Welcome Back

CIF
CONTINUOUS IMPROVEMENT FUND

In This Section

- RPRA Update
  - Mary Cummins, RPRA
- Cost Models: Who's Used Them & Do They Work
  - Panel

RPRA PROGRAM UPDATES

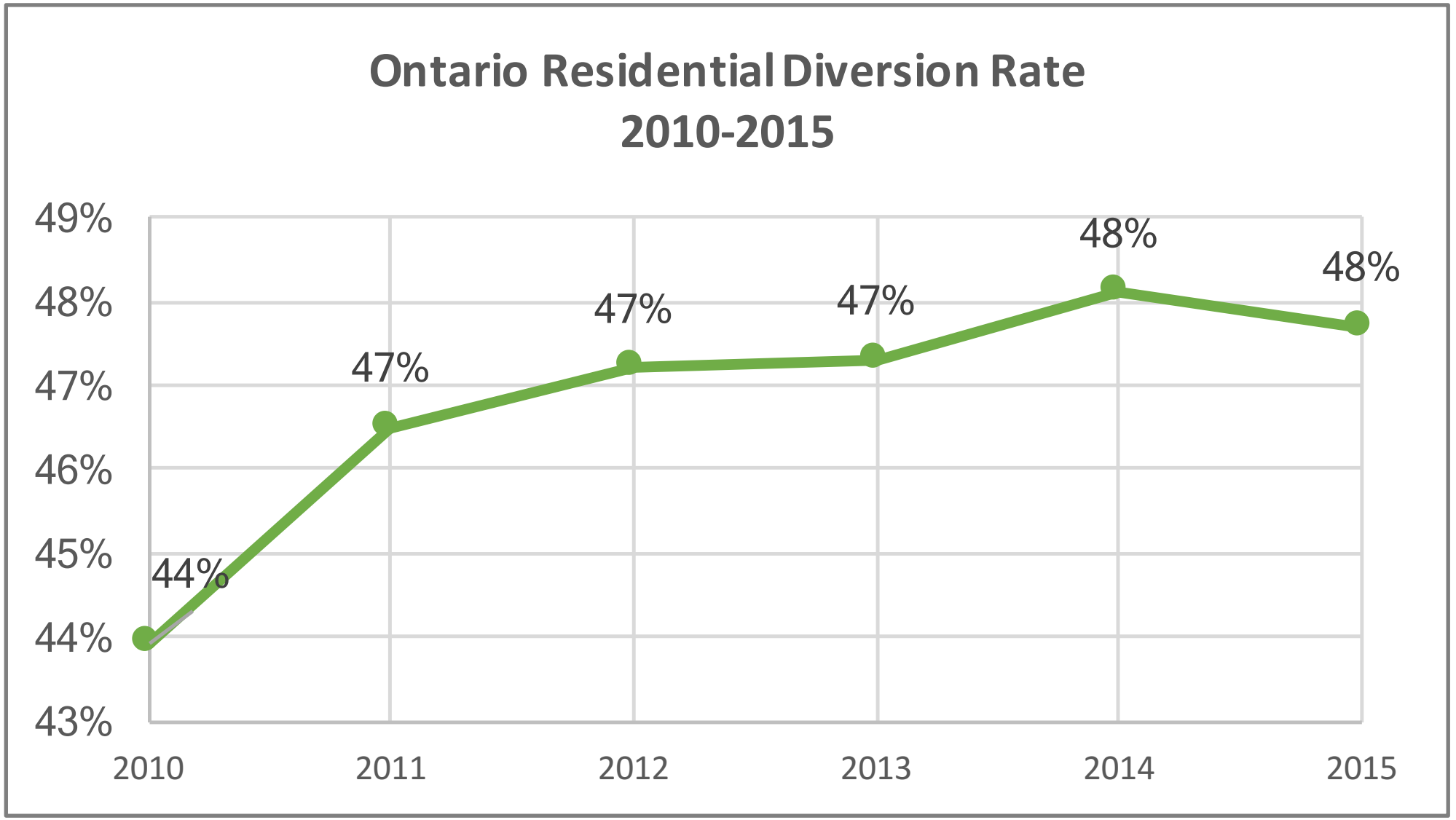
May 18, 2017

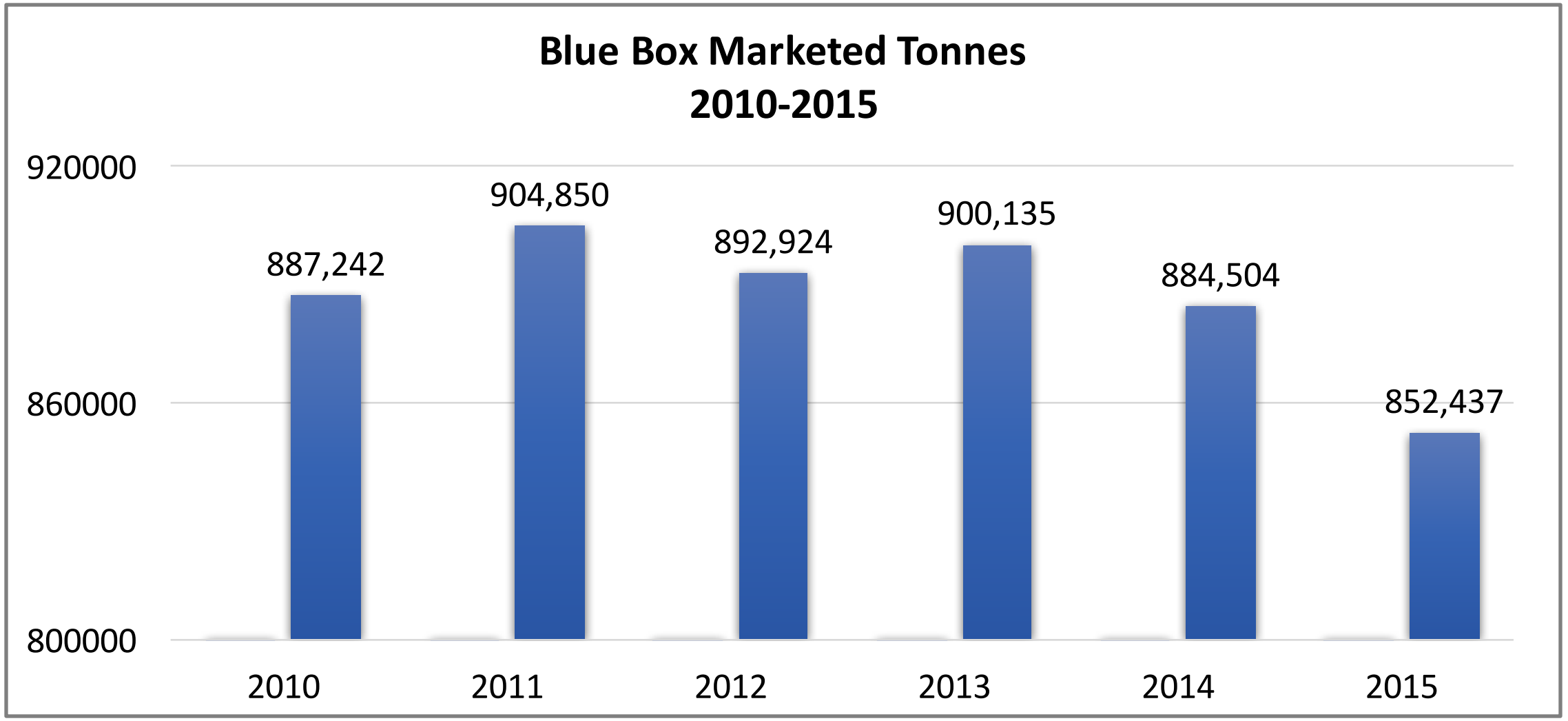
Mary Cummins, Program Lead

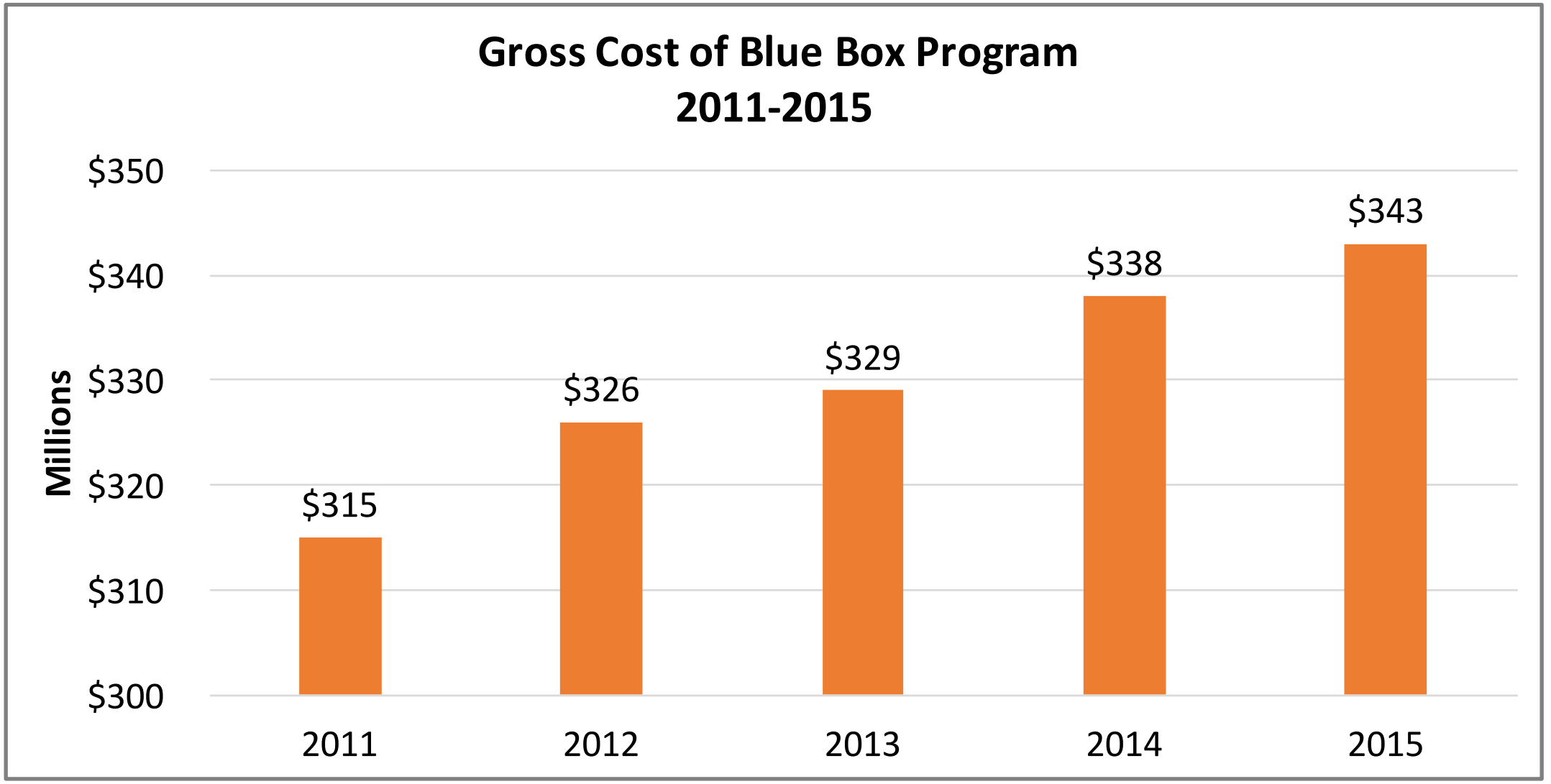
Resource Productivity & Recovery Authority | Office de la Productivité et de la Récupération des Ressources

Blue Box

1. Steward Obligation
2. InKind
3. MIPC
4. CIF
5. Diversion Reports

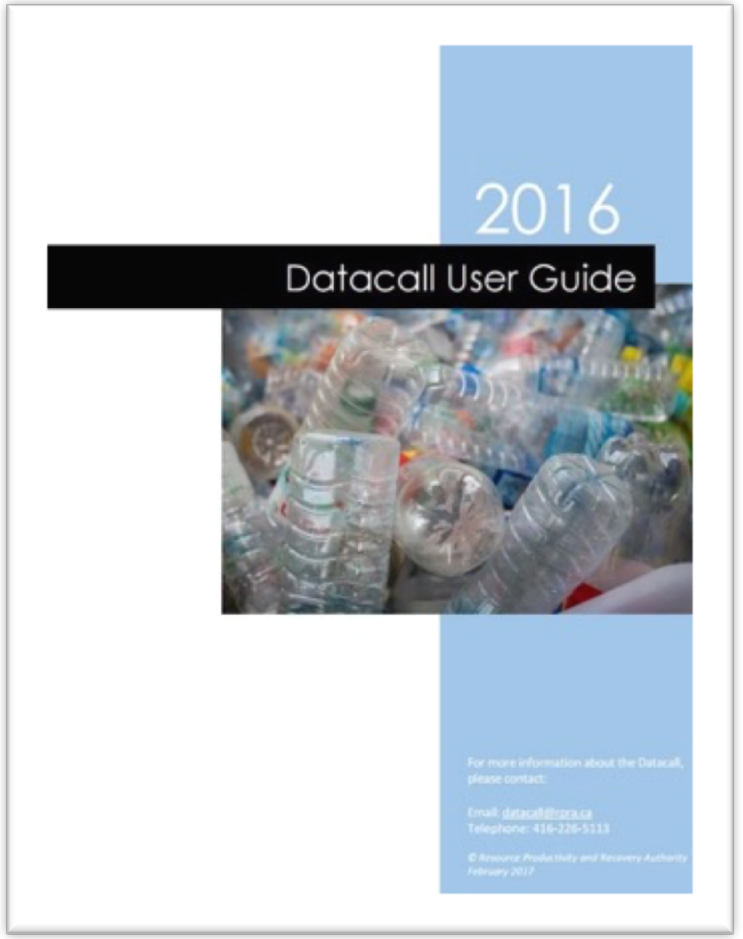

Ontario Residential Diversion Rate
2010-2015
49%
48%
47%
46%
45%
44%
43%
44%
47%
47%
47%
48%
48%
2010
2011
2012
2013
2014
2015


Blue Box Marketed Tonnes
2010-2015
920000
860000
800000
887,242
904,850
892,924
900,135
884,504
852,437
2010
2011
2012
2013
2014
2015


Gross Cost of Blue Box Program
2011-2015
Millions
$350
$340
$330
$320
$310
$300
$315
$326
$329
$338
$343
2011
2012
2013
2014
2015

Datacall

1. New tools this year!
2. Datacall Audits
3. Datacall ShortForm
   - 133 users this year
4. The Registry
5. Datacall Consultations



ORANGEDROP

Automotive Materials Stewardship

PaintReuse
Free Leftover Paint

Used Tires

1. Transition under the WDTA
2. Privacy and Municipal Documentation Issue
3. New Steward Fees – May 1

WEEE

1. New Steward Fees – June 1

Ontario Electronic Stewardship

Thank you

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Resource Productivity & Recovery Authority | Office de la Productivité et de la Récupération des Ressources

Cost Models:
Who's Used Them & Do They Work?

