Solid Waste in the RDN

"TED, I DON'T THINK THAT'S HOW THEY WANT OUR TRASH SEPARATED."

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Presentation Overview

- Solid Waste in the RDN
- Where does the rest go?
- Economics of Waste
- Alternatives to RDN Disposal
- Solid Waste Plan

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Waste in the RDN

- 50,000 tonnes/year to regional landfill
- Transfer Station at Church Road
- 7 large commercial haulers (a few minor)
- 3 Processors (i.e paper, metal, plastic)
- 2 Depots (i.e. GIRO, NRE)
- 2 Composters (i.e NOW, Earthbank)
- Numerous stewardship drop-off locations (e.g. beverage containers, electronics, oil, antifreeze, HHW, tires, batteries)

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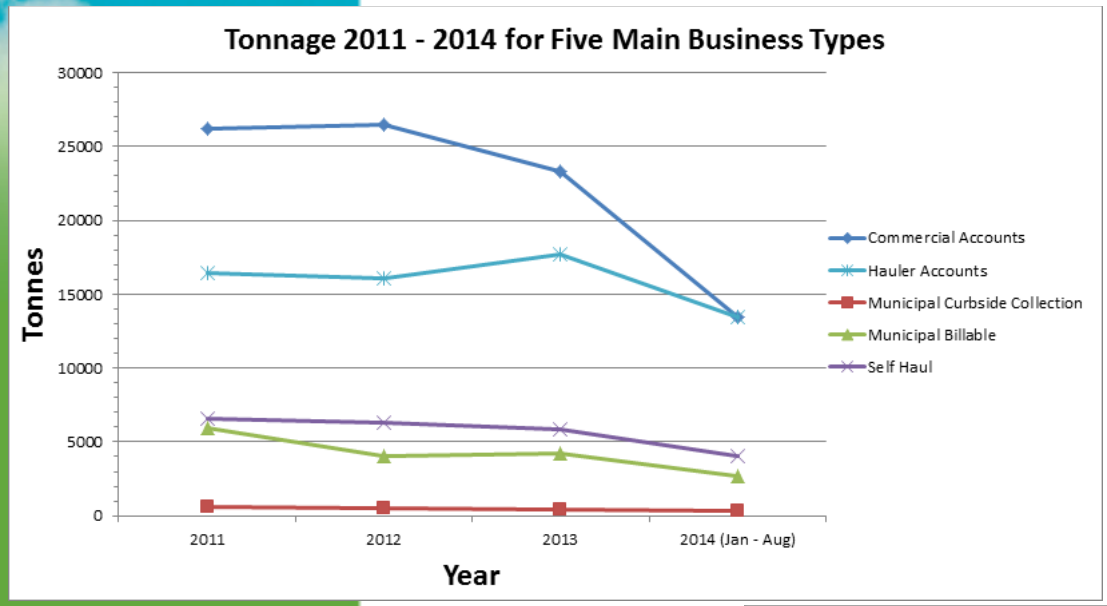
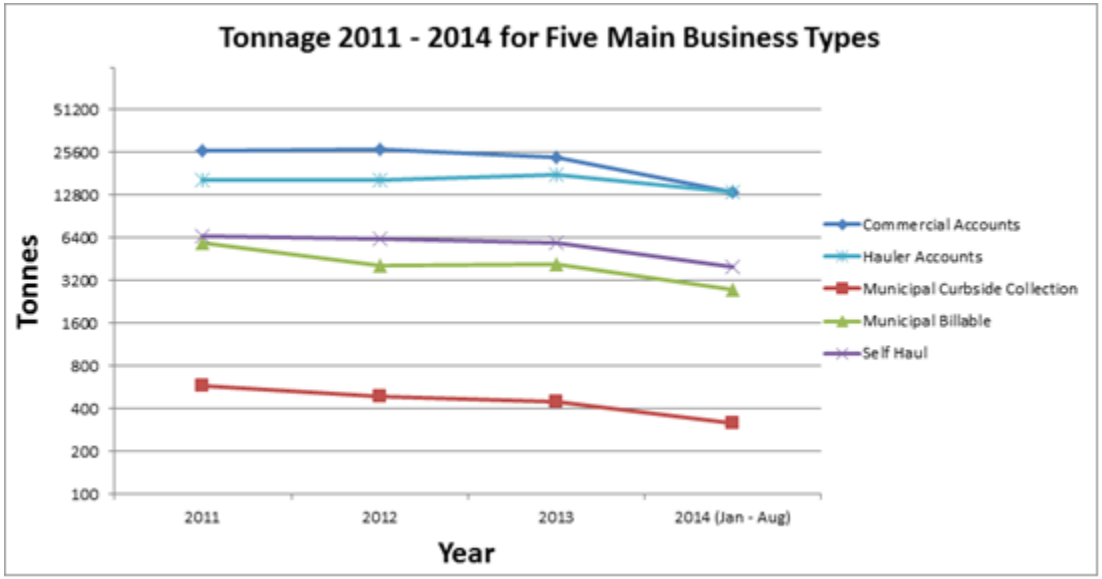
Materials Received at RL/CRTS





