March 2009

Town of Okotoks Resource Recovery Plan

Final

Submitted to

Okotoks

Submitted by

CH2MHILL

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March 11, 2008

Town of Okotoks
P.O. Box 20, Station Main,
North Railway St.
Okotoks, Alberta T1S 1K1

Attn: **Mr. Dave Robertson**

Subject: **Town of Okotoks**
Resource Recovery Plan

Dear Mr. Robertson:

It is our pleasure to provide the final versions of the Town of Okotoks Resource Recovery Plan and its accompanying Executive Summary.

On behalf of our Team, I would like to thank you again for the opportunity to work with the Town on this interesting project. The level of collaboration between CH2M HILL and the Town of Okotoks in developing this Plan was particularly rewarding.

If you have any questions regarding this submission, please do not hesitate to contact the undersigned at 780.722.4626.

Sincerely,

CH2M HILL

Scott Gamble, P.Eng.
Waste Management Engineer

EXECUTIVE SUMMARY

The Town of Okotoks is well known for its pursuit of sustainable development and planned community growth. In 1998 the Town of Okotoks adopted a sustainability vision which stated that Okotoks would be a leader in sustainability, driven by an involved, connected and creative community.

In keeping with this vision, Okotoks has taken a unique approach to community growth that comes from its recognition that sustainable development means staying within the "carrying capacity" of the surrounding and supporting natural environment. For Okotoks, this specifically means the carrying capacity of the Sheep River watershed which has been determined to be approximately 30,000 people.

Over the past ten years, Okotoks has nurtured a successful community oriented recycling program, and implemented a progressive curbside waste collection service for residents that incorporates a 3-unit limit. As the largest population center in the Calgary Regional Partnership's southern "waste shed", Okotoks has also been active in influencing and encouraging the waste management policies in the region.

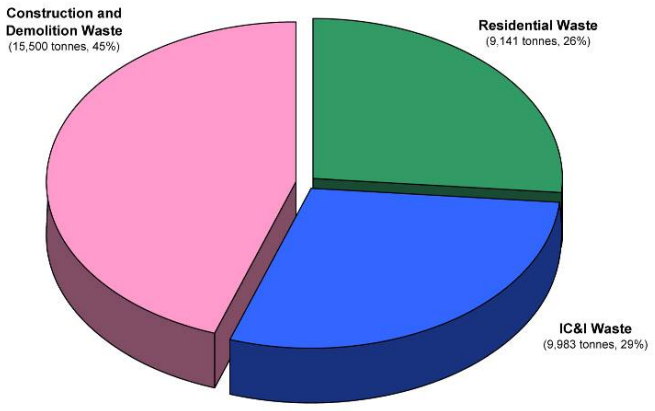
Town Councilors and Administrative leaders have embraced the idea of further encouraging responsible solid waste management and resource recovery. Therefore, as a part of the Town's wide ranging "sustainability initiatives," Okotoks has committed to developing this comprehensive Resource Recovery Plan that is based on a "zero waste" philosophy.

The Resource Recovery Plan and the adoption of a zero waste philosophy recognizes Okotoks' strong ongoing commitment to reducing solid wastes, and its efforts as a member of the Foothills Regional Services Commission to maximize the lifespan of the regional landfill. The goal is also harmonized with regional waste management plans and efforts of the Calgary Regional Partnership, and the Province of Alberta's goal of 80% diversion from landfill and the establishment of no new landfills in the province after by 2015.

SOLID WASTE STREAM CHARACTERISTICS

Generally, the municipal solid waste stream is considered to be comprised of waste from three sources: residential dwellings; institutions, commercial and industrial (IC&I) establishments; and construction and demolition (C&D) projects. The relative contribution of each of these sources to the overall waste stream in Okotoks is summarized in Exhibit 3-1. C&D waste contributes more to the overall waste stream, which is reflective of growth in the community.

EXHIBIT E-1
Okotoks Waste Stream Quantities by Source



EXISTING PROGRAMS

The Town of Okotoks operates several waste and recycling programs including:

- Weekly Garbage collection for single family houses and duplexes
- Drop-off recycling depot including satellite locations;
- Drop-off yard waste depot;
- Backyard compost bin sales;
- Household hazardous waste drop-off; and
- Education and outreach.

Most of these are oriented to residents, but many businesses and institutions in the Town choose to utilize the drop-off facilities. Recyclable processing services are also provided to adjacent municipalities through the Resource Recovery Depot.

EXISTING PROGRAM FUNDING

Currently, all of the single-family residences and duplexes in Okotoks that are serviced by the Town's water system receive bi-monthly utility bills from the Town. In addition to water and sewer use charges, these bi-monthly bills include a charge for curbside waste collection, recycling services and education and outreach programs. The budgeted cost for these services in 2008 was $1,059,627.

Setting of the bi-monthly utility charge takes into account the revenues generated from the collected, processed and marketed materials. For example, in 2008, $123,000 was budgeted for revenue derived from the sale of recyclables.

While apartment and condominium residents are able and encouraged to use the Resource Recovery Depot for their recycling needs, they do not pay for this service unless they receive utility bills directly from the Town. Similarly, businesses in the Town, even those which receive utility bills, do not pay a fee for accessing the Resource Recovery Depot.

As mentioned previously, Okotoks also accepts and processes recycled materials collected by other municipalities in the region. The Town does not currently charge for this service, nor does it share any revenues resulting from the sale of materials.

RECOMMENDED RESOURCE RECOVERY PROGRAMS AND POLICIES

Development of the Resource Recovery Plan for the Town of Okotoks drew upon ideas and influences from research into the Town's existing waste and recycling systems, and from input provided by key stakeholders and the public. The diverse group of stakeholders included Calgary Regional Partnership, Alberta Environment, waste and recycling service providers, Foothills Regional Services Commission, and Town of Okotoks staff members, including those on the frontlines. The information gathered through workshops and interview sessions with the stakeholders served as the basis for developing an "Action Plan" of policies and programs, and associated implementation timelines.

The Action Plan was presented to Okotoks Town Council in June of 2008. During that meeting, Council's endorsed the Action Plan, and requested that it be presented to the public for comment and feedback.

In response to Council's directive, information sessions were organized for Town residents and business representatives during September of 2008. Comments on the Action Plan were

solicited verbally during the information sessions, through comment forms, and via the Town's website.

Based on the feedback received from businesses and residents, the Action Plan was amended to further reflect their wants and needs. The changes involved adjusting program implementation dates (e.g. bringing forward collection programs), and placing more emphasis on construction and demolition waste reduction.

The revised Action Plan formed the basis for this Resource Recovery Plan and associated implementation timelines. Consistent with the feedback from the public consultation, the Plan has four specific strategies:

- Expanded Recycling Strategy;
- Organic Waste Diversion Strategy;
- Construction and Demolition Waste Diversion Strategy; and
- Awareness, Accountability, and Reporting Strategy.

The details of the specific policies and programs that are part of each strategy are summarized in the implementation timelines shown in Exhibits E-2 through E-5.

WASTE DIVERSION POTENTIAL

The long-term potential for incremental diversion of waste resulting from the implementation of the proposed strategies is estimated to be in the order of 10,000 tonnes per year, or roughly a third of the total municipal solid waste stream.

A summary of the expect diversion resulting from each component of the Resource Recovery Plan has been provided in Exhibits E-6 through E-9 along with resource requirements.

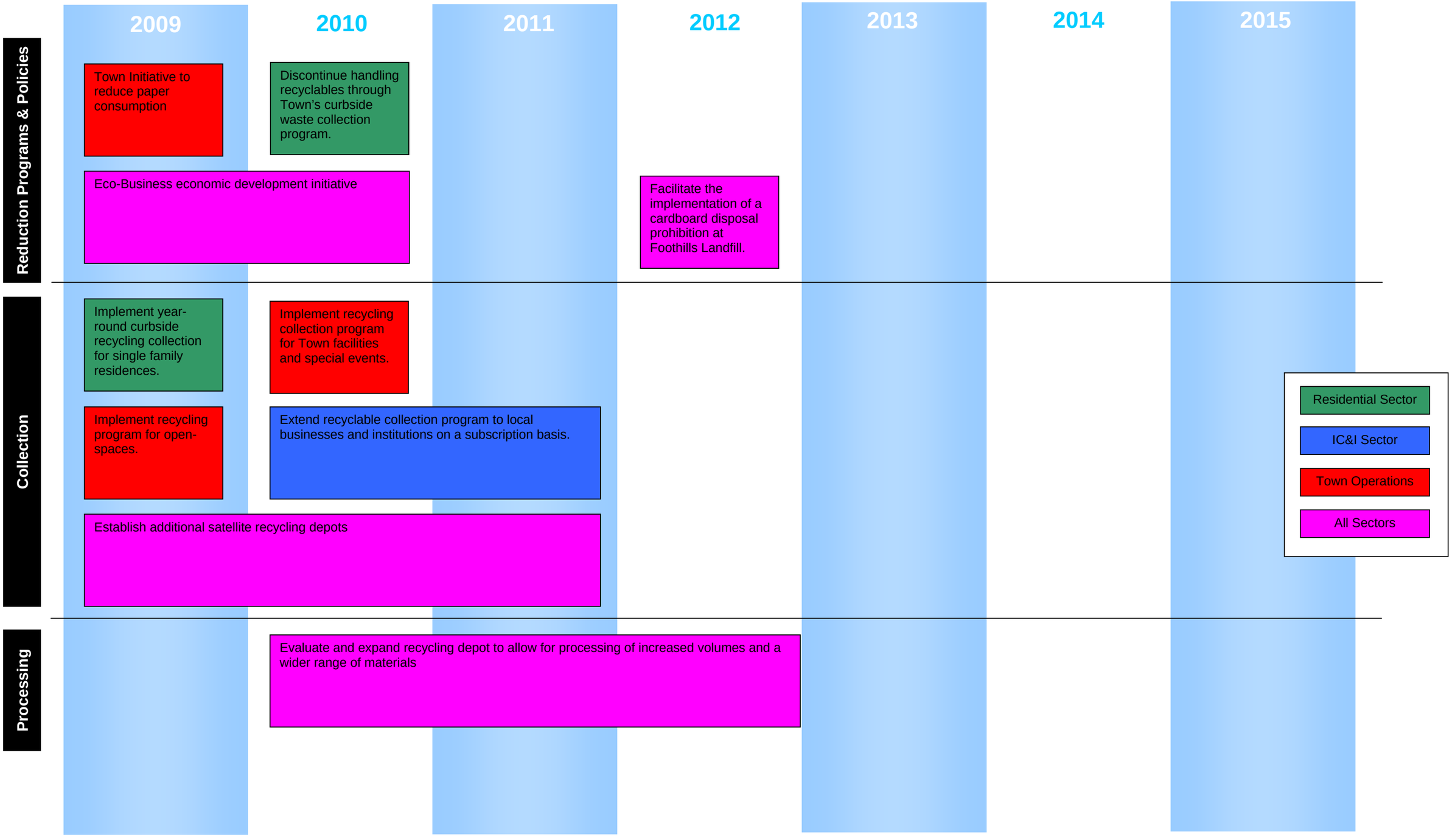


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Exhibit E-2
Expanded Recycling Strategy
Implementation Timeline

	2009	2010	2011	2012	2013	2014	2015
Reduction Programs and Policies		Re-launch Compost Bin Program and expand to include worm Bins. Discontinue handling yard waste through Town's curbside waste collection program. Establish Xeriscape /Green Landscape education and recognition program. Switch to use of biodegradable cutlery and service items at Town facilities and events.				Facilitate the implementation of a yard waste disposal prohibition at Foothills Landfill.	
Collection	Implement subscription-based curbside yard waste collection for single family residences.		Implement organic waste collection program for Town facilities and special events.		Implement year-round curbside organic waste collection for single family residences.	Extend organic waste collection to local businesses and institutions on a subscription basis.	
Processing		Work within FRSC & CRP to establish regional organics processing capability.	Encourage onsite composting at suitable commercial locations and institutions.				

