objectives and 20 priority activities identified in the Strategic Plan. The plan spans the 2019-2024 planning period, and can be found in full at www.lottcleanwater.org. While the pandemic made 2021 a challenging year, LOTT met all performance objectives and made steady progress on the six-year work plan.

Objective 1

Achieve permit compliance

LOTT met all the water quality permit requirements for wastewater treatment at the Budd Inlet Treatment Plant. These requirements include strict discharge limits April through October for both nitrogen and biochemical oxygen demand. LOTT is proud to report that there were no violations for these water quality permit requirements, which are measured two ways – average concentrations and total pounds discharged to Budd Inlet. LOTT also met all water quality permit requirements related to Class A Reclaimed Water production at the Budd Inlet Reclaimed Water Plant and the Martin Way Reclaimed Water Plant, with the exception of two total coliform exceedances.

Most other treatment plants that discharge to Puget Sound do not have strict limits for nutrients. In fact, interest in LOTT as a successful example of advanced treatment was high in 2021 as the Department of Ecology considered, and ultimately issued, a new Puget Sound Nutrient General Permit. The permit requires 58 treatment plants discharging to Puget Sound to evaluate options to reduce nutrient loading. LOTT staff provided numerous presentations and interviews to share information about our processes at the request of the Department of Ecology, the Washington House Environment and Energy Committee, Northwest Indian Fisheries Commission, utility peers, Crosscut News, and the Seattle Times.

Environmental Compliance staff completed a wastewater characterization study in August, analyzing over 1,400 extra samples that month. Wastewater characterization data is used in a computer modeling program to help optimize the treatment process, providing vital information on the makeup of the waste stream and how it affects the biological process. This information also informs capacity planning and master planning efforts. The last study at LOTT's Budd Inlet Treatment Plant was completed in 2014.

Permit Compliance

Budd Inlet Treatment Plant		
Type	Discharge Limits*	Performance
Biochemical Oxygen Demand (BOD)	7 mg/L 671 lbs/day	4.15 mg/L 290 lbs/day
Total Suspended Solids (TSS)	30 mg/L 5265 lbs/day	8.73 mg/L 614 lbs/day
Total Inorganic Nitrogen (TIN)	3 mg/L 288 lbs/day	2.10 mg/L 148 lbs/day
Fecal Coliform Bacteria	200/100 mL	7.75/100 mL

* Average monthly discharge limits for summer season June-September

Budd Inlet Reclaimed Water Plant		
Type	Discharge Limits	Performance
Total Nitrate	10 mg/L	1.98 mg/L
Turbidity	2-5 NTU	0.31-0.89 NTU
Total Coliform Bacteria	< 23 MPN/ 100 mL	0 MPN/ 100 mL

Martin Way Reclaimed Water Plant		
Type	Discharge Limits	Performance
Biochemical Oxygen Demand	20 mg/L	2.42 mg/L
Total Suspended Solids	30 mg/L	0.09 mg/L
Total Nitrogen	10 mg/L	2.03 mg/L
Turbidity	0.2-0.5 NTU	0.06-0.16 NTU
Total Coliform Bacteria	< 23 MPN/ 100 mL	0 MPN/ 100 mL

Permit compliance

Zero instances where limits were exceeded for total amount of pollutant discharged to Budd Inlet

Objective
2

Avoid combined sewer overflows (CSOs) into Budd Inlet, with no more than one occurring annually

Sewer overflows
Zero
since 2009

CSOs refer to discharge of wastewater from LOTT’s emergency Fiddlehead Outfall due to overloading of the treatment system during major rain events. This objective was successfully met, despite multiple heavy rainstorms during the year that resulted in peak flow rates of up to 63 million gallons per day. Operations staff followed high flow protocols and successfully managed these rain events by filling equalization storage basins and carefully metering the water back into the treatment process as the rains subsided. Maintenance, Control Systems, and Environmental Compliance staff supported their efforts by keeping our facilities, equipment, and processes running properly.

Sanitary sewer overflows (SSOs) differ from CSOs; they are spills that occur in city collection systems occasionally throughout the year. Though these spills generally involve infrastructure that is not owned or managed by LOTT, reporting of SSOs is required under LOTT’s discharge permit.

Volume of Wastewater Treated*			
Budd Inlet Treatment Plant			
Daily Average Flow	2019	2020	2021
Daily Average Flow	11.03	11.41	12.38
Minimum Monthly Average	9.28	9.14	9.08
Maximum Monthly Average	13.60	18.68	18.53
Peak Flow	40.59	32.72	45.05
Reclaimed Water Daily Average	0.56	0.50	0.60
Martin Way Reclaimed Water Plant			
Daily Average Flow	1.26	1.43	1.38
Reclaimed Water Daily Average	0.96	1.16	1.14

* Million gallons per day

Objective
3

Engage the community proactively through public education, outreach, and involvement efforts

School program
2,637
participants
Tours
229
participants

As part of COVID-19 precautions, LOTT offices, the WET Science Center, and the East Bay Public Plaza remained closed to the public during 2021. Our traditional metrics for education program participants may appear low for 2021, but our innovative education staff continued engaging the public in new ways. LOTT served the community through a series of outdoor pop-up events, summer camp programs, virtual school field trips, and online science activities. A partnership with Timberland Regional Libraries allowed for distribution of at-home science activity packets and kits to families throughout the service area. LOTT’s websites, social media, and articles in ThurstonTalk were used to keep the public informed about engagement opportunities and COVID-related closures.