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Waste Stream Management Licenses

- 12 licenses
  - Processors, depots, composters
- Why?
  - High standard/level playing field
  - Protect and enhance diversion rate
  - Commitment in our approved SWMP
  - Waste Tracking

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Illegal Dumping

- Effective program
- 2011 - 117 files
  - 42,690 kgs cleaned up (3 sites)
- 2012 - 120 files
  - 21,920 kgs cleaned up (50 sites)
- 2013 – 143 files
  - 22,996 kgs cleaned up (50 sites)
- 2014 – 104 files
  - 16,370 kgs cleaned up (37 sites)

- 100% resolution!

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Where does the rest go?

- Example….electronics stewardship

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E-waste processors

Recycling Vendor Standards – ensure environmentally sound recycle/reuse

Processors:

- Cycle Solutions, Chilliwack
- Global Electric Electronic Processing, Edmonton
- Genesis Recycling Ltd., Aldergrove
- Teck, Trail
- FMC Recycling, Delta

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Where Do the Recovered Materials Go?

MATERIAL/COMPONENT	PROCESS	RESULT	PROCESS LOCATION
Leaded Glass	Manually and/or mechanically separated, cleaned and processed into cullet for use in glass production	Glass Recovery	Canada / USA / Mexico
	Manually and/or mechanically separated smelted for reclaim of lead from the glass	Metal Recovery	Canada
Non-leaded Glass	Manually separated and processed into cullet for use in glass products or construction materials	Glass Recovery	Canada / USA
	Mechanically processed and used as a silica flux substitute in the precious metals smelting process	Substitute Resource	Belgium
Plastic	Manually and/or mechanically separated, ground, and pelletized	Plastic Recovery	Canada / USA / China
	Manually and/or mechanically separted and consumed in smelting process	Energy Recovery	Canada
Circuit Boards	Manually and/or mechanically separated and smelted for reclaim of precious metals	Metal Recovery	Canada / USA / Belgium / Japan
Cables and Wires	Manually and/or mechanically separated and smelted for metal recovery	Metal Recovery	Canada / Belgium / USA
Metals	Manually and/or mechanically separated and smelted for reclaim	Metal Recovery	Canada / USA / Belgium / Japan
Batteries	Mechanically separated and smelted and metal recovery	Metal Recovery	Canada / USA
Mercury Containing Lamps	Mechanical separation of lamps to capture glass, metal and phosphor powder. Phosphor power is further distilled for mercury recovery	Mercury Recovery	Canada / USA
Inks & Toners	Cleaned and reconditioned for reuse	Cartridge Reuse	Canada
	Processed through energy from waste process	Energy Recovery	USA
Ethylene Glycol	Manually recovered for refinement and purification	Glycol Recovery	Canada
Wood	Mechanically processed for enegy recovery or other disposition	Energy Recovery	Canada
		Landfill	Canada

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MERLIN PLASTICS

ABOUT US
SERVICES
PRODUCTS
EQUIPMENT
CONTACT US

PHILOSOPHY HISTORY

PROFILE

Today Merlin processes: **PE film scrap** - printed and non-printed; **industrial injection moulded plastic pails**; **post-consumer blow moulding**, **high density polyethylene**; as well as **PET** (soft drink containers) and some **industrial scrap** from commodity resin to engineering grade.