Gary Everett, CIF
Project Manager

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Why Cost Models?

- EPR train has left the station
- Automotive Materials Stewardship **effective Apr. 1/17**
- Is it a good deal ???

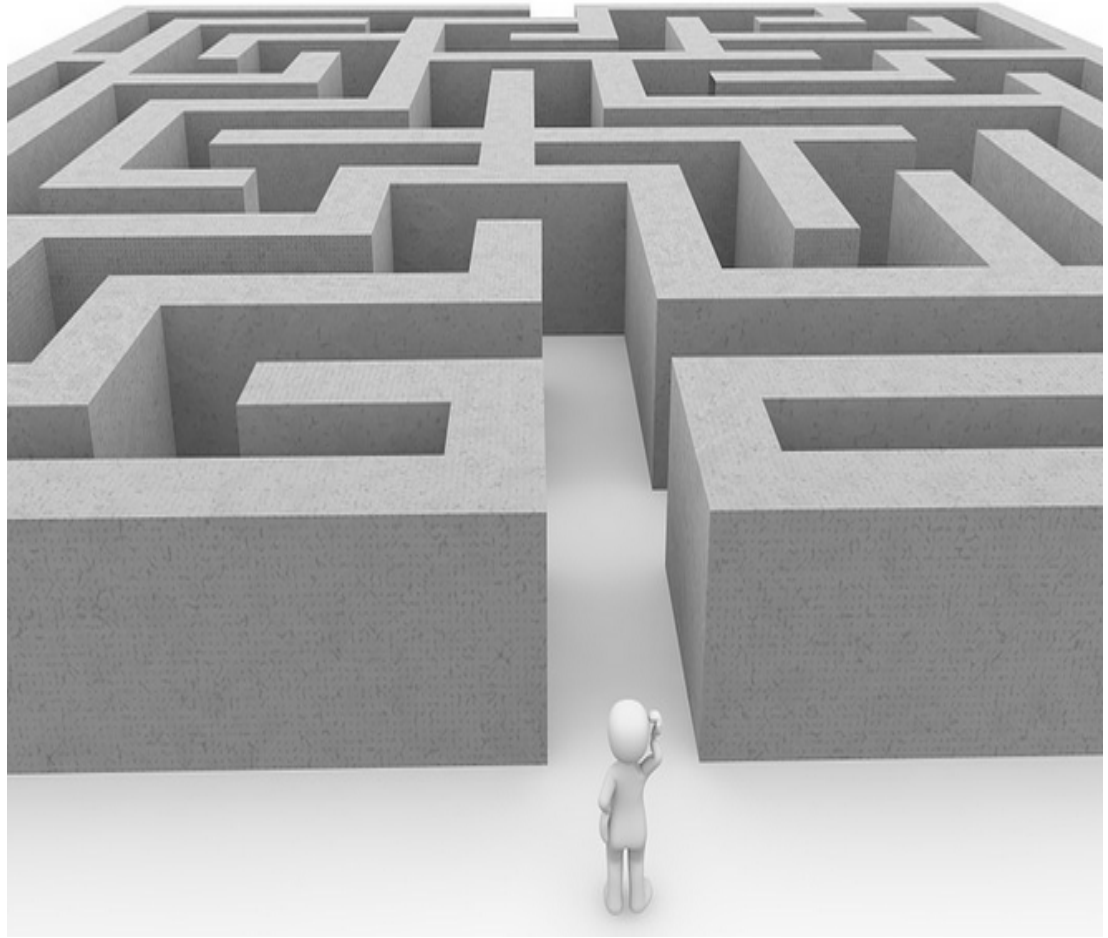
Why Cost Models?

- Can’t identify **cost drivers**
- Can’t track costs by **specific activity**
- Can’t track costs by **specific material**

What's in the Works

Several CIF projects ongoing to:

- Identify & adapt ABC models
- Build checklists & guides for costing
- Develop procedures for asset valuation



Today's Speakers

- Lindsay Milne, York Region
  - Full Cost Accounting Study - CIF Project #975
- Neil Menezes, Reclay StewardEdge
  - CIF MRF Cost Model: A Key Component of Your EPR Planning
- Alex Piggott, City of Woodstock
  - Depot Cost Model Experience - CIF Project # 875
- Kate Dykman, City of Vaughan
  - Collection Contract Cost Modelling - CIF Project #965
- Heather Roberts, City of Kingston
  - Developing a Collaborative Processing Hub in Eastern Ontario

Full Cost Accounting Study CIF Project #975

Lindsay Milne, York Region

Manager, Sustainable Waste Management

Project Highlights

- Project goal:
  - Identify all solid waste management system costs & revenues
- Impacts:
  - Supports preparation for transition to full EPR
  - Informs decision making during transition
- More information:
  - Lindsay.Milne@York.ca
  - Laura.Darnell-Omotani@York.ca
  - www.york.ca

Full Producer Responsibility Regime

Background

- Full Cost Accounting (FCA) Study part of SM4RT Living Master Plan
- Initial strategy included 2-phased approach to funding large capital projects
  - Phase 1: Full Cost Accounting Study
  - Phase 2: Rate based service
    - on hold until implications of WFOA fully understood

Challenges

- Data acquisition template
- Cost allocation methodology
  - Different allocation methodologies at York Region vs. local Municipalities
  - Not all administrative costs tracked by material type
  - Allocation methodologies differed depending on material type

Cost Information
(in $000s CAD)

		2013	2014
Direct fixed costs (to be considered for all waste streams)	Salaries and Benefits		
	Travel/Meeting Expenses		
	Materials and Supplies		
	Advertising		
	IT Costs		
	Hardware		
	Software		
	Fleet Expenses		
	Vehicles		
	Fuel		
	Fuel Surcharge		
	Maintenance		
	Office Supplies		
	Printing		
	Occupancy and RM		
	Collection Contracts		
	Minor Capital		
	Financing Costs		
	Debt		
	Interest		
	Bank Charges		
	Contribution to Reserves		