Residential Sector
IC&I Sector
Town Operations
All Sectors

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Exhibit E-3
Organic Waste Diversion Strategy
Implementation Timeline

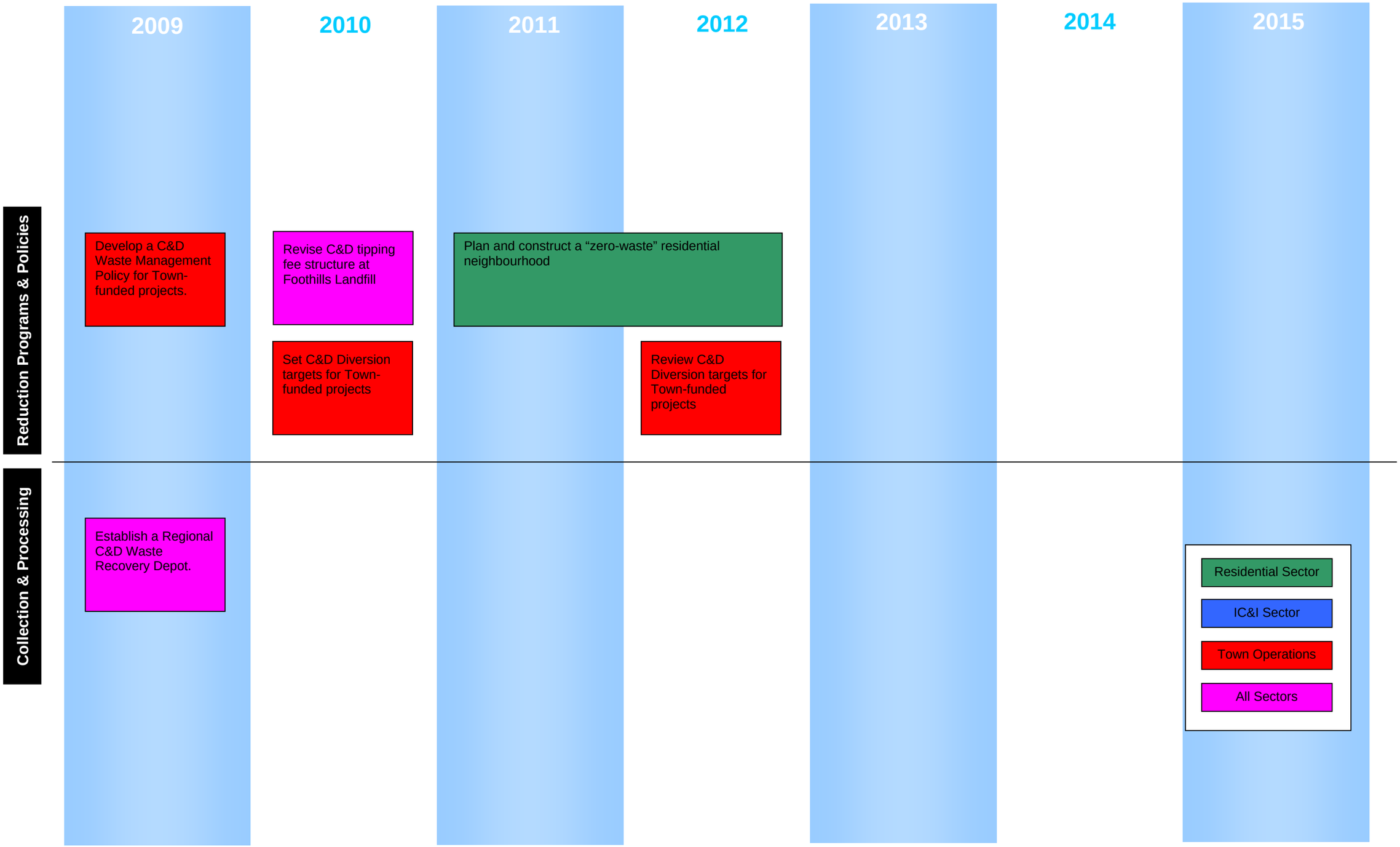

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Exhibit E-4
Construction and Demolition Waste Strategy
Implementation Timeline

	2009	2010	2011	2012	2013	2014	2015
Awareness	Re-launch awareness and education programs						
	Commercial “self-audit” waste reduction program.						
	Assume a leadership and advocacy role within the region	Evaluate and establish a web-based waste exchange					
Accountability	Finalize and implement utility fee structure	Investigate Subscription-based waste collection service					
	Implement a 2-unit waste collection limit	Establish a rebate program for milestone achievement					
	Cooperate to obtain program assistance on regional initiatives						
Reporting	Develop Waste-o-Meter and update quarterly				Undertake waste composition study		
	Commercial waste tracking system						

- Residential Sector
- IC&I Sector
- Town Operations
- All Sectors

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Exhibit E-5
Awareness, Accountability and Reporting Programs Implementation Timeline

EXHIBIT E-6
Expanded Recycling Programs
Resource Requirements and Diversion Potential

Plan Component	Staff Management Time		Capital and/or Startup Costs	Annual Operating Cost	Anticipated Diversion (tonnes/yr)
	Startup	Routine			
Discontinue collection of recyclables through curbside refuse collection service	40 hrs	N/A	$2,500 (advertising)	N/A	200 – 250 [1]
Cardboard disposal prohibition at Foothills Regional Landfill	80 hrs	N/A	$1,500 (advertising)	N/A	500
Eco-Business economic development initiative	160 hrs	N/A	N/A	N/A	N/A
Town initiative to reduce paper consumption	40 hrs	4 hrs/month	N/A	N/A	1 – 3
Implement year-round curbside recycling program	160 hrs	16 hrs/month	N/A [2]	$5/household/month	1,500 [3]
Public-spaces recycling	40 hrs	4 hrs/month	$7,500 (carts)	N/A [4]	<5
Town facility and special event recycling	40 hrs	4 hrs/month	$5,000 (carts)	N/A [4]	<5
Establish additional satellite recycling depots	40 hrs	4 hrs/month	$25,000 per site	$12,500 per site [5]	100 [6]
Expand recyclables collection program to businesses and institutions on a subscription basis	120 hrs	8 hrs/month	$10,000 (carts)	$5/business/month	125 – 150 [7]
Expand existing Resource Recovery Depot	240 hrs	N/A	Varies depending on materials accepted	Varies depending on materials accepted	N/A

Notes:

1. 20% increase in diversion through Resource Recovery Depot.
2. Assumes program is outsourced.
3. Assumes 75% of remaining recyclable paper and tin/aluminum cans, and 30% or remaining plastics.
4. Assumes recyclables collection results in only minor incremental workload to existing staff duties.
5. Assumes 4 hours/week to service each site.
6. 10% increase in diversion compared to existing rates.
7. Assumes ~25 kg/week from 125 to 150 businesses

EXHIBIT E-7
Organic Waste Diversion Programs
Resource Requirements and Diversion Potential

Plan Component	Staff Management Time		Capital and/or Startup Costs	Annual Operating Cost	Anticipated Diversion (tonnes/yr)
	Startup	Routine			
Re-launch compost bin subsidization/give-away program	40 hrs	4 hrs/month	$2,500 (advertising)	$2500 (bins)	25 – 35 [1]
Discontinue collection of leaf and yard waste through curbside refuse collection service	40 hrs	N/A	$2,500 (advertising)	$20,000 (incremental processing cost)	1,000 [2]
Establish xeriscape/green landscaping education and recognition program	80 hrs	4 hrs/month	N/A	$1,500 (awards and advertising)	60 – 70 [3]
Use of biodegradable cutlery/service items	40 hrs	N/A	N/A	$1,000 [4]	<1
Yard waste disposal prohibition at Foothills Regional Landfill.	80 hrs	N/A	N/A	N/A	>2,500 [5]
Subscription-based yard waste collection program	120 hrs	8 hrs/month	N/A	$8/household/month	Incl. in curbside prohibition
Organic waste collection for Town facilities and events.	40 hrs	4 hrs/month	$7500 (carts)	$15,000	10 – 15
Implement year-round curbside organic waste collection program	160 hrs	16 hrs/month	$425,000 (carts) $250,000 (new truck)	$5/household/month	1,200 [6]
Extend organic waste collection program to local businesses and institutions	80 hrs	8 hrs/month	$5,000 (carts)	$5/business/month	60 – 75
Expand and/or establish regional organic waste processing capacity	160 hrs	N/A	Variable depending on participation	Variable depending on participation	N/A
Encourage onsite composting programs	80 hrs	24 hrs/month	N/A	N/A	<50

Notes:

8. Estimated diversion of 2% of remaining residential yard waste.
9. Estimated diversion of 75% of remaining residential yard waste.
10. Estimated diversion of 5% of remaining residential yard waste.
11. Incremental cost to replace existing plastic items with biodegradable items.
12. Includes diversion from all municipalities that rely on Foothills Landfill.
13. Estimated diversion of 75% of residential food waste.
14. Assumes use of existing Town collection vehicle.

EXHIBIT E-8
Construction and Demolition Waste Programs
Resource Requirements and Diversion Potential

Plan Component	Staff Management Time		Capital and/or Startup Costs	Annual Operating Cost	Anticipated Diversion (tonnes/yr)
	Startup	Routine			
Develop a C&D Waste Management Policy for Town-funded projects.	40 hrs	N/A	N/A	N/A	50 – 100 [1]
Revise C&D tipping fee structure at Foothills Landfill	40 hrs	N/A	N/A	N/A	1,550 [2]
Plan and construct a "zero-waste" residential neighbourhood	160 hrs	N/A	N/A	N/A	1,000 [3]
Set C&D Diversion targets for Town-funded projects	40 hrs	8 hrs/month	N/A	N/A	Incl. in C&D Policy estimate
Review C&D Diversion targets for Town-funded projects	20 hrs	N/A	N/A	N/A	
Establish a Regional C&D Waste Recovery Depot.	120 hrs	N/A	$10,000 [4]	N/A (Cost-recovery basis)	3,875 [5]

Notes:

1. Dependant on number of Town projects per year. Estimated diversion of 0.5% of overall C&D waste stream.
2. Estimated diversion of 10% of C&D waste stream.
3. Assumes a one-time 75% diversion of C&D waste from a 40 unit residential development.
4. Assume only minor upgrades to existing infrastructure at Foothills Landfill.
5. Assumes 25% diversion of residential and non-residential C&D waste.

EXHIBIT E-9
Awareness, Accountability and Reporting Programs
Resource Requirements and Diversion Potential

Plan Component	Staff Management Time		Capital and/or Startup Costs	Annual Operating Cost	Anticipated Diversion [1] (tonnes/yr)
	Startup	Routine			
Re-launch awareness and education programs	160 hrs	24 hrs/month	$10,000 (graphics and advertising)	$2,500 (advertising)	
Commercial "self-audit" waste reduction program	80 hrs	24 hrs/month	$7,500	N/A	500 [2]
Assume a leadership and advocacy role within the region	N/A	16 hrs/month	N/A	N/A	
Evaluate and establish a web-based waste exchange	80 hrs	6 hrs/month	$2,500 (software/IT)	N/A	<10
Finalize and implement utility fee structure	80 hrs	16 hrs/month	N/A	N/A	
Implement a 2-unit waste collection limit	60 hrs	N/A	N/A	N/A	
Investigate Subscription-based waste collection service	160 hrs	N/A	N/A	N/A	
Establish a rebate program for milestone achievement	40 hrs	N/A	N/A	N/A	
Obtain program assistance on regional initiatives	N/A	8 hrs/month	N/A	N/A	
Develop Waste-o-Meter and update quarterly	80 hrs	4 hrs/month	N/A	N/A	
Commercial waste tracking system	80 hrs	8 hrs/month	N/A	N/A	
Undertake waste composition study	40 hrs	N/A	$50,000	N/A	

Notes:

1. Estimates include only diversion resulting directly from policy or program implementation. Diversion resulting indirectly from changing practices or attitudes is not considered.
2. Estimated diversion of 5% of IC&I waste stream.

TABLE OF CONTENTS

1. INTRODUCTION

Situated in the Sheep River Valley of the Alberta foothills, approximately 20 km south of the City of Calgary, Okotoks is a service centre for the surrounding region providing retail, commercial, recreational and resource recovery needs for a population reaching beyond their own political borders.

The Town is willing and interested in taking a leadership role in all aspects of their servicing commitments and to approach municipal management from a business perspective. Their goal is to provide superior services to residents at competitive rates while keeping the focus on "green" living. The Town of Okotoks is well known for its pursuit of sustainable development and planned community growth. Okotoks is also home to a very successful community oriented Resource Recovery Depot, and provides its residents with a progressive curbside waste collection service that incorporates a 3-unit limit.

Town Councilors and Administrative leaders have embraced the idea of taking responsibility for waste management and resource recovery to a higher level. Therefore, as a part of the Town's wide ranging "sustainability initiatives," Okotoks has committed to developing this comprehensive Resource Recovery Plan that is based on a "zero waste" philosophy.

The implementation of a zero waste philosophy recognizes Okotoks' strong ongoing commitment to reducing solid wastes, and its efforts as a member of the Foothills Regional Services Commission to maximize the lifespan of the regional landfill. The goal is also harmonized with regional waste management plans and efforts of the Calgary Regional Partnership, and the Province of Alberta's goal of 80% diversion from landfill and the establishment of no new landfills in the province after by 2015.

2. COMMUNITY PROFILE

SUSTAINABILITY PRINCIPLES AND PROGRAMS

In 1998 the Town of Okotoks adopted a sustainability vision which stated that by the year 2030, Okotoks would be a leader in sustainability, driven by an involved, connected and creative community. This vision resulted in the articulation of four “sustainable pillars”:

- environmental stewardship;
- economic opportunity ;
- social conscience; and
- fiscal responsibility.

