Town of Blackfalds

Waste Management Review

sonnevera
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Final Report

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Executive Summary

The Town of Blackfalds Waste Management Review is focused on improving the Town's solid waste management practices, aiming to increase diversion rates and decrease waste disposal. Given the Town of Blackfalds growth rate, which according to the 2011 Municipal Census reached 40%, the associated increase in waste generation motivates action. The Town's Municipal Sustainability Plan (MSP) offers further support for improvement, listing the Environment as one of the Five Pillars of Community Sustainability.

In 2011, approximately 1,870 tonnes of waste were disposed of from residential sources alone. This translates to a residential per-capita generation rate of 292 kg/capita/year, exceeding the Canadian average of 259 kg/capita, as well as the Alberta average of 273 kg/capita. It is estimated that 77% of Blackfalds waste is generated in the residential sector, while 23% results from the industrial, commercial and institutional (ICI) sector. The component of waste resulting from the construction and demolition (C&D) sector is unknown.

The most significant residential waste diversion opportunities lie with organics, both yard waste and food waste. It is estimated that more than 600 tonnes of recyclable materials and 900 tonnes of compostable materials could be diverted from Blackfalds residential waste. Estimates in the commercial sector suggest that the greatest diversion opportunities are represented by cardboard and paper (180 tonnes) and food waste (140 tonnes).

A waste reduction strategy was developed to build a progressive waste reduction program that will deliver increased diversion and make Blackfalds a leader in waste management programming, including the following elements and recommendations:

Government Leadership

- ***Develop a long-term vision for Blackfalds' waste management and diversion program. Create short term goals as well, to help track progress towards the overall vision.***
- ***Develop a consistent comprehensive waste diversion program for all public buildings and operations.***
- ***Create a position or appoint an internal staff member to take on these program responsibilities and enact these initiatives.***

Monitoring and Reporting

- ***Implement a comprehensive reporting system that provides the level of material breakdown to evaluate performance in different sectors.***
- ***Include reporting requirements in all waste collection contracts.***
- ***Conduct an annual residential set-out survey to gauge participation in the waste management program.***
- ***Incorporate environmental benefits calculations into the reporting system.***

Residential Waste

- ***Consider implementing a third collection day to facilitate shorter hours required to complete routes.***

- ***Investigate establishing an automated cart-based collection program for single-family homes that includes cart-based collection of garbage, organics, and potentially recycling.***
- ***Pilot the automated collection program prior to implementation to determine any barriers or important program factors (i.e., bin size, collection frequency, community acceptance).***
- ***Introduce a limit to the number of garbage containers or bags that may be set out each week. Begin with a non-restrictive limit (i.e., 4 bags) and annually decrease this limit.***
- ***Implement a system to provide for the purchase of excess garbage tags.***
- ***Precede full enforcement of container limit with a focused educational campaign advising residents of the rules and consequences.***
- ***Promote backyard composting, grasscycling and xeriscaping to residents through workshops, community-based social marketing and initiatives like subsidized composter sales to promote backyard composting throughout residential areas of Blackfalds.***
- ***Collaborate with contractors to establish standards for acceptable yard waste receptacles, collection and a system of enforcement. Educate residents accordingly through community-based social marketing program.***
- ***Initiate discussions with Stickland Farms to confirm yard waste content requirements (i.e., acceptability of plastic bags). Communicate results to both the contractors and residents.***
- ***Maintain weekly blue box service until such time as alternate collection options such as automated recycling carts are introduced.***
- ***Develop an aggressive community-based social marketing program to promote participation in recycling programs.***
- ***Pilot multi-family recycling program options and / or introduce a public recycling depot.***
- ***Consult with Stickland Farms to determine the facility's capacity and feedstock requirements for residential organics.***
- ***Conduct a year-long pilot of curbside organics collection.***
- ***If the Town expands into full organics collection, switch to bi-weekly garbage collection upon implementation.***

Commercial Waste

- ***Conduct a business survey to determine current practices, barriers and motivators to increasing business participation in waste diversion and develop enhanced diversion programming in the commercial sector.***
- ***Provide technical and information assistance to businesses and institutions that want to implement waste diversion programs.***
- ***Create a Business Waste Diversion Assistant position within the Town office to liaise with interested businesses and institutions.***

- ***Develop a program to recognize businesses achieving high standards in waste reduction and diversion.***

- ***Develop regulatory approaches to improve participation from the ICI sector, after accessible diversion alternatives exist and aggressive education / promotion programs are in place.***

Construction and Demolition (C&D) Waste Diversion

- ***Track C&D waste originating within Blackfalds and encourage diversion through existing facilities (Red Deer Waste Management Facility).***

Community-Based Social Marketing

- ***Build internal capacity in community-based social marketing, and integrate these approaches into all program designs and implementation. Utilize community-based social marketing to improve current participation and address behaviour changes.***

- ***Develop consistent branding and infrastructure for diversion programming throughout the Town.***

- ***Initiate a cooperative design process between The Town and contractors for recycling infrastructure to improve consistency in bin design, colours and signage.***

Special Events

- ***Prepare a "zero waste event" guide for event organizers that provides tips on how to minimize waste at events and identifies local waste management resources and services.***

- ***Require event organizers to prepare a waste management action plan including waste reduction and diversion elements as part of special events permits.***

- ***Purchase a "zero waste" station, such as a trailer, that can be loaned or rented by local or regional event organizers and used to promote environmental messages.***

Transfer Station

- ***Improve the overall appearance of the Transfer Station through landscaping and paving.***

- ***Contract the chipping of stored trees and branches at the transfer station for composting with other yard waste, eliminating the current burning practice.***

- ***Expand Transfer Station services to include a drop-off depot for recyclables and collection of special wastes. Consider implementing a fee for dropping off waste materials.***

- ***Conduct a cost-benefit assessment to determine if site improvements and a fee-for-service operation are feasible.***

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1 Introduction

1.1 Background

The Town of Blackfalds promotes itself as an "*ecologically aware town*", whose Mission Statement is "*to provide excellence in the area of municipal service to make available the highest possible quality of life to the residents of Blackfalds"* (Town website, 2012). This applies to the provision of services associated with the management and handling of municipal solid waste, which the Town of Blackfalds is interested in enhancing. More specifically, the Town would like to achieve higher diversion rates while lowering relative amounts of waste destined for disposal.

sonnevera international corp. was contracted to conduct a high level Waste Management Review (WMR) and provide recommendations for improvement.

2 Plan Area

The Town of Blackfalds is located in central Alberta, situated east of Highway 2 on Highway 2A, approximately seven kilometers north of Red Deer. The Town of 6,767 (Municipal Census, 2012) has numerous local businesses and also gains employment opportunities from the city of Red Deer, the local oil and gas industry and petrochemical plants east of Town.

2.1 Population Data and Projections

Population trends for the Town of Blackfalds for 2006 to 2011 vary by source. The 2011 Census by Statistics Canada indicated Blackfalds population grew from 4,618 in 2006 to 6,300 in 2011, a 36.4% increase. However, the 2011 municipal census revealed a 40% increase, jumping from a population of 4,571 in 2006 to 6,399 in 2011 (Red Deer Region, 2012). Either way, these far exceed both the average Canadian growth rate (5.9%) and the average Albertan growth rate (10.6%). In 2012 the municipal census reported a population of 6,767 persons (Red Deer Region, 2012). It is important to note that there is a substantial young demographic in Blackfalds as well, such that 27.5% of the population are under the age of 15. The substantial growth rate of Blackfalds brings development and growth, but may also be demanding on infrastructure and utilities like waste management.

2.2 Housing and Economic Data

Blackfalds has a reported 2,458 private dwellings, 2,250 of which are occupied by permanent residents, according to the 2011 Census (Statistics Canada). These private dwellings are composed of:

- 1,650 single-detached houses,
- 140 movable dwellings such as mobile homes,
- 130 semi-detached houses,
- 270 row houses,
- 20 duplex apartments
- 40 apartments buildings (fewer than five stories high)

There is an average of 2.8 people per private home (Statistics Canada, 2011).

In the last 20 years, the Alberta economy has had the highest provincial average annual GDP growth rate (3.4%) as well as increased employment (Alberta Government, 2012). Approximately 28% of the population is employed in the trades, 25% in sales and service and 14% in business (Statistics Canada,

2007). There is a diverse range of industry, including agriculture and other resource-based industries (21%), retail trade (14%), construction (11%), business services (11%), and other services (15%) (Statistics Canada, 2007).

