

# Digester Replacement Delivers on Savings & Sustainability

City of St. Thomas, Ontario, Canada

**Lystek**  
Nothing wasted.  
Everything to gain.



*The City of St. Thomas implements Lystek's Thermal Hydrolysis Process (Lystek THP®) to better address future growth projections with a sustainable long-term biosolids management and resource recovery program.*

## ABOUT

St. Thomas is a City in south-western Ontario, about two hours west of Toronto, with an approximate population of 40,000. [www.stthomas.ca](http://www.stthomas.ca)

## CHALLENGES

- Aging anaerobic digesters at the end of life
- Anticipated regulatory shift away from landfilling of biosolids

## SOLUTION

St. Thomas selected Lystek THP as an advanced treatment technology providing these benefits:

- Significant cost savings compared with alternative treatment options
- Ability to produce a Canadian Food Inspection Agency (CFIA, or Class A) registered fertilizer from biosolids for use on local farmland

## RESULT

- Capital and operational savings of over 40% to the City of St. Thomas by implementing Lystek THP instead of anaerobic digestion
- Elimination of landfilling as a biosolids management practice
- Production and land application of **more than 30,000 tonnes** of CFIA registered (Class A) biosolids fertilizer to local farmland



## KEY METRICS

**Population Served:** 40,000

**WWTP Rating:** 27,300 m<sup>3</sup> / day (7.2 MGD)

**Lystek THP Processing Footprint:** 149 m<sup>2</sup> (1,600 ft<sup>2</sup>)

**Lystek THP Module Size:** 1 x LY10 (1.0 dry tons / hr)

**Feedstock:** Undigested Municipal Biosolids

The City of St. Thomas is located near of the City of London in southwestern Ontario, surrounded by farmland and in close proximity to Lake Erie. The St. Thomas Water Pollution Control Plant (WPCP) provides full secondary treatment of wastewater prior to discharge into the Kettle Creek. Solids were managed at the WPCP by anaerobic digestion of primary and waste activated sludges. These biosolids were dewatered and then hauled to a nearby landfill by WPCP staff.

Components of the anaerobic digestion process were more than 40 years old, and facing increasing requirements for maintenance and replacement. The cost to rehabilitate and expand existing anaerobic digestion capacity, and increasing landfill costs, led the City to initiate a review of alternative options for handling biosolids at the WPCP.

The City in partnership with their engineering consulting firm, evaluated all available options, including full replacement of their anaerobic digestion process and several alternative technologies. While all of the options evaluated were able to meet the environmental, technical and social requirements of the analysis, Lystek THP offered significantly lower capital and operating costs compared with the other options.



“After much research and analysis, it became clear that Lystek was the best, net solution for St. Thomas,” says Justin Lawrence, Director of Environment and City Engineer for St. Thomas. “The lower life-cycle capital and operating costs offered significant savings and we can also improve our capacity in the biosolids system. We are confident this decision will pay economic and environmental dividends.”

In addition to providing operational and capital cost savings, implementation of Lystek THP allowed the City to move from landfill disposal to production of a CFIA-registered fertilizer which is sold to the local agricultural market. The City is surrounded by productive farmland, with producers looking for amendments to build their soil’s health. Building a sustainable fertilizer program at the WPCP presents the opportunity to turn a product that was disposed of in a landfill into a valuable product that addresses the needs of the farm community.

Lystek THP was implemented at the St. Thomas WPCP in 2018, along with new dewatering and liquid fertilizer storage. To date, the LysteGro fertilizer program has diverted more than 30,000 tonnes of biosolids to local farmlands and returned more than \$15,000 in fertilizer revenue to the City.



## About Lystek

Lystek is a leading provider of Thermal Hydrolysis solutions for the sustainable management of biosolids and organics. The multi-use, award-winning Lystek system reduces costs, volumes and GHG’s by converting municipal and industrial wastewater treatment facilities into resource recovery centers. The technology transforms organic waste streams into value-added products and services, such as the patented LysteMize® process for optimizing digester performance, reducing volumes and increasing biogas production; LysteGro®, a high-value, nutrient-rich fertilizer and LysteCarb®, an alternative source of carbon for BNR systems.