



Recommendations for
Reducing Leaf and Yard Waste
in Alberta

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Alberta Environment and Sustainable Resource Development

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Executive Summary

The Recommendations for Reducing Leaf and Yard Waste in Alberta is a plan for Albertans to switch from disposing leaf and yard waste in landfill to recycling it. Organics, including leaf and yard waste, make up an estimated 40 per cent of the residential and 25 per cent of the industrial, commercial, and institutional waste streams. When leaf and yard waste is disposed in landfill, it generates greenhouse gases and nutrients are locked up in the landfill. Recycling these resources by composting and returning the resulting compost back to land can increase soil productivity. To help realize this opportunity, the Leaf and Yard Waste Diversion Technical Committee developed these recommendations for diverting leaf and yard waste to beneficial use.

Recommendations

There are seven recommended activities needed to establish a leaf and yard waste recycling system in Alberta:

- 1) Develop a strong **market pull** for compost to ensure it is recycled and returned back to soil;
- 2) Institute a **measurement and monitoring** system to determine current disposal rates and future improvements;
- 3) Establish **partnerships** and multi-stakeholder teams to help link compost producers with consumers and support the recommended actions;
- 4) Establish leaf and yard waste **diversion targets and timelines** for reaching those targets;
- 5) Promote the **expansion of composting infrastructure**;
- 6) Develop **communication, education, and training** for those that manage leaf and yard waste and the resulting compost; and,
- 7) Demonstrate **provincial government leadership** to model the way in managing leaf and yard waste.

Funding for additional composting infrastructure is important for supporting these recommendations. The committee discussed four funding options:

- 1) Establish provincial diversion goals and compliance tools and let the market guide program development;
- 2) Revive the provincial Resource Recovery Grant Program to pay for composting infrastructure;
- 3) Use existing grant programs, such as the Climate Change Emissions Management Fund; and,
- 4) Use landfill surcharges to fund a new grant program for leaf and yard waste composting infrastructure. The program would be managed by a board operating at arm's-length to government.

Option one was viewed most favorably for diverting leaf and yard waste from disposal. The committee urges the Government of Alberta to work with stakeholders and establish leaf and yard waste diversion targets and timelines to support this option.

The committee agreed that options two and three have merit and supports further developing either one.

Option four was least preferred for leaf and yard waste composting infrastructure. The committee felt there are too many uncertainties about how funds would be redistributed and expressed concerns that large jurisdictions would end up funding smaller ones. They also felt that a landfill surcharge funding program would be an excessive solution for the issue.

Acknowledgements

The Government of Alberta gratefully acknowledges the guidance and direction provided by the Leaf and Yard Waste Diversion Technical Committee in developing these recommendations. The members volunteered their time to attend meetings, provide feedback, and review documents.

The committee's goal was to develop recommendations that would:

- Divert leaf and yard waste from the waste stream
- Create a beneficial resource from leaf and yard waste
- Help Albertans understand the benefits of managing leaf and yard waste as a resource
- Engage Albertans in participating in leaf and yard waste diversion
- Create green jobs
- Improve soil quality from land application of recycled organic products
- Reduce greenhouse gases from landfills

The committee was originally formed in January 2006 and completed its initial work by January 2007. It then reconvened in April 2009 to further refine the recommendations and direct the development of the following reports:

- [Leaf and Yard Waste Diversion Strategy Feasibility Study \(August 2010\)](#)
- [Review of LCAs on Organics Management Methods & Development of an Environmental Hierarchy \(February 2011\)](#)
- [Leaf & Yard Waste Diversion Targets in Alberta: A Benefit Cost Analysis \(April 2012\)](#)

See Appendix A for a detailed history of the Leaf and Yard Waste Diversion Technical Committee.

Committee members since 2006:

Committee Member	Organization
Allan Yee	Compost Council of Canada, City of Edmonton
Daryl McCartney	Edmonton Waste Management Centre of Excellence, University of Alberta
Don Davies	Stantec
Donna Chaw	Alberta Environment and Sustainable Resource Development
Doug Wilson	University of Calgary
Janet Whitesell	City of Red Deer
Jennifer Koole	City of Calgary
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Lindsey Lofthouse	City of Calgary
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Melanie Cooke	City of Calgary
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Definitions

Beneficial use of leaf and yard waste: The diversion of leaf and yard waste from landfill disposal to a process that creates a reusable product that maximizes social, environmental and economic values. Examples of these processes include composting, grass cycling, mulching, and anaerobic digestion. Examples of reusable products include soil amendment, peat replacement, erosion control, and mulch.

Compost: A solid mature product resulting from composting which is a managed process of bio-oxidation of a solid heterogeneous organic substrate including a thermophilic phase. In Alberta, material must meet the Canadian Council of Ministers of the Environment (CCME) Guidelines for Compost Quality to be considered compost.

Composting: The biological decomposition of organic materials, substances or objects under controlled circumstances to a condition sufficiently stable for nuisance-free storage and for safe use in land application.

Cost effective: Sustainable in the sense that triple bottom line factors (environmental, social, economic) are considered in addition to compliance with regulation.

Grasscycling: Leaving grass clippings on the lawn when mowing instead of bagging them.

Leaf and yard waste: Vegetative matter resulting from gardening, horticulture, landscaping or land clearing operations, including materials such as tree and shrub trimmings, plant remains, grass clippings, leaves, trees, and stumps.

Municipal Solid Waste Stream (as defined by Statistics Canada): This includes waste generated by the residential, industrial, commercial, institutional (ICI), and construction and demolition (C&D) sectors, and deposited in Alberta's Class II and Class III landfills.

Recycled organic products: Products manufactured from compostable organic materials (e.g., leaf and yard waste, food scraps, clean wood, biosolids, and agricultural organics).

Waste Management Hierarchy: The prioritization of management choices in order of most preferred to least. The management options in order of preference are: 1) waste reduction, 2) re-use, 3) recycling, 4) energy recovery, and 5) disposal.

Xeriscaping: Landscaping and gardening methods that minimize water use. Xeriscaping can include using drought-tolerant plants, mulch, and efficient irrigation.

1. Introduction

As Alberta’s population grows, so does pressure to conserve landfill space, protect water quality, and conserve soil. Organics such as food scraps and leaf and yard waste are approximately 40 per cent of the residential and 25 per cent of the industrial, commercial, and institutional waste streams. When organics are disposed in landfills, they generate greenhouse gases and leave valuable soil nutrients locked up in the landfill. Instead, organics can be recycled to create products such as compost, which can be returned to the land to help build healthy soils.

A study reviewing end of life management options for leaf and yard waste and other organics in Alberta determined that “...the environmental impacts information gleaned from the life cycle assessments was sufficient to determine that aerobic composting and anaerobic digestion are both environmentally preferable to either waste-to-energy or landfill gas-to-energy.”¹ Despite the potential value of organics like leaf and yard waste, in Alberta the majority of these materials are being landfilled.

The Government of Alberta currently lacks programs to support the diversion of organics from disposal in landfill. A committee of stakeholders was therefore asked to develop recommendations for reducing the disposal of leaf and yard waste into landfills. Leaf and yard waste, such as grass clippings and tree and shrub trimmings, was chosen because it is the simplest type of organics to manage.

1.1. Vision

Beneficially recycle leaf and yard waste to build soil, protect water quality, and create healthy, thriving landscapes.

Figure 1.1 illustrates managing leaf and yard waste as a linear system where the nutrients are pulled out of the soil as plant material and disposed in landfill.

