

# Waste Diversion Opportunities

Presentation to City Council

March 5, 2012



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# Waste Diversion Opportunities

## Purpose

Provide Council with an update on resolutions referred to environment committee

## Background

Referral to Environment Committee:

- ✓ Recycling Depots Review (May 2, 2011)
- ✓ Curbside Recycling Analysis (May 2, 2011)
- ✓ Green House Gas Plan (May 16, 2011)

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## Waste Diversion Opportunities

### Process

Four Environment Committee meetings:

- ✓Waste diversion/reduction master plan (Oct 13, 2011)
- ✓Curbside diversion programs (Oct 20, 2011)
- ✓Evaluation of options (Jan 26, 2012)
- ✓Evaluation of options (Feb 1, 2012)

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## What are the Objectives?

1. Environmental protection?
  - GHG reduction
  - Leachate reduction
  - Decreasing long term liability of ownership
2. Conserving landfill space?
3. Providing a service to the customer/ resident?
4. Low cost?
5. A municipal leader in the field of Waste Management?

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## Background

### Canada

- 1989, target of 50% waste generation reduction by the year 2000 set by the Canadian Council of Ministers of the Environment
- Provinces and municipalities followed with development of waste reduction goals and targets

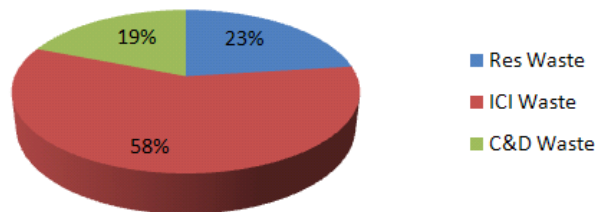
### Examples

- Alberta – per capita waste generation 500 kg/year
- Calgary - 80% waste diverted from landfills by 2020
- Red Deer - 40% reduction from 2009 levels by 2035
- City of St. Albert – 35% reduction of current levels by 2020

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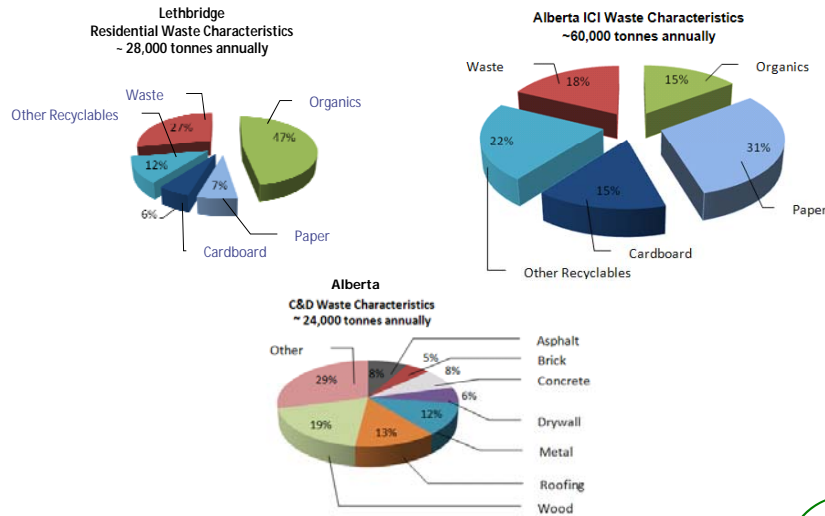
## Where Does the Waste Come From?



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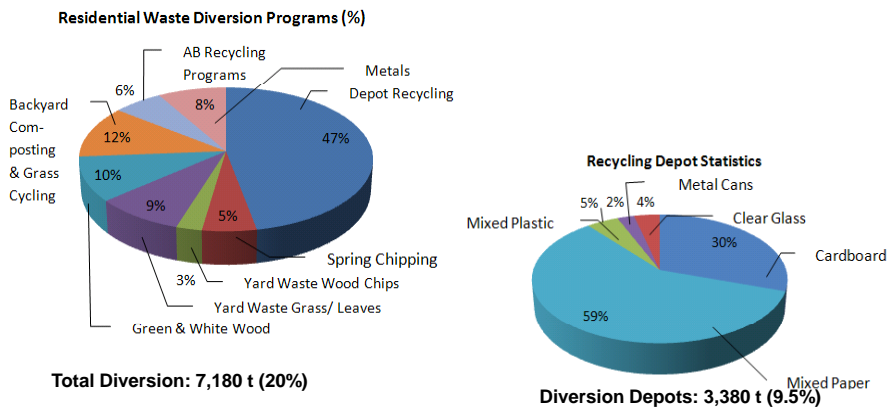
# Existing Waste Characteristics



