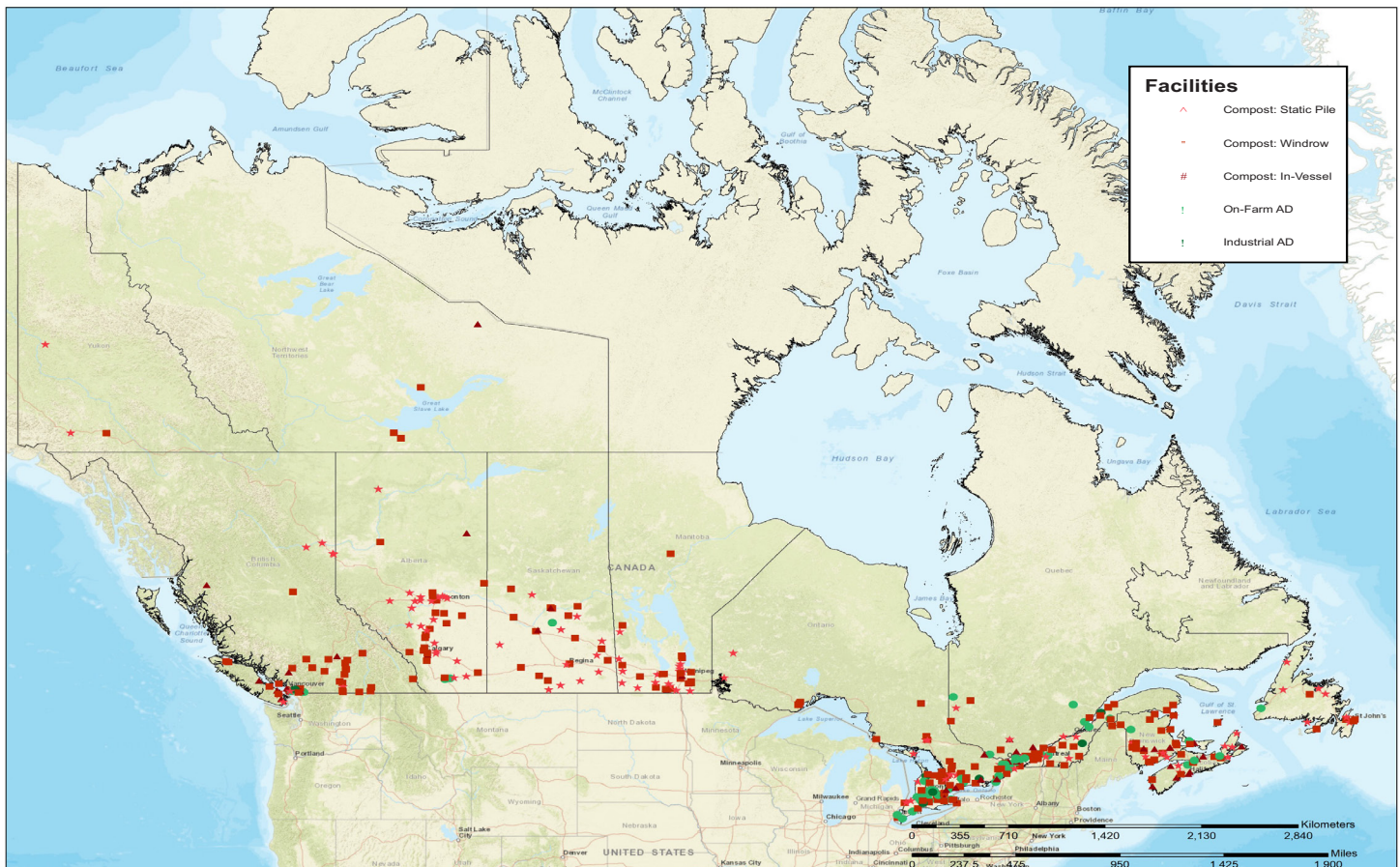


# Data & Policy Program

Data driven analysis to drive sustainable materials management



## State of the Practice of Organic Waste Management and Collection in Canada

June 2021



**Environmental Research  
& Education Foundation**

*Lighting a path to sustainable waste management practices*

## About EREF

The mission of the Environmental Research & Education Foundation (EREF) is To advance scientific research and create educational pathways that enable innovation in sustainable waste management practices.

## EREF's Data & Policy Program

EREF's Data & Policy Program was developed as part of the foundation's effort to expand its mission to advance knowledge and education for sustainable solid waste management. The primary objective of the Data & Policy Program is to aggregate and analyze solid waste data. The program also provides valuable experience to undergraduate and graduate students who assist in data gathering and analysis.



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# EXECUTIVE SUMMARY

The diversion of organic municipal waste materials (i.e. food waste, leaf and yard waste) through composting and anaerobic digestion (AD) has been a growing focus throughout Canada. Initiatives are largely focused at the provincial or municipal level and as policies and collection programs have become more widespread, availability of reliable data has remained inconsistent and limited. A clear understanding of the policy landscape in addition to reliable data is essential for sound investment and regulatory decision making. The primary goal of this study was to complete a comprehensive survey of the state of organic waste management across Canada at the provincial, territorial, and federal levels.

A review of governmental organic waste management policies and programs indicates that while most Canadian jurisdictions have climate change, waste reduction, or waste diversion related goals, organics diversion from disposal is the most common goal, and is used by 10 provinces. These goals are one mechanism that supports Canada's existing organics management infrastructure which, in 2019, was comprised of 328 compost and 59 anaerobic digestion facilities. Residential access to curbside and drop-off organics management programs also support existing infrastructure with 91 percent of the population living in an area with some type of organics management program.

In 2019, 4.83 million tonnes of organic waste was processed in Canada, which has a total processing capacity of about 5.74 million tonnes (excluding Quebec). As the federal government, provinces and territories continue to develop goals, policies, and programs that support reduced disposal of organic waste, additional processing capacity will be needed. The results of this study indicate most provinces have adequate processing capacity to manage more basic degradable materials like leaf and yard waste; however, most provinces do not have sufficient capacity to manage more complicated materials like source separated organics. While Canada has developed a mature organic processing sector over the last two decades, continued growth will require coupling new policies and programs with development of sufficient processing infrastructure.

## Objectives

To summarize the provincial, territorial and national information related to organic waste management with respect to:

- diversion policies, programs and approval / permitting regimes,
- diversion program accessibility,
- generation, diversion and disposal of organic waste, and
- processing facilities, their capacity, and the amount processed annually

## BACKGROUND & OBJECTIVES

The diversion of organic municipal waste materials (i.e. food waste, leaf and yard waste) through composting and anaerobic digestion (AD) has been a growing focus throughout Canada. Initiatives are largely focused at the provincial or municipal level and, as policies and collection programs have become more widespread, availability of reliable data has remained inconsistent and limited. Access to reliable data is essential for sound investment and regulatory decision-making and this lack of national, provincial, and territorial data impedes a better understanding of the current state of organic waste processing in Canada.

Current data gaps include: (1) a clear understanding of the organic waste policies, programs and approval / permitting regimes enacted in provinces and territories, (2) organic waste diversion program availability across the country, (3) the number of operational organic waste processing facilities along with their capacities and tonnes processed. A better understanding of this information is important to assess current successes, inform future policies and programs, and assist organizations with market-based decisions (e.g., investments in infrastructure or new diversion programs).

The objective of this report is to summarize the various provincial / territorial and national information related to organic waste management:

- diversion policies, programs, and approval / permitting regimes,
- diversion program accessibility,
- generation, diversion, and disposal of organic waste, and
- processing facilities, their capacity, and the amount processed annually.

For the purposes of this report, organic waste includes food waste that is uneaten and discarded as well as inedible wastes such as scraps, agricultural waste (e.g., manure), biosolids, leaf and yard waste (i.e., green waste), including grass clippings, yard and garden debris. The report focuses on residential and industrial, commercial, and institutional (ICI) organic waste diversion managed at compost and anaerobic digestion facilities, it does not take into consideration organic waste that might be directly land applied, rendering activities or onsite processing of organic waste, backyard composting, nor waste stabilization methods such as lime stabilization, fermentation, and pasteurization.

**Compost and Anaerobic Digestion Technologies.** Composting is an aerobic, biological process that involves the breakdown of organic materials by microorganisms into a biologically stabilized material. In addition to the oxygen required, the appropriate proportions of carbon, nitrogen and water are necessary to support the biological activity needed to degrade the organic material. In ideal conditions, the complete process occurs over several months and goes through three sequential phases. The phases are distinguished based on temperature of the compost and the dominate microorganisms present. While compost is a complex environment that includes many biological organisms, the most common microorganisms include bacteria, fungi, and actinobacteria, also referred to as actinomycetes (Government of Canada, 2013).

In the first phase, mesophilic bacteria are the dominant microorganism present. The temperature of the compost increases rapidly during this phase and ranges from 20° to 40°C (68° to 104° F). In the second phase, thermophilic bacteria dominate as temperatures remain high and range from 40° to 65°C (105° to 150° F). The high temperatures achieved in this phase are important for pathogen removal. In the third phase, temperatures decrease to ambient temperatures and mesophilic bacteria are again prominent. During this final phase, the number of actinobacteria and fungi increase as well to degrade the more complex cellulose and lignin compounds.

Composting is a controlled process that can be completed using several different technologies (Figure 1). The main difference between technologies is the method of incorporating oxygen into the compost where oxygen can be incorporated passively, mechanically, or through forced aeration. In passively aerated systems, temperature differentials create a vacuum which causes fresh air to enter the sides of the compost as hot air rises through the center of the pile. In some instances, pipes can be added underneath to passively increase airflow and result in faster composting. Oxygen can also be added mechanically through mixing or turning of the compost which redistributes the materials and incorporates fresh air into the center of the pile. Forced aeration is completed by using a combination of fans and pipes to incorporate fresh air into the compost.

Static pile and windrow facilities are examples of passively aerated and turned composting systems. Static piles are one of the most simplistic methods of composting and involves forming a large pile of the organic material. They often depend on passive aeration and require minimal management. The materials will degrade over several years with limited mixing or turning. Static piles can also be aerated through turning which will result in faster decomposition. Windrow facilities are slightly more complex and involve creating long rows of the organic material. While they can also rely on passive aeration, they are more commonly turned using heavy equipment like front-end loaders or specialized windrow turning equipment. Both static piles and windrows are predominately used for leaf and yard waste or agricultural materials.

In-vessel compost facilities involve adding organic material to an enclosed container or building and rely on mechanical and forced aeration. Rotating drums are one example of an in-vessel system. They are typically made of a steel drum in varying sizes that intermittently or continuously turn, thereby mixing the organic materials. Air is also typically added to ensure there is enough oxygen for decomposition to occur. Other in-vessel systems involve concrete structures formed into channels or bays where fresh organic materials are placed at one end and moved over a period of time to the opposite end of the structure. These in-vessel systems often use forced aeration systems incorporated into the floor to provide sufficient oxygen. Due to the additional aeration and direct management of the organic material, in-vessel systems are able to process a wider range of materials and are more commonly used for food- and source-separated organic waste materials.



Figure 1: Examples of compost technologies. Static piles (left), windrow facility being turned by a compost turner (middle), rotating drum in-vessel composter (right).

Anaerobic digestion is the process by which microorganisms degrade organic material in the absence of oxygen. It is a three-step process where each step is mediated by a different group of microorganisms. First, hydrolysis occurs in which organic material is broken down into simple sugars and amino acids by hydrolyzing bacteria. Next, acidogenic and acetogenic bacteria convert the sugars and amino acids into volatile fatty acids in the acidogenesis/acetogenesis step. Finally, microorganisms called methanogens convert the volatile fatty acids to methane and carbon dioxide in a process called methanogenesis.

Anaerobic digestion can occur in a range of vessels and structures (Figure 2). The different systems are broadly categorized based on the solids content of the waste. Wet or low-solids systems have a moisture content greater than 85 percent and high-solids systems have less than 80 percent moisture content (The Environmental Research and Education Foundation (EREF), 2015). Within these categories, systems are considered to operate either as a batch or continuous system. In batch systems, the materials are placed into a reactor as a single mass and remain in the system until the digestion process is complete. In continuous systems, new organic material is continuously added to the digester. Both batch and continuous digesters can use one-stage or two-stage designs in which either one vessel or multiple vessels are used to complete the digestion process. For a more in-depth discussion of the anaerobic digestion process and types of system configurations refer to EREF (2015).

In this report, anaerobic digestion facilities were classified based on the feedstock being processed and the facility location. The two types of facilities considered were on-farm and industrial anaerobic digestion facilities. On-farm facilities are typically smaller and predominately use materials generated at the farm, whereas industrial facilities are larger and equipped to process a wide range of materials.



Figure 2: Example of an anaerobic digester.



The types of compost and anaerobic digestion facilities considered in the report are summarized in Figure 3.

Static Pile & Windrow Composting	In-Vessel Composting	On-Farm Anaerobic Digestion Facilities	Industrial Anaerobic Digestion Facilities
<ul style="list-style-type: none"> <li>• A method whereby compost is produced by mixing organic wastes in piles or long, relatively narrow rows (windrows) outdoors for the entire composting process.</li> <li>• These facilities tend to accept a limited range of materials and are mainly used for leaf and yard waste, agricultural materials and smaller amounts of source separated organics.</li> </ul>	<ul style="list-style-type: none"> <li>• A method where the organic waste is processed in an enclosed vessel (e.g. concrete boxes, Gore covers) and provided with supplemental aeration for the most active part of the composting process.</li> <li>• In-vessel facilities can take a greater range of food and organic wastes materials than windrow facilities, such as source separated organics.</li> <li>• Given the larger capital costs as compared to static pile and windrow facilities, these facilities tend to process larger volumes of material.</li> </ul>	<ul style="list-style-type: none"> <li>• Process organic waste through a series of biological processes in which microorganisms break down biodegradable material in the absence of oxygen.</li> <li>• Generally located on an agricultural operation and process predominately organic materials generated from one or more farming operations.</li> <li>• Do supplement feedstock with off-farm materials but generally only have rudimentary means to remove contaminants.</li> <li>• Tend to be smaller than industrial operations</li> </ul>	<ul style="list-style-type: none"> <li>• Process organic waste through a series of biological processes in which microorganisms break down biodegradable material in the absence of oxygen.</li> <li>• These facilities can process a wide range of residential and ICI organic materials (e.g. source separated organics, grease trap residuals, food processing waste, etc.).</li> <li>• Similar to in-vessel systems given the larger capital costs as compared to static pile and windrow facilities, these facilities tend to process larger volumes of material.</li> </ul>

Figure 3: Compost and Anaerobic Digestion Technologies

**Organic Waste Management Sector in Canada.** Waste management in Canada is largely regulated at the provincial and municipality level, with minimal oversight coming from the federal level. Municipalities are responsible for collecting residential wastes and providing curbside collection and/or access to waste depots depending on the municipality size, population, and population density. Residential waste management programs may include the ability to divert organic waste and sometimes also include small businesses waste. The ICI sectors typically manage waste through contracts with private sector waste management companies, which may include organic waste diversion programs.

According to Statistics Canada, between 2002 and 2018, annual total waste disposal fluctuated between 30.7 and 35.0 million tonnes (Figure 4) (Statistics Canada, 2021). During that time the quantity of waste diverted from landfills increased from 22 percent to 26 percent. The majority of those gains are due to increased diversion of residential waste, with ICI waste diversion remaining relatively stagnant. A portion of the increase in residential diversion is due to greater availability and access to organic waste diversion programs throughout Canada.

Access to residential organic waste management programs has increased since the early 1990s when the first curbside and depot municipal leaf and yard waste diversion programs were put into place. This was followed by backyard composter programs to capture leaf and yard waste, but also food waste and then curbside source separated organics (SSO) collection programs to capture food and organic wastes.

In 2006, it was estimated that 17 million Canadians had access to some form of curbside organic waste collection. All of these households had access to leaf and yard waste programs (131 programs), and 40 percent also had SSO programs (52 programs) (van der Werf & Cant, 2006a). The growth in organic diversion has continued with the adoption of more residential SSO organic waste programs (van der Werf & Cant, 2012; van der Werf & Cant, 2015).

It is estimated that 40 percent of residential and 20 percent of ICI wastes are organic and, on this basis, approximately 9 million tonnes of these waste streams are generated annually. Note that Statistics Canada data only includes businesses identified as firms providing waste management services as identified through the Waste Management and Remediation Services, North American Industry Classification System (NAICS) 562. Certain facilities like on-farm anaerobic digestion or compost facilities would not be included in this total.

According to the Statistic Canada Waste Management Industry Survey, the quantity of organics diverted from landfill have doubled from 1.3 million tonnes to 2.87 million tonnes, from 2002 to 2018 (Figure 5) (Statistic Canada, 2021). In 2002, it was estimated that 17 percent of residential and ICI organic wastes (1.3 million tonnes) was captured for composting (van der Werf & Cant, 2006b). From the data available through Statistics Canada Waste Management Industry Survey, the sector has significantly grown over the last two decades.

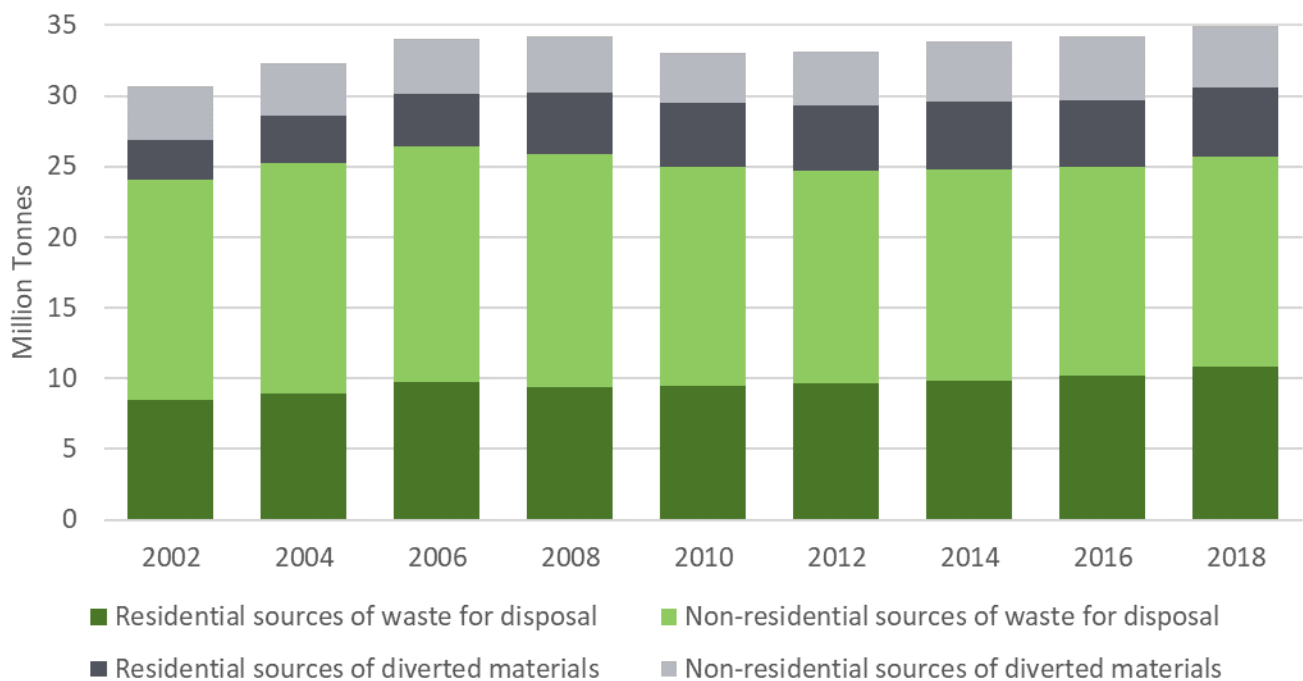


Figure 4: Residential and Non-Residential Waste Disposal and Diversion in Canada (Statistics Canada, 2021)

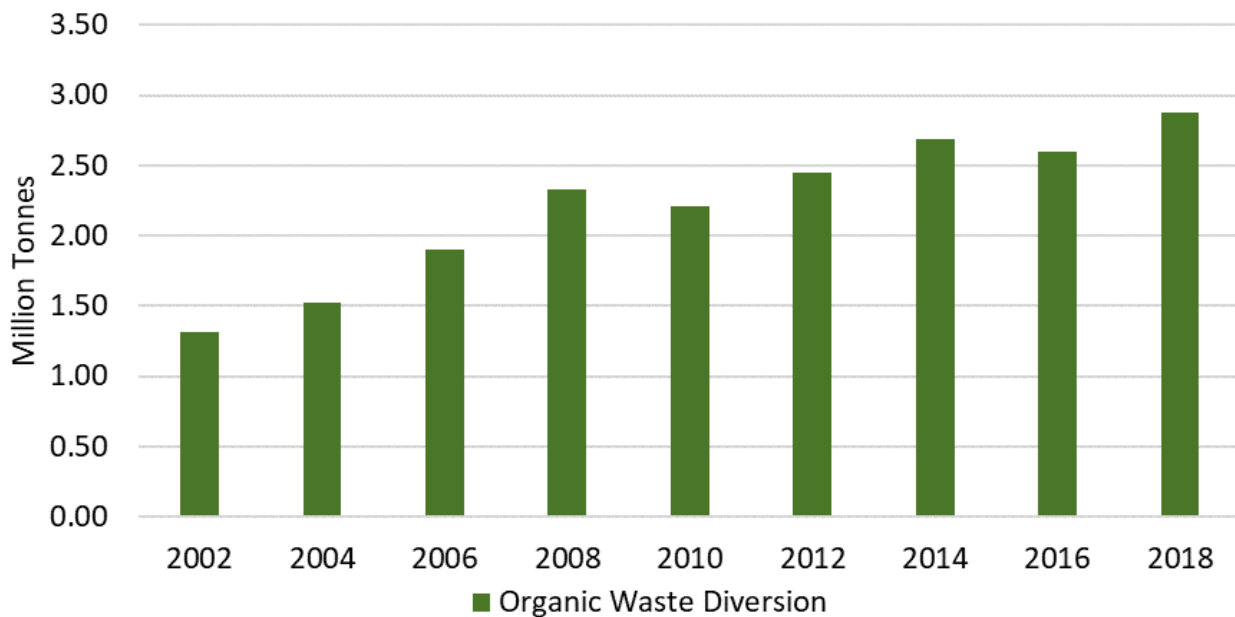


Figure 5: Organic Waste Diversion in Canada (Statistics Canada, 2021)

Limited landfill space, challenges in developing new landfill capacity and, more recently, national goals to reduce greenhouse gas (GHG) emissions have all contributed to the adoption of policies and programs that have increased organic diversion. In 1998, Nova Scotia was the first province to ban organic waste from landfills. Since then, Prince Edward Island and some municipalities in British Columbia have followed suit. Quebec and Ontario have committed to consulting on a proposal to phase-out food and organic waste from landfills.

Each province has a slightly different context and different set of motivations. For example, in Ontario, residential SSO organic waste diversion has been driven largely by municipalities who have declining capacity or are reliant on private sector landfill capacity. Many Ontario municipalities relied on directing some or all of their residential wastes to American landfills, and in 2006 when they agreed to stop this practice by 2010, they needed to find solutions (Canadian Biogas Association, 2019). This resulted in a proliferation of SSO programs, composting/AD facility development and an increase in organic waste programs among large cities, regions and more populated areas.

Facility level data on the materials and annual tonnage processed is limited in Canada. Various attempts have been made to characterize the Canadian organic waste diversion sector as a whole. The Compost Council of Canada has collected facility level data several times; however, without frequent and transparent facility level data, industry changes are difficult to track over time. The Canadian Biogas Association is also starting to collect more data more frequently, however, it is only focused on anaerobic digestion facilities.

While Statistics Canada's data provides a helpful indicator, it does not include certain activities such as agricultural compost and anaerobic digestion operations. There are few available sources available at the national or provincial territorial level on operational organic processing facilities, including what they can process and what they are processing annually - whether presented in a consolidated or individual facility format. This is problematic as it limits the ability of governments at all levels to assess the performance of different policies and programs and hinders government from making informed future policy decisions. The lack of data also impacts business, limiting their ability to evaluate future growth opportunities.

Data transparency and regular collection can prevent these issues which is why many other governments and jurisdictions collect data related to organic waste management in a much more coordinated fashion and make the data available publicly. As an example, Scotland (U.K.) provides the ability to find information on all waste management sites across the country including compost and anaerobic digestion facilities (Figure 6).

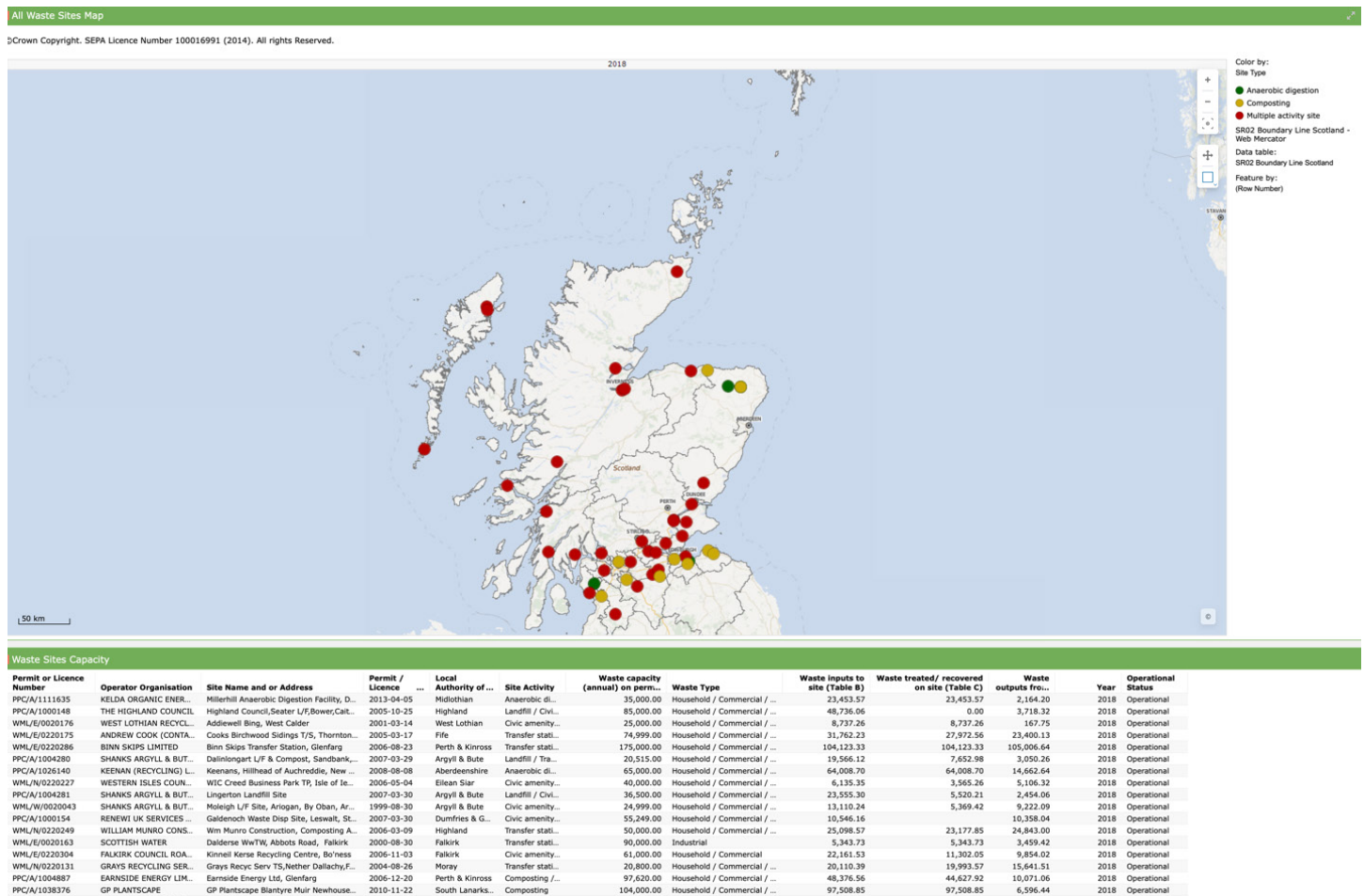


Figure 6: Screenshot from Scotland's waste sites and capacity data tool (Scottish Environment Protection Agency, n.d.)

There is also similar data available in many US states. Examples include but not limited to:

- California (CalRecycle, n.d.)
- Michigan (Michigan Department of Environmental Quality, 2021)
- New York (New York State, n.d.)
- Texas (Texas Commission on Environmental Quality, 2019)
- Vermont (Vermont Department of Environmental Conservation, n.d.)

At the national level, the U.S. Environmental Protection Agency has developed an interactive map that shows the location of communities with SSO programs as well as compost and anaerobic digestion facilities (U.S. Environmental Protection Agency (EPA), n.d.).

Canada's organic waste management sector employs a diverse range of technologies for organic processing technologies from static pile / windrow and in-vessel systems to on-farm and industrial anaerobic digestion (Figure 3). Composting facilities range from small (<1,000 tonnes/year) to large in-vessel facilities (>100,000 tonnes/year). Backyard composting is also a viable strategy used to manage organic waste in Canada. While the number of individuals and communities engaging in backyard composting was not measured directly in this report, there are a number of provinces and municipalities that encourage backyard composting.

The number of AD facilities in Canada has grown steadily since the early 2000s and includes mostly wet AD and a small number of dry AD facilities. Facilities include large scale (i.e., > 50,000 tonnes/year) industrial facilities and smaller scale on-farm facilities (i.e., < 25,000 tonnes/year). At this point, the organics waste management sector in Canada is an established industry that continues to grow.

There are some recent developments that are spurring this growth, especially recent regulatory activity by the provincial governments in British Columbia, Saskatchewan, Manitoba, Ontario and Quebec (see Appendix A). In British Columbia, efforts to expand the organic waste management industry are benefiting from federal, provincial, and local government investments to create a \$30-million infrastructure program. Saskatchewan released a new waste management plan in 2020 which includes consideration of a landfill levy and a focus on organic waste diversion, while Manitoba, Ontario and Quebec are all implementing a number of actions to drive organic waste diversion as well as considering implementing landfill bans. The federal government has provided financial support for infrastructure development through a number of programs including Federation of Canadian Municipalities' Green Municipal Fund; the Low Carbon Economy Fund; Investing in Canada Infrastructure Program.

## RESULTS & DISCUSSIONS

The following sections include a discussion of the organic waste management data collected on policies, program accessibility, and processing facilities in Canada. This section includes discussion of the major themes identified and a high-level assessment of the data collected. Federal, province, and territory specific data and discussion are included in Appendix A with individual sections for each governmental level.

**Organic Waste Policies, Programs and Approval / Permitting Regimes.** Generally, most Canadian jurisdictions have established climate change, waste reduction, or waste diversion related targets that focus attention on increasing organic waste. Table 1 provides a comparison of those targets.

Table 1: Comparison of Organic Waste Related Policy Targets/Goals by Province / Territory

Territory / Province	Targets
Canada	The Canada-wide goal is to reduce this to 490 kg per person (a 30 percent reduction) by 2030, and to 350 kg per person (a 50 percent reduction) by 2040 (CCME, 2018)
British Columbia	Organic waste diversion target of 95 percent for agricultural, industrial, and municipal waste (British Columbia Government, 2019)
Alberta	Reduce the quantity of municipal waste sent for disposal to 500 kg per capita (Alberta Government, 2007)
Saskatchewan	Waste reduction targets of 30 percent by 2030 and 50 percent by 2040 (Saskatchewan Government, 2020)
Manitoba	Divert 85 kg of organics from landfills per capita by 2020 (Manitoba Government, 2017)
Ontario	50-70 percent by 2023 or 2025 depending on the sector they apply to (Ontario Government, 2018)
Quebec	Recycle or recover 70 percent of the organic matter targeted by 2030. Reduce the quantity of waste sent for disposal to 525 kg per capita (Quebec Government, 2020)
Nova Scotia	50 percent waste diversion as well as a target for waste disposal of no more than 300 kg/person/year (Nova Scotia Government, 2011)
New Brunswick	Increase organic waste diversion (New Brunswick Government, 2001)
Newfoundland and Labrador	Divert 50 percent of the materials going to disposal by 2010 (Government of Newfoundland and Labrador, 2002)
Prince Edward Island	Divert more waste per person from landfill than any other province
Nunavut	None
Northwest Territories	No firm commitments
Yukon	None

There are certainly some similarities in the targets set by each jurisdiction (e.g., percent waste diverted or per capita waste generation), however, a greater alignment in goals would allow for better measurement and a sharing or comparison of best practices. To date the federal government has played a more passive role related to organic waste diversion and left the provinces and territories to establish their own goals and approaches.

Tables 2 and 3 provide an overview of the policy mechanisms and programs that are being used across the country to drive the intended goals. It is often that charts like this can be misinterpreted and may lead to inappropriate conclusions. For instance, the province or territory with the most check marks is not necessary a leader nor is the reverse true. The establishment of policy and programs should be evaluated based only on the outcomes that are driven by them. As a result, the tables below should not be used as a report card and are only to demonstrate policies in use.

