



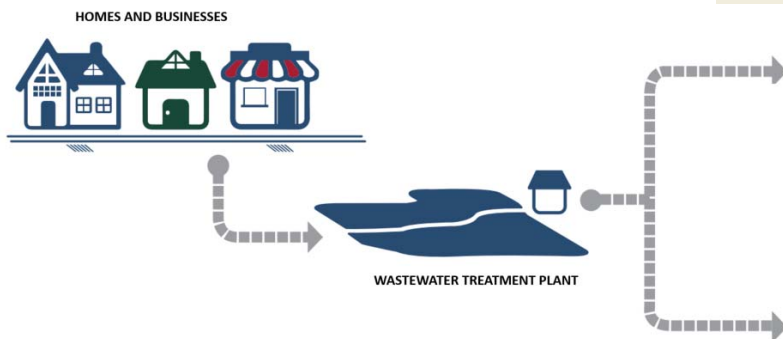
Molalla's Wastewater Improvements Pathway to Regulatory Compliance

January 2018

Sewage from Molalla homes and businesses is treated at the Molalla Wastewater Treatment Plant along the Woodburn-Estacada Highway. Despite efforts to improve operations, the plant has been unable to reliably meet permit requirements. Improvements are needed to protect water quality in the Molalla River and provide capacity to meet our community's needs as we continue to grow.

Where does sewage go after it leaves my home or business?

To protect public health and the environment, sewage travels through a network of buried pipelines and pumps (the sewer collection system) to Molalla's wastewater treatment plant. The final use of the treated water from the wastewater treatment plant, the "effluent," depends on time of year.



In summer, effluent is used for irrigation. Reuse of treated effluent preserves our water resources and keeps effluent out of the Molalla River when river flows are low and temperatures are high.

In winter, effluent is treated and returned to the Molalla River. High winter flows from rain and snow increase the river's capability to accept treated wastewater.

Guiding Principles

The City of Molalla is committed to:

Protect water quality in the Molalla River, consistent with stream flow and water quality modeling results, the Clean Water Act, and Oregon Administrative Rules.

Use credible experts to develop solutions based on the best available science and engineering.

Provide clear activities and milestones including a timetable for achieving incremental environmental benefits on the way to full compliance.

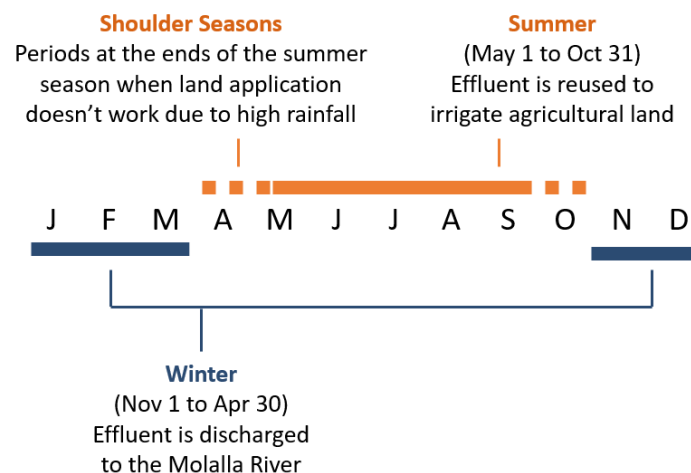
Seek creative technical and funding solutions, working to keep sewer service affordable for City customers.

Be open and transparent in documenting problems and communicating the pathway to compliance, Molalla's steady progress, and outcomes with DEQ and the public all along the way.

What's the shoulder season?

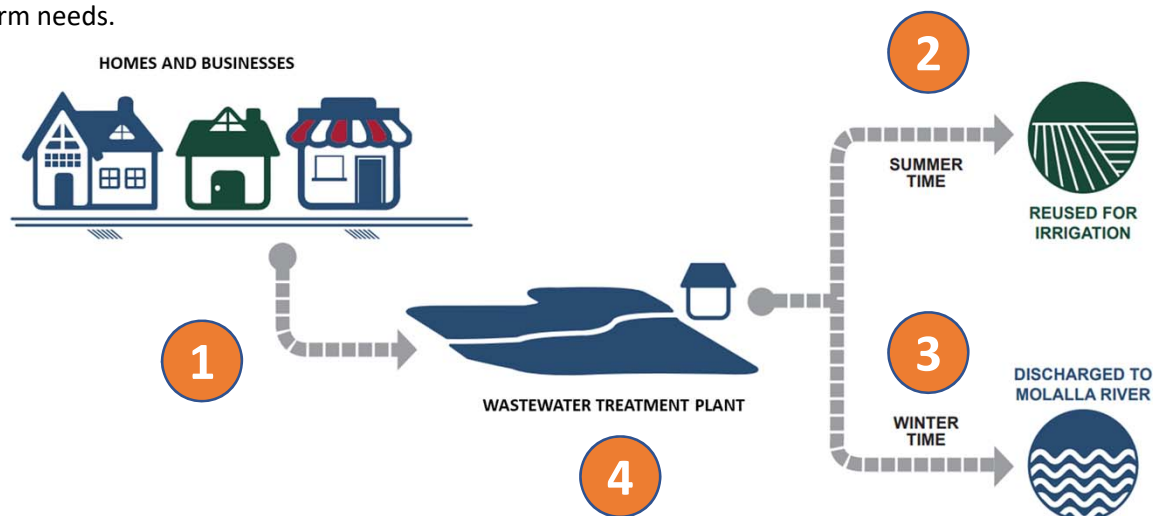
The "shoulder seasons" are the periods at the beginning and end of the summer season. In the winter season – November 1 through April 30 – the City is permitted to discharge fully treated wastewater to the Molalla River. During the summer season, when discharge to the river is not allowed, treated wastewater is used for irrigation.