3 Context for Developing a Waste Management Strategy

The Town of Blackfalds was previously part of the Lacombe Regional Waste Authority, and took garbage to Prentiss for free disposal, paying on a per-capita basis. This agreement with the Prentiss landfill was terminated as of January 1st, 2011, and the Town is now part of the Central Waste Management Commission (Town website, 2012). Subsequently, Blackfalds pays for disposal on a per-tonne basis at the City of Red Deer Landfill (Town website, 2012). This change of organizational structure combined with a high waste generation rate has significant cost implications to the Town. Since the current service provider contracts are soon to expire, timing is opportune to look at options. The Town's Public Works and Streets Department, being responsible for garbage and recycling services, decided to consider waste management and diversion opportunities and contracted a review of the current system.

Various factors, both locally and provincially, drive the continued evolution of the current solid waste management system. Understanding influences like Blackfalds' Municipal Sustainability Plan, government goals, as well as initiatives like Provincial Stewardship Programs and Enhanced Producer Responsibility (EPR), help frame the existing conditions and map a path forward.

3.1 Municipal Sustainability Plan

The 2012 Blackfalds Municipal Sustainability Plan (MSP) identifies Five Pillars of Community Sustainability:

- Governance
- Culture
- Economy
- Environment
- Social

The Vision Statement incorporates various aspects of living:

> "*Blackfalds is an active family community full of pride, commitment and opportunities reflecting an economically sustainable, self-sufficient, and safe living environment, with a balanced range of municipal services provided through innovation and proactive community partnerships.*"

Public consultation revealed interest in addressing littering, starting a composting program and improving recycling habits in the community. There was also mention of having the Town demonstrate leadership in recycling by placing blue boxes (recycling bins) in strategic locations such as public parks/facilities. Input to the Environment pillar of the MSP included desire to:

- Expand and promote environmental initiatives including community recycling opportunities
- Organize community garden opportunities
- Address beautification of the downtown core through community based initiatives
- Promote farmers' markets and flea markets

The MSP specifically mentions the importance of preserving and protecting Blackfalds resources for future generations. While components of each Pillar may be interpreted to affect Waste Management

within Blackfalds, the Environment Pillar (Table 1) lists characteristics and goals aimed directly at improving diversion and consumption.

Table 1: Blackfalds Municipal Sustainability Plan – Waste and Recycling Components

Pillar	Characteristics	Success or Results
Environment	Consciously develop a comprehensive Environmental Plan (Green) addressing community development and service delivery, open space and building design that minimizes local and global footprint; e.g., alternate energy; water consumption; building materials; etc.	An Environmental Plan is an integral component of municipal, business and citizens decision-making minimizing and reducing footprints, waste, consumption, product choice, etc.
	Municipality lead by example in all aspects of municipal policies and actions.	Blackfalds is a best practices leader vs. a follower.
	Conscious and awareness of new ways of doing business taking advantage of opportunities to replace vs. take from our environment.	Target improvements yield goal results every five years.
	Citizens recognize responsibility for their own actions and impacts on the environment; e.g. recycle; consumption.	Municipal infrastructure capacity always greater than growth of the municipality.
	Maintain or develop cost-effective municipal infrastructure.	Regional services and systems are maximized in participation and use by municipality and citizens.

The MSP (Town of Blackfalds, 2012) also identifies perceived current strengths and future opportunities for improvement, including some associated to waste management. The Town's most prominent future goals, from a waste management perspective, are the desire to *continue leadership in environmental stewardship* and to decrease *long-term waste stream [generation]*.

This long range planning, with respect to the Environment Pillar, shows commitment to responsible waste management planning initiatives, focusing on "*representing environmental stewardship as a commitment to quality of life*" within the Town.

3.2 Government of Alberta

In October 2007, the Government of Alberta announced its long-term waste strategy, *Too Good to Waste*, with a goal of reducing material disposed in landfills (Alberta Environment, 2007a). The *Too Good to Waste* strategy discusses waste reduction and management in the province. It identifies the opportunities, outcomes and strategies to help Alberta move forward with innovative waste management programs. Until recently, Alberta's goal was to decrease the amount of material sent to landfills to 500 kg/capita by the year 2010 (Alberta Environment. 2007b). This goal has recently been updated within Alberta Environment's 2011-14 Business Plan to a target of 690 kg/person by 2014 (Alberta Environment.

2011). It is difficult to relate these targets to Blackfalds, as its ICI sector contributes noticeably less to the overall waste stream than the provincial average, making a per-capita disposal comparison impractical.

3.3 Provincial Stewardship Programs

Alberta's current provincial waste diversion programs include:

- Beverage container collection system (implemented 1972)
  - In 2010, 90,236 tonnes of beverage containers were diverted from Alberta landfills, for a diversion rate of 83%, while delivering a total greenhouse gas emission savings of close to 54,355 tonnes carbon equivalent (Alberta Beverage Container Recycling Corporation, 2011).
- Pesticide container collection program (1980)
  - On behalf of industry, Clean Farms operates a voluntary empty pesticide container recycling program across Canada, collecting over 83 million containers since 1989, and achieving an estimated 61% return rate nationally in 2009 (Solid Waste & Recycling, 2010).
- Tire recycling program (1994)
  - In 2010/2011, 4.4 million tires were processed in Alberta, for a recovery rate of 78% (Alberta Recycling Management Authority, 2011).
- Used oil materials recycling program (1997)
  - In 2010, 89,777,851 litres of used oil (87% recovery rate), 7,341,637 used oil filters (89% recovery rate) and 2,090,880 kg of used oil containers (87% recovery rate) were captured through Alberta's stewardship program (Alberta Used Oil Management Association, 2010).
- Electronics recycling program (2004)
  - In 2010/2011, 15,177 tonnes of electronic waste was processed, for an estimated capture rate of 45%. (Alberta Recycling Management Authority, 2011).
- Paint stewardship program (2008)
  - In 2010/2011, 2.6 million kilograms or 2.2 million litres of paint was processed, for an estimated 68% capture rate (Alberta Recycling Management Authority, 2011).

These provincial programs contribute to the current waste diversion activities in Blackfalds and reduce the toxicity impact of household hazardous waste (HHW) in the local landfill.

As part of the *Too Good to Waste* strategy, Alberta Environment has identified additional materials for provincial program development, including construction and demolition, packaging and printed materials, and leaf and yard waste. However, it is unclear when these initiatives may be introduced.

3.4 Extended Producer Responsibility

As a guiding tool for provinces, the Canadian Council of Ministers of the Environment developed an implementation plan for a Canada-wide Action Plan for Extended Producer Responsibility in October 2009 (Canadian Council of Ministers of the Environment, 2009.)

During Phase 1, jurisdictions commit to working towards managing the following products and materials in operational Extended Producer Responsibility programs within six years of the adoption of the Canada-wide Action Plan:

- Packaging
- Printed materials
- Mercury containing lamps
- Other mercury-containing products

- Electronics and electrical products
- Household hazardous and special wastes
- Automotive products

During Phase 2, jurisdictions commit to working towards incorporation into operational Extended Producer Responsibility programs within eight years of the adoption of the Canada-wide Action Plan for the following materials:

- Construction materials
- Demolition materials
- Furniture
- Textiles and carpet
- Appliances, including ozone-depleting substances

Within two years of the adoption of the Canada-wide Action Plan, jurisdictions will seek to publish a detailed list of products to be managed through Extended Producer Responsibility programs for each of the above Phase 2 products.

Based on the Canada-wide Action Plan, Alberta should adopt a provincial Extended Producer Responsibility program for packaging, printed materials, fluorescent lamps and household hazardous waste by 2015, and construction and demolition, furniture, textile and carpet before 2020. This will reflect on Blackfalds' programs by providing support for the management of these materials, thereby reducing the burden on the municipality.

4 Overview of the Existing Solid Waste Management System

Waste and recyclables from the Town are managed by contract. The Town provides residential garbage and recycling collection, as well as yard waste in the summer months (May-October).

4.1 Blackfalds Transfer Station

A transfer station is located just to the south of the Town, as shown in Figure 1, and is open Thursdays and Fridays from 10 am to 6 pm, and Saturdays from 2 pm to 6 pm. The transfer site is only open to Blackfalds residents and users must provide either a utility bill or tax receipt as proof of residency.