Each jurisdiction needs to evaluate carefully what tool or tools have the greatest ability to drive change in the most efficient and effective manner. Each potential policy or program also comes with risks or unintended consequences that need to be addressed:

- Source separation requirements or diversion requirements can be difficult to provide effective oversight over given the number of potential sites where materials are collected and managed.
- Disposal bans and levies can lead to greater exports of waste or be problematic if there is insufficient processing capacity or end markets.
- Offset credits can be administratively burdensome and therefore not provide a sufficient incentive.
- Extended producer requirements only capture a fraction of organic waste materials managed as they typically only apply to compostable packaging and single use items.
- Infrastructure funding can create an un-level playing field by providing funding to certain market participants over others.
- Energy incentives for renewable natural gas or electricity have the potential to disrupt already functioning diversion activities, such as rendering as it allows anaerobic digestions facilities the ability to attract materials typically managed by renderers.

Table 2: Comparison of Policy Mechanism Being Used for Organic Waste by Province / Territory

Province/ Territory	Source Separation requirementR	Disposal Bans	Disposal Levies	Offset Credits	Diversion Requirements	EPR (compostables)	Tax Incentives (food donation)
Alberta				✓			✓
British Columbia				Under consideration		Under consideration	
Manitoba		Under consideration	✓				
New Brunswick					✓		
Newfoundland and Labrador							✓
Northwest Territories							
Nova Scotia	✓	✓			✓		✓
Nunavut							
Ontario	✓	Under consideration			✓	Under consideration	✓
Prince Edward Island	✓	✓			✓		
Quebec	Under consideration	Under consideration	✓	Under consideration	✓		

A better evaluation of these policy mechanisms is needed and could be achieved through more consistent and regular measurement. While some questions were asked as part of this report, greater research could be undertaken to understand the:

- effectiveness of broad-based infrastructure programs for organics diversion versus targeted programs and the opportunities and pitfalls associated with how they are structured, and
- opportunities associated with different policies and programs to drive value creation (e.g., nutrient or energy related), food waste reduction or waste diversion.

It should be noted, while not reflected in the summary of the Tables above, in many of the provinces and territories, local governments have also played a major role in helping to establish the early infrastructure, programs and policies.



Table 3: Comparison of Programs for Organic Waste by Province / Territory

Province/ Territory	Energy Incentives	infrastructure Funding	Research and Development Funding	Promotion and Education (e.g., Food Waste Reduction and Compost Use)	Procurement (e.g., compost use)
Alberta		✓ (not targeted)	✓		
British Columbia	✓	✓ (not targeted)	✓	✓	
Manitoba		✓ (not targeted)	✓	✓	
New Brunswick		✓ (not targeted)			
Newfoundland and Labrador		✓ (targeted)			
Northwest Territories		✓ (targeted)			
Nova Scotia		✓ (targeted)	✓	✓	
Nunavut		✓ (not targeted)			
Ontario	Under consideration	✓ (not targeted)	✓	✓	
Prince Edward Island		✓ (not targeted)	✓		
Quebec	✓	✓ (targeted)	✓	✓	
Saskatchewan		✓ (not targeted)	Under consideration	Under consideration	
Yukon		✓ (not targeted)			

**Accessibility to Composting Via Curbside or Drop-Off Programs.** The analysis of organic waste accessibility provides a high-level overview of access to curbside organic waste collection programs or access to drop-off programs in Canada. The data collected was based on publicly available resources such as municipality websites and only indicates program access, as the actual level of participation depends on the specific details of the location, program structure, type of residence, and resident actions.

The results of this analysis indicate 91 percent of the population in Canada lives in an area that has access to a residential organic waste management program for collecting either leaf and yard waste or SSO (Table 4). It does not suggest that 91 percent of the population participates in the available program, as program participation will ultimately depend on the type of residence that qualifies for the program and if residents choose to participate.

The results suggest that many areas include curbside collection programs for appropriate residents such that 83 percent of Canada's population lives in an area that provides some level of organics management through curbside collection.

By material, 83 percent of the population lives in an area with curbside access to leaf and yard and 71 percent lives in an area with curbside access to source separated organics. An overview of program accessibility for the country is provided in Table 4.

The number of people that live in areas with organic waste management programs varies between the provinces. The provinces with the greatest number of people living in areas with organic waste management programs are Ontario, Quebec, and British Columbia (Table 5). While many local jurisdictions may have independently set policies to increase access to organic waste management programs, each of these areas also have provincial level policies in place as identified in Table 2.

The next section includes an assessment of each provinces' organic waste processing capacity, which indicates Ontario and British Columbia have greater processing capacities which are needed to support the wider availability of organic waste management programs in these provinces.

The number of people living in an area with drop-off programs are potentially higher than the percentages provided in Table 4. Locations with curbside programs often allow residents to also drop-off materials at their local facility, although this information was not always readily available on the municipal websites that were surveyed for this report. All locations that publicly indicated access to curbside and drop-off programs were included in this analysis.

This study very specifically identifies organized programs for managing organic waste and does not capture more informal methods of managing organic waste, such as backyard composting. Many of the municipalities or regional areas which have implemented specific policies requiring diversion of organic waste programs have also developed programs that encourage or incentivize backyard composting. This strategy is effective for less populated areas that do not have the necessary infrastructure available to collect and manage organic waste.

Residential organic waste programs have generally evolved across the country from leaf and yard programs to source separated organics programs and from depot access to curbside. Additional work is necessary to better understand ICI programs and accessibility.

**Table 4: Accessibility to Organics Management Programs - Canada**

<b>Program type</b>	<b>Number of People Living in Area with Program<sup>a</sup></b>	<b>Percent of Total Population</b>
Organics Management Program (Any)	31,703,912	91%
Curbside (Any)	29,128,173	83%
Leaf and Yard Waste Program	31,699,256	91%
Drop-off	21,304,947	60%
Curbside	29,003,336	83%
Source Separated Organics Program	25,877,191	74%
Drop-off	8,599,118	24%
Curbside	24,867,632	71%

<sup>a</sup>The number of people that have access to and participate in any available program is lower and depends on the specific details of their location, program structure, and type of residence.

Table 4: Accessibility to Organics Management Programs - Canada

Province/Territory	Number of People Living in Area with Program <sup>a</sup>		
	Organics Management Program (Any)	Leaf and Yard Waste Program	Source Separated Organics Program
Alberta	4,379,087	3,533,365	3,002,760
British Columbia	4,379,087	4,374,431	3,765,961
Manitoba	966,685	976,060	95,770
New Brunswick	421,905	421,905	354,460
Newfoundland and Labrador	254,680	254,680	46,040
Nova Scotia	913,570	913,570	897,165
Ontario	13,196,385	13,196,385	10,508,200
Prince Edward Island	142,905	142,905	142,905
Quebec	7,030,890	7,030,890	6,440,775
Saskatchewan	808,425	808,425	576,515
Northwest Territories	19,570	19,570	19,570
Nunavut	-	-	-
Yukon	27,070	27,070	27,070

<sup>a</sup>The number of people that have access to and participate in any available program is lower and depends on the specific details of their location, program structure, and type of residence, and participation.

**Organics Waste Processing Facilities and Capacity.** Tables 6 and 7 provide an overview of composting and anaerobic digestion facilities identified in 2019 in Canada with the methodology outlined in Appendix B. The country has 328 composting facilities and 59 on-farm anaerobic digestion facilities.

In 2019, these facilities processed approximately 4,830,636 tonnes of organic waste and produced approximately 2,525,226 tonnes of compost and digestate. On average 10,611 tonnes and 22,884 tonnes of organic waste was processed by compost facilities and anaerobic digestion facilities, respectively. A large variation in total processing capacity, from 50 tonnes to 150,000 tonnes, contributed to the large standard deviation in average tonnes processed. The amount of waste processed in each province/territory also ranges. Provinces like Ontario with 107 facilities processed 1.8 million tonnes compared to the 4 facilities in the Northwest Territories which processed 1,700 tonnes. Considering these facility capacity and regional variations, the national average tonnes processed should be used with caution.

The 2.5 million tonnes of compost and digestate are used primarily used for landscaping purposes or on agricultural land. Municipal sites tend to provide compost to residents at no charge or use for internal uses (e.g., municipal landscaping).

It is worth noting that this does not account for all diversion activities including rendering, and animal

feed. These facilities can account for a significant amount of diversion activity. By way of example, RECYC-QUEBEC's 2018 report indicates that over 900,000 tonnes of organic materials were reutilized as animal feed or rendered (RECYC QUEBEC, 2018).

Table 6: Composting and Anaerobic Digestion Facilities and Annual Tonnes Processed - Canada

Facility Type	Number	Tonnes per year		Average Tonnes Organic Waste Processed (standard deviation)	Percent of Total
		Total Organic Waste Processed	Total Compost / Digestate Produced		
Compost	328	3,480,468	1,756,508	10,611 (24,282)	72%
Anaerobic Digestion	59	1,350,168	768,718	22,884 (30,253)	28%
<b>Total</b>	<b>387</b>	<b>4,830,636</b>	<b>2,525,226</b>	<b>12,482 (25,732)</b>	<b>100</b>

Table 7: Composting and Anaerobic Digestion Facilities and Annual Tonnes Processed - by Province

Province/Territory	Number of Facilities	Total Organic Waste Processed (tonnes)	Total Organic Processing Capacity (tonnes)	Static Pile and Windrow Processing Capacity (tonnes)	In-vessel and AD Processing Capacity (tonnes)
Alberta	45	475,856	707,775	317,775	390,000
British Columbia	49	661,172	941,950	459,450	482,500
Manitoba	24	72,677	142,160	137,260	4,900
New Brunswick	36	699,550	731,200	556,200	175,000
Newfoundland and Labrador	30	26,040	29,865	6,500	23,365
Nova Scotia	24	183,400	214,100	100,100	114,000
Ontario	107	1,817,859	2,691,170	1,003,290	1,687,880
Prince Edward Island	3	160,000	186,000	10,000	176,000
Quebec	44	681,000a	N/A	N/A	N/A
Saskatchewan	28	48,532	88,910	62,410	26,500
Northwest Territories	4	1,700	3,965	3,600	365
Nunavut	-	-	-	-	-
Yukon	3	2,850	3,700	3,700	-
<b>Total Canada</b>	<b>387</b>	<b>4,830,636</b>	<b>5,740,795</b> <b>(Excluding Quebec)</b>	<b>2,656,585</b> <b>(Excluding Quebec)</b>	<b>3,080,510</b> <b>(Excluding Quebec)</b>

Overall Canada has a mature organic diversion sector with significant capacity established across the country. The bulk of the capacity is situated in the Ontario which accounts for 47 percent of the processing capacity in Canada, excluding Quebec. There is established leaf and yard processing capacity within most of the country. These materials do not need much infrastructure and many municipal landfills include space onsite to process these materials. However, a number of municipal leaf and yard processing facilities were no longer operational given issues with contamination, dumping or a lack of resources. Some of these facilities were still collecting the materials separately but instead operating burn pits.

Just as residential organic waste programs have evolved, the development of organic waste processing infrastructure has evolved from simple static pile and windrow systems to more complex in-vessel composting and anaerobic digestion facilities which are better able to process a greater diversity of organic materials. Those provinces with energy incentives or specific infrastructure programs are more likely to take advantage of these more complex processing systems and have seen greater development of on-farm and industrial anaerobic digestion facilities. Provinces without specific incentives are more likely to employ static pile and windrow systems.

Based on the data collected, in most Canadian jurisdictions, there is ample organic processing capacity to manage more basic degradable wastes such as leaf and yard waste. Quantities of leaf and yard waste can vary significantly year to year based on weather conditions. However, given these materials are processed through static piles or open windrows, accepting additional material in any given year tends only to be limited by the land available. Costs to process these materials are also relatively low. There are some exceptions related to more basic organic processing capacity, particularly in the Territories and in more rural areas of Canada, where they still lack the necessary infrastructure and personnel required to manage these wastes.

For more difficult to manage degradable wastes (e.g., due to contamination, odour, cost) such as source separated organics and food processing waste, the available capacity is generally not sufficient to address any substantial increase in organics diversion, perhaps with the exception of Prince Edward Island. Based on the data collected, most of the facilities (e.g., anaerobic digestion and in-vessel composting facility) accepting these materials in each of the provinces, are at capacity or have a relatively small amount of buffer capacity. Typically, this facility level buffer capacity is in the range of 20-30 percent (i.e., ability to accept additional material). It is important to note that available capacity does not account for the need for maintenance of facilities, unforeseen shortage, or annual fluctuations in volumes received through contracts.

Figures 7 provides the latest available estimates of the total tonnes of organic waste currently disposed in landfill for each province and territory. Figure 8 provides the per capita organic waste disposal rates nationally and for each province and territory. The largest component of this landfilled organic waste is food waste which could be diverted from landfill and processed by in-vessel compost or anaerobic digestion facilities. This portion of the waste could be diverted from landfill and processed by in-vessel compost or anaerobic digestion facilities. These figures suggest that there is close to an additional 6.8 million tonnes or 0.2 tonnes per capita of food and yard & garden waste that could be processed by organics processing facilities if there were sufficient capacity. This is 1.1 million tonnes over the current total available capacity of 5.7 million tonnes and 54 percent over the in-vessel and AD facility capacity which would be most capable of processing the food waste.

While there does appear to be a new processing capacity planned in British Columbia, Alberta, Ontario and Quebec, additional capacity will still be necessary as increasing volumes of organic waste are diverted. This will be driven by requirements for new source separation programs, the potential for landfill bans, and the desire from many provinces to help meet their climate change goals through organic waste diversion.

An overview of the various approval regimes is included as part of this report. Although not a direct question, concerns about the approvals regimes was a continued item of discussion in almost all of the provinces. This included concerns about the costs and timelines associated with the approvals process; the ability for the approvals process to address new or different technologies; difficulty to understand the government's expectations. As part of the process, many former operators also indicated what they perceived to be unfair conditions placed on them, particularly in relation to odour management.

As many provinces ramp up organics diversion efforts, there is a need to ensure that sufficient diversion capacity is available, especially where disposal bans may be considered. As provinces and territories expand organic diversion programs, there will be a need to review approval / permitting regimes. Each jurisdiction has different considerations (e.g., geography, population density, types of organic waste processed), but there will be a need to ensure requirements can address potential environmental risks (e.g., odour, traffic, water contamination, vermin and vectors), while not restricting new development. There were a number of concerns raised with operators across the country about issues occurring, even at well-established facilities, as a result of new encroaching residential developments.

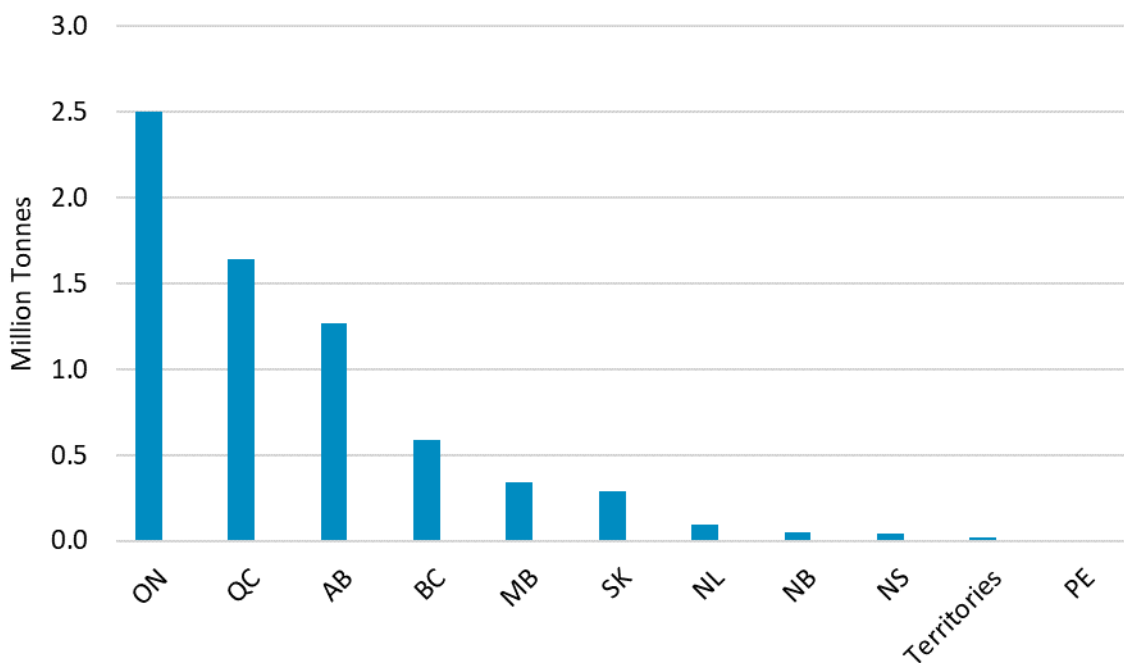


Figure 7: 2016 Organic Waste Disposed  
(Environment and Climate Change Canada, 2020)

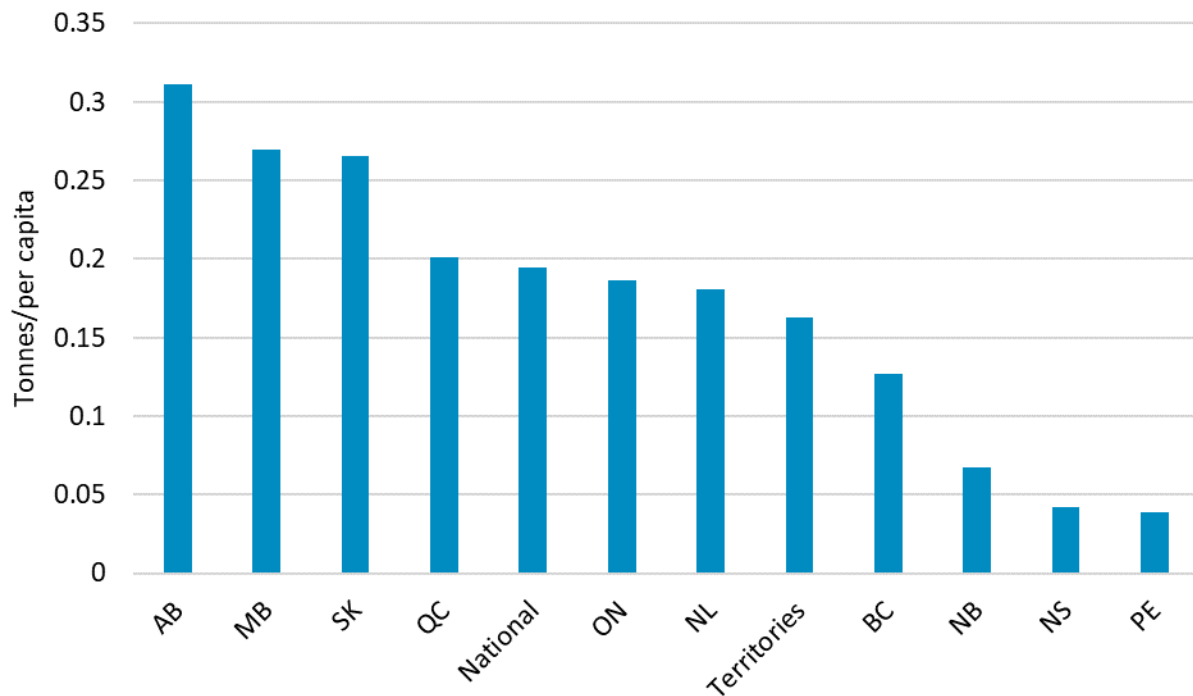


Figure 8: 2016 Per Capita Organic Waste Disposed (Environment and Climate Change Canada, 2020)

**Comparison to Existing Data Sources.** As noted above, currently in Canada the data collected is generally not coordinated. This is not a criticism of the hard work completed by many organizations across the country, but it has the potential to cause confusion. By way of example, the only publicly available source for national data on operational organic processing facilities is through the Compost Council of Canada (CCC) based on a recent survey they completed and through the Canadian Biogas Association (CBA) (focussed on AD facilities only) (Canadian Compost Council, 2007; Canadian Biogas Association, n.d.).

Table 8 provides a comparison of EREF data on operational organic processing facilities as compared to the work by the CCC. The facility data posted on the CCC’s website was extremely helpful for this report. However, there were a number of facilities that had not been identified and were subsequently contacted.

The EREF and CCC numbers likely differ for a number of reasons:

- The CCC scope appears slightly broader than EREF’s, as it includes some municipal wastewater treatment facilities with anaerobic digestion capabilities and those that were using stabilization methods (such as lime stabilization, fermentation, pasteurization) for bio-solids. EREF only included wastewater treatment plants (WWTPs) that were composting biosolids to produce a compost through windrows or in-vessel.
- There are a number of facilities identified by the CCC that based on information from operators are no longer operational.
- There were a number of facilities identified by EREF that were not identified by the CCC.

There is also some provincial data available that this report used including:

- RECYC-QUEBEC which has developed an annual report on organic diversion and has a map available that details operation facilities as well as details about municipal organics diversion programs (RECYC QUEBEC, n.d.).
- The Ontario Waste Management Association (OWMA) has developed an annual organic waste processing report which also summarizes all the operational organic processing facilities (Ontario Waste Management Association, 2017).
- The Canadian Biogas Association has developed a renewable gas market report for Ontario (Canadian Biogas Association, 2019).

Table 8: Comparison of EREF (this report) and CCC Data

Province/Territory	EREF (2019)	Compost Council of Canada (2019)
Alberta	45	55
British Columbia	49	43
Manitoba	36	18
New Brunswick	30	18
Newfoundland and Labrador	14	2
Nova Scotia	24	27
Ontario	107	78
Prince Edward Island	3	2
Quebec	44	44
Saskatchewan	28	23
Northwest Territories	4	
Nunavut	-	3
Yukon	3	
<b>Total Canada</b>	<b>387</b>	<b>313</b>

Table 9 provides a summary of the tonnes processed and compares the results by province to Statistics Canada and the CCC. It is important to note that these studies are not necessarily measuring the same things (e.g., types of organic processing facilities included, the organic waste types included), and all rely on data modelling where gaps may exist. How the modeling was conducted and the extent that numbers presented are modeled numbers in the other reports are not readily available.



Table 9: Comparison of Organic Waste Processed (Tonnes) by Province / Territory

Province / Territory	EREF (2019)	Statistics Canada (2018)	Compost Council of Canada (2019)
Alberta	475,856	322,218	537,447
British Columbia	661,172	615,683	894,337
New Brunswick	699,550	94,261	445,053
Newfoundland and Labrador	26,040	905	2,500
Nova Scotia	183,400	148,348	269,511
Manitoba	72,677	56,272	55,219
Prince Edward Island	160,000	20,445	19,000
Ontario	1,817,859	1,145,169	2,012,741
Quebec	681,000a	432,000	1,042,566
Saskatchewan	48,532	33,058	27,139
Northwest Territories	1,700	4,601	5,354
Nunavut	-		
Yukon	2,850		
<b>Total Canada</b>	<b>4,830,636</b>	<b>2,872,960</b>	<b>5,283,728</b>

There is concern that different conclusions could be drawn when reviewing the data in Table 9 due to the large inconsistencies in the data. Data and methodology transparency are an issue with the other reports since data and collection methodologies were not publicly available, with the exception of Statistics Canada, RECYC-QUEBEC (for Quebec), the OWMA (for Ontario), and the municipal datacall (for Ontario). As a result, the inconsistencies between the datasets could not be evaluated to determine why they exist. For reference, the methodology used and facilities identified in this study are provided in the appendices. The goal within this report was to ensure transparency as to how the data was captured, where it was modelled and how it was modelled to ensure it provides the most complete picture of organic waste processing in Canada to date and can be built upon in the future.

**Data Tracking and Public Reporting.** As there is increasing attention on organic diversion as part of overall sustainable materials management strategy, data to better understand how organic wastes are managed is increasingly important to:

- Measure the efficacy of policy or program approaches;
- Evaluate current market dynamics (e.g., available capacity) to inform policy, program development, and business decisions;
- Inform the market and create more healthy condition for competition; and
- Allow governments to meet reporting commitments related to climate change or waste diversion.

While most provinces have some form of data tracking in place (Table 10), the approach to reporting is not consistent, nor does it provide the type of data necessary. This includes what material is included or not included (e.g., manure and other agricultural wastes, biosolids); how the sector is surveyed (e.g., individual facilities or waste management companies), and the type of organic processing facilities and how they are defined (e.g., in-vessel composting, windrow composting, on-farm anaerobic digestion, industrial anaerobic digestion or onsite processing). In addition, as multiple groups seeking different types of data in an uncoordinated manner, many facility operators expressed frustration with the amount of data requests they have received and questioned if there were benefits associated with their participation.

**Table 10: Organic Waste Data Tracking and Reporting by Province / Territory**

Province/Territory	Data Tracking	Public Reporting
Federal	✓	✓
Alberta	✓	
British Columbia	✓	
New Brunswick		
Newfoundland and Labrador		
Nova Scotia	✓	
Manitoba	✓	
Prince Edward Island	✓	
Ontario	✓	✓
Quebec	✓	✓
Saskatchewan		
Northwest Territories		
Nunavut		
Yukon		

With improvements in technology and an increasing need for governments to collect data related to climate change goals, many governments are already working to improve how organics diversion data is collected and reported. In Canada, national-scale data collection work is already in progress by the Canadian Council of Ministers of the Environment (CCME) related to producer responsibility policies and the federal government has historically coordinated consistent data reporting in other areas such as health care (CCME, 2009).

Based on the information gathered for this report, national, coordinated data collection could benefit from establishing consistent data collection protocols in these key areas:

- what types facilities should be included (e.g., compost, anaerobic digestion, wastewater treatment, rendering, animal feed)
- what materials should be included (e.g., leaf and yard, SSO, biosolids, manure, food processing waste)
- consistent definitions, conversion factors and measurements
- key performance indicators (e.g., material input, material or energy outputs, annual capacity)

These gaps in data collection offer a tremendous opportunity for collaboration, and when combined with improvements in technology, can ease the implementation of a more standardized and regular system of reporting. It is hoped that the data included in this report can provide a better understanding of the landscape for organic waste processing in Canada and help address this data gap.

## CONCLUSIONS

From this report, a number of key observations are noted:

- 1) Canada has a mature organic processing sector which has steadily grown over the last two decades. In 2019, 4.83 million tonnes of organic waste was processed and there were 387 active facilities. Composting was the dominant method used to process waste with 72 percent of the total organic waste processed in compost facilities. While generally Canada has organics diversion programs and infrastructure in place, most provinces are only able to manage status quo processing rates with slight growth and will not be able to address major policy and program changes. Policies and programs will need to ensure additional capacity can be built to meet any new needs, especially as provincial governments are setting more aggressive emissions reduction and climate change goals.
- 2) The accessibility analysis indicates there is widespread implementation of organic waste management programs at the local level and that 91 percent of Canadians live in an area that has a residential organic waste management program. Curbside programs are widely available with 83 percent of the population living in an area with access curbside leaf and yard waste programs and 71 percent with access to curbside source separated organics programs. The actual number of participants in organics management programs will depend on the type of residences that qualify and if residents choose to participate.
- 3) Most provinces, with the exception of the Territories and more remote areas, have adequate processing capacity to manage more basic degradable materials like leaf and yard waste. Collectively there is enough processing capacity for 2.66 million tonnes of these basic degradable materials at static pile and windrow facilities.
- 4) Most provinces do not, however, have sufficient processing capacity to address larger volumes of more complicated materials like source separated organics. Based on the 3.08 million tonnes of available processing capacity for in-vessel and anaerobic digestion facilities, they are at capacity or have a relatively small amount of buffer capacity. There is a short-fall in processing capacity for source-separated organic wastes of about 3.72 million tonnes. It is important to note that available capacity does not account for the need for maintenance of facilities, unforeseen shortage, or annual fluctuations in volumes received through contracts.
- 5) The policy evaluation indicated there is a desire by governments at the federal, provincial and municipal levels across the country to increase the amount of organic waste diverted for disposal and reduce the amount of organic waste generated. The goals at the provincial and federal levels provide somewhat of a complicated picture because there are many reasons given as to why organic waste reduction and diversion should occur. The most commonly cited goal was to divert from disposal, which was mentioned as a goal in 10 provinces. Overall the major goals identified included:
  - Divert from disposal (10),
  - Reduce waste (7),

- Reduce greenhouse gas emissions (5),
- Improve local economic conditions (5),
- Create renewable energy (3),
- Or some combination of the above (8).

The motivation for organic waste reduction or diversion will dictate implementation of subsequent policies. Of the seven policies identified, diversion requirements were the most prevalent and are used by 5 provinces. Tax incentives in the form of food donations was second most prevalent and are used by 4 of provinces, followed by source separation requirements which are used by 3 provinces. Provinces can also establish specific programs to help meet established goals. Of the programs identified, infrastructure funding is available in all provinces with targeted funding for organic waste reduction or diversion available in 4 provinces. Research and development programs are also commonly available, with programs existing in 7 provinces.

- 6) While some jurisdictions' organic waste diversion goals are clearer than others, the overall national picture is not clear or unified and each province had a unique waste diversion-related target.
- 7) The goals are important to understand as they inform the programs, policies, and the approvals regimes. A better understanding and alignment of these goals would assist the coordination of policies, programs, and approval regimes at the various levels of government. It would also help to identify the data needed to assess progress and the efficacy of programs and policies. While this report helps to improve the understanding of processing capacities provincially and nationally, there is a significant absence of clear and unified policy goals.
- 8) The desire for better data related to organic waste management was reiterated by all levels of government and the private sector. There are processes in place to capture data via the provincial / federal governments and trade associations that could be built upon and adapted. At the federal level and in 7 provinces there is some form of data tracking already in place; however, this system which requires multiple entities to individually collect and report data is inefficient. This gap in data collection offers a tremendous opportunity for collaboration, and when combined with improvements in technology, can ease the implementation of a more standardized and regular system of reporting.

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## Federal, Provincial and Territorial Profiles

For each province and territory, an assessment was undertaken to understand the organic waste management context, including:

- An overview of the policies, programs and approval or permit regime within each jurisdiction that influences how organic waste is managed;
- A summary of residential accessibility to organic diversion programs which is often shaped by policies at the provincial / territorial level and influences the organic waste processing infrastructure, and materials processed annually;
- A summary of organic processing infrastructure and the amount of materials processed annually.

This appendix begins with a separate assessment for the federal government as they do have policies and programs that influence organic waste diversion, followed by a section for each province or territory which are organized alphabetically. Each section also includes a snapshot, which is meant to provide additional context on factors that might impact organic waste diversion.

**General National Information.** A snapshot of general statistics and information on Canada are listed in Table A1.

Table A1: Background information on Canada

Statistic	Value
Population <sup>a</sup>	37,589,262
Size (km <sup>2</sup> )	9,984,670
Population Density (person / km <sup>2</sup> )	3.76
Gross Domestic Product	\$1,991,533.8 M <sup>c</sup>
<b>Total Waste Generation<sup>b</sup></b>	<b>35,550,628 tonnes total 9,817,607 tonnes diverted 25,733,021 tonnes disposed</b>

a (Statistics Canada, 2019)

b (Statistics Canada, 2018)

c Chained 2012 Dollars

**Overview of Policies, and Programs.** The regulatory landscape provides an important context into the current organic processing infrastructure and how it might evolve in the proceeding years.

**Strategic Plans & Notable Goals.** The federal government has not typically played a driving role in shaping organics diversion, which has been the domain of provincial, territorial or lower levels of governments. Thus, there currently is no specific strategy related to organics diversion, the federal government has in recent years become more engaged given the establishment of goals related to GHG reduction. Beyond this, they are working through the Commission for Environmental Cooperation with the United States and Mexico to address food loss and waste in North America. Several reports have been developed to better measure food loss and waste and reduce food loss and waste (Commission for Environmental Cooperation, 2017).

The federal government has also been active on food loss and waste through several other initiatives including:

- The Strategy on Short-lived Climate Pollutants, which seeks to reduce methane emissions from Canadian landfills by reducing avoidable food waste in Canada (Government of Canada, 2019).
- The Food Policy for Canada which includes an initiative focused on reducing food waste (Government of Canada, 2017).

They have also developed or are in the process of developing several documents related to organic diversion including:

- A Technical Document on Municipal Solid Waste Organics Processing that provides information on the different aspects of waste management planning and operation for organics processing of different capacities and in different locations (Government of Canada, 2013).
- A GHG Calculator for Organic Waste Management (in progress) which will be a tool and educational resource to assist users in estimating/understanding the GHG emissions implications of organic waste management (e.g. composting, anaerobic digestion, landfill, incineration) and biogas utilization (e.g. electricity, renewable natural gas, compressed natural gas, direct use) alternatives.

**Policies.** The federal government is in the process of developing a Federal GHG Offset System as part of its carbon pollution pricing system. As part of this process, they have included a number of organics diversion activities as potential offset protocols, including aerobic composting, anaerobic digestion, livestock manure management, and soil carbon (Government of Canada, 2020). The federal government also provides a tax relief for manure and compost which are zero-rated (i.e., tax exempt as compared to other nutrient supplements that might be used), if they are sold in packages that weigh at least 25 kg and in quantities of at least 500 kg. If compost is made and sold by the truckload, the federal sales tax is not charged. However, if it is sold in 10 kg bags, then the federal sales tax is charged.

Under Class 43.1 and 43.2 of the Income Tax Regulations, businesses with certain capital costs for systems that produce energy by using fuels from waste such as anaerobic digestion are eligible for an accelerated capital cost allowance (Government of Canada, 2019).