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# Current Diversion Activities in Lethbridge



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# Program Options

## The Opportunities

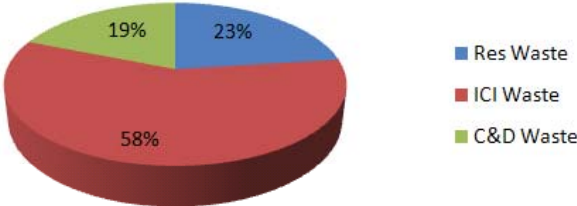
- 1. Develop an ICI (Industrial, Commercial & Institutional) strategy
- 2. Centralized Recycling Depots
- 3. Enhanced Residential Curbside Programs

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# Why the ICI Sector?

- 75% of total waste disposal at landfill
- High potential for diversion

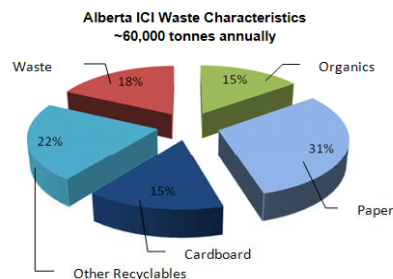
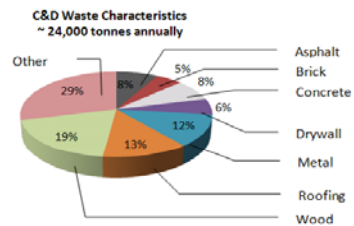


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## The ICI Sector

- Focus on diversion:
  - ◆ Fiber (paper & cardboard)
  - ◆ Organics
- Opportunity for C&D
- Service delivery model
  - ◆ Role of the City
  - ◆ Cost
- Organics processing facility



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## Recommendation

- Proceed with the development of an ICI diversion strategy
- Consulting assistance (to a maximum of \$60K)
  - ◆ The strategy
  - ◆ Organics processing
  - ◆ Funded from the accumulated recycling surplus
- Present results in fall 2012

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# Program Options

## The Opportunities

- 1. Develop an ICI (Industrial, Commercial & Institutional) strategy
- 2. Centralized Recycling Depots
- 3. Enhanced Residential Curbside Programs

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# Recycling Depots

## Current

### Issues

- ◆ Capacity & site servicing
- ◆ Litter
- ◆ Site design



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## Centralized Recycling Depots

### Description

- ◆ 3 large centralized depots
- ◆ Located on city owned land
- ◆ Site specific design



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## Recycling Depots Proposed