Figure 1: Location of Blackfalds Transfer Station

The Transfer Station accepts the following materials (Town website, 2012):

- General Household Waste
- Wood, Metal & Dry Rubble (less than 499 kg or 1000 lbs)
- Batteries, Propane Tanks, Automotive Filters and Used Oil (must be in sealed, pourable containers)
- White Goods and Electronics (Stoves, Appliances, TVs, Stereos, Washer and Dryers)
- Refrigerators and Air-conditioning units (residents must pay for a permit at the Town Office to have these evacuated before dropping them off at the station)
- Grass Clippings and Garden Waste at the composting Area

Items that the Transfer Station does not accept must be taken directly to the City of Red Deer Landfill, including the following (Town website, 2012):

- Commercial Construction Waste
- Wood, Metal & Dry Rubble over 499 kg or 1000 lbs)
- Liquid Paint, Carcasses, Bio-medical Waste, Grain, Seeds, Manure, Feeds, Asbestos, Explosives, Hot Burn Barrels and Radioactive Materials.
- Any waste that in the judgement of the Transfer Station Site Operator should be rejected by reason of; unknown content that may be hazardous, type of material, etc.

The City of Red Deer Landfill also accepts electronic waste for recycling.

The transfer site only employs one staff, which is a limitation, since that individual cannot monitor both gate and loads. An estimated 25 tonnes of trees are burned at the transfer site each month. There is potential to add this material, along with branches, to the yard waste program by contracting chipping of the material, and integrating the chips into the material being sent for organics processing.

The current contractor managing the transfer site is CanPak Environmental, who also manages the Town's residential waste. Residents currently pay $22.82/month on their utility bill for garbage, recycling, yard waste, spring / fall cleanup and transfer station operations.

4.2 Toxic Waste / Household Hazardous Waste

Blackfalds does not accept any toxic or household hazardous waste (HHW) through collection services or at the Transfer Station (Town website, 2012), with the exception of motor oil, which can be dropped off at the Blackfalds Transfer Station.

The Town website directs residents with HHW to dispose of it at the City of Red Deer Landfill, where a $7 minimum charge applies. The Landfill's hours are also provided on the website and directs residents requiring further information or questions to call the Red Deer Blue Line (403-340-BLUE). It notes that prescription drugs and commercial / industrial hazardous waste are not accepted and that all loads must be covered.

4.3 Reuse

There are limited options for reuse in Blackfalds. The business name "Sharing Tree Toy Rentals" suggests renting rather than buying and could potentially reduce toys in the waste stream. Public Liquidation Warehouse retails new and used furniture, appliances and building materials. Donations are accepted for resale and the company also purchases used goods when its warehouse stocks are low or customers are looking for specific items. The Public Liquidation Warehouse is not a reuse centre, so generally only accepts relatively new, clean items, and can accept or reject an offer at their discretion.

The Blackfalds business Growing Families provides residents with the opportunity to donate used clothing to the Canadian Diabetes Association (Figure 2), offering two collection bins next to their building.

Figure 2: Clothing Donation Bins in Downtown Blackfalds

Habitat for Humanity's ReStore facility, located in Red Deer, is the nearest not for profit donation centre. It accepts and sells used and surplus building materials, hardware, appliances and furniture, and even some household items.

4.4 Residential Waste Management

4.4.1 Single Family Collection

The Town of Blackfalds provides weekly collection of garbage and recycling (Town of Blackfalds, 2012), from residential detached and semi-detached dwellings. All services are provided through contract.

4.4.1.1 Single Family Garbage Collection

Blackfalds single family residential waste is serviced by one rear-load manual collection garbage truck, servicing approximately 1,650 households (Statistics Canada, 2011) on Monday or Wednesday of each week. There is no maximum limit on the number of units per week, however no can or bag may weigh more than 23 kilograms (50 pounds). Residents may also haul their waste to the Transfer Station south of Blackfalds, or to the Red Deer landfill themselves.

The collection program is funded through a utility bill system, where residents currently pay $22.82/month for garbage, recycling, yard waste, spring / fall cleanup and transfer station operations. In addition to collection contractor fees, the Town pays landfill tipping fees resulting from delivery of residential garbage to the Red Deer Waste Management Facility. Therefore, material diverted through recycling and composting provides a direct cost offset of $62/tonne, which is the current landfill tipping fee. For bulky items that are not eligible for weekly pickup, the Town offers free collection during spring / fall cleanup in May and October. Residents call to schedule pickup of bulky items, which is conducted by public works

using pickup trucks. No Freon units are accepted unless prepaid with a sticker to prove the fee has been paid.

The Town of Blackfalds collected approximately 1,870 tonnes of residential solid waste in 2011. This translates to approximately 292 kg/capita/year (based on a population of 6,399 in 2011), which is higher than the Canadian average of 259 kg/capita, as well as the Alberta average of 273 kg/capita. Observations and interviews have also suggested that the amount of residential waste disposed in Blackfalds is higher than average. Routes currently take approximately nine hours per day to complete, with even longer hours in the summer. Adding an additional collection day would provide for shorter work days, and should be considered as the population of Blackfalds continues to increase.

Figure 3: Various Residential Garbage Receptacles

4.4.1.2 Single Family Recycling Collection

Blackfald's single stream recycling is collected manually from blue boxes (Figure 4) by the Town's contractor, Can-Pak Environmental Inc. It is then taken to the Ever Green Ecological Materials Recovery Facility in Edmonton for processing. Prior to February 2012, recycling was collected biweekly. Since that time, it has been collected weekly. Observations and increased demand on the contractor suggest that the capacity of the blue boxes is more suited to weekly collection than biweekly. Amounts of recyclables are currently not reported, as material may be combined with other locations prior to delivery to the processor. The Town website however, states that currently 15-18 metric tonnes of material a month is recycled. If this estimate is accurate, it suggests a diversion of approximately 10% through the blue box program. However, the lack of accurate diversion statistics makes it challenging to track program performance and measure progress towards diversion goals.

Figure 4: Town of Blackfalds Blue Box (Town website, 2012)

The blue bag program collects the following materials (Town of Blackfalds website, 2012):

- Glass – jars and bottles
- Metals – tins and cans
- Newspaper – newspaper and flyer inserts
- Magazines – glossy and paper magazines
- Mixed Paper – office paper, junk mail, envelopes, telephone books

- Cardboard – corrugated cardboard boxes
- Boxboard – cereal boxes, potato chip boxes, shoe boxes, detergent boxes, etc.
- Plastics – All plastics; codes "1 to 7", excluding "6" (Beverage containers, milk jugs and pop bottles, detergent and fabric softener bottles, household cleaner bottles, margarine and yogurt containers, cables, bread bags and plastic bags, water bottles, etc.)

The Town's website provides a pictoral description, shown in Figure 5, in addition to the list of acceptable items.

Figure 5: Recyclable Blue Box Plastics

The Town's current recycling contractor, Can Pak Environmental Inc., requests that recyclable materials are set out for pick-up by 7 am and properly organized.

4.4.1.3 Single Family Yard Waste Collection

Yard waste is collected from Blackfalds residents during the summer months (May through October) by hand into the back of a ½ ton pick-up truck. Yard waste is collected loose in containers identified with a special yard waste sticker provided by the Town, or in biodegradable plastic bags. The rules concerning plastic bags are not clearly understood by residents, as evidenced by the presence of yard waste in regular clear bags of various colours, which end up being collected by the contractor as garbage. The biodegradable bag rule is also not clearly communicated by the Town, with the website distinctly indicating biodegradable bags are required, while the Town's October Municipal News and Information flyer states yard waste may be set out in clear bags. The Town's "What's Happening" website notice was incomplete, shown in Figure 6, providing some information but no specifics regarding the appropriate type of receptacle, highlighting the need for more consistent and clear communication. The acceptability of even biodegradable plastic bags in the composting process is also questionable, and should be verified with the compost contractor. At the least, use of biodegradable bags limits the processing options available.

Yard Waste - It's only a waste if you let it be!

Blackfalds Yard Waste Collection Program

- The Town of Blackfalds will soon be offering a weekly pick up yard waste collection program.
- **Yard waste will be collected starting the May 14, 2012 until the last week of October.**
- To have your yard waste collected, it must be outside by 7:00 a.m. on your regular garbage day and **must be visible to the driver**.

Figure 6: Town of Blackfalds Yard Waste Program Notice (Town website, 2012)

Figure 7: Stickered Bin for "Yard Waste Only" and Blue Box Recycling

Collected yard waste is stored at the transfer site, where additional delivered material is also accepted. Once sufficient volume is accumulated, it is collected by Stickland Farms and taken to their processing site. The current Public Works foreman is a certified compost operator, which may also offer the opportunity to undertake some yard waste processing at the transfer site, although the benefits offered by this option do not likely outweigh the costs.