**Programs.** The Federal Government also has a number of programs in place or in development to assist organics diversion including:

- A Clean Fuel Standard is under development which is anticipated to increase the demand for renewable natural gas.
- There are three main broad-based infrastructure programs that allow for investment in organics diversion infrastructure:
  - The Green Infrastructure Fund provides financial support for projects that promote reduced GHG emissions, including solid waste infrastructure. The program began in 2009-2010 and is expected to end in 2021-2022 (Infrastructure Canada, 2020).
  - The Low Carbon Economy Fund similarly invests in projects to generate clean growth and reduce GHG emissions (Government of Canada, 2020).
  - The Federal Gas Tax Fund is a permanent source of funding for provinces and territories, who then use this funding to support municipal infrastructure initiatives, including those related to solid waste management (Infrastructure Canada, 2020).
- Natural Resource Canada's Office of Energy Research and Development provides funds for research and development related to clean energy systems, sustainable bioenergy, among other areas.

Finally, the federal government is working on a number of projects to better understand organic waste, including:

- Statistics Canada undertakes a biennial Waste Management Industry Survey that includes organics diversion (Statistics Canada, 2019). The data does miss certain activities such as on-farm operations (composting or anaerobic digestion), and other facilities that are not considered traditional waste facilities (e.g., biosolids, composting).
- A Waste Characterization Study was completed in 2020, which focused on organic materials disposed in Canadian landfills (Government of Canada, 2020).
- Environment and Climate Change Canada's (ECCC) Pollutant Inventory and Reporting Division has undertaken work to improve their understanding of organics processing facilities. This will be used to refine the estimates of quantity of organics composted and develop an inventory for organics sent to AD facilities annually. This work also includes other waste types like biosolids, which was previously not available through Statistics Canada Waste Management Industry Survey.

# Alberta

**General Province Information.** A snapshot of general province statistics and information on notable features related to Alberta's waste management activities are listed in Table A2.

Table A2: Background information on Alberta

Statistic	Value	Percent of Canada
Population <sup>a</sup>	4,371,316	12%
Size (km <sup>2</sup> )	661,848	6.6%
Population Density (person / km <sup>2</sup> )	6.60	-
Gross Domestic Product	\$319,212.0 M <sup>c</sup>	16%
Total Waste Generation <sup>b</sup>	5,048,943 tonnes total 930,862 tonnes diverted 4,118,081 tonnes disposed	14% 9.5% 16%
Notable Features	Large areas of the province with low population. Has abundant landfill capacity. Significant beef cattle, grains and oilseeds farming.	

<sup>a</sup> (Statistics Canada, 2019)

<sup>b</sup> (Statistics Canada, 2018)

<sup>c</sup> Chained 2012 Dollars

**Overview of Policies, Programs, Approval Regime.** The Government of Alberta has not taken as proactive of a regulatory approach as a number of other provincial governments, leaving most of the decision-making to local governments and business.

**Strategic Plans & Notable Goals.** Alberta last released a waste management strategy in 2007 (Alberta Government, 2007). The strategy had an overarching goal to reduce the amount of municipal waste sent to landfill to 500 kg/capita. Alberta's Annual Business Report includes a Performance Indicator for kg/capita of municipal solid waste disposed of in landfills (Alberta Government, 2007). Between 2014-2018, the municipal waste landfill disposal rates per capita have varied from a high of 669 kg/capita to a low of 558 kg/capita.

**Policies.** The Province has not implemented any source separation or disposal bans. However, several municipalities across Alberta have successfully implemented mandatory source separation policies and green-bin programs. Calgary, Alberta's largest city, implemented a food and yard waste disposal ban between 2015-2019 (City of Calgary, 2017).



The Alberta government does allow composting facilities to qualify for offset credits through Alberta's carbon offset credit system. Composting facilities that are diverting organic feedstock from landfills can use the Quantification Protocol for Aerobic Composting to determine avoided methane emissions from landfills (Alberta Government, 2018.). A flagged protocol has also been developed for anaerobic decomposition of agricultural materials. Project developers cannot initiate or implement emission offset projects using a flagged protocol without written authorization from the provincial Director.

There do not appear to be any initiatives related to compost or digestate procurement in place.

**Programs.** The Province does not have any specific infrastructure programs related to organics processing but there are various broad-based infrastructure funding opportunities. Funding is also available for research and development through Alberta Innovates, which is a government funded applied research and development corporation.

Through the Alberta Environment and Parks' (AEP) Materials Management Report, the province gathers information on a voluntary basis (Alberta Government, n.d.). Municipal landfill disposal rates per capita are publicly reported through Alberta's Annual Business Report.

**Reporting.** It does not appear that reporting (e.g., annual tonnes processed, materials processed), in a coordinated manner, is required for organic waste processing facilities.

Compost facilities which accept more than 20,000 tonnes per year are required to submit their annual report to the Ministry, however, no annual submission is required for other compost facilities. Compost facilities under a registration do have to submit an annual report to the Ministry upon request. AD facilities require annual reporting for AEP-managed facilities under an Environment Protection and Enhancement Act (EPEA) Approval.

**Approvals.** Table A3 and Table A4 provide a general outline of the approval requirements for compost facilities and anaerobic digestion facilities in the Alberta.

Table A3: Approvals for Compost Facilities in Alberta

\*Note other municipal, provincial, or federal requirements may exist (e.g., zoning).

Regulation(s)	No Permit	Permit by Rule	Full Approval / Permit	Financial Assurance	Agricultural Operations
<p><a href="#">Environment Protection and Enhancement Act (EPEA) - Activities Designation Regulation</a></p> <p><a href="#">Waste Control Regulation (s. 24, 27, 25, 38)</a></p>	<p>Environment Protection and Enhancement Act (EPEA) - Activities Designation Regulation</p> <p>Waste Control Regulation (s. 24, 27, 25, 38)</p> <p>Exemptions included in the Standards for Composting Facilities but were not adopted or enabled in the Waste Control Regulation</p>	<p>Compost facilities that accept less than 20,000 tonnes of feedstock per year (Class I) require registration</p> <p>Class II Compost Facilities that accept less than 000 tonnes of vegetative matter or manure require a notification and must follow the requirements of the <a href="#">Code of Practice for Compost Facilities</a></p> <p>It is encouraged that the more stringent requirements in the <a href="#">Standards for Composting Facilities</a> are followed</p> <p>The Code of Practice is to be updated to align with the Standards by the end of 2020</p>	<p>Compost facilities which accept more than 20,000 tonnes per year (Class I) require an Approval under the Environmental Protection and Enhancement Act.</p> <p>Under an Approval they must follow the requirements in the <a href="#">Standards for Composting Facilities</a> and any additional requirements from the Director</p>	<p>Required for Class I Compost Facilities under a Registration or Approval (s. 27 of Waste Control Regulation)</p>	<p>Composting operations that primarily compost manure (at least 50 percent of the feedstock), do not compost third party feedstocks or livestock mortalities and have a capacity of 500 tonnes or more per year, are to be permitted under the <a href="#">Agricultural Operation Practices Act</a> administered by the Natural Resources Conservation Board</p> <p>On farm composting operations which compost livestock mortalities will need to follow the requirements of the Livestock Diseases Act regulated by Alberta Agriculture and Forestry</p> <p>Composting operations that compost third party feedstocks will need to follow the Alberta Environment and Parks composting requirements regulated by AEP</p>

The Alberta government has recently announced they are updating their Code of Practice for Compost Facilities to reflect modern compost standards and improve environmental protection through enhancing requirements related to considerations such as odour management, water resource protection, and setback distances (Alberta Government, 2020).

Table A4: Approvals for AD Facilities in Alberta

\*Note other municipal, provincial, or federal requirements may exist (e.g., zoning).

Regulation(s)	No Permit	Permit by Rule	Full Approval / Permit	Financial Assurance	Agricultural Operations
<a href="#">Environment Protection and Enhancement Act (EPEA) - Activities Designation Regulation</a>  <a href="#">Waste Control Regulation (s. 24, 25, 38)</a>	<p>None unless agricultural</p> <p>AD facilities processing more than 50 percent agricultural waste or feedstock including manure are regulated by the Natural Resources Conservation Board (NRCB)</p> <p>AD facilities processing less than 50 percent of agricultural feedstock are regulated by Alberta Environment and Parks (AEP) under an EPEA Approval</p>	None	Required based on EPEA	Required for all waste management facilities, including AD facilities, where an approval or registration is required (s. 27 Waste Control Regulation)	<p><a href="#">Alberta Agricultural Operation Practices Act:</a></p> <p>Land application of digestate should meet allowable nutrient permitted by this Act</p> <p>See Compost requirements in Table A3</p>

**Accessibility.** Table A5 and Figure A1 provide an overview of accessibility to municipal organic waste management programs in Alberta.

In Alberta, of 425 total census subdivisions, 83 have some sort of organic waste management program, providing program accessibility to 61 percent of the population. All of these residents have access to a leaf and yard waste program, with 52 percent (i.e., 42 subdivisions) having access to curbside collection and the rest (i.e., 57 more rural subdivisions) having access to drop-off programs. There are 39 subdivisions providing a SSO program to 50 percent of the population, with 48 percent of the population having access to a curbside collection.

The areas with access to both leaf and yard waste and source separated organics programs are generally concentrated in the larger cities including Calgary, Edmonton, and Red Deer as seen in Figure A1.

Table A5: Overview of Accessibility to Organics Management Programs - Alberta

Program Type	Number of Census Subdivisions with Program	Number of People Living in Area with Program	Percent of Total Province Population
Organic Management Program (Any)	92	3,533,365	87%
Curbside (Any)	47	3,081,880	76%
Leaf and Yard Waste Program	92	3,533,365	87%
Drop-off	64	971,565	24%
Curbside	45	3,091,370	76%
Source Separated Organics Program	42	3,002,760	74%
Drop-off	18	389,570	10%
Curbside	34	2,927,980	72%

**Organics Waste Processing.** Table A6 and Figure A1 presents an overview of composting and anaerobic digestion facilities in Alberta. The province has 43 compost facilities which have approximately 707,775 tonnes/year processing capacity, and two on-farm anaerobic digestion facilities which have approximately 170,000 tonnes/year processing capacity. In 2019, these facilities processed approximately 475,856 tonnes of organic waste and produced approximately 290,348 tonnes of compost and digestate. A number of vermicompost and soldier fly facilities were also identified in Alberta that were processing well over 2,000 tonnes of organic waste annually with more capacity under development.

Table A6: Overview of Composting and Anaerobic Digestion Facilities - Alberta

Facilities	Number	Tonnes per year		
		Processing Capacity	Organic Waste Processed	Compost / Digestate Produced
Compost				
Static Pile	22	164,435	95,779	48,458
Windrow	19	153,340	78,920	53,890
In-vessel	2	220,000	178,000	73,000
Sub-Total	43	537,775	355,856	175,348
Anaerobic Digestion				
On-Farm	3	-	-	-
Industrial	1	-	-	-
Sub-Total	4	202,000	151,000	71,000
<b>Total</b>	<b>50</b>	<b>941,950</b>	<b>661,172</b>	<b>325,922</b>

Through a review of Alberta compost facility approvals, it was noted that over 40 approved facilities are no longer composting and an additional ten smaller facilities for which no determination could be made. The facilities that were no longer operational were generally more rudimentary facilities (e.g., static pile or windrow). Some were no longer operational due to issues such as odour, while others related to the ability for municipalities to properly resource.

While it appears that there is abundant windrow processing capacity, many of these facilities are rudimentary and co-located at municipal landfill sites. While they have the space to accept more materials, they typically do not have plans to accept more materials. These co-located facilities also have limitations on what they can accept (i.e., beyond leaf and yard waste).

There are several compost and anaerobic digestion facilities planned, including a large dry anaerobic digestion and a vermicompost facility in Edmonton, an aerated static pile facility in Lethbridge, and a wet anaerobic digestion facility in Lacombe.

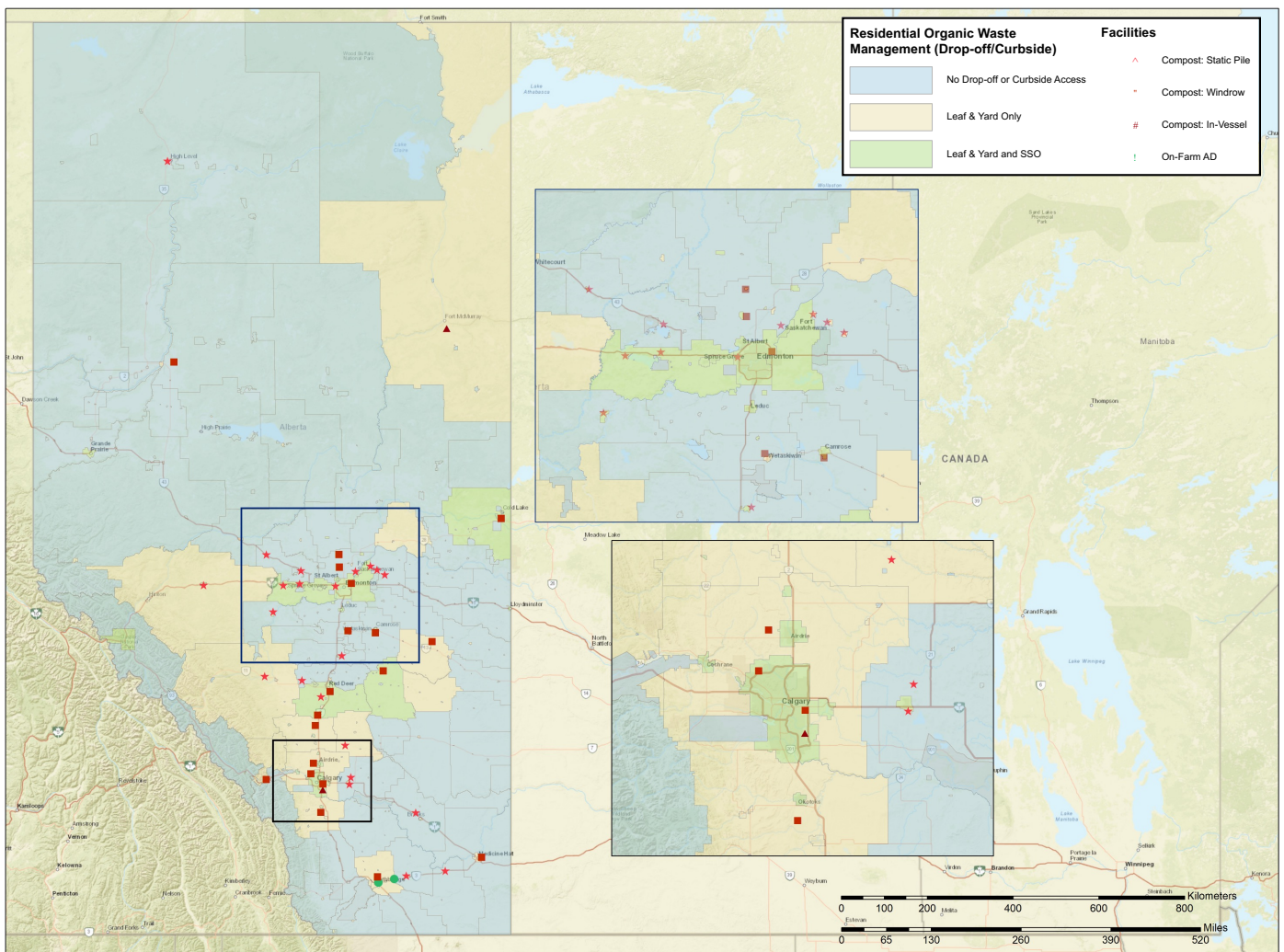


Figure A1: Residential Accessibility and Map of Composting and Anaerobic Digestion Facilities - Alberta

## British Columbia

**General Province Information.** A snapshot of general province statistics and information on notable features related to British Columbia (BC)'s waste management activities are listed in Table A7.

**Table A7: Background information on British Columbia**

Statistic	Value	Percent of Canada
Population <sup>a</sup>	5,071,336	13%
Size (km <sup>2</sup> )	944,735	9.5%
Population Density (person / km <sup>2</sup> )	5.37	-
Gross Domestic Product	\$260,220.3 M <sup>c</sup>	13%
Total Waste Generation <sup>b</sup>	4,462,587 tonnes total 1,742,710 tonnes diverted 2,719,877 tonnes disposed	13% 18% 11%
Notable Features	Islands, ocean, and mountains complicate logistics. Significant dairy and horticultural sector.	

<sup>a</sup> (Statistics Canada, 2019)

<sup>b</sup> (Statistics Canada, 2018)

<sup>c</sup> Chained 2012 Dollars

**Overview of Policies, Programs, Approvals Regime.** BC has established a number of goals, policies and programs to steadily increase organics diversion in the province. As a result of the Provincial government's continued focus on organics diversion, new processing capacity is being developed.

**Strategic Plans & Notable Goals.** BC has established a provincial waste disposal target to lower the municipal solid waste disposal rate to 350 kg per person. The Climate Strategy released by the British Columbia Government (2018), also includes a number of goals and actions related to increasing organic waste diversion, including:

- Facilitate 95 percent organic waste diversion for agricultural, industrial, and municipal waste - including systems in place to capture 75 percent of landfill gas.
- Work to reduce waste generated and make better use of it across all sectors of economy, by renewing the BC Bioenergy Strategy and expanding the bioenergy and biofuels cluster present in the province (British Columbia Government, n.d.-a).
- Set a minimum requirement for 15 percent renewable content in natural gas by 2030.
- Invest in bioenergy technologies and companies expanding production of renewable natural gas.
- Establish a Centre of Excellence for Biofuels.

**Policies.** While the Province has not implemented any source separation requirements, disposal bans or disposal levies, municipal governments in BC are actively implementing measures to increase organics diversion. Many municipalities have implemented SSO programs and some municipalities, such as Metro Vancouver, require food waste separation, which has been mandatory for residents and businesses since January 2015. A number of municipalities, such as Regional District of North Okanagan, Nanaimo, Victoria, and Metro Vancouver, have proposed or implemented food waste disposal bans at their landfills.

Metro Vancouver has also implemented a Generator Levy that is built into the tipping fee for Regional Facilities. This does not affect the cost of garbage disposal at these facilities, but waste haulers delivering garbage to other facilities would collect the Generator Levy from waste generators and remit it to Metro Vancouver. The Generator Levy is set at \$42 per tonne (Metro Vancouver, 2019).

All regional districts are required under the Environmental Management Act to submit a solid waste management plan to the provincial government. The BC government has developed a Guide to Solid Waste Management Planning that reflects voluntary expectations regarding plans and desirable outcomes, defined by provincial targets, and principles (British Columbia Government, 2016). Waste management plans are approved by the Minister of Environment & Climate Change Strategy after public and stakeholder consultation has taken place.

Although not a major part of the organic waste stream, BC is currently assessing the inclusion of compostable packaging and paper products in their producer responsibility program. Studies were undertaken in 2018 and 2019 by RecycleBC to quantify the amount of Packaging and Paper Product collected in municipal residential source-separated organics systems. Both curbside and multi-family residential organics collection systems were sampled (Recycle BC, 2019).

The Provincial government is also considering an Organic Waste Diversion GHG Offset Protocol. The purpose of the protocol is to quantify the emissions reductions associated with the diversion of organic waste from landfills as part of BC's carbon offset credit system.

Finally, as part of the BC government's food waste reduction efforts, they have established an income tax credit for farmers who donate food. The BC Farmers' Food Donation Corporate Income Tax Credit is a non-refundable income tax credit to encourage farmers and farming corporations to donate certain agricultural products that they produce in BC to registered charities. The credit is 25 percent of the eligible amount of a farming corporation's qualifying gifts for the tax year and is available to farming corporations who make a gift of agricultural product between February 16, 2016 and January 1, 2021. The 2020 Budget proposes extending the credit to include gifts of agricultural products made before January 1, 2024.

There do not appear to be any policies related to compost or digestate procurement in place.

**Programs.** The BC government has two main programs supporting organic waste diversion in British Columbia which includes:

- Renewable Natural Gas Program. In March 2017, BC amended its Greenhouse Gas Reduction Regulation to include a renewable portfolio allowance of up to 5 percent renewable natural gas on the natural gas system, creating an opportunity to grow the province's renewable natural gas supply and reduce GHG emissions. Through the province's natural gas supplier, FortisBC, residents and businesses can choose to use renewable natural gas. FortisBC is providing preferred pricing through renewable natural gas purchasing agreements to anaerobic digestion facilities in BC and across Canada.
- Organic Waste Processing Infrastructure Program. As noted earlier, the BC government has established an Organics Infrastructure Program which combines \$10 million of federal funding from the Low Carbon Economy Leadership Fund, \$10 million of provincial funding, and a \$10 million contribution from recipients and/or their partners to support organic waste processing infrastructure to reduce GHG emissions (British Columbia Government, 2020 January 30). Funding for research and development funding is also available through BC Innovates, which is a Crown Agency of the Province of British Columbia, Canada, which funds entrepreneurial support programs in the province.
- Finally, BC is a contributor to Love Food Hate Waste Canada which seeks to reduce food waste across the country.

**Reporting.** It does not appear that reporting (e.g., annual tonnes processed, materials processed), in a coordinated manner, is required for organic waste processing facilities.

**Approvals.** Table 8 and Table 9 provide a general outline of the approval requirements for compost facilities and anaerobic digestion facilities in BC.



Table A8: Approvals for Compost Facilities in British Columbia

\*Note other municipal, provincial, or federal requirements may exist (e.g., zoning).

Regulation(s)	No Permit	Permit by Rule	Full Approval / Permit	Financial Assurance	Agricultural Operations
<a href="#">Organic Matter Recycling Regulation (OMRR)</a>  <a href="#">Mushroom Compost Facilities Regulation</a>  <a href="#">Environmental Management Act (EMA) (Part 2, 3 &amp; 6)</a>	<p>If backyard composting</p> <p>If demonstration gardens for composting</p> <p>If composting agricultural materials</p>	<p>Mushroom compost facilities are required to meet certain parameters and report annually</p> <p>If processing under 20,000 tonnes per year, a notification of operation and a personnel training plan are required. Discharge requirements must also be met e.g.OMRR <a href="#">s. 26 (1-3)</a></p>	<p>If processing over 20,000 tonnes per year, a qualified professional must prepare and submit the following: an environmental impact study,</p> <p>an operating plan, an odour management plan, and a leachate management plan that are acceptable to the Director</p> <p>Approval under the EMA may be necessary if broader materials than <a href="#">Schedule 12</a></p>	Not Required	<p><a href="#">Environmental Management Act - Code of Practice for Agricultural Environmental Management</a></p> <p>Permit by rule</p> <p>Must get a full approval if off-farm materials accepted</p>

Table A9: Approvals for AD Facilities in British Columbia

\*Note other municipal, provincial, or federal requirements may exist (e.g., zoning).

Regulation(s)	No Permit	Permit by Rule	Full Approval / Permit	Financial Assurance	Agricultural Operations
<p>Not specifically defined</p> <p><a href="#">Environmental Management Act (EMA) (Part 2, 3 &amp; 6)</a></p> <p><a href="#">Organic Matter Recycling Regulation (OMRR)</a></p>	Not Applicable	Not Applicable	Approval necessary based on the EMA	Not Required	No separate process

**Accessibility.** Table A10 and Figure A2 provide an overview of accessibility to municipal organic waste management programs in BC.

In BC, of 737 total census subdivisions, 371 have some sort of organic waste management program, providing program accessibility to 94 percent of the population. All of these residents have access to a leaf and yard waste program, with 77 percent having access to curbside collection. There are 161 census subdivisions providing an SSO program to 81 percent of the population, with 70 percent of the population having access to a curbside collection.

Leaf and yard waste drop-off programs provide accessibility in rural areas of BC. Smaller cities including 100 Mile House, Williams Lake, and Quesnel, located in the Cariboo region, provide access to organics management via drop-off programs, whereas the larger Cariboo regional area does not have drop-off or curbside programs, but does encourage backyard composting. In the metropolitan areas of Vancouver and the Capital Regional District there is full access to organics waste management programs, in accordance with the landfill bans proposed or already implement for those areas.

**Table A10: Overview of Organic Waste Collection Programs - British Columbia**

<b>Program Type</b>	<b>Number of Census Subdivisions with Program</b>	<b>Number of People Living in Area with Program</b>	<b>Percent of Total Province Population</b>
Organics Management Program (Any)	371	4,379,087	98%
Curbside (Any)	118	3,573,308	80%
Leaf and Yard Waste Program	342	4,374,431	98%
Drop-off	360	4,377,832	98%
Curbside	115	3,547,246	79%
Source Separated Organics Program	161	3,765,961	84%
Drop-off	128	3,067,193	68%
Curbside	94	3,231,777	72%

**Organics Waste Processing.** Table A11 and Figure A2 present an overview of composting and anaerobic digestion facilities in BC. Note the numbers for processed organics for anaerobic digestion facilities have only been presented in a consolidated format given the low number of facilities. The province has 50 compost and anaerobic digestion facilities which have approximately 941,950 tonnes per year of processing capacity.

In 2019, these facilities processed approximately 661,172 tonnes of organic waste and produced approximately 325,922 tonnes of compost and digestate. A large soldier fly facility (5,600 square metre) was also identified in BC which is processing food waste.

While it appears that there is abundant windrow processing capacity many of these facilities are rudimentary and co-located at municipal landfill sites. While they have the space to accept more materials, they typically do not have plans to accept more materials. These co-located facilities also have limitations on what they can accept (i.e., beyond leaf and yard waste).

**Table A11: Overview of Composting and Anaerobic Digestion Facilities - British Columbia**

Facilities	Number	Tonnes per year		
		Processing Capacity	Organic Waste Processed	Compost / Digestate Produced
Compost				
Static Pile	8	60,250	58,574	15,170
Windrow	28	399,200	226,135	116,847
In-vessel	10	280,500	225,463	122,905
Sub-Total	46	739,950	510,172	254,922
Anaerobic Digestion				
On-Farm	2	170,000	120,000	115,000
Industrial	-	-	-	-
Sub-Total	2	170,000	120,000	115,000
<b>Total</b>	<b>45</b>	<b>707,775</b>	<b>475,856</b>	<b>290,348</b>

While data was obtained for the majority of organic processing facilities, there were several larger facilities for which the amount of organic waste processed needed to be modelled. As a result, there is a moderate level of confidence for the estimates provided in Table A11.

Based on the operational dates for the current facilities there appears to be a relatively steady growth in processing capacity over the last two decades. It is anticipated that BC organic waste management programs and processing facilities will continue to grow. For instance, in January 2020, the federal and provincial government announced \$30 million in funding for 12 organics processing facilities including facilities located in BC's Central Coast, Columbia Shuswap, Comox Valley, East Kootenay, Kootenay Boundary, Northern Rockies, Okanagan-Similkameen and Summerland districts and two composting facilities in the Central Kootenay Regional (British Columbia Government, 2020 January 30). BC estimates that these projects will prevent nearly 300,000 tonnes of carbon dioxide equivalent emissions over the next decade.

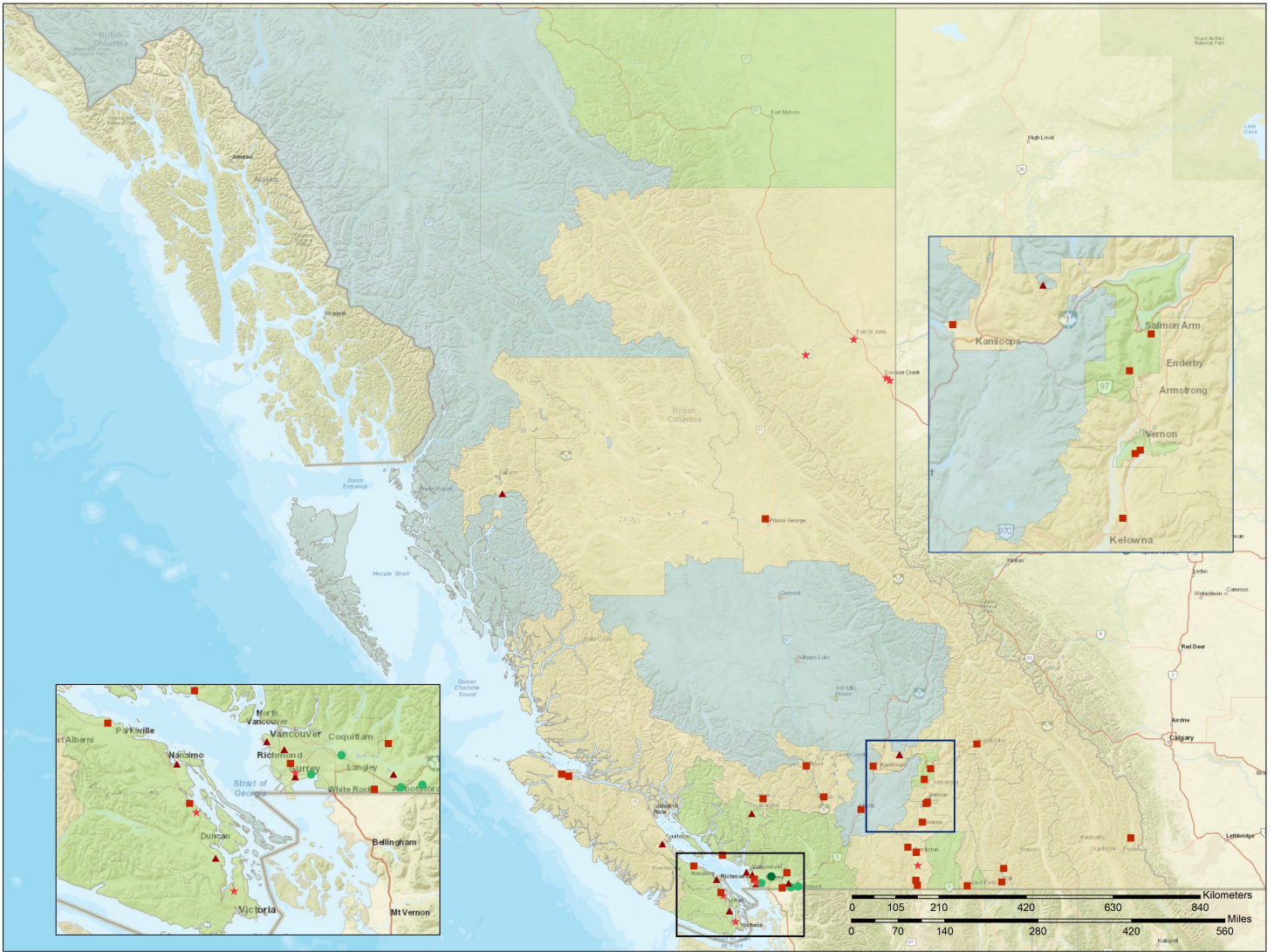


Figure A2: Residential Accessibility and Map of Composting and Anaerobic Digestion Facilities - British Columbia

## Manitoba

**General Province Information.** A snapshot of general province statistics and information on notable features related to Manitoba's waste management activities are listed in Table A12.

Table A12: Background information on Manitoba

Statistic	Value	Percent of Canada
Population <sup>a</sup>	1,369,465	3.6%
Size (km <sup>2</sup> )	647,797	6.5%
Population Density (person / km <sup>2</sup> )	2.11	-
Gross Domestic Product	\$66,007.1 M <sup>c</sup>	3.3%
Total Waste Generation <sup>b</sup>	1,184,953 tonnes total 221,697 tonnes diverted 963,256 tonnes disposed	3.3% 2.3% 3.4%
Notable Features	Large areas of the province with low population. Significant hog and grains and oilseeds farming.	

<sup>a</sup> (Statistics Canada, 2019)

<sup>b</sup> (Statistics Canada, 2018)

<sup>c</sup> Chained 2012 Dollars

**Overview of Policies, Programs, Approval Regime.** Over the past decade, the Manitoba government has been actively implementing a number of new policies and programs to increase organic waste diversion.

**Strategic Plans & Notable Goals.** Manitoba last released a waste management strategy in 2013 (Manitoba Government, 2013). The strategy had an overarching goal of diverting 85 kg of organics from landfills per capita by 2020. To assist with this goal the strategy commits to make available up to \$1 million through the Manitoba Composts Fund to support public and private sector composting operations and initiatives that encourage organic waste diversion.

Manitoba has updated this strategy as part of their Climate Plan released in 2017 (Manitoba Government, 2017). The goal of the program is to annually divert 100,000 tonnes of organic waste from landfill. This would result in Manitoba increasing the average organic waste diversion rate to 78 kg/capita, exceeding the 2010 Canadian national average of 65 kg/capita. It includes a number of actions related to organic waste diversion:

- Implement a landfill disposal ban on organic materials;
- Work with food processors, grocers, hotels, restaurants, and other stakeholders to promote best composting practices and provide supports and incentives, research, training and market development;
- Increase the Waste Reduction and Recycling Support landfill levy and use the revenue to support compost facilities; and
- Develop a comprehensive food waste reduction and prevention initiative, in partnership with other jurisdictions and key community groups.

**Policies.** The Province has implemented a number of policies to increase the diversion of organic waste. The Waste Reduction and Recycling Support (WRARS) Levy subjects all solid waste disposed at Manitoba landfills to a \$10/ tonne charge. It applies to residential, industrial, commercial, and institutional waste, construction, renovation and demolition waste and other solid waste materials. The Levy acts as a disincentive to waste disposal by increasing waste disposal costs, and, at the same time, rewards municipal diversion efforts through a revenue sharing formula. 80 percent of the levy revenue is rebated to municipalities to promote diversion and the remaining 20 percent is used to support provincial initiatives.