Merlin has the production capability of 80 million pounds a year, and is continually investigating new production processes and opportunities.

We currently employ over 85 employees and foresee the potential for future growth.

We also have a unique process under patent pending which makes our flakes of a superior quality.

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HDPE PELLETS

All the recycled material used in the **HDPE** plant falls under the # 2 **Plastics** identification code, which is High Density Polyethylene post consumer bottles. The bottles are sorted, ground into a 1/2" flake, washed, dried and pelletized.

We produce 3 kinds of HDPE pellets:

	Natural	Colored	Injection
			
FEED STOCK	Milk jugs Juice bottles Water bottles	Food, Cleaning and Shampoo bottles Antifreeze and Windshield washing fluid bottles Yogurt containers and oil bottles	Pails
APPLICATIONS	Household and Industrial Chemical/Cleaning bottles Communication pipe lines Extrusion profile cores or channels	Oil and Detergent bottles Corrugated Drainage pipes	Garden / Potting containers Drain tile for Septic tanks Large pails and buckets

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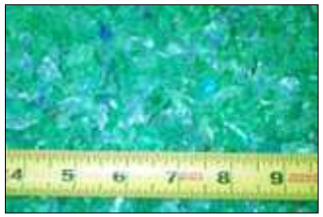
PET FLAKES

All the **recycled** material used in the **PET** plant falls under the # 1 **Plastics** identification code, which is Polyethylene Terephthalate Polymer post consumer bottles. The bottles are sorted, ground into a 3/8" flake, washed and dried.

We produce 2 kinds of PET flakes:

	Clear	Green
		
FEED STOCK	Pop bottles Juice bottles Other PET containers	Pop bottles Juice bottles Other PET containers
APPLICATIONS	Structural layers for pop bottles, liquor bottles, water bottles, liquid detergent bottles, juice bottles.	Carpets, fiberfill for sleeping bags, pillows and ski jackets. Can be rolled into clear sheets for VCR and audio cassettes.

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Paper

- Different grades (i.e. cardboard, mixed, shredded/unshredded office, news)

- Cellmark
  - 14 sales offices & 10 processing facilities in N.A.
  - 30 to 40% to US/Can mills
- KapStone
  - Kraft paper & corrugated packaging
  - $2.1 billion revenues; 4,500 people

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- SP Fiber
  - Newsprint and packaging; Newberg OR.
  - Processing 100% post-consumer material
- JMK Fibers
  - 90,000 square foot building, Tacoma
  - 24 shipping/receiving docks
  - Materials sorting of paper and plastic

Economics of Waste

"Is there a business case for a zero waste strategy in British Columbia?"

(MOE, Zero Waste Business Case, Draft, May 2013)

Findings:

- Depending on implementation (i.e., 62% vs 81% diversion):
  - $56 million and $126 million of annual net economic benefit;
  - create between $27 million and $89 million in new annual GDP;
  - generate between $755,000 and $2.5 million in new annual income tax revenue for BC.