Figure 1.1: Current system for managing leaf and yard waste

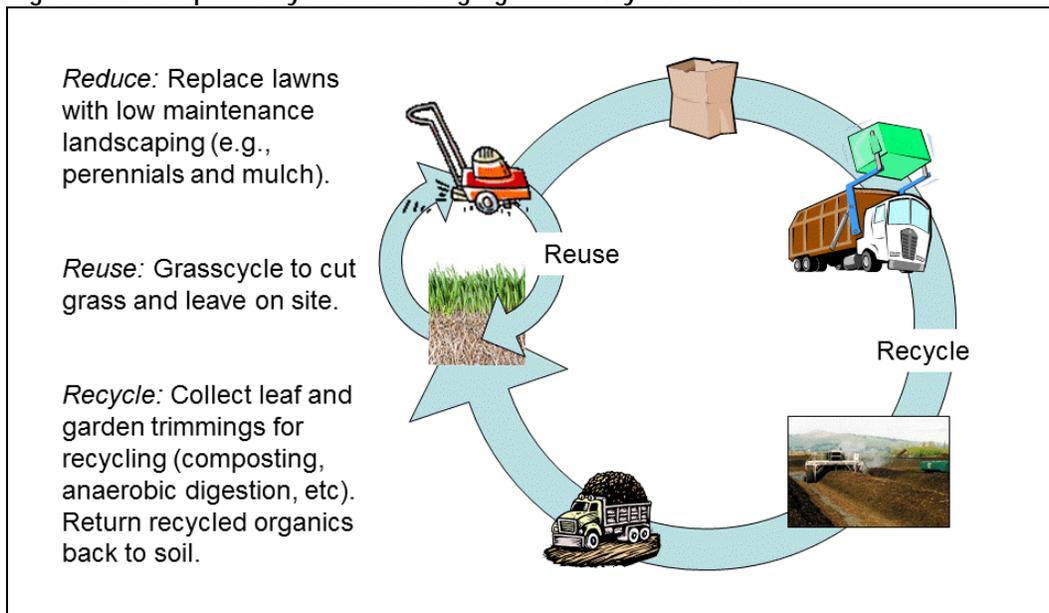


¹ Sound Resource Management Group (2011). Review of LCAs on Organics Management Methods & Development of an Environmental Hierarchy, p. 1. Retrieved from <http://environment.gov.ab.ca/info/library/8350.pdf>

This system needs to be reimagined as a cycle that returns nutrients to the soil (Figure 1.2). By establishing such a cycle, leaf and yard waste will be treated as a resource and the negative environmental impacts of its disposal in landfills will be reduced or eliminated.

Following the waste management hierarchy of reduce, reuse, and recycle, the first management option is to reduce the amount of leaf and yard waste created. This option includes low maintenance land management practices that reduce the area of grass that needs to be mowed and leaving the cut grass on the lawn rather than bagging it for collection. These activities would decrease the amount of leaf and yard waste collected and managed. Recycling options are still needed for leaf and yard waste that is not reused on site.

Figure 1.2: Proposed cycle for managing leaf and yard waste



1.2. The Link between Healthy Soil and Recycling Organics

There are important links between recycling organics like leaf and yard waste and healthy soil. Healthy soil contains enough organic matter, nutrients and water for plants to flourish. Organic matter keeps water and nutrients in the soil, supports a healthy microbial community, and keeps soils loose so plant roots can easily grow.

Plants pull water and nutrients from the soil through their roots to grow. When lawns are mowed and the material is sent to the garbage, the nutrients in the grass clippings are also thrown away. By recycling leaf and yard waste through anaerobic digestion or composting, the rich organic matter and soil nutrients can be returned back to the soil as compost. This reduces the need for mineral fertilizers for growing healthy plants. It also increases the soil's water holding capacity as the compost acts like a sponge and retains water when it rains. The water is then available for plants instead of having it run off as stormwater so less irrigation is required.

1.3. Links to Other Government of Alberta Strategies

Recycling leaf and yard waste and using compost fits under the umbrella of several Government of Alberta strategies:

- [*Too Good to Waste*](#);
- [*Climate Change Strategy*](#);
- [*Water for Life, a Renewal*](#); and,
- [*Greening Government*](#).

Too Good to Waste is Alberta's road map for waste reduction and management. It identifies the issues and opportunities, and outlines the outcomes, strategies and priority actions to help Alberta move forward with innovative waste management programs. Increasing composting and beneficial use of organics will occur when the Government of Alberta "...shift(s) towards supporting recycling, composting, and resource recovery programs and infrastructure."² The links between the recommended actions from this document and *Too Good to Waste* are provided in Appendix B.

The *Climate Change Strategy* includes initiatives to decrease greenhouse gas emissions from Alberta industries. Landfills emit greenhouse gases from the anaerobic decomposition of biodegradable waste such as leaf and yard waste. Diverting this material from disposal will decrease greenhouse gas emissions from landfills and reserve landfill space for non-recyclable materials. Putting compost back on the land is similar to carbon capture and storage: the carbon in the compost is added to the soil and can be incorporated in soil organic matter.

The updated *Water for Life, a Renewal* includes the following: *Safeguarding our water sources including...more fully integrating water and land management and continuing to create, enhance and use innovative tools and best practices.*³

² Government of Alberta (2007). *Too Good to Waste*, p. 17. Retrieved from <http://environment.gov.ab.ca/info/library/7822.pdf>

³ Government of Alberta (2008). *Water for Life, a Renewal*, p. 6. Retrieved from <http://environment.gov.ab.ca/info/library/8035.pdf>

Adding compost to our landscapes can make the soil more productive while decreasing the amount of water needed. It is a best practice that supports efficient water use.

The *Greening Government Strategy* explains how the Government of Alberta is committed to greening its operations and reducing its environmental footprint. The Government of Alberta can play a pivotal role in market development for compost and other products from recycled leaf and yard waste.

1.4. Current Management for Leaf and Yard Waste in Alberta

The committee defined leaf and yard waste as: “vegetative matter resulting from gardening, horticulture, agriculture, landscaping or land clearing options, including materials such as tree and shrub trimmings, plant remains, grass clippings, leaves, trees and stumps.”

The most common source of leaf and yard waste is single family homes, although multi-family complexes, schools, businesses, golf courses, municipal parks and sports fields can also be significant sources.

Figure 1.3 illustrates the estimated tonnes of leaf and yard waste collected by waste managers in 2010. The majority of leaf and yard waste collected in Alberta is sent for disposal in landfills. Leaf and yard waste that is recycled is typically sent to composting facilities. Other methods of recycling leaf and yard waste include anaerobic digestion and spreading small volumes of leaf and yard waste directly on land so it can decompose back into the soil.

