



# Belfair Sewer System

1/31/17 BOARD OF COMMISSIONER'S MEETING

BELFAIR, WA

# The Basics

- Belfair system put into service in 2012.
- Treatment Facility is a membrane bio-reactor plant (MBR).
- It produces Class A effluent that is sent to spray fields or a storage pond for infiltration.
- System has a combination of gravity and low pressure sewer connections.
- There are 4 lift stations within the existing collection system.



# The Basics 2

- 416.23 Existing Equivalent Residential Units
- 201 Total Connections
- Average flow is around 65,000 gallons/day.
- Permitted average daily flow is 125,000 gallons/day.
- Two membrane basins at WRF are empty.
- Putting membranes in these basins would increase capacity to a *maximum month* flow of 500,000 gallons a day.





Google Maps

Belfair

Belfair WRF and Sprayfield

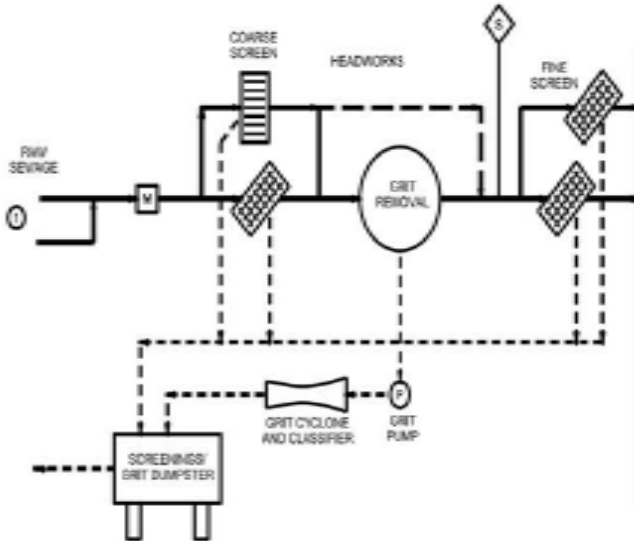


Imagery ©2016 Google, Map data ©2016 Google 500 ft

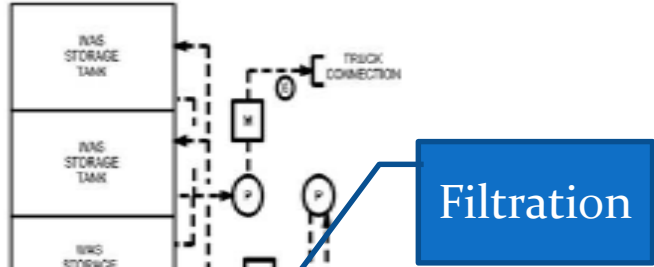
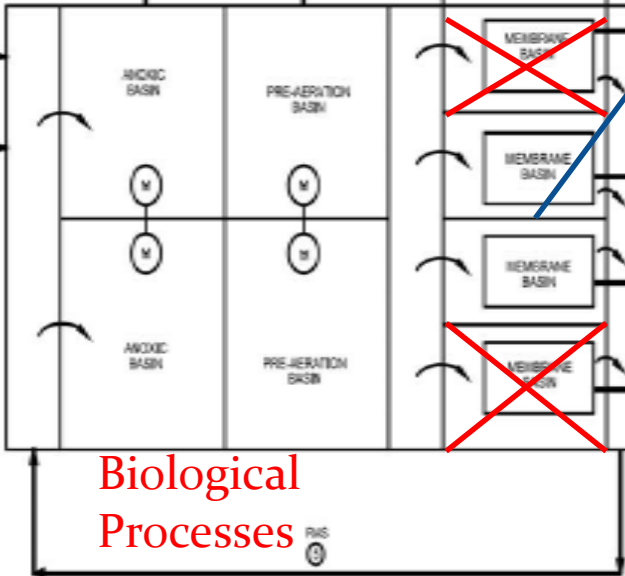