Okotoks has taken a unique approach to community growth that comes from its recognition that sustainable development means staying within the “carrying capacity” of the surrounding and supporting natural environment. For Okotoks, this specifically means the carrying capacity of the Sheep River watershed which has been determined to be approximately 30,000 people.

The Town of Okotoks successfully incorporated their vision of sustainability into 1998 versions of its Municipal Development Plan, Land Use Bylaw, Intermunicipal Development Plan, and all subsequent business plans.

The Town’s development policies focus on sizing infrastructure and programs for a maximum and eventual “build out” population of 30,000 people. To support sustainable development in Okotoks, the Town has initiated comprehensive servicing plans to identify and anticipate specific needs and trends between now and the time the Town reaches this build-out population.

Specific to waste management, the 1998 Municipal Development Plan also outlined a goal of 30% reduction in per capita waste generation by the year 2015.

POPULATION AND GROWTH

As mentioned, Okotoks has adopted a targeted build-out population of 30,000. Originally it was anticipated that this population would be reached in 2030. But between 2001 and 2006, Okotoks experienced an unexpected population growth rate of almost 47%, accelerating this date to 2015.

The population growth rate in Okotoks is expected to slow, but still remain higher than average. Current population and future projections are shown in Exhibit 2-1.

EXHIBIT 2-1
Population Projections

	2006	2010	2020	2030
Population	17,145[1]	21,600[2]	31,500[2]	33,000[2]

1. Statistics Canada 2006 Census
2. Infrastructure Study 2005, Urban Systems, March 2005

ROLE WITHIN THE CALGARY REGIONAL PARTNERSHIP

The Calgary Regional Partnership (CRP) consists of nineteen municipalities in the Calgary area that have joined forces to improve the delivery of municipal services to residents and

businesses, enhance regional prosperity and to protect the natural environment. The CRP strives support the unique traits of the respective members while promoting awareness of the region and the advantages of working collaboratively.

Over the past several years, the CRP has facilitated the development of an integrated waste management strategy for the region. Most recently, it has focused efforts on the implementation of a regional organics waste strategy that would see the diversion and composting of yard waste, food waste and biosolids from the residential and business sectors. Specific implementation strategies have been developed for determined “waste sheds” within the CRP boundaries. Okotoks falls into the CRP’s southern waste shed along with the MD of Foothills, Turner Valley, High River, Nanton, and Black Diamond.

As the largest population center in the southern waste shed, Okotoks has an opportunity to influence and encourage, as well as support, the waste management policies of adjacent municipalities. The recognized hub of waste management activities and servicing facilities for the southern waste shed has been identified as the Foothills Landfill, operated jointly by municipalities in the region via the Foothills Regional Services Commission (FRSC).

3. SOLID WASTE CHARACTERISTICS

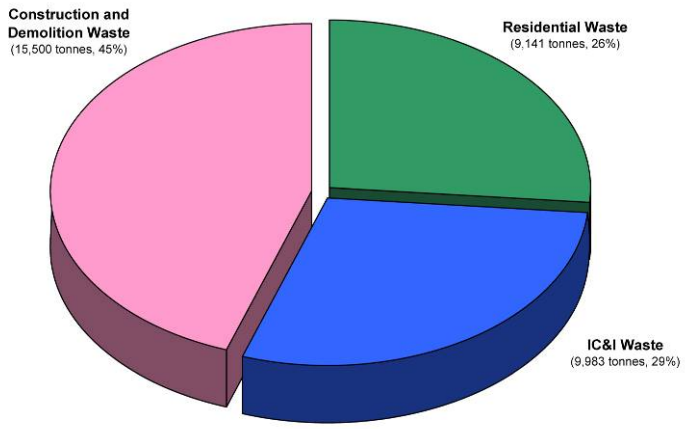
Characterization of the solid waste stream is an integral component of developing a comprehensive municipal waste management strategy. It involves defining waste quantities by material type, observing the seasonality of waste generation, and determining the composition of the waste stream. It also addresses future waste generation trends and quantities.

Generally, the municipal solid waste stream is considered to be comprised of waste from three sources:

- Residences (e.g. single and multi-family dwellings);
- Institutions, commercial and industrial establishments (IC&I); and
- Construction and demolition (C&D) projects.

On a province-wide basis, these three sources each contribute roughly a third to the overall municipal waste stream. However, this ratio can vary when viewed at the community level due to differences in economic base, growth and other social factors. In Okotoks, C&D waste contributes more to the overall waste stream, which is reflective of growth in the community. The breakdown of waste streams by source is presented in Exhibit 3-1.

EXHIBIT 3-1
Okotoks Waste Stream Quantities by Source



RESIDENTIAL WASTE STREAM

In the context of this Resource Recovery Plan, residential waste includes the discarded materials generated by single family homes and duplexes within the Town. It includes waste that is collected at the curbside, as well as waste hauled directly to disposal or recycling facilities by residents (i.e. self-haul waste).

The garbage collected at multi-family residential complexes (e.g. apartments, condominium developments) is included in the IC&I waste generation totals. This is because multi-family residential waste is generally handled by commercial waste haulers and therefore identified and recorded as such.

RESIDENTIAL WASTE QUANTITIES

A summary of the residential waste quantities generated in Okotoks during 2007 is summarized in Exhibit 3-2.

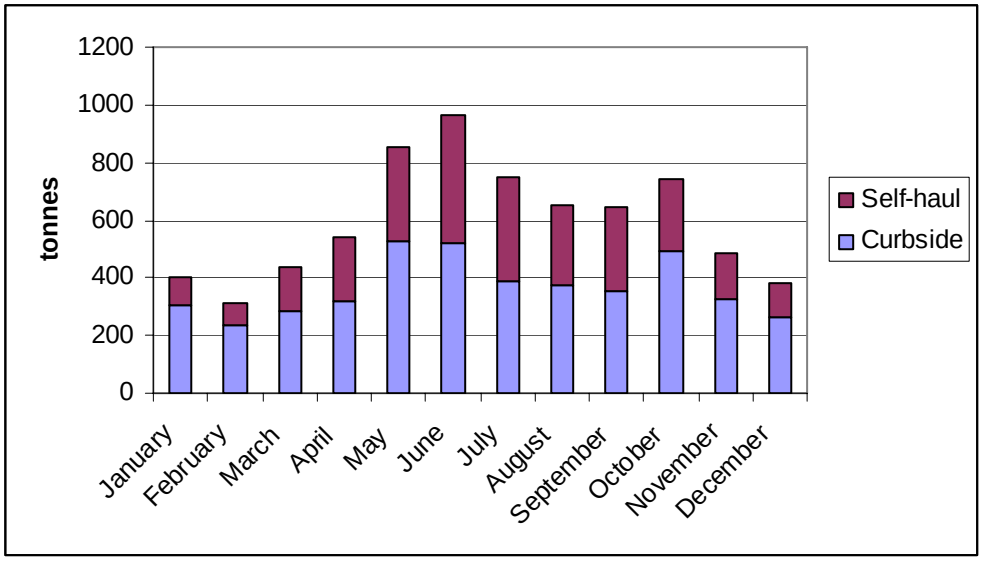
EXHIBIT 3-2
Residential Solid Waste Quantities – 2007

Waste Component	Disposed [1]	Diverted [1, 2]	Total
Curbside Solid Waste Collection	4,235[3]		4,235
Residential Self Hauled Waste	2,935		2,935
Multi-Family residential Waste	Included in IC&I totals		
Leaf & Yard Waste		1,105	1,105
Paper, Plastic, Metals, Glass collected through Municipal recycling programs		1,666	1,666
Total	7,170	2,771	9,941

1. Based on data supplied by Foothills Regional Landfill
2. Based on data supplied by Town of Okotoks
3. Does not show breakdown of waste components

It is generally known that the quantities of residential waste are higher during the spring, summer and fall due to the presence of yard waste and landscaping debris. In the Town of Okotoks, the variation in waste tonnages collected at curbside is more significant than in most other jurisdictions, with the peak monthly tonnage (i.e. June) being three to four times higher than the lowest monthly tonnage (i.e. December). The quantities of waste collected on a month-by-month basis, and the quantities of wastes hauled directly to the landfill by Okotoks residents ("self-haul"), are shown graphically in Exhibit 3-3.

EXHIBIT 3-3
Monthly Variation in Residential Waste Quantities – 2007



Volume variations from season to season can be even more significant than weight variations as yard waste tends to have a lower density than the remainder of the waste stream. It is not unheard of for waste volumes in the spring and fall to be double that of winter volumes due to the presence of leaves, grass and brush. This variation must be accounted for in the design and operation of collection and processing programs to avoid bottlenecks.

Future waste quantities are normally projected using population projections in combination with "per capita" waste generation rates. However, these projections are affected by such factors as population growth and changes in residential demographics.

An estimate of the future residential waste quantities in Okotoks is provided in Exhibit 3-4. It must be noted that these estimates consider all discarded materials as "waste" and do not reflect the increased level of diversion that may result from implementing zero waste practices. This method of estimating is also not refined enough to account for bulky wastes (e.g. brush, white goods, renovation waste) that residents haul directly to regional disposal facilities.

EXHIBIT 3-4
Residential Solid Waste Projections

	2006	2010	2020	2030
Population	17,145 [2]	21,600 [3]	31,500 [3]	33,000 [3]
MSW Disposed (tonnes) [1]	7,170	-	-	-
Recycled/Diverted (tonnes)	2,771	-	-	-
Total MSW (tonnes)	9,941	12,528	18,270	19,140
Per Capita (tonne/cap/yr)	0.58	0.58	0.58	0.58

1. Residential portion of MSW only. Does not include construction/demolition waste, drywall, wood waste, soils, metals, tires, or white goods. Does not include multi-family residential wastes.
2. Statistics Canada 2006 Census
3. Infrastructure Study 2005, Urban Systems, March 2005

RESIDENTIAL WASTE COMPOSITION

Characterizing the constituents of the solid waste stream is an integral step in developing a resource recovery plan. It allows planners to identify the relative amounts of recyclable and non-recyclable materials in the waste stream, identify priority programs, and size collection and processing infrastructure. Waste composition information can either be obtained directly from field studies and measurements, or by using the results of field studies in similar jurisdictions.

Field sampling and analyze of waste samples from the Town of Okotoks was beyond the scope of this study. Instead, detailed waste composition information developed from field programs undertaken for the City of Calgary in 2004 was used as a basis for estimates and program planning. It was felt that Calgary and Okotoks are similar in terms of residential waste service provision, demographics, economic status, and population growth rates, and therefore would have a similar residential waste composition breakdown. A small difference is predicted to be in the amount of plastics found in the waste stream as Okotoks has a more comprehensive plastics recycling program than City of Calgary.

The assumed residential waste composition for the Town of Okotoks used in this study is presented in Exhibit 3-5.

Due to the methodology employed, the composition study completed in Calgary focused only on the disposed portion of the waste stream. That is, it did not factor the quantities of waste diverted through recycling or composting programs. Therefore the residential waste composition presented the Exhibit 3-5 is representative of the portion of the waste being discarded in waste

stream. However, to supplement this and to understand the overall characteristics of the residential waste stream "as generated" quantities diverted through various recycling and composting programs have been factored back into the analysis. The recycling and composting fractions have been added using data reported by the Town of Okotoks from the Resource Recovery Centre and the leaf and yard waste collection totals for the 2007 programs.

EXHIBIT 3-5
Quantity of Residential Waste Stream Components

Component	Disposed		Recycled	Composted	Totals
	(%)	(tonnes)	(tonnes)	(tonnes)	(tonnes)
Newspaper/Magazines	7.7	552	219		771
Cardboard	3.9	280	600		880
Mixed Paper/Boxboard	10.9	782	585		1,367
Gable Top Containers	0.3	22	5		27
Aseptic Containers	0.2	14			14
Other Paper	2.0	143			143
Glass	1.9	136	70		206
Ferrous Cans	1.0	72	49		121
Aluminum Cans	0.2	14			14
Other Metals	1.7	122			122
Plastics	9.5	681	138		819
Food Waste	22.7	1,628			1,628
Grass and Leaves	14.4	1,032		1,105	2,137
Brush	2.5	179			179
Other Yard Waste	1.6	115			115
Clean Wood	1.2	86			86
Treated/Painted Wood	1.0	72			72
C&D Debris	1.6	115			115
Household Haz. Waste	0.8	57			57
Textiles and Leather	5.4	387			387
Other Materials	9.5	681			681
Total	100	7,170	1,666	1,105	9,941

INDUSTRIAL, COMMERCIAL AND INSTITUTIONAL WASTES

Industrial, commercial and institutional (IC&I) waste generators found in the Town of Okotoks are typical of a smaller community that is located near a major population centre. Generators consist largely of service and retail businesses with a lower quantity of waste coming from industrial developments. In Okotoks, some of the major IC&I waste generators include:

- groceries stores (i.e. Canada Safeway, Sobeys, Extra Foods);
- "box" retail stores (Walmart, Home Hardware, Canadian Tire, and Home Depot);
- Okotoks Health and Wellness Centre; and
- elementary, junior and senior high schools.