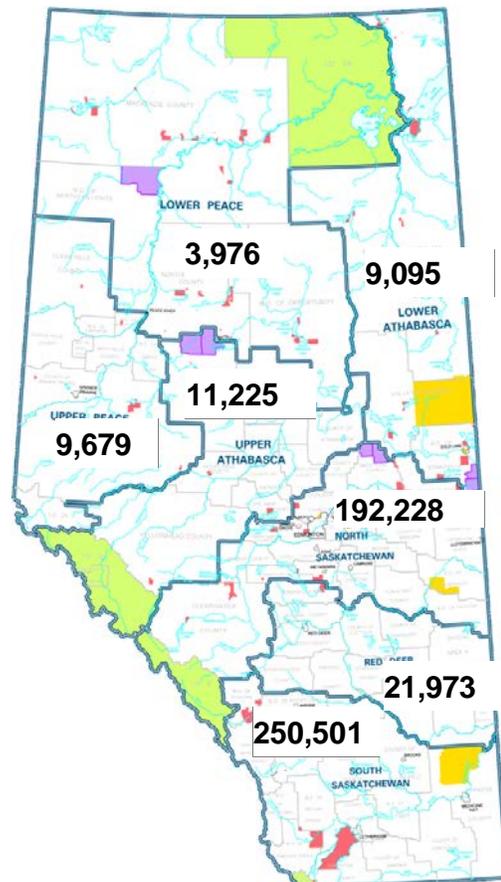


Figure 1.3: Estimated tonnes of leaf and yard waste collected in 2010 from residential and industrial, commercial, and institutional sources. The map is divided into Land-use Framework regions.

Residential and industrial, commercial, and institutional sources contribute significant amounts of leaf and yard waste to municipal solid waste. Table 1.1 shows breakdown of amount of leaf and yard waste collected from these sources for different regions of Alberta.

Table 1.1: A summary of “as disposed” leaf and yard waste quantities for different regions of Alberta (CH2M Hill 2010).

Land-use Framework Region	Population*	Residential L&YW (tonnes/yr)	ICI L&YW (tonnes/yr)
North Saskatchewan	1,281,139	151,311	40,917
South Saskatchewan	1,531,318	200,646	49,855
Red Deer	274,784	15,147	6,826
Lower Athabasca	131,786	6,476	2,619
Upper Athabasca	119,039	7,410	3,815
Lower Peace	41,291	2,617	1,359
Upper Peace	116,946	6,588	3,091
Total	3,496,303	390,195	108,482

* Population from 2008 provincial census data.

2. Recommended Actions

There are seven key actions needed to significantly decrease the disposal of leaf and yard waste in landfills. These actions focus on developing a market pull for composted leaf and yard waste, rather than a policy push for diverting it from disposal. This list of actions can be used as a stepping stone for establishing an organics recycling system in Alberta. Each action is divided into short term (one to two years), medium term (two to five years), and long term steps (five to ten years). The goal is create a cultural shift so Albertans understand the value of leaf and yard waste and healthy soil.

The recommended actions are:

- 1) Develop a strong market pull for compost;
- 2) Institute a measurement and monitoring system;
- 3) Establish partnerships and stakeholder teams;
- 4) Establish diversion targets and timelines;
- 5) Promote the expansion of composting infrastructure;
- 6) Develop communication, education, and training; and,
- 7) Demonstrate provincial government leadership.

The success of these activities is linked to funding recycling composting facilities and other recycling infrastructure. Funding options are explored in Section 3.

2.1. Develop a Strong Market Pull for Compost

Short term

- Conduct municipal survey to establish current compost use on green spaces and understand barriers and opportunities for use (completed [*Municipal Compost Use Survey*](#) in June 2013).
- Survey provincial ministries managing urban green spaces to establish current compost use and to understand compost use barriers and opportunities.
- Work with Alberta Agriculture and Rural Development to better understand opportunities and barriers in agricultural markets.

Medium term

- Work within the Greening Government program to increase government procurement of compost and other recycled organic products.
- Assess survey results and determine ways to reduce or remove barriers.
- Work with municipalities to establish programs using recycled organic products.

Long term

- Work with landscape architects and other industry stakeholders to expand compost use in land planning tools such as low impact development guidelines.
- Establish the Government of Alberta as a leader in using recycled organic products.

Discussion

The objective is to create a strong market pull to keep material out of landfill, rather than a policy push that comes from implementing a disposal ban. Strong markets will help ensure that compost is used rather than stockpiled. Organics are not truly recycled until they are returned back to the soil. Leaf and yard waste is most likely to be recycled through grasscycling and composting. Other technologies such as anaerobic digestion and bioreactor landfills can also be used but require larger financial investments than windrow composting facilities.

Alberta Transportation has a list of [compost products](#) as acceptable tools for erosion and sediment control, including types of cover (compost blankets) and berms (EcoBerms and textile socks filled with compost). Additions to this list require the ministry's approval as well as subsequent monitoring to ensure acceptability. The Government of Alberta can expand the acceptable compost product list for erosion control products, as appropriate, and support Government of Alberta use of these products.

2.2. Institute a Measurement and Monitoring System

Short term

- Encourage voluntary reporting on Alberta's Online Waste Measurement System for tonnes of organics disposed and recycled and compost sold by waste management facilities in Alberta.

Medium term

- Mandate organics reporting on Government of Alberta's Online Waste Measurement System for all waste management facilities in Alberta.
- Establish indicators of success, such as percentage of leaf and yard waste diverted from landfill and the amount of compost used.
- Share information with the public about leaf and yard waste diversion activities.

Long term

- Map the reported information to determine organics generation and recycling "hot spots".
- Use data to illustrate waste flows from generators to organics recyclers to markets, and evaluate opportunities for improvements.

Discussion

The [Standards for Composting Facilities in Alberta \(2007\)](#) contains the list of data provided for tonnage reports. This information will help establish a baseline amount of leaf and yard waste and other organics collected for composting. By collecting data over several years, the Government of Alberta will be able to monitor trends and better understand the effectiveness of the leaf and yard waste diversion activities.

Measuring organics recycling at waste management facilities will not provide information about waste reduction efforts occurring at higher stages in the waste reduction hierarchy such as grasscycling or landscaping to reduce turf grasses that require mowing. Other performance measures would be needed to capture this information.

2.3. Establish Partnerships and Stakeholder Teams

Short term

- Work with municipalities and the composting industry to identify links between compost producers and consumers.
- Create teams to help establish leaf and yard waste reduction programs at both provincial and municipal levels (e.g., grasscycling, xeriscaping).

Medium term

- Assess recommended diversion targets in the *Feasibility Study* with waste managers and update as required. Include timelines for meeting targets (see section 2.4 for more details).
- In areas that have achieved residential diversion targets for leaf and yard waste, work with waste managers to expand efforts to the ICI sector and all organics.

Long term

- Renew partnerships and teams as required.

Discussion

Because of Alberta's diverse population densities and infrastructure needs, the provincial government should work closely with waste managers to understand how best to support municipalities. Working in teams will allow information sharing between government, industry, and others affected by the diversion strategy. Teams and partnerships should be attentive to regional needs. These teams and their mandates need to be clearly defined to ensure there is no undue overlap with the current waste commissions and committees currently operating in Alberta.

2.4. Establish Diversion Targets and Timelines

Short term

- Encourage waste managers to establish voluntary diversion targets for leaf and yard waste.

Medium term

- The Government of Alberta works with waste managers in each Land-use Framework region to establish diversion targets and timelines. The targets listed in the *Feasibility Study* can be used as a starting point.
- Municipalities report to the provincial government on their diversion progress.
- Baseline leaf and yard waste data from the ICI sector are collected and reported by waste managers to the Government of Alberta. Based on those numbers, diversion targets and timelines are established for the ICI sector in each land-use region.

Long term

- Re-evaluate diversion targets and timelines.
- Implement a disposal ban on leaf and yard waste if targets are not reached through voluntary measures.