Snapshot from Template: Cost Information

Findings

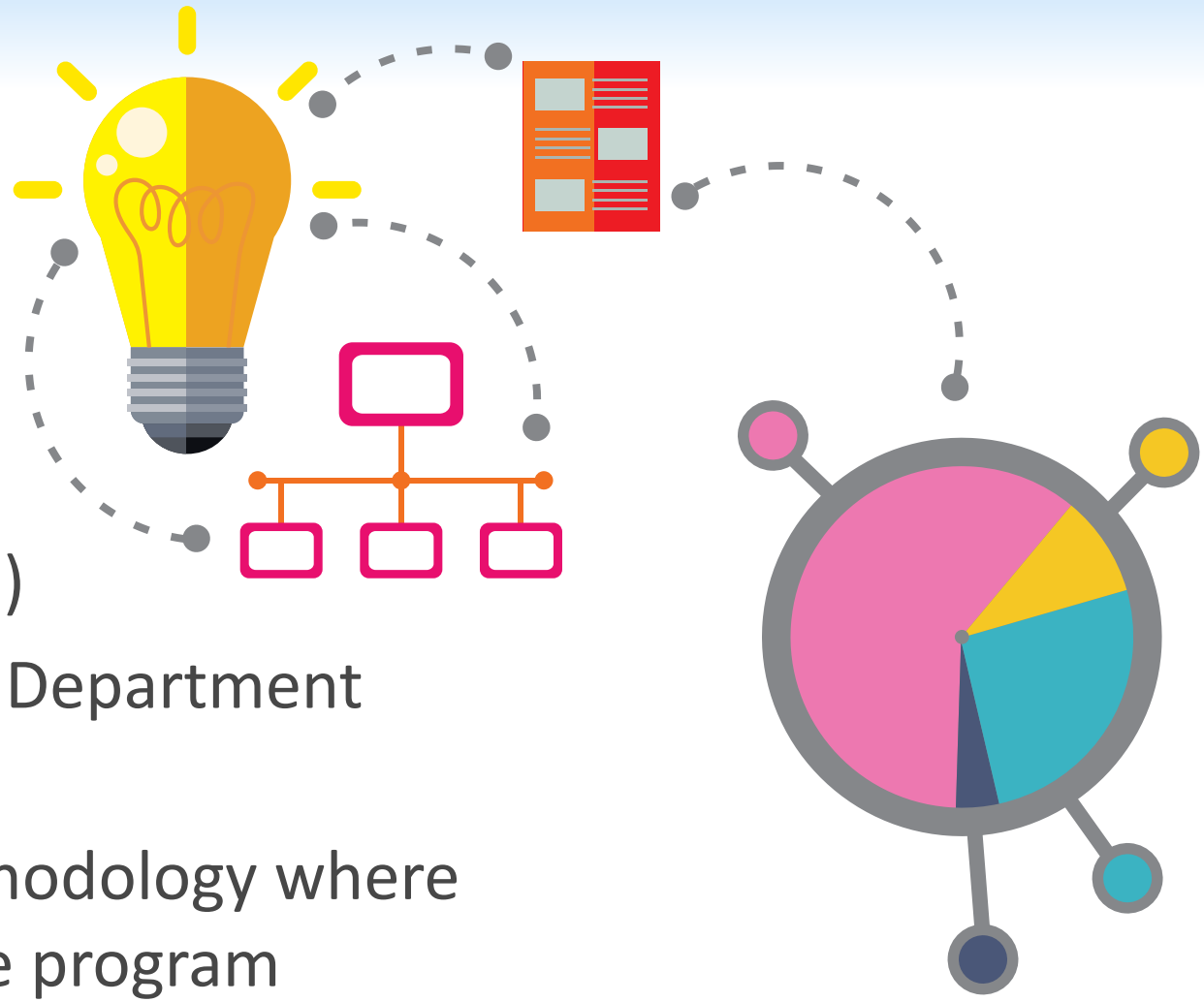
- FCA Study findings will include summary of total system costs & suite of KPIs:
  - Total costs/tonne
  - Net costs/tonne
  - Cost/household
  - Cost/capita
  - Curbside collection costs vs. multi-residential collection costs
  - Cost/event vs. cost/depot
  - P&E & customer service cost/tonne

Key Message & Take-Away

- Need financial & operational understanding of diversion programs
- Need better understanding of municipal administration & overhead costs required to deliver diversion programs
- Where costs not attributed directly to waste stream, need to determine fair & reasonable allocation methodology

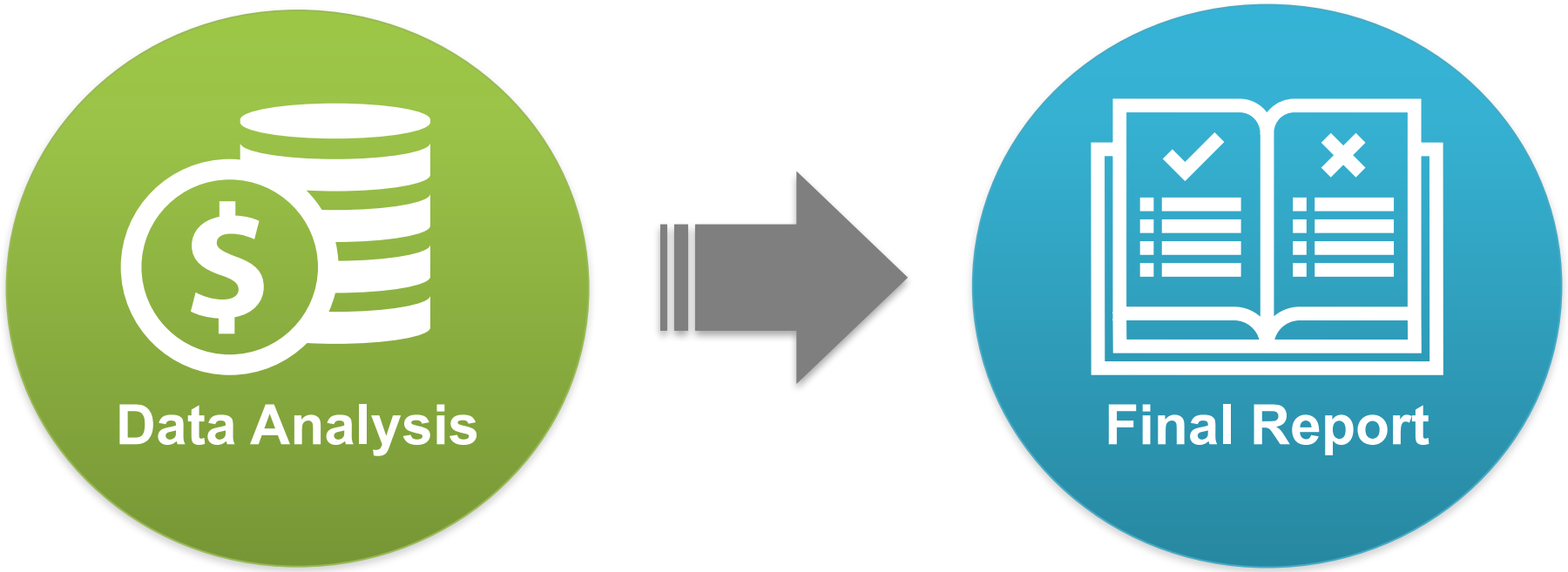
Advice

- Determine study outcomes such as KPIs early in process
- Need to think broadly about internal services support (Legal; HR; Communications; etc.)
- Close collaboration with Finance Department essential
- Need to establish allocation methodology where admin costs not tracked by waste program



Next Steps

- Complete analysis and FCA final report
- CIF will share tools and templates with other municipalities
- Anticipate completion of study in Q2/Q3 2017



Reclay StewardEdge
Product Stewardship Solutions

CIF MRF Cost Model:
A Key Component of Your EPR Planning

Neil Menezes

Reclay StewardEdge

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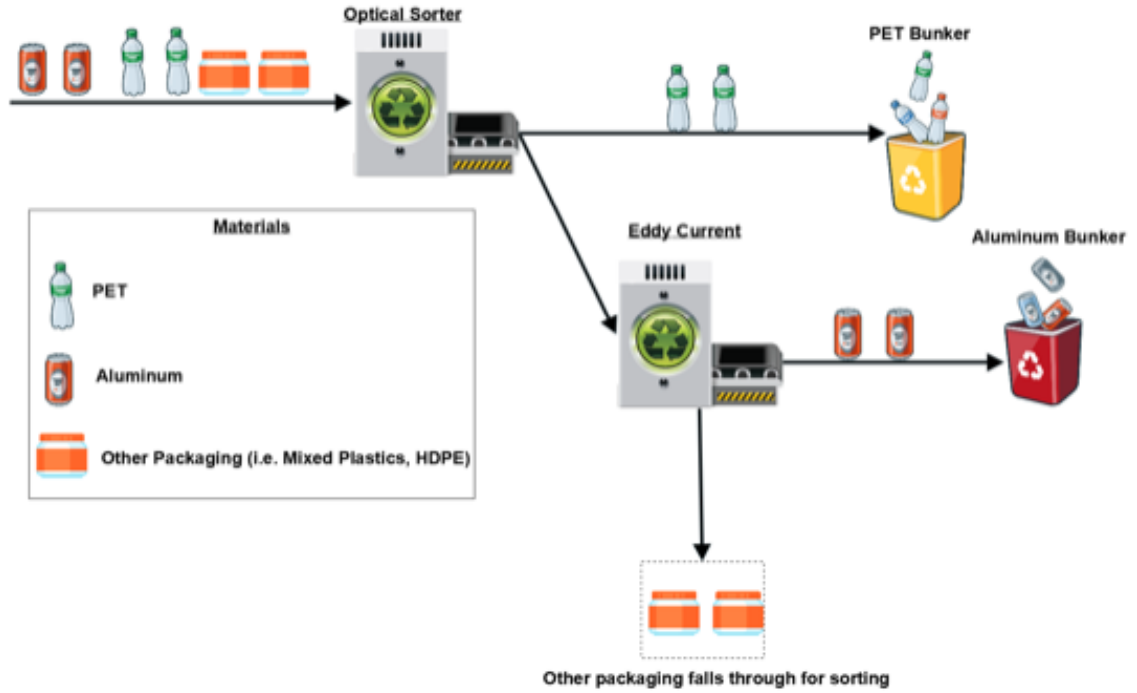
Project Highlights