Organics are collected by Stickland Farms and processed for $50/tonne, which is a savings compared to the Red Deer landfill tipping fee of $62/tonne. Based on charges from the processor, 129 tonnes of yard waste were collected in 2011, for a diversion rate of ~7% (of a potential ~30%). Yard waste is scaled going into Stickland Farms, the current organics processor, but is not weighed at the point of collection. Depending on the frequency of pickup, this may create some deviation in reported diversion as a result of changes in moisture content. Ideally, material would be weighed upon collection, as well as at the processing site.

4.4.1.4 Single Family Organics Waste Management

There is no official organics waste management program in the Town of Blackfalds. Residents who wish to divert organics may choose to utilize a backyard composter, as illustrated in Figure 8, to keep food and yard waste out of the landfill and help maintain healthy soil in their yard and garden. It is unknown how common this practice is in Blackfalds.

Figure 8: Residential Backyard Composter in Blackfalds

4.4.2 Multi-Family Collection Services

Waste and recycling collection services are provided to Multi-Family units (MFU) by the Town's commercial contractor, Waste Management of Canada. Collection frequencies vary depending on the service required.

4.4.2.1 Multi-Family Garbage Collection

Statistics Canada estimates there are 40 apartment buildings or multi-family units (MFU) in Blackfalds (Statistics Canada, 2011). These MFUs receive waste collection as part of the commercial waste collection contract.

Currently there is no tracking of MFU waste generation, so annual tonnages are unknown.

4.4.2.2 Multi-Family Recycling Collection

There was no observed multi-family recycling in Blackfalds, so it is assumed that these residents currently do not directly receive diversion services. Since there is no public recycling depot, residents of MFUs must haul their recycling to the City of Red Deer Landfill. This could prove a deterrent to recycling, as suggested by the television left in front of a condominium dumpster (Figure 9). The fact it was left out implies that the previous owner was aware it should not be disposed in the regular waste stream, but failed to realize a reuse / recycling option.

Figure 9: Improperly Disposed Electronic Waste

4.5 Industrial, Commercial, Institutional (ICI) Waste Management

The collection of Industrial, Commercial and Institutional waste in Blackfalds is also franchised, with the current contractor being Waste Management of Canada. Waste Management provides containers for garbage and recycling to businesses, and bill the Town for the service, who in turn bill the businesses based on number of bins and frequency of collection. A small number of businesses are serviced as residential properties, and collected by the residential contractor.

4.5.1 ICI Waste Collection

Commercial waste is delivered to the Red Deer landfill, and associated tipping fees are charged on top of the container fee, which provides a direct incentive to the Town to reduce the amount of commercial garbage being generated. Currently, Friday is the scheduled commercial garbage pickup day.
An estimated 550 tonnes of commercial waste is generated in Blackfalds (Town of Blackfalds, 2012). The ratio of commercial waste to residential waste is considerably lower than the provincial average, with only approximately 23% of the current waste generated by the commercial sector, whereas the average Alberta town or city actually generates more commercial than residential waste. A variety of waste receptacles exist in the ICI sector in Blackfalds. Front-load dumpsters, like those behind the Multiplex (Figure 10) bins are serviced by Waste Management of Canada. It is unclear who provides service to smaller receptacles, like those behind a dentists' office shown in Figure 11. Also visible in Figure 11 is a larger waste bin, serviced by WasteCo, a privately contracted waste management company.

Figure 10: Multiplex Waste and Recycling Bins

Figure 11: ICI Waste and Recycling Set ups

The frequency of pick up varies with each business, according to service needs. Visual audits confirmed that significant amounts of various recyclables, specifically cardboard (see Figure 12), are ending up in the garbage rather than being recycled.

Figure 12: Multiplex Waste / Recycling Contamination

4.5.2 ICI Recycling Collection

Observations suggest there is limited recycling in the commercial sector, as well as at Town facilities. Cardboard bins are offered to businesses at a lower rate than garbage bins, and some businesses choose to share recycling bins. In addition, Waste Management will offer multi-material recycling bins although it is unknown whether this is common knowledge in the business sector.

Figure 13: Example of Multi Material Recycling / Single Stream Recycling Sticker

At the same time, observations showed a variety of styles (front load and blue box) and colours (yellow, blue, and green) of recycling bins in the commercial sector (Figure 14 and Figure 15). These inconsistencies may limit participation from businesses simply due to confusion. It also raises questions about service providers and whether or not they service all types of bins, or if some companies or businesses utilize the residential waste and recycling collection services.

Figure 14: ICI Recycling Bins

Figure 15: Various Recycling Bins in Blackfalds

The motivation to recycle is clearly not high enough to deliver higher participation in recycling for the Blackfalds business community, as illustrated by Figure 16, where cardboard is in the community centre waste dumpster. A survey of businesses would help to establish the barriers that may be limiting participation in recycling.

Figure 16: Recyclables in the Community Centre Waste Bin

4.6 Construction & Demolition (C&D)

It is unknown how much construction and demolition waste is generated in Blackfalds, however, based on the high rate of population growth, it is very likely that C&D waste generation rates are higher than average. C&D waste originating from Blackfalds and disposed at the Red Deer Waste Management Facility can be requested by the Town. However, some C&D waste may be disposed at other landfills. Therefore, to obtain a complete picture of C&D waste generation, requiring reporting directly from builders or waste haulers, such as those shown in Figure 17, would be preferable.

Successful programs targeting wood, asphalt, concrete and drywall already exist within Alberta, including some in the Red Deer area. Working regionally with The City of Red Deer may prove beneficial for both municipalities, by sharing infrastructure and building economies of scale.

Figure 17: House Construction Waste Bin

4.7 Communications and Promotions

Communications with Blackfalds residents are conducted through the Town website, as well as newsletters and brochures (see Figure 18). Further information dissemination is achieved through social media outlets like Twitter and Facebook, providing easy access to smartphone users.

Figure 18: Town of Blackfalds Informative Waste Management Brochure

5 Disposal and Diversion Data

Statistics Canada (2008) defines diversion as [representing] the quantity of materials diverted from disposal facilities and represents the sum of all materials processed for recycling at an off-site recycling or composting facility. It is important to understand diversion as opposed to disposal and the subsequent impacts disposal imposes on a community and the environment.

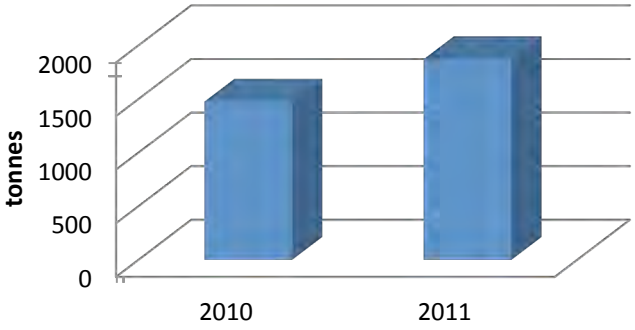

Figure 19: Blackfalds Residential Waste Generation 2010-2011

The municipal census in 2011 estimated there were 6,399 people residing in Blackfalds; residents who disposed of 1870 tonnes of waste (Figure 19). This translates to a residential per-capita generation rate of 292 kg/capita/year, which exceeds the Canadian average of 259 kg/capita, as well as the Alberta average of 273 kg/capita. Observations and interviews have also suggested that the amount of residential waste disposed in Blackfalds is higher than average.

5.1 Estimated Composition of Waste Disposed

In Alberta, waste generation originates from three streams, as illustrated in Figure 20, namely industrial, commercial and institutional waste (ICI), construction and demolition waste (C&D) and residential waste. Blackfalds is unique in the sense that its landfilled commercial waste (representing ICI waste at 23%) is almost 20% lower than the provincial average of 40% (Figure 21). Blackfalds' residential waste also conflicts with provincial norms, accounting for 77% of Blackfalds' waste – more than double the Albertan average of one third (33%). There is no estimate for the construction and demolition waste (C&D) component in Blackfalds' waste, however 27% is the noted Provincial average, and as previously noted, it is likely that C&D waste in Blackfalds would represent an even higher portion of the waste stream.