Discussion

If the aggressive diversion targets from the Feasibility Study are adopted, 57 per cent of leaf and yard waste collected would be composted instead of disposed, as opposed to the current level of 22 per cent⁴. The *Benefit Cost Analysis for Leaf and Yard Waste Diversion in Alberta* report showed the total benefit of meeting the aggressive diversion targets will be \$9.3 million annually by 2020. This is from saving landfill space and the value of the compost produced.

The Benefit Cost Analysis report shows that a couple of regions in Alberta have already met recommended diversion targets⁵ for the residential portion of leaf and yard waste. Since these targets are merely a starting point for leaf and yard waste, more work remains in these regions to capture the value of all organics.

The provincial government must work with waste managers to set appropriate diversion targets and timelines for a significant increase in diverting leaf and yard waste from disposal. The committee recommends prioritizing data collection and market development for recycled organics before diversion targets are established.

Population density and transportation costs are key factors in determining waste management options for a community. There also is diversity in the type of organics collection and processing technology, ranging from small static piles for composting leaf and yard waste to a large mass bed composting operation in the City of Edmonton. There is no “one size fits all” province wide policy that would be suitable for all jurisdictions. Therefore, waste managers must have the freedom to decide what tools will best suit their community. The provincial government should focus on the outcomes of a diversion target, while the waste managers choose what actions they will take to meet the targets. A list of policy tools for waste reduction is found in Appendix C.

One key challenge with implementing regional diversion targets is to define what jurisdictions are in which region. If the regions in the Land-use Framework are used, waste reduction partnerships in Alberta do not align perfectly with the regions established through the Land-use Framework. The differences between the boundaries would need to be addressed.

2.5. Promote the Expansion of Composting Infrastructure

Short term

- Assess funding options for infrastructure development for recycling leaf and yard waste. See Section 3 for more details.

Medium term

- The Government of Alberta supports and/or implements funding options for leaf and yard waste infrastructure development. More detailed conversations with Albertans are needed to clarify which funding options are desirable.

⁴ Government of Alberta (2012). Leaf & Yard Waste Diversion Targets in Alberta: A Benefit Cost Analysis. Retrieved from <http://www.environment.gov.ab.ca/info/library/8667.pdf>

⁵ Ibid, p. 5.

Long term

- Determine whether long term funding is required for leaf and yard waste recycling infrastructure.

Discussion

The *Too Good to Waste* strategy recommends developing options for funding resource recovery infrastructure. These need to be linked with policies and economic tools to encourage resource recovery and discourage waste disposal. An estimated 130,000 tonnes of leaf and yard waste is composted annually⁶. Infrastructure is needed for an additional 370,000 tonnes if leaf and yard waste is to be composted throughout the province. The largest deficit is in the South Saskatchewan region. See Section 3 for more information about funding options.

If composting infrastructure is expanded, it must be supported by updated regulations for composting facilities in Alberta. The existing regulatory requirements are inadequate for compliance measures for facilities with poor operations. This risk can be mitigated by adopting clearer rules, facility audits, and appropriate education of operators. It is not known when the *Standards for Composting Facilities* will be formally adopted under Alberta regulations.

2.6. Develop Communication, Education, and Training

Short term

- Work with producers and consumers to develop resources that explain compost uses.
- Work with the Compost Council of Canada to expand the [Compost Quality Alliance](#) program as a marketing tool for compost producers.
- Build peer support networks through information sharing, including hosting webinars on leaf and yard waste diversion.

Medium term

- Develop a province wide education campaign (e.g., social media, commercials) encouraging grasscycling and other options for reducing the disposal of leaf and yard waste.
- Create tools to support market development (e.g., guidelines, spreadsheets) for different compost uses.
- Work with the compost industry to determine the needs of composting facility operators. Increase training opportunities to meet those needs.
- Review attendance and effectiveness of webinars and make changes to webinars as required.

⁶ CH2M Hill (2010). Leaf and Yard Waste Diversion Strategy Feasibility Study. Retrieved from <http://www.environment.gov.ab.ca/info/library/8668.pdf>

Long term

- Create an education program that explains the role of recycled organics in healthy soil, with a focus on soils in urban areas.
- Work with Alberta Education to include information about recycling organics and healthy soil in school curriculum.
- Continue to review effectiveness of webinars. If they continue to be useful, expand webinars to address additional topics related to organics recycling.

Discussion

The current system for managing leaf and yard waste needs to change so Albertans understand the value of recycling to avoid disposing them in a landfill. There are many stewards involved in managing leaf and yard waste: generators, haulers, waste managers, and compost users. Different communication, education and training tools are needed to effectively reach different audiences. A cultural shift can occur when Albertans have a basic understanding of the long term impacts of landfilling organics such as leaf and yard waste and the importance of organic matter in soil.

2.7. Demonstrate Provincial Government Leadership

Short term

- Survey Government of Alberta departments to better understand how compost is being used for managing provincial green spaces and any barriers and opportunities for its use.

Medium term

- Work with landscaping industry to develop and adopt best management practices for managing leaf and yard waste and using compost on green spaces managed by the Government of Alberta. Formally adopt these practices under the [*Greening Government Strategy*](#).
- Support research and development of new products and applications.
- After identifying opportunities, incorporate changes to leaf and yard waste management in Government of Alberta business practices.

Long term

- Develop a Provincial Organics Strategy for the organic fraction of municipal solid waste.
- Create clear links between organics diversion and initiatives for healthy soil, with a focus on disturbed soils in urban areas.

Discussion

Through the *Greening Government Strategy*, a foundation is laid for adopting green practices and modeling the way for the province. The Recommendations for Reducing Leaf and Yard Waste in Alberta is a natural extension of the work already done through Greening Government. By examining opportunities to improve Government of Alberta policies, the provincial government can lead the way in leaf and yard waste diversion and market development.

The Government of Alberta is potentially one of the largest end-users of compost and can develop green procurement policy commitments to using recycled content materials (such as compost) in situations where these products perform as well as or better than non-recycled

materials. This would support market development so compost produced from diverting leaf and yard waste does not pile up across the province or end up disposed in landfills. Similar work could be conducted with the federal government to develop parallel policies for federal buildings and green spaces.

In addition to work within the ministries, the provincial government should work with municipalities to identify and overcome barriers to using compost. For example, compost has proven environmental benefits when used for erosion control and landscaping. It may be appropriate to establish a preference for using locally produced compost rather than other products.

3. Funding Options for Composting Infrastructure

In the *Leaf and Yard Waste Diversion Strategy Feasibility Study (2010)* the province wide cost for developing windrow composting infrastructure and collection bins is an estimated \$25 million. Table 3.1 outlines the infrastructure requirements in dollars by region. These costs are based on recycling 80 per cent of the residential leaf and yard waste at composting facilities. Additional capacity will be needed if leaf and yard waste from the ICI sector or other types of organics are included.

Table 3.1: Summary of Conceptual L&YW Infrastructure Requirements by Geographic Region (windrow composting, 2010 dollars)

Region	New/Upgrade of Drop-off and Transfer Sites	New Class III Facilities*	New Class II Facilities**	Upgrade/Expansion Of Existing Facilities
North Saskatchewan				
Number	26	5	1	10
Est. Capital Cost	\$195,000	\$300,000	\$175,000	\$1,260,000
South Saskatchewan				
Number	24	4	0	6
Est. Capital Cost	\$180,000	\$250,000		\$17,400,000
Red Deer				
Number	10	3	0	10
Est. Capital Cost	\$75,000	\$100,000		\$1,575,000
Lower Athabasca				
Number	0	2	0	2
Est. Capital Cost		\$150,000		\$875,000
Upper Athabasca				
Number	1	7	0	4
Est. Capital Cost	\$7,500	\$575,000		\$250,000
Lower Peace				
Number	0	3	0	1
Est. Capital Cost		\$125,000		\$75,000
Upper Peace				
Number	5	7	0	1
Est. Capital Cost	\$37,500	\$350,000		\$500,000
Province-Wide Total				
Number	64	31	1	31
Est. Capital Cost	\$495,000	\$1,850,000	\$175,000	\$21,935,000
Overall Total				\$24,445,000

* Composting facilities that accept 100 to 500 tonnes per year of leaf and yard waste, as defined by the Standards for Composting Facilities in Alberta.

