

Tweed Wastewater Treatment Facility (TWWTF) Upgrade

Alternate Solutions Initial Evaluation

1. Do Nothing.

This alternative is based upon doing nothing to the existing facility. It does not address the existing early discharge issues nor does it provide future capacity needed due to forecasted growth for the Municipality of Tweed. No future growth is possible under this scenario. This solution will not solve the problem and, therefore, will not be evaluated further.

2. Rehabilitate Sanitary Sewers to reduce Inflow & Infiltration.

This alternative involves undertaking measures to reduce extraneous flows into the system. The percentage of inflow and infiltration to the Tweed collection system does seem high relative to other communities. The Municipality has worked diligently to reduce inflow to the system, through a series of test and seal programs. Substantial costs have been incurred over the past five years, with limited success to date. This alternative on its own will not solve the noted problems. It should be noted, however, that this solution while on its own will not solve the problems, it should be considered in conjunction with the eventual preferred solution as it has value and merit for improving the overall performance of the final solution.

3. Add Third Sewage Treatment Lagoon.

This alternative involves constructing new infrastructure on the existing site. The property does not have the required space to accommodate the new infrastructure. In addition, the effluent quality from this proposed solution will not meet MOE requirements. This option is not considered viable and will not be considered in more detail.

4. Add Engineered Wetlands to further polish effluent.

This alternative includes constructing new infrastructure on existing municipal property. The property has limited space and is not large enough to add large-scale wetland polishing system. Additionally, this technology is also not currently recognized by the MOE so a long pilot period should be expected before becoming a sanctioned solution. This option is not considered viable and will not be considered in more detail.

5. Use Snowfluent to distribute effluent in winter.

Snowfluent is the distribution of effluent during cold winter months via spraying the effluent as snow onto fields. Land availability, temperature and availability of suitable land become limiting factors for this solution. Warm winters that are now common in our area are making Snowfluent not viable. Setbacks from land owner's wells need to be

considered which further limits potential sites for distribution of the effluent. This option is not considered viable will not be considered in more detail.

6. Use Spray Irrigation to distribute effluent in summer.

Availability of viable spray sites are limited by available land, owner setbacks and community disapproval due to odour, however, this option is considered technically viable and should be considered in more detail.

7. Lagoon and Mechanical Plant hybrid solution.

This option would include augmenting the existing lagoon system with some mechanical features to enhance treatment and allow increased discharge flows. Capital costs for full mechanical plant would be relatively high compared with most other solutions. However, a smaller capital cost would be incurred in a hybrid solution versus abandoning the lagoons all together and going with a purely mechanical plant solution. This hybrid option is considered viable and should be considered in more detail.

8. Build Pipeline to Neighbouring Municipality.

This alternative involves constructing the necessary pumping and force main to transport the raw sewage to an existing wastewater treatment facility. If such a facility can be utilized there will be savings realized in operating costs. The two possible locations for terminating the pipeline would be Belleville and Marmora. Cost and whether or not the receiving facility would have capacity to handle the increased volume are the two driving factors for the feasibility of the pipeline options.

Below is a table with the estimated cost of each of these pipelines given the distance from Tweed. Using an estimate of \$600/linear metre, \$1,000,000 for pumping infrastructure and where applicable \$1,000,000 for water crossing.

Pipeline Location	Distance (m)	Cost
Belleville	40,000	\$26,000,000
Marmora	40,000	\$25,000,000

The costs to construct a pipeline to either Belleville or Marmora are considered prohibitive. For this reasons this alternative is not considered to be viable.

9. New Mechanical Plant only.

This option would require capital investment in the new property as well as for construction of the new plant. This option would meet MOE effluent requirements and would be sized accordingly to handle the future projected population growth for the Municipality of Tweed. This option would have a higher cost than the proposed lagoon/mechanical plant hybrid option. This option is considered viable and should be considered in more detail.