As part of these funds, the Provincial government launched the Manitoba Composts Program in 2014. The Fund provides municipal and private sector composting facilities financial incentives and support for the diversion of organic waste in Manitoba. The Manitoba Composts Program provides up to \$1 million annually for municipal and private sector composting facilities to support the diversion of organic waste. Facilities that process more than 2,500 tonnes a year are eligible for incentive payments of \$10.00 per tonne and those that process 2,500 tonnes or less are eligible for \$25.00 per tonne with a maximum of \$25,000 annually.

Manitoba had a nutrient management credit from 2012-2017. It was available to livestock producers and farm corporations investing in solid-liquid separation systems, anaerobic digesters, gravity settling tanks, manure treatment systems, manure composting facilities, and for smaller-scale producers investing in winter-suitable manure storage tanks.

There do not appear to be any initiatives related to compost or digestate procurement policies.

**Programs.** The Province does not have any specific programs in place for organics diversion but capital funding is available for broad-based infrastructure projects.

**Reporting.** Facility reporting is required through Manitoba Composts Program, but only if facilities are participants of the program. Municipalities report recycling data as part of the Waste Reduction and Recycling Support (WRARS) Recycling Rebate program but do they not report on organics diversion. Through the WRARS Fund, financial assistance is available for projects that enhance the public's understandings of waste diversion through additional education and outreach.

**Approvals.** Table A13 and Table A14 provide a general outline of the approval requirements for compost facilities and anaerobic digestion facilities Manitoba.

Table A13: Approvals for Compost Facilities in Manitoba

\*Note other municipal, provincial, or federal requirements may exist (e.g., zoning).

Regulation(s)	No Permit	Permit by Rule	Full Approval / Permit	Financial Assurance	Agricultural Operations
<a href="#">Environmental Protection Act (EPA)</a> <a href="#">Environmental Standards for Compost Facilities</a> <a href="#">Environmental Assessment Regulation - Environmental Assessment Act</a>	Backyard composting  Small pilot or community gardening projects	None	Any proposed municipal waste composting facility may be subject to registration under the EPA and the Environmental Assessment Regulation	Required for privately owned, commercially operated composting facilities (s.84 of EPA)  May be required for compost facilities owned/operated in association with Regional Waste Management Facilities	Farm Practices Protection Act, SNL 2001, c. F-4.1 is silent regarding AD processes, protects farmers from liability

Table A14: Approvals for AD Facilities in Manitoba

\*Note other municipal, provincial, or federal requirements may exist (e.g., zoning).

Regulation(s)	No Permit	Permit by Rule	Full Approval / Permit	Financial Assurance	Agricultural Operations
Not specifically mentioned  <a href="#">Waste Management Facilities Regulation</a>  <a href="#">Nutrient Management Regulation</a>	None	None	Require a licence for a Class 1 waste disposal ground	Not required	<a href="#">Livestock Manure and Mortalities Management Regulation</a>  Permit required for a manure storage facility

**Accessibility.** Table A15 and Figure A3 provides and overview of accessibility to organic waste management programs in Manitoba.

In Manitoba, of 229 total census subdivisions, 43 have an organic waste management program providing 75 percent of the population with access. The majority of program access is to leaf and yard waste programs which covers 75 percent of the population. Only 8 census subdivisions accounting for 7 percent of the population have access to a source-separated organics program, of those most have access to a curbside program.

As seen in Figure A3, four of the SSO programs are located near Winkler. The other two are located in Brandon and Dauphin. The City of Winnipeg and nearby areas have access to leaf and yard waste programs.

Table A15: Overview of Accessibility to Organics Management Programs - Manitoba

Program Type	Number of Census Subdivisions with Program	Number of People Living in Area with Program	Percent of Total Province Population
Organics Management Program (Any)	43	954,425	75%
Curbside (Any)	16	838,095	66%
Leaf and Yard Waste Program	44	963,800	75%
Drop-off	34	861,665	67%
Curbside	16	838,095	66%
Source Separated Organics Program	8	95,770	7%
Drop-off	2	16,595	1%
Curbside	6	79,175	6%

**Organics Waste Processing.** Table A16 and Figure A3 present an overview of compost and anaerobic digestion facilities in Manitoba. The province has 35 compost facilities which have approximately 142,160 tonnes per year of processing capacity. In 2019, these facilities processed approximately 72,677 tonnes and produced approximately 31,393 tonnes of compost.

Through a review of Manitoba organic processing facilities, there were 29 identified that are no longer processing materials. There were also 18 facilities (2 anaerobic digestion and 15 small compost facilities) that could not be identified as to whether they were operational. Given two of the larger organics processing facilities were modelled, there is a moderate level of confidence in the data.



Table A16: Overview of Composting and Anaerobic Digestion Facilities - Manitoba

Facilities	Number	Tonnes per year		
		Processing Capacity	Organic Waste Processed	Compost / Digestate Produced
Compost				
Static Pile	7	2,000	-	-
Windrow	5	4,500	-	-
In-vessel	1	365	-	-
Sub-Total	13	6,865	-	-
Anaerobic Digestion (AD)				
On-Farm	1	23,000	-	-
Industrial	-	-	-	-
Sub-Total	1	23,000	-	-
<b>Total</b>	<b>14</b>	<b>29,965</b>	<b>26,040</b>	<b>24,660</b>

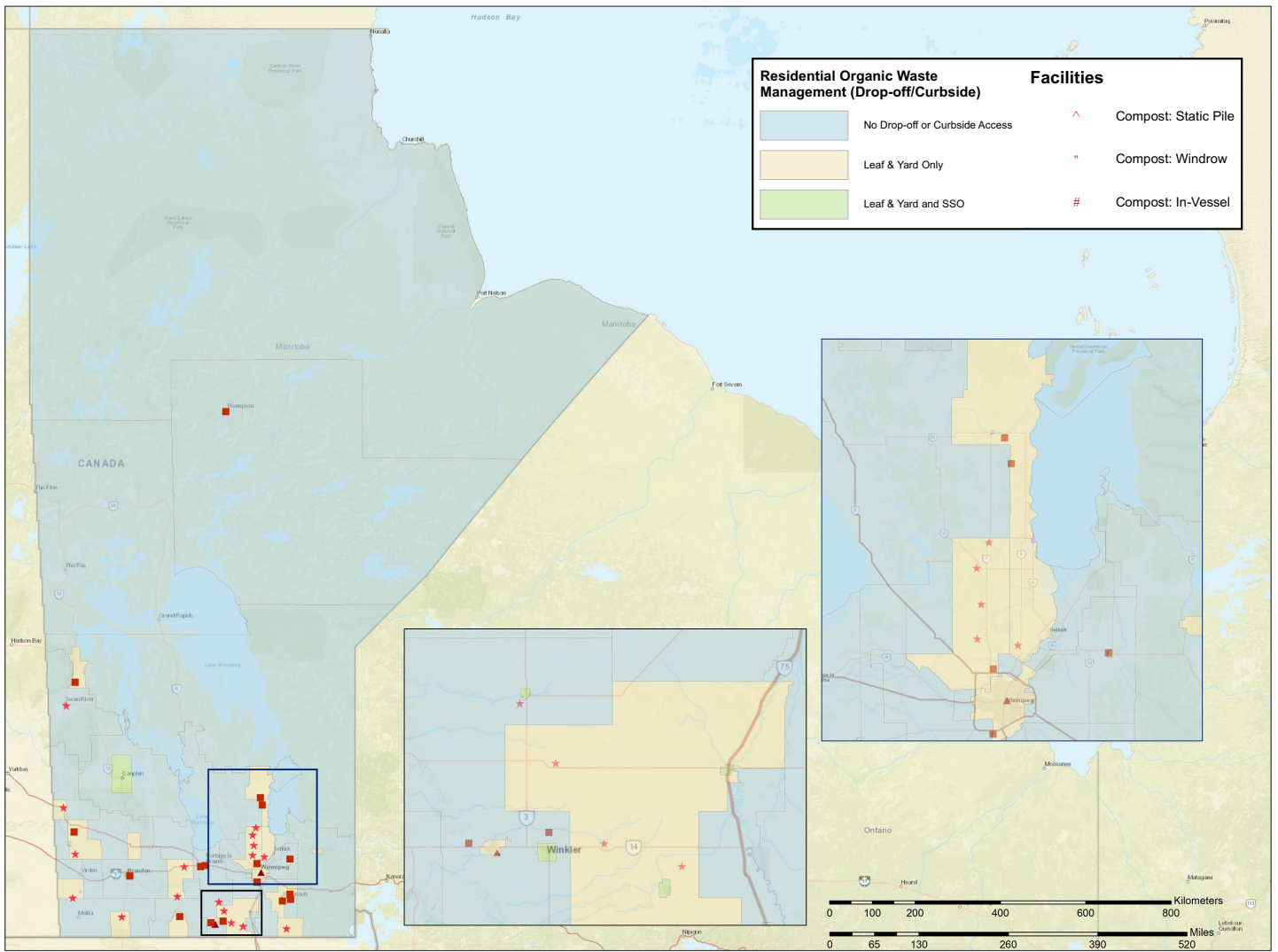


Figure A3: Residential Accessibility and Map of Composting and Anaerobic Digestion Facilities - Manitoba

## New Brunswick

**General Province Information.** A snapshot of general province statistics and information on notable features related to New Brunswick's waste management activities are listed in Table A17.

**Table A17: Background information on New Brunswick**

Statistic	Value	Percent of Canada
Population <sup>a</sup>	776,827	2.1%
Size (km <sup>2</sup> )	72,908	0.7%
Population Density (person / km <sup>2</sup> )	10.65	-
Gross Domestic Product	\$32,456.4 M <sup>c</sup>	1.6%
Total Waste Generation <sup>b</sup>	671,588 tonnes total 163,740 tonnes diverted 507,848 tonnes disposed	1.9% 1.7% 2.0%
Notable Features	A maritime province with a strong resource-based economy including forestry, mining and fishing province in Canada. Waste management options are impacted by logistical issues and small population density.	

<sup>a</sup> (Statistics Canada, 2019)

<sup>b</sup> (Statistics Canada, 2018)

<sup>c</sup> Chained 2012 Dollars

**Overview of Policies, Programs, Approval Regime.** The New Brunswick government has not played an active role in developing regulatory mechanisms or programs to increase organic waste diversion. This role has been placed on Regional Solid Waste Commissions (i.e., local governments).

**Strategic Plans & Notable Goals.** New Brunswick last released a waste management strategy in 2001 (New Brunswick Government, 2001). The strategy required every Regional Solid Waste Commission to implement organic waste diversion programs by the end of 2006 (Solid Waste Commissions, 2012).

The New Brunswick government also released a Climate Change Action Plan in 2016 that included specific action related to organic waste diversion (New Brunswick Government, 2016). The Action Plan requires all Commissions to increase the amount of organic waste being diverted from landfill. The Action Plan also includes a number of references that indicate possible support of renewable energy projects, which could aid with the development of anaerobic digestion facilities, although this is not specifically mentioned (e.g., support for uptake of increased renewables for electricity and heating; remove barriers to implementing renewable power generation; and review of the small-scale community renewable energy program).

**Policies.** The Province does not have any specific policies in place to increase the amount of organic waste diversion, other than those noted above. There are no organic waste diversion targets in place that the Commissions need to meet.

**Programs.** The Province does not have any specific programs in place for organics diversion, but funding is available for municipalities and other organizations from the Environmental Trust Fund, which provides financial assistance for projects that aim to protect, preserve, and enhance the natural environment (New Brunswick Government, n.d.-a). Over \$90,000 was provided to organics diversion related projects for 2020-2021 (New Brunswick Government, n.d.-b).

There are currently not any programs or procurement policies that incent organic processing markets (e.g., compost, digestate or biogas).

**Reporting.** It does not appear that reporting (e.g., annual tonnes processed, materials processed), in a coordinated manner, is required for organic waste processing facilities.

**Approvals.** Table A18 and Table A19 provide a general outline of the approval requirements for compost facilities and anaerobic digestion facilities in New Brunswick.

Table A18: Approvals for Compost Facilities in New Brunswick

\*Note other municipal, provincial, or federal requirements may exist (e.g., zoning).

Regulation(s)	No Permit	Permit by Rule	Full Approval / Permit	Financial Assurance	Facility Reporting	Agricultural Operations
<a href="#">Water Quality Regulation - Clean Environment Act</a>  <a href="#">Guidelines for the Site Selection, Operation and Approval of Composting Facilities in New Brunswick</a>	Backyard composting On-farm composting involving the composting of animal manure in a balanced recipe with wood or crop residue as long as annual production does not exceed 1,500 cubic metres (m3) annually Compost facilities composting Abattoir Waste and Carcasses (Minor Composting Facility)	None	Three compost facility classes: Class 11 Compost Facility” means a composting facility processing domestic solid waste or domestic wastewater biosolids. Class 12 Compost Facility” means a composting facility processing organic matter other than domestic solid waste or domestic wastewater biosolids, producing quantities of 3000 cubic metres (m3) or more of finished product per year. Class 13 Compost Facility” means a composting facility processing organic matter, excluding municipal solid waste, human biosolids, and Abattoir Waste and Carcasses and producing less than 3000 cubic metres (m3) of finished product per year. (Typically, Class 13 facilities are exempt from the requirements to retain a Professional Engineer and from installing monitoring wells). Require Approval to Operate and must submit the following: scaled drawing, site operations plan, contingency plan, composting pads design, test pit results, groundwater monitoring plan (for class 11 and 12 composting facilities only), leachate and surface water management plan, odour management plan, landowner agreement (not necessary if landowner is proponent), and zoning confirmation Design of class 11 and 12 composting facilities must involve a professional engineer	Not Required	Not Required	<a href="#">Abattoir Waste and Carcass Disposal Guidelines</a>  Includes compost and burial requirements for on- and off-site composting

Table A19: Approvals for AD Facilities in New Brunswick

\*Note other municipal, provincial, or federal requirements may exist (e.g., zoning).

Regulation(s)	No Permit	Permit by Rule	Full Approval / Permit	Financial Assurance	Facility Reporting	Agricultural Operations
Not specifically mentioned <a href="#">Environmental Impact Assessment Regulation - Clean Environment Act</a>	None	None	All waste disposal facilities or systems require approval as undertakings under s. 4 of the Environmental Impact Assessment Regulation	Not Required	Not Required	See also <a href="#">Agricultural Land Protection and Development Act</a> at s. 20, Lieutenant-Governor may make regulations respecting a number of issues as it affects agricultural activities, wastes and lands

**Accessibility.** Table A20 and Figure A4 provide an overview of accessibility to organic waste management programs in New Brunswick.

In New Brunswick, of 273 total census subdivisions, there are 77 with an organic waste management program, providing 56 percent of the population with access. All 75 curbside programs, which cover 47 percent of the population, include leaf and yard waste management and SSO management. Most of New Brunswick's more sparsely populated areas do not appear to have programs, although some promote backyard composting.

Access to organic waste management is focused in the southeast part of the province including the Kent, Sussex, and Southeast Regional Service Commission areas, as seen in Figure A4.

Table A20: Overview of Accessibility to Organics Management Programs - New Brunswick

Program Type	Number of Census Subdivisions with Program	Number of People Living in Area with Program	Percent of Total Province Population
Organics Management Program (Any)	77	421,905	56%
Curbside (Any)	75	354,460	47%
Leaf and Yard Waste Program	77	421,905	56%
Drop-off	42	364,780	49%
Curbside	75	354,460	47%
Source Separated Organics Program	75	354,460	47%
Drop-off	40	297,335	40%
Curbside	75	354,460	47%

**Organics Waste Processing.** Table A21 and Figure A4 present an overview of composting and anaerobic digestion facilities in New Brunswick. Note the numbers for processed organics have only been presented in a consolidated format given the low number of facilities. The province has 29 composting and 1 anaerobic digestion facilities which have approximately 726,000 tonnes/year processing capacity, and in 2019 processed approximately 687,000 tonnes and produced approximately 386,000 tonnes of compost and digestate.

The facilities include some small static pile facilities that take in small annual tonnages (i.e., Class 13 facilities were assumed to be static pile); windrow facilities that range from small to very large and in-vessel compost facilities. Materials composted include SSO, biosolids, leaf and yard waste, commercial organics, wood wastes and manures. Composting is dominated by one company that has five facilities in the province and indicate that they process approximately 500,000 per year with about half of this consisting of forestry waste (and it is not clear how much of that is actually composted versus sold as mulch products). Compost and digestate are used for landscaping purposes or on agricultural land.

**Table A21: Overview of Composting and Anaerobic Digestion Facilities - New Brunswick**

Facilities	Number	Tonnes per year		
		Processing Capacity	Organic Waste Processed	Compost / Digestate Produced
Compost				
Static Pile	6	5,100	-	-
Windrow	19	546,000	-	-
In-vessel	4	162,000	-	-
Sub-Total	29	713,100	-	-
Anaerobic Digestion (AD)				
On-Farm	3	14,500	13,000	12,100
Industrial	-	-	-	-
Sub-Total	3	14,500	13,000	12,100
<b>Total</b>	<b>24</b>	<b>214,100</b>	<b>183,400</b>	<b>69,505</b>

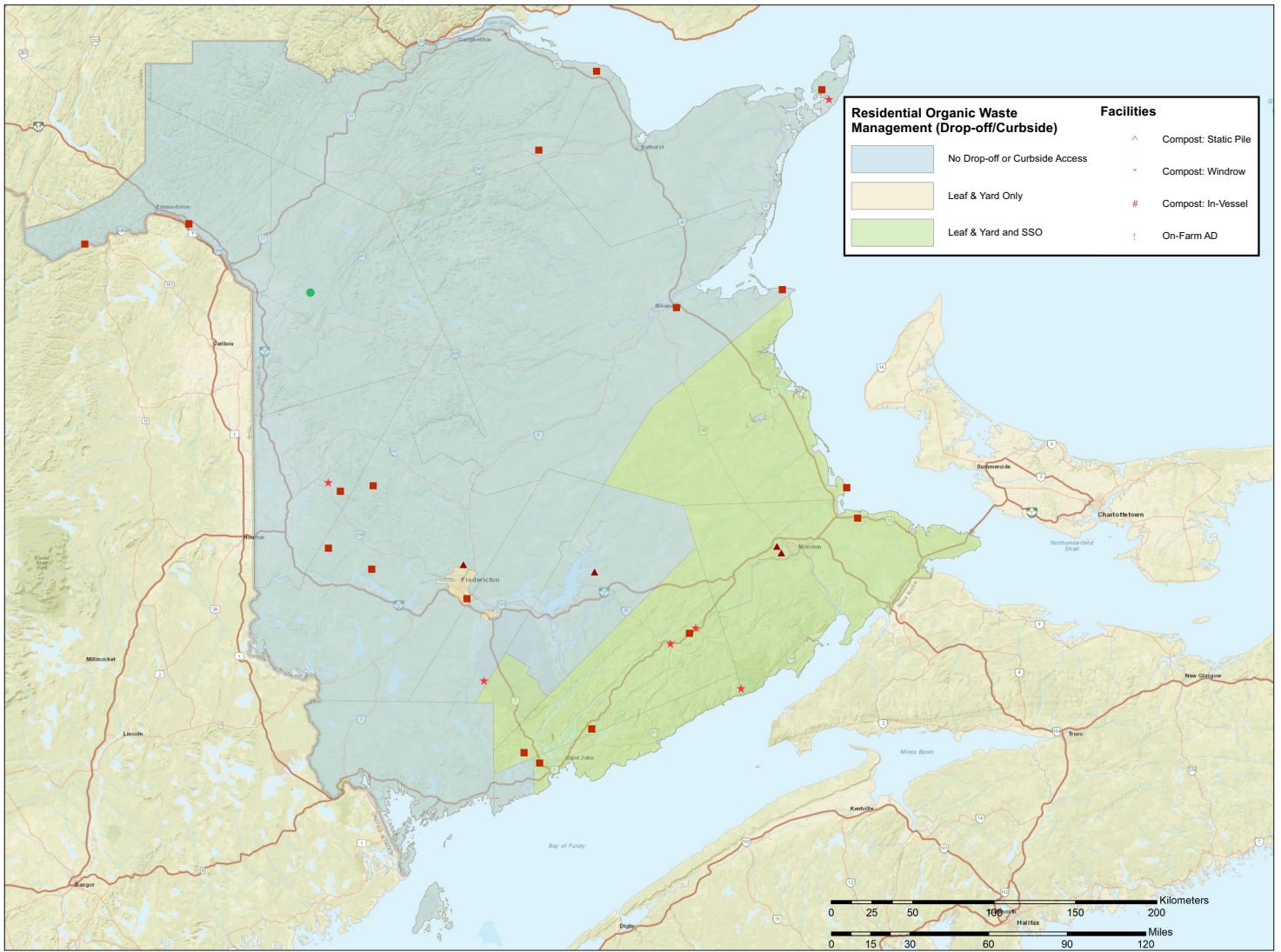


Figure A4: Residential Accessibility and Map of Composting and Anaerobic Digestion Facilities -  
New Brunswick



## Newfoundland & Labrador

**General Province Information.** A snapshot of general province statistics and information on notable features related to Newfoundland & Labrador waste management activities are listed in Table A22.

Table A22: Background information on Newfoundland & Labrador

Statistic	Value	Percent of Canada
Population <sup>a</sup>	521,542	1.4%
Size (km <sup>2</sup> )	373,872	3.7%
Population Density (person / km <sup>2</sup> )	1.39	-
Gross Domestic Product	\$31,002.6 M <sup>c</sup>	1.6%
Total Waste Generation <sup>b</sup>	415,407 tonnes total 39,405 tonnes diverted 373,668 tonnes disposed	1.2% 0.4% 1.5%
Notable Features	Eastern most province in Canada. Waste management options are impacted by logistical issues and small population density.	

<sup>a</sup> (Statistics Canada, 2019)

<sup>b</sup> (Statistics Canada, 2018)

<sup>c</sup> Chained 2012 Dollars

**Overview of Policies, Programs, Approval Regime.** The Newfoundland and Labrador government has not played an active role in developing regulatory mechanisms to increase organic waste diversion. This role has been placed on local governments.

**Strategic Plans & Notable Goals.** Newfoundland and Labrador last released a waste management strategy in 2002 (Government of Newfoundland and Labrador, 2002). The strategy had an overarching goal to divert 50 percent of waste materials from disposal by 2010. The strategy did not include any specific measures related to organic waste diversion.

**Policies.** The Province does not have any specific policies in place to increase the amount of organic waste from disposal. It has, however, implemented requirements related to the construction and operation of composting facilities and established a standard related to the production of compost (Government of Newfoundland and Labrador, 2020). Similar requirements have not been implemented for anaerobic digestion or the use of digest (CCME, 2005).

**Programs.** The Province does not have any specific programs in place for organics diversion, but capital funding is available for municipalities for the implementation of the Provincial Solid Waste Management Strategy through a portion of the Federal Gas Tax Revenues.

Through its municipal capital works allocation, the province is also committed to covering 100 percent of the required capital costs (Government of Newfoundland and Labrador, n.d.). There are currently not any programs or procurement policies that incent organic processing markets (e.g., compost, digestate or biogas).

**Reporting.** Organic processing facilities are required to report on an annual basis on their activities but this does not appear to be done in a coordinated manner that allows for public reporting.

**Approvals.** Table A23 and Table A24 provide a general outline of the approval requirements for compost facilities and anaerobic digestion facilities in Newfoundland and Labrador.

**Table A23: Approvals for Compost Facilities in Newfoundland and Labrador**

\*Note other municipal, provincial, or federal requirements may exist (e.g., zoning).

Regulation(s)	No Permit	Permit by Rule	Full Approval / Permit	Financial Assurance	Agricultural Operations
<a href="#">Waste Management Facilities Regulation</a>	No more than ten cubic metres or four tonnes of organic waste accumulates at the composting site at any time  Composting is carried out on the property of an agricultural operation in accordance with the Livestock Manure and Mortalities Management	None	Require a licence for a Class 1 waste disposal ground or a commercial composting facility (permit application requirements are set out at Schedule A)	Not required	<a href="#">Livestock Manure and Mortalities Management Regulation</a>  Permit required for a manure storage facility

**Table A24: Approvals for AD Facilities in Newfoundland and Labrador**

\*Note other municipal, provincial, or federal requirements may exist (e.g., zoning).

Regulation(s)	No Permit	Permit by Rule	Full Approval / Permit	Financial Assurance	Agricultural Operations
Not specifically mentioned  <a href="#">Environmental Standards - Municipal Solid Waste Management Facilities</a>  <a href="#">Environmental Assessment Regulation - Environmental Assessment Act</a>  <a href="#">Environmental Protection Act (EPA)</a>	None	None	Likely subject to environmental assessments under Part X, and approval under Part XI, s. 78 of the EPA and Environmental Assessment Regulations	Required	Farm Practices Protection Act, SNL 2001, c. F-4.1 is silent regarding AD processes, protects farmers from liability

**Accessibility.** Table A25 and Figure A5 provide an overview of accessibility to municipal organic waste management programs in Newfoundland and Labrador.

In Newfoundland and Labrador, of 372 total census subdivisions, 52 have an organic waste management program providing 50 percent of the population with access. All programs include access to leaf and yard waste management. There are 40 census subdivisions with SSO programs, which provide 9 percent of the population with access. The majority (33) programs are drop-off only, there are only 6 census subdivisions with SSO programs currently in Newfoundland and Labrador. This includes Grand-Falls Windsor, Lewisporte and parts of the Burin peninsula.

**Table A25: Overview of Accessibility to Organics Management Programs - Newfoundland and Labrador**

<b>Program Type</b>	<b>Number of Census Subdivisions with Program</b>	<b>Number of People Living in Area with Program</b>	<b>Percent of Total Province Population</b>
Organics Management Program (Any)	49	254,680	49%
Curbside (Any)	12	191,640	37%
Leaf and Yard Waste Program	49	254,680	49%
Drop-off	40	203,350	39%
Curbside	12	191,640	37%
Source Separated Organics Program	40	46,040	9%
Drop-off	33	35,630	7%
Curbside	6	5,160	1%

**Organics Waste Processing.** Table A26 and Figure A5 present an overview of composting and anaerobic digestion facilities in Newfoundland and Labrador. Note the numbers for processed organics have only been presented in a consolidated format given the low number of facilities. The province has 13 composting and 1 anaerobic digestion facilities which have approximately 30,000 tonnes/year processing capacity, and in 2019 processed approximately 26,000 tonnes and produced approximately 25,000 tonnes of compost and digestate.

Most of the facilities are smaller static pile or windrow that compost mostly leaf and yard waste and, in two cases, small amounts of residential and ICI sources separated organics. The largest facility is an on-farm anaerobic digestion facility that processes dairy manure. Compost and digestate are used for landscaping purposes or on agricultural land.

Table A26: Overview of Composting and Anaerobic Digestion Facilities - Newfoundland and Labrador

Facilities	Number	Tonnes per year		
		Processing Capacity	Organic Waste Processed	Compost / Digestate Produced
Compost				
Static Pile	17	1,700	1,000	523
Windrow	18	135,560	69,927	30,080
In-vessel	2	4,900	1,750	790
Sub-Total	36	142,160	72,677	31,393
Anaerobic Digestion (AD)				
On-Farm	-	-	-	-
Industrial	-	-	-	-
Sub-Total	-	-	-	-
<b>Total</b>	<b>36</b>	<b>142,160</b>	<b>72,677</b>	<b>31,393</b>

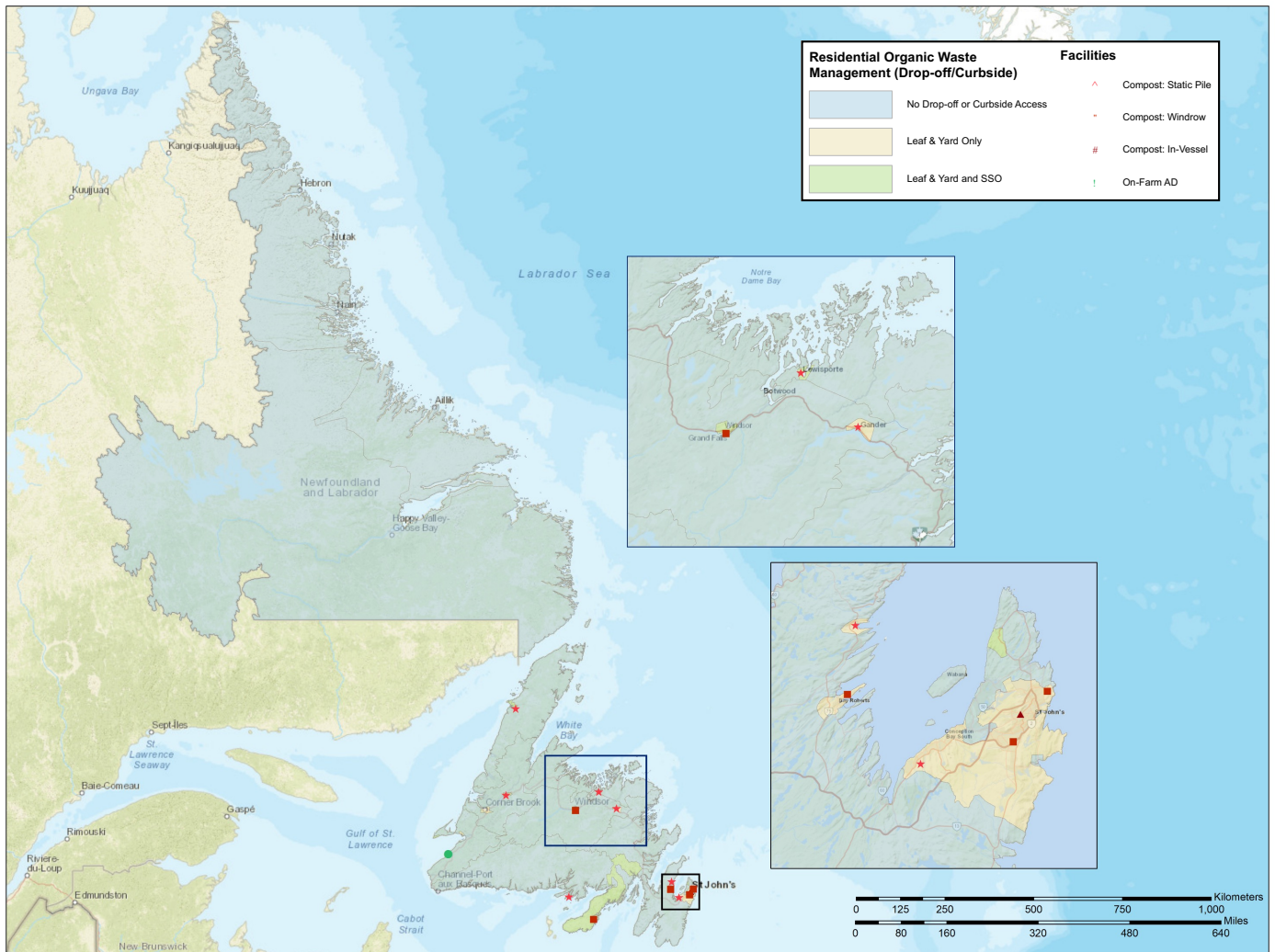


Figure A5: Residential Accessibility and Map of Composting and Anaerobic Digestion Facilities - Newfoundland and Labrador

## Northwest Territories

**General Territory Information.** A snapshot of general territory statistics and information on notable features related to the Northwest Territories' waste management activities are listed in Table A27.

Table A27: Background information on the Northwest Territories

Statistic	Value	Percent of Canada
Population <sup>a</sup>	44,826	0.12%
Size (km <sup>2</sup> )	1,346,106	14%
Population Density (person / km <sup>2</sup> )	0.03	-
Gross Domestic Product	\$4,476.6 M <sup>c</sup>	0.22%
Total Waste Generation <sup>b,d</sup>	119,908 tonnes total 29,319 tonnes diverted 90,489 tonnes disposed	0.34% 0.30% 0.35%
Notable Features	A northern territory with a strong resource-based economy that includes mining.	

<sup>a</sup> (Statistics Canada, 2019)

<sup>b</sup> (Statistics Canada, 2018)

<sup>c</sup> Chained 2012 Dollars

<sup>d</sup> Includes: Yukon, Northwest Territories, and Nunavut

**Overview of Policies, Programs, Approval Regime.** The Northwest Territories is in the process the process of implementing its waste management strategy.

**Strategic Plans & Notable Goals.** The Northwest Territories released a waste management strategy in 2019 (Government of Northwest Territories, 2019). The strategy does not establish any firm targets but it includes a number of short-term actions (1-3 years), including:

- creating and adopting standards for compost facilities and compost quality;
- updating and amending the Waste Reduction and Recovery Act to enable an extended producer responsibility framework; and
- prioritizing materials to be addressed by new diversion programs; and promoting means to prevent food waste.

**Policies.** The Northwest Territories does not have any specific policies related to organic waste diversion.

**Programs.** The Waste Reduction and Recycling Initiative (WRRI) provides financial assistance to municipalities, Indigenous governments, schools, organizations, businesses and individuals to complete projects supporting one or more of the following goals:

- reduce the amount of waste generated in our communities
- reuse materials and products, rather than discard them
- recycle materials which are not already collected through a Northwest Territories recycling program
- recover a useful benefit from waste

Between 2014-2017, over \$80,000 was provided to projects related to organics diversion and reduction through the Waste Reduction and Recycling Initiative Fund (Government of Northwest Territories, n.d.). There will likely be other opportunities to develop infrastructure programs.