** Composting facilities that accept more than 500 tonnes per year of leaf and yard waste, as defined by the Standards for Composting Facilities in Alberta.

The committee agreed that Alberta's current regulatory framework and incentives for provincial composting programs are not satisfactory and strongly urges the Government of Alberta to follow through on Alberta's *Too Good to Waste Strategy*, including:

- Develop economic instruments to discourage waste generation and disposal (pg. 12);
- Develop options for funding resource recovery infrastructure linked with policies and economic tools to encourage resource recovery and discourage disposal as waste (pg. 16); and,
- Link provincial funding and support for regional waste management plans to provincial outcomes and policies regarding resource conservation and waste management (pg. 17).

Historically, the Government of Alberta provided funding for waste management and recycling infrastructure. More than \$66 million of provincial funds were spent from 1976 to 2006 through the Waste Management Assistance Program. Alberta began regionalizing its municipal landfill system in the 1970s so that, instead of small municipal "dumps" throughout the countryside, regional landfills with a network of transfer stations would consolidate waste. This allowed the cost effective development of engineered landfill sites. An additional \$9.5 million was issued through the Resource Recovery Grant program and used for recycling projects and composting⁷. This program has been closed for several years.

Subsidizing waste management infrastructure has helped make landfill disposal economical for waste generators. Private landfills may compete with each other and municipal landfills for waste, which can result in a race to the bottom for low tipping fees. Low tipping fees may encourage disposal over recovery.

Private composting facilities are not common in Alberta. They require an initial investment for building the facility and then compete with landfills for the leaf and yard waste. When landfills have low tipping fees, it is not economically viable for private investors to establish competing composting operations. The 2010 Feasibility Study reported some tipping fees in the province were as low as \$25 per tonne,⁸ while the costs of developing and operating a small windrow composting facility were estimated at \$50 to \$60 per tonne.⁹ In areas of the province with this disparity, it is unlikely composting infrastructure will be developed unless funding is provided or leaf and yard waste recycling is made mandatory.

Despite these challenges, composting is an economically beneficial management option for leaf and yard waste. New landfills are costly to site, design, build, and close. The report *Leaf and Yard Waste Diversion Targets in Alberta: A Benefit Cost Analysis* shows that disposal costs for landfilling leaf and yard waste is comparable to composting. Based on these costs, diverting leaf and yard waste from disposal could save waste managers \$9.3 million annually by 2020 from saving landfill space and the value of the compost produced.

The committee examined several mechanisms for funding composting infrastructure to support leaf and yard waste diversion as summarized in Table 3.2.

⁷ Government of Alberta. (2004) Alberta's Municipal Waste Action Plan, 2004 – 2006, p. 3. Retrieved from <http://www.environment.gov.ab.ca/info/library/6360.pdf>.

⁸ CH2M Hill (2010). Leaf and Yard Waste Diversion Strategy Feasibility Study, p. 11-4. Retrieved from <http://www.environment.gov.ab.ca/info/library/8668.pdf>

⁹ Ibid, p. 5-13.

Table 3.2: Summary of options examined for funding leaf and yard windrow composting infrastructure.

Option	GOA leading collection of funds?	Source of Funding
1) Municipal governments and waste management industry fund themselves	No	Various, can be linked with municipal waste management policies e.g., tag-a-bag, public private partnerships
2) Revive the Resource Recovery Grant Program	Yes	Taxpayers through the Government of Alberta
3) Use existing grant programs e.g., Municipal Sustainability Initiative	Varies	Varies, depends on the fund
4) Develop new grant fund from landfill surcharge managed by a third party organization	Yes	Waste generators

These funding recommendations focused on windrow composting infrastructure as it is the most financially viable option for leaf and yard waste. The committee felt that the amount needed for this initiative is small when compared to the total cost of funding needed for infrastructure development in Alberta.

The committee most strongly supported Option 1: *Municipal governments and waste management industries fund themselves*. If this option is supported by the provincial government, it *must be coupled with enforceable diversion targets and timelines*. This option can be developed in addition to one or more of the other options.

Next in preference, the committee recommends reviving the Resource Recovery Grant Program to fund leaf and yard waste composting infrastructure. Setting up a one-time grant program is similar to previous Government of Alberta initiatives to support waste management and resource reduction priorities. The committee feels that composting is a public good and therefore it is appropriate to cover the costs by tax dollars.

If the Resource Recovery Grant Program cannot be revived, the committee's next preferred option is that the government supports prioritizing leaf and yard waste infrastructure funding through currently established grants. For example, the Municipal Sustainability Initiative provides funding for capital projects such as waste management facilities and equipment.

The least preferred and most divisive option for the committee was Option 4, collecting landfill surcharges for a grant program. Although some strongly preferred this option and felt that it most clearly followed a "polluter pay" principle, others believed that the effort to create a fund and a third party administrative organization was too hefty a solution for leaf and yard waste composting infrastructure. Committee members also expressed the concern that landfill surcharges could lead to cross jurisdictional funding.

More detailed comments from the committee about the four options are found in Appendix D.

3.1. Set Diversion Goals and Allow Markets to Guide Program Development

This section explores the option of municipalities and private businesses meeting the diversion goals without Government of Alberta funding.

Many municipalities have already implemented leaf and yard waste collection programs, which are funded through tipping fees and compost sales. In 2010, an estimated 27 per cent of leaf and yard waste was diverted from landfill.¹⁰

Appendix C includes a list of policy tools that waste managers can use to reduce the amount of leaf and yard waste sent for landfilling in their communities. These tools could be part of a broader package available from ESRD to support diversion activities across the province. Municipalities could choose the best tool for their particular circumstances.

Advantages

This approach takes the focus away from funding and moves it to reducing and reusing organic materials. Allowing markets to guide program development will lead to diverse programs and policies that best fit local needs.

Risks

This approach requires comprehensive baseline data to set defensible diversion targets. Complementary policies (e.g., mandatory diversion targets) will have to be implemented as past voluntary measures have had little success.

3.2. Revive Grant Fund for Recycling Infrastructure

Alberta Environment and Sustainable Resource Development previously administered the Resource Recovery Grant Program. The program provided assistance to municipalities and non-profit organizations to develop recycling and waste minimization projects. The program is now closed.

Provincial funding was provided through the Resource Recovery Grant Program on a 75 per cent to 25 per cent cost-shared basis and came from general revenue. The applicant had to contribute 25 per cent of the eligible costs to the project. Eligible items included:

- materials handling equipment;
- basic structures or renovations to existing structures;
- site improvements; and,
- signs and initial advertising.

Advantages

The Government of Alberta could re-establish the fund administration process. The Resource Recovery Grant Program Guidelines and applications could be revived, rather than developing

¹⁰ CH2M Hill (2010). Leaf and Yard Waste Diversion Strategy Feasibility Study, p. 11-4. Retrieved from <http://www.environment.gov.ab.ca/info/library/8668.pdf>

a brand new program. The Government of Alberta would be responsible for redistributing funds, which the committee agrees would be appropriate.