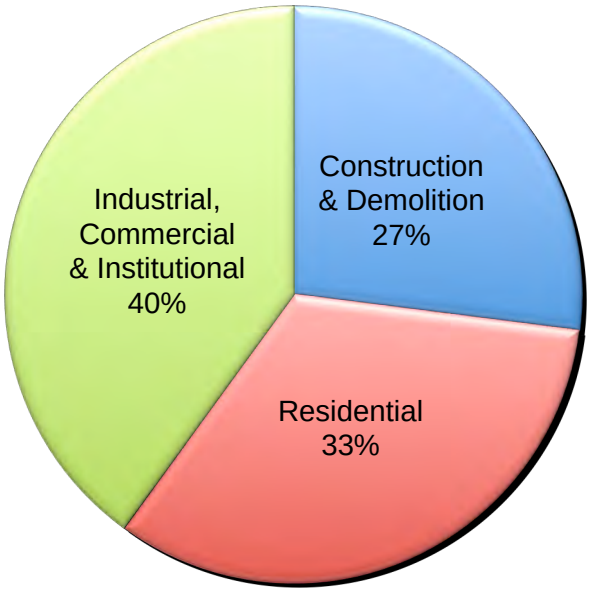

Figure 20: Waste Stream Breakdown (Recycling Council of Alberta, 2010)

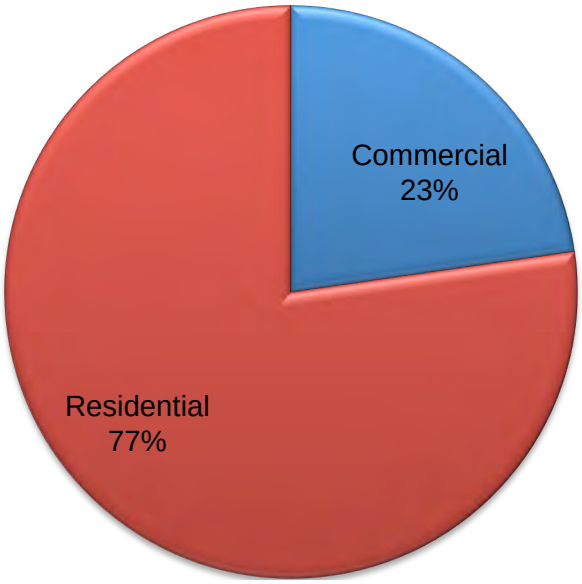

Figure 21: Blackfalds Estimated Waste Composition (2011)

Recycling volumes are not tracked, due to the fact that various communities are serviced in a single route. As a result, diversion rates are not available.

As detailed information regarding waste stream compositions was not available, data from The Provincial Waste Characterization Framework (ABENV et al. 2005) is considered for further comparison. This study compiled data from various sources within Alberta to estimate the average composition (by weight) of C&D, ICI and residential waste. These estimations may not pertain to each and every locality, but provide a general concept of the waste generation.

The estimated breakdown of residential waste (Figure 22) was constructed from Edmonton and Calgary waste audits (ABENV et al. 2005). The importance of isolating organics from disposed materials is evident when more than half is accounted for by yard (31%) and food waste (21%). Paper is also a large component, responsible for approximately 22% of the residential waste stream.

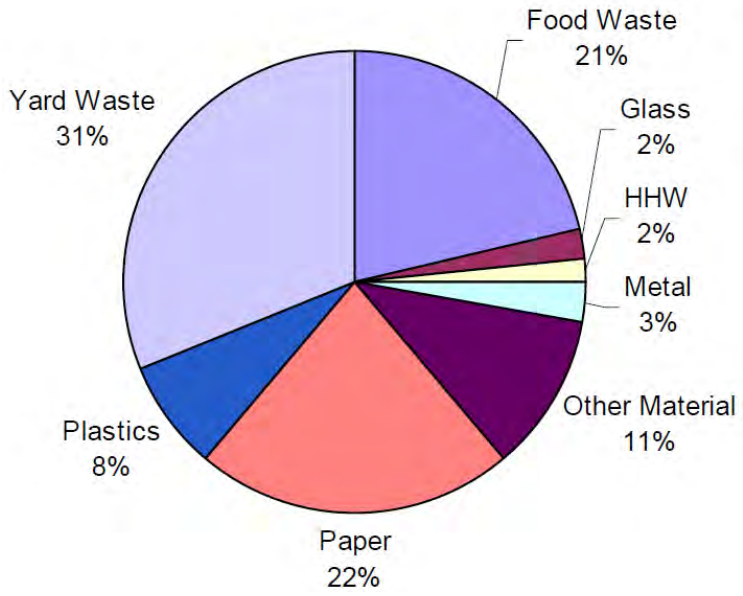

Figure 22: Estimated Albertan Residential Waste Composition

These waste composition values were applied to Blackfalds' total residential curbside waste collection (1870 tonnes) to produce theoretical potential additional diversion values for various components of the waste stream, as shown in Table 2. For this assessment, it was also assumed that newspaper represents 50% of the paper category.

Table 2: Estimated Residential Diversion Potential for the Town of Blackfalds

Material	Additional Diversion Potential (tonnes/year)
Paper	411
Glass	37
Metal	56
Plastic	150
Yard Waste	580
Food Waste	393
Total	**1627**

As seen in Table 2, using waste composition estimates, there is potentially an additional 600+ tonnes of recyclable materials that could be diverted through Blackfalds' residential recycling program. At the same time, more than 900 tonnes is estimated to be available for composting through yard waste and food waste collection programs.

The estimated composition of the ICI waste stream was based on Calgary waste audits (ABENV et al. 2005). Figure 23 illustrates that paper and cardboard (33%) together with organics (25%) compose over half of the industrial, commercial and institutional waste stream.

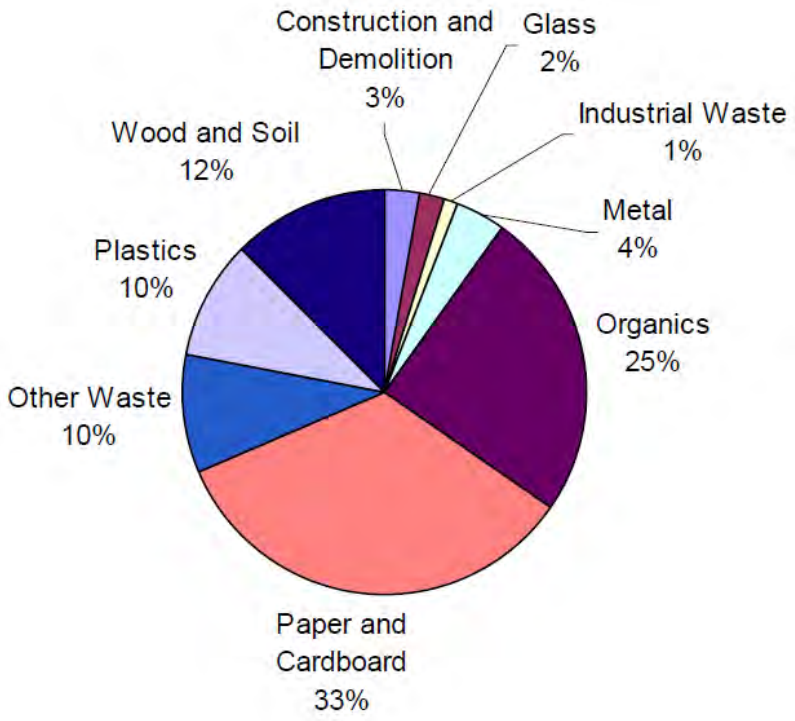

Figure 23: Estimated Albertan ICI Waste Composition

These waste composition values were applied to Blackfalds' total estimated commercial waste disposal (550 tonnes) to produce theoretical potential diversion values for the commercial sector, as shown in Table 3.

Table 3: Estimated Commercial Diversion Potential for the Town of Blackfalds

Material	Additional Diversion Potential (tonnes/year)
Cardboard and paper	182
Organics (incl. food waste)	138
Total	**320**

As shown, an estimated 182 tonnes of cardboard and paper is available for diversion from the commercial sector, while 138 tonnes of organics, including food waste from locations such as restaurants and grocery stores, may be potentially divertible.

6 Waste Management Strategy

A series of programming recommendations have been developed for Blackfalds to develop an enhanced waste management and reduction program. These recommendations are presented as short-term and long-term options, based on priority and ease of implementation.

6.1 Short-Term Program Elements

A number of options are available that offer improved system performance in the short term:

6.1.1 Government Leadership

It is important for the Town to lead by example and establish progressive waste reduction policies and programs.

6.1.1.1 Develop Council vision and goals for waste management / diversion

To provide a high level long-term vision and targets for an enhanced waste reduction program, Town Council should develop a vision of where it would like to see Blackfalds in terms of waste diversion in the future, as well as shorter term goals that will help to track progress towards the overall vision. One such vision that could be considered is the adoption of a Zero Waste goal, as defined by the Zero Waste International Alliance (ZWIA, 2012):

> *Zero Waste is a goal that is ethical, economical, efficient and visionary, to guide people in changing their lifestyles and practices to emulate sustainable natural cycles, where all discarded materials are designed to become resources for others to use.*
>
> *Zero Waste means designing and managing products and processes to systematically avoid and eliminate the volume and toxicity of waste and materials, conserve and recover all resources, and not burn or bury them.*

6.1.1.2 Enhance internal diversion programming in all public operations

Internal diversion initiatives should be consistent throughout all Town operations and buildings, while also providing for maximum diversion through aggressive design.