Limited information regarding IC&I waste quantities in Okotoks is available. Information on overall commercial waste quantities is available from the Foothills Landfill's scale reports.

However, it is difficult to determine waste quantities from individual generators or types of generators from these reports because most wastes are collected from bins (i.e. 3, 4 or 6 yd^3 "front-end containers") which are emptied into a single truck on a route servicing multiple locations, including multi-family residential sites.

It has also been reported that some private waste haulers collect IC&I waste within the Town and dispose of it in Calgary landfills as they return to their respective dispatch yards (also located in Calgary). The same situation is reported to be occurring with recyclables (i.e. cardboard) from larger IC&I generators.

Based on the available information, it has been estimated that the IC&I sector in Okotoks produces in the order of 9,983 tonnes of waste each year. This number is likely to be inflated because some construction and demolition wastes may be recorded as commercial loads at the Foothills Landfill. However, this is offset in part by the fact that some IC&I waste loads are transferred to Calgary landfills. For planning purposes undertaken as part of developing this plan, the over estimates and the under estimates of values are considered to be insignificant.

CONSTRUCTION AND DEMOLITION WASTES

Clean wood, drywall and shingles are defined as Construction Materials at the FRSC landfill and are categorized and recorded separately from other waste streams. In the first quarter of 2008, 2,625 tonnes of Construction Materials were delivered to the FRSC from all sources.

This value is extremely low compared to provincial averages. This is due in part to a broader definition of C&D waste applied by other jurisdictions and the Province (e.g. other jurisdictions include materials such as concrete, cardboard, plastics, and painted or pressure-treated wood in C&D waste definitions). Export of C&D wastes outside of the region (i.e. to landfills in Calgary) and the categorization of some C&D waste as commercial waste may also account for variances from regional/provincial averages. It was also noted that new construction projects in Okotoks usually generated higher than average waste amounts due to the nature of residential construction in Okotoks where larger sized and custom built homes prevail.

Through discussions with the major construction waste haulers in the Okotoks area it was evident that determining the relative amounts of C&D wastes going to the Foothills Landfill and landfills in Calgary would be extremely difficult.

An alternate indicator of construction and demolition waste production is the dollar value of development. On average in Alberta, 0.099 kg of C&D waste is produced per dollar of development project value. In the absence of complete landfill scale reports, it was decided that this approach would be used to estimate C&D waste volumes for the Town of Okotoks. The historical development values and corresponding C&D waste quantities are summarized in Exhibit 3-6. The average value over two years of approximately 15,500 tonnes was used as a basis for subsequent planning and strategy development.

It is predicted that C&D waste generation rates will decrease upon, and after, reaching build out. However it is anticipated that this waste stream will still be significant due to the redevelopment and renovation activities that will become more dominant after 2015.

Disaster debris, resulting after major weather events such as floods, hail storms, tornadoes, etc., can also result in the creation of large amounts of C&D wastes. An example of this would be the post-flooding cleanup that occurred in Okotoks during 2005. Disaster debris quantities are not included with the C&D waste estimates due to the difficultly in predicting the wastes and their occurrence.

EXHIBIT 3-6
Construction and Demolition Waste Quantities based on Value of Development

Year	Residential Construction	Non-Residential Construction	Total	Generation (tonnes)
2003	$ 10,419,725	$ 21,006,331	$ 31,426,056	3,109
2004	$ 5,030,470	$ 8,883,115	$ 13,913,585	1,377
2005	$ 90,723,520	$ 28,813,562	$ 119,537,082	11,827
2006	$ 148,917,630	$ 9,227,561	$ 158,145,191	15,647
2007	$ 116,963,990	$ 39,525,627	$ 156,489,617	15.483

BIOSOLIDS

The Town of Okotoks relies upon a recently upgraded mechanical/biological wastewater treatment plant (WWTP) to manage the community's sanitary sewer waste. A by-product of the treatment processes is a nutrient rich, but unstable sludge material called biosolids. The WWTP also generates smaller quantities of "screenings" which are solids removed from the wastewater at the front of the process. Approximately 11,800 wet tonnes of these materials were generated in 2007.

Biosolids and screenings from Okotoks' WWTP are currently being mixed with wood chips and composted. The first stage of the process is completed at the WWTP using an in-vessel composting system. After a 7 to 14 day period, the partially composted biosolids are transported to a private facility south of Okotoks where the composting process is completed.

WWTP residuals are not normally considered to be part of the municipal solid waste stream. However, due to the potential synergistic management opportunities for consideration during the development of the Resource Recovery Plan, quantities of materials were identified.

4. EXISTING PROGRAMS AND SERVICES

EXISTING PROGRAMS

The Town of Okotoks operates several waste and recycling programs, however most of these are oriented to residents rather than businesses or institutions. An in depth review of programs was completed during the development of the Resource Recovery Plan. A summary of these programs is provided in this section to provide context for the Plan.

RESIDENTIAL PROGRAMS

Garbage Collection

All single family residential dwellings within the Town are provided with curbside garbage pickup on a weekly basis. Each residence is permitted to set out a maximum of three units per week for collection. Waste is collected by Town personnel and is transported to the Foothills Landfill for disposal

Garbage collection is not provided to multi-family complexes (e.g. condominium and apartment complexes) by the Town. Instead, these complexes contract with private waste haulers. It is presumed that the majority of multi-family wastes are disposed of at the Foothills Landfill, but a small portion may be diverted to landfills in Calgary

Recycling

Recycling services are offered through a drop-off program. The main depot location is the Resource Recovery Centre located at 3720 32nd St, Okotoks. There are two additional “satellite” locations: adjacent to the Wal-Mart and at the Foothills Landfill. The Walmart location can be accessed 24 hours a day while access to the Foothills Landfill site is only during landfill hours. The landfill location is also able to collect larger sized items for recycling such as large metal items, automotive batteries, tires, electronics, and appliances.

The Resource Recovery Depot and satellite locations are available to all residents of Okotoks, regardless of dwelling type (single or multi-family). All residents are responsible for source separating and self-hauling their recyclable materials to the depots.

In addition to the Town-operated programs, there are several private businesses which provide subscription-based curbside collection services for recyclables.

Organic Waste Diversion

A drop-off depot for grass and leaves is located adjacent to the Resource Recovery Depot. The organic materials are accepted year round and transported to a windrow composting operation at the Foothills Landfill. Branches and kitchen scraps are not accepted in this program at this time.

Backyard compost bins are sold at the Resource Recovery Depot to residents who wish to compost their own organic materials at home. According to the 2003 Community Household Survey, 75% of households are engaged in composting.

Household Hazardous Waste

Unwanted paint, garden chemicals, household cleaners and other toxic materials found around the home can be delivered by residents either to the Okotoks Fire Station or at the Foothills Landfill. During 2008, the Town was also working towards expanding the program to accept unwanted paint at both the Fire Station and the Resource Recovery Depot.

Outreach and Education

The Town uses a number of means to provide education and outreach on waste reduction and recycling issues, including educational displays, seminars, and tours for students and public interest groups. Most of these activities are offered by Town personnel through the Resource Recovery Depot. The Resource Recovery Depot also provides an informal "drop-in and discussion" service for residents and visitors who wish to learn more about recycling and waste issues.

As more general waste-diversion outreach, the Resource Recovery Depot offers some once-a-year programs or seasonal events, such as the composter and rain barrel sales event on Earth Day. Advertising is usually done in the local newspaper (Western Wheel) and on the Okotoks webpage.

Educational and outreach programs can be accessed by all Okotoks residents, whether they reside in single or multi-family dwelling units.

Participation Levels

According to Community Satisfaction Surveys completed in 2000 and 2003, there is a very high level of participation (in the range of 90 to 95%) in recycling programs by Town residents. The fact that the Resource Recovery Depot had to increase its operating hours in 2008 to accommodate increased demand and number of customers is a strong indicator that participation rates have remained in this range.

Surveys of Town residents have also revealed that almost all residents in Okotoks have been able to stay within the waste collection program's three-unit limit. Budget data from the year 2006 indicates that 1,388 extra unit tags were purchased.

Over the past 15 years, the Town of Okotoks has recognized a significant increase in per capita recycling rates, from 19 kilograms per person per year in 1992, to 83 kilograms per person per year in 2007. However, as can be seen from Exhibit 4-1, the recycling rate has been relatively stable over the past five years, indicating that renewed efforts may be required.

INDUSTRIAL, COMMERCIAL AND INSTITUTIONAL PROGRAMS

Garbage Collection

Currently, Okotoks does not extend its refuse collection services to IC&I clients. As a result, industrial, commercial, and institutional entities use private waste contractors to haul and manage their waste, or manage their own resources by self-hauling their wastes and recyclables directly to processing or disposal locations.

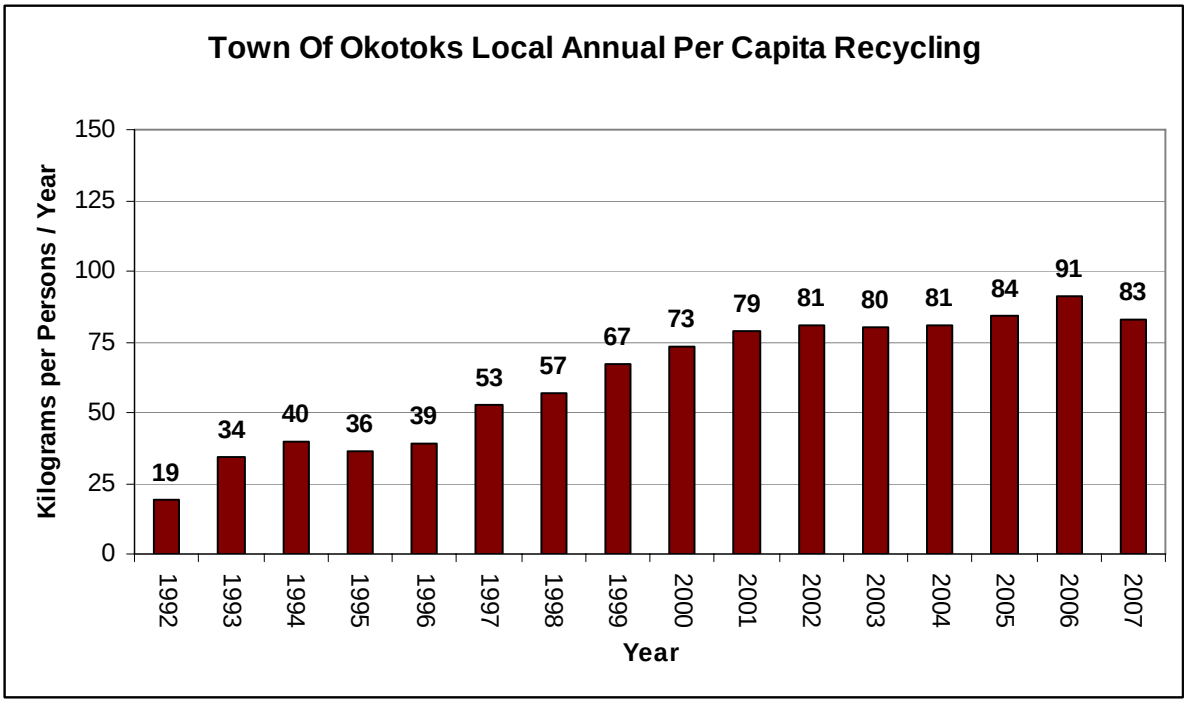
Recycling

Okotoks does not provide any business-specific recycling programs for IC&I clients. However, it is known and generally accepted that many small businesses use the Resource Recovery Depot for their recycling needs. As well, it has been identified that at least 55 commercial entities employ local recycling collection companies, which in turn deliver the collected materials to the Resource Recovery Depot.

Some larger businesses, such as the local bottle depot, also deliver materials directly to the Resource Recovery Depot. However, many larger businesses rent paper and/or cardboard collection bins from private waste haulers.

A number of the larger retail and grocery outlets have their own cardboard baling or compacting equipment, and ship the collected materials directly to brokers or end users in Calgary.

EXHIBIT 4-1
Per Capita Residential Recycling Rates



There are numerous businesses and institutions in Okotoks that are involved directly in resource recovery activities. These include the Okotoks Bottle Depot as well as thrift stores and second hand stores (which sell clothing on consignment and used books), and at least four curbside recycling service companies.

Organic Waste Diversion

Overall participation in organic waste diversion programs by the IC&I sector in Okotoks is relatively low. Some businesses, particularly those offering landscaping services, are known to haul their leaf and grass to the yard waste depot in Okotoks or directly to the Foothills Landfill's composting operation, but this is not a widespread practice.