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Economics of Waste

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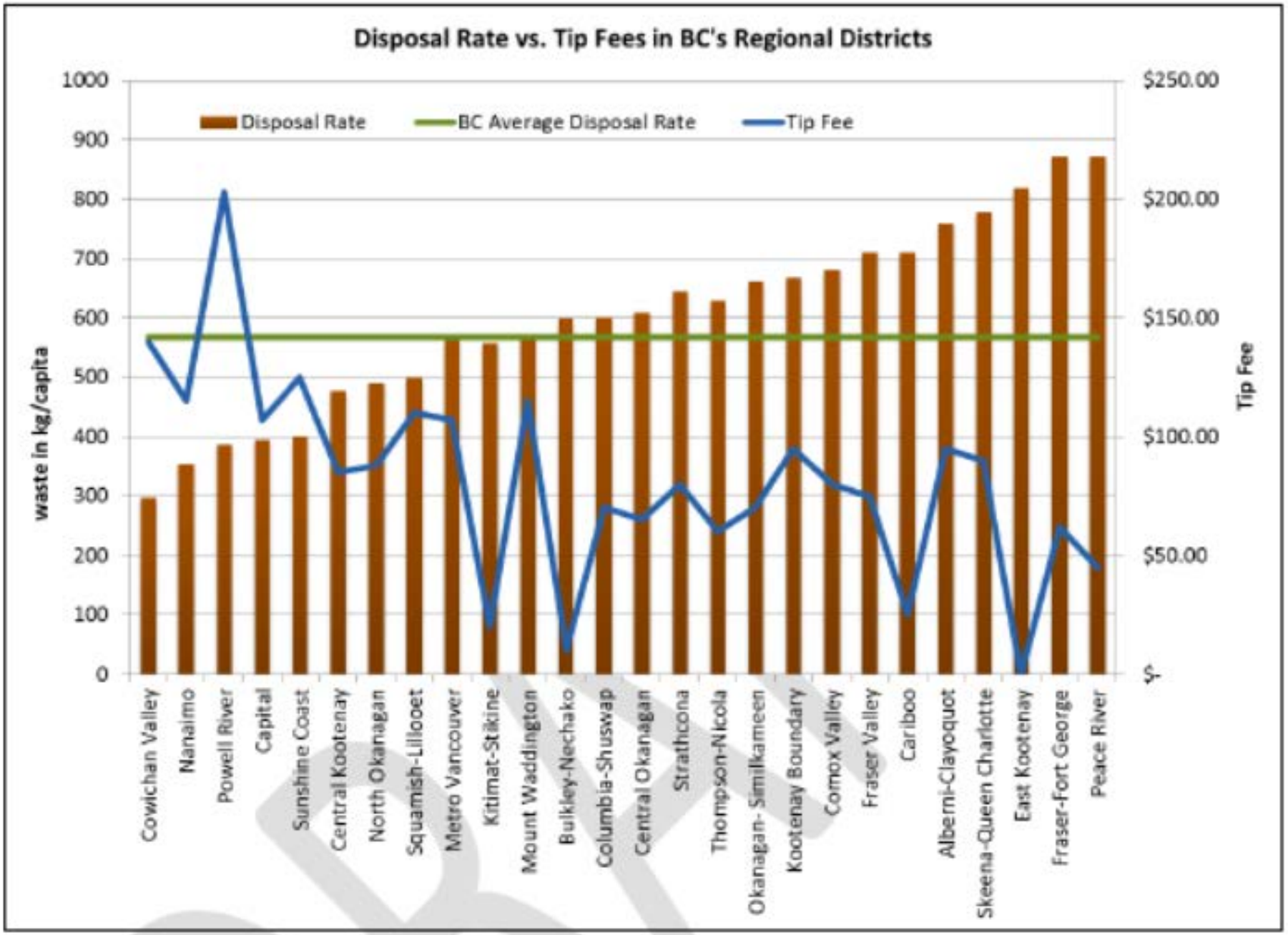
Figure 3: Disposal Rate vs. Tipping Fees



Landfill tip fees

Tip fees are a closely guarded secret.

- Large USA landfill $25 to $30 per tonne
- Roosevelt Regional Landfill, Washington
  - $24us/ton
  - 2011/2012 data reported to the Department of Ecology
- CVRD; USA disposal
  - $90/tonne (includes shipping)
  - $140/tonne tip fee (50% tax req.)
- RDN $125/tonne (3% tax req.)