Potential designs include:

- the replacement of standard desk-side garbage bins at all work stations with recycling containers and mini-waste baskets;
- the prominent placement of centralized recycling bins with clear, consistent signage, and
- the development and implementation of an on-going internal communications campaign.

It is recommended that an internal staff person be dedicated to coordinating The Town's internal diversion programs. It is anticipated that an internal working group comprised of Town departments / operations will be required to assist the coordinator in establishing the appropriate services levels for all of The Town's services and buildings and to confirm equipment needs (deskside containers, centralized containers, signage), and to act as a feedback mechanism to the coordinator for subsequent program refinements.

6.1.2 Monitoring / Reporting

Monitoring program results is dependent upon accurate and complete information. Currently, the comprehensiveness of existing data is limited, and reporting capabilities are lacking. For example, the amount of material diverted through recycling programs is not reported. Tracking environmental benefits associated with diversion programs is also an important element to integrate into the monitoring and reporting system.

To provide the level of information required for accurate tracking and assessment of program performance, the Town should implement a comprehensive reporting system that provides the level of material breakdown to evaluate performance in different sectors. At a minimum, the following information should be reported to the Town on a monthly basis:

- Amount of waste disposed from Blackfalds commercial customers (already reported as a total)
- Amount of waste disposed from Blackfalds residential curbside waste collection (already reported)
- Amount of waste originating from multi-family buildings
- Amount of waste originating from Blackfalds C&D generators
- Amount of blue box recyclables from residential curbside collection
- Amount of recyclables (by category) from the Town recycling depot (if added)
- Amount of commercial cardboard collected
- Amount of other recyclables collected from commercial customers

Additional activities that would support the enhanced information system include the following:

- conduct an annual residential set-out survey to gauge participation in waste management program
- accurate assessment, and subtraction, of residuals rate associated with various levels of recycling to provide more robust diversion reporting

The reporting system should incorporate all waste measurements into one comprehensive database that facilitates easy data entry, as well as flexible reporting functions that include primary metrics such as generation and diversion rates, as well as environmental benefits calculations. It is recommended that this development be undertaken with the assistance of a database expert to ensure functionality.

6.1.3 Garbage

6.1.3.1 Collection Days

As the current residential collection routes split over two days require long days to complete, it is recommended that the Town consider adding a third collection day to facilitate shorter hours required to complete routes. Making regular collection days Tuesday through Thursday would avoid the majority of holiday conflicts.

6.1.3.2 User-Pay and Volume Limits

There is currently no limit to the number of bags Blackfalds residents can set out for collection, and the residential waste generation rate is higher than provincial and national averages, suggesting a need for limits on garbage volumes, in addition to increased diversion. As long as garbage is collected in containers and bags, it is recommended that the Town introduce a limit to the number of containers or bags that are set out per week. To assimilate residents into this system, an introductory limit that is perceived as not too restrictive (such as four bags) is suggested at first, along with other gradual implementation options such as the distribution of free tags. Then, annual decreases can be implemented

to bring the limit progressively lower, ideally in conjunction with diversion program enhancements. Excess garbage can be accommodated through the purchase of tags for extra bags.

A number of other municipalities use container size/number restrictions to decrease waste. For instance Edson residents have a weekly two garbage unit limit. Garbage tags for additional units are purchased for $2.00/sticker.

Figure 24: Town of Edson over-the-limit sticker

6.1.4 Organics

6.1.4.1 Backyard Composting/ Grasscycling / Xeriscaping

It is recommended that the Town promote backyard composting, grasscycling and xeriscaping to residents through focused community-based social marketing, and potentially subsidized composter sales. The Town could potentially offer free workshops on sustainable yard care, combining composting, grasscycling and xeriscaping campaigns.

As on-site management options, backyard composting and grasscycling result in direct cost savings to the municipality through decreased amounts of material requiring collection, either as waste or organics for centralized composting. Therefore, promotion of on-site management methods is a positive action, from both an environmental, as well as budgetary perspective. Promoting composing also supports the MSP goals to organize community garden opportunities and address beautification in the downtown core through community based initiatives. Community composting and gardening go hand in hand and may also support farmers' markets and the local food industry.

Backyard composting can be promoted through the development of a Master Composter program, which provides education to interested residents in exchange for a reinvestment of time in educating other residents about the benefits and techniques of backyard composting. There may be the opportunity to work with neighbouring communities on educational initiatives such as this.

Grasscycling is the concept of leaving grass clippings on the lawn while mowing, rather than bagging them for disposal. Xeriscaping focuses on using native vegetation and minimizing turf areas, thereby eliminating the need for supplemental watering.

Case studies show that an investment in education to change residential attitudes and behavior regarding grasscycling and xeriscaping can provide long-term benefits, as once a homeowner discovers that grasscycling is the easiest and most effective way to manage a lawn, they are unlikely to go back to bagging clippings. Grasscycling and xeriscaping offer not only waste reduction benefits, but also can contribute to a water conservation strategy.

6.1.4.2 Yard Waste Program

To increase effective participation in the existing yard waste program, information regarding acceptable set-out methods needs to be clearly communicated to residents, and reinforced by collection contractors through a system of tags or notices. This could be introduced as part of an initial social marketing campaign to increase overall diversion.

Discussions should be initiated with Stickland Farms to confirm acceptability of compostable plastic bags. If it is decided to continue acceptance of compostable bags, a clear understanding of how to identify approved compostable bags needs to be communicated to both residents and collection contractors.

Further to decisions regarding set-out methods, options to formalize and improve the efficiency of the yard waste collection program should also be discussed with the contractor, including mechanisms such as enclosed collection vehicles that contain loose yard waste materials, and could facilitate direct delivery to the composting facility.

To further enhance the existing organics program, and reduce current burning practices, consideration should be given to adding trees and branches into the program by contracting chipping of stored materials at the transfer site.

6.1.5 Recycling

Based on current demand and observed utilization, it is advisable to maintain weekly blue box service to residents until such time as larger collection containers, such as carts, are introduced.

The desire to enhance recycling opportunities is expressed in the Municipal Sustainability Plan as *expand and promote environmental initiatives including community recycling opportunities* (Blackfalds MSP, 2012). Participation in the existing residential recycling program can be increased through focused community-based social marketing. At the same time, limited recycling opportunities exist for residents of multi-family buildings. Developing an aggressive educational program in tandem with a pilot multi-family recycling program and/or public recycling depot within Town would enhance access to recycling and ultimately increase diversion.

6.1.6 Commercial Waste

Even though Blackfalds has a lower ratio of commercial waste than average, this sector still represents a significant opportunity for waste diversion.

6.1.6.1 Commercial Waste Survey

To gain a greater understanding of current practices and opportunities in the commercial sector, it would be helpful to conduct a business survey to determine current practices, barriers, and motivators to increasing participation in waste diversion. The results of this survey could then be utilized in developing enhanced diversion programming in this sector.

6.1.6.2 ICI Waste Diversion Assistance

There is often a knowledge gap regarding the opportunities and options available to business to reduce and recycle waste. In addition, many companies are interested in waste diversion, but lack the in-house expertise to set up cost-effective programs. The provision of a technical advisor, or Zero Waste Coordinator, position at the Town to liaise with commercial businesses and help organizations implement waste reduction programs could significantly enhance waste diversion in the ICI sector and would also serve to raise the profile of waste reduction among commercial operators. This program could be implemented in partnership with the existing private service contractor, who can play a very important role in encouraging diversion in the commercial sector.

6.1.7 Education / Promotion through Community-Based Social Marketing

It is recommended that the Town of Blackfalds develop and maintain an ongoing Community-Based Social Marketing program to encourage participation in waste diversion programming. The effectiveness of individual programming options is highly dependent upon identifying successful social marketing techniques. This technique should be included as part of the overall design of any program that requires behaviour change. It is therefore recommended that the Town build internal capacity in community-based social marketing, and integrate these approaches into all program design and implementation. It is also

recommended that community-based social marketing techniques be utilized for existing programs to improve participation and to address desired behaviour changes (e.g., contamination in recyclables, excess garbage).