Risks

As the Government of Alberta is looking at cost saving measures, providing new budget for composting and other waste reduction initiatives appears unlikely at this time. Leaf and yard waste composting infrastructure may not be deemed a suitable government funding priority.

3.3. Support the Use of Existing Grant Programs

There are grant programs that may fund building and expanding composting infrastructure. Grants can be leveraged from either the government or the private sector. Some programs are:

- [Federation of Canadian Municipalities, Municipal Green Funds](#)
- [P3 Canada Fund](#)
- [Climate Change Emissions Management Corporation](#)
- [Western Economic Diversification](#)
- [Canada Small Business Financing Program](#)
- [Municipal Sustainability Initiative](#)
- [Infrastructure Canada - Federal Gas Tax](#)
- [Infrastructure Canada - Green Infrastructure Fund](#)

This option would include funding offered by the Government of Alberta and other jurisdictions. The Government of Alberta could maintain a list of funds available for composting infrastructure so those interested have quick access to this information.

Some funding specifically supports public-private partnerships (P3s). P3s could be a successful delivery method for addressing the infrastructure gap for leaf and yard waste composting in Alberta. A P3 is a contractual agreement between a public agency, such as a municipality, and a business. Long term maintenance costs are included when planning the facility's lifecycle. The skills and assets of both partners are shared to build infrastructure and provide a public service.

When establishing P3s, some nuances to consider include:

- the financial and organizational arrangements between the partners;
- mechanisms to protect the public interest; and,
- long term arrangements.

Advantages

Using existing grant funding would require few resources from the Government of Alberta. It would allow for place based approaches and accommodate the diversity of waste management programs in Alberta. Programs that tailor their applications to different priorities could designate funding for leaf and yard waste composting infrastructure.

Risks

None of the funds listed focus solely on recycling infrastructure such as composting so applicants must compete with other waste management initiatives. In addition, some funds

have requirements that may exclude composting. For example, the Federation of Canadian Municipalities lists composting projects as eligible but requires applicants to demonstrate that the project can divert a minimum of 50 per cent of municipal solid waste from landfill. Organics from leaf and yard waste and food waste generally constitute 35 per cent of the municipal waste stream so composting projects may not divert enough material to meet the fund criteria.

3.4. Develop a New Grant Fund from Landfill Surcharges

A grant fund would be developed by collecting surcharges on municipal solid waste sent for disposal at all of Alberta's Class II and Class III landfills. No surcharges would be collected for materials collected at landfills for recycling. The fund could be managed and administered by a not-for profit third party delegated by the Government of Alberta and registered under the Societies Act in Alberta. Initial seed money for the fund could be provided through an endowment from the provincial government until the surcharges are submitted and the program becomes self-sustaining. A previously released report, the *Leaf and Yard Waste Diversion Strategy Feasibility Study*, recommends a surcharge of \$2 to \$4.50 per tonne of municipal solid waste disposed to cover the cost of leaf and yard waste composting infrastructure, education and awareness programs, market development, and training programs.¹¹

Quebec and Manitoba have waste surcharges and have successfully collected funding for composting infrastructure.

The surcharge in Quebec was first set at \$10 per tonne of waste sent for disposal at sanitary landfills, incinerators and dry-waste depots. The government distributes 85 per cent of the funds back to municipalities and the remaining 15 per cent is held back for priority activities (e.g., management of electronic waste and household hazardous waste not covered by stewardship programs). In 2010, Quebec added an additional surcharge of \$9.50 per tonne, to be collected for five years. This is earmarked for building municipal infrastructure for processing organics.

In 2009 a waste surcharge system was set up in Manitoba called the Waste Reduction and Recycling Support (WRARS) Program. All municipal solid waste sent for disposal is subject to a \$10 per tonne surcharge. Eighty per cent of the revenue collected is rebated to municipalities to promote recycling in Manitoba. The remaining funds support other waste reduction initiatives including management of electronic waste and household hazardous waste.

From the Green Manitoba 2011-2012 Annual Report:

"Since 2009, over \$17.5 million has been paid out to eligible municipal recycling programs. In addition, \$4.385 million has been allocated to support delivery of provincial waste initiatives, including: e-waste / HHW programs (\$4,260,000), WRARS information database development (\$5,000), weigh scale support (\$20,000), CleanFarms Plastics Project (\$25,000), Manitoba

¹¹ CH2M Hill (2010). Leaf and Yard Waste Diversion Strategy Feasibility Study, p. 12-12. Retrieved from <http://www.environment.gov.ab.ca/info/library/8668.pdf>

Association of Regional Recyclers (\$25,000), and Northern/Remote Community Recycling Support (\$50,000). "

If a similar program is adopted in Alberta, a portion of the surcharges collected could be used to fund research and education initiatives for waste management issues.

Advantages

Waste surcharges create financial signals for waste generators and funding options for waste reduction and recycling programs. They would provide certainty that a funding program would exist for recycling infrastructure, at least until waste disposal sharply decreases. Other jurisdictions in Canada have successfully adopted waste surcharges and now have funding programs to support organics recycling.

Risks

Decision makers would face a mixed response from the waste management industry. Some municipalities have already adopted a pricing system that works for them and an additional charge could negatively affect their system. Opponents of a surcharge could assert it is a tax, which may make it politically contentious.

If a landfill surcharge is adopted, funds must be distributed equitably to avoid cross jurisdictional funding. Depending on how the funds are redistributed, early adopters of waste reduction programs could be overlooked if the funding focuses on developing new infrastructure and programs.

4. Summary

Alberta's population continues to grow. With this growth is an increase in organics sent for disposal, including leaf and yard waste. Composting this material instead would lead to a significant drop in Albertan's waste disposal rates.

When considering management options for organics, aerobic composting and aerobic digestion are preferred to waste-to-energy and landfill gas-to-energy¹². A similar conclusion was reached when using the Measuring Environmental Benefits Calculator for the City of Red Deer's leaf and yard waste¹³.

There are financial reasons to compost leaf and yard waste, including saving valuable landfill space, and decreasing greenhouse gas emissions from landfills¹⁴. Compost is useful for building healthy soil and decreasing water use.

Implementing these recommendations will have many benefits. Strong compost markets will pull leaf and yard waste from disposal in landfill. Partnerships with industry, non-government

¹² Sound Resource Management Group (2011). Review of LCAs on Organics Management Methods & Development of an Environmental Hierarchy, p. 1. Retrieved from <http://environment.gov.ab.ca/info/library/8350.pdf>

¹³ Ibid.

¹⁴ Government of Alberta (2012). Leaf & Yard Waste Diversion Targets in Alberta: A Benefit Cost Analysis. Retrieved from <http://www.environment.gov.ab.ca/info/library/8667.pdf>

organizations, and government will support clear communication amongst those managing leaf and yard waste. Data collection will show how much material is currently being managed. Timelines and diversion targets will provide measurable goals for improvement.

Compost infrastructure must be expanded to manage the increased volume of leaf and yard waste. Funding is needed to support education, communication, and training. The Government of Alberta needs to lead the way by adopting best management practices for managing leaf and yard waste and using compost.

We have a choice. We can continue with business as usual and maintain current disposal rates or we can consciously manage our waste for the benefit of all Albertans. By implementing the recommended actions for recycling leaf and yard waste, Albertans will move forward in recycling organics.