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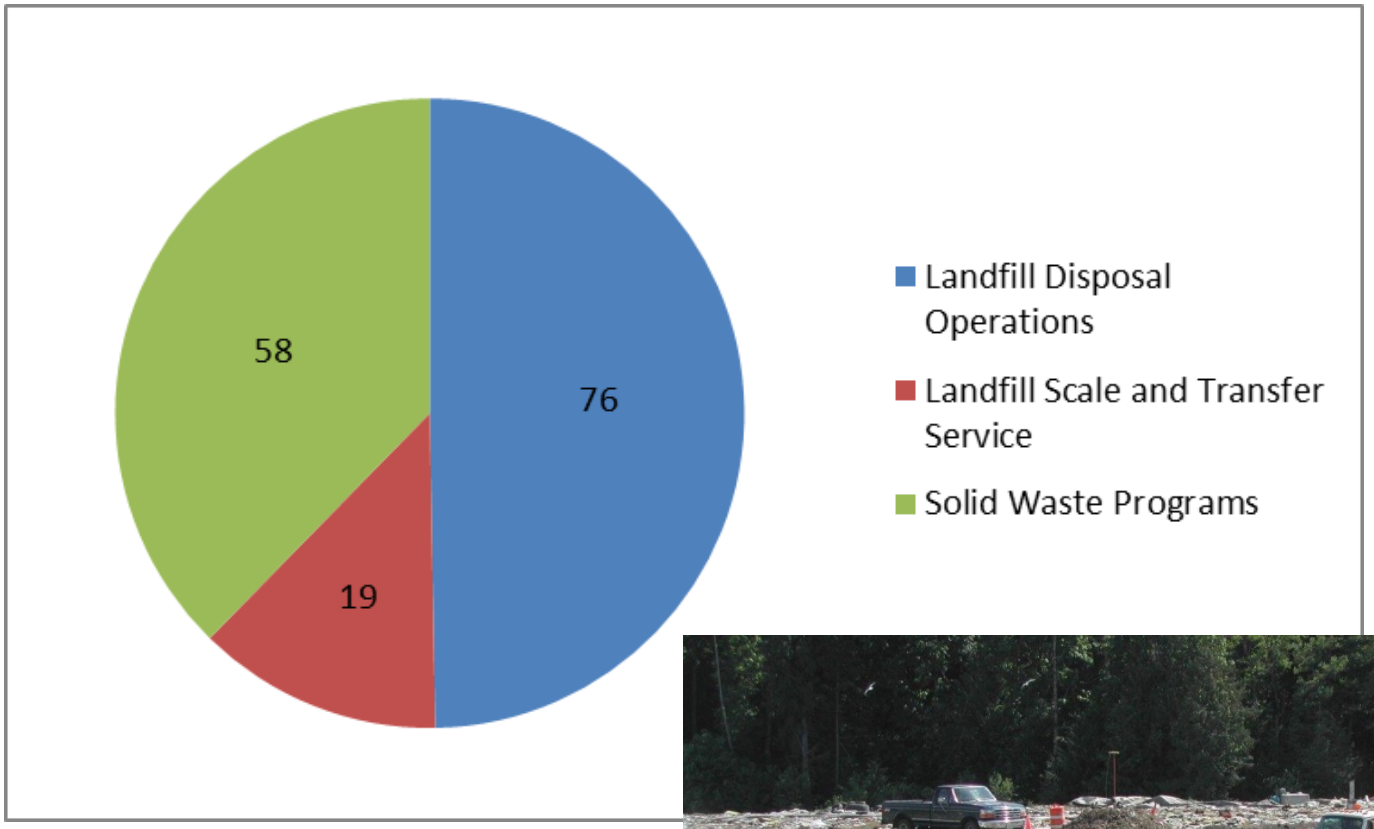
SW Financials



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Alternatives to RDN Disposal

