

Key Findings and Proposed Actions

Key Finding #1: Centralized Anaerobic Digester facility at Garner Road

Eight (8) of the Region's WWTPs have anaerobic digesters of various ages and capability. Most of the digesters have approached or are past the end of their useful life and will require extensive upgrades. Anaerobic digesters produce biogas which is a renewable fuel source and offers an opportunity for revenue to offset costs.

The digesters at the existing WWTPs are not large enough to generate the critical mass of gas needed to be useful in other biogas applications. Biogas is considered a renewable fuel source. Although some of the WWTPs re-use a portion of the biogas generated by the digesters to fuel hot water boilers on site, many plants do not have digesters of sufficient size to produce an adequate amount of biogas for this purpose. The result is the excess gas is "flared" (wasted).

Construction of a centralized facility, with larger digesters, offers the ability to produce more biogas more efficiently and of sufficient quantity to consider using the excess gas for other purposes. By constructing new equipment at Garner Road, it would avoid the capital costs related to upgrades of the remaining digesters throughout the Region. Operating expenses at the Garner Road facility would be lower due to economies of scale and the use of more modern technologies.

As well, the Region could also entertain the addition of compostable material to the centralized digesters to increase biogas production and waste diversion from landfills.

Proposed Actions:

Undertake a feasibility study for a Centralized Digestion Facility at the Garner Road Biosolids Facility

Key Finding #2: Increased Storage for Liquid Biosolids and Dewatered Cake

To support all three of the recommended strategies, additional storage at the Garner Road site will be required. Current projections are that the site will be out of room by 2031.

Proposed Actions:

- Increase centrifuge running-time to produce more dewatered cake each day
- Increase land application rates to remove more biosolids from storage
- Increase direct land application of dewatered cake

- Construct additional storage either through the construction of additional lagoons or by constructing above ground storage tanks.
- Construct dewatered cake storage facility on-site
- Explore updating permits to allow the Region to access existing on-site capacity of lagoons.
- Explore costs related to constructing tanks vs lagoons. Staff will need to prepare cost estimates for this work for future consideration.

Key Finding #3: Increase Direct Land Application of Dewatered Cake

Direct land application of dewatered cake has the added benefit of significantly reducing truck traffic from the site to farmland. Typical liquid biosolids are only about 4-6% solids (i.e. 95% water). A typical land application of liquid biosolids involves approximately 100 truckloads to travel from the Garner Road site to local farmlands. If dewatering is performed first, the solids content rises to about 30% and much less trucking is needed. The application event for dewatered material then goes from about 100 trucks to field to as low as 17 trucks. This not only reduces traffic related complaints, but it also reduces the amount of fuel consumed and greenhouse gases produced during these application events.

Proposed Actions:

- Construct dewatered cake storage (noted already in Key Finding #1)
- Consider including or separating contract for dewatered cake land application with liquid biosolids land application

Key Finding #4: Operational Improvements on site

The Garner Road site has recently been improved by the addition of two inner truck access gates with card-only access. In the past, the facility had only one main gate on Chippawa Creek Road. Due to traffic and safety concerns, the external gate was left open frequently to allow trucks coming off Chippawa Creek Road to avoid having to stop on the roadway should another truck be entering or leaving the site. The inner gates allow trucks to both enter the site and queue up outside the inner gate (if necessary) but still use card access to enter the transfer areas. The card access database records a count of trucks entering the site which can be monitored for audit purposes. Regional staff currently manage the scheduling and tracking of the trucking through daily reports and manifests. Invoicing is reconciled with the card access database entries, reports, and manifests.

Recommendations of the Master Plan include the installation of a weigh-scale to monitor the weight of material entering the site as a further method of auditing the flow of materials in and out of the site. A capital project is currently underway to construct the weigh-scale. Additional internal controls are also being implemented to ensure closer monitor of truck loading and unloading and testing to monitor solids content.

Proposed Actions:

- Continue capital project installing weigh scale at the site
- Increase monitoring and lab testing of solids being transported off-site
- Continue monitoring and auditing of manifests and invoices to ensure value for money.