Appendix A - History of the Leaf and Yard Waste Diversion Technical Committee

The Government of Alberta has a long history of success with implementing voluntary waste reduction (recycling and composting) programs and regulated product stewardship programs. These measures have not been sufficient to encourage high levels of diversion of all waste materials. As a result, Alberta still landfills approximately 80 per cent of its municipal solid waste stream, and recycles or composts only 20 per cent.

The Government of Alberta continues to examine new tools and measures to reduce the largest components of Alberta's municipal solid waste stream: bio-degradable organics, construction and demolition (C&D) wastes, and industrial, commercial, and institutional (ICI) wastes. One specific tool the Government of Alberta committed to examining was the feasibility of implementing disposal bans for materials with ready markets and end uses; a tool which other jurisdictions have found to be a highly effective at encouraging waste diversion.

A Waste Management Stakeholder Group was formed in 2003 to provide direction to the provincial government about improvements to resource recovery and waste management in Alberta, including organics. The discussions from the stakeholder group inspired the development of the Too Good to Waste Strategy which includes clear recommendations to recycle organics for beneficial use.

In the fall of 2004, the Government of Alberta released a research paper exploring the acceptability of implementing disposal bans as a waste diversion tool. The paper explored opportunities and barriers, and the characteristics of materials that indicate they are good targets for increased diversion by a disposal ban. This paper was presented to Alberta's Waste Management Stakeholder Group (WMSG).

While the WMSG expressed general agreement that disposal bans are a reasonable policy tool for implementation in Alberta, they also stated that the feasibility of implementing disposal bans should be considered on a material-by-material basis. The WMSG also expressed a concern that disposal bans should not be implemented in isolation of other supporting waste diversion tools (e.g. diversion infrastructure development). Their message: *waste disposal bans are not a panacea, and at the end of the day it's in the best interest of Albertans to ensure that an appropriate suite of tools is used to encourage the diversion of waste materials.*

The Stakeholder Group also advised the Government of Alberta to first focus on leaf and yard waste, as it is the cleanest and easiest portion of the organics waste stream to divert from landfill. An estimated 500,000 tonnes of leaf and yard waste is generated in Alberta each year. Alberta Environment and Sustainable Resource Development is working with the Leaf and Yard Waste Diversion Committee to examine options to divert leaf and yard waste from landfill to beneficial use.

On advice of the WMSG, The Government of Alberta developed a Leaf and Yard Waste Technical Committee to make policy recommendations that would ultimately lead to the diversion leaf and yard from the waste stream to a beneficial resource stream. The

committee recommended focusing on leaf and yard waste because it makes up a large component of the waste stream (approximately 10 per cent of the total municipal solid waste stream, and 30 per cent of the residential waste stream in Alberta), and it is a relatively 'clean' organic material that can be readily and locally recycled: the technologies to recycle leaf and yard waste (i.e., composting, waste-to-energy) are known and local markets/end-uses are available province-wide.

Appendix B - Links between the Too Good to Waste Strategy (TGTW) and recommended actions to divert leaf and yard waste

The Recommendations for Reducing Leaf and Yard Waste in Alberta are an extension of the outcomes, strategies, and actions listed in Too Good to Waste. The links between the two documents are listed below in Table A.1.

Table A.1: Links between Too Good to Waste and recommended actions listed in Section 2.

Leaf and Yard Waste Recommended Action	Too Good to Waste Strategy	Too Good to Waste Recommended Action
Develop a strong market pull for compost	Reduce municipal solid waste in Alberta.	Continue public awareness and education to generate awareness of resource conservation and waste reduction.
Institute a measurement and monitoring system	Ensure continual improvement through policy and program evaluation.	Incorporate reporting, information collection and evaluation as an integral part of Alberta's resource recovery and waste management system. Set recovery targets for specific materials along with reliable reporting systems to allow for appropriate measurement.
Establish partnerships and stakeholder teams	Work towards a goal of integrated resource recovery/waste management facilities.	Establish waste management regions to reflect natural boundaries for the travel of residual materials in Alberta. Develop comprehensive waste management plans for integrated recovery and waste management across different sectors in each waste management region.
Establish diversion targets	Continue to develop, implement, and improve stewardship programs. Reduce municipal solid waste in Alberta.	Develop performance measures beyond recovery rates and monitor the effectiveness of regulated and voluntary stewardship programs. Develop disposal bans where necessary to facilitate waste reduction initiatives.
Promote the expansion of composting infrastructure	Develop sustainable resource recovery infrastructure.	Identify infrastructure requirements to support a resource recovery system across Alberta. Develop options for funding resource recovery infrastructure linked with policies and economic tools to encourage resource recovery and discourage disposal as waste.

Leaf and Yard Waste Recommended Action	Too Good to Waste Strategy	Too Good to Waste Recommended Action
	Continue to enhance standards for waste management.	Implement new environmental standards for landfills and composting.
Develop communication, education, and training	<p>Reduce municipal solid waste in Alberta.</p> <p>Ensure continual improvement through policy and program evaluation.</p>	<p>Continue public awareness and education to generate awareness of resource conservation and waste reduction.</p> <p>Ensure best practices for resource conservation and waste reduction are identified, shared and implemented broadly across the province.</p>
Demonstrate provincial government leadership	The Alberta government will provide leadership in minimizing the environmental footprint of government operations and assuring that our resources are utilized to their best advantage.	Develop and implement green procurement and pollution prevention and conservation policies for provincial government operations.

Appendix C - Policy Options for Waste Managers

These policy tools can be used at the discretion of individual waste managers. Policy tools can be used independently or in combination for greater affect.

#1: Differential Tipping Fees at Landfills - Disincentives

Encourage landfills to adopt differential tipping fees to have clear price signal that it is more expensive to dispose of leaf and yard waste, including mixed loads that contain leaf and yard waste. Landfills can use the surplus funds from the higher fees to fund leaf and yard waste composting. The higher fees provide a clear economic signal as to the value of leaf and yard waste.

Research indicates that a significant difference between the tipping fees is needed to incent different behaviour (i.e., do not dispose of leaf and yard waste). If differential tipping fees are adopted, there must be a level of acceptable tolerance for contamination, e.g., 5 per cent contamination, zero tolerance.

#2: Differential Tipping fees at Landfills with composting facilities - Incentives

Encourage landfills that have composting facilities to adopt differential tipping fees for source separated leaf and yard waste that is brought for composting. The tipping fee for clean source separated material should be significantly lower than the standard municipal solid waste rate in order to encourage diversion efforts.

#3: Bag limits

Bag limits can create behaviour change and help improve diversion by encouraging participation in specific programs. Limits on garbage specifically can create an incentive for waste generators to choose an alternative diversion option when available. The limits implemented can be designed to suit the needs of the individual region. Typically limits are only placed on garbage or waste and not on diversion programs.

Implementing bag limits can have unintended consequences. For example, shortly after implementation, illegal dumping can increase in locations like commercial garbage bins. Charity organizations may also see an increase in unacceptable materials.

Bag limits must be introduced with an extensive education campaign. When bag limits are implemented, waste managers cannot give up at the first sign of resistance. This is a new change that will require time to create new behaviour (six months or more). Compliance may also be required, so local by-laws would need to support enforcement efforts.

Dealing with excess beyond the bag limit is part of program design and may be an important outlet for residents as they integrate the limits into their lives. For instance, a program rolled out in January may not see the full effect until May when yard work generates waste at an increased rate.