**Approvals.** Table A28 and Table A29 provide a general outline of the approval requirements for compost facilities and anaerobic digestion facilities in the Northwest Territories.

**Table A28: Approvals for Compost Facilities in the Northwest Territories**

\*Note other municipal, provincial, or federal requirements may exist (e.g., zoning).

Regulation(s)	No Permit	Permit by Rule	Full Approval / Permit	Financial Assurance	Facility Reporting	Agricultural Operations
Not specifically mentioned <a href="#">Waste Reduction and Recovery Act</a> , SNWT 2003, c 29  <a href="#">Guidelines for the Planning, Design, Operations and Maintenance of Modified Solid Waste Sites in the Northwest Territories</a>	None	None	Required	Not required	Not required	No separate process

**Table A29: Approvals for AD Facilities in the Northwest Territories**

\*Note other municipal, provincial, or federal requirements may exist (e.g., zoning).

Regulation(s)	No Permit	Permit by Rule	Full Approval / Permit	Financial Assurance	Facility Reporting	Agricultural Operations
<a href="#">Waste Reduction and Recovery Act</a> , SNWT 2003, c 29	None	None	Required	Not required	Not required	No separate process

**Accessibility.** Table A30 and Figure A6 provide an overview of accessibility to municipal organic waste management programs in the Northwest Territories.

In the Northwest Territories, of 41 census subdivisions, 1 has a program which includes both leaf and yard waste and SSO access. This program, located in the City of Yellowknife, provides 47 percent of the population with access through a curbside collection program.

Table A30: Overview of Accessibility to Organics Management Programs - Northwest Territories

Program Type	Number of Census Subdivisions with Program	Number of People Living in Area with Program	Percent of Total Province Population
Organics Management Program (Any)	1	19,570	47%
Curbside (Any)	1	19,570	47%
Leaf and Yard Waste Program	1	19,570	47%
Drop-off	1	19,570	47%
Curbside	1	19,570	47%
Source Separated Organics Program	1	19,570	47%
Drop-off	-	-	-
Curbside	1	19,570	47%

**Organics Waste Processing.** Table A31 and Figure A6 presents an overview of composting and anaerobic digestion facilities in the Northwest Territories. Note the numbers for processed organics have only been presented in a consolidated format given the low number of facilities. The province has 4 composting facilities which have approximately 4,000 tonnes/year processing capacity, and in 2019 processed approximately 1,700 tonnes and produced approximately 900 tonnes of compost and digestate. There are no anaerobic digestion facilities.

The facilities include small windrow facilities that take in small annual tonnages of SSO, leaf and yard waste and manures one in-vessel facility that processes food waste mixed with cardboard and paper.



Table A31: Overview of Composting and Anaerobic Digestion Facilities - Northwest Territories

Facilities	Number	Tonnes per year		
		Processing Capacity	Organic Waste Processed	Compost / Digestate Produced
Compost				
Static Pile	-	-	-	-
Windrow	3	3,600	-	-
In-vessel	1	365	-	-
Sub-Total	4	3,965	1,700	935
Anaerobic Digestion (AD)				
On-Farm	-	-	-	-
Industrial	-	-	-	-
Sub-Total	-	-	-	-
<b>Total</b>	<b>4</b>	<b>3,965</b>	<b>1,700</b>	<b>935</b>

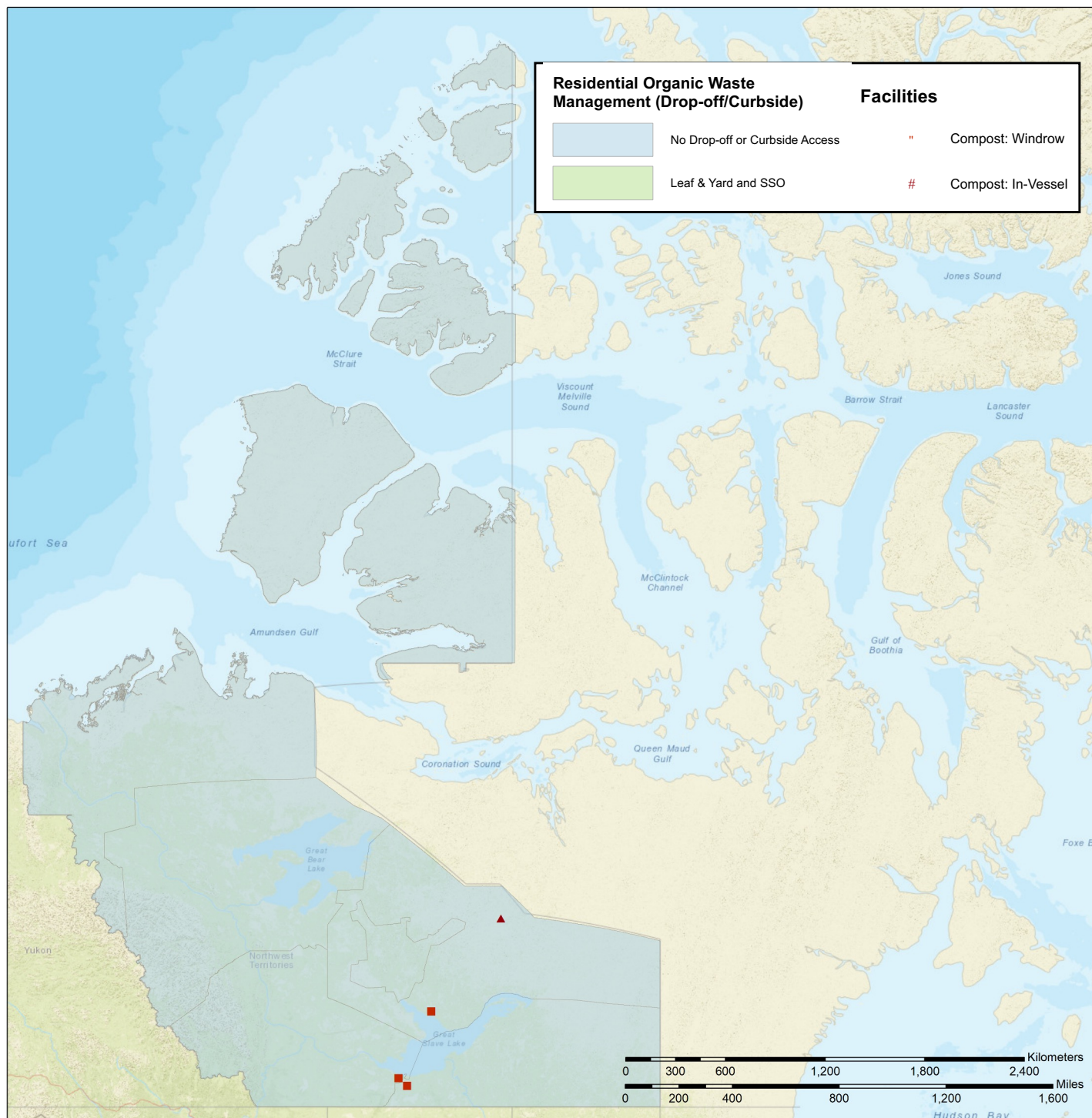


Figure A6: Residential Accessibility and Map of Composting and Anaerobic Digestion Facilities - Northwest Territories

## Nova Scotia

**General Province Information.** A snapshot of general province statistics and information on notable features related to Nova Scotia waste management activities are listed in Table A32.

Table A32: Background information on Nova Scotia

Statistic	Value	Percent of Canada
Population <sup>a</sup>	971,395	2.6%
Size (km <sup>2</sup> )	55,284	0.55%
Population Density (person / km <sup>2</sup> )	17.6	-
Gross Domestic Product	\$39,329.1 M <sup>c</sup>	2.0%
Total Waste Generation <sup>b</sup>	709,016 tonnes total 316,688 tonnes diverted 392,328 tonnes disposed	2.0% 3.2% 1.5%
Notable Features	A maritime province with a strong resource-based economy including fisheries, forestry and mining. Most landfills are owned and operated by regional waste authorities. The province banned organic waste from landfill in 1998 and essentially all municipalities have access to some form of organic waste diversion.	

a (Statistics Canada, 2019)

b (Statistics Canada, 2018)

c Chained 2012 Dollars

**Overview of Policies, Programs, Approval Regime.** Nova Scotia was the early leader in establishing regulatory mechanisms and programs to drive organic diversion.

**Strategic Plans & Notable Goals.** Nova Scotia last released a waste management strategy in 2007, which updated a 1995 strategy (Nova Scotia Government, 2011). Nova Scotia was the first Canadian province to implement a dedicated solid waste management strategy with a goal of 50 percent of waste diversion, which was achieved in 2000. In its 2007 strategy, Nova Scotia committed to maintain a goal of 50 percent waste diversion as well as a target for waste disposal of no more than 300 kg/person/year. The strategy included a number of high-level actions to achieve this goal including:

- Increased participation in waste prevention and diversion
- Increased waste diversion
- Improved compliance and education programs

**Policies.** Nova Scotia was the first Canadian province to move forward with a ban on compostable organic material (e.g., food waste, soiled and non-recyclable paper) for ICI and residential sectors, which came into effect in 1998. Leaf and yard waste was banned from disposal in 1996.

The Environment Act, 1995 provides legislative authority for the government to ban certain materials from landfill or other disposal areas and section 20 of the Solid Waste-Resource Management Regulations requires that a person: must not destroy or dispose of a designated material in a landfill, incinerator or thermal treatment facility; must not accept a designated material for destruction or disposal in a landfill, incinerator or thermal treatment facility; and that each municipality shall provide a plan to the Administrator to ensure that the bans are implemented. Most landfills in Nova Scotia are owned and operated by the seven Regional waste authorities and given the geography waste is more difficult to export, which makes the ban easier to oversee.

In an effort to reduce food waste, Nova Scotia has also implemented a Food Bank Tax Credit for Farmers, which is a non-refundable income tax credit available for individuals or corporations that carry on the business of farming and donate agricultural products to eligible food banks in Nova Scotia. The credit is 25 percent of the fair market value of the agricultural products donated and is available for donations made on or after January 1, 2016 (Nova Scotia Government, 2016).

**Programs.** The province's Solid Waste Regulation allows for plans, studies, and audits to receive financial assistance. The Regulation also enables the creation of a Resource Recovery Fund to develop industry stewardship programs, fund waste diversion programs, and develop education and awareness of source reduction, reuse, recycling, and composting. The Fund is now managed by Divert NS, which provides financial assistance for research related to solid waste diversion, municipal waste management infrastructure, and the delivery of waste management programs, among other initiatives. This also includes research and development. Over the last few years they have spent more than \$560,000 on research and development. Annually Divert NS raises approximately \$60M, mainly through deposit on beverage containers and sale of recyclables.

Regional solid waste-resource management plans must include a public awareness program. Funding is available through the Divert NS to develop education and awareness of source reduction, reuse, recycling, and composting and to promote development of value-added manufacturing in the province.

Divert NS also works towards building a 'culture of recycling' through education and programming which includes organic waste. They develop curriculum materials, social media campaigns, industry-specific summits, and workshops for regional educators, enforcement officers, and operators. Over the last three years, they have spent over \$5 million to support communication and education.

**Reporting.** The Regional Authorities are required to report annually to Divert NS as part of data call. However, it does not appear that the information is publicly reported.

**Approvals.** Table A33 and Table A34 provide a general outline of the approval requirements for compost facilities and anaerobic digestion facilities in Nova Scotia.

Table A33: Approvals for Compost Facilities in Nova Scotia

\*Note other municipal, provincial, or federal requirements may exist (e.g., zoning).

Regulation(s)	No Permit	Permit by Rule	Full Approval / Permit	Financial Assurance	Facility Reporting	Agricultural Operations
<a href="#">Solid Waste-Resource Management Regulations - Environment Act</a>  <a href="#">Activities Designation Regulations - Environment Act</a>  <a href="#">Composting Facility Guidelines</a>	Backyard composting  Generally accepted farming practices  Composting of leaf and yard waste where not more than 100 m3 is processed annually	None	Required to obtain an approval from the Minister and submit the following information: a description of the odour control system, a description of the storm and runoff management system, moisture control, the type and source of waste received and processed, programs to deal with unauthorized materials, and other information requested by the Minister	No	Required to submit an annual Report to the Department	Environmental Regulations Handbook for Nova Scotia Agriculture  The storage of manure is not regulated under Federal or Provincial Statutes  An environmental assessment is required on any storage holding more than 5000 m3 of liquid or gaseous substances, which would include liquid manure (Environmental Assessment Regulations - Environment Act)

Table A34: Approvals for AD Facilities in Nova Scotia

\*Note other municipal, provincial, or federal requirements may exist (e.g., zoning).

Regulation(s)	No Permit	Permit by Rule	Full Approval / Permit	Financial Assurance	Facility Reporting	Agricultural Operations
<a href="#">Solid Waste-Resource Management Regulations - Environment Act</a>  No specific guidance or standards	No	None	Required for off-farm based AD facilities  Compost facility guidelines are used in developing AD approvals, based upon idea of producing digestate equivalent to Class A compost.	No	Report to the Department	<a href="#">Environmental Regulations Handbook for Nova Scotia Agriculture</a>  The storage of manure is not regulated under Federal or Provincial Statutes

Essentially all of the province has access to organics management. The few areas identified in Figure A7 as not having access are predominately First Nations Reserves and were likely not captured in this assessment due to the exclusion of census subdivisions with very low population. The only area identified lacking access to municipal SSO programs was Inverness County. The county does have access to leaf and yard waste and backyard composting is encouraged. The Town of Port Hawkesbury, which is located in this county, has plans to implement curbside SSO collection in 2020.

Table A35 and Figure A7 provide an overview of accessibility to organic waste management programs in Nova Scotia.

In Nova Scotia, of 96 percent census subdivisions, 70 have an organic waste management program providing 99 percent of the population with access and 96 percent include curbside collection. All curbside programs include collection of source separate organics.

**Table A35: Overview of Accessibility to Organics Management Programs - Nova Scotia**

<b>Program Type</b>	<b>Number of Census Subdivisions with Program</b>	<b>Number of People Living in Area with Program</b>	<b>Percent of Total Province Population</b>
Organics Management Program (Any)	70	913,570	99%
Curbside (Any)	63	888,710	96%
Leaf and Yard Waste Program	70	913,570	99%
Drop-off	66	444,685	48%
Curbside	61	882,155	96%
Source Separated Organics Program	66	897,165	97%
Drop-off	53	327,440	35%
Curbside	63	888,710	96%

**Organics Waste Processing.** Table A36 and Figure A7 present an overview of composting and anaerobic digestion facilities in Nova Scotia. The province which has 21 composting and 3 anaerobic digestion facilities which have approximately 214,100 tonnes/year processing capacity, and in 2019 processed approximately 183,400 tonnes and produced approximately 69,500 tonnes of compost and digestate.

The facilities include some small static pile facilities (i.e., defined as small municipal facilities taking in only leaf and yard waste) that take in small annual tonnages; windrow facilities and small to large in-vessel compost facilities. Materials composted include SSO, leaf and yard waste, commercial organics, wood wastes and manures. Compost and digestate are used for landscaping purposes or on agricultural land.

Table A36: Overview of Composting and Anaerobic Digestion Facilities - Nova Scotia

Facilities	Number	Tonnes per year		
		Processing Capacity	Organic Waste Processed	Compost / Digestate Produced
Compost				
Static Pile	7	4,100	1,400	770
Windrow	6	96,000	80,900	17,105
In-vessel	8	99,500	88,100	39,530
Sub-Total	21	199,600	170,400	57,405
Anaerobic Digestion (AD)				
On-Farm	1	13,000	-	-
Industrial	-	-	-	-
Sub-Total	1	13,000	-	-
<b>Total</b>	<b>30</b>	<b>726,100</b>	<b>699,550</b>	<b>385,900</b>

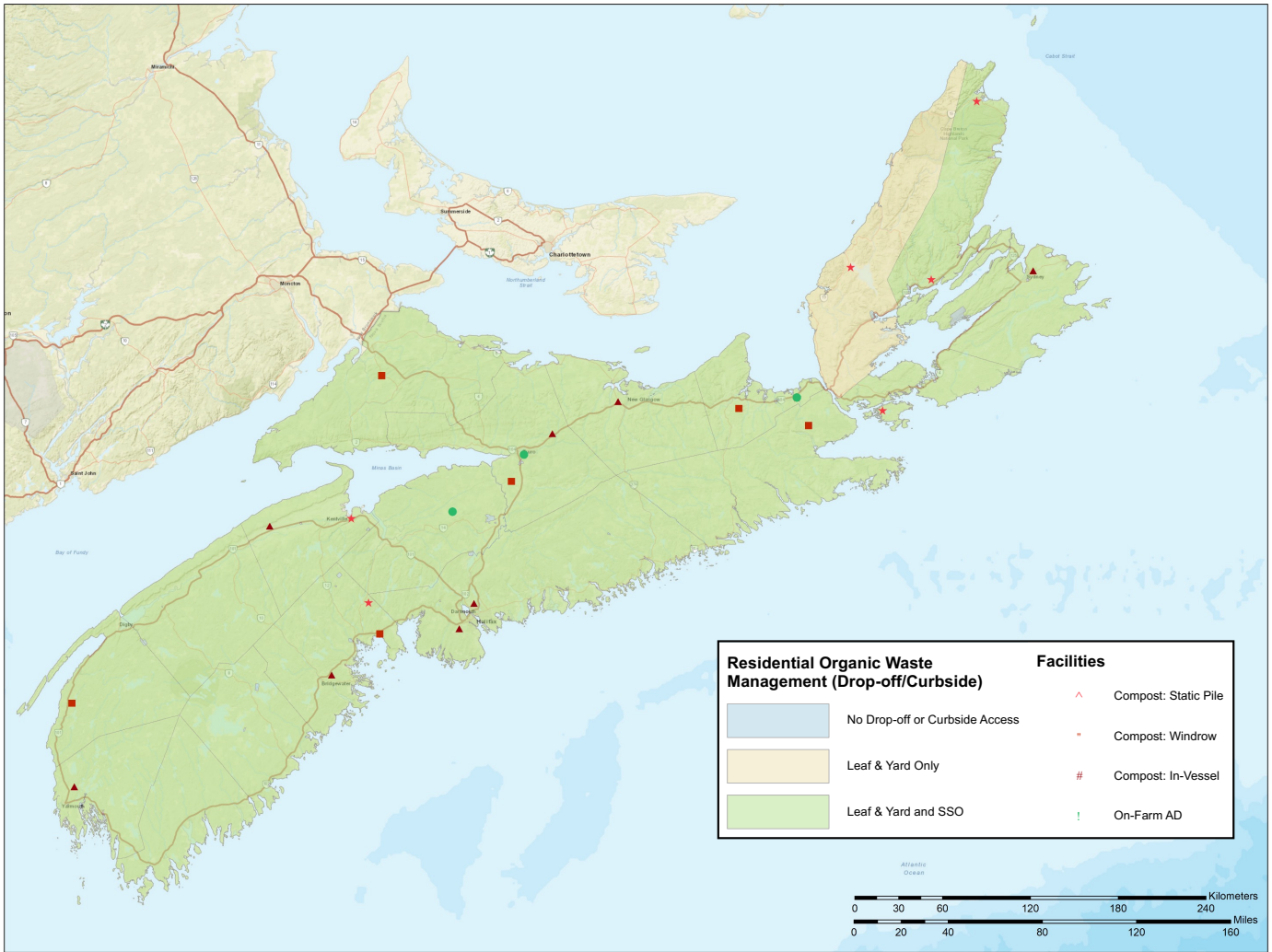


Figure A7: Residential Accessibility and Map of Composting and Anaerobic Digestion Facilities - Nova Scotia



# Nunavut

**General Territory Information.** A snapshot of general territory statistics and information on notable features related to Nunavut's waste management activities are listed in Table A37.

Table A37: Background information on Nunavut

Statistic	Value	Percent of Canada
Population <sup>a</sup>	38,780	0.10%
Size (km <sup>2</sup> )	2,093,190	21%
Population Density (person / km <sup>2</sup> )	0.019	-
Gross Domestic Product	\$2,969.7 M <sup>c</sup>	0.15%
Total Waste Generation <sup>b,d</sup>	119,908 tonnes total 29,319 tonnes diverted 90,489 tonnes disposed	0.34% 0.30% 0.35%
Notable Features	A northern territory with a strong resource-based economy that includes mining.	

<sup>a</sup> (Statistics Canada, 2019)

<sup>b</sup> (Statistics Canada, 2018)

<sup>c</sup> Chained 2012 Dollars

<sup>d</sup> Includes: Yukon, Northwest Territories, and Nunavut

**Overview of Policies, Programs, Approval Regime.** Nunavut does not have a specific waste management strategic plan in place. The territory has extremely limited capacity to address solid waste management and is focused on upgrading current disposal infrastructure and practices. Nunavut continues to receive support from the federal government for waste management infrastructure but it is piece-meal and is not focused on organics diversion.

**Accessibility.** Nunavut does not have any organics management programs.

**Organics Waste Processing.** Nunavut currently does not have any composting or anaerobic digestion facilities. The City of Iqaluit is planning to develop composting as part of its new landfill, but the status of this project is unknown. The territory currently does not have policies or legislation supporting waste diversion although the federal government is working with the Territory to add disposal capacity in twelve communities.

# Ontario

**General Province Information.** A snapshot of general province statistics and information on notable features related to Ontario's waste management activities are listed in Table A38.

Table A38: Background information on Ontario

Statistic	Value	Percent of Canada
Population <sup>a</sup>	14,566,547	39%
Size (km <sup>2</sup> )	1,076,395	11%
Population Density (person / km <sup>2</sup> )	13.5	-
Gross Domestic Product	\$764,464.8 M <sup>c</sup>	38%
Total Waste Generation <sup>b</sup>	13,426,846 tonnes total 3,341,233 tonnes diverted 10,085,613 tonnes disposed	38% 34% 39%
Notable Features	Significant available disposal capacity in New York and Michigan. Greater Toronto Area municipalities agreed to terminate municipal waste exports to Michigan by the end of 2010. Significant grains and oilseeds and dairy farming.	

<sup>a</sup> (Statistics Canada, 2019)

<sup>b</sup> (Statistics Canada, 2018)

<sup>c</sup> Chained 2012 Dollars

**Overview of Policies, Programs, Approval Regime.** Ontario has implemented a number of policies that have grown Ontario's organic waste processing capacity over the last three decades. Municipal governments have caused much of the growth in organic waste diversion. Like many other provinces, the Provincial government only recently started taking a much greater interest in policies and programs to support organic waste diversion. Since 2018 the province has put in place a policy framework to reduce and divert food and organic waste which consists of the Made-in-Ontario Environment Plan, the Reducing Litter and Waste in Our Communities Discussion Paper and the Food and Organic Waste Policy Statement.

**Strategic Plans & Notable Goals.** The province introduced the Made-in-Ontario Environment Plan in November 2018, which included actions to reduce and divert food and organic waste including:

- expand green bin and other collections systems across the province,
- develop a proposal to ban food waste from landfill,
- educate the public and businesses about reducing and diverting food and organic waste, and
- develop best practices for safe food donation.

The Reducing Litter and Waste in Our Communities Discussion Paper was released in March 2019 and further expanded on the government's food and organic waste commitments in the Environment Plan

(Ontario Government, 2019). The province also released the Food and Organic Waste Policy Statement in April 2018. The Policy Statement provides direction to provincial ministries, municipalities, industrial, commercial and institutional establishments, and the waste management sector to increase waste reduction, resource recovery of food and organic waste and improve environmental outcomes. The Policy Statement includes eight targets which are outlined in Table A39. These targets are legally required to be met. The province is currently working on releasing guidance to help municipalities and businesses meet their targets and obligations under the Policy Statement. The guidance is expected to be released by Spring 2021.

**Table A39: Ontario Food and Waste Policy Statement Targets**

<b>Person or entity</b>	<b>Target</b>
Municipalities that currently provide source separated organics collection	70% waste reduction and resource recovery of food and organic waste generated by single-family dwellings in urban settlement areas by 2023
Large municipalities in Southern Ontario with a higher density (>50,000 pop. & >300 pp/km <sup>2</sup> )	70% waste reduction and resource recovery of food and organic waste generated by single-family dwellings in urban settlement areas by 2025
Large and medium municipalities in Southern Ontario with a medium density (>50,000 pop. & <300 pp/km <sup>2</sup> or >20,000 pop. & >100 pp/km <sup>2</sup> )	50% waste reduction and resource recovery of food and organic waste generated by single-family dwellings in urban settlement areas by 2025
Large municipalities in Northern Ontario with a higher density (>50,000 pop. & >300 pp/km <sup>2</sup> )	50% waste reduction and resource recovery of food and organic waste generated by single-family dwellings in urban settlement areas by 2025
Multi-unit residential buildings with 6 or more units	50% waste reduction and resource recovery of food and organic waste generated at the building by 2025
Industrial and commercial facilities (as per) O. Reg 103/94 that generate more than 300kg/week	70% waste reduction and resource recovery of food and organic waste generated in the facility by 2025
Industrial and commercial facilities - other facilities that generate more than 300kg/week	50% waste reduction and resource recovery of food and organic waste generated in the facility by 2025
Educational institutions and hospitals (as per) O. Reg 103/94 that generate more than 150kg/week	70% waste reduction and resource recovery of food and organic waste generated in the facility by 2025

**Policies.** Since the mid-1990s Ontario has had requirements through O. Regulation 101/94 for municipalities with a population of 5,000 or more to have leaf and yard waste programs in place (Ontario Government, 2011). The Food and Organic Waste Policy Statement, mentioned above, builds upon these requirements establishing more defined source separation requirements for municipalities of a certain size and density and businesses of a certain size for food and organic waste. In the 2020 update to the Made-in-Ontario Environment Plan, the Provincial government has committed to developing a proposal to phase-out food and organic waste from landfills by 2030.

Although not a major part of the organic waste stream, Ontario is currently considering how producer responsibility could best be applied to compostable packaging and paper products. Ontario's proposed regulation for packaging and paper products would require producers to report on compostable packaging and products marketed in the province to better understand the prevalence of these materials in the market.

In order to reduce food waste, Ontario established an income tax credit for farmers who donate food. The Community Food Program Donation Tax Credit for Farmers is a non-refundable tax credit available for farmers who donate to community food programs. A qualifying donation is a donation of one or more agricultural products produced in Ontario and given after December 31, 2013 to an eligible community food program in Ontario (Government of Canada, 2020).

There do not appear to be any policies directly related to compost or digestate procurement in place, although the province does have direction in the Policy Statement that directs waste management service providers to promote beneficial end uses for compost and digestate.

**Programs.** The Ontario government has established a number of specific programs to aid in the development of organic waste diversion, which includes:

- Renewable energy incentives. In 2006, the Ontario Power Authority (OPA) launched the Renewable Energy Standard Offer Program (RESOP) offering stable pricing under a 20-year contract for renewable energy projects. From 2009-2016, Ontario's Feed-In Tariff Program under the Ontario Green Energy Act provided a fixed tariff for electricity produced and fed into the grid. The Province is now considering a voluntary renewable natural gas program.
- Research and development. The Ontario Centre of Excellence provides funds for research and development. This is a broad-based program and it is unclear the amount of funding provided for organics diversion.
- Broad infrastructure funding programs exist but are not targeted to organics diversion infrastructure.
- The Ministry of Environment, Conservation and Parks has provided \$5.25M in funding through the Surplus Food Redistribution Infrastructure Program. The funding will support food rescue organizations and indigenous communities and organizations to rescue and redistribute surplus food and assist with food insecurity.

**Reporting.** Ontario has several means to capture organics diversion data. For residential waste, Ontario municipalities with a population over 5,000 report annually as part of the municipal datacall (Resource Productivity & Recovery Authority, n.d.). This includes: total organic waste collected (yard waste, leaves, Christmas trees, bulky yard waste and household organics) curbside and depot in tonnes. Data submission is voluntary but necessary in order to receive Blue Box funding. It is unclear what will happen to the municipal datacall after the Ontario transitions the Blue Box to full producer responsibility between 2023 to 2025. Similar data is not collected for ICI waste. Generally, all permitted organic processing facilities are required to complete annual reports. These reports are however are not standardized or received by the government in a manner that can be consolidated.

**Approvals.** Table A40 and Table A41 provide a general outline of the approval requirements for compost facilities and anaerobic digestion facilities in Ontario.

**Table A40: Approvals for Compost Facilities in Ontario**

\*Note other municipal, provincial, or federal requirements may exist (e.g., zoning).

Regulation(s)	No Permit	Permit by Rule	Full Approval / Permit	Financial Assurance	Agricultural Operations
<a href="#">Environmental Protection Act</a> <a href="#">Regulation 347 (General - Waste Management)</a> <a href="#">O. Reg. 101/94 Recycling and Composting of Municipal Waste</a> <a href="#">O.Reg 105/09 - Food Safety and Quality Act, 2001</a> <a href="#">O. Reg. 267 /02 - Nutrient Management Act, 2002</a>	Leaf and yard waste compost sites are exempt if all buildings and areas used for processing or storage are at least 100 metres from the site boundaries and 100 metres from any lake, river, pond, stream, reservoir, spring, or well (does not apply if part of a larger waste management site such as a landfill)	Small scale on-farm AD facilities	<p>Most compost facilities require an environmental compliance approval (section 9 of the EPA)</p> <p>The <a href="#">Guideline for the production of compost in Ontario</a> establishes general requirements for compost facilities</p>	Required based on future environmental costs, such as site remediation and maintenance	On-farm regulated mixed anaerobic digestion facilities are regulated under the Nutrient Management Regulation ( <a href="#">Ontario Regulation 267/03 - General, as amended (O.Reg. 267/03)</a> ) made under the <a href="#">Nutrient Management Act, 2002, S.O. 2002, c. 4, as amended</a>

Table A41: Approvals for AD Facilities in Ontario

\*Note other municipal, provincial, or federal requirements may exist (e.g., zoning).

Regulation(s)	No Permit	Permit by Rule	Full Approval / Permit	Financial Assurance	Facility Reporting	Agricultural Operations
<a href="#">O.Reg 267/03 - Nutrient Management Act</a> <a href="#">Environmental Protection Act</a> <a href="#">Regulation 347 (General - Waste Management)</a>	<p>Do not need Renewable Energy Approval (REA) or Environmental Compliance Approval (ECA) if facility meets standards set out in O. Reg 267/03 for a regulated mixed anaerobic digestion facility</p> <p>On-farm AD facilities that use only agricultural source material and not off-farm waste do not need ECA, but will require REA if generating electricity for the Feed-In Tariff (FIT) Program</p>	See previous column for requirements for REAs or ECAs	Any facility that receives and processes waste needs to obtain a REA if generating electricity for the FIT Program or an ECA under the EPA and Regulation 347	<p>Financial assurance may be required under Part XII of the EPA as a condition of an order of approval of an ECA under s. 9 of the EPA</p> <p>There are financial assurance requirements for Class 2 and 3 biogas systems if being implemented: see <a href="#">Financial Assurance Guidelines</a></p> <p>For Class 2 biogas systems, the financial assurance is limited to the removal and disposal of non-exempt wastes (such as off-farm feedstock materials) at the facility</p>	Not required  s.98.13 of O.Reg 267/03 sets out record-keeping requirements	<p>Approval of nutrient management strategy of an agricultural operation is governed by s. 27 of O. Reg. 267/03</p> <p>Registration of agricultural operations not requiring approval is governed by s. 32 of the O. Reg. 267/03</p> <p>Section 98.12 of O. Reg. 267/03 prohibits the output from a mixed anaerobic digestion facility that is not regulated to land on a farm unit on which an agricultural operation is carried out except in accordance with a nutrient management plan</p>

**Accessibility.** Table A42 and Figure A8 provide an overview of accessibility to municipal organic waste management programs in Ontario.

In Ontario, of 575 total census subdivisions, 325 have some sort of organic waste management program, providing accessibility to 97 percent of the population. All of these residents have access to a leaf and yard waste program, with 92 percent having access to a curbside program. In Ontario 78 percent of the population has access to a SSO program with the majority of people having access through curbside collection.

Ontario's requirement that municipalities have leaf and yard waste programs has contributed to a high level of access to leaf and yard waste programs. While the cut-off established for the leaf and yard waste program was 5,000 people, many municipalities with less than 5,000 people were also identified as having programs.

Facilities are located throughout the province with a high density of facilities located in Southern Ontario.

Table A42: Overview of Accessibility to Organics Management Programs - Ontario

Program Type	Number of Census Subdivisions with Program	Number of People Living in Area with Program	Percent of Total Province Population
Organics Management Program (Any)	341	13,196,385	98%
Curbside (Any)	212	12,427,840	92%
Leaf and Yard Waste Program	341	13,196,385	98%
Drop-off	318	10,265,235	76%
Curbside	210	12,373,265	92%
Source Separated Organics Program	146	10,508,200	78%
Drop-off	76	1,733,450	13%
Curbside	111	10,225,500	76%

**Organics Waste Processing.** Table A43 and Figure A8 presents an overview of composting and anaerobic digestion facilities in Ontario. The province has 107 operational compost and anaerobic digestion facilities which have approximately 2,691,191 tonnes per year of processing capacity. In 2019, these facilities processed approximately 1,817,859 tonnes of organic waste and produced approximately 1,000,000 tonnes of compost and digestate. There is a moderate level of confidence in the data as some of the data needed to be modelled based on the Ontario Waste Management Association organic waste diversion survey.