### Description

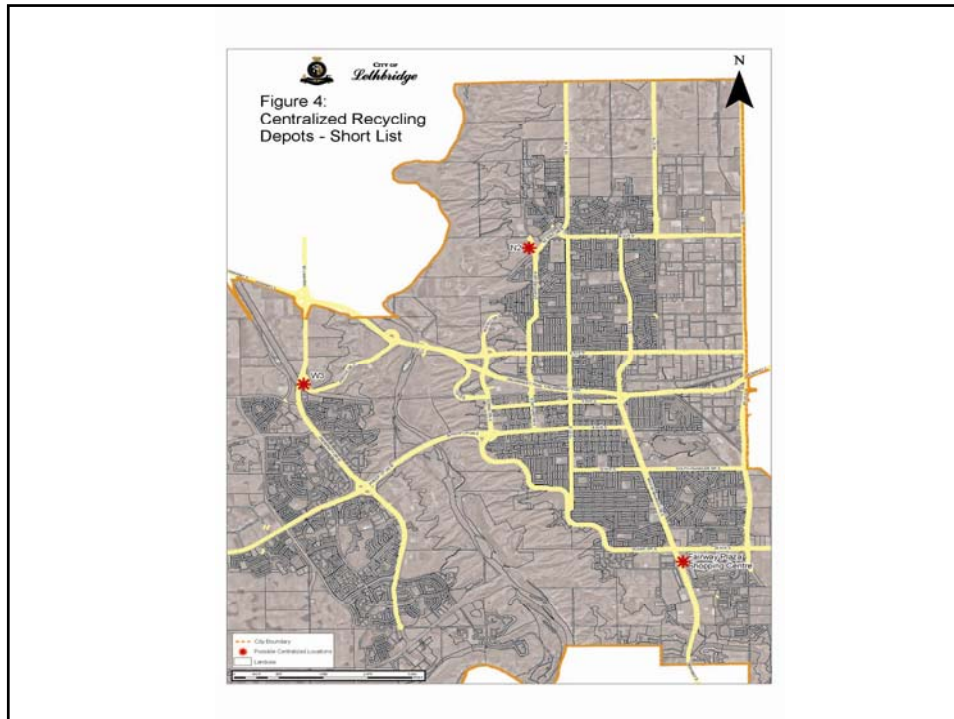
- ◆ Different style of bin
- ◆ Capacity = 720 yards (+95%)
- ◆ Enclosed bin to manage litter



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## Recycling Depots Costs

### Capitol cost

- ◆ \$1.9 M
- ◆ Funding
  - \$1.7 M from the accumulated waste surplus
  - \$200 K in 2012 operating budget

### Operating cost

- ◆ Savings of \$.40/month (from current rate of \$3.60/mo)
- ◆ Will adjust rates once project is complete

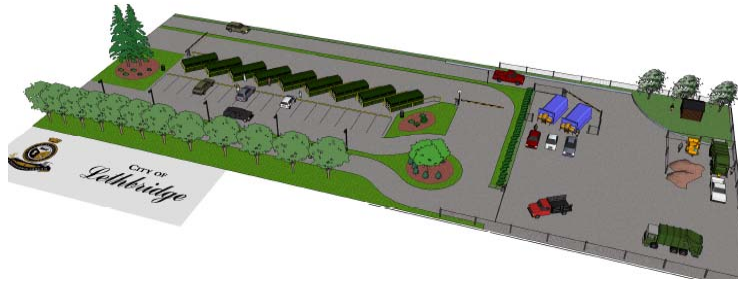


## Recycling Depots

### Yard waste site option

#### Site design

- ◆ Request for west side site
- ◆ Option to co-locate
- ◆ June/12 report on branch chipping & program options



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## Recycling Depots

### The Value of Depots?

- Integrated system with complimentary components
- Creates 'Options'
  - Combine depot with curbside service to provide highest level of convenience for residents & highest participation
- Other unique waste streams (ie: glass, styrofoam)
- Large volumes of cardboard
- Yard waste options
- Part of strategy for ICI
  - Small business sector

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## Recycling Depots Recommendation

- Replace the current 7 recycling depots with 3 centralized depots
- Implementation date for the new sites is Oct, 2012
  - Open houses
  - Communication strategy
- Extend current depot servicing contract:
  - Month by month beyond Sept 30/12

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## Program Options

### The Opportunities

1. Develop an ICI (Industrial, Commercial & Institutional) strategy
2. Centralized Recycling Depots
3. Enhanced Residential Curbside Programs

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## Program Performance

### Programs (residential)

- Curbside recycling 10% to 20+%
- Drop off recycling 3% to 10%
  
- Curbside yard waste 10% to 20+%
- Drop off yard waste 3% to 10%

### Participation & Capture

- Pay as you Throw 3% to 10%
- Education 1% to 3%
- Regulations ??