- Project goal: to develop a model to determine the costs to manage individual materials within municipal MRFs
- Impacts: Enable municipalities to utilize this knowledge to identify opportunities to increase capture & lower MRF costs
- More information:
  - nmenezes@reclaystewardedge.com
  - www.reclaystewardedge.com

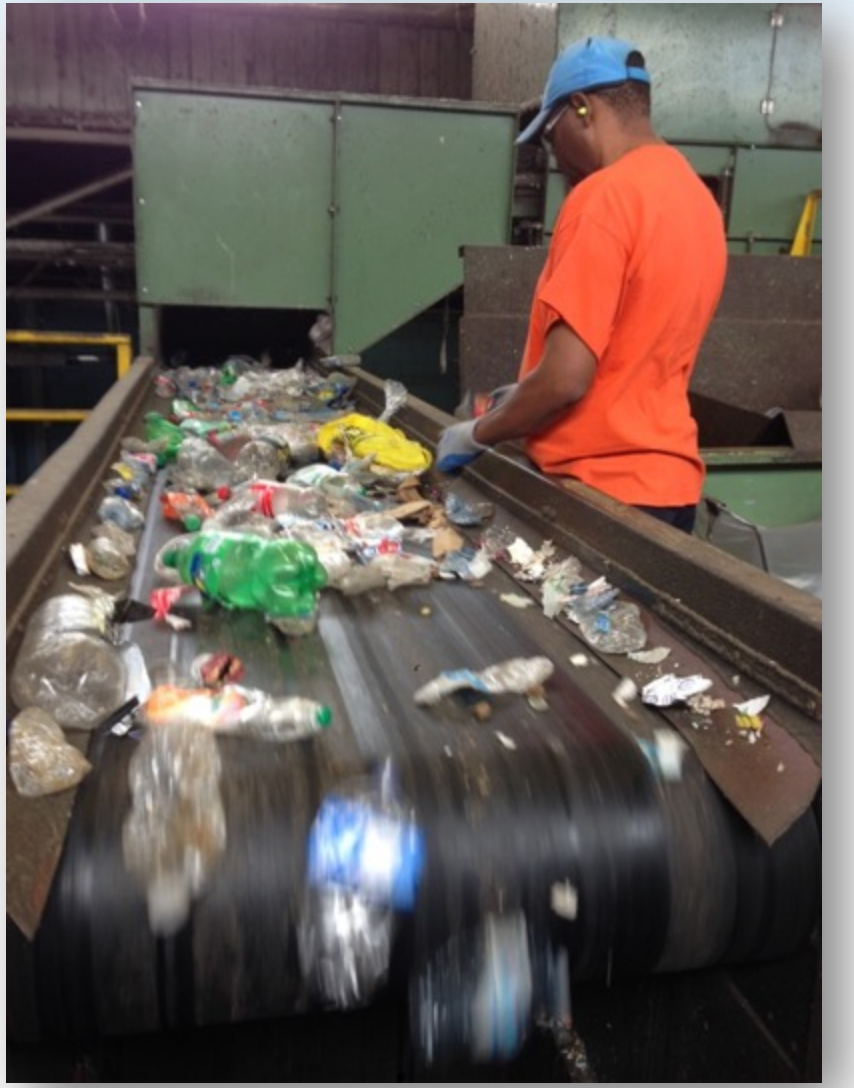
Background

- Limited tools for municipalities to understand costs to sort materials
- SO provides material handling costs but at a provincial level
- Project considered how to build on these aspects, refining them to meet needs of individual MRFs
- Launched in response to municipal requests



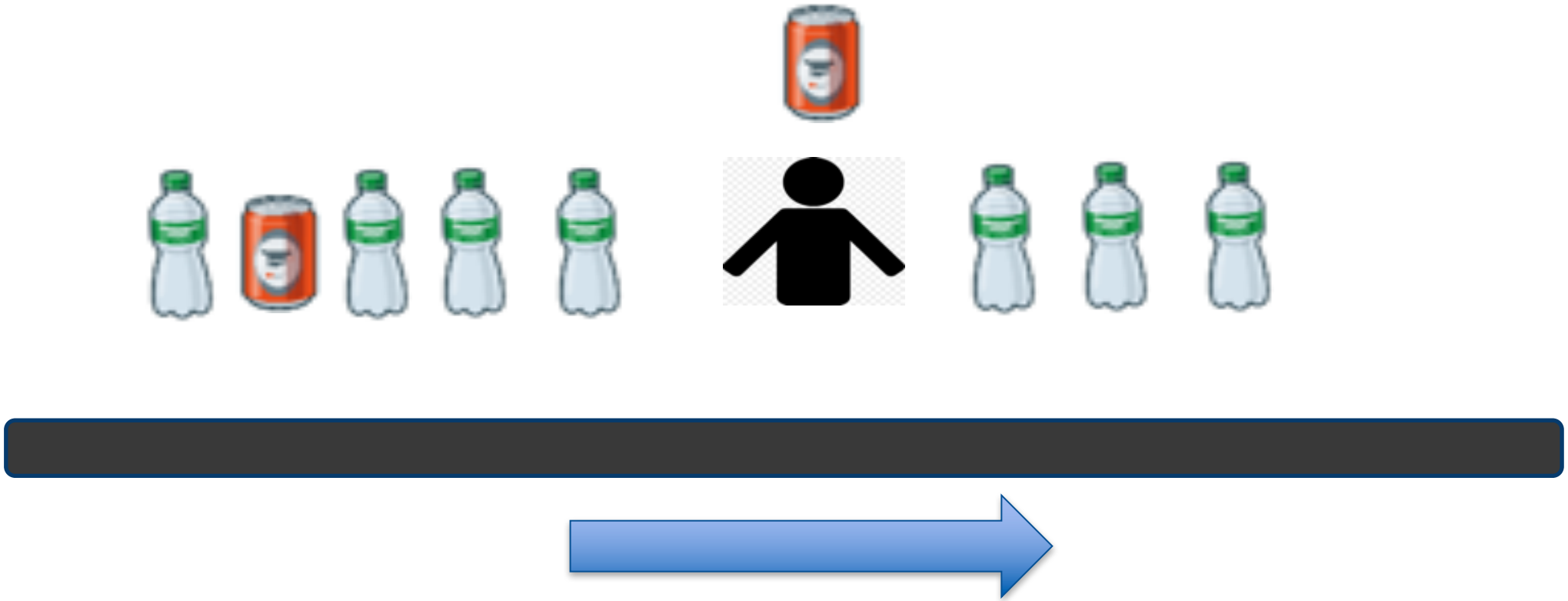
MRF ABC Model Considerations

- Tool's functionality
- Equipment & labour allocations
- Order in which materials are sorted
- Common vs. material specific costs determination
- Allocation methodology
- Impact of how a material is sorted:
  - Positive (manual)
  - Positive (equipment)
  - Negatively