Sludge

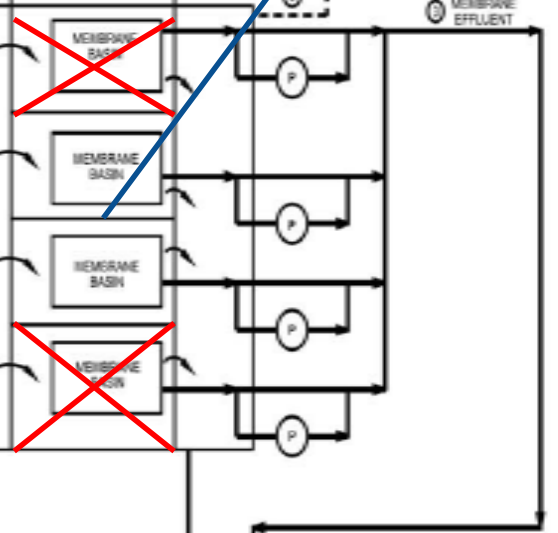
Physical Processes



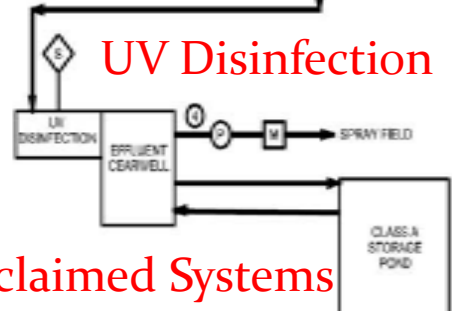
Biological Processes



Filtration



UV Disinfection



Reclaimed Systems

Each membrane basin has a capacity of 125,000 gpd. Currently membranes are only in basins 2 and 3.

# Belfair Water Reclamation Facility Schematic

# Financial

- Current monthly user fee of \$96/ERU
- ERU = Equivalent Residential Unit
- Customer growth has been significantly lower than expected.
- 2017 budget projects the monthly cost of the system to be \$344/ERU.
- Deficit between revenue and expenditures covered with state grant, REET funds, and funds rebated from the state back to the County for public facilities and economic development (.09 funds).



# Expansion Options

- Old Belfair Highway.
- Extend sewer to Puget Sound Industrial Center (PSIC) and provide sewer service to Port of Bremerton.
- Extend sewer line up and beyond Roy Boad Road.
- Extend sewer to other areas of Belfair.



# Old Belfair Highway Option

- In 2016 Mason County applied for \$750,000 in funding from the Department of Ecology to design this sewer extension. The County asked for a grant.
- Ecology has released their initial funding list and this project is on the award list but as a \$750,000 loan.
- The final determination on the funding list will not be completed until Ecology's budget is approved by the legislature.





# Roy Boad Road Extension

- This would serve some but not all of the Old Belfair Highway Extension areas.
- Goal would be to provide sewer service to the undeveloped parcels in the Old Belfair Highway Area that could be developed to urban densities.
- The system would have fewer lift stations and fewer creek crossings than the Old Belfair Highway System.
- The Old Belfair Highway Funding Application could potentially be used to complete this design.



# PSIC Sewer Extension

- County submitted a legislative funding request of \$1.1 Million to design a sewer collection system that would extend to the sewer lagoons operated by the Port of Bremerton.
- To save on construction costs this project would be constructed as the same time as the Belfair Bypass.
- The City of Bremerton has written a letter of support for this project that was submitted to the legislature.
- Constructing a reclaimed water line back to the port could provide additional revenue.