Table A43: Overview of Composting and Anaerobic Digestion Facilities - Ontario

Facilities	Number	Tonnes per year		
		Processing Capacity	Organic Waste Processed	Compost / Digestate Produced
Compost				
Static Pile	15	57,390	13,116	-
Windrow	42	945,901	508,950	-
In-vessel	13	777,420	586,625	-
Sub-Total	70	1,780,711	1,108,691	609,780
Anaerobic Digestion (AD)				
On-Farm	32	581,109	456,818	-
Industrial	5	329,350	252,350	-
Sub-Total	37	910,459	709,168	496,418
<b>Total</b>	<b>107</b>	<b>2,691,170</b>	<b>1,817,859</b>	<b>1,106,198</b>

While it appears that there is abundant static pile and windrow processing capacity, many of these facilities are rudimentary and co-located at municipal landfill sites. While they have the space to accept more materials, they typically do not have plans to accept more materials. These co-located facilities also have limitations on what they can accept (i.e., beyond leaf and yard waste).

Based on the operational dates for the current facilities there appears to be a relatively steady growth in processing capacity over the last two decades. There was also a significant amount of proposed new capacity including over a dozen new anaerobic digestion and in-vessel processing facilities.



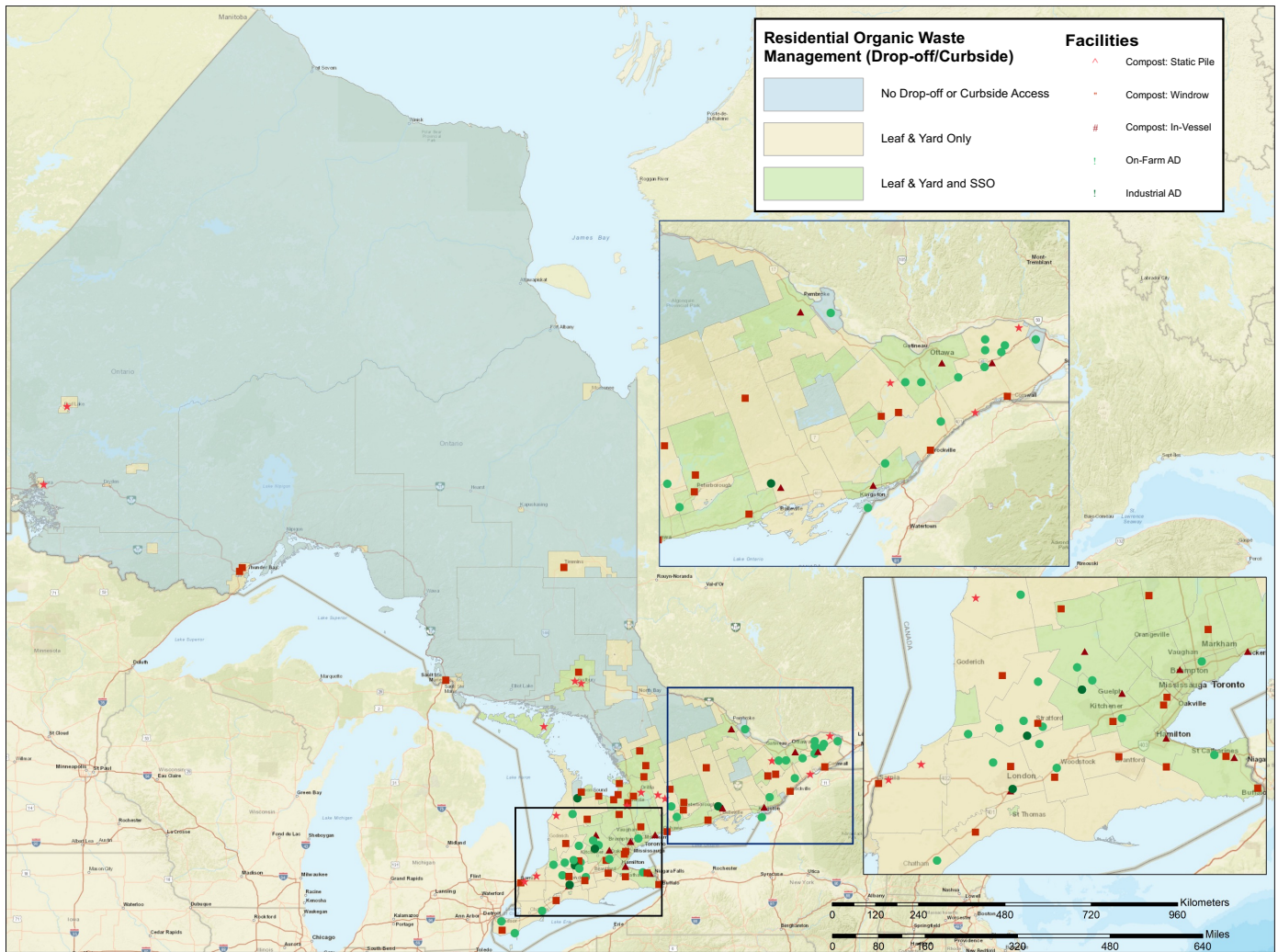


Figure A8: Residential Accessibility and Map of Composting and Anaerobic Digestion Facilities - Ontario

## Prince Edward Island

**General Province Information.** A snapshot of general province statistics and information on notable features related to Newfoundland & Labrador waste management activities are listed in Table A44.

Table A44: Background information on Newfoundland & Labrador

Statistic	Value	Percent of Canada
Population <sup>a</sup>	156,947	0.42%
Size (km <sup>2</sup> )	5,660	0.06%
Population Density (person / km <sup>2</sup> )	27.7	-
Gross Domestic Product	\$6,156.5 M <sup>c</sup>	0.31%
Total Waste Generation <sup>b</sup>	110,767 tonnes total 56,795 tonnes diverted 53,972 tonnes disposed	0.31% 0.58% 0.21%
Notable Features	Only one landfill. Province is surrounded by water making waste exports challenging.	

<sup>a</sup> (Statistics Canada, 2019)

<sup>b</sup> (Statistics Canada, 2018)

<sup>c</sup> Chained 2012 Dollars

**Overview of Policies, Programs, Approval Regime.** The Prince Edward Island government has played a strong role in developing a regulatory regime that focuses on increasing organic waste diversion.

**Strategic Plans & Notable Goals.** The government of Prince Edward Island does not have a specific waste management strategy, but they have released other related plans that include waste related goals. In 2018, Prince Edward Island released 'Taking Action: A Climate Change Action Plan for Prince Edward Island (2018-2023)' which commits that the province will continue to divert more waste per person from landfill than any other province (Government of Prince Edward Island, 2018). No specific actions are identified in the strategy document.

A Provincial Energy Strategy released in 2016 also commits that the Province will seek to assess the feasibility for producing biogas from organic waste and other sources to create a vehicle fuel for provincial waste trucks (Government of Prince Edward Island, 2016).

**Policies.** Prince Edward Island has established a number of policies to increase the amount of organic waste diverted from disposal. The Island Waste Management Corporation (IWMC) provides waste management services to all business and residents and implemented mandatory source separation in the province, known as Waste Watch. Waste must be sorted into recyclables, compostables, and garbage (Government of

Prince Edward Island, 2016). The Provincial government has also implemented an organic waste disposal ban through the Environmental Protection Act, Waste Resource Management Regulations. This ban extends to:

- food scraps including meat, fish, dairy products and bones,
- paper food wrap,
- boxboard containers and packaging,
- all non-recyclable paper products including, but not limited to, paper towels, paper tubes, paper plates, construction and poster paper, and wax paper,
- leaves and yard waste, and
- any other material that is biodegradable and organic.

**Programs.** The Province does have capital funding available for broad-based infrastructure, but nothing specific for organics processing facilities (Government of Prince Edward Island, 2015).

There are currently not any programs or procurement policies that incent organic processing markets (e.g., compost, digestate or biogas).

**Reporting.** Organic processing facilities are required to report to the Department of Environment, Water and Climate Change on an annual basis on their activities; however, it does not appear that this information is publicly available.

**Approvals.** Table A45 and Table A46 provide a general outline of the approval requirements for compost facilities and anaerobic digestion facilities in Prince Edward Island.

**Table A45: Approvals for Compost Facilities in Prince Edward Island**

\*Note other municipal, provincial, or federal requirements may exist (e.g., zoning).

Regulation(s)	No Permit	Permit by Rule	Full Approval / Permit	Financial Assurance	Facility Reporting	Agricultural Operations
<a href="#">Waste Resource Management Regulations - Environmental Protection Act</a> [includes composting, in-vessel composting and open window composting facilities]	Backyard composting  Composting undertaken according to normal farm practices and Codes of Practice established pursuant to the Farm Practices Act  Processing of fish waste and sewage sludge at facilities	Composting facilities receiving under 10,000 tonnes of compostables per year must meet certain requirements (e.g. s.37 Waste Resource Management Regulations)	Composting facilities, except those excluded under the "No Permit" column, require approval by the Minister	Not required	Required to submit an Operations and Maintenance Manual prior to the commencement of operation and an annual report for Ministerial approval	<a href="#">Waste Resource Management Regulations - Environmental Protection Act</a> [includes composting, in-vessel composting and open window composting facilities]

Table A46: Approvals for AD Facilities in Prince Edward Island

\*Note other municipal, provincial, or federal requirements may exist (e.g., zoning).

Regulation(s)	No Permit	Permit by Rule	Full Approval / Permit	Financial Assurance	Facility Reporting	Agricultural Operations
Not specifically mentioned  <a href="#">Waste Resource Management Regulations - Environmental Protection Act</a>	None	None	Through Waste Resource Management Regulations	Not required	Not required	<a href="#">Guidelines for Manure Management</a>

**Accessibility.** Table A47 and Figure A9 provide an overview of accessibility to organic waste management programs in Prince Edward Island.

All of 112 census subdivisions and therefore 100 percent of the population of Prince Edward Island has access to both leaf and yard waste and source separated organics programs. The island has enacted policies requiring source separation of organic waste and provided the necessary infrastructure to facilitate program access to all Prince Edward Island residents.

Table A47: Overview of Accessibility to Organics Management Programs - Prince Edward Island

Program Type	Number of Census Subdivisions with Program	Number of People Living in Area with Program	Percent of Total Province Population
Organics Management Program (Any)	112	142,905	100%
Curbside (Any)	112	142,905	100%
Leaf and Yard Waste Program	112	142,905	100%
Drop-off	112	142,905	100%
Curbside	112	142,905	100%
Source Separated Organics Program	112	142,905	100%
Drop-off	112	142,905	100%
Curbside	112	142,905	100%

**Organics Waste Processing.** Table A48 and Figure A9 present an overview of composting and anaerobic digestion facilities in Prince Edward Island. Note the numbers for processed organics have only been presented in a consolidated format given the low number of facilities. The province has 2 composting and 1 anaerobic digestion facilities which have approximately 186,000 tonnes/year processing capacity, and in 2019 processed approximately 160,000 tonnes and produced approximately 30,000 tonnes of compost and digestate.

Prince Edward Island has one large anaerobic digestion facility located at a potato processing facility. The entire province has access to the collection and processing of its SSO and these are processed at an in-vessel and windrow composting facilities. Compost and digestate are used for landscaping purposes or on agricultural land.

Table A48: Overview of Composting and Anaerobic Digestion Facilities - Prince Edward Island

Facilities	Number	Tonnes per year		
		Processing Capacity	Organic Waste Processed	Compost / Digestate Produced
Compost				
Static Pile	-	-	-	-
Windrow	1	10,000	-	-
In-vessel	1	30,000	-	-
Sub-Total	2	40,000	-	-
Anaerobic Digestion (AD)				
On-Farm	-	-	-	-
Industrial	1	146,000	-	-
Sub-Total	1	146,000	-	-
<b>Total</b>	<b>3</b>	<b>186,000</b>	<b>160,000</b>	<b>30,580</b>

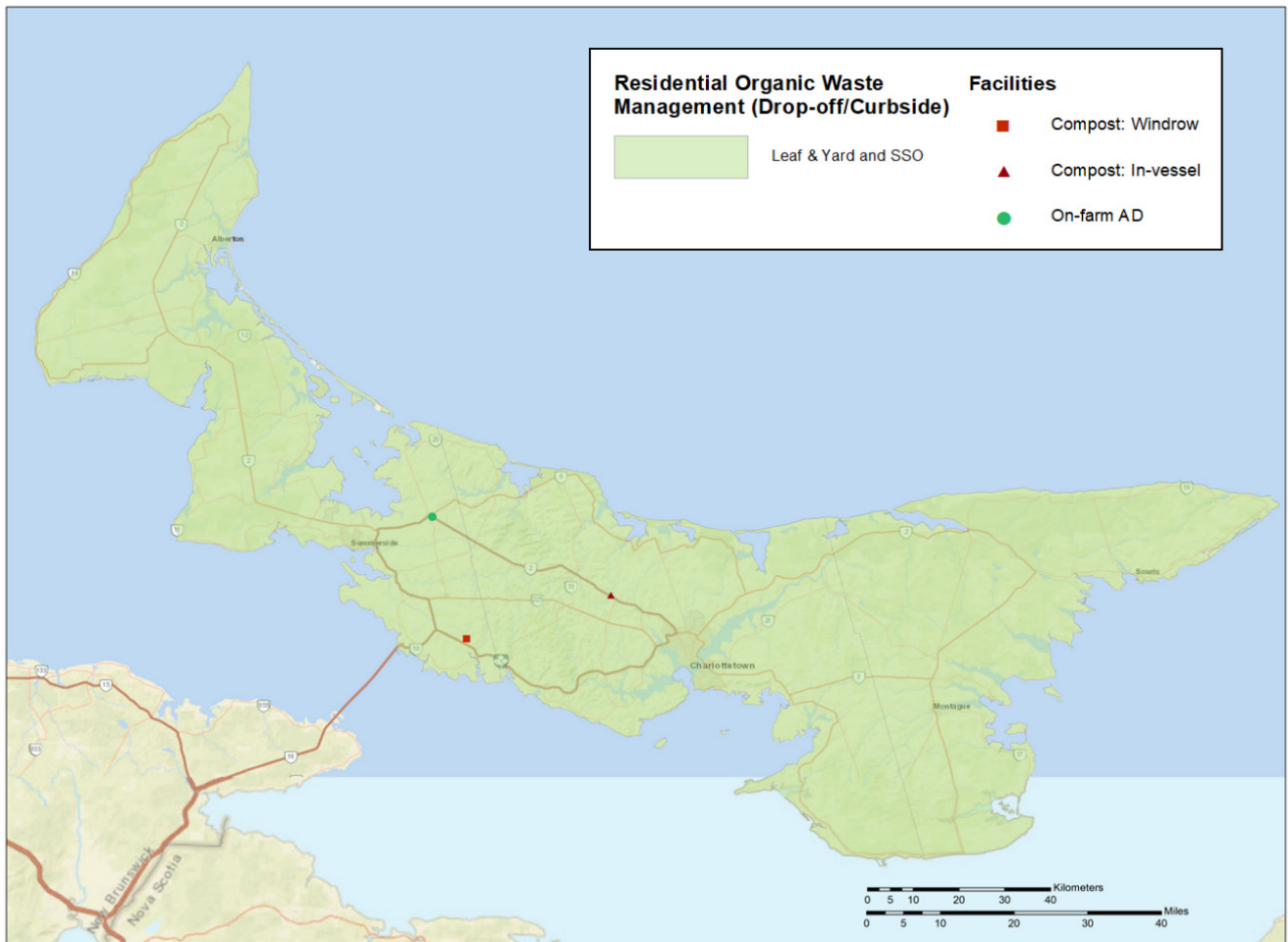


Figure A9: Residential Accessibility and Map of Composting and Anaerobic Digestion Facilities - Prince Edward Island

## Quebec

**General Province Information.** A snapshot of general province statistics and information on notable features related to Quebec's waste management activities are listed in Table A49.

Table A49: Background information on Quebec

Statistic	Value	Percent of Canada
Population <sup>a</sup>	8,484,965	23%
Size (km <sup>2</sup> )	1,542,056	15%
Population Density (person / km <sup>2</sup> )	5.5	-
Gross Domestic Product	\$386,407.5 M <sup>c</sup>	19%
Total Waste Generation <sup>b</sup>	8,341,258 tonnes total 2,778,122 tonnes diverted 5,563,135 tonnes disposed	24% 28% 22%
Notable Features	Significant dairy and hog farming.	

<sup>a</sup> (Statistics Canada, 2019)

<sup>b</sup> (Statistics Canada, 2018)

<sup>c</sup> Chained 2012 Dollars

**Overview of Policies, Programs, Approval Regime.** The Quebec government has had a strong focus on policies and programs over the last decade to increase waste diversion.

**Strategic Plans & Notable Goals.** Quebec has recently released an organic waste recovery strategy, which establishes an aggressive path forward to increase organic waste diversion (Quebec Government, 2020a).

The strategy includes the following key goals:

- Offer the collection of organic waste to all citizens of Quebec by 2025.
- Manage organic waste in 100 per cent of industries, businesses and institutions by 2025.
- Recycle or recover 70 per cent of targeted organic waste targeted by 2030.
- Reduce 270,000 tonnes of CO<sub>2</sub> equivalent per year in greenhouse gas emissions by 2030.

Similar targets were also articulated in an updated residual materials management plan (2019-2025) (Quebec Government, 2019). Quebec's residual materials management policy under the Environment Quality Act initially established a target to processing 60 percent of organic waste by 2015 and to reduce the quantity of residual materials sent for disposal to 700 kg per capita, 110 kg less per capita than in 2008 (Quebec Government, 2020c).

**Policies.** Quebec has instituted a number of policies to increase the amount of organic waste diverted from landfill. This includes:

- A disposal levy. The Regulation Respecting the Charges Payable For the Disposal of Residual Materials sets disposal prices (Quebec Government, 2020e). In 2020, the disposal price was \$23.51 per tonne.
- There have been some concerns raised that some waste is exported to avoid the levy. The government has recently proposed measures to address this. The government is considering increasing the disposal price to \$30 per tonne over the next few years and subsequent annual increase of \$2 per tonne per year.
- Requirements for municipal diversion. The Environmental Quality Act, requires that each regional municipality, develop and maintain in force a residual materials management plan (section 53.7). It also states that each local municipality must take the necessary measures to implement this residual materials management plan in its territory (section 53.24)
- Requirements for industrial diversion. Changes to a policy titled “Regulation respecting industrial depollution attestations” are being considered (Quebec Government, 2020d). These changes would require the pulp and paper industry sector to:
  - Document the necessary measures to achieve “zero landfill” of paper biosolids
  - Respect a minimum standard of diversion of these materials from landfill, which will be determined by results of the entire industry

This measure would be implemented in an individualized and progressive manner. It is meant to be an integral part of the eventual responsibility of industrial establishments with regard to planning for the management of residual materials.

- Tax Credits to Reduce Food Waste. The Food Bank Tax Credit for Farmers allows farmers to claim a non-refundable credit, plus 50 percent of the eligible amount of food donations, if 1) they are a recognized agricultural producer; 2) their donation was made to a registered charity that was a member of the Food Banks of Quebec network; 3) their donated food products were eligible agricultural products.

The Province is also considering a number of other policy measure to improve organic waste diversion, including:

- Source Separation Requirements. Quebec is considering penalties and then compelling source separation of food and organics residues and the collection of paper and cardboard in ICI. They are also considering a minimum standard for diversion of paper biosolids.
- Disposal ban on organic waste. This was initially proposed to be implemented in 2020; however, the government is proposing additional measures (e.g., deployment of collection and treatment systems and market development) before the potential implementation of an organic waste disposal ban.
- Offset Credits. The Province is considering offset credits for anaerobic digestion and compost facilities as part of their carbon offset credit system.

**Programs.** The Quebec government has established a number of specific infrastructure programs to aid in the development of organic waste diversion, which includes:



- The Program for the treatment of organic waste by anaerobic digestion and composting (Programme de traitement des matières organiques par biométhanisation et compostage (PTMOBC)) which has provided funds for a variety of projects, and was recently extended until 2022 (Quebec Government, 2021a).
- The Program to help with home and community composting (Aide au compostage domestique et communautaire (ACDC)) provides financial support to small and sparsely populated municipalities for composting equipment (Quebec Government, 2021b).
- The Program on the Redistribution to Municipalities of Fees of disposal levies, which helps to finance municipal waste management. It also supports RECYC-QUEBEC measures related to organic waste management, including its program to assist smaller municipalities implement comprehensive backyard composting projects.

The Quebec government has recently announced \$1.2 billion, including \$450.1 million available from 2020-2021, will be devoted by 2030 to the implementation of an organic waste strategy for municipalities and private businesses.

Quebec has also recently enacted a Regulation that requires the natural gas distributor to increase the annually a quantity of renewable natural gas to 1 per cent in 2020; 2 per cent in 2022; and 5 per cent in 2025 (Quebec Government, 2020b). This creates an opportunity to grow the province's renewable natural gas supply and reduce GHG emissions.

**Reporting.** For reporting, regional municipalities must send an annual monitoring report on the implementation of their residual materials management plans. To ensure that these plans contain reliable data, disposal site operators and those who recover, sort, process, recycle, or reclaim residual materials must report these materials to the government. RECYC-QUEBEC is producing a regular report related to organic waste diversion (RECYC QUEBEC, 2018).

Using revenues from landfill fees, the province will fund activities to educate and encourage the population to better manage its residual materials, which includes organic waste. Quebec is also a partner in Love Food Hate Waste Campaign, which seeks to reduce the amount of food waste (RECYC QUEBEC, 2018).

**Approvals.** Table A50 and Table A51 provide a general outline of the approval requirements for compost facilities and anaerobic digestion facilities in the Quebec.

Table A50: Approvals for Compost Facilities in Quebec

\*Note other municipal, provincial, or federal requirements may exist (e.g., zoning).

Regulation(s)	No Permit	Permit by Rule	Full Approval / Permit	Financial Assurance	Facility Reporting	Agricultural Operations
<a href="#">Environmental Quality Act</a>  <a href="#">Guidelines for the Supervision of Composting Activities</a>  <a href="#">Regulation respecting financial guarantees payable for the operation of a residual organic materials reclamation facility - Environmental Quality Act</a>	<p>Domestic composting</p> <p>Composting plant residues with a volume of less than 150 m3 at all times outside of a breeding or spreading area</p> <p>Composting using closed thermophilic equipment with a volume of 50 m3 or less receiving only source sorted organic residuals in bulk</p>	None	Require authorization from the Minister for the establishment and operation of a residual materials recovery facility	Required	Required to draft consolidated annual report and provide to Minister upon request	<a href="#">Agricultural Operations Regulation</a>  Section 29.1 prohibits the spreading of the following fertilizing materials/ product containing any amount of such materials on a parcel of land where a crop for human consumption is grown, or on pasture land: (1) compost from all or any part of a carcass of a mammal or fowl, including a carcass originating outside Québec; and (2) sludge from a municipal wastewater treatment plant or any other wastewater treatment or collection system, including sludge originating outside Québec

Table A51: Approvals for AD Facilities in Quebec

\*Note other municipal, provincial, or federal requirements may exist (e.g., zoning).

Regulation(s)	No Permit	Permit by Rule	Full Approval / Permit	Financial Assurance	Facility Reporting	Agricultural Operations
<a href="#">Guidelines for the Supervision of Anaerobic Digestion Activities</a>  <a href="#">Regulation respecting financial guarantees payable for the operation of a residual organic materials reclamation facility - Environmental Quality Act</a>	None	None	Require authorization from the Minister	Required	Required to draft consolidated annual report and provide to Minister upon request	May be necessary to obtain an approval from the Quebec Agricultural Land Protection Commission (CPTAQ)

**Accessibility.** Table A52 and Figure A10 provide an overview of accessibility to organic waste management programs in Quebec.

Accessibility in Quebec was assessed using information provided by RECYC QUEBEC (n.d.). In Quebec, of 1,285 census subdivisions, 789 were identified with a municipal organic waste management program providing 86 percent of the population with access to an organic waste management program. Curbside programs are available to 85 percent of the province. There are 771 census subdivisions with source separated organic programs which provide 79 percent of the population with access.

As seen in Figure A10, access to both types of organics management programs is largely concentrated near Montreal. With just under 2.5 million people residing near Montreal, about two-thirds of all Quebec's access is due to program availability in Montreal and the surrounding areas. Quebec City provides curbside leaf and yard program access, but does not have a specific source-separated organics program.

A number of additional compost and AD facilities are identified on Figure A10 outside of areas with access to organics management. These locations are commercial facilities accepting ICI and non-residential waste. Considering these locations already exist, these are potential locations ready for residential organics management programs in support of Quebec's policy goal to offer the collection of organic waste to all citizens of Quebec by 2025.

**Table A52: Overview of Accessibility to Organics Management Programs - Quebec**

<b>Program Type</b>	<b>Number of Census Subdivisions with Program</b>	<b>Number of People Living in Area with Program</b>	<b>Percent of Total Province Population</b>
Organics Management Program (Any)	789	7,030,890	86%
Curbside (Any)	776	7,010,490	86%
Leaf and Yard Waste Program	789	7,030,890	86%
Drop-off	203	2,863,050	35%
Curbside	755	6,964,590	85%
Source Separated Organics Program	771	6,440,775	79%
Drop-off	22	2,518,715	36%
Curbside	771	6,440,775	79%

**Organics Waste Processing.** Table A53 and Figure A10 present an overview of composting and anaerobic digestion facilities in Quebec. Note the numbers for processed organics have only been presented in a consolidated format given the low response rate in Quebec. The province has 44 composting and anaerobic digestion facilities which in 2019 processed approximately 681,000 tonnes and produced approximately 233,000 tonnes of compost and digestate.

Table A53: Overview of Composting and Anaerobic Digestion Facilities - Quebec

Facilities	Number	Tonnes per year		
		Processing Capacity	Organic Waste Processed	Compost / Digestate Produced
Compost				
Static Pile	6	-	-	-
Windrow	25	-	-	-
In-vessel	3	-	-	-
Sub-Total	34	-	499,000	215,000
Anaerobic Digestion (AD)				
On-Farm	7	-	-	-
Industrial	3	-	-	-
Sub-Total	10		182,000	18,000
<b>Total</b>	<b>44</b>		<b>681,000</b>	<b>233,000</b>

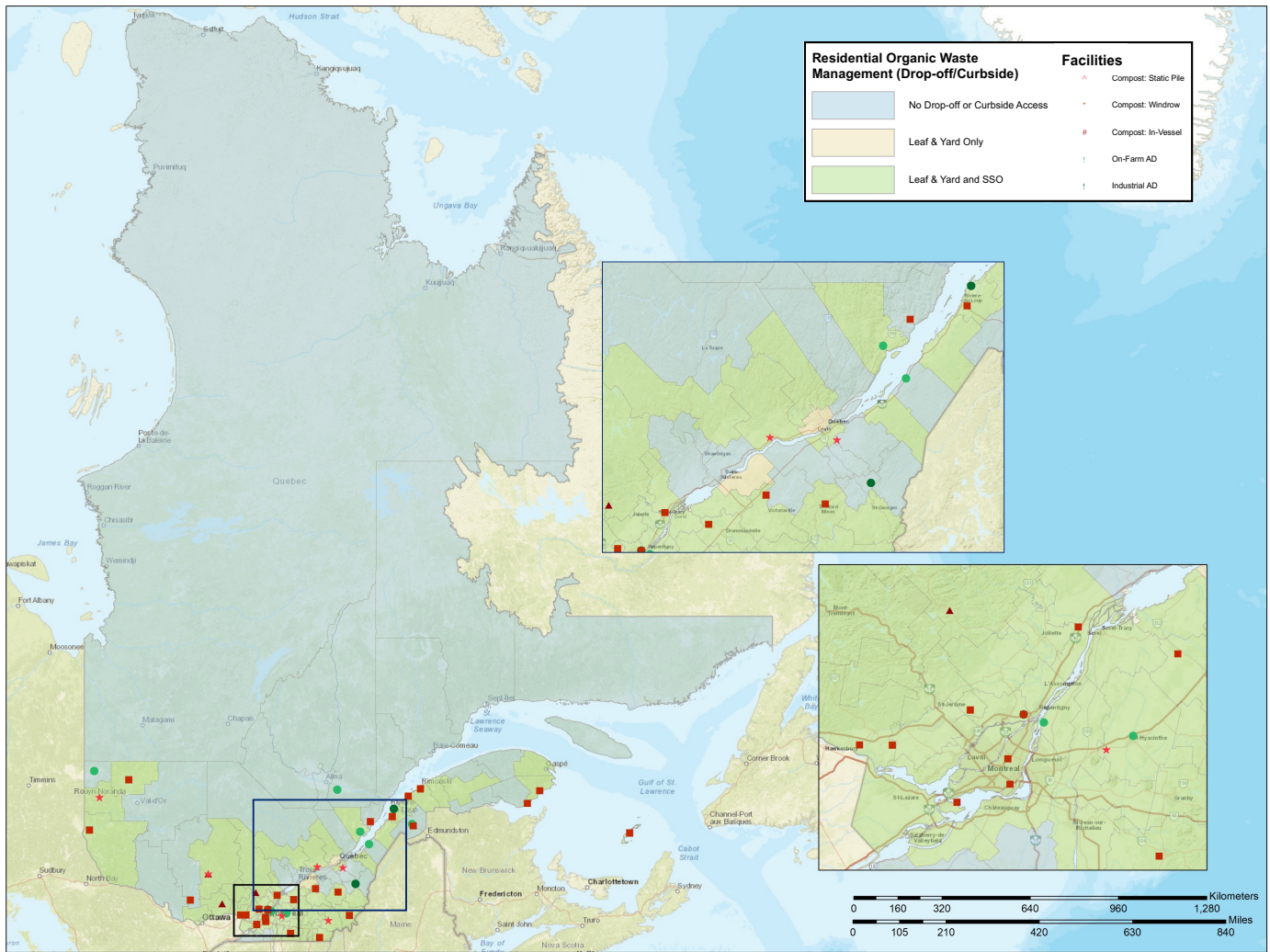


Figure A10: Residential Accessibility and Map of Composting and Anaerobic Digestion Facilities - Quebec

# Saskatchewan

**General Province Information.** A snapshot of general province statistics and information on notable features related to Saskatchewan's waste management activities are listed in Table A54.

Table A54: Background information on Saskatchewan

Statistic	Value	Percent of Canada
Population <sup>a</sup>	1,174,462	3.1%
Size (km <sup>2</sup> )	651,036	6.5%
Population Density (person / km <sup>2</sup> )	1.8	-
Gross Domestic Product	\$75,302.1 M <sup>c</sup>	3.8%
Total Waste Generation <sup>b</sup>	1,059,455 tonnes total 194,702 tonnes diverted 864,753 tonnes disposed	3.0% 2.0% 3.4%
Notable Features	Large areas of the province with low population. Significant beef cattle, grains and oilseeds farming.	

<sup>a</sup> (Statistics Canada, 2019)

<sup>b</sup> (Statistics Canada, 2018)

<sup>c</sup> Chained 2012 Dollars

**Overview of Policies, Programs, Approval Regime.** The Government of Saskatchewan has not taken an active regulatory role in organic waste diversion, however, a newly released waste management strategy places greater emphasis in this area.

**Strategic Plans & Notable Goals.** Saskatchewan released a waste management strategy in 2020 (Saskatchewan Government, 2020). The strategy establishes waste reduction targets of 30 percent by 2030 and 50 percent by 2040 and aligns with national goals in the Strategy on Zero Plastic Waste. It proposes a number of specific actions related to organics diversion, including:

- Release compost guidance document for landfill operators and compost facilities (released in June 2020);
- Development of Saskatchewan Environmental Code chapters for transfer stations and composting facilities;
- Engage with stakeholders to reduce food waste;
- Engage key clients to explore benefits of a landfill levy to fund waste reduction and diversion efforts;
- Provide research and development funding for value-added processing to advance economic development initiatives for bio-related projects developed from unused crop residues, oilseed waste, animal waste, and cooking oil/fat wastes.

**Policies.** The Province does not have any specific policies in place to increase the amount of organic waste from disposal. It is considering a disposal levy which is set to be reviewed by the Spring of 2022 and it is currently considering offset credits for compost operations through Saskatchewan's carbon offset credit system.

Table A55: Approvals for Compost Facilities in Saskatchewan

\*Note other municipal, provincial, or federal requirements may exist (e.g., zoning).

Regulation(s)	No Permit	Permit by Rule	Full Approval / Permit	Financial Assurance	Agricultural Operations
<p>No specific guidance or standards</p> <p>Private sites - <a href="#">Environmental Management and Protection Act</a></p> <p>Municipal sites - <a href="#">The Municipal Refuse Management Regulations</a></p>	<p>If less than 2,000 kg of active composting material onsite.</p> <p>Composting facility of any size is located at a municipal landfill or transfer station (e.g., use existing permit).</p>	None	Must include a report that consists of the following: an operations plan, emergency response plan, decommissioning and reclamation plan, site suitability report, and engineered design plan that are acceptable to the Director	Required based on	<p><a href="#">The Agricultural Operations Regulations</a></p> <p>Requirements for land application of manure</p>

Table A56: Approvals for Compost Facilities in Saskatchewan

\*Note other municipal, provincial, or federal requirements may exist (e.g., zoning).