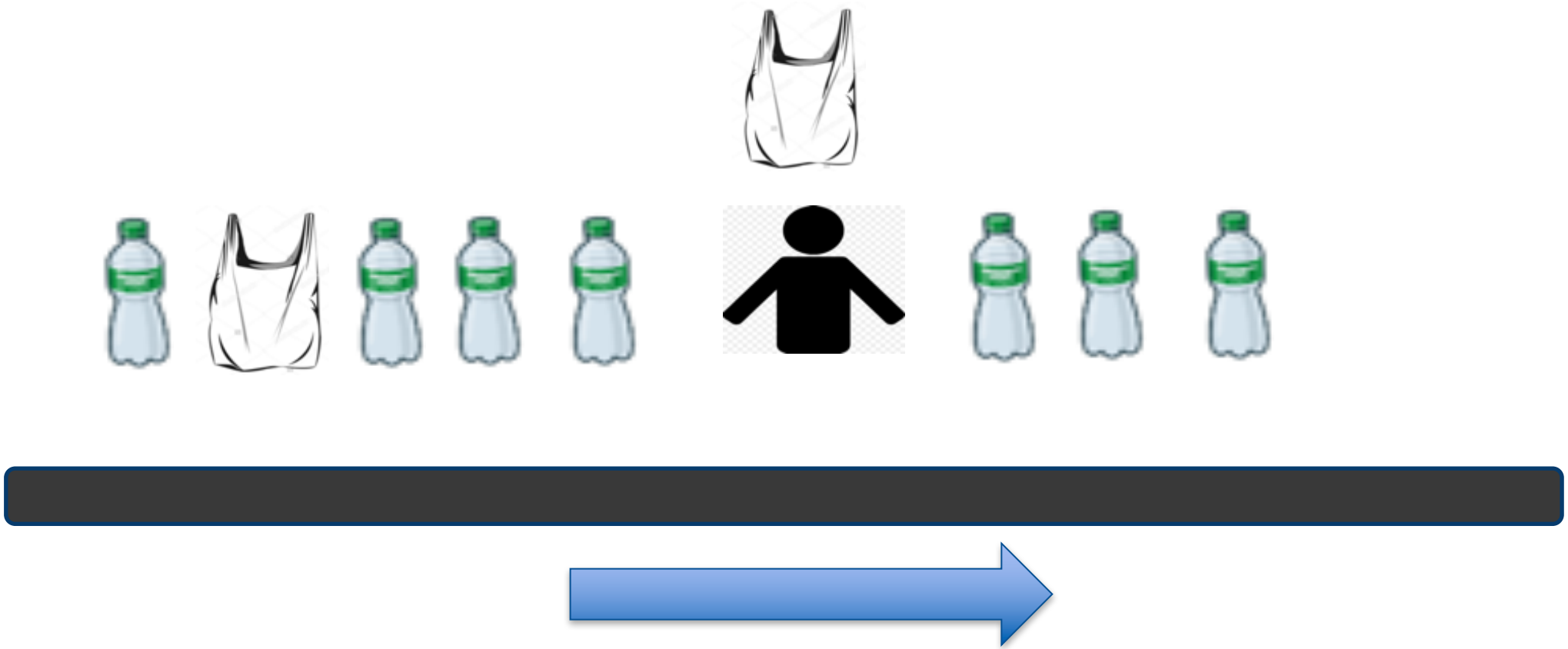


Example 1: What Material Benefits?

Example 2: What Material Benefits



Example 3: What Material Benefits?



Complexity of the Issue

- Determining how to allocate costs is a complex issue
- MRF operations are shared systems with same objective for all materials
- Shared system includes
  - common costs: building, baler, floor staff
  - material specific costs: eddy currents, manual sorters, etc.
- Some materials require greater effort to separate to produce valuable commodity or prevent contamination of other materials
- Multiple factors affect material specific costs

Sorting Through the Complexities

- CIF has facilitated 3 workshops to-date
- 11 municipal representatives from cross section of operations i.e.
  - single & dual stream
  - small & large scale MRFs
  - southern to eastern locations
- Discussions aimed at reaching consensus on Activity Based Costing (ABC) principles & methodology
- Begun sorting through issues & concerns related model design

Building the MRF ABC Model

- Differences among MRFs
  - mix of material
  - equipment complement & configuration
  - # of sorters, etc.
- Tool will enable municipalities to evaluate costs & share data with other municipalities
  - identify opportunities to change operations if & where needed
- Tool needs to be complex enough to capture many scenarios, but simple enough to be usable

Sample Screenshot of the Model

PRINTED PAPER		Materials Collected (Check all that apply)	Inbound Composition (% by weight)
	Newsprint - CNA/OCNA	☑ Check	20%
	Newsprint - Non-CNA/OCNA	☑ Check	13%
	Magazines and Catalogues	☑ Check	6%
	Telephone Books	☑ Check	1%
	Other Printed Paper	☐ Check	0%
PACKAGING			
Paper Based Packaging	Corrugated Cardboard	☐ Check	17%
	Boxboard	☑ Check	9%
	Gable Top Cartons	☑ Check	
	Paper Laminates	☐ Check	
	Aseptic Containers	☑ Check	
Plastic Packaging	PET bottles	☑ Check	
	HDPE bottles	☑ Check	

Sorting Equipment

Equipment	Materials Targeted	Materials Targeted
Single- Eject Optical Sorter	PET	
Dual-Eject Optical Sorter	HDPE	Mixed Plastics
Eddy Current	Aluminum	

Single-Eject Optical Sorter
Dual-Eject Optical Sorter
Eddy Current
Overhead Magnet

Road to Completion

- To date:
  - A municipal working group has met 3 times to discuss and agree on principles and allocation methodology
- June – August:
  - Onsite data collection begun at pilot facilities
  - Data gathered is to be used as the inputs into the model –June & July 2017
- June – September
  - 1 to 2 municipal group meetings remain to work with & tweak model - ensure end product meets working group expectations for ease of use & utility

Depot Cost Model Experience
CIF Project # 875

Alex Piggott

City of Woodstock

Project Highlights

- Project goals:
  - Test CIF Depot Costing Model for tracking Blue Box costs
  - Compare to ongoing project (#875)

- Impacts:
  - Verified completeness of cost elements and provide recommendations to improve utility

- More information:
  - apiggott@cityofwoodstock.ca
  - www.cityofwoodstock.ca

Old System

- Conflict btw collection vehicles & public

New System

- Public separate from collection vehicles

Accounting for Upgrades at the Depot / Transfer Station

- What was the financial impact of the project?
  - Preconstruction vs. Budget vs. Post (Actual)

- Depot Costing Model Areas
  1. Capital Amortization
  2. Operating Costs
  3. Haul to MRF