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## Curbside Recycling

### Description

- Collection of comingled material in a cart
- Targets the remaining 25% of recyclables in the waste cart

### Considerations

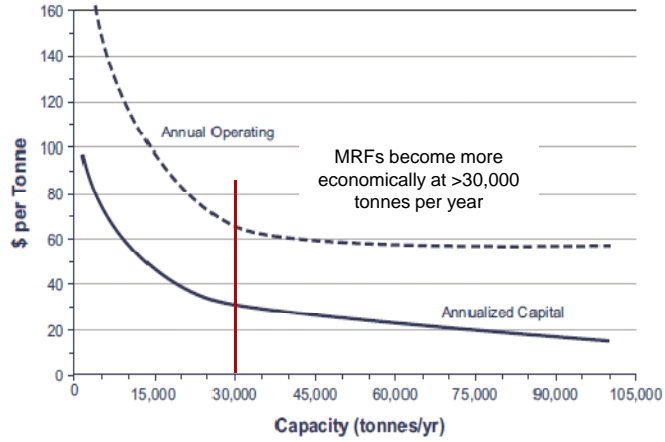
- Need for a facility to process single stream material
- Need for a pilot
- Opportunity for bi-weekly collection to reduce costs



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## MRF Cost

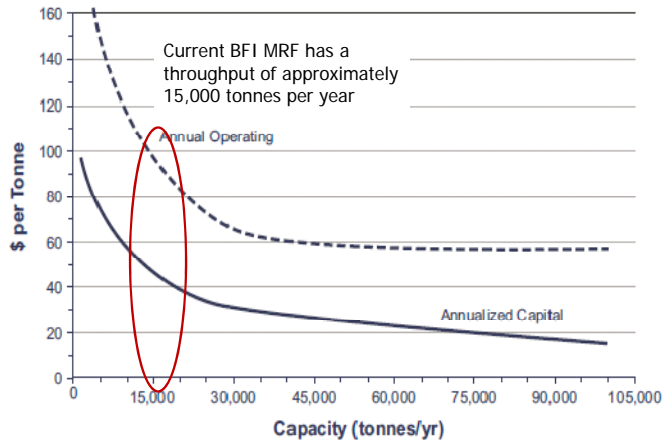


MRF Annualized Capital and Operating Cost Curves (FCM, 2004)

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## MRF Cost



MRF Annualized Capital and Operating Cost Curves (FCM, 2004)

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## Res Diversion Potential Recyclables

	Total Material generated 2012	Percent in Material Generated	Total Recyclables Generated 2012	Participation Rate	Capture Rate	Diverted tonnage in 2012	Overall Diversion Potential 2012
Res	36,500*	35%**	12,600	60%	60%	4,400	12% of residential material

\* Total material generated equals total waste (28,000 t) plus total diverted (7,180 t) plus 2% growth equals 36,500

\*\* Percent in material generated equals 25% recyclables in material disposed plus 10% of recyclables diverted today equals 35%

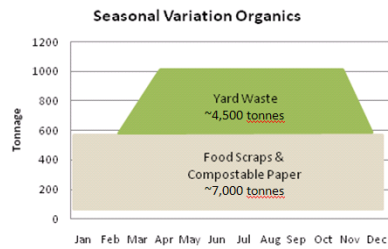
	Total Material generated 2026	Percent in Material Generated	Total Recyclables Generated 2026	Participation Rate	Capture Rate	Diverted tonnage in 2026	Overall Diversion Potential 2026
Res	59,000	35%	20,500	75%	75%	12,400	21% of residential material

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## Organics

- Organics comprise about 47% of the residential garbage (11,700 tonnes) and 15% (9,200 tonnes) of ICI garbage.
- Depending on the seasons, yard waste can comprise a significant amount of the residential organics waste stream.