# Reclaim Water Potential

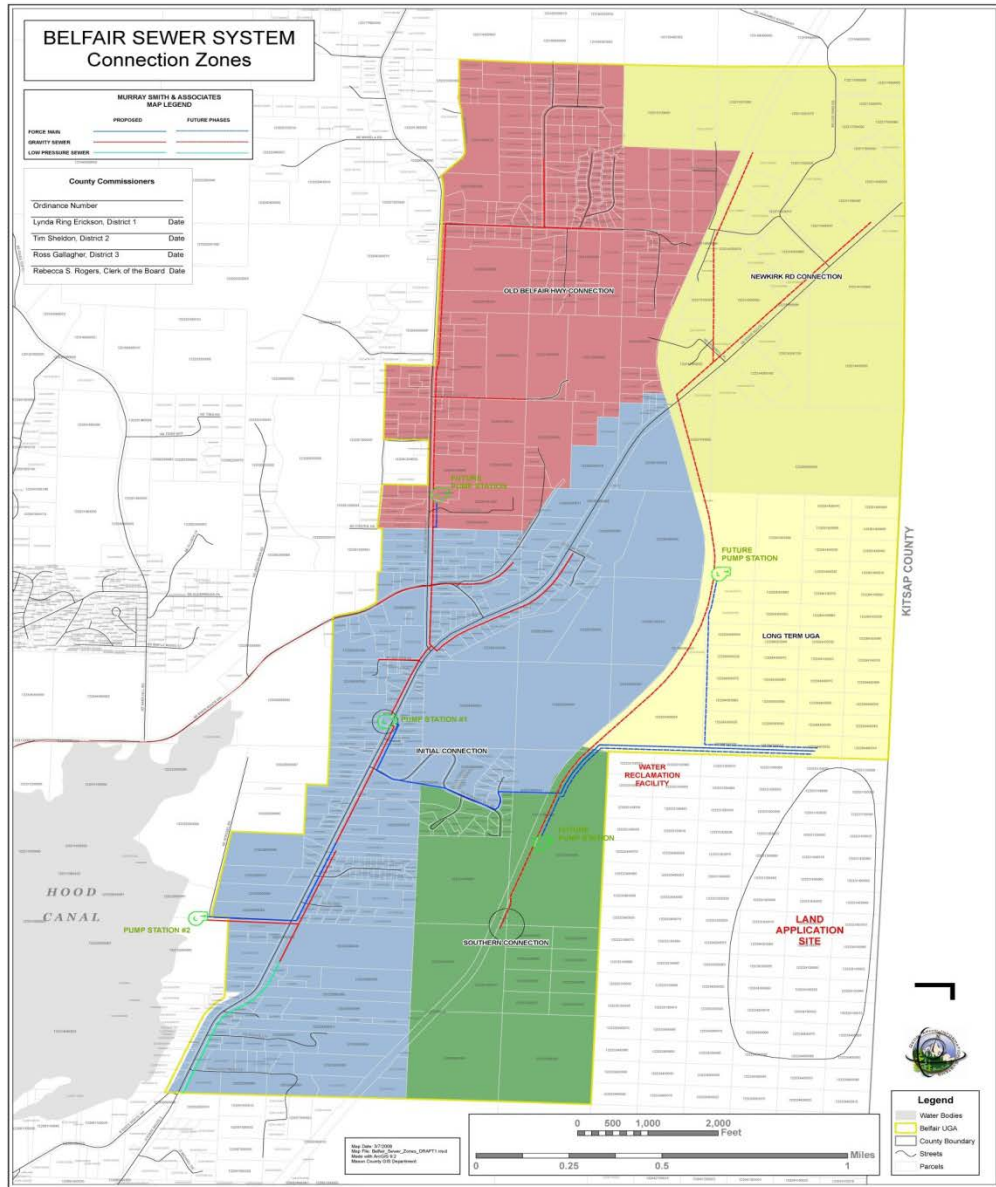
- The Belfair WRF creates Class A effluent that could be used for non-potable uses.
- Would require a chlorination and pumping station at Belfair WRF plus distribution piping.
- Could provide a source of revenue for County and a water source for large water users.



# Septage Facility Potential

- Belfair would require a rock box, additional screens, piping to digesters, road upgrades, and security improvements to accept septage.
- Septage would still need to be hauled (\$0.21/gallon) to Shelton like our biosolids.
- Other facilities in area charge ~\$0.15/gallon .
- Break even cost (capital and operational costs) at Belfair is greater than \$0.45/gallon.





# Any Questions?

Bart Stepp, PE

Deputy Director/Utilities and Waste Management

Mason County Public Works

100 W. Public Works Drive

Shelton, WA 98584

[bstepp@co.mason.wa.us](mailto:bstepp@co.mason.wa.us)

(360) 427-9670 x652