CIF Depot Costing Model – At a Glance…

Depot Components (Units)	Amortization Period	Amortization Payment	Quantity	Cost per Unit	Total Cost	Best Practices	Blue Box	Wood	Metal
Site Lighting (light poles)	15 years	$53	1	$800	**$800**	Site lighting is required when hours of operation extend past day light hours. Number of poles on site will depend on pole height, lighting intensity. Lighting on average costs approximately $100 / square metre	yes	no	no
Site Electrical (per square metre)	20 years	$0	0	$90	**$0**	Connect to permanent electrical power source from the street if available. Average $2,000 per utility pole. Cost for utility poles have been included in sq. metre cost	no	no	no
Water/ Sanitary (per metre)	20 years	$0	0	$500	**$0**	Potable water supply is required for depot staff. Either connect to City services or provide bottled water and well for non-potable uses. Connect washrooms/shower to sanitary sewer or construct septic system.	no	no	no
Septic Installation (per unit installed)	20 years	$0	0	$25,000	**$0**	Drilled well and septic system installation. The example cost This cost would be representative of a system to meet the needs of 3-4 staff.	no	no	no
Landscaping (per square metre)	20 years	$0	0	$100	**$0**	Landscaping can be used as a visual incentive for site residents to use a depot. An aesthetically appealing, clean site will attract more users and can include grass space, trees, and other vegetation. Muddy and dusty areas should not be present in high traffic areas.	no	no	no
Litter Fence (per metre)	10 years	$0	0	$100	**$0**	Litter fencing should be placed in an area where wind is most likely to carry litter off site. Local assessment will be needed to determine best locations. Standard fence is 8 feet tall.	no	no	no
Fencing (per metre)	15 years	$180	36	$75	**$2,700**	Chain link fencing with barbed wire (where permitted) at the top around the perimeter of the site minimizes vandalism, animals and illegal dumping. Other materials can also be used for fencing to visually separate the site if needed. Site gates and fencing should be regularly maintained and locked during non-operating hours. Fence height should be 2m high at a minimum.	yes	no	no
Kiosk (per square metre)	15 years	$0	0	$1,700	**$0**	A small kiosk can be used for one site staff to provide direction, site information, and collect fees upon entering/exiting the site. Basic kiosk design should include a fully sheltered structure with a seat and desk for an attendant at a minimum. More comprehensive designs can also include washroom facilities, lunch room areas, etc..	no	no	no

Capital Amortization for My Project

Capital expenditures

- 4 cubic yard dump style bins
- Site preparation
- Paving & concrete curb
- Signage

Annualized Cost & Allocation

- Each capital item amortized separately
- Present value method
- Assigned to program (Blue Box)

Depot Components (Units)	Amortization Period	Amortization Payment	Quantity	Cost per Unit	Total Cost	Blue Box	Wood	Metal
4 Yard Bins	7 years	$2,286	4	$4,000	**$16,000**	yes	no	no

Operating Costs

Costs relating to operations

- Staffing
- Utilities
- Processing

- Allocation of annual costs
- Annual Cost per Unit (Operators Salary)
- Estimate % to program (Blue Box)

Operational Requirement	% Used for Blue Box	% Used for Other Waste Management	% Used for Non-depot Activities	Annual Cost per Unit	Depot Cost	Blue Box	Wood	Metal
Loader Operator (% FTE)	10%	0%	90%	$64,500	$6,450	yes	no	no

Hauling to MRF

	Fibres	Containers	Stryofoam
Recycling (tonnes)	100	100	100
Volume (cubic metres)	1085	2070	5000
Compaction	2	2	1
Vehicle volume (cubic metres)	108	108	108
Annual loads	6	10	47
Cost per pickup	$120	$120	$120
Annual haul cost	$720	$1,200	$5,640

The Bottom Line

- Cost allocations
  - Programs (Blue Box vs. Garbage vs. Shingles)
  - Streams

	Total	Fibres	Containers	Stryofoam
Annual tonnes	418	266	127	1
Monthly volume (m^3)	464	240	220	4
Annual cost	**$145,506**	**$89,726**	**$48,342**	**$504**
Annual cost per tonne	**$348**	**$338**	**$379**	**$503**

Key Learnings – Comparing the Budget vs. Actual

- If you build it, they will come…
  - 300 – 500 vehicles per day
  - Clean-up from weekend dumping
- Adjustments to the plan
  - Additional staff, hours of operation
- Annual additional costs for depot
  - $40,000

Evaluation of Model - Benefits

1. Comprehensive list of costs
   - No eligible costs forgotten

2. Spreadsheet structure & formulae
   - Does the work for you

3. For landfill / blue box depot operations
   - Cost allocations btw programs (garbage, tires, etc.)
   - Cost allocations btw material streams (fibre, containers, etc.)

Conclusions & Next Steps

- Uses
  - Budget planning amongst programs
  - Assessing compensation under EPR
- Recommendations/improvements
  - Costs assigned to municipal account codes
  - Costs assigned to individual Blue Box materials

Acct #	Description	Amount
0302-0101	Transfer stn – full time	50,700
0302-0102	Transfer stn – over time	1,850

- CIF will be re-releasing the depot costing model soon! Stay tuned…

Collection Contract Cost Modelling
CIF Project #965

Kate Dykman

City of Vaughan

CIF
CONTINUOUS IMPROVEMENT FUND

Project Highlights

- Project goal: Prepare budget estimate for new collection RFP & test CIF collection costing model
- Impacts: Improved understanding of cost generating activities & connection to RFP/contract provisions
- More information:
  - kate.dykman@vaughan.ca

Background – A Very Long Contract

- Initial Contract – Jan. 2006
  - 5-yr. term ended Dec. 2010
  - Four extensions to the contract, ending Dec. 2017

- Significant changes during this period
  - Weekly garbage → biweekly
  - Added residential organics collection

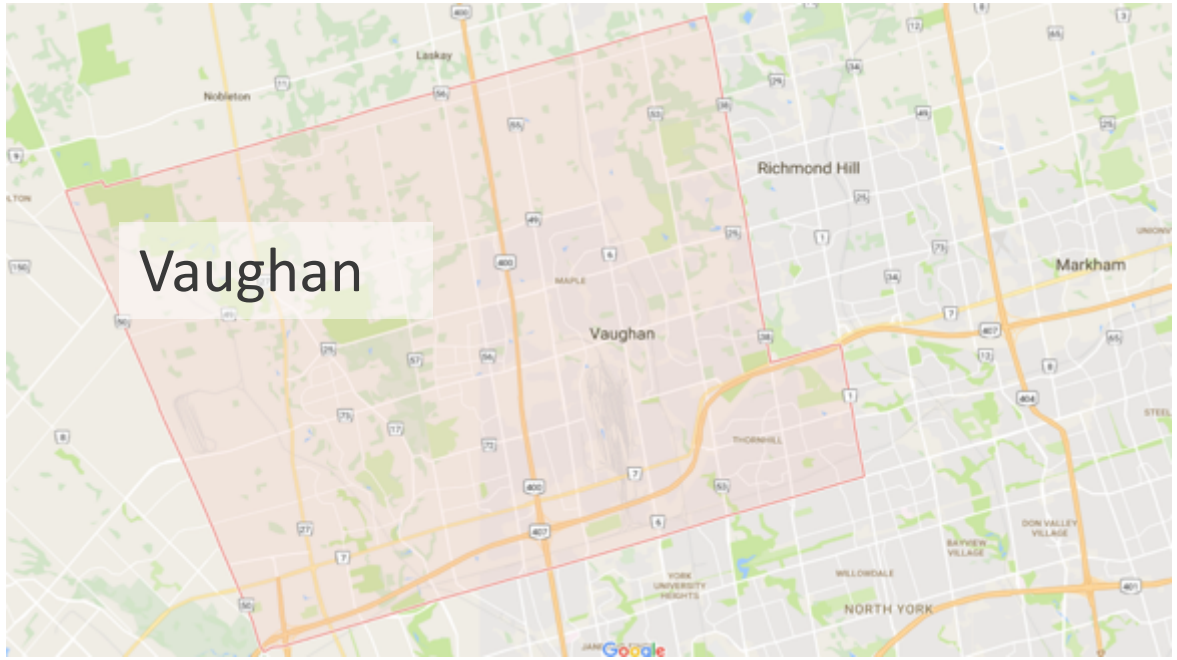
The Big Questions

- What should we budget for the contract?
- What is the optimum contract length?