Seasonal Variations Residential Organics (Generated based on City of Lethbridge Data)

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## Curbside Organics

### Description

- Collection of 'Kitchen Organics' in a cart
- Targets a portion of the remaining 47% in the waste cart
  - 20% kitchen organics
  - 27% leaf & yard



### Considerations

- Mitigate GHG & leachate in the landfill
- Need for a facility to process single stream material
- The 'Yuck' factor & participation
- Need for a pilot
- Bi-weekly collection will reduce costs

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## Composting Systems

### Windrow Composting

- Turning and passive aeration



Annual Throughput & Cost/ton	Capital Cost Range	Operational Cost Range	Time to Reach End-Product
12,000 t \$24-50/t	\$1 -2 Mil	\$200k - 400k	3-18 months

Source: Municipal Waste Integration Network and Recycling Council of Alberta, 2006

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## Res Diversion Potential Organics

	Total Material generated 2012	Percent in Material Generated	Total Organics Generated 2012	Participation Rate	Capture Rate	Diverted tonnage in 2012	Overall Diversion Potential 2012
Res	36,500*	45%	15,000	45%	45%	3,000	9% of res material

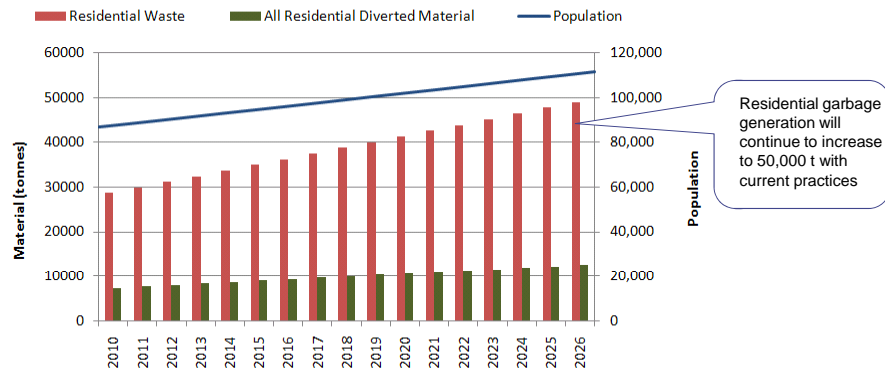
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	Total Material generated 2026	Percent in Material Generated	Total Organics Generated 2026	Participation Rate	Capture Rate	Diverted tonnage in 2026	Overall Diversion Potential 2026
Res	59,000	45%	26,000	65%	65%	11,000	20% of res material

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## Status Quo Long Term Effect of Diversion Programs on Residential Waste Generation

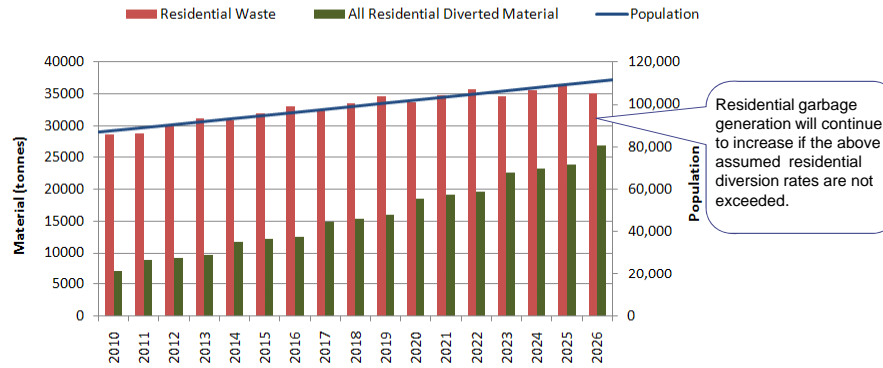


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## Long Term Effect of Diversion Programs on Residential Waste Generation



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## Curbside Programs Next Steps

- Develop collection models
  - Collection of recyclables
  - Collection of organics
  - Bi-weekly collection
- Detailed costing
- Review funding strategies
- Seek consulting assistance (to a maximum of \$120K)
  - ◆ Processing of Recyclables
  - ◆ Processing of Organics
  - ◆ Funded from accumulated recycling surplus
- Report back to council in the Fall/12

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## Summary of Recommendations

1. Develop an ICI strategy
  - \$60K for consulting services
  - Present results in fall 2012
2. Implement Centralized Recycling depots
  - Proceed with design, construction & communication
  - Extend current contract – month by month beyond Sept/12
3. Further investigate residential curbside diversion options
  - Collection models, costing & funding strategies
  - \$120K for consulting services
  - Present results in fall 2012

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## Program Options

Discussion

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