Regulation(s)	No Permit	Permit by Rule	Full Approval / Permit	Financial Assurance	Agricultural Operations
<p>No specific guidance or standards</p> <p>Private sites - <a href="#">Environmental Management and Protection Act</a></p> <p>Municipal sites - <a href="#">The Municipal Refuse Management Regulations</a></p>	<p>If all of the following conditions are met:</p> <ol style="list-style-type: none"> <li>1) Takes place in a bin or vessel designed for AD and no waste material will be placed on the ground</li> <li>2) The waste is generated on the property and is not being accepted from off-site sources</li> <li>3) The finished digestate is not being sold</li> </ol>	None	Required and must include a report that consists of the following: an operations plan, emergency response plan, decommissioning and reclamation plan, site suitability report, and engineered design plan that are acceptable to the Director	Required based on decommissioning and reclamation plans (for private sites only)	<p><a href="#">The Agricultural Operations Regulations</a></p> <p>Requirements for land application of manure</p>

**Accessibility.** Table A57 and Figure A11 provide an overview of accessibility to municipal organic waste management programs in Saskatchewan.

In Saskatchewan, of 950 total census subdivisions, there are 245 with a municipal organic waste management program providing 73 percent of the population with access. Leaf and yard waste programs are accessible to 74 percent of the population and 52 percent has access to drop-off programs. The majority of SSO programs are comprised of curbside programs which provide 48 percent of the population with access. Source separated organics programs are mostly located near more populated areas with programs available in Saskatoon and Regina. A program is also located in the city of Shaunavon in the southwest corner of the province. Leaf and yard waste programs are scattered throughout the province. However, they are typically located near cities with either static pile or windrow compost facilities.

Table A57: Overview of Accessibility to Organics Management Programs - Saskatchewan

Program Type	Number of Census Subdivisions with Program	Number of People Living in Area with Program	Percent of Total Province Population
Organics Management Program (Any)	245	808,425	74%
Curbside (Any)	31	574,190	52%
Leaf and Yard Waste Program	247	808,425	74%
Drop-off	234	776,065	71%
Curbside	30	572,955	52%
Source Separated Organics Program	77	576,515	52%
Drop-off	64	68,300	8%
Curbside	20	526,535	48%

**Organics Waste Processing.** Table A58 and Figure A11 presents an overview of composting and anaerobic digestion facilities in Saskatchewan. Note that data was not obtained for the one anaerobic digestion facility and, as a result, the data in the Table remains blank. The province has 27 composting and 1 anaerobic digestion facility which have approximately 88,900 tonnes/year processing capacity. In 2019, these facilities processed approximately 48,532 tonnes of organic waste and produced approximately 25,215 tonnes of compost and digestate.

While data for some of the smaller processing facilities was modelled, data was obtained for the large organic processing facilities and, as a result, there is a high level of confidence in the data.

Table A58: Overview of Composting and Anaerobic Digestion Facilities - Saskatchewan

Facilities	Number	Tonnes per year		
		Processing Capacity	Organic Waste Processed	Compost / Digestate Produced
Compost				
Static Pile	11	22,210	9,703	3,859
Windrow	14	40,200	33,367	18,352
In-vessel	2	26,500	5,462	3,004
Sub-Total	27	88,910	48,532	25,215
Anaerobic Digestion (AD)				
On-Farm	1	-	-	-
Industrial	-	-	-	-
Sub-Total	1	-	-	-
<b>Total</b>	<b>28</b>	<b>88,910</b>	<b>48,532</b>	<b>25,215</b>



The majority of organic processing are small static pile or open windrow facilities managing under 2,000 tonnes of mainly leaf and yard waste per year. There are 4 facilities that can manage over 10,000 tonnes of waste per year - one of these in-vessel facilities only became operational later in 2019. Over the last decade, investment in organic processing has been limited.

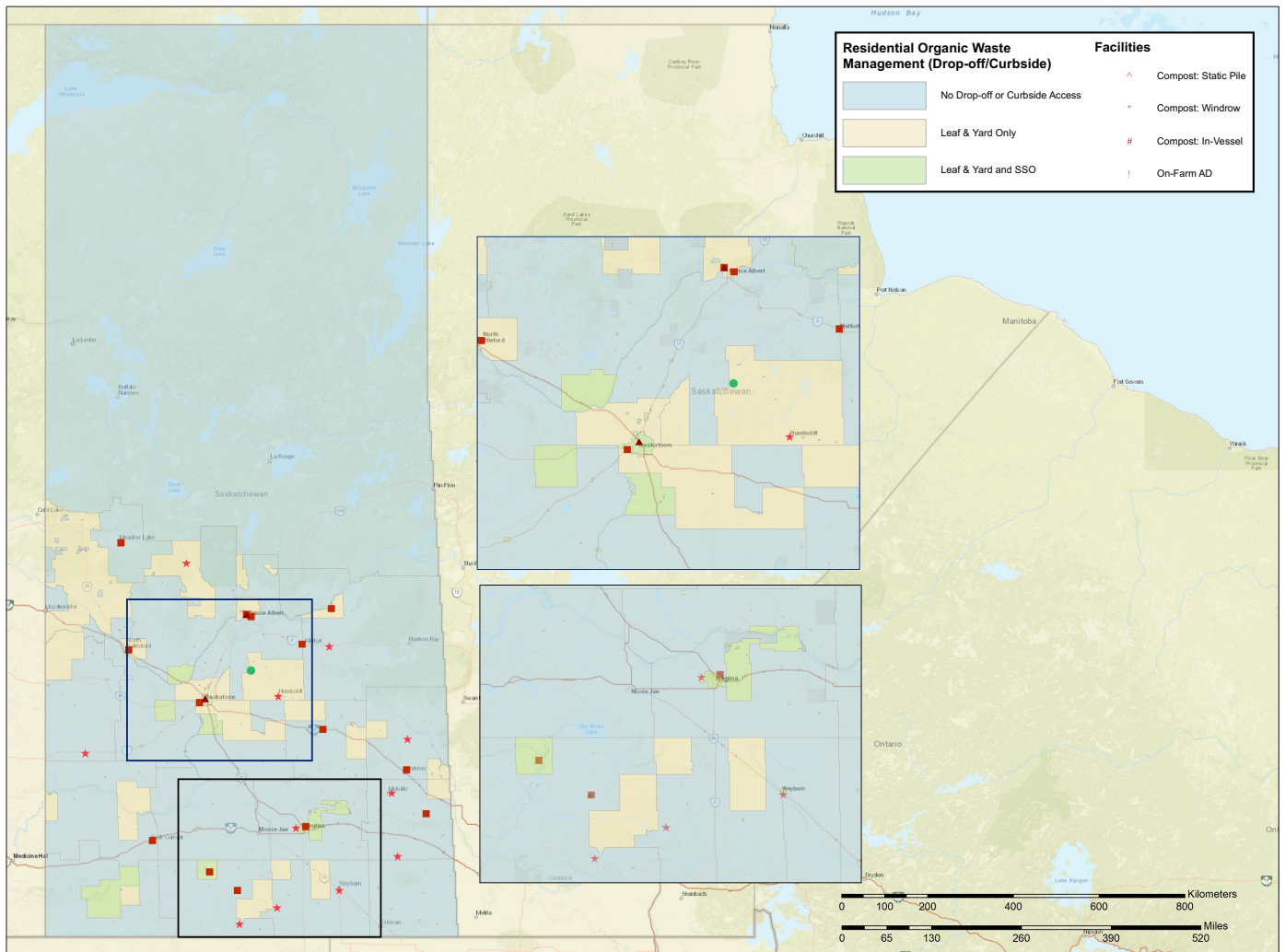


Figure A11: Residential Accessibility and Map of Composting and Anaerobic Digestion Facilities - Saskatchewan

**General Territory Information.** A snapshot of general territory statistics and information on notable features related to Yukon’s waste management activities are listed in Table A59.

Table A59: Background information on Yukon

Statistic	Value	Percent of Canada
Population <sup>a</sup>	35,874	0.12%
Size (km <sup>2</sup> )	482,443	4.8%
Population Density (person / km <sup>2</sup> )	0.07	-
Gross Domestic Product	\$2,781.0 M <sup>c</sup>	0.14%
Total Waste Generation <sup>b, d</sup>	119,908 tonnes total 29,319 tonnes diverted 90,489 tonnes disposed	0.34% 0.30% 0.35%
Notable Features	A northern territory with a strong resource-based economy that includes mining.	

a (Statistics Canada, 2019)

b (Statistics Canada, 2018)

c Chained 2012 Dollars

d Includes: Yukon, Northwest Territories, and Nunavut

**Overview of Policies, Programs, Approval Regime.** Yukon has yet to develop a strategic plan related to waste management, nor does it have any specific goals, programs or policies related to organics waste diversion.

**Approvals.** Table A60 and Table A61 provide a general outline of the approval requirements for compost facilities and anaerobic digestion facilities in the Yukon.

Table A60: Approvals for Compost Facilities in the Yukon

\*Note other municipal, provincial, or federal requirements may exist (e.g., zoning).

Regulation(s)	No Permit	Permit by Rule	Full Approval / Permit	Financial Assurance	Facility Reporting	Agricultural Operations
<a href="#">Environment Act</a> <a href="#">Solid Waste Regulations - Environment Act (EA)</a>	Backyard composting	None	Permit required for waste disposal facility (Section 7). Waste disposal facilities must be established in accordance with a solid waste management plan approved under s. 96 of the Act.	At the Minister’s discretion. The Minister may include in a permit or environmental protection order in respect of a development or activity a requirement that the person to whom the permit is issued or the order is directed provide financial assurance (s. 167 EA)	Not required	No separate process

Table A61: Approvals for AD Facilities in the Yukon

\*Note other municipal, provincial, or federal requirements may exist (e.g., zoning).

Regulation(s)	No Permit	Permit by Rule	Full Approval / Permit	Financial Assurance	Facility Reporting	Agricultural Operations
Not specifically mentioned  <a href="#">Solid Waste Regulations - Environment Act (EA)</a>  <a href="#">Environment Act</a>	None	None	Permit required for waste disposal facility (Section 7). Waste disposal facilities must be established in accordance with a solid waste management plan approved under s. 96 of the Act.	At the Minister's discretion. The Minister may include in a permit or environmental protection order in respect of a development or activity a requirement that the person to whom the permit is issued or the order is directed provide financial assurance (s. 167 EA)	Not required	No separate process

**Accessibility.** Table A62 and Figure A12 provide an overview of accessibility to municipal organic waste management programs in the Yukon.

In the Yukon, of 36 total census subdivisions, 3 have an organic waste management program providing 76 percent of the population with access. All programs include leaf and yard waste management. The largest program, located in Whitehorse, provides access to 70 percent of the population. This program includes both leaf and yard waste and SSO management through curbside collection. Two additional municipalities, Dawson and Haines Junction, have drop-off programs for SSO and collectively provide an additional 7 percent of the population with SSO management.

Table A62: Overview of Accessibility to Organics Management Programs - Yukon

Program Type	Number of Census Subdivisions with Program	Number of People Living in Area with Program	Percent of Total Province Population
Organics Management Program (Any)	3	27,070	76%
Curbside (Any)	1	25,085	70%
Leaf and Yard Waste Program	3	27,070	76%
Drop-off	2	1,985	6%
Curbside	1	25,085	70%
Source Separated Organics Program	3	27,070	76%
Drop-off	2	1,985	7%
Curbside	1	25,085	70%

**Organics Waste Processing.** Table A63 and Figure A12 present an overview of composting and anaerobic digestion facilities in the Yukon. Note the numbers for processed organics have only been presented in a consolidated format given the low number of facilities. The province has 3 composting which have approximately 3,700 tonnes/year processing capacity, and in 2019 processed approximately 2,900 tonnes and produced approximately 1,600 tonnes of compost and digestate. There are no anaerobic digestion facilities.

The facilities include small static pile facilities that take in small annual tonnages of leaf and yard waste and one aerated windrow facility in Whitehorse that processes SSO and leaf and yard waste.

Facilities	Number	Tonnes per year		
		Processing Capacity	Organic Waste Processed	Compost / Digestate Produced
Compost				
Static Pile	2	200	-	-
Windrow	1	3,500	-	-
In-vessel	-	-	-	-
Sub-Total	3	3,700	2,850	1,570
Anaerobic Digestion (AD)				
On-Farm	-	-	-	-
Industrial	-	-	-	-
Sub-Total	-	-	-	-
<b>Total</b>	<b>3</b>	<b>3,700</b>	<b>2,850</b>	<b>1,570</b>

Table A63: Overview of Composting and Anaerobic Digestion Facilities - Yukon

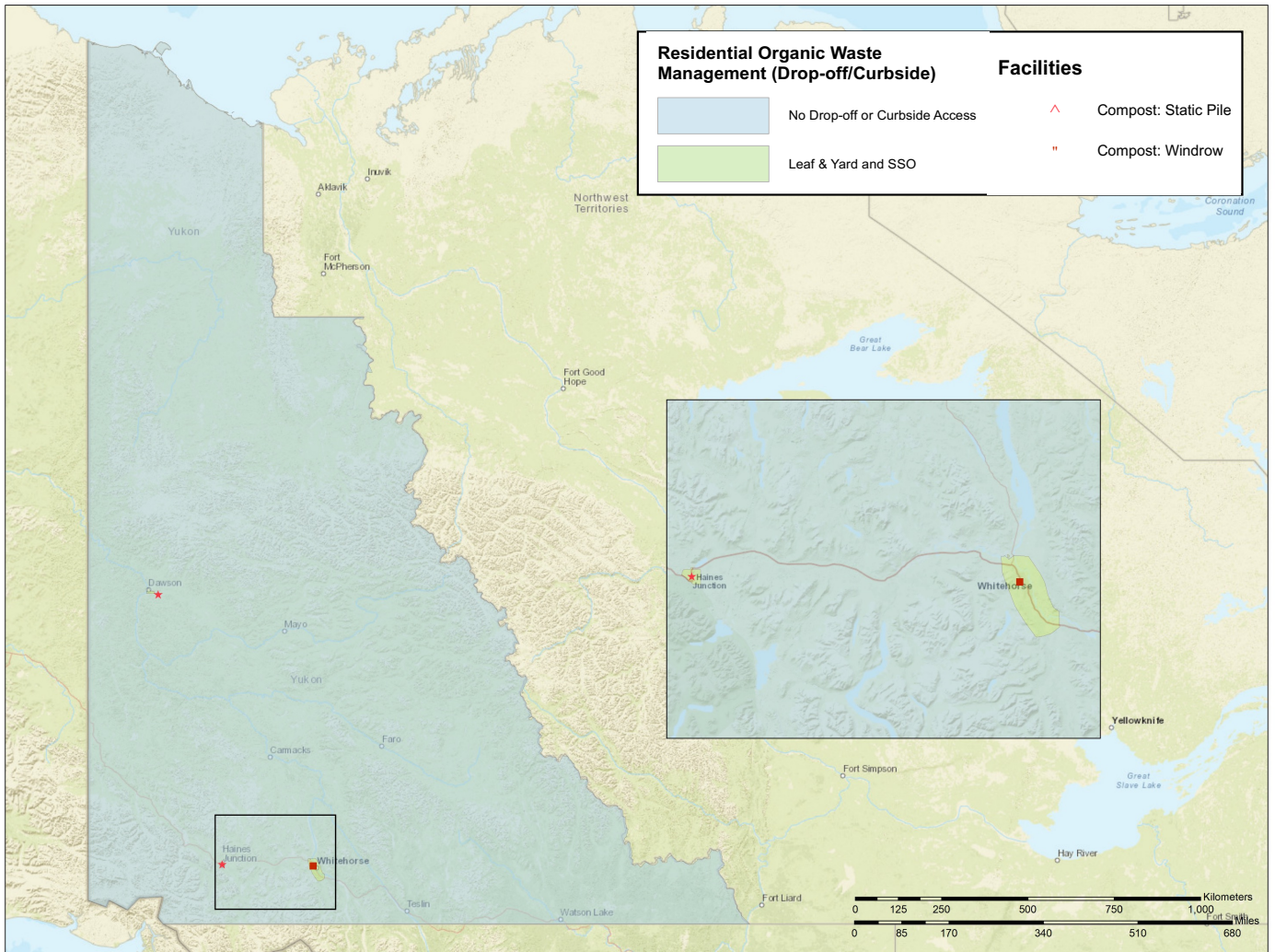


Figure A12: Residential Accessibility and Map of Composting and Anaerobic Digestion Facilities - Yukon

### Approach & Methodology

The report is meant to provide a current baseline understanding of organic waste diversion in Canada, including summaries of policies, requirements and regulations; organic waste diversion program accessibility; and composting and anaerobic digestion facilities, processing capacities and annual tonnes processed. The goal is to present data that can be iteratively be built upon and updated in future years. To help accomplish this, the report outlines the methodology used to collect all data, in particular for processing facilities. The report also includes a list of all facilities (Appendix B) that were included in the analysis, but aggregated relevant data to protect facility confidentiality.

An overview of the methodology used to aggregate the data and other information in this report is shared in the following sections.

**Literature Review.** A literature review of organic waste processing in Canada was conducted by undertaking a desktop scan for primary-source academic papers, government and organizational reports, trade magazine articles, news reports, and websites. This literature was cited, as relevant, and is included in the Bibliography.

**Policies, Programs and Approval Regimes.** A review of federal, provincial, and territorial policies, programs and approval regimes was conducted by communicating with appropriate provincial, territorial, and federal departments to obtain relevant information. It is important to underline that this was not an exhaustive review and there are likely subtle differences between jurisdictions that were not captured.

**Program Accessibility.** An assessment of towns, cities, villages, and regional areas was conducted to estimate the number of Canadians who live in areas with access to programs for managing household generated organic waste, including yard debris and SSO. The accessibility section does not evaluate participation of households that have access to an organic waste management program, nor does it evaluate access of commercial or industrial facilities to organic waste management programs.

The types of organic waste management programs categorized based on the type of waste managed and the mechanism of access. The two types of waste considered were leaf/yard waste and SSO. The two mechanisms for access were curbside collection and drop-off (sometimes referred to as depots) programs. Curbside collection included both routine collection of materials (e.g. weekly) as well as seasonal or irregular collection of leaf/yard waste. Drop-off locations included landfills, transfer stations, and community designated areas. Backyard compost programs were not considered.

Census data for 2016 (Statistics Canada, 2016), was used to generate a list of locations from census subdivisions to estimate per capita accessibility. Census subdivisions are defined at the provincial/territorial level and considered to be units of local government. Census subdivisions were assumed to be the lowest level of government that had the ability to implement and manage organic waste management programs. Higher levels of government at the regional or county level also have the potential to implement programs. In instances where this was identified, all census subdivisions included in that area were assumed to have the same programs in place as defined at the higher governmental level.

In 2016 there were 5,162 census subdivisions, which varies based on the province, ranging from 31 in Nunavut to 1,285 in Quebec. Similarly, the population associated with each census subdivision ranged from less than 100 people in rural areas to over 2.5 million in the largest population centers. An initial scoping effort to identify accessibility programs suggested that many of the smaller census subdivisions lacked programs or would require individual contact of local authorities to identify if a program existed. A cut-off of approximately 99 percent of the population in each census division was established to eliminate census subdivisions too small to capture accurately. This corresponds to a cut-off threshold of approximately 1,000 people or less.

Each census subdivision included in the analysis was evaluated for accessibility programs through internet searches. The name of each census subdivision was entered into a search query (Google) to locate legitimate websites (program, facility, government). The websites were evaluated to identify if a municipality had an organic waste management program, and if a program was found, to identify the type of wastes management and mechanisms for access. Websites were searched for keywords including: curbside or drop-off access, leaf, yard, organics, green bin, food waste, food scraps. In instances where none of the keywords were identified or a municipality website could not be identified it was assumed the census subdivision did not have an organic waste management program.

The methodology for evaluating program accessibility in Quebec was modified due to the availability of a map of municipalities with access to curbside composting programs developed by RECYC-QUEBEC (RECYC QUEBEC, n.d.). At the census division level, areas identified by RECYC-QUEBEC as having residential collection of food and green waste were considered to have access to curbside collection of leaf and yard and SSO. Similarly, the Saskatchewan Waste Reduction Council provides a list of all communities that offer composting or yard waste management (Saskatchewan Waste Reduction Council, n.d.). As a result, all communities in Saskatchewan identified in this resource were included regardless of population size.

In some instances, the survey of facilities indicated a location operated a publicly owned compost facility; however, no organics management program was identified in that location's census subdivision through the program accessibility methodology described above. It was assumed that these locations had access to a leaf and yard waste drop-off program, based on the known presence of a compost facility. The contact with each facility and information provided on processing capacity and tonnage managed confirmed that that location

had limited accessibility to an organic waste management program.

**Survey of Facilities.** All organic waste processing facilities identified as part of this study were surveyed to collect relevant data. Where facility level data was not available, additional research and data modeling was performed to create an estimate. The following types of organics processing facilities were included in this study:

- Compost sites, including static piles<sup>1</sup>, open windrow<sup>2</sup> and in-vessel systems<sup>3</sup>. These sites allow for a controlled and managed mesophilic and thermophilic microbiological process that is used to decompose organic wastes in the presence of oxygen and results in the production of compost.
- Anaerobic digestion sites include wet<sup>4</sup> and dry<sup>5</sup> anaerobic digestion systems, located at on-farm<sup>6</sup> and industrial<sup>7</sup> sites. Organic waste is digested and converted to biogas and digestate under anaerobic conditions. It produces biogas that can be used to produce renewable natural gas, electricity and/or heat. The digestate can be directly land applied and/or further processed and then land applied.

The following types of facilities were not included in this study:

- Rendering, which is an industrial process that converts waste animal tissue into stable, value-added materials such as purified fats like lard or tallow.
- Animal feed where materials, usually from the food and beverage industry, are reprocessed into feed for livestock or other animal or pet foods. Spent grain from breweries and distilleries, bakery waste, vegetable and fruit pulp, bone/blood/fish/meat meal, and eggshells are all often used for these purposes.
- Vermicompost or insect related organic processing, which provides for the processing for organic waste with the assistance of worms or other insects such as soldier flies. The worms and insects are sold, as well as the compost. For example, soldier fly larvae provide a nutrient supplement.
- Waste stabilization methods (such as lime stabilization, fermentation, pasteurization which is often used at wastewater treatment facilities for biosolids).
- Backyard composting systems.
- Direct land application of organic waste which is often done with municipal biosolids.

Facilities surveyed were identified through review of materials available through:

- Trade associations such as Coast Waste Management Association, the Canadian Biogas Association, Compost Council of Canada, Ontario Waste Management Association, the Recycling Association of Alberta, Recycling Council of British Columbia, the Recycling Council of Ontario,

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1 A method where organic waste is formed into piles, which are allowed to decompose with little or no mixing or turning. They can be aerated with decomposition.

2 A method whereby compost is produced by mixing organic wastes in long, relatively narrow rows (windrows) for the entire composting process.

3 A method where the organic materials being processed are enclosed in some sort of vessel (e.g. metal tanks or concrete bunkers) and provided with supplemental aeration for the most active part of the composting process.

4 Use organic material with consistency of 10-20 dry matter or less.

5 Use organic material with a consistency of 20->40 dry matter or more.

6 These facilities are located at an agricultural operation and process organic materials generated from farming operations (e.g. manure, bedding, feed waste, runoff from silos, etc.) and may also be processing off-farm materials as well.

7 These facilities process organic materials that are primarily from non-farming operation (e.g. source separated organics, fats and oils, food processing waste, pulp and paper).



the Saskatchewan Waste Reduction Council, and the Solid Waste Association of North America (SWANA) Northern Lights Chapter.

- Direct contact with provincial, and territorial governments, the federal government, and related agencies such as RECYC-QUEBEC.
- A desktop literature review.

Facilities were contacted directly with standardized surveys. For facilities where no response was received, additional work was undertaken to confirm activities through other publicly available sources including news articles, industry / government reports, and Google maps. For each province, an indication is provided on the

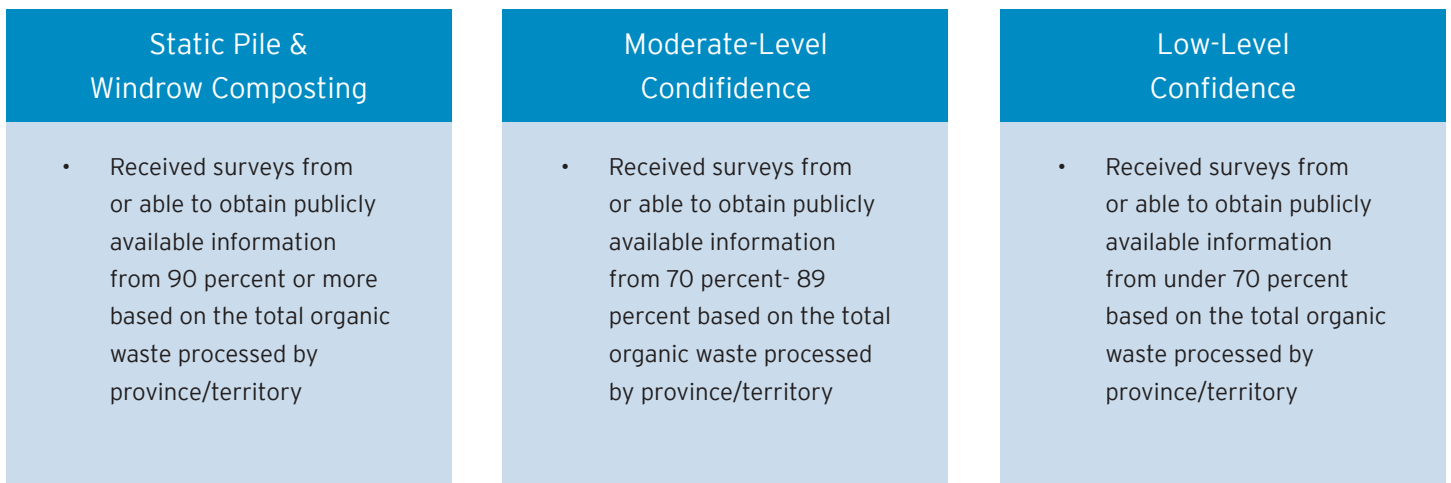


Figure B1: Level of Confidence in Data Based on Province/Territory

For some facilities, particularly smaller municipal sites that accept leaf and yard waste, facility capacity and annual amount processed was not readily available (e.g., many small facilities do not have weigh scales and do not track annual drop-offs). A model was developed to estimate capacity and tonnes processed for these facilities using data from Ontario’s Resource Productivity & Recovery Authority (RPRA). The RPRA undertakes a detailed municipal datacall (i.e., municipal governments are required to report annual information on residential waste) on that includes the diversion of leaf and yard waste and SSO.

To model the smaller facilities, 2018 Ontario municipal datacall was summarized into approximate and conservative average leaf and yard waste diverted by rural (40 kg/household/year) and urban households (120 kg/household/year). The averaged datacall information was compared against collected facility data for a selection of jurisdictions in Ontario. This information was used to develop the capacity thresholds identified in Table B1. Facility capacity is a function of the estimated amount of leaf and yard waste that would need to be processed and Table B1 below shows the assumed minimum capacities of each of these small facilities. This information was used to calculate estimated capacity for facilities that lacked specific capacity information.

Table B1: Thresholds Used to Evaluate Low-Capacity Municipal Composting Facilities Processing Leaf and Yard Waste

Population	Capacity
<5,000	100 tonnes
>5,000 and <10,000	500 tonnes
>10,000	1,000 tonnes

\*Numbers are rounded to the nearest 50 tonne increment.

For instance, a municipality with 2,500 residents (assume 2.5 residents/household) with a leaf and yard waste composting facility was assumed to have at least 100 tonnes/year of processing capacity and accepted 50 tonnes/year for processing. This approach was checked against small facilities for which data was available and was deemed to be reasonable.

## APPENDIX C

### List of Operational Canadian Organic Processing Facilities by Province / Territory British Columbia Facilities

Facility Name	City	Type of Facility	Main Technology (windrow, static pile, in-vessel, wet AD, dry AD)
Anaconda Composting Facility	Vancouver	Compost	In-vessel
Bakerview EcoDairy	Abbotsford	On-Farm AD	Wet AD
Hartland Landfill	Victoria	Compost	Static Pile
Chemainus Composting Facility	Chemainus	Compost	Static Pile
Cinnamon Ridge Compost Facility and Yard Waste Site	Kamloops	Compost	Windrow
City of Castlegar's Yard Waste Composting Facility	Castlegar	Compost	Windrow
Comox Valley Waste Management Centre	Cumberland	Compost	In-vessel
CWBC - Nanaimo	Nanaimo	Compost	In-vessel
The Answer Garden Products	Abbotsford	Compost	Windrow
Dawson Creek Compost Site	Dawson Creek	Compost	Static Pile
Earthbank Fish Compost	Parksville	Compost	Windrow, Static Pile
Ecowaste Industries Ltd.	Richmond	Compost	Windrow
Enviro-Smart Composting Facility	Delta	Compost	In-vessel, Static Pile
Fisher Road Recycling	Cobble Hill	Compost	In-vessel
Foothills Boulevard Regional Landfill	Prince George	Compost	Windrow
Forceman Ridge Landfill	Kitimat-Stikine	Compost	In-vessel
Fraser Valley Biogas	Abbotsford	On-Farm AD	Wet AD
Glenmore Landfill (Kelowna)	Kelowna	Compost	Windrow
Greater Vernon Diversion/Disposal Facility	Vernon	Compost	Windrow
Hudson's Hope Transtor Site	Hudson's Hope	Compost	Static Pile
Ladysmith Bio-Solids Composting Facility	Ladysmith	Compost	Windrow
Lillooet Landfill & Recycling Centre	Lillooet	Compost	Windrow
McKelvey Creek Landfill Site	Trail	Compost	Windrow
Merritt Biosolids Composting Facility	Merritt	Compost	Windrow
Mission Sanitary Landfill	Mission	Compost	Windrow, Static Pile
Net Zero Waste Abbotsford	Abbotsford	Compost	In-vessel
North Peace Regional Landfill	Charlie Lake	Compost	Static Pile
Okanagan Falls Landfill	Okanagan Falls	Compost	Static Pile
Oliver Landfill	Oliver	Compost	Windrow
Osoyoos Landfill	Osoyoos	Compost	Windrow
Campbell Mountain Landfill	Penticton	Compost	Windrow, Static Pile
Regional Biosolids Composting Facility (Ogogrow Compost production)	Vernon	Compost	Windrow
Grand Forks Regional Landfill	Grand Forks	Compost	Windrow
7 Mile Landfill and Recycling Center	Port McNeill	Compost	Windrow
Revelstoke Refuse Disposal Site	Revelstoke	Compost	Windrow
Revolution Waste Recovery	Lytton	Compost	Windrow
Salish Soils	Sechelt	Compost	Windrow

## British Columbia Facilities (continued)

<b>Facility Name</b>	<b>City</b>	<b>Type of Facility</b>	<b>Main Technology (windrow, static pile, in-vessel, wet AD, dry AD)</b>
Salmon Arm Refuse Disposal Site	Southeast Salmon Arm	Compost	Windrow
Sea To Sky Soils Composting Facility	Pemberton/Whistler	Compost	Windrow
Seabreeze Farm	Delta	On-Farm AD	Wet AD
SeaSoil Compost Facility	Port McNeill	Compost	Windrow
Spa Hills Farm	Salmon Arm	Compost	Windrow
Sparwood Heights Compost Depot	Sparwood	Compost	Windrow
Summerland Organics Processing Facility	Summerland	Compost	Windrow
Sun Peaks Wastewater Treatment Facility	Sun Peaks	Compost	In-vessel
Surrey Biofuel Facility	Surrey	Industrial AD	Dry AD
UBC In-Vessel Composting Facility	Vancouver	Compost	In-vessel
Vancouver Landfill and Recycling Depot	Delta	Compost	Static Pile
Village of Pouce Coupe Compost	Pouce Coupe	Compost	Static Pile
Whistler Compost Facility	Whistler	Compost	In-vessel