Restaurants, for the most part, have programs to capture, collect, and recycle used grease but do not use composting or other means to divert food wastes from the waste stream. Schools, hospitals, and other institutions with large scale kitchens or cafeterias follow similar trends.

Participation

Due to the number of service providers and lack of mandatory or voluntary reporting, it is difficult to document specifically how many IC&I companies participate in waste and recycling programs, and to what degree. However, it is generally believed that the level of participation in diversion programs by the IC&I sector is much less than by residents.

Education and Outreach

Education and outreach programs that specifically target the IC&I sector have not yet been implemented by Okotoks. However, businesses are able to take advantage of existing resources which target residents, including accessing "one-on-one" advice from Resource Recovery Depot personnel.

CONSTRUCTION AND DEMOLITION WASTE PROGRAMS

The Town does not directly offer any programs or services that specifically target construction and demolition waste generated by residents or the IC&I sector. Most of these materials are disposed of at the Foothills Landfill, although some C&D waste is also diverted to landfills in Calgary.

The Foothills Landfill does operate diversion programs for wood, drywall, metal and cardboard. Similar collection and recycling programs are available through facilities and programs in Calgary, including at the Ecco Landfill, IKO Paper, Bio-cycle Inc. and Alberta Waste & Recycling Ltd..

EXISTING FACILITIES

There are several facilities in and around Okotoks at which solid wastes from the Town are managed. These include:

- Resource Recovery Depot;
- Yard Waste Drop-off Depot;
- Foothills Regional Services Landfill;
- Okotoks Bottle Depot; and
- EcoAg composting facility (at Roseburn Ranch feedlot).

In addition, it is anticipated that the residents of Okotoks use recycling and bottle depots in Calgary when commuting to the City for work, business, or for other reasons.

TOWN OF OKOTOKS RESOURCE RECOVERY DEPOT

The Resource Recovery Depot is located in the eastern and central part of Okotoks, adjacent to the Town's Operations building and wastewater treatment plant. The Depot is open seven days a week and accepts a number of source separated items for recycling directly from residents and businesses. The Depot also accepts materials collected by private subscription curbside-recycling service companies, and accepts materials from the Town of High River's recycling collection centres.

The specific materials that are currently accepted at the Resource Recovery Depot include:

- Cardboard and boxboard;
- All paper including newspaper, mixed and glossy paper, office paper and shredded paper (contained in bags);
- Light metal goods including clean tin cans;
- Clear and colourless glass;
- Sorted plastics (#1 through #7); and
- Milk containers and cartons.

In 2006, approximately 1,900 tonnes of materials were processed through the Depot and marketed.

YARD WASTE DROP-OFF DEPOT

A designated area is provided adjacent to the Resource Recovery Depot where residents and private contractors can drop off their leaves and yard waste. The deposited materials are hauled by the Town of Okotoks on a regular basis to the Foothills Landfill where they are composted.

FOOTHILLS LANDFILL

The Foothills Regional Services Commission (FRSC) operates a Class II landfill which is located approximately 6 km south of the Town of Okotoks. The Town of Okotoks as well as the Towns of Turner Valley, Black Diamond, Nanton and the M.D. of Foothills are all members of the Commission. Each municipal member of the FRSC pays a proportionate share of the landfill operating expenses based on the amount of waste they deliver to the facility. During 2008, landfill tipping fees for solid wastes were $44.00/tonne for members and $50.00/tonne for non-members.

The FRSC also operates a Class I composting facility for leaf and yard waste at the landfill site. The composting site was constructed and permitted in 2005. In 2006, 2,120 tonnes of leaf and yard waste were composted, and the resulting product was sold locally as a soil amendment. Until 2007, stabilized biosolids compost from the Okotoks waste water treatment plant was also processed at the FRSC composting pad.

Programs for diverting clean, untreated drywall (construction only), clean wood, large recyclables, household hazardous waste, electronics, and tires are also available at the landfill. Additionally, the FRSC rents building space at the site to a local organization which operates a "take-it-or-leave-it" centre.

OKOTOKS BOTTLE DEPOT

The Okotoks Bottle Depot is located approximately two blocks from the Resource Recovery Depot, and serves as the primary regional return point for refundable deposit containers within the Alberta deposit-return system. Although specific information is not available, it is estimated that over 7 million bottles and cans diverted from the waste stream through this facility.

The bottle depot houses a vertical baler which is reportedly not in use at this time. Instead, staff from the Bottle Depot hauls their cardboard to the Resource Recovery Depot for recycling.

ECOAG COMPOSTING FACILITY

EcoAg operates a private composting facility at the Roseburn Ranch Feedlot located an estimated 9 km south of the FRSC landfill. This operation currently accepts and processes the partially composted biosolids from the Okotoks WWTP, as well as wood wastes and drywall from the area. EcoAg charges $53/tonne to process organics, and approximately $50.00/tonne for finished compost product. Currently, the Town of Okotoks buys this finished compost for Town landscaping applications from this facility.

EcoAg is also in the process of constructing an alkaline hydrolysis treatment for organics and it is anticipated that this facility will be operational in late 2008. Once this new technology is in place, they would be in a position to accept a comprehensive organics stream including food wastes and kitchen scraps from municipal sources such as Okotoks.

UTILITY RATE STRUCTURES

Currently, all of the single-family residences and duplexes in Okotoks that are serviced by the Town's water system receive bi-monthly utility bills from the Town. In addition to water and sewer use charges, these bi-monthly bills include a charge for curbside waste collection, recycling services and education and outreach programs. In 2008, the combined bi-monthly charge for waste collection and recycling services was $24.96, or $149.76 per year.

The utility charge represents a net cost because it takes into account the revenues generated from the collected, processed and marketed materials. In the current resource recovery system, sources of revenue other than the utility bills include the sale of collected and processed recycling materials and the occasional transfer from reserve or grant funding. In 2008, $123,000

was budgeted for revenue derived from the sale of recyclables. A summary of the Town's 2008 Resource Recovery budget is shown in Exhibit 4-2.

EXHIBIT 4-2
2008 Budget for Resource Recovery Services

	Costs	Revenues	Net Cost
Administration	$ 186,570.00	$ 75,000.00	$ 111,570.00
Customer Billing Service	$ 9,138.00	$ 861,627.00	$ (852,489.00)
Yard Waste Program	$ 18,639.00	$ -	$ 18,639.00
Curbside Waste Collection Service	$ 406,488.00	$ -	$ 406,488.00
Recycling Programs	$ 438,792.00	$ 123,000.00	$ 315,792.00
Total	$ 1,059,627.00	$ 1,059,627.00	$ -

While apartment and condominiums (that is, multi-family unit) residents are able and encouraged to use the Resource Recovery Depot for their recycling needs, they do not pay for this service unless they receive utility bills directly from the Town. Similarly, businesses in the Town, even those which receive utility bills, do not pay a fee for accessing the Resource Recovery Depot.

The current utility fee structure is appropriate for the curbside garbage collection services. However it does not reflect the Town's inherent user-pay philosophy with respect to recycling, yard waste, and outreach/education services as only a portion of users are paying for a service that is used by a larger group.

Furthermore, Okotoks currently accepts and processes recycled materials collected by other municipalities in the region. While the Town retains any revenues resulting from the sale of these materials, it is possible that the revenues may not be sufficient to offset processing costs in times when markets for recycled materials are low.

5. RECOMMENDED POLICIES AND PROGRAMS

DEVELOPMENT PROCESS

Development of the Resource Recovery Plan for the Town of Okotoks drew upon ideas and influences from research into the Town's existing waste and recycling systems, and from input provided by key stakeholders and the public. The diverse group of stakeholders included Calgary Regional Partnership, Alberta Environment, waste and recycling service providers, Foothills Regional Services Commission, and Town of Okotoks staff members, including those on the frontlines. The information gathered through workshops and interview sessions with the stakeholders served as the basis for developing a "long list" of potential programs.

Using a two-stage process, the project team then narrowed the long list to a "short list" of programs. Two approaches to reducing the landfill of waste were then evaluated. The first approach relied heavily on technology (such as the use of waste-to-energy systems) to reach goals. The second approach, which is more consistent with prevailing zero waste principles, relied on more conventional reduction, reuse and recycling methods. The diversion potentials of each approach were similar.

Applying a criteria-rating scale to both approaches, the Project Team identified the second approach as the preferred option for Okotoks. Overall, it is more closely aligned with the sustainability vision of the Town, the region and the Province, and is more manageable in terms of scope and costs.

After deciding to pursue the second approach, the Project Team further grouped the recommended programs from the short list into five categories, referred to as "pillars of action".

- Organics Diversion Programs;
- Expanded Recycling Programs;
- Public Awareness and Accountability;
- User Pay Systems; and
- Reporting and Target Setting.

Implementation timelines for each program were developed, and these formed the basis of an Action Plan presented to Okotoks Town Council on June 9, 2008. During that meeting, Council's endorsed the Action Plan, and requested that it be presented to the public for comment and feedback.

In response to Council's directive, information sessions were organized for Town residents and business representatives. Two evening sessions, involving a presentation and discussions of the Action Plan and related issues, were held on September 23 and 24, 2008. Comments on the Action Plan were solicited verbally during the information sessions, through comment forms, and via the Town's website.

Based on the feedback received from businesses and residents, the Project Team amended the Action Plan to further reflect their wants and needs. The changes involved adjusting program implementation dates (e.g. bringing forward collection programs), and placing more emphasis on construction and demolition waste reduction. The groupings of programs within each pillar were also revised to reflect comments received through the feedback.

The revised Action Plan formed the basis for the Resource Recovery Plan and associated implementation timelines. Consistent with the feedback from the public consultation, the Plan has four specific strategies:

- Expanded Recycling Strategy;
- Organic Waste Diversion Strategy;
- Construction and Demolition Waste Diversion Strategy; and
- Awareness, Accountability, and Reporting Strategy.

The details of the specific policies and programs that are part of each strategy are outlined in the following sections.

EXPANDED RECYCLING STRATEGY

Recycling programs are well established in the Town of Okotoks with the main efforts being centralized at the Resource Recovery Depot. However, as the community grows in size and the amounts and types of recyclables handled increase, recycling programs will need to expand and evolve.

Current residential recycling programs are capturing slightly less than twenty percent (20%) of the residential waste stream in Okotoks. However, it is estimated that existing programs are missing an additional 2,500 tonnes of recyclables, of which the majority (25%) is paper.

In order to achieve maximum resource recovery from the IC&I sector, Okotoks will need to focus more on paper recycling programs as paper/fibre makes up an estimated 29% of the IC&I waste stream. Some of the cardboard and office paper generated in industrial, commercial, and institutional establishments in the Town are already ending up in a recycling program, but the majority is not. It is estimated that if all the paper products generated from IC&I sources were captured, an additional 2,800 to 2,900 tonnes would be removed from the waste stream.

The strategy recommended by the Resource Recovery Plan is to make recycling activities more available and more convenient for residents, and provide a means for capturing more of the IC&I recyclable stream. The goal is to maximize the volumes and types of resources recovered and hence maximize the progress towards zero waste.

A summary of the recycling strategy's specific program and policies is provided in tabular form in Exhibit 5-1. The strategy consists of ten specific policies and programs that build upon existing programs and services. This strategy was developed based on the research and input received throughout the plan development process and feedback from stakeholders and the public. A summary of the proposed timing for each of the policies and programs is provided in Exhibit 5-2.