When there is a lot of spring or fall rain (during the "shoulder season"), the lands used for irrigation become saturated with rain water. In that event, the City stores as much water as possible, then discharges to the river treated effluent that can't be stored. This occurs when Molalla River flows are high, but is not allowed under the current discharge permit. The City is conducting advanced modeling of river flows to better understand the capability of the river to accept treated wastewater during the shoulder season.



Fixing the Problem

Molalla is using a multi-pronged approach to develop affordable and reliable improvements that meet the City's long-term needs.



What's wrong right now?

What is the City doing?

1

Leaky sewers - Molalla's sewer pipelines are aging – most are over 60 years old. As they get older, they leak, allowing groundwater and stormwater to enter the sewers and mix with the wastewater in the pipes. The City then has to treat groundwater and stormwater along with wastewater. This problem is referred to as inflow and infiltration (I&I).

Sewer system improvements - The City has budgeted to reduce I&I by replacing aging sewer pipelines and disconnecting cross connections. In 2017, the City invested in a study to identify locations with the highest I&I flows to focus improvements where they will make the biggest difference. These improvements also reduce discharges from the wastewater treatment plant.

2

Mismatches between recycled water quality and its use - In summer, effluent is used for irrigation. The water quality of the effluent (its "class") must be appropriate for the land and crop being irrigated and the level of public access. The City had committed to producing Class A recycled water – beyond the capabilities of the existing plant – and was applying it to lands designated from Class B to Class C.

Recycled water reuse compliance - The new draft Recycled Water Reuse Plan was completed in December 2017. This updated plan commits to producing Class C recycled water for irrigation of grass and pasture lands – an approved use of Class C recycled water. The City is ready to implement the changes for the 2018 irrigation season and is working on plan approval with DEQ.

3

Permit based on discharge to more-sensitive Bear Creek - In 2004, Molalla invested in a new pump station and pipeline to discharge treated wastewater to the Molalla River instead of Bear Creek. The Molalla River has much higher flows and a greater capability to accept treated effluent – the City's discharge permit was not updated to reflect the change in discharge point.

Molalla River capacity - Molalla is conducting advanced modeling of river flows using the best available science to better understand the river's capability to accept wastewater. Molalla will work with DEQ to identify permit requirements and treatment needs based on the river's capability and the City's future treatment needs.

4

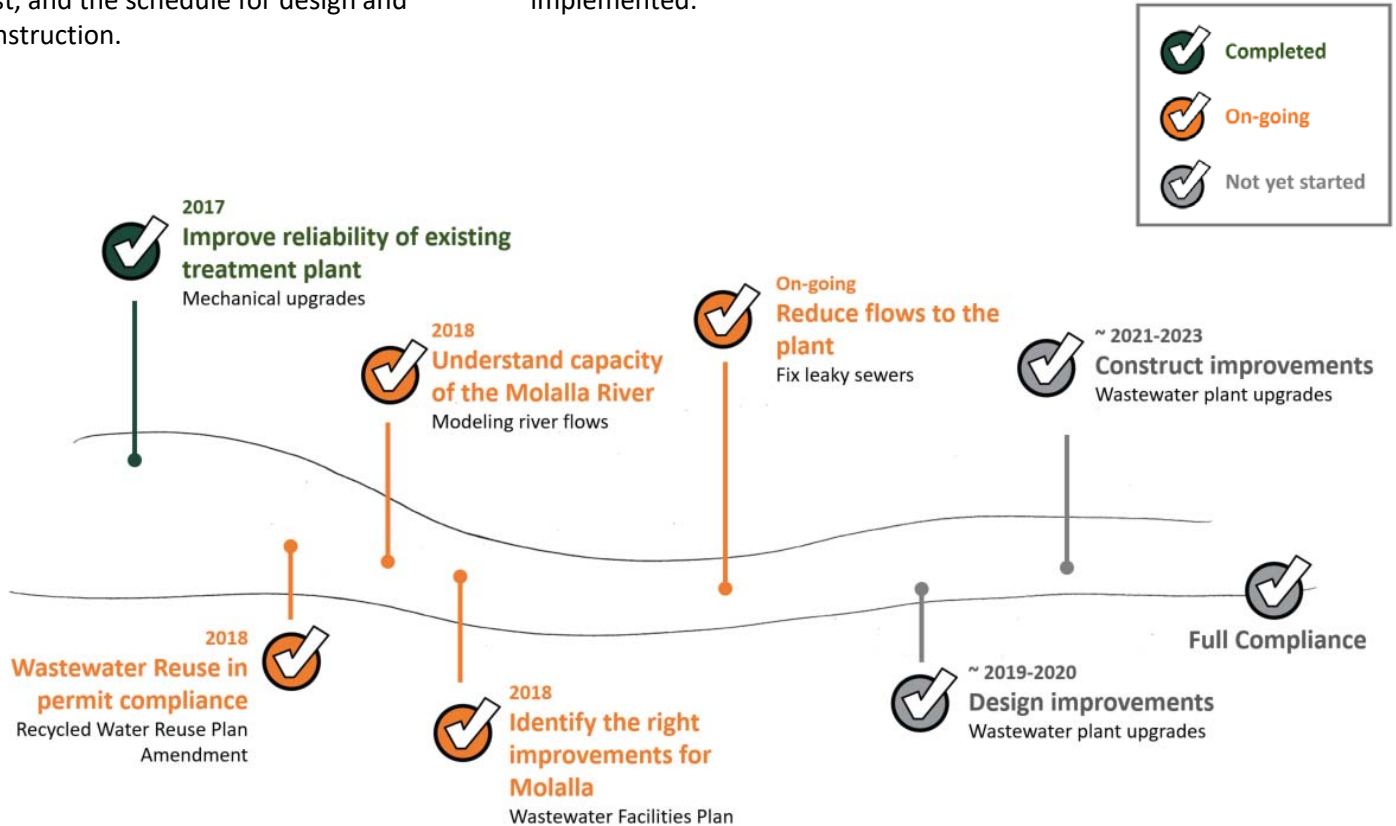
Treatment plant upgrades - The existing treatment plant does not function as designed – the treated effluent does not meet the City's discharge permit. The plant also doesn't have enough capacity: Molalla needs to serve 6,000 new residents and associated new businesses by 2040.