#4: Pay-as-you-throw

This is a system where each customer/generator of a waste service is charged for the amount of the service that they use. This creates a direct link between the waste generated and the cost of disposal. This is a disincentive strategy and must be undertaken with care. It cannot be put in place before diversion options exist otherwise illegal dumping will be a likely outcome.

#5: Collection frequency

Some preliminary studies suggest that collection frequency can affect diversion. Collection frequency can be combined with other policy tools to incent certain behaviour. For example, collecting recyclables and organics every week will increase their diversion, especially if garbage is collected every other week.

#6: Strengthen bylaws to prevent burning of leaf and yard waste

If burning leaf and yard waste is no longer an acceptable management option, more material will be available for composting. This will also prevent air pollution resulting from burning leaf and yard waste. However, if waste manager is not equipped to compost the material, this may become perverse policy incentive that leads to more landfilling of leaf and yard waste.

#7: Mandate source separation

Source separation facilitates more accurate waste tracking and allows waste managers to understand what materials are available for recycling and composting.

#8: Mandate gas collection for all landfills allowing disposal of organics

Landfills that accept organics for disposal emit higher levels of greenhouse gases than those diverting material. Capturing the methane from disposal of organics will decrease the amount of greenhouse gases emitted in Alberta and the cost of installing a landfill gas collection system is an incentive to send the organics to a composting facility instead. Unintended consequences of this system could include more landfilling of organics to capture more gas and the nutrients from the organics would be locked up in landfills.

#9: Individual landfill leaf and yard waste material ban

Introduce a ban on leaf and yard waste disposal in landfills.

Appendix D - Committee's Response to Proposed Funding Options

The least preferred option for funding leaf and yard waste windrow composting was a grant program based on landfill surcharges. The concerns raised included the cost of administration for the program and the equability of reallocating funds. Another concern was the size of the program needed to build windrow composting infrastructure for leaf and yard waste. Committee members felt that with the amount of surcharges collected, the amount of money that would accumulate in the fund would leave the organization looking for new ways to spend the money. In conclusion, the committee was divided and the majority felt landfill surcharges were not the appropriate funding mechanism for \$25 million of windrow composting infrastructure.

When examining the different options, the committee agreed that the option creating the most significant diversion and in the most efficient and economical manner is the most desirable. They again echoed the need for the Government of Alberta to show leadership in implementing waste reduction policies, as outlined in the *Too Good to Waste Strategy*.

Option 1: Set the diversion goal and allow markets to guide program development

Votes for: 6 - *This is coupled with the understanding that this option must include negative consequences for not meeting targets.*

Votes against: 0

Undecided: 1

- In the past, targets from the provincial government have not always been effective and the committee does not recommend repeating this approach without some form of enforcement or penalty. This then becomes a policy mechanism rather than a funding mechanism.
- This option could be implemented in conjunction with the other three options.
- For this to be effective, diversion targets need to be legislated, regulated and enforced. The regulatory tools required would include landfill bans and similar supporting mechanisms.
- A compliance mechanism like a financial penalty for not meeting the diversion targets could also work. This option could drive a local ban or whatever place based approach works best for their waste management system.
- This system could target areas needing the most improvement in diverting leaf and yard waste from disposal in landfill.

- This option does require administration because it must be linked to an accurate and objective reporting system.

Option 2: Revive Grant Fund for Recycling Infrastructure

Votes For: 5

Votes Against: 2

- There is support from rural waste managers for this option. Small volumes of material can be costly to manage. The total percentage of leaf and yard waste is extremely small and not a big waste management issue.
- Reviving this option would allow waste managers to apply based on their needs.
- The majority of members of Alberta CARE have established programs to manage LYW.
- In previous program, users have a 25 per cent financial stake in the projects and that is something that could be included in several of the options.
- A program with a start date and end date is desirable for funding leaf and yard waste infrastructure.
- It would likely take a change in government priorities for this option to go ahead. The committee suggested that the administrative cost is not high and the price of the leaf and yard waste infrastructure is minimal for government.
- With this option, the administrative burden is not downloaded on waste managers.
- There needs to be more details about this option to understand if it can be supported.
- In terms of efficiency, elegance, and simplicity, this could be an option.
- This could be a one time program from the government if leaf and yard waste diversion is considered a priority.
- From a transparency point of view, this type of funding does not rely on obtaining money from the larger jurisdictions.
- This type of expenditure from the government could be justified because composting is a strong public good.

Option 3: Support the use of Existing Grant Programs

Votes For: 7 – *This is coupled with the understanding that the Government of Alberta will advocate changing the programs so leaf and yard waste composting is a priority project for funding.*

Votes Against: 0

- This is not a new funding option. It currently is not effective. Proponents that are interested in composting leaf and yard waste are not successful in obtaining funds through the current programs. For example, the Climate Change Emissions Management Corporation (CCMEC) focuses on applications that include new technology. Over the long term, composting is proven technology that reduces greenhouse gas emissions compared to long term disposal in landfills but composting projects are not eligible for funding because composting is established technology.
- All these programs have a funding and an administrative mechanism. The challenge is the competition project proponents must face when applying for funds.
- For this to be an effective funding option, the committee recommends changing the terms of how a particular project qualifies for funding. The Government of Alberta needs to set leaf and yard waste diversion as a priority.
- Funding for leaf and yard waste windrow composting facilities is not likely from the above listed programs.
- CCMECC could be expanded to anything that results in new reductions and emissions, even if it uses established technology. The only caveat should be that it should be not anything that is business as usual.

Option 4: Grant Fund for Recycling Infrastructure from Landfill Surcharge

Votes For: 3

Votes Against: 4

- If the surcharge program is based on the needed infrastructure for windrow composting of leaf and yard waste, the administrative costs of a formal program might not be cost effective. Also, it is unclear how individual municipalities will potentially benefit from the reallocation of funds.
- Programs are long term so there is concern that this fund will accumulate more money than needed and the program managers will be looking for ways to spend it.

- This may not be an appropriate as a mechanism for one time infrastructure funding. There is an additional administrative burden for funding to be collected by a Delegated Administrative Organization and then redistributed.
- Differential tipping fees are established to change behaviours. Municipalities already have differential tipping fees so a surcharge is redundant.
- Adding a surcharge would be viewed as a tax because generators will not see the link between the additional cost and the potential use of the extra money collected.
- Large municipalities would generate a tremendous amount of revenue that they may not capture any benefits from by subsidizing smaller jurisdictions and pay for the administration. This system could favour late adopters of leaf and yard waste diversion.
- Need to be compared in context to other options. This one is linked to behaviour. If the money has to come from somewhere, it likely is not coming from public coffers. Waste management world is linking funding to generation. A lot of the above concerns are linked to the details of the program.
- If we do not have the link to the generators, then funding comes from the general taxpayers through municipalities or from the province through income tax. The provincial government is not likely to adopt an additional tax to directly link to waste disposal.
- Organics are different than other waste materials because leaf and yard waste generators cannot be clearly linked like tires or other materials that are managed in the province. There is no point of sale to link leaf and yard waste generators or manufacturers. Therefore, waste disposal is the best link that we have.
- This is not a perfect option but is still better than the other options because they are not likely to occur.
- This may work best as part of a bigger program. It may not be a sensible option for just leaf and yard waste but could work for all organics.
- The committee generally supported exploring all funding options presented, including surcharges. However, there are too many uncertainties with the level of detail that is currently available about this option.