EXHIBIT 5-1
Expanded Recycling Policies and Programs

	Component	Sector Targeted	Program Summary
Reduction Programs and Policies	Discontinue collection of recyclables through curbside refuse collection service	Residential	Implement policy whereby recyclables (e.g. paper, cardboard, tin cans, plastic containers) would no longer be collected through the Town operated curbside refuse collection program, but rather through the curbside recyclable collection program. Amend operating practices of curbside collection crews, and implement warning/violation notice program (e.g. stickers placed on containers/bags by Collections staff). Implementation of this policy/program may require amendments to Town's current waste collection bylaw. Prior to program roll-out, increase educational and promotion efforts as part of overall education and awareness program. Implementation: 2010
	Cardboard disposal prohibition at Foothills Regional Landfill	Residential and Commercial	Following the development of regional collection programs and processing capacity, facilitate the establishment of policies and gradual fee increases at the regional landfill that prohibit the disposal of cardboard. Alternatively, or as a transition to a prohibition, disposal surcharges can be applied to loads received at the landfill which contain materials in excess of threshold amounts (e.g. 10%). Implementation will require approval and cooperation of other municipal partners within the region, and coordination with the Awareness program. Implementation: 2012
	Eco-Business economic development initiative	All sectors	Create and market an economic development strategy to attract additional businesses that collect/process recyclable materials to the Town and region. Develop a demonstration/research "hub" around the businesses to facilitate transfer of information and expertise to other municipalities and regions. Implementation: 2009 through 2010
	Town initiative to reduce paper consumption	Town Operations	Implement an internal education and awareness program aimed at reduce paper consumption by Town operations (e.g. paper reuse, consolidate newspaper & magazine subscriptions, increased reliance on email correspondence). Amend Town procurement and IT practices as needed to promote the use of printers with double-sided printing capacity. Amend procurement practices to include the use of recycle paper with minimum post-consumer content. Implementation: 2009

EXHIBIT 5-1
Expanded Recycling Policies and Programs

	Component	Sector Targeted	Program Summary
Collection Programs	Implement year-round curbside recycling program	Residential	Implement a year-round curbside collection program for cardboard, paper, plastic containers, and tin cans from single-family residences (i.e. those which receive curbside waste collection service). Collection program would be operated in parallel with existing solid waste collection program. Materials would be delivered to the existing Resource Recovery Depot for processing and marketing. Following confirmation of viability of out-sourcing collection services to private sector, initiate an appropriate procurement process (i.e. RFP). Town should also assess the future capacity/feasibility of collecting materials from multi-family dwellings. Implementation: 2009
	Public-spaces recycling	Residential	Procure and locate appropriate recycling containers in public open spaces (e.g. parks). Coordinate collection of materials with existing refuse collection service provided by Town. Implementation: 2009
	Town facility and special event recycling	Town Operations	Procure and locate appropriate recycling containers in Town facilities and at Town hosted/sponsored events. Coordinate collection of materials with existing refuse collection services. Implementation: 2010
	Establish additional satellite recycling depots	Residential and Commercial	Establish additional satellite recycling depots at strategic locations within the Town to provide service to multi-family residences and businesses. Implementation: 2009 through 2011
	Expand recyclables collection program to businesses and institutions on a subscription basis	Commercial	Offer a subscription-based recyclables collection program from businesses and institutions in the Town. Materials would be delivered to the existing Resource Recovery Depot for processing and marketing. Coordinate activities with private sector to ensure consistency of service and encourage economic development opportunities. Implementation: 2010 through 2011
Processing Capacity	Expand existing Resource Recovery Depot	All sectors	Evaluate and expand the Resource Recovery Depot to allow for the acceptance and processing of increased volumes, as well as a wider range of materials. New materials considered should include electronic wastes and small appliances, other metals, textiles, paints, compact fluorescent light bulbs, batteries polystyrene and residential pesticide containers. When adding new materials, consideration should be given to long-term stability of markets and coordination with regional and provincial initiatives. Implementation: 2010 through 2012

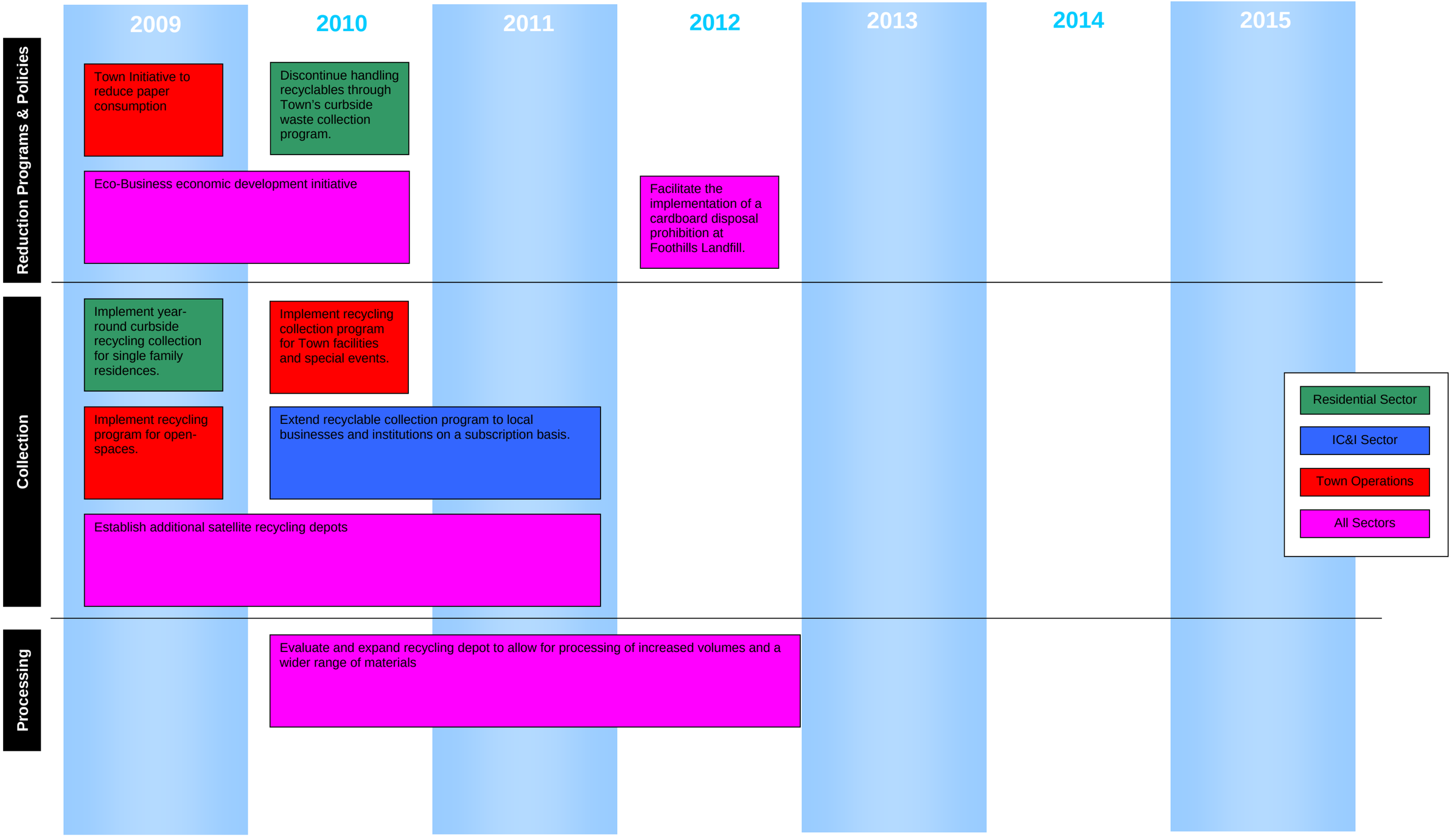


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Exhibit 5-2
Expanded Recycling Strategy Implementation Timeline

ORGANIC WASTE DIVERSION STRATEGY

As outlined previously, organic wastes are a major component of the municipal solid waste stream, and play an important role in achieving overall waste diversion targets. Municipal regions in Canada with the highest diversion rates are generally those that have implemented comprehensive organic waste collection and processing programs.

Organic wastes from residential sources typically include leaves, grass, branches and other yard and garden materials, as well as food scraps generated in the kitchen. Organic wastes from IC&I sources are more diverse, and can include such materials as yard and landscaping waste, food waste from cafeterias and restaurants, off-spec fruit and vegetables from grocery stores and produce distributors, floral shop cuttings and old product, and butcher store waste.

Depending upon the types of programs in place and processing facility capabilities, other materials can be included in the organic waste stream. For example, it is common to include soiled and wax-coated cardboard and soiled paper products (e.g. paper towel, facial tissue) in programs where the material is be composted at a centralized facility. Similarly, it may be possible to include pet waste, kitty litter, ashes, and untreated/unpainted wood and sawdust in programs.

In general, organics are easily processed and can be converted through composting into a beneficial soil amendment. It is also possible to capture the energy content of organic waste through anaerobic digestion. Most often, the challenges involved with diverting organic wastes lie in efficiently collecting materials in an uncontaminated form (i.e. without plastic and other non-organic materials), and finding an appropriate site for a processing facility.

The design of municipal organics collection and diversion programs is critically dependant on the receiving and processing facility. The types and amounts of materials able to be accepted for processing will dictate the “what” and the “how” of the program. The receiving facility will also play a role in the overall cost of the program as there may be significant capital investments, operating expenses, and / or tipping fees associated with the processing of the organic material.

A summary of the organic waste diversion strategy developed for the Town of Okotoks is provided in tabular form in Exhibit 5-3. The strategy consists of eleven specific policies and programs that focus on reducing the amount of organic waste that requires management, and collecting and processing a significant portion of the remaining materials.

A summary of the proposed implementation schedule for each of the strategy components is provided in Exhibit 5-4.

EXHIBIT 5-3
Organic Waste Diversion Policies and Programs

	Component	Sector Targeted	Program Summary
Reduction Programs and Policies	Re-launch compost bin subsidization/give-away program	Residential	Specific re-launching of existing compost bin program that is coordinated with theme/activities of overall improved/expanded advertising and awareness program. Program would be expanded to include worm composting bins/materials to provide a greater opportunity for participation by residents, in particular those residing in Multi-family residential units. Implementation: 2010
	Discontinue collection of leaf and yard waste through curbside refuse collection service	Residential	Implement policy whereby leaves, grass and other yard waste would no longer be collected through the Town operated curbside refuse collection program. Amend operating practices of curbside collection crews, and implement warning/violation notice program (e.g. stickers placed on containers/bags by Collections staff). Implementation of this policy/program may require amendments to Town's current waste collection bylaw. Prior to program roll-out, increase educational and promotion efforts related to yard waste drop-off depot and subscription yard-waste collection program as part of overall education and awareness program. Implementation: 2010
	Establish xeriscape/green landscaping education and recognition program	Residential and Commercial	Provide information and outreach materials on xeriscaping and green landscaping opportunities with particular emphasis on yard waste reduction practices (e.g. grasscycling, home composting) and benefits of using compost products. Establish recognition program for residents and commercial establishments that participate in program and incorporate xeriscaping/green landscape practices. Also Incorporate program into Communities in Bloom campaign. Coordinate program with expanded solid waste advertising/awareness program and existing pesticide use education program. Implementation: 2010
	Use of biodegradable cutlery/service items	Town Operations	Alter procurement practices to incorporate the use of biodegradable cutlery and service items at Town operated facilities and Town-sponsored/hosted special events. Guidance of procuring items should be obtained from the national voluntary certification program for biodegradable plastic bags, and the accompanying technical documentation (i.e. BNQ 9011-911/2007). Town personnel should work with potential organic waste processing facility(s) during the procurement process to ensure cutlery/service items are acceptable at their facilities. This may involve the completion of pilot project to assess biodegradability. Implementation: 2010
	Yard waste disposal prohibition at Foothills Regional Landfill.	Residential and Commercial	Following the development of sufficient and suitable regional capacity for organic waste processing, facilitate the establishment of policies at the regional landfill that prohibit the disposal of leaves, grass. Alternatively, or as a transition to a prohibition, disposal surcharges can be applied to loads received at the landfill which contain yard waste in excess of threshold amounts (e.g. 10%). Implementation will require approval and cooperation of other municipal partners within the region. Implementation: 2014

EXHIBIT 5-3
Organic Waste Diversion Policies and Programs

	Component	Sector Targeted	Program Summary
Collection Programs	Subscription-based yard waste collection program	Residential	Implement a subscription-based curbside collection program for leaves, grass and other yard waste from single-family residences (i.e. those which receive curbside waste collection service). Collection program would be operating on a seasonal basis (e.g. mid-May through mid-October) in parallel with existing solid waste collection program. Collection of materials from single-family dwellings would be done by Town utilizing existing collection fleet and staff. Materials would be delivered to the existing composting facility at the Foothills Regional Landfill. Town should also assess the future capacity/feasibility of collecting materials from multi-family dwellings, either using Town equipment (i.e. Haul-all collection truck and bins) or by outsourcing service to private sector. Implementation: 2009
	Organic waste collection for Town facilities and events.	Town Operations	Implement a collection program for organic wastes generated at Town facilities and Town hosted/sponsored events. Collection program would be operated on a year-round basis using utilizing existing Town collection fleet and staff. Materials would be delivered to the existing composting facility at the Foothills Regional Landfill. Implementation: 2011
	Implement year-round curbside organic waste collection program	Residential	Implement a mandatory curbside collection program for yard and food waste from single-family residences (i.e. those which receive curbside waste collection service). As part of program development, determine service delivery model (e.g. town crews vs. outsourcing to private sector) and collection methods (e.g. cart-based or bags, automated collection or manual). Materials would be delivered to regional composting facility. Town should also assess the future capacity/feasibility and possible methods for collecting organic wastes from multi-family dwellings in conjunction with local businesses and institutions. Implementation: 2013
	Extend organic waste collection program to local businesses and institutions	Commercial	Following the successful roll-out of curbside organic waste collection program to residents, expand the program to allow local businesses and institutions to participate on a subscription basis. Collection program would be coordinated with services offered to multi-family residential dwellings. Materials would be delivered to regional composting facility. Implementation: 2013 through 2014

EXHIBIT 5-3
Organic Waste Diversion Policies and Programs

	Component	Sector Targeted	Program Summary
Processing Capacity	Expand and/or establish regional organic waste processing capacity	Residential and Commercial	Work within the framework of the Foothills Regional Services Commission and the Calgary Regional Partnership to establish and develop a regional facility(s) that is capable of processing organic wastes, including food waste, from commercial and residential sources. Facilities should be developed and operated in accordance with Provincial standards and industry best management practices. Implementation: 2010 through 2012
	Encourage onsite composting programs	Commercial	Work with local businesses and institutions to encourage the development and implementation of onsite compost programs at suitable facilities and locations. Develop supporting guiding principles, siting standards and operational expectations to reduce the potential for nuisance conditions and impacts on surrounding businesses/residents. May requirement amendments to land-use and zoning bylaws to allow onsite composting. Implementation: 2011

CONSTRUCTION AND DEMOLITION WASTE DIVERSION STRATEGY

There is a relatively new market in Alberta for recycled construction and demolition materials, and an increased trend for home builders and others in the construction industry to reduce the amount of debris going to landfills. Programs such as LEED certification and Built Green are also gaining in popularity and driving C&D waste diversion programs.