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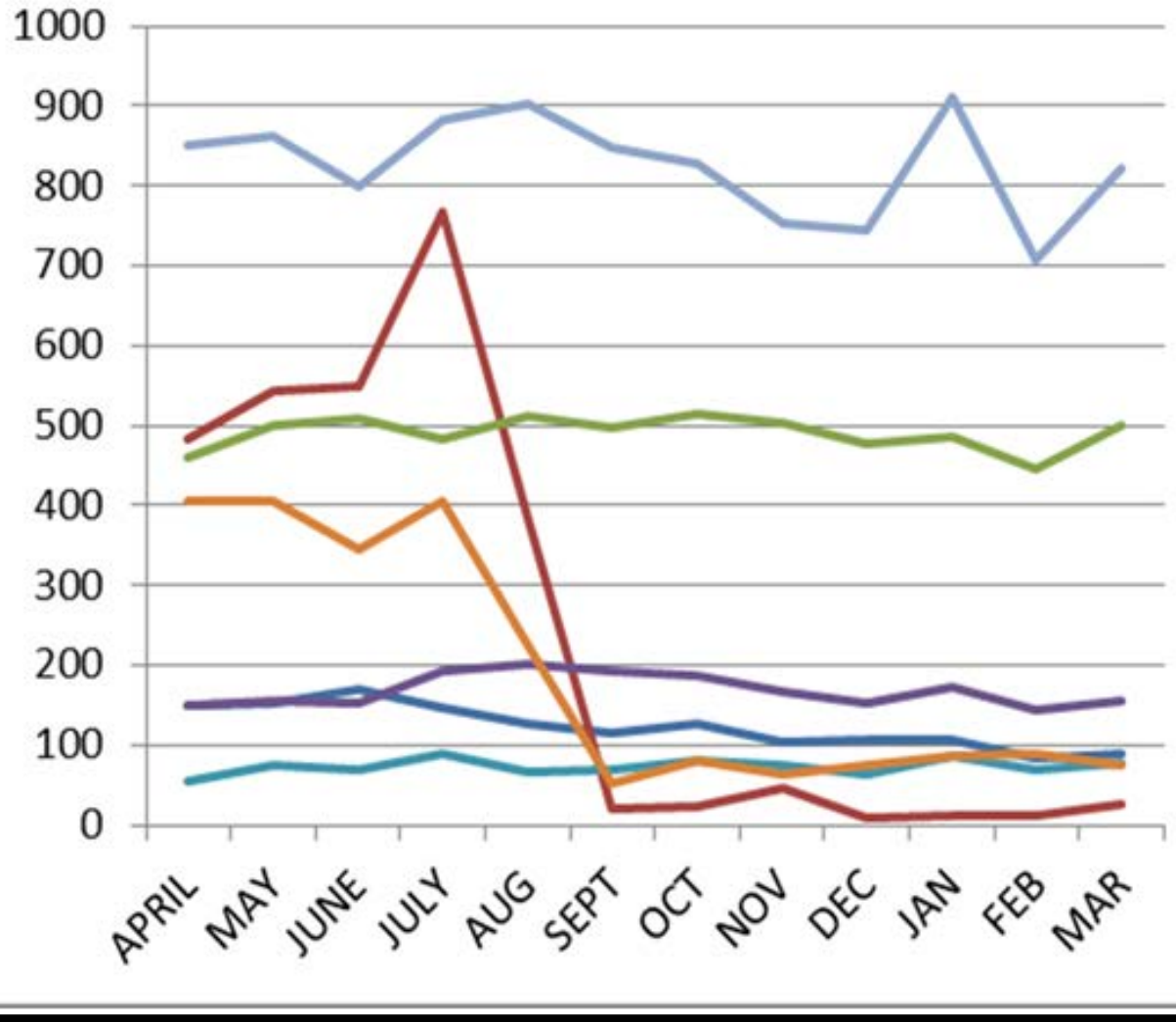
Disposal Trends by major haulers at Regional Facilities



Graph depicts number of loads taken to Regional facilities from April 2013-March 2014

Waste to Energy

Electricity and/or heat from the incineration of waste.

MOE expectations:

- 70% reduction before WTE
- 60% min. efficiency to be “reduce”

Thermal Technologies:

- Incineration, co-combustion, RDF
- Gasification (conventional, plasma-arc)
- Pyrolysis

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Solid Waste Management Plan

"The purpose of the implementation of solid waste management planning process was to restructure the way municipal solid waste was generated and managed in order to create a sustainable, integrated waste management system."

