

Organic Materials Recovery Centre Delivers Innovation and Sustainability

Southgate Township benefits from Lystek's state-of-the-art facility and the production of a Class A biofertilizer product

Lystek 
Nothing wasted.
Everything to gain.



Southgate wanted to become an environmental leader by embracing green technologies and innovative, sustainable organics management solutions.

ABOUT

Located in western Ontario with close proximity to Guelph and Orangeville, Southgate Township is a thriving agricultural community that contains some of the finest farmland in Canada. www.southgate.ca

CHALLENGES

- Odors, pathogens, on-site storage and potential run-off issues related to the historical practice of applying Class B biosolids to farmland
- High and rising costs of chemical/commercial fertilizers
- Underserved market – particularly in the surrounding, small to medium-sized communities
- Undeveloped 'Eco Park' with no anchor tenant and limited tax revenue

SOLUTION

- Construction and commissioning of a new state-of-the-art Organic Materials Recovery Center (OMRC) designed, built, owned and operated by Lystek
- Conversion of Class B biosolid material into a safe, affordable, quality controlled, federally registered, Canadian Food Inspection Agency biofertilizer product

- Product can be stored anywhere (as suitable) and helps to offset rising costs of fertilizers
- Comprehensive air handling and redundant bio-filtration systems for advanced odor control

RESULTS

- Created 11 full time jobs for the community of Southgate to staff the new OMRC
- Elimination of pathogens, odors and run-off issues associated with Class B biosolids
- Creation of a federally registered Class A product that has all the of nutrient values of chemical/commercial fertilizers as well as being rich in organic matter
- Significant boost in new tax revenues from the first, major tenant in the Eco Park
- Diversion of organic "waste" from Ontario landfills reduces Green House Gas emissions and contributes to the "circular economy"

ORGANIC “WASTE” AS A RESOURCE

When Southgate Township was formed through amalgamation of the Village of Dundalk, the Township of Proton, and the Township of Egremont in 2000, the new Council was faced with a number of challenges. Waste management was one of them.

At the time of amalgamation, Dundalk’s landfill was closed and the town was paying to have waste trucked to a neighboring municipality. Proton’s landfill site was approaching capacity. Egremont had roughly ten years of volume remaining. A new landfill site would cost millions and was considered an unsupportable option due to cost – even if the Province were to approve such a proposal.

In addition to landfill issues, Council was also dealing with mounting community concerns about the application of Class B biosolids on farmland. “Biosolids were good for the soil, and they were given [by the Municipality] to area farms for free,” says former Mayor, Brian Milne.

While application of partially treated, Class B biosolids was an accepted agricultural practice, some members of the community were voicing concerns about the potential for environmental and health issues as a result of run-off. While there were never any cases of ground water contamination from pathogens, there was no disputing the unpleasantness of the odor. “That material was extremely smelly when spread and not well received by some members of the community,” recalls Milne.

The confluence of waste management issues and mounting environmental and health concerns resulting from the application of Class B biosolids produced a perfect storm for the newly formed council of Southgate. Yet, from this looming crisis emerged an entrepreneurial vision and plan for the Township: to position Southgate as an environmental leader by embracing green technologies and innovative, sustainable waste management solutions.



Rather than thinking “old landfill technology”, Southgate invested in a three-bin curbside pick-up system that diverted organic waste from the landfill. This immediately enabled the Township to extend the life expectancy of the Egremont site to 80 plus years. However, curbside pick-up was just the beginning of the eco revolution that was beginning to take shape. Community leaders in Southgate recognized there was money to be made in the emerging, circular economy or the recycling of materials that some considered “waste”. “Our Mayor at that time was Don Lewis,” says Milne. “He didn’t like the word “waste”. He called these materials “resources” – and I wholeheartedly agreed with him – and still do.”

ATTRACTING NEW, GREEN BUSINESSES

Prior to amalgamation, the town of Dundalk purchased approximately 150 acres of land - on the edge of town and immediately adjacent to the townships own sewage lagoons, that had existed for approximately 40 years. This site became the inspiration and vision for an Eco Park that could, with a supporting infrastructure, attract new green businesses to the area. In doing so, this Eco Park could help diversify the local economy while becoming a “hub of excellence.”

“The whole idea was to become more environmentally conscious,” confirms Dave Milliner, Chief Administrative Officer for Southgate. The move to separate organics from waste and recycled materials in 2003 was a start. “We wanted to build on that momentum by attracting more businesses and projects that would complement and supplement those practices and make us an environmental leader,” he adds.