Community-based social marketing (CBSM) is an approach to program education and promotions that encourages high rates of effective participation and long-term behavior change. Proven social marketing techniques are incorporated into program education / promotion activities to effectively change behaviors. CBSM focuses on addressing barriers that inhibit individuals from engaging in sustainable behaviours, identifying tools that have been effective in fostering and maintaining behaviour change, such as:

- Commitment – From good intentions to action. For instance, when distributing compost units, ask when the resident expects to begin to use the unit and inquire if someone can call shortly afterward to see if they are having any difficulties or ask households who have just been delivered a compost unit to place a sticker on the side of their recycling container indicating that they compost.
- Prompts – Remembering to act sustainably. For example, distribute grocery list pads that remind shoppers every time they look at their grocery list to shop for products that have recycled content, are recyclable or have less packaging. One can also place signs at the entrances to supermarkets reminding shoppers to bring their reusable shopping bags into the store and/or distribute car window stickers with the purchase of reusable shopping bags; the stickers can be placed on the window next to the car lock to remind people to bring their reusable bags into the store.
- Norms – Building community support. For instance, affix a decal to the recycling container indicating that "We Compost" or affix a decal to the recycling container indicating that the household buys recycled products.
- Communication – Creating effective messages. Several techniques can be used and include, but are not limited to the following:
  - Ensure that the message is vivid, personal and concrete
  - Have the message delivered by an individual or organization who is credible with the audience
  - Make communications easy for residents to remember what to do and how and when to do it
  - When possible, use personal contact to deliver the message
  - Provide feedback to both the individual and community levels about the impact of sustainable behaviours
- Incentives – Enhancing motivation to act. For instance, invoke user fees to increase motivation to recycle, compost and source reduce.

An excellent example of recycling program incentives is the City of Hamilton's Gold Box Reward and Recognition Program that recognizes residents who reach and exceed the goal of 65% waste diversion. Residents are encouraged to sign-up online at www.mygoldbox.ca and to place their green bin, blue box and any garbage or yard waste at the curb by 7:00 am every week. Randomly selected addresses determine which neighbourhoods receive trash audits from March to November. The best recyclers have the chance to win a gold box to replace their standard blue box.

Figure 25: City of Hamilton gold box recipients

The above tools are powerful but they can be ineffective if significant external barriers exist. If the behavior is inconvenient, unpleasant, costly or time-consuming, no matter how well internal barriers are addressed the community-based social marketing strategy will be unsuccessful. Removing or minimizing external barriers is imperative.

6.2 Long-Term Program Elements

Over the longer term, a number of program enhancements could be considered to continue to increase waste diversion in the Town of Blackfalds, and ultimately meet overall waste diversion goals:

6.2.1 Leadership

Building on the community-based social marketing program, the Town should expand enhanced recycling alternatives to ensure access and visual appeal and consistency in all public buildings and spaces.

Municipally operated public spaces such as civic centres, urban sidewalks and sports facilities are areas where recyclable waste materials, such as beverage containers and other food waste, are generated, but little diversion infrastructure often exists. The placement of collection containers for these materials not only provides a diversion option, but also offers an important public education opportunity and reinforces waste diversion habits established at home and in the workplace. Further, the visible presence of diversion containers in public spaces can make an important contribution to the impression of the Town as an environmentally-conscious community.

6.2.2 Special Events

Public events like festivals and parades generate significant amounts of waste and are an opportune place to educate the public about waste reduction and give them the opportunity to see it in action.

As a means to encourage reduction and recycling of event-related waste, it is recommended that The Town encourage “zero waste” public events. This can be facilitated through the distribution of “zero waste event” guides for event organizers that provide tips on how to minimize waste at events and identify local waste management resources and services. Numerous examples of these guides have been developed by other communities, many of which would be willing to share their documents.

- Event organizers can also be required to prepare a waste management plan including waste reduction and diversion elements as part of special events permits, using the Zero Waste Events guide as a tool. To facilitate this type of involvement, the Town may want to purchase a mobile “zero waste” station that can be lent to or rented by event organizers (see below for a trailer example). There may be the opportunity to share a resource such as this with neighbouring communities.

Figure 26: Recycling trailer

6.2.3 Garbage

6.2.3.1 Automated Collection

Cart-based collection was identified as an item of particular interest by Town Council. Based on this and the increasing popularity of these programs across Canada, it is recommended that the Town investigate the possibility of establishing an automated cart-based collection program for single-family homes that would include cart-based collection of garbage, organics, and potentially ultimately also recycling.

As this represents a significant change in service delivery, it is recommended that the program be piloted first to identify important factors such as appropriate bin size, collection frequency, performance (weather and set-out location), and community acceptance.

Automated collection incorporates equipment that picks up specially-designed garbage carts from residential streets, and dumps them into the holding area of the truck without the driver ever having to leave the vehicle. This system is becoming more common and preferred by contractors as it provides increased efficiencies, offers a wider range of labour options, and results in lower worker injuries.

Cart programs can also allow for a range of cart sizes (see Figure 27) so that residents pay for the volume that they generate, providing a financial incentive to participate in waste reduction and diversion programs. This can also be accomplished through offering multiple carts of the same size.

Figure 27: City of Prince George garbage cart options

The capital costs for carts should be offset by operational savings provided by the efficiencies achieved by automated collection. It is anticipated that long-term cost implications will show savings over standard manual collection, although that will only be validated through actual contract proposals.

Automated cart collection if preferred for front-street collection, based on challenges that can be associated with bin placement and snow removal in back alleys. It will be critical to validate or negate these potential concerns during the pilot. In the event that back alley collection proves problematic, it is recommended that the garbage system move towards front street collection in all new developments,

while also gradually transitioning existing communities. This also offers the added benefit of more visual enforcement and neater set-outs that are normally associated with front street collection.

6.2.3.2 Transfer Station

Site improvements to enhance the appearance and functionality of the transfer station should be considered to improve the impression this site provides, particularly because of its proximity to the Town. For example, additional landscaping and paving could offer significant improvements.

The opportunity also exists to expand the operations of the transfer site to include a wider range of services, such as a drop-off depot for recyclables, and collection of special wastes like electronics. Increasing hours of operation, perhaps on a seasonal basis, may also need to be considered if the site services are expanded. Charging a fee for disposal of waste at the transfer site would also serve to encourage waste reduction, while also providing a revenue stream to support site operations. Offering this fee for service to commercial customers would also increase service levels for that sector of the community.

A cost-benefit assessment would need to be conducted to determine if the site improvements and additional labour that would be required to operate on a fee-for-service basis are justified, based on current and anticipated volumes of waste.

6.2.4 Organics Collection

Organic wastes represent the largest portion of the residential waste stream. Therefore, there are significant opportunities to increase waste diversion through the implementation of an expanded composting collection program. The Town of Blackfalds has access to a composting facility (Stickland Farms) that can handle a full range of organic feedstock, providing additional opportunities for expanded organics diversion.

A curbside organics collection program could be developed to encompass a wider range of organic materials, including food waste and non-recyclable paper wastes (e.g., tissues, paper towels). Automated carts (see Figure 28 and Figure 29) are considered to be the best choice for full organics collection due to the considerable weight of material that can result in worker injury concerns.

Figure 28: Strathcona County green organics and black garbage carts

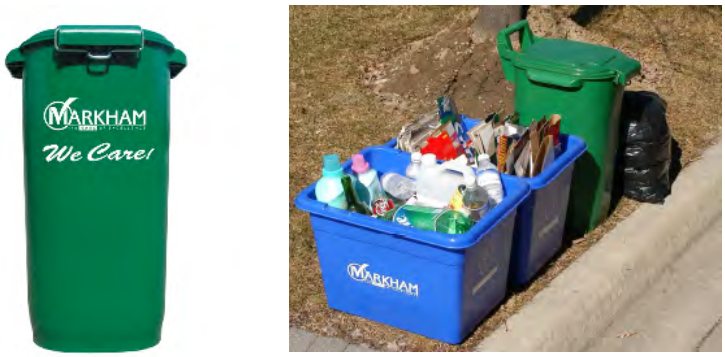

Figure 29: City of Markham green bin

Due to the scale and capital costs associated with this program, a year-long curbside organics pilot project is recommended. The pilot will assist in determining public receptivity to the food waste collection models and establish program metrics that can be used to design a full-scale program.

It is also recommended that if the Town chooses to expand into full organics collection, the program be implemented at the same time as a switch to bi-weekly collection of residual garbage.

6.2.5 Recycling

If the transition is made to automated collection for garbage and organics, moving to optional collection techniques, including blue bags and recycling carts, that offer bi-weekly collection alternatives for recycling should also be considered. This could ultimately end up with a three cart automated system, as shown in Figure 30 below.