Of the materials from a typical Alberta residential construction site, about 71% is readily recyclable. However, most of the construction and demolition (C&D) waste currently generated in Okotoks is delivered to the Foothills Landfill or other landfills in the region, where it is disposed of.

It has been predicted that C&D waste generation rates in Okotoks will decrease upon, and after, reaching build out in 2015. However it is anticipated that this waste stream will still be significant due to the redevelopment and renovation activities that will become more dominant after 2015.

Disaster debris, resulting from major weather events such as floods, hail storms, tornadoes, etc., can also create large amounts of C&D wastes. An example of this would be the post-flooding cleanup during 2005.

The strategy to manage construction and demolition waste emphasizes the creation of recycling opportunities that are convenient for generators, as well as specific programs and policies that focus attention on C&D waste generation rates. A summary of the specific programs and policies is provided in tabular form in Exhibit 5-5. A summary of the proposed implementation schedule for each of the strategy component is provided in Exhibit 5-6.

	2009	2010	2011	2012	2013	2014	2015
Reduction Programs and Policies		Re-launch Compost Bin Program and expand to include worm Bins. Discontinue handling yard waste through Town's curbside waste collection program. Establish Xeriscape /Green Landscape education and recognition program. Switch to use of biodegradable cutlery and service items at Town facilities and events.				Facilitate the implementation of a yard waste disposal prohibition at Foothills Landfill.	
Collection	Implement subscription-based curbside yard waste collection for single family residences.		Implement organic waste collection program for Town facilities and special events.		Implement year-round curbside organic waste collection for single family residences.	Extend organic waste collection to local businesses and institutions on a subscription basis.	
Processing		Work within FRSC & CRP to establish regional organics processing capability.	Encourage onsite composting at suitable commercial locations and institutions.				

Residential Sector
IC&I Sector
Town Operations
All Sectors

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Exhibit 5-4
Organic Waste Diversion Strategy
Implementation Timeline

EXHIBIT 5-5
Construction and Demolition Waste Diversion Policies and Programs

	Component	Sector Targeted	Program Summary
Reduction Programs and Policies	Develop a C&D Waste Management Policy for Town-funded projects.	Town Operations	Introduce a policy that requires all Town-funded projects to prepare a Construction and Demolition (C&D) Waste Management Plan as part of its planning process. Upon completion, the project sponsor would be required to prepare a C&D Waste Management Report that provides a record of wastes diverted during the project. Implementation: 2009
	Revise C&D tipping fee structure at Foothills Landfill	All sectors	In conjunction with other members of the Foothills Regional Services Commission, review and amend the tipping fee structure at the Foothills Landfill to provide a financial incentive for generators to deliver segregated loads of construction and demolition wastes. Implementation: 2010
	Plan and construct a "zero-waste" residential neighbourhood	Residential	Work with one or more Developers to create a neighbourhood that is constructed based on a zero waste philosophy (similar in concept and approach to the "solar community" development). Houses would be constructed with materials that minimize waste generation and maximize recyclability. The finished homes would also feature built in amenities to encourage waste diversion (e.g. recyclables storage, organics diversion). Implementation: 2011 through 2012
	Set C&D Diversion targets for Town-funded projects	Town Operations	Develop a set of specific and measureable targets for construction and demolition waste diversion on all Town-funded projects. Implementation: 2010
	Review C&D Diversion targets for Town-funded projects	Town Operations	Review the targets for construction and demolition waste diversion on all Town-funded projects. Implementation: 2012
Collection & Processing	Establish a Regional C&D Waste Recovery Depot.	All sectors	In conjunction with other municipalities in the region and the Foothills Landfill, establish a regional recovery depot for construction and demolition waste. The depot would build upon existing diversion programs at the regional landfill, and would be supported by user fees charged on a per tonne basis. Materials would be processed at the depot for subsequent reuse or transferred to an alternate processing location. Implementation: 2009

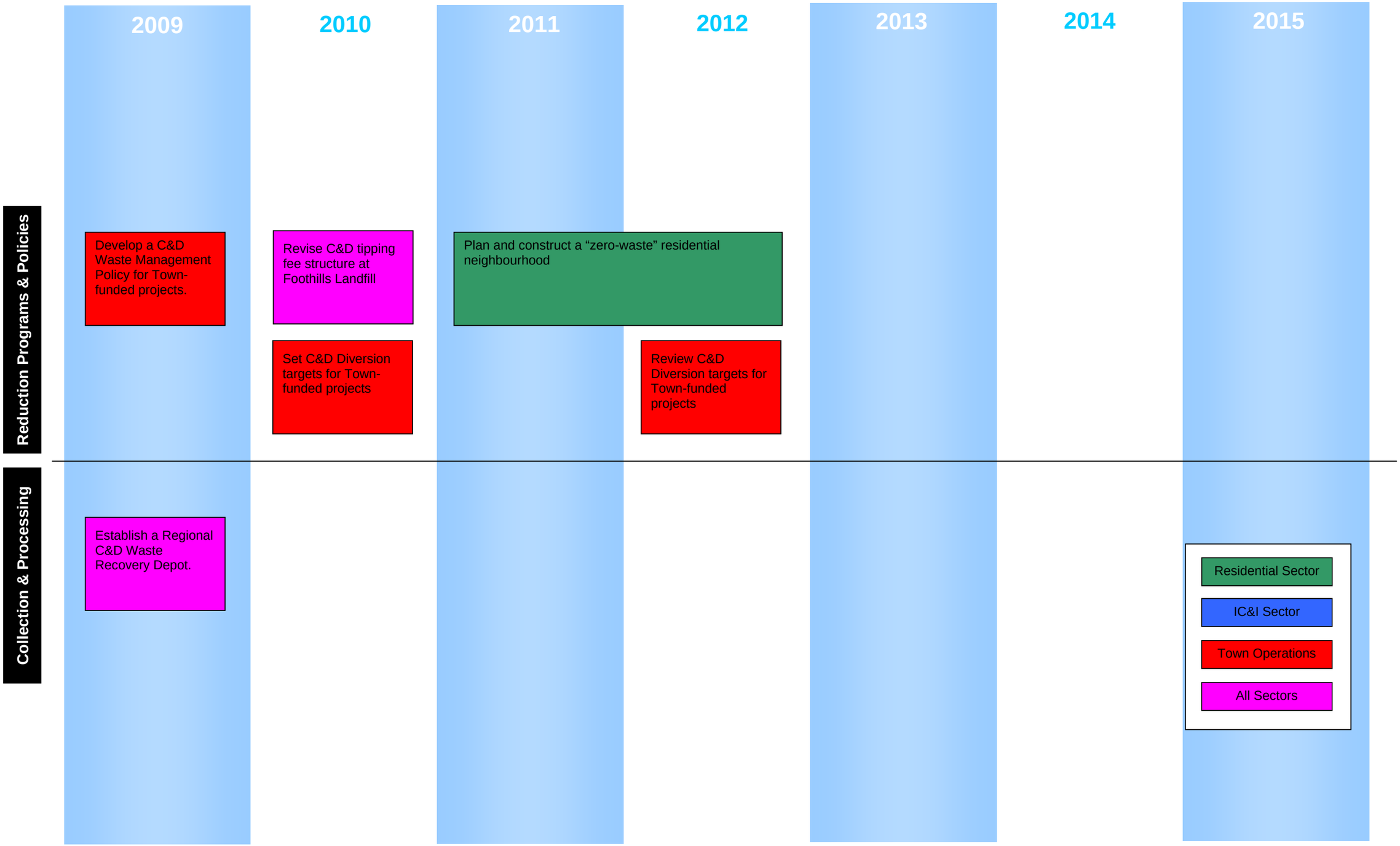

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Exhibit 5-6
Construction and Demolition Waste Strategy
Implementation Timeline

AWARENESS, ACCOUNTABILITY AND REPORTING STRATEGY

Awareness is the first step to linking actions with results, and the consequences of high levels of awareness can be significant. For example, according to the Alberta Environment's Too Good to Waste Strategy released in 2007, 25% of the solid wastes produced in Alberta could be avoided through reducing consumption levels and making smarter consumer choices. Therefore, incorporating policies and programs aimed at increasing awareness of waste generation rates and the consequences of making too much waste or the benefits of diversion is fundamental to any Resource Recovery Plan.

Another philosophy that has proven successful in driving waste reduction and diversion programs is that of accountability. Many municipalities and utilities provide services (e.g. water, natural gas) on a user pay basis whereby consumers pay for the service in proportion to the amount they use. The advantages to this approach include reducing the amount of internal subsidization between customers with different consumption rates, and the resulting atmosphere of fairness and equity. User-pay methods also inherently allow customers to be financially rewarded or penalized according to the personal choices they make about consumption/participation.

While some sectors lend themselves better than others to setting targets and measuring performance, goal setting and tracking is important for optimizing programs and determining their success or failure. Residential waste streams are generally much easier to measure and analyze because collection and processing/disposal services are normally provided by municipalities. On the other hand, data on waste generation rates are difficult if not impossible to capture for the IC&I sector because of business confidentiality reasons.

A summary of the twelve specific programs and initiatives that comprise this aspect of the resource recovery plan are provided in tabular form in Exhibit 5-7. An implementation schedule is show in Exhibit 5-8.

EXHIBIT 5-7
Awareness, Accountability and Reporting Policies and Programs

	Component	Sector Targeted	Program Summary
Awareness	Re-launch awareness and education programs	All sectors	Revitalize existing programs with an updated theme and messaging that is reflective of Town values and the Town's four pillars of sustainability. Develop a series of new or revitalized educational and promotion materials, with an emphasis on web-based (i.e. paperless) delivery. Implementation: 2009
	Commercial "self-audit" waste reduction program	Commercial	Develop a "self-help" style waste audit program for use by businesses and institutions. Investigate the potential to incorporate existing materials developed by Alberta Environment, Recycling Council of Alberta, and other municipalities as a means of reducing development costs. Implementation: 2009
	Assume a leadership and advocacy role within the region	All sectors	Town officials will take a leadership role within the Foothills Regional Services Commission and the Calgary Regional Partnership to encourage and advance waste diversion efforts on a regional basis. Implementation: 2009
	Evaluate and establish a web-based waste exchange	All sectors	Evaluate the potential to host a web-based waste materials exchange on the Town website (using commercially available software) and the associated resource requirements. Coordinate with surrounding municipalities to promote the waste exchange and increase participation

EXHIBIT 5-7
Awareness, Accountability and Reporting Policies and Programs

	Component	Sector Targeted	Program Summary
			Implementation: 2010
Accountability	Finalize and implement utility fee structure	All sectors	Complete the review of the utility fee structure that was initiated in 2008 to ensure a more equitable distribution of service costs among ratepayers, and make the costs of services more transparent, and obtain Council approval. Implement the new utility fee structure Implementation: 2009
	Implement a 2-unit waste collection limit	Residential	Amend the existing Town-operated waste collection program to reduce the number of units that residents can place out for collection each week to 2. Implementation: 2009
	Investigate Subscription-based waste collection service	Residential	As part of routine reviews of the residential waste collection program, investigate the feasibility of migrating the program to a subscription service whereby residents pay for service based on the amount of waste they generate. Implementation: 2010
	Establish a rebate program for milestone achievement	Residential	Complete an annual review of residential waste collection and diversion program performance indicators. Adjust waste collection program service/subscription rates when diversion milestones are achieved to provide a financial incentive to residents and encourage participation. Implementation: 2010
	Cooperate to obtain program assistance on regional initiatives	All sectors.	Work within the Foothills Regional Services Commission and the Calgary Regional Partnership Work to obtain program assistance from Alberta Environment and other agencies. Implementation: 2009 through 2010
Reporting	Develop Waste-o-Meter and update quarterly	All sectors	Develop a graphical-based reporting mechanism to inform residents of progress towards achieving waste reduction goals. Incorporate Waste-o-Meter into Town's website. Update Waste-o-Meter on a quarterly basis using operating records and statistics from the Town's recycling programs and from the Foothills Landfill. Implementation: 2009
	Commercial waste tracking system	Commercial	Work with businesses and business associations to develop a means of tracking commercial and institutional waste generation and diversion statistics. Once established, statistics from the program can be used to monitor and adjust programs and policies. Implementation: 2009
	Undertake waste composition study	Residential	Undertake a waste composition study of the residential waste stream to identify the relative amounts of specific waste components (e.g. paper, glass, metal, organics). Using the composition information, identify the types and/or quantities of recyclable materials that are not being diverted, and adjust awareness and diversion programs accordingly. Implementation: 2013