Public meetings were held virtually, including monthly meetings of the Board of Directors, and for oversight of the Reclaimed Water Infiltration Study. Virtual presentations to community groups featured a video tour of the Budd Inlet Treatment Plant to help fill the gap while in-person presentations and tours remained on hold.

The Water Environment Federation (WEF) selected LOTT for the 2021 Public Communication & Outreach Award for WET Science Center remote learning tools and the virtual treatment plant tour video series. The National Association of Clean Water Agencies honored LOTT with their National Environmental Achievement Award for public information and education, also for the virtual tour videos.



Objective

4

Manage and utilize wastewater as a source of renewable resources

While the primary function of the Budd Inlet Treatment Plant is to treat and clean wastewater, it also serves as a resource recovery facility. Class B Biosolids produced at the plant are trucked to eastern Washington to be used as a soil amendment on fallow dryland wheat fields. The cogeneration system produces both heat energy and electricity from methane, saving more than \$61,000 in energy costs last year. In 2021, LOTT produced an average of 1.74 million gallons of Class A Reclaimed Water each day. Reclaimed water is used for water features, irrigating streetscapes, parks, and the Tumwater Valley Golf Course, and replenishing groundwater. The cities of Lacey and Olympia used over 114 million gallons of Class A Reclaimed Water in 2021 at their Woodland Creek Groundwater Recharge Facility. By replenishing groundwater at that location, they retain the right to withdraw water in other locations to meet water supply needs.

Reclaimed water produced

634

million gallons

Biosolids generated

7,818

wet tons

Energy generated

847,780

kilowatt hours

Objective

5

Utilize a formal process to evaluate, optimize, prioritize, and fund infrastructure needs

Formal process utilized **Yes**

Progress on the multi-phase master planning effort continued in 2021. The first phase of work resulted in an updated site plan for the Budd Inlet Treatment Plant. The second phase of work focused on assessing system-wide capacity needs and developing flexible options for long-term capacity management, including future expansion of reclaimed water production. Meetings with key stakeholders were held late in the year to inform strategies. The master planning work will also be used to update the long-term capital improvements plan, which establishes the relative priority and timing for future infrastructure projects.

Objective

6

Complete capital projects necessary to effectively and reliably sustain existing infrastructure, build new capacity, and meet LOTT's mission

At the Budd Inlet Treatment Plant, construction of LOTT's second generation nutrient removal system began in January and is progressing well. Phase 1 is complete, including a new mechanical and electrical building, new electrical substation, and reconfiguration of two out of five treatment trains. This complex work took place in the heart of the plant and was carefully sequenced to ensure effective treatment of wastewater could continue without disruption during construction. Also at the plant, a series of major mechanical improvements began to update aging equipment, such as instrument air compressors and low heat loop pumps. Under the Collection System Management Program, the first phase of pipeline rehabilitation was completed, including installation

of new pipe linings and coatings for major interceptor pipelines and manholes in the I-5 and Henderson Boulevard area.

Improvements were completed at the Martin Way Reclaimed Water Plant to improve energy efficiency and reliability, including installation of two new aeration blowers and purchase of a second influent screen. LOTT also completed demolition of several structures and disposed of hazardous materials and a transformer at the Deschutes Valley property.

Major Capital Projects	
Project	Status
Biological Process Improvements: Phase 1	100% Constructed
Budd Inlet Treatment Plant Mechanical Improvements	75% Constructed
North Outfall: Marine Section Diffuser Repair	100% Constructed
Security Improvements: Budd Inlet Treatment Plant Fencing	100% Designed
Collection System Piping Rehabilitation: Phase 1	100% Constructed
Martin Way Reclaimed Water Plant: Blower Upgrade	100% Constructed

Objective
7

Manage utility finances in an economical, responsible, efficient, and sustainable manner

LOTT
monthly
rates
Below
regional
average

Revenue impacts from the COVID-19 pandemic have been carefully monitored and projections adjusted over the course of the year. Cost cutting measures taken early in the pandemic helped to offset slower growth in Wastewater Service Charge (WSC) revenue. In addition, LOTT identified an opportunity to refinance debt at favorable rates. Refinancing about \$41 million in debt freed up nearly \$6 million in restricted cash and will result in interest savings of over \$3.5 million.



Objective
8

Achieve an annual state audit that is free of findings

LOTT's annual state audit was free of findings, and has been since the utility became an independent entity in 2001. LOTT was awarded the Government Finance Officers Association Certificate of Achievement for Excellence in Financial Reporting for the 14th consecutive year for its 2020 annual financial report.