## Alberta Facilities

Facility Name	City	Type of Facility	Main Technology (windrow, static pile, in-vessel, wet AD, dry AD)
Airdrie Transfer Site Community Compost Pad	Airdrie	Compost	Windrow
Alberta Beach Class II Compost Facility	Alberta Beach	Compost	Static Pile
Aspen Waste Management Compost Facility	Drayton Valley	Compost	Static Pile
Bowden Class II Compost Facility	Red Deer County	Compost	Windrow
Calgary Composting Facility	Calgary	Compost	In-Vessel
Camrose Regional Sanitary Landfill	Camrose	Compost	Windrow
Chipman Class II Compost Facility	Chipman	Compost	Static Pile
City of Edmonton Cure Site and GORE pad	Edmonton	Compost	Windrow, Static Pile
City of Red Deer Waste Management Facility	Red Deer	Compost	Windrow
City of Wetaskiwin Sanitary Landfill	Wetaskiwin	Compost	Windrow
Cleanit Greenit Composting Facility	Edmonton	Compost	Static Pile
Cold Lake Class I Compost Facility	Cold Lake	Compost	Windrow
Community Compost Pile (Town of Bruderheim)	Bruderheim	Compost	Static Pile
East Calgary Composting Facility	Calgary	Compost	Windrow
East Peace Regional Landfill - Peace Regional Waste Management Company - Class III Compost Facility	St Isidore	Compost	Windrow
Eckville Class II Compost Facility	Eckville	Compost	Static Pile
Edson Municipal Landfill	Edson	Compost	Static Pile
Flagstaff Waste Regional Landfill	Sedgewick	Compost	Windrow
Foothills Regional Landfill & Resource Recovery Centre (LRRRC)	Okotoks	Compost	Windrow
Francis Cooke Regional Landfill and Class II Compost Facility	Exshaw	Compost	Windrow
Green Island Farm	Bow Island	Compost	Static Pile
GroTec (Grow the Energy Circle) - The Perry Farm	Chin	On-Farm AD	Wet AD
Kapasiwim Facility (called Parkland County on AEP Approvals List)	Parkland County	Compost	Static Pile
Lamont Class I Compost Facility	Lamont County	Compost	Static Pile
Legal Class II Compost Facility	Legal	Compost	Windrow
Lethbridge Biogas	Lethbridge	On-Farm AD	Wet AD
Lethbridge WRC Compost Pad	Lethbridge	Compost	Windrow
Mackenzie Regional Waste Management Commission (formerly High Level Municipal Landfill on AEP List)	Mackenzie County	Compost	Static Pile
Mayerthorpe Class II Compost Facility	Mayerthorpe	Compost	Static Pile
Medicine Hat Class I Compost Facility	Cypress County	Compost	Windrow
Newell Regional Waste Management	Brooks	Compost	Static Pile
Ponoka Class 1 Compost Facility	Ponoka County	Compost	Static Pile
PRINS Feedlot Class II Compost Facility	Strathcona County	Compost	Static Pile
Regional Municipality of Wood Buffalo Class I Compost Facility	Fort McMurray	Compost	In-vessel, Static Pile
Rocky Regional Landfill (ROCKY MOUNTAIN REGIONAL SOLID WASTE CLASS II COMPOST FACILITY)	Alhambra	Compost	Static Pile
Rosieridge Landfill	Morinville	Compost	Windrow

## Alberta Facilities (continued)

Facility	City	Type of Facility	Main Technology (windrow, static pile, in-vessel, wet AD, dry AD)
Seba Beach Compost Facility	Seba Beach	Compost	Static Pile
Spring Coulee Composting Facility	Kneehill County, Linden	Compost	Static Pile
Spyhill Composting Facility	Calgary	Compost	Windrow
Stettler Class II Compost Facility	Stettler	Compost	Windrow
Stickland Farms Compost Facility	Red Deer County	Compost	Static Pile
Stony Soil Products (purchased from Olds College)	Olds	Compost	Windrow
Strathmore Compost Facility	Strathmore	Compost	Static Pile
Taber Composting Facility	Taber	Compost	Static Pile
Town of Banff	Banff	Compost	Windrow
Wheatland Strathmore Compost Facility	Strathmore	Compost	Static Pile

## Saskatchewan Facilities

Facility Name	City	Type of Facility	Main Technology (windrow, static pile, in-vessel, wet AD, dry AD)
City of Meadow Lake Compost Site	Meadow Lake	Compost	Windrow
City of Melford Compost Site	Melfort	Compost	Windrow
City of Melville Landfill	Melville	Compost	Static Pile
City of North Battleford's Waste Management Facility	North Battleford	Compost	Windrow
JW Oliver Wastewater Treatment Plant	Prince Albert	Compost	Windrow
City of Prince Albert WWTP	Prince Albert	Compost	Windrow
City of Prince Albert Landfill	Prince Albert	Compost	In-vessel
City of Regina Landfill & Yard Waste Depot	Regina	Compost	Windrow
West Compost Depot (Saskatoon)	Saskatoon	Compost	Windrow
Swift Current Landfill	Swift Current	Compost	Windrow
City of Weyburn	Weyburn	Compost	Static Pile
Yorkton Landfill	Yorkton	Compost	Windrow
Cudsworth Pork Investors Group	Cudsworth	On-Farm AD	Wet AD
Regina Nutrient Composting Facility	Sherwood	Compost	Static Pile
Loraas Organics Facility	Saskatoon	Compost	In-vessel
REACT Waste Management District	Humboldt	Compost	Static Pile
Town of Assiniboia Compost Site	Assiniboia	Compost	Windrow
Town of Bengough Landfill	Bengough	Compost	Static Pile
Town of Big River	Big River	Compost	Static Pile
Canora Landfill	Canora	Compost	Static Pile
Town of Esterhazy Landfill Site	Esterhazy	Compost	Windrow
Town of Gravelbourg Composting Site	Gravelbourg	Compost	Windrow
Kindersley Waste and Recycle Centre	Kindersley	Compost	Static Pile
Town of Kipling Compost Site	Kipling	Compost	Static Pile
Nipawin Waste Diversion Center	Nipawin	Compost	Windrow
Rockglen Landfill	Rockglen	Compost	Static Pile
Tisdale Regional Landfill	Tisdale	Compost	Static Pile
Compost Site (Wynyard)	Wynyard	Compost	Windrow

## Manitoba Facilities

Facility Name	City	Type of Facility	Main Technology (windrow, static pile, in-vessel, wet AD, dry AD)
Altona/Rhineland Waste Disposal Grounds	Altona	Compost	Static Pile
Arnes Landfill Site	Gimli	Compost	Windrow
Balmoral Waste Transfer Station	Rockwood	Compost	Static Pile
Bar Waste Authority Co-op	Bifost	Compost	Windrow
Beausejour Lawn and Garden Compost Site	Beausejour	Compost	Windrow
Birch River Waste Disposal	Mountain	Compost	Windrow
Birtle Landfill	Birtle	Compost	Windrow
Boissevain-Morton Landfill	Morton	Compost	Static Pile
Brady Road Resource Management Facility - Biosolids Composting	Winnipeg	Compost	Windrow
Brady Road Resource Management Facility - Leaf and Yard Waste Composting	Winnipeg	Compost	Windrow
Carman Waste Transfer Station	Carman	Compost	Static Pile
City of Thompson	Thompson	Compost	Windrow
City of Portage la Prairie Compost Site	Portage la Prairie	Compost	Windrow
Compo-Stages Manitoba Services Co-op Inc.	La Broquerie	Compost	Windrow
Earl Grey Landfill	St Andrews	Compost	Static Pile
Enviroclean	Morden	Compost	In-vessel
Holland Landfill	Holland	Compost	Static Pile
Komarno Landfill	Komarno	Compost	Static Pile
Louise Integrated Waste Management Facility	Louise	Compost	Windrow
Miniota Landfill	Miniota	Compost	Static Pile
Morden Transfer Station	Morden	Compost	Windrow
Nor-Mac Landfill	MacGregor	Compost	Static Pile
Overton Giroux	Richer	Compost	Windrow
Overton Portage La Prairie	Portage la Prairie	Compost	Windrow
Penner Waste (Winkler)	Winkler	Compost	Windrow
Plum Coulee Landfill	Rhineland	Compost	Static Pile
Reston Landfill	Pipestone	Compost	Static Pile
Roland Waste Transfer Station	Roland	Compost	Static Pile
Russell Landfill	Russell	Compost	Static Pile
Swan River Landfill	Swan Valley West	Compost	Static Pile
Teulon Landfill	Teulon	Compost	Static Pile
The City of Steinbach Landfill	Steinbach	Compost	Windrow
The Eastview Landfill	Brandon	Compost	Windrow
The Forks Compost Facility	Winnipeg	Compost	In-vessel
Vita Waste Transfer Station	Vita	Compost	Static Pile
Waste Connections Prairie Green Integrated Waste Management Facility	Rosser	Compost	Windrow
Winfield Road Waste Transfer Station	Stonewall	Compost	Static Pile



## Manitoba Facilities (continued)

Facility	City	Type of Facility	Main Technology (windrow, static pile, in-vessel, wet AD, dry AD)
Dutton Dunwich Landfill Site	Dutton	Compost	Windrow
Eco Depot Ltd.	Rosslyn	Compost	Windrow
Eilers Farm Ltd.	Crediton	On Farm AD	Wet AD
ENS Poultry Inc.	Elora	On Farm AD	Wet AD
Essex (Town) /Essex-Windsor Solid Waste Authority	Essex	Compost	Windrow
Evergreen Recycling	Thornton	Compost	Static Pile
FEPRO Farms	Cobden	On Farm AD	Wet AD
Ferme Geranik	St-Albert	On Farm AD	Wet AD
Finnie Distributing (1997) Inc.	St Marys	Industrial AD	Wet AD
Gardiner Farms Ltd.	Kirkton	On Farm AD	Wet AD
Gord Watts Municipal Centre	Brockville	Compost	Windrow
Greenholm Farms Limited	Embro	On Farm AD	Wet AD
Gro-Bark Organics Inc.	Hornby	Compost	Windrow
Halton Regional Landfill - Milton	Milton	Compost	Windrow
Hamilton (City) - Central Composting Facility	Hamilton	Compost	In-vessel
Hamilton (City) - Glanbrook Landfill Site	Hamilton	Compost	Windrow
Hanmer (Valley East) Landfill	Sudbury	Compost	Windrow
Harcoll Farms	Beachville	On Farm AD	Wet AD
Jockvalley Farms Limited	Ashton	On Farm AD	Wet AD
Kawartha Lakes (City) - Eldon Landfill Site	Kirkfield	Compost	Static Pile
Kawartha Lakes (City) - Fenelon Landfill Site	Cameron	Compost	Static Pile
Kawartha Lakes (City) - Somerville Landfill Site	Burnt River	Compost	Windrow
Kenora Area Waste Disposal Site	Kenora	Compost	Static Pile
Kincardine Waste Management Centre - Leaf and Yard Waste Site	Tiverton	Compost	Static Pile
Kirchmeier Farms	St. Isidore	On Farm AD	Wet AD
Kitchener Street Landfill Site (Orillia)	Orillia	Compost	Static Pile
Koskamp Family Farm Biogas	Stratford	On Farm AD	Wet AD
Lambton Shores Compost Site	Lambton Shores	Compost	Static Pile
Laurentian Valley (Township) - Ottawa Valley Waste Recovery Centre	Ottawa	Compost	In-vessel, Windrow
Ledgecroft Farms Inc.	Seeleys Bay	On Farm AD	Wet AD
Lemieux Composting & Haul-away	Saulte Ste. Marie	Compost	Windrow
Marl Creek Renewables	Hanover	On Farm AD	Wet AD
Maryland Farms Biogas Ltd.	Reaboro	On Farm AD	Wet AD
Miller Paving Limited (Clarington)	Courtice	Compost	Windrow
Miller Waste Systems	Pickering	Compost	In-vessel
Miller Waste Systems - Leaf Composting Site	Markham	Compost	Windrow
Moose Creek Composting Facility	Moose Creek	Compost	In-vessel
Morrisburg Composting Site	Morrisburg	Compost	Static Pile
Muskoka (District) - Rosewarne Landfill Site	Bracebridge	Compost	Windrow
Muskoka (District) - Stisted Landfill Site	Huntsville	Compost	Windrow

## Manitoba Facilities (continued)

Facility	City	Type of Facility	Main Technology (windrow, static pile, in-vessel, wet AD, dry AD)
Muskoka (District) Beiers Landfill Site	Gravenhurst	Compost	Windrow
Niagara Waste Systems	Thorold	Compost	In-Vessel
Niagara Regional Road 12 - Niagara Region	West Lincoln	Compost	Windrow
Norterra Organics (Tomlinson Group)	Kingston	Compost	In-Vessel
Northumberland (County) - Brighton Landfill Site	Brighton	Compost	Windrow
O'Neil Biogas 1	Tecumseh	On Farm AD	Wet AD
Owen Sound Leaf & Yard Waste Composting Site	Owen Sound	Compost	Windrow
Oxford (County) - Salford Landfill	Salford	Compost	Windrow
Peel Integrated Waste Management Facility (Torbram Rd.)	Brampton	Compost	In-vessel
Perth Landfill Site	Perth	Compost	Windrow
Peterborough (City) - Harper Road Composting Site	Peterborough	Compost	Windrow
Petrocorn Inc.	Curran	On Farm AD	Wet AD
Pinehedge Farms	St. Eugene	On Farm AD	Wet AD
Schouten Corner View Farms	Richmond	On Farm AD	Wet AD
Seacliff Energy	Leamington	On Farm AD	Wet AD
Selwyn Landfill Site	Baillieboro	Compost	Windrow
Smiths Falls Compost Site	Smith Falls	Compost	Windrow
Southgate (Formerly Egremont) Landfill Site	Southgate	Compost	Windrow
Stanton Dairy Farm	Ilderton	On Farm AD	Wet AD
StormFisher - London	London	Industrial AD	Wet AD
Sudbury Landfill and Waste Diversion Site	Sudbury	Compost	Static Pile
SusGlobal Energy Belleville	Belleville	Compost	In-vessel
Terryland Farms Inc.	St. Eugene	On Farm AD	Wet AD
The City of Thunder Bay Waste and Recycling Facility	Thunder Bay	Compost	Windrow
TRY Recycling Inc. (London North)	London	Compost	Windrow
Walton Landfill (East Huron)	Huron East	Compost	Windrow
Wasaga Beach Landfill	Elmvale	Compost	Windrow
Woolwich Bio-en	Elmira	Industrial AD	Wet AD

## Ontario Facilities

Facility Name	City	Type of Facility	Main Technology (windrow, static pile, in-vessel, wet AD, dry AD)
1024248 Ontario Inc (SS Dairy)	St. Bernandin	On Farm AD	Wet AD
All Treat Farms Limited	Arthur	Compost	In-vessel, Windrow
Alliston Landfill Site (compost)	Adjala Tosorontio	Compost	Windrow
Assiginack Waste Diversion Depot	Manitowaning	Compost	Static Pile
Athlone Farms	Stratford	On Farm AD	Wet AD
Azilda landfill (City of Sudbury)	Sudbury	Compost	Static Pile
Balmertown Waste Disposal Site	Balmertown	Compost	Static Pile
Bayview Greenhouses Biogas System	Lincoln	On Farm AD	Wet AD
Beckwith Brush & Yard Waste Depot	Carleton Place	Compost	Static Pile
Birchlawm Farms Ltd.	North Perth	On Farm AD	Wet AD
Blue Mountains Landfill	Clarksburg	Compost	Windrow
Bridge Street Landfill - Regional Municipality of Niagara	Fort Erie	Compost	Windrow
Caledon Sanitary Landfill Composting Facility	Caledon Village	Compost	In-vessel
Cambridge Landfill	Cambridge	Compost	Windrow
Carleton Corner Farms	Russel	On Farm AD	Wet AD
CCS agriKomp	Millbrook	On Farm AD	Wet AD
Centre for Agricultural Renewable Energy and Sustainability	Chatham-Kent	On Farm AD	Wet AD
Champlain Township Landfill	Champlain	Compost	Static Pile
Chatsworth Biodigester (Georgian Bluffs)	Georgian Bluffs	Industrial AD	Wet AD
City of Barrie Compost Site (Sandy Hollow)	Barrie	Compost	Windrow
City of Brantford	Brantford	Compost	Windrow
City of Cornwall Landfill	Cornwall	Compost	Windrow
City of Guelph (AIM)	Guelph	Compost	In-vessel, ASP
City of Sarnia Compost Site	Sarnia	Compost	Windrow
City of Stratford Landfill Site	Stratford	Compost	Windrow
Clearydale	Spencerville	On Farm AD	Wet AD
Clovermead Farms Inc.	Alma	On Farm AD	Wet AD
Convertus London (Previously Orgaworld)	London	Compost	In-vessel
Convertus Ottawa (Previously Orgaworld)	Ottawa	Compost	In-vessel
County of Simcoe Landfill #52	Tiny	Compost	Windrow
County of Simcoe Landfill 11, (Oro Site)	Oro	Compost	Windrow
County of Simcoe Nottawasaga Landfill (Site 10)	Stayner	Compost	Windrow
De Bruin Farms Ltd.	Wolfe Island	On Farm AD	Wet AD
DeGroot's Nurseries	Sarnia	Compost	Static Pile
Delft Blue Veal Inc.	Cambridge	On Farm AD	Wet AD
Deloro - Timmins	Timmins	Compost	Windrow
Disco Road Organics Processing Facility	Etobicoke	Industrial AD	Wet AD
Donnandale Farms Inc.	Stirling	On Farm AD	Wet AD
Dungannon Waste Disposal Site	L'Amable	Compost	Windrow

## Ontario Facilities (continued)

Facility Name	City	Type of Facility	Main Technology (windrow, static pile, in-vessel, wet AD, dry AD)
Dutton Dunwich Landfill Site	Dutton	Compost	Windrow
Eco Depot Ltd.	Rosslyn	Compost	Windrow
Eilers Farm Ltd.	Crediton	On Farm AD	Wet AD
ENS Poultry Inc.	Elora	On Farm AD	Wet AD
Essex (Town) /Essex-Windsor Solid Waste Authority	Essex	Compost	Windrow
Evergreen Recycling	Thornton	Compost	Static Pile
FEPRO Farms	Cobden	On Farm AD	Wet AD
Ferme Geranik	St-Albert	On Farm AD	Wet AD
Finnie Distributing (1997) Inc.	St Marys	Industrial AD	Wet AD
Gardiner Farms Ltd.	Kirkton	On Farm AD	Wet AD
Gord Watts Municipal Centre	Brockville	Compost	Windrow
Greenholm Farms Limited	Embro	On Farm AD	Wet AD
Gro-Bark Organics Inc.	Hornby	Compost	Windrow
Halton Regional Landfill - Milton	Milton	Compost	Windrow
Hamilton (City) - Central Composting Facility	Hamilton	Compost	In-vessel
Hamilton (City) - Glanbrook Landfill Site	Hamilton	Compost	Windrow
Hanmer (Valley East) Landfill	Sudbury	Compost	Windrow
Harcoll Farms	Beachville	On Farm AD	Wet AD
Jockvalley Farms Limited	Ashton	On Farm AD	Wet AD
Kawartha Lakes (City) - Eldon Landfill Site	Kirkfield	Compost	Static Pile
Kawartha Lakes (City) - Fenelon Landfill Site	Cameron	Compost	Static Pile
Kawartha Lakes (City) - Somerville Landfill Site	Burnt River	Compost	Windrow
Kenora Area Waste Disposal Site	Kenora	Compost	Static Pile
Kincardine Waste Management Centre - Leaf and Yard Waste Site	Tiverton	Compost	Static Pile
Kirchmeier Farms	St. Isidore	On Farm AD	Wet AD
Kitchener Street Landfill Site (Orillia)	Orillia	Compost	Static Pile
Koskamp Family Farm Biogas	Stratford	On Farm AD	Wet AD
Lambton Shores Compost Site	Lambton Shores	Compost	Static Pile
Laurentian Valley (Township) - Ottawa Valley Waste Recovery Centre	Ottawa	Compost	In-vessel, Windrow
Ledgecroft Farms Inc.	Seeleys Bay	On Farm AD	Wet AD
Lemieux Composting & Haul-away	Saulte Ste. Marie	Compost	Windrow
Marl Creek Renewables	Hanover	On Farm AD	Wet AD
Maryland Farms Biogas Ltd.	Reaboro	On Farm AD	Wet AD
Miller Paving Limited (Clarington)	Courtice	Compost	Windrow
Miller Waste Systems	Pickering	Compost	In-vessel
Miller Waste Systems - Leaf Composting Site	Markham	Compost	Windrow
Moose Creek Composting Facility	Moose Creek	Compost	In-vessel
Morrisburg Composting Site	Morrisburg	Compost	Static Pile

## Ontario Facilities (continued)

Facility Name	City	Type of Facility	Main Technology (windrow, static pile, in-vessel, wet AD, dry AD)
Muskoka (District) - Rosewarne Landfill Site	Bracebridge	Compost	Windrow
Muskoka (District) - Stisted Landfill Site	Huntsville	Compost	Windrow
Muskoka (District) Beiers Landfill Site	Gravenhurst	Compost	Windrow
Niagara Waste Systems	Thorold	Compost	In-Vessel
Niagara Regional Road 12 - Niagara Region	West Lincoln	Compost	Windrow
Norterra Organics (Tomlinson Group)	Kingston	Compost	In-Vessel
Northumberland (County) - Brighton Landfill Site	Brighton	Compost	Windrow
O'Neil Biogas 1	Tecumseh	On Farm AD	Wet AD
Owen Sound Leaf & Yard Waste Composting Site	Owen Sound	Compost	Windrow
Oxford (County) - Salford Landfill	Salford	Compost	Windrow
Peel Integrated Waste Management Facility (Torbram Rd.)	Brampton	Compost	In-vessel
Perth Landfill Site	Perth	Compost	Windrow
Peterborough (City) - Harper Road Composting Site	Peterborough	Compost	Windrow
Petrocorn Inc.	Curran	On Farm AD	Wet AD
Pinehedge Farms	St. Eugene	On Farm AD	Wet AD
Schouten Corner View Farms	Richmond	On Farm AD	Wet AD
Seacliff Energy	Leamington	On Farm AD	Wet AD
Selwyn Landfill Site	Bailieboro	Compost	Windrow
Smiths Falls Compost Site	Smith Falls	Compost	Windrow
Southgate (Formerly Egremont) Landfill Site	Southgate	Compost	Windrow
Stanton Dairy Farm	Ilderton	On Farm AD	Wet AD
StormFisher - London	London	Industrial AD	Wet AD
Sudbury Landfill and Waste Diversion Site	Sudbury	Compost	Static Pile
SusGlobal Energy Belleville	Belleville	Compost	In-vessel
Terryland Farms Inc.	St. Eugene	On Farm AD	Wet AD
The City of Thunder Bay Waste and Recycling Facility	Thunder Bay	Compost	Windrow
TRY Recycling Inc. (London North)	London	Compost	Windrow
Walton Landfill (East Huron)	Huron East	Compost	Windrow
Wasaga Beach Landfill	Elmvale	Compost	Windrow
Woolwich Bio-en	Elmira	Industrial AD	Wet AD

## Quebec Facilities

Facility Name	City	Type of Facility	Main Technology (windrow, static pile, in-vessel, wet AD, dry AD)
AZN2 Environnement	Notre-Dame-de-l'Île-Perrot	Compost	Windrow
Blackburn Cheese Factory	Jonquiere	On-Farm AD	Wet AD
Centre de gestion des matières résiduelles Municipalité des Îles-de-la-Madeleine	Les Îles-de-la-Madeleine (Havre-aux-Maisons)	Compost	Windrow
Centre de traitement et valorisation de Coaticook	Coaticook	Compost	Windrow
Centre régional de traitement de la matière organique	Thetford Mines	Compost	Windrow
Projet pilote de Bioréacteur Anaérobie- Aérobie Séquentiel (BAAS)	Terrebonne	AD	Closed Cell bioreactor
Centre de compostage de résidus verts	Terrebonne	Compost	Windrow
Complexe environnemental de Saint-Michel	Montréal	Compost	Windrow
Compo Recycle	Chertsey	Compost	In-vessel
Compospro Inc	La Malbaie	Compost	Windrow
Compost Sainte-Anne Inc.	Thérèse-de Blainville	Compost	Windrow
Compostage de la rue Notre-Dame Ouest	Montréal	Compost	Windrow
Compostage GL	Sainte-Marie-Madeleine	Compost	Static Pile
Dépôt Rive-Nord Inc.	Saint-Thomas	Compost	Windrow
Écocentre Amos	Amos	Compost	Windrow
Écocentre de Cowansville	Cowansville	Compost	Windrow
Enviroval Inc.	Portneuf	Compost	Static Pile
Epursol - 9147-9279 QC Inc	Cheneville	Compost	In-vessel
Ferme R. Peloquin	Sainte-Edwidge-de-Clifton	On-Farm AD	Wet AD
Fromagerie La Vache à Maillotte	La Sarre	AD	Wet AD
Fromagerie Le Détour	Temiscouata-Sur-Le-Lac	On-Farm AD	Wet AD
Fromagerie Port-Joli	Saint-Jean-Port-Joli	On-Farm AD	Wet AD
Bury Treatment Centre	Bury	Compost	Static Pile
Lachute Treatment Centre	Lachute	Compost	Windrow
Saint-Rosaire Treatment Centre (Gaudreau Environnement Inc)	Saint-Rosaire	Compost	Windrow
Saint-Henri Treatment Centre	Saint-Henri-de-Lévis	Compost	Static Pile
Laiterie Charlevoix	Baie-St-Paul	On-Farm AD	Wet AD
Mironor	Brownsburg-Chatham	Compost	Windrow
MRC Rocher-Percé	Chandler	Compost	Windrow
MRC Vallée de la Gatineau	Kazabazua	Compost	Windrow
Multitech Environnement	Rouyn-Noranda	Compost	Static Pile
Plateforme de compostage municipal de la MRC de Témiscamingue	Saint-Edouard-de-Fabre	Compost	Windrow
Premier Tech Ltée	Rivière-du-Loup	Compost	Windrow
PRO-ALGUE MARINE INC.	Saint-Simon-de-Rimouski	Compost	Windrow
Régie de gestion des matières résiduelles de la Rouge	Rivière Rouge	Compost	In-vessel
Régie intermunicipale des déchets de la Lievre	Mont-Laurier	Compost	Static Pile
Scotts Canada Ltée	Saint-Bonaventure	Compost	Windrow
Shigawake Organics Ltée	Shigawake	Compost	Windrow
Simetech Environnement inc.	Témiscouata-sur-le-Lac	Compost	
Site de compostage de Rimouski	Rimouski	Compost	Windrow
Société d'économie mixte d'énergie renou- velable de la région de Rivière-du-Loup (SÉMER)	Rivieres-du-Loup	Industrial AD	Wet AD

## Quebec Facilities (continued)

Facility	City	Type of Facility	Main Technology (windrow, static pile, in-vessel, wet AD, dry AD)
Société d'Économie Mixte de l'Est de la Couronne Sud (SÉMECS) inc. (MRC La Vallée-du-Richelieu, MRC Marguerite-D'Youville, MRC Rouville et agglomération de Longueuil)	Varenes	Industrial AD	Wet AD
St-Hilaire Farm	St-Odilon-de-Cranbourne	On-Farm AD	Digester
Ville de Lac Mégantic	Lac-Mégantic	Compost	Windrow
Centre de valorisation des matières organiques de Saint-Hyacinthe	Saint-Hyacinthe	Industrial AD	Wet AD

## New Brunswick Facilities

Facility Name	City	Type of Facility	Main Technology (windrow, static pile, in-vessel, wet AD, dry AD)
Belledune Composting Facility	Belledune	Compost	Windrow
Carlow Composting Facility	Carlow	Compost	Windrow
Charlo Composting Facility	Charlo	Compost	Windrow
Clarendon Composting Facility	Clarendon	Compost	Windrow
Compost Facility on McLeod Drive (Village of Sussex)	Town of Sussex	Compost	Static Pile
Southeast Eco360 Solid Waste Management Facility	Berry Mills	Compost	In-vessel
Envirem AGRI-Supply Facility-Rivière-Verte	Rivière-Verte	Compost	Windrow
Escuminac Composting Facility	Baie-Sainte-Anne	Extracts Peat	Windrow
Fredericton Composting Facility	Fredericton	Compost	Windrow
Grand-Barachois Composting Facility	Grand-Barachois	Compost	Windrow
Holmesville Composting Facility	Holmesville	Compost	Static Pile
Juniper Road Composting Facility	Juniper	Compost	Windrow
Keswick Ridge Composting Facility	Keswick Ridge	Compost	Static Pile
Killarney Road Composting Facility	Nashwaak Village	Compost	In-vessel
Laforge Bioenvironmental	St. Andre	On-Farm AD	Wet AD
Lamèque Composting Facility (Anciennement Francois Robert David)	Lamèque	Compost	Static Pile
Miramichi Composting Facility	Miramichi	Compost	Windrow
Moncton Composting Facility	Moncton	Compost	In-vessel
Nackawic Composting Facility	Nackawic	Compost	Windrow
Penobsquis Composting Facility	Penobsquis	Compost	Windrow
Petitcodiac Composting Facility	Petitcodiac	Compost	Static Pile
Picadilly Composting Facility	Picadilly	Compost	Static Pile
Rothesay Composting Facility	Rothesay	Compost	Windrow
Saint Francois Compost Facility	Saint-François	Compost	Windrow
Saint John Solid Waste Composting and Recycling Facility	Saint John	Compost	Windrow
Simcox Road Composting Facility	Speerville	Compost	Windrow
Site de compostage de Lamèque Portage	Haut-Lamèque	Compost	Windrow
South Branch Composting Facility	South Branch	Compost	Windrow
Woodstock Composting Facility	Woodstock	Compost	Windrow
Youngs Cove Composting Facility	Youngs Cove	Compost	In-vessel



## Nova Scotia Facilities

Facility Name	City	Type of Facility	Main Technology (windrow, static pile, in-vessel, wet AD, dry AD)
Atlantic Country Compost (TE Boyle Farm & Forestry Limited)	Tracadie, Antigonish County	Compost	Static Pile
Baddeck Composting Facility	Baddeck, Victoria County	Compost	Static Pile
Beech Hill Solid Waste Resource Management Facility	Beech Hill, Antigonish County	Compost	Windrow
CBRM Composting Facility	Sydney	Compost	In-vessel
Colchester Balefill / Composting Facility	Kempton, Colchester County	Compost	In-vessel
Courthouse Hill Farm Energy	Kennetcook	On-Farm AD	Wet AD
Cumberland Central Composting Facility	Little Forks, Cumberland County	Compost	Windrow
Dingwall Transfer Station	Cape North	Compost	Static Pile
Fundy Compost Incorporated	Brookfield, Colchester County	Compost	Windrow
Guysborough Composting Facility	Guysborough County	Compost	Windrow
Halifax Ragged Lake Composting Facility	Goodwood	Compost	In-vessel
Inverness Composting Facility	Kenloch, Inverness County	Compost	Static Pile
Kaizer Meadow Environmental Management Centre	Chester	Compost	Static Pile
Lunenburg Regional Recycling and Composting Facility	Whynott Settlement, Lunenburg County	Compost	In-vessel
Maibec/Louisiana Pacific Resources Group Technology	East River, Chester	Compost	Windrow
Maple Avenue Compost Site	Wolfville	Compost	Static Pile
Miller Waste Systems	Dartmouth	Compost	In-vessel
Northridge Farms	Demsey Corners, Kings County	Compost	In-vessel
The Pictou County Solid Waste Management Composting Facility	Mount William, Pictou County	Compost	In-vessel
Spectacle Lake Concrete & Excavating Ltd. Campsite Environmental Inc. Compost Facility	Church Point, Digby County	Compost	Windrow
TE Boyle	Tracadie, Antigonish County	On-Farm AD	Wet AD on-farm
Town of Yarmouth Compost Facility	South Ohio, Yarmouth County	Compost	In-vessel
West Arichat Composting Facility	West Arichat, Richmond County	Compost	Static Pile
West Arichat Composting Facility	West Arichat, Richmond County	Compost	Static Pile
Windmill Holsteins Inc.	Shubenacadie	On-Farm AD	Wet AD on-farm

## Prince Edward Island Facilities

Facility Name	City	Type of Facility	Main Technology (windrow, static pile, in-vessel, wet AD, dry AD)
Cavendish Farms Biogas Facility	New Annan	On-Farm AD	Wet AD Industrial
Central Compost Facility (Brookfield)	Brookfield	Compost	In-vessel
East Prince Waste Management Facility	Miscouche	Compost	Windrow

## Newfound and Labrador Facilities

Facility Name	City	Type of Facility	Main Technology (windrow, static pile, in-vessel, wet AD, dry AD)
Avalon Mall Compost Site	St. John's	Compost	In-vessel
Bay Roberts Community Compost Facility	Bay Roberts	Compost	Windrow
Burin Peninsula Regional Service Board Compost Site	Jean de Baie	Compost	Windrow
Carbonear Leaf Composting Facility	Carbonear	Compost	Static Pile
Deer Lake Compost Site	Deer Lake	Compost	Static Pile
Gander Community Compost Site	Gander	Compost	Static Pile
Grand Falls-Windsor Compost Site	Grand Falls-Windsor	Compost	Windrow
Harbour Breton Compost Site	Harbour Breton	Extracts Peat	Static Pile
Hawkes Bay Composting Site	Hawkes Bay	Compost	Static Pile
Island Compost Site	Conception Bay South	Compost	Static Pile
Lester's Farm Chalet Compost Site	St. John's	Compost	Windrow
Lewisporte Compost Facility	Lewisporte	Compost	Static Pile
New World Dairy	Saint David's	On-Farm AD	Wet AD on-farm
Robin Hood Bay Waste Management Facility	St John's	Compost	Windrow

## Yukon Facilities

Facility Name	City	Type of Facility	Main Technology (windrow, static pile, in-vessel, wet AD, dry AD)
City of Whitehorse Waste Management Facility	City of Whitehorse	Compost	Windrow
Quigley Landfill	Dawson City	Compost	Static Pile
Village of Haines Junction Landfill	Village of Haines Junction	Compost	Static Pile

## Northwest Territories Facilities

Facility Name	City	Type of Facility	Main Technology (windrow, static pile, in-vessel, wet AD, dry AD)
Solid Waste Facility (Yellowknife)	Yellowknife	Compost	Windrow
Hay River's Northern Farm Training Institute	Hay River	Compost	Windrow
Choice North Farms	Hay River	Compost	Windrow
Ekati Mine	Fort Smith	Compost	In-vessel