Wastewater Treatment – Keeping your Water Safe

The City of Fredericton has three wastewater treatment facilities:

1. Barker Street Treatment Facility
2. Garden Creek Lagoon
3. Lincoln Lagoon

Over 21 million litres of wastewater is collected from homes and businesses and directed through 400 km of underground sewer pipes and lift stations to the facilities each day. Treated, clean and safe water is then returned to the Saint John River.

The Barker's Street Treatment Facility treats 95% of the wastewater and also generates approximately 5,000 tonnes of biosolids / year which are then composted and re-used in manufactured topsoil. The remaining 5% of wastewater is treated at the two Lagoons. All three facilities meet Environment Canada and the NB Department of Environment effluent treatment standards.

Recently completed construction projects:

- Barker Street $5 million Phase 1 Upgrade – additional aeration capacity
- Garden Creek Lagoon Expansion
- Riverside Drive Lift Station Upgrade / replacement
- Canada Street Lift Station – new facility
- Woodstock Road #3 Lift Station – Upgrade / replacement

Current / Planned Infrastructure upgrades:

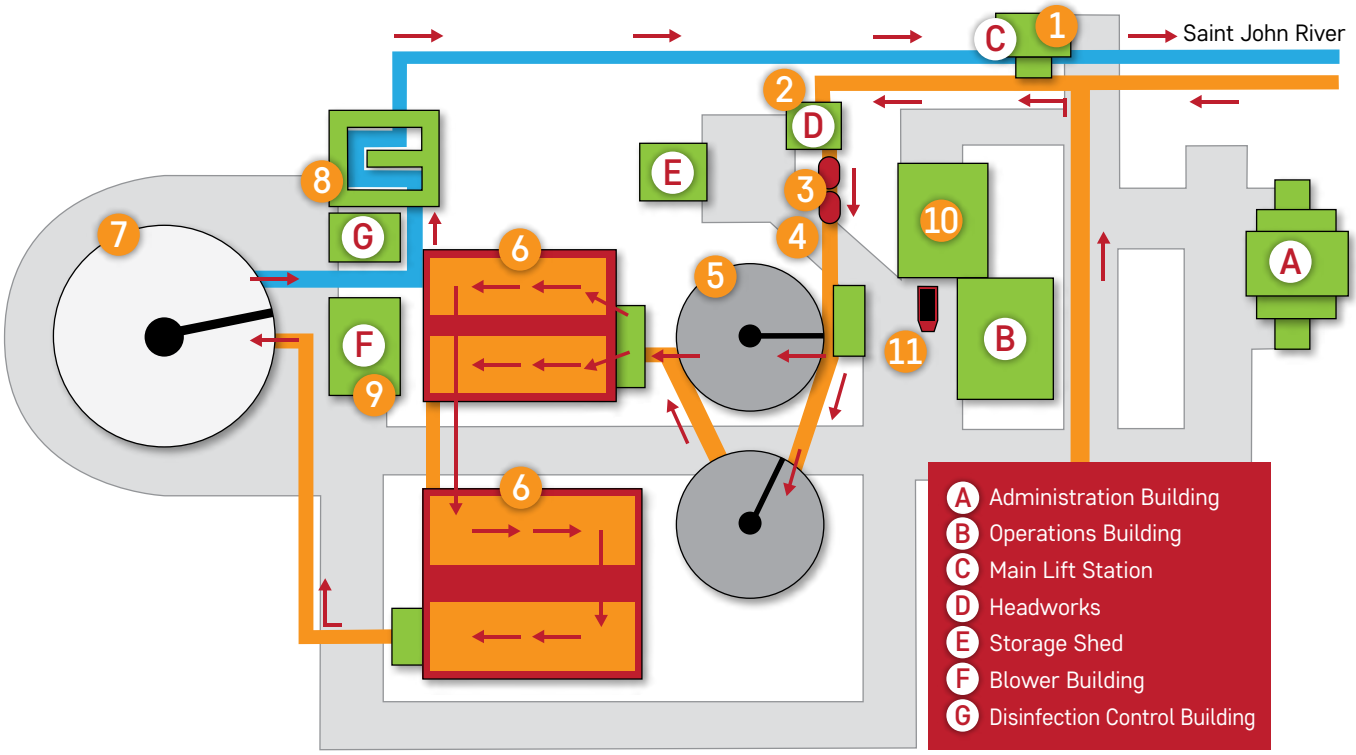
- Barker Sreet Phase II Upgrade, $4.9 million – UV disinfection and headwork's
- Barker Street Phase III Upgrade, $3.8 million – Additional secondary clarifier
- Garden Creek Lagoon Expansion $477, 000 – outfall extension
- Lincoln Lagoon $3.3 million – decommissioning

Wastewater treatment is a 24/7 operation at the treatment facilities and all 30 lift stations, and daily maintenance activities are carried out to support the City's Environment Stewardship Strategic Objectives. It's important to remember that all wipes, paints, solvents, pharmaceuticals, chemicals, etc...cannot be treated and are harmful to our treatment process and our water supply. Please DO NOT FLUSH these products.

Fredericton

Wastewater Treatment Plant Process Details

Wastewater flows into the treatment plant, biosolids are separated for compost, clean and treated water is released back to the Saint John River. (To find out more, visit www.fredericton.ca and search wastewater treatment).



1. **Main lift station** – Pumps wastewater into the inlet channel which carries it to the headworks.
2. **Horizontal grinders** – All wastewater flows through one of two grinders, which reduce large objects to smaller particles.
3. **Grit removal** – Two grit removal units work to remove sand and gravel from wastewater.
4. **Parshall flumes** – Two Parshall flumes measure the water flow entering the plant.
5. **Primary clarifiers** – The primary clarifiers allow settleable solids to concentrate on the bottom and a series of rakes then scrape the solids to the hopper for removal by pumping. Lighter solids, primarily grease, rise to the surface for removal.
6. **Aeration tanks** – Return activated sludge is mixed with the primary clarifier effluent and continuously mixed and aerated in an aeration tank. Air supplied from blowers through a series of fine bubble diffusers on the bottom of the aeration tank. This biological process converts dissolved and finely suspended solids to settleable solids.
7. **Secondary clarifier** – The secondary clarifier collects biological solids to concentrate near the bottom where they are collected and returned to the head of the aeration tank.
8. **Disinfection** – Ultraviolet light units located in a rectangular tank disinfect the effluent prior to overflow into the out fall. The outfall then carries the treated effluent to the Saint John River.
9. **Processing the solids** – Excess activated sludge is pumped to the inlet of the primary clarifiers for removal. Solids from the primary clarifiers are then pumped to the operations building, where Chemicals are added to prepare the solids for dewatering.
10. **Biosolids** (approx 3% solidified) are pumped into the rotary presses at a low pressure and discharged at high pressure (approx 30% solidified). Water removed from the solids flows back to the main lift station.
11. **Utilization of dewatered biosolids** – All the dewatered biosolids from the Fredericton plant are utilized in the production of high quality compost. Over 5,000 tonnes of biosolids are composted and used as a component in manufactured topsoil every year.

Fredericton