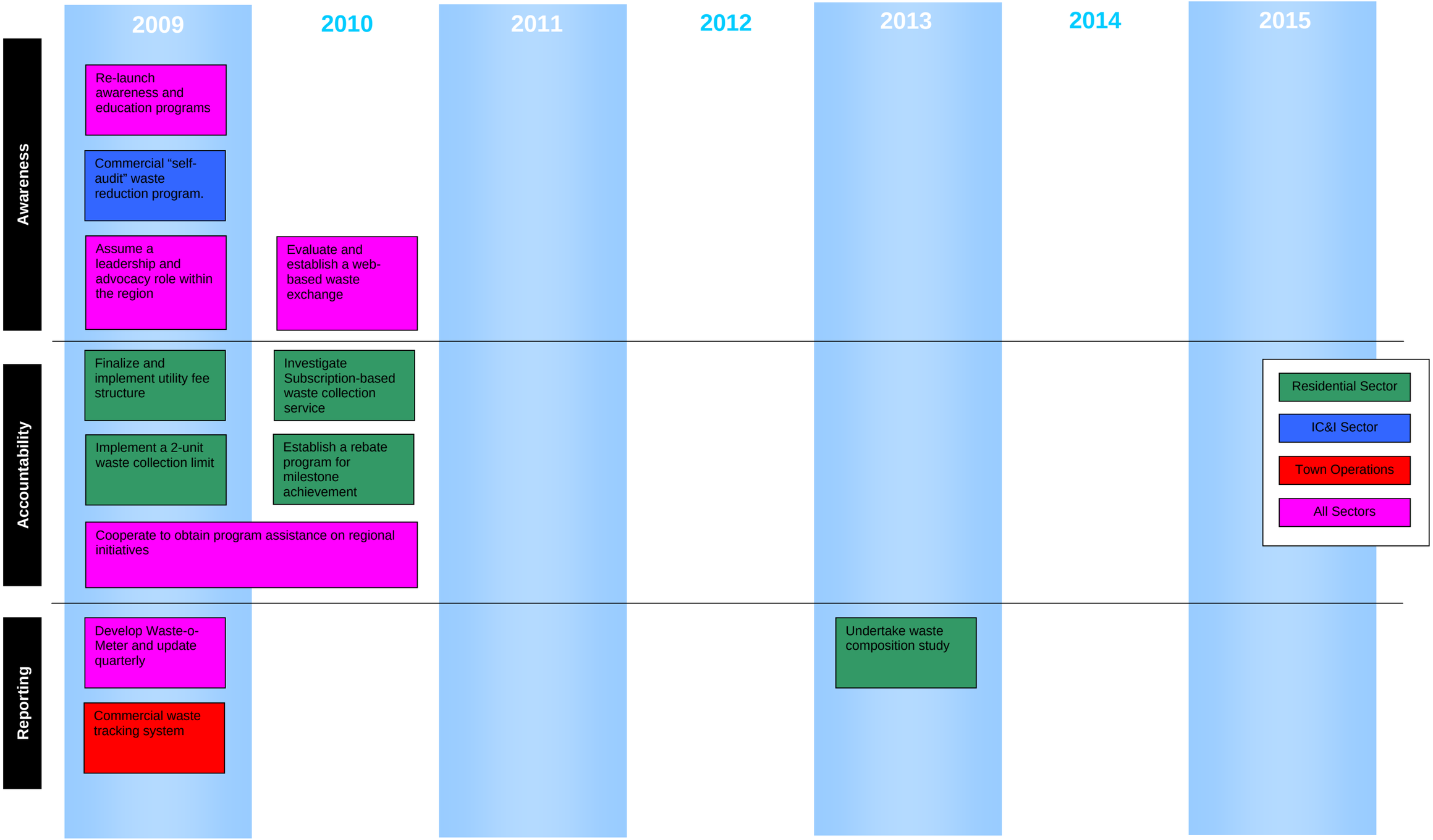

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Exhibit 5-8
Awareness, Accountability and Reporting Programs Implementation Timeline

RESOURCE REQUIREMENTS

Full implementation of the Resource Recovery Plan will require an investment of both internal and external resources. This will include allocation of staff time to draft policies and amend bylaws, and to complete more detailed evaluations and budget estimates. For some programs, new collection or processing equipment will also need to be specified and procured, or external services retained.

Underlying the entire implementation process will be a need for Town personnel to manage the program to ensure consistency and coordinated implementation. Staff will also need to maintain ongoing dialogue with elected officials, residents and businesses to ensure the individual program goals and implementation status are understood.

An order-of-magnitude estimate of the incremental manpower requirements and/or capital costs associated with each component of the Resource Recovery Plan is provided in Exhibit 5-9. These estimates are on top of existing Town resources and budgets for waste management and resource recovery.

WASTE DIVERSION POTENTIAL

The long-term potential for incremental diversion of waste resulting from the implementation of the proposed strategies is estimated to be in the order of 10,000 tonnes per year, or roughly a third of the total municipal solid waste stream.

A summary of the expect diversion resulting from each component of the Resource Recovery Plan has been provided in Exhibits 5-9 through 5-12 along with resource requirements.

EXHIBIT 5-9
Expanded Recycling Programs
Resource Requirements and Diversion Potential

Plan Component	Staff Management Time		Capital and/or Startup Costs	Annual Operating Cost	Anticipated Diversion (tonnes/yr)
	Startup	Routine			
Discontinue collection of recyclables through curbside refuse collection service	40 hrs	N/A	$2,500 (advertising)	N/A	200 – 250 [1]
Cardboard disposal prohibition at Foothills Regional Landfill	80 hrs	N/A	$1,500 (advertising)	N/A	500
Eco-Business economic development initiative	160 hrs	N/A	N/A	N/A	N/A
Town initiative to reduce paper consumption	40 hrs	4 hrs/month	N/A	N/A	1 – 3
Implement year-round curbside recycling program	160 hrs	16 hrs/month	N/A [2]	$5/household/month	1,500 [3]
Public-spaces recycling	40 hrs	4 hrs/month	$7,500 (carts)	N/A [4]	<5
Town facility and special event recycling	40 hrs	4 hrs/month	$5,000 (carts)	N/A [4]	<5
Establish additional satellite recycling depots	40 hrs	4 hrs/month	$25,000 per site	$12,500 per site [5]	100 [6]
Expand recyclables collection program to businesses and institutions on a subscription basis	120 hrs	8 hrs/month	$10,000 (carts)	$5/business/month	125 – 150 [7]
Expand existing Resource Recovery Depot	240 hrs	N/A	Varies depending on materials accepted	Varies depending on materials accepted	N/A

Notes:

1. 20% increase in diversion through Resource Recovery Depot.
2. Assumes program is outsourced.
3. Assumes 75% of remaining recyclable paper and tin/aluminum cans, and 30% or remaining plastics.
4. Assumes recyclables collection results in only minor incremental workload to existing staff duties.
5. Assumes 4 hours/week to service each site.
6. 10% increase in diversion compared to existing rates.
7. Assumes ~25 kg/week from 125 to 150 businesses

EXHIBIT 5-10
Organic Waste Diversion Programs
Resource Requirements and Diversion Potential

Plan Component	Staff Management Time		Capital and/or Startup Costs	Annual Operating Cost	Anticipated Diversion (tonnes/yr)
	Startup	Routine			
Re-launch compost bin subsidization/give-away program	40 hrs	4 hrs/month	$2,500 (advertising)	$2500 (bins)	25 – 35 [1]
Discontinue collection of leaf and yard waste through curbside refuse collection service	40 hrs	N/A	$2,500 (advertising)	$20,000 (incremental processing cost)	1,000 [2]
Establish xeriscape/green landscaping education and recognition program	80 hrs	4 hrs/month	N/A	$1,500 (awards and advertising)	60 – 70 [3]
Use of biodegradable cutlery/service items	40 hrs	N/A	N/A	$1,000 [4]	<1
Yard waste disposal prohibition at Foothills Regional Landfill.	80 hrs	N/A	N/A	N/A	>2,500 [5]
Subscription-based yard waste collection program	120 hrs	8 hrs/month	N/A	$8/household/month	Incl. in curbside prohibition
Organic waste collection for Town facilities and events.	40 hrs	4 hrs/month	$7500 (carts)	$15,000	10 – 15
Implement year-round curbside organic waste collection program	160 hrs	16 hrs/month	$425,000 (carts) $250,000 (new truck)	$5/household/month	1,200 [6]
Extend organic waste collection program to local businesses and institutions	80 hrs	8 hrs/month	$5,000 (carts)	$5/business/month	60 – 75
Expand and/or establish regional organic waste processing capacity	160 hrs	N/A	Variable depending on participation	Variable depending on participation	N/A
Encourage onsite composting programs	80 hrs	24 hrs/month	N/A	N/A	<50

Notes:

8. Estimated diversion of 2% of remaining residential yard waste.
9. Estimated diversion of 75% of remaining residential yard waste.
10. Estimated diversion of 5% of remaining residential yard waste.
11. Incremental cost to replace existing plastic items with biodegradable items.
12. Includes diversion from all municipalities that rely on Foothills Landfill.
13. Estimated diversion of 75% of residential food waste.
14. Assumes use of existing Town collection vehicle.

EXHIBIT 5-11
Construction and Demolition Waste Programs
Resource Requirements and Diversion Potential

Plan Component	Staff Management Time		Capital and/or Startup Costs	Annual Operating Cost	Anticipated Diversion (tonnes/yr)
	Startup	Routine			
Develop a C&D Waste Management Policy for Town-funded projects.	40 hrs	N/A	N/A	N/A	50 – 100 [1]
Revise C&D tipping fee structure at Foothills Landfill	40 hrs	N/A	N/A	N/A	1,550 [2]
Plan and construct a "zero-waste" residential neighbourhood	160 hrs	N/A	N/A	N/A	1,000 [3]
Set C&D Diversion targets for Town-funded projects	40 hrs	8 hrs/month	N/A	N/A	Incl. in C&D Policy estimate
Review C&D Diversion targets for Town-funded projects	20 hrs	N/A	N/A	N/A	
Establish a Regional C&D Waste Recovery Depot.	120 hrs	N/A	$10,000 [4]	N/A (Cost-recovery basis)	3,875 [5]

Notes:

1. Dependant on number of Town projects per year. Estimated diversion of 0.5% of overall C&D waste stream.
2. Estimated diversion of 10% of C&D waste stream.
3. Assumes a one-time 75% diversion of C&D waste from a 40 unit residential development.
4. Assume only minor upgrades to existing infrastructure at Foothills Landfill.
5. Assumes 25% diversion of residential and non-residential C&D waste.

EXHIBIT 5-12
Awareness, Accountability and Reporting Programs
Resource Requirements and Diversion Potential

Plan Component	Staff Management Time		Capital and/or Startup Costs	Annual Operating Cost	Anticipated Diversion [1] (tonnes/yr)
	Startup	Routine			
Re-launch awareness and education programs	160 hrs	24 hrs/month	$10,000 (graphics and advertising)	$2,500 (advertising)	
Commercial "self-audit" waste reduction program	80 hrs	24 hrs/month	$7,500	N/A	500 [2]
Assume a leadership and advocacy role within the region	N/A	16 hrs/month	N/A	N/A	
Evaluate and establish a web-based waste exchange	80 hrs	6 hrs/month	$2,500 (software/IT)	N/A	<10
Finalize and implement utility fee structure	80 hrs	16 hrs/month	N/A	N/A	
Implement a 2-unit waste collection limit	60 hrs	N/A	N/A	N/A	
Investigate Subscription-based waste collection service	160 hrs	N/A	N/A	N/A	
Establish a rebate program for milestone achievement	40 hrs	N/A	N/A	N/A	
Obtain program assistance on regional initiatives	N/A	8 hrs/month	N/A	N/A	
Develop Waste-o-Meter and update quarterly	80 hrs	4 hrs/month	N/A	N/A	
Commercial waste tracking system	80 hrs	8 hrs/month	N/A	N/A	
Undertake waste composition study	40 hrs	N/A	$50,000	N/A	

Notes:

1. Estimates include only diversion resulting directly from policy or program implementation. Diversion resulting indirectly from changing practices or attitudes is not considered.
2. Estimated diversion of 5% of IC&I waste stream.