Annual state audit
Zero
findings

Objective
9

Maintain an environment in which no more than 4% of staff voluntarily leave for similar work opportunities annually

Employee
retention
1%
voluntary
exits

LOTT's focus on innovation, professional development, and employee wellness helps the organization remain a workplace of choice. A continued focus on knowledge management and growing future leaders from within allowed numerous staff members to step into new roles and responsibilities. This was especially the case for the Operations section, where several longtime Operators retired. Three Operator II positions, one Supervisor, and one Lead position were filled by well qualified internal candidates. Succession planning for key management positions was also a focus. The Board of Directors reviewed the progress of the Assistant Executive Director, who is completing a career development plan as an internal candidate in preparation for the Executive Director's pending retirement.

Objective
10

Maintain a safe work environment, achieving a safety experience rating at or below the industry standard of 1.0

The Washington State Department of Labor & Industries experience rating defines the industry standard for safety. A utility's rating is calculated by comparing Workers' Compensation claims to the levels typical of our industry. The excellent rating indicates our proactive safety program is working.

Workplace safety
0.7
experience
rating

Protecting staff from COVID-19 remained the top priority for 2021. Protocols to minimize risk of transmission continued, including remaining closed to the public, limiting the number of staff members working onsite, and requiring vaccination as a condition of employment. Our dedicated staff adjusted to these challenges, recognizing that protecting each other was integral to their continued ability to provide essential public services. Security improvements were also a high priority in response to an increasing number of intrusions at the main treatment plant and other properties. An Emergency Preparedness Committee was formed and is making good progress on assessing and taking measures to mitigate risks.

Work Plan Priorities 2019-2024

The 2019-2024 Strategic Plan includes an Internal Work Plan to guide organizational development, improve the way the utility does business, and keep LOTT agile and prepared for the future. The work plan identifies a list of actions related to six focus areas. The highest priority activities to be completed within the six-year planning period are included in the following table, along with a summary of their status. Additional information can be found in the 2019-2024 Strategic Plan at www.lottcleanwater.org.

	Priority Activities	Status
	Emergency Preparedness	
	Establish a specific emergency response structure	Done
	Assign staff to primary and back-up roles within the response structure	Nearly Done
	Develop response plans for a variety of emergency scenarios	Started
	Knowledge Management	
	Complete succession planning for critical positions	Ongoing
	Establish a strategic training program for apprenticeships and Operator advancement	Done
	Complete organizational development work for the Control Systems work group	Done
	Human Resources	
	Complete a staffing and organizational assessment for the Operations work group	Done
	Further develop LOTT's formal Human Resources program	Ongoing
	Continue to evaluate and optimize staffing resources	Ongoing
	Information Technology	
	Conduct a network assessment	Done
	Conduct a system security assessment	Yet to Do
	Complete an IT disaster recovery plan	Started
	Complete an assessment of LOTT's current MAX control system	Started
	Address priority needs identified in the system assessments.	Ongoing

Priority Activities	Status
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Capital Planning

- Refine and update the new staffing model as a tool for projecting CIP related staffing requirements. **Ongoing**
- Harness MainSaver data to prioritize asset management CIP projects. **Ongoing**



Planning for Emerging Issues

- Complete a master planning effort in two phases: the first to establish a long-range plan for the Budd Inlet Treatment Plant and the second to update LOTT's plan for overall system capacity **Phase 2 Nearly Done**
- Develop step-by-step procedures in coordination with the City of Olympia for responding to surface flooding that could convey floodwaters into the combined storm/sewer system **Done**
- Establish LOTT's baseline energy usage and greenhouse gas emissions for use in tracking future reductions **Done**
- Encourage community conversations on results of the Reclaimed Water Infiltration Study, future levels of treatment and uses of reclaimed water, and broader water management issues **Started**
- Reassess and adjust monthly service fees and connection fees for both residential and commercial customers as a result of the cost of service study findings, and propose associated updates to LOTT's Intergovernmental Agreement **Started**

LOTT Board of Directors 2021



*Cynthia Pratt
City of Lacey*



*Lisa Parshley
City of Olympia*



*Pete Kmet
City of Tumwater*



*Tye Menser
Thurston County*

Your Wastewater Utility

The LOTT Clean Water Alliance is a non-profit corporation responsible for wastewater treatment in the urban areas of north Thurston County, Washington. L-O-T-T stands for the four government partners – the cities of Lacey, Olympia, and Tumwater, and Thurston County – that formed and govern the regional utility.

In 2021, LOTT met all its performance objectives while dealing with the risks and challenges created by the COVID-19 pandemic. Though we have had to adjust some of our practices during the pandemic, LOTT's dedicated staff remain hard at work protecting water quality and providing essential public services.

119,790 people served

13.8 million gallons of wastewater treated per day

1.74 million gallons of reclaimed water produced per day

86 staff members

3 treatment plants

23,316 laboratory tests

95 active contracts

5,705 work orders

484 IT requests

3,322 education program participants

LOTT's Mission

To preserve and protect public health and the environment by cleaning and restoring water resources for our communities.