“The OMRC has had a very positive impact on our community. In addition to making Southgate part of the new, green economy, we have shown how Lystek’s investment in the Eco Park is paying real dividends to the benefit of all citizens of our community, and beyond.”
confirms Milne.

OPEN FOR GREEN BUSINESS

The Township made it known through its Economic Development office that it was receptive to ideas and business proposals from potential tenants for the Eco Park. Lystek, a leading organic materials recovery firm, saw a perfect fit between the vision for the Park, the Township's need for a better way to manage biosolids and organics – and its own, award-winning, patented and proven, Thermal Hydrolysis technology.

The simple, low cost, Lystek Thermal Hydrolysis process involves a combination of low heat through steam injection, the addition of alkali, and high-speed shearing. The patented process literally disintegrates microbial cell walls and hydrolyses complex macromolecules into simpler compounds. The result is a high-solid, pathogen-free,

nutrient-rich liquid biofertilizer registered with the CFIA (Canadian Food Inspection Agency) that is also recognized as a Class A EQ biofertilizer by the US EPA. Also, because the process is essentially a closed loop solution from beginning to end, the potential for odor complaints during processing, transportation and end use are dramatically reduced. And, to add to the value and versatility of this remarkable technology, the same, innovative system can also be used to optimize the performance of digesters and BNR systems, while reducing overall volumes and increasing biogas production for green energy. These exciting breakthroughs are allowing Lystek to work in partnership with municipalities and other generators of organic “waste” across North America, thus transforming wastewater treatment plants (WWTP's) into Wastewater Resource Recovery Centers.



ORGANIC MATERIALS RECOVERY CENTRE

In the case of Southgate, Lystek came forward with a compelling proposal for the Township; to completely finance, design, construct and commission a state-of-the-art Organic Materials Recovery Center (OMRC) in the Dundalk Eco Park focusing on the production of Class A quality, CFIA registered, biofertilizer products. The facility would be owned and operated by Lystek, and would be able to provide much needed tax revenues and excellent employment opportunities to the local community.

The proposal presented to Southgate council was a definite win-win. Lystek would have a home for its regional organic materials recovery center, becoming the first, true, anchor tenant in the Eco Park, and would produce a pathogen free,

affordable, biofertilizer product high in nutrients and organic matter. The product would be sold under the brand name, LysteGro®. The community of Southgate would gain much-needed jobs and additional tax revenues plus, through a unique revenue share agreement, the Township would also be paid a royalty for every tonne of material processed at the OMRC by Lystek. The vision would finally become a reality.

“We were quite impressed,” says Milliner. “We could see there was a lot of expertise behind the project, not only academic but also operational with people who knew how to get things done on the ground. We felt there was a good fit because of our farming background in this area. And we knew this was a far better process than the previous practice of spreading Class B biosolids.”

KICK-START THE ECO PARK

The agreement with Lystek, and the commitment to build the OMRC, gave the Township the confidence it needed to invest in the infrastructure that was required to turn the Eco Park from a vision into reality. "We felt confident about putting the road in, the sewage, and everything else that was required back to the property line," confirms Milne. "The OMRC provided us with a real opportunity to kick-start the Eco Park," he adds.

Lystek was given approval to move forward with construction of the OMRC in October 2012. Odor was one of the biggest factors considered throughout the development and construction process. "One-third of the approximately \$12 million that Lystek invested into this center was spent on odor control and air handling," confirms Rick Mosher, Chief Technology Officer for Lystek. "The facility uses a closed-loop design that minimizes the chances of compromising quality of life for the surrounding community," he adds. As a result, once material is received at the plant, it moves immediately into a process of

transformation from its original state. The material is transferred from the receiving hall into one of three, Lystek Thermal Hydrolysis reactors where it is treated with the patented process and converted into LysteGro®. Upon completion of that process, the finished product is pumped underground to one of two, lined and covered storage lagoons until it is sold and shipped into the marketplace. The center also features a testing, research and development laboratory where both incoming feedstock and the market-bound, LysteGro® product is continually sampled and analyzed and then sent to independent, third-party laboratories to ensure compliance with regulatory guidelines for health and safety.

Lystek began operations of the OMRC in May of 2013, in the Southgate Eco Park. "The OMRC has had a very positive impact on our community," confirms Milne. In addition to making Southgate part of the new, green economy, we have shown how Lystek's investment in the Eco Park is paying real dividends to the benefit of all citizens of our community, and beyond."



About Lystek International

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. This is achieved by transforming 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 biofertilizer and LysteCarb®, an alternative source of carbon for BNR systems.