BC MOE

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Timeline

SOLID WASTE MANAGEMENT PLAN REVIEW
PROJECT STAGES & ACTIVITIES

TIMELINES	STAGES	ACTIVITIES
2013	**STAGE 1** EVALUATE EXISTING SYSTEM	• Plan Implementation Status/Future Needs • Issues & Opportunities
2014	**STAGE 2** DEVELOP & EVALUATE OPTIONS AND STRATEGIES	• Develop Options • Include Strategies for Review • Prepare Solid Waste Management Plan
2014-15	**STAGE 3** PUBLIC ENGAGEMENT & ADOPTION	• Conduct Public Review • Plan Approval

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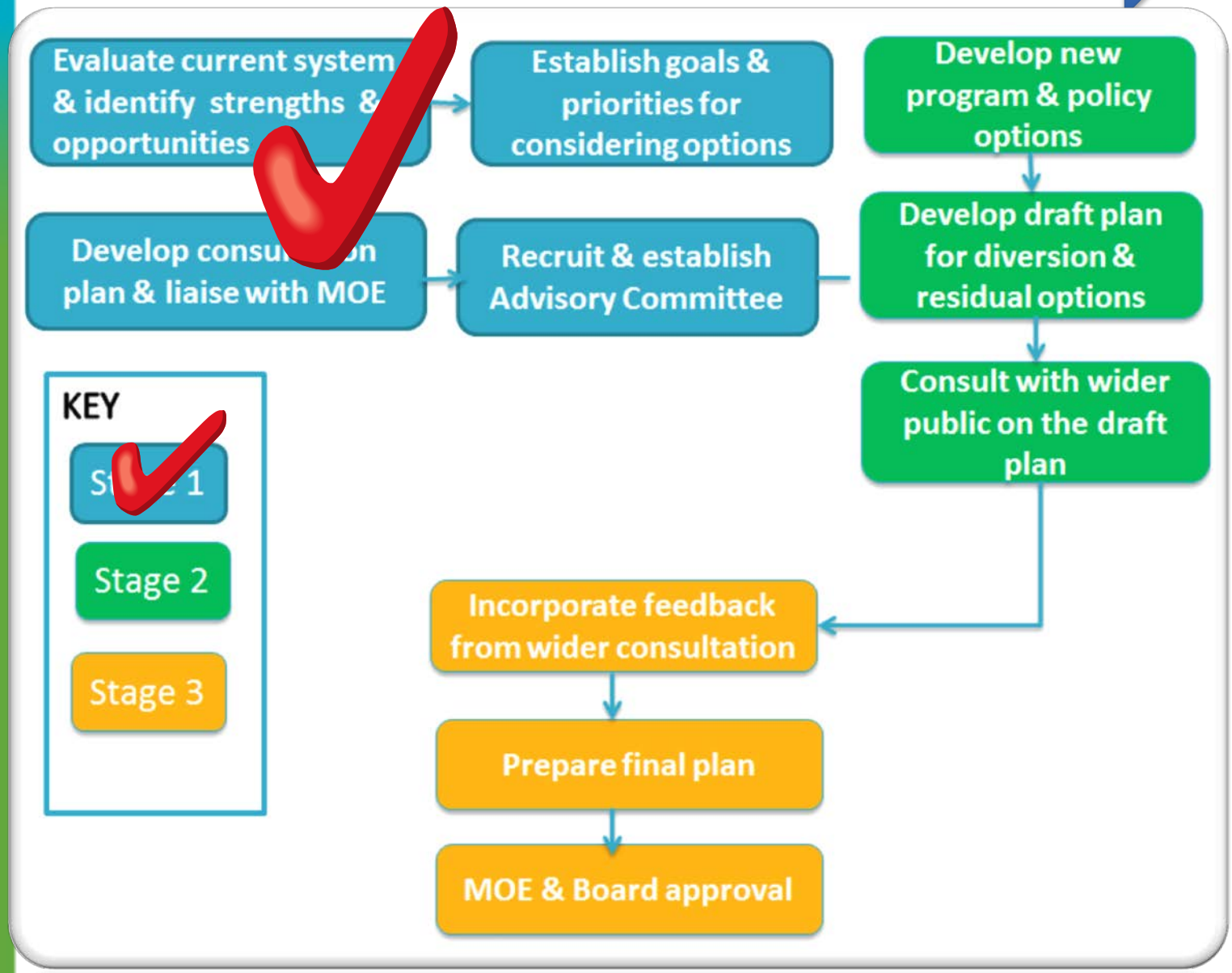
ENGAGE STAKEHOLDERS THROUGHOUT SWMP REVIEW PROCESS



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Questions ?

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