Treatment plant improvements - The City has retained Dyer Partnership engineers to prepare a full Wastewater Facility and Collection System Master Plan scheduled for completion in 2018. The plan will detail specific improvements, their cost, and how long it will take to design and build the improvements.

Molalla's Pathway to Regulatory Compliance

It will take four to six years to complete improvements to bring the City into full compliance – there are many steps along the way. A Wastewater Facility and Collection System Master Plan will detail needed long-term improvements, their cost, and the schedule for design and construction.

While long-term improvements are being planned and built, the City is making steady progress improving wastewater system performance. This helps protect water quality in local streams while long-term improvements are being implemented.



The City of Molalla is working closely with DEQ to identify the right path forward. The City is committed to keeping customers informed about plans for wastewater improvements, protecting water quality in the Molalla River and maintaining affordability.

The City's existing wastewater treatment plant, located along the Woodburn-Estacada Highway.

How is wastewater treatment regulated?

Disposal and reuse of treated wastewater are regulated by the Oregon Department of Environmental Quality (DEQ). Oregon's rules are based on the federal Clean Water Act and codified in the Oregon Administrative Rules. Some rules apply to all wastewater treatment plants in Oregon; others are based on the specific river or stream where the treatment plant discharges.

A treatment plant's discharge requirements are described in its National Pollutant Discharge Elimination System (NPDES) permit.

Until 2004, the Molalla wastewater treatment plant discharged to Bear Creek during the winter wet season. Molalla's NPDES permit has very low limits, intended to protect Bear Creek.

In 2004, the City built a new pump station and pipeline to instead discharge to the Molalla River, which has greater capability to accept treated wastewater. But Molalla's NPDES permit was not changed to reflect the new discharge point.

To better understand needed treatment improvements, Molalla is investing in modeling Molalla River flows. With that information, Molalla and DEQ can work together to identify permit limits consistent with Oregon Administrative Rules and the federal Clean Water Act.

Which wastewater constituents are regulated?

Regulations are designed to maintain healthy streams for both people and aquatic life. Characteristics of healthy streams are:



Enough oxygen for aquatic life

To ensure there is enough oxygen, there are limits on how much biodegradable material (called Biological Oxygen Demand, or "BOD") can be in the water. Temperature is also important, because colder water can hold more oxygen.



Free from excess solids

Solids can affect habitat and contribute to low oxygen levels. Solids are measured as total suspended solids (TSS) and turbidity, which measures how cloudy the water is.



Low levels of toxins

Toxins that can be found in wastewater include chlorine (if not fully removed after disinfection), ammonia, metals and pesticides. These constituents are monitored to make sure levels in the effluent protect aquatic life.



Low levels of pathogens

Wastewater is monitored for *E. coli*, which is found in feces of warm-blooded animals (like us!). The *E. coli* is used as an indicator organism – when we know *E. coli* levels are very low, we know levels of other pathogens are low, too.



Moderate pH

pH is a scale of acidity from 0 to 14, from acidic (low pH) to alkaline (high pH). Aquatic organisms don't like it when pH is too low or too high.



Learn more at cityofmolalla.com