



# Preparing for Sea Level Rise

## LOTT's Budd Inlet Treatment Plant

*Flooding in downtown Olympia can be a problem for LOTT's Budd Inlet Treatment Plant even under current conditions. As sea levels rise, flooding will become more frequent and severe. The LOTT Clean Water Alliance is working with the City of Olympia and Port of Olympia to prepare for sea level rise.*

### Is sea level rise an issue for the treatment plant?

The Budd Inlet Treatment Plant is located in downtown Olympia, an area vulnerable to flooding due to low elevation and extensive shoreline along Budd Inlet. In some parts of downtown, wastewater and stormwater runoff flow into the same pipe system (the combined sewer system), which is routed to the treatment plant. As sea levels rise, flooding in the streets will become more frequent. These flood waters drain into the combined sewer system and can dramatically increase flows to the treatment plant and its processes. Overland flooding from the shoreline could also reach the plant site and flood pathways and structures.

#### Potential near-term impacts

Even at low levels of sea rise – up to 6 inches – flood waters in downtown Olympia would enter the combined sewer system, increasing peak flows to the treatment plant. These high flows could overwhelm the plant and disrupt the biological treatment processes. That would increase the likelihood of bypass events, in which untreated or partially treated wastewater must be discharged directly to Budd Inlet through LOTT's marine outfalls.

#### Potential future impacts

With moderate amounts of sea level rise – 18 to 24 inches – overland flooding could reach structures like the underground utilidor that contains electrical equipment and piping, and the headworks building that houses influent pumps and back-up generators. Flooding in these areas would damage electrical systems and disrupt pumping, keeping flows from entering or leaving the plant. The adjacent Puget Sound Energy substation that provides power to the plant would also be at risk. Failure of the substation would be catastrophic to treatment plant operations.



*Increased peak flows could overwhelm the treatment plant and cause wastewater to back up into the sewer system, flooding streets, homes, and businesses.*



*The switchgear project, completed in 2016, raised the electrical substation elevation by 1.5 feet and included watertight connections and enclosures.*

### What is being done to prepare for the effects of sea level rise?

In 2020, LOTT completed a master planning update for the Budd Inlet Treatment Plant. This work built on previous sea level rise planning efforts, including a treatment plant vulnerability assessment completed by LOTT in 2014 and a joint planning effort with the City of Olympia and the Port of Olympia to produce the Olympia Sea Level Rise Response Plan in 2019. The Response Plan is based on current sea level rise projections and provides options for protecting downtown Olympia, including the treatment plant.

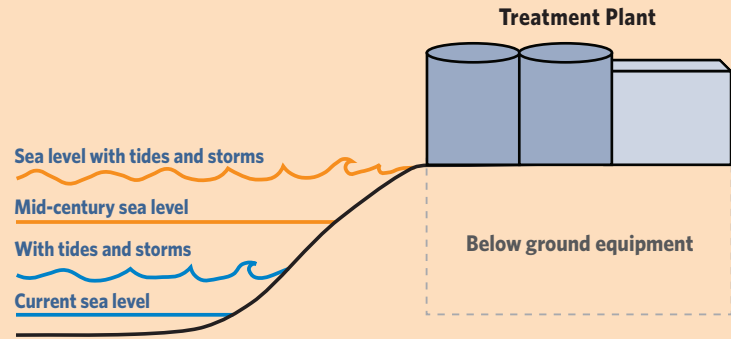
LOTT's master planning identified the need for a future wet weather/peak flow treatment system and additional pumping capacity. LOTT is already adding flood protection at the plant by designing and building new projects, such as the Regional Services Center, to higher elevations than in the past.

## Protecting downtown

Olympia's Sea Level Rise Response Plan proposes the installation of barriers to prevent overland flooding along downtown's extensive shoreline. In addition to protecting downtown, this would help protect the Budd Inlet Treatment Plant by keeping flood waters from entering the combined sewer system or flooding the plant site. Adding these shoreline barriers would delay the need for flood protection around the Budd Inlet Treatment Plant perimeter.

High-range predictions indicate 24 inches of sea level rise by 2050, and over 60 inches by 2100. To protect the treatment plant and other community assets, the shoreline flood barriers could be installed by mid-century. As new sea level rise information becomes available, our community's adaptation strategies will be adjusted to ensure we are prepared for the decades ahead.

## Predicted sea level rise



By 2050, sea level rise is expected to be between 12 and 24 inches. LOTT is planning with the high end of this range in mind.

Flooding from sea level rise will be made worse by extreme high tides and heavy storms. The treatment plant will be vulnerable to flooding of structures and processes both above and below ground.

## Protecting the treatment plant

LOTT will continue to assess risks from sea level rise and identify actions needed to protect the Budd Inlet Treatment Plant from increased flows from both the combined sewer system and overland flooding.

### Near-term priorities (2019-2024)

- Coordinate with the City of Olympia and Washington State Department of Enterprise Services on winter flood protections to minimize flooding of the combined sewer system
- Collaborate with Puget Sound Energy to identify actions for protecting the substation that powers the plant

### Mid-term priorities (2025-2050)

- Design new and upgraded structures to elevations above projected flood levels
- Flood-proof sensitive facilities at the Budd Inlet Treatment Plant
- Increase water storage and pumping capacity

### Long-term priorities (2051-2075)

- Add wet weather treatment system
- Consider the need for perimeter flood protection

## Should LOTT relocate the plant instead?

LOTT's Budd Inlet Treatment Plant, valued at more than \$500 million, is a vital community asset that provides wastewater services for the urban areas of Lacey, Olympia, and Tumwater. Estimates indicate it would cost nearly \$1.5 billion to relocate the treatment plant and redirect wastewater flows to a new location. Given the high cost of moving the plant, and the need to protect other valuable community assets downtown, taking steps to protect the Budd Inlet Treatment Plant in its downtown Olympia location is more cost-effective than relocating.

## Want to learn more?

For more information about how the community is planning for sea level rise, visit [www.lottcleanwater.org](http://www.lottcleanwater.org).