Figure 30: City of Port Coquitlam green waste, recycling and garbage carts

6.2.6 Commercial Waste

6.2.6.1 Business Recognition / Promotion

It is recommended that the Town acknowledge businesses that are high performers in the areas of waste reduction and diversion through public recognition and certificate / awards programs, as a social marketing tool to encourage waste minimization within the ICI sector. The recognition program could be part of the ICI technical assistance service and serve to encourage businesses to implement new waste reduction measures.

Public acknowledgement of businesses and institutions that achieve significant waste reduction goals serves to encourage similar programs within other organizations, while also reinforcing the positive behaviours associated with these accomplishments, and helping to raise the public profile of participating businesses.

The Business Awards, presented by the Town of Blackfalds and the Chamber of Commerce, could add a waste reduction category as part of this recognition program. Window decals and newsletter / media notices are other options for promoting progressive businesses.

6.2.6.2 Mandatory Recycling

Regulatory approaches, such as mandatory recycling for businesses, can be highly effective at establishing diversion programs in the commercial sector. Although effective, mandatory requirements are only recommended if ICI diversion performance is low and not meeting expectations.

Through this regulatory approach, businesses would be required through a bylaw to participate in recycling and/or divert designated materials through a recycling program. Although aggressive, this type of regulation can be highly successful in terms of diversion, and provides a level playing field for businesses. It is important that prescriptive approaches such as this are implemented only when accessible diversion alternatives exist, and aggressive education/ promotion programs have been in place.

6.2.7 Construction and Demolition (C&D) Waste Diversion

Although not officially part of the formal waste management system in Blackfalds, based on its rapid rate of growth, a significant diversion opportunity exists within the C&D industry. It is therefore recommended that the Town begin tracking C&D waste originating in the community, and encourage its diversion through existing facilities like the Red Deer Waste Management Facility and Stickland Farms (drywall). This can be done as part of the ICI Waste Diversion Assistance program.

If communication and liaison efforts do not lead to adequate C&D waste diversion, regulatory options such as introducing waste reduction planning elements as part of the building permit process could be introduced.

6.2.8 Education / Promotion

It is recommended that the Town develop consistent branding and infrastructure for diversion programming throughout the Town, including bins provided to businesses for both garbage and recycling. This will be best achieved through a cooperative design process between the Town and contractors.

A key piece of effective messaging in waste diversion programs is branding. Ideally, an educational campaign should include an overall brand and look that provides continuity to the entire program, while also being consistent with the community culture.

Strathcona County is an excellent example of program branding. The County provides a waste services program called the *Green Routine!* which includes recycling, green waste and waste collection along with Enviroservice events (hazardous waste, electronics and appliance recycling).

Figure 31: Strathcona County *Green Routine!* logo

Clarity and consistency of signage is also critical to its effectiveness. Effective recycling signage combines clear language with visuals. Words are not adequate – inclusion of photos is critical to effectively convey the message of what materials are acceptable or unacceptable. Examples of effective signage are shown below.

Figure 32: Town of Banff commercial bin posters

Figure 33: City of Markham special events recycling and composting bin signage

In addition to consistent signage, consistent bin design and colour is also an important element of program branding. The accepted standard is black for garbage, blue for recyclables, and green for organics. It is also important to maintain signage and bins in good condition. Users will tend to treat infrastructure with greater respect if it is well maintained.

7 Summary of Recommendations

The following recommendations are a compilation of those contained in the previously outlined Waste Management Strategy.

7.1 Government Leadership

RECOMMENDATION: ***Develop a long term vision for Blackfalds' waste management and diversion program. Create short term goals as well, to help track progress towards the overall vision.***

RECOMMENDATION: ***Develop a consistent comprehensive waste diversion program for all public buildings and operations.***

RECOMMENDATION: ***Create a position or appoint an internal staff member to take on these program responsibilities and enact these initiatives.***

7.2 Monitoring and Reporting

RECOMMENDATION: ***Implement a comprehensive reporting system that provides the level of material breakdown to evaluate performance in different sectors.***

RECOMMENDATION: ***Include reporting requirements in all waste collection contracts.***

RECOMMENDATION: ***Conduct an annual residential set-out survey to gauge participation in the waste management program.***

RECOMMENDATION: ***Incorporate environmental benefits calculations into the reporting system.***

7.3 Residential Waste

RECOMMENDATION: ***Consider implementing a third collection day to facilitate shorter hours required to complete routes.***

RECOMMENDATION: ***Investigate establishing an automated cart-based collection program for single-family homes that includes cart-based collection of garbage, organics, and potentially recycling.***

RECOMMENDATION: ***Pilot the automated collection program prior to implementation to determine any barriers or important program factors (i.e., bin size, collection frequency, community acceptance).***

RECOMMENDATION: ***Introduce a limit to the number of garbage containers or bags that may be set out each week. Begin with a non-restrictive limit (i.e., 4 bags) and annually decrease this limit.***

RECOMMENDATION: ***Implement a system to provide for the purchase of excess garbage tags.***

RECOMMENDATION: ***Precede full enforcement of container limit with a focused educational campaign advising residents of the rules and consequences.***

RECOMMENDATION: ***Promote backyard composting, grasscycling and xeriscaping to residents through workshops, community-based social marketing and initiatives like subsidized composter sales to promote backyard composting throughout residential areas of Blackfalds.***

RECOMMENDATION: ***Collaborate with contractors to establish standards for acceptable yard waste receptacles, collection and a system of enforcement. Educate residents accordingly through community-based social marketing program.***

RECOMMENDATION: ***Initiate discussions with Stickland Farms to confirm yard waste content requirements (i.e., acceptability of plastic bags). Communicate results to both the contractors and residents.***

RECOMMENDATION: ***Maintain weekly blue box service until such time as alternate collection options such as automated recycling carts are introduced.***

RECOMMENDATION: ***Develop an aggressive community-based social marketing program to promote participation in recycling programs.***

RECOMMENDATION: ***Pilot multi-family recycling program options and / or introduce a public recycling depot.***

RECOMMENDATION: ***Consult with Stickland Farms to determine the facility's capacity and feedstock requirements for residential organics.***

RECOMMENDATION: ***Conduct a year-long pilot of curbside organics collection.***

RECOMMENDATION: ***If the Town expands into full organics collection, switch to bi-weekly garbage collection upon implementation.***

7.4 Commercial Waste

RECOMMENDATION: ***Conduct a business survey to determine current practices, barriers and motivators to increasing business participation in waste diversion and develop enhanced diversion programming in the commercial sector.***

RECOMMENDATION: ***Provide technical and information assistance to businesses and institutions that want to implement waste diversion programs.***

RECOMMENDATION: ***Create a Business Waste Diversion Assistant position within the Town office to liaise with interested businesses and institutions.***

RECOMMENDATION: ***Develop a program to recognize businesses achieving high standards in waste reduction and diversion.***

RECOMMENDATION: ***Develop regulatory approaches to improve participation from the ICI sector, after accessible diversion alternatives exist and aggressive education / promotion programs are in place.***

7.5 Construction and Demolition (C&D) Waste Diversion

RECOMMENDATION: ***Track C&D waste originating within Blackfalds and encourage diversion through existing facilities (Red Deer Waste Management Facility).***

7.6 Community-Based Social Marketing

RECOMMENDATION: ***Build internal capacity in community-based social marketing, and integrate these approaches into all program designs and implementation. Utilize community-based social marketing to improve current participation and address behaviour changes.***

RECOMMENDATION: ***Develop consistent branding and infrastructure for diversion programming throughout the Town.***

RECOMMENDATION: ***Initiate a cooperative design process between The Town and contractors for recycling infrastructure to improve consistency in bin design, colours and signage.***

7.7 Special Events

RECOMMENDATION: ***Prepare a "zero waste event" guide for event organizers that provides tips on how to minimize waste at events and identifies local waste management resources and services.***

RECOMMENDATION: ***Require event organizers to prepare a waste management action plan including waste reduction and diversion elements as part of special events permits.***

RECOMMENDATION: ***Purchase a "zero waste" station, such as a trailer, that can be loaned or rented by local or regional event organizers and used to promote environmental messages.***

7.8 Transfer Station

RECOMMENDATION: ***Improve the overall appearance of the Transfer Station through landscaping and paving.***

RECOMMENDATION: ***Contract the chipping of stored trees and branches at the transfer station for composting with other yard waste, eliminating the current burning practice.***

RECOMMENDATION: ***Expand Transfer Station services to include a drop-off depot for recyclables and collection of special wastes. Consider implementing a fee for dropping off waste materials.***

RECOMMENDATION: ***Conduct a cost-benefit assessment to determine if site improvements and a fee-for-service operation are feasible.***