- Options:
  1. Take current contract price and add 5-10%
     - Simple, but includes significant assumption
  2. Estimate contract cost
     - More complex, but can increase accuracy of estimate

CIF Collection Cost Model

- Cost components to build costing model
  - Vehicles
  - Labour estimates
  - Licensing, insurance, maintenance
  - Fuel use
  - Contractor overhead



Collection Vehicle Centred Costs

- Value of annual amortized cost (like car payments)
- Staffing level needed for service
- Proscribed amounts for maintenance, insurance, etc.

Category	Capital Cost	Amortization or Rate	Annual Payment or Unit Cost	Units	% Allocation of Unit	Annual Cost
Collection vehicles	$100,000	7 yr.	$17,914	1.0	100%	$17,914
Salvage	$10,909	7 yr.	($1,954)	1.0	100%	($1,954)
Full Time Collection Staff			$76,361	1 FTE	100%	$76,361
Maintenance		5%	$5,000	1.0	100%	$5,000
Insurance, licensing, CVOR, etc.		1.5%	$1,500	1.0	100%	$1,500

Estimated costs are reflected in this table

Other Collection Costs

Fuel use components

1. Residential route length
2. Distance to transfer point
3. Idling time – a function of households

Contractor overhead

1. Non-collection staff
2. Buildings & yard

Results

- Bid awarded ($8.7M)
- Historical data as a predictor of future costs
- Revised model to reflect service changes

Key Learnings

- Timing & Capital costs
  - USD:CD Exchange rate
- More data is good data
  - Vehicle listings & use reports
- Historical information
  - Is it reliable?
  - Consider alternate scenarios

Next Steps

- Future uses
  - Budget planning and/or negotiating midterm service delivery changes
  - Assessing compensation under Extended Producer Responsibility (EPR)

- Recommendations – improvements to model outputs
  - Costs assigned to municipal account codes
  - Costs assigned to individual Blue Box materials

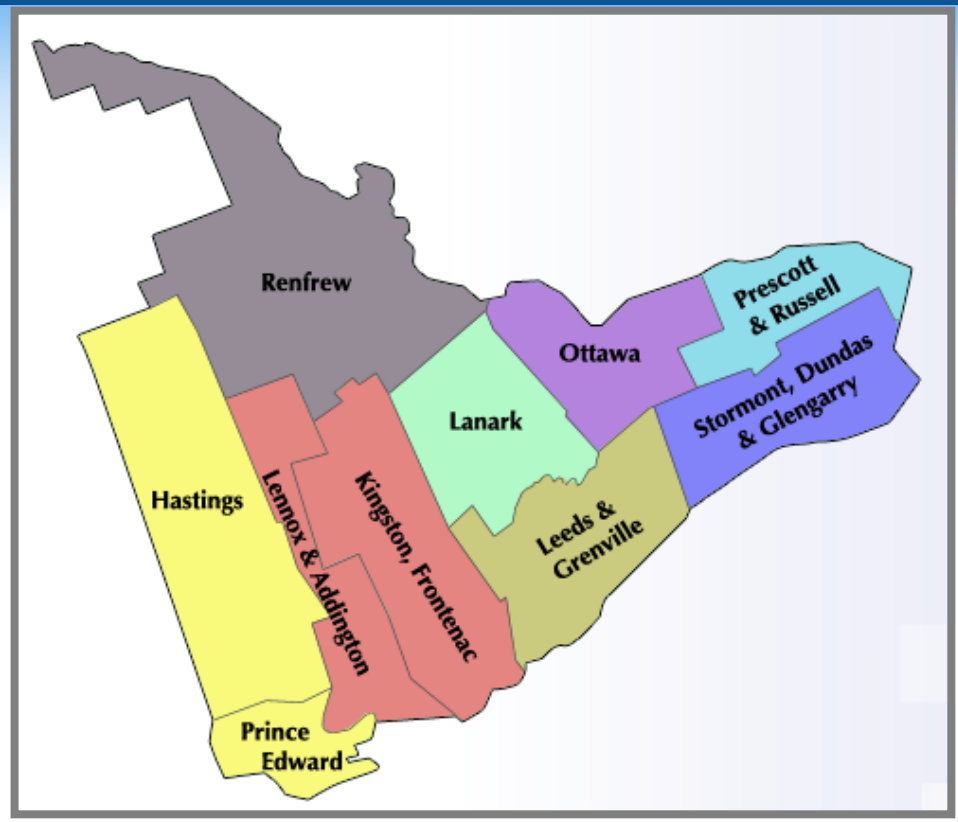
- CIF will be releasing the collection costing model soon! Stay tuned…

Developing a Collaborative Processing Hub in Eastern Ontario
CIF Project #817

Heather Roberts

City of Kingston

Project Highlights



- Project goal: Verify if City could be cost competitive within Eastern Ontario if MRF was expanded to 25,000 tpy
  - Sub-goal: Get tonnes & build relationships
- Impacts:
  - Shortfall of tonnage
  - Beneficial processing model
  - Putting together an Eastern Ontario Collaboration
- More information:
  - hroberts@cityofkingston.ca | www.cityofkingston.ca/waste | #wastenotygk

Two R's
Rationalizing Regionalization

- **Question: Should Kingston expand the MRF?**
  - Problem 1: Are there enough tonnes?
  - Problem 2: Single stream or Dual stream?
  - Problem 3: Do we have the cash?

- 2015 MRF Regionalization Study
  - Preferred option of 25,000 tpy, dual stream
  - $7.2M
  - Enough tonnes in eastern Ontario to support
  - But…legislation is changing

Two R's
Rationalizing Regionalization…**HOLD PLEASE…**

- June 2015 – Project paused
- November 2015 – Draft WFOA released
- Q1 – Q2 2016 – WFOA Consultation
- June 2016 – WFOA Passed
- September 2016 – Re-open Project
- Q3 2016 – Q1 2017 – Validation Review
- Q2 2017 – Staff recommendation & Council Approval

Two R's
Rationalizing Regionalization

- **Question: Are the 2015 findings still valid?**
  - Problem 1: Are there enough tonnes?
  - Problem 2: Cost competitive?
  - Problem 3: Do we have the cash?

- 2017 MRF Validation Review
  - Municipalities reporting $0/tonne for processing
  - Likely not cost competitive
  - Capital & operating projections look accurate
  - Price tag up to $7.6M (2018)

SWOT Analysis

Strengths	Weakness/Risks
• Geographic location (identified as a viable option in MIPC Study) • Eastern Ontario Municipal Collaboration • Long standing operation • $5M	• Tonnage supply • Hauling costs • Stranded asset
Opportunities	**Threats**
• Lower costs • Collaborating with other municipalities • Expand /Attract the MRF • System improvements	• Legislation/Regulations • Other external unknowns

Rational Approach

Get some tonnage

Tonnage justifies expense

Tonnage + $ = MRF expansion

Build attracts more municipalities to haul to Kingston

Brings greater supply of tonnes

Reduce costs

Leads to deal with Producers

Avoidance of stranded asset

Eastern Ontario Collaborative Approach

- Updates on project status
- 1st Eastern Ontario Municipal meeting on April 28, 2017
- 31 municipal leaders in attendance
  - WFOA Update
  - What's on our minds about the WFOA
  - Opportunities in Kingston
  - Continue to research programs
  - Eastern Ontario values
    - What do our customers care about?
    - What do they value about the programs?
    - What's unique about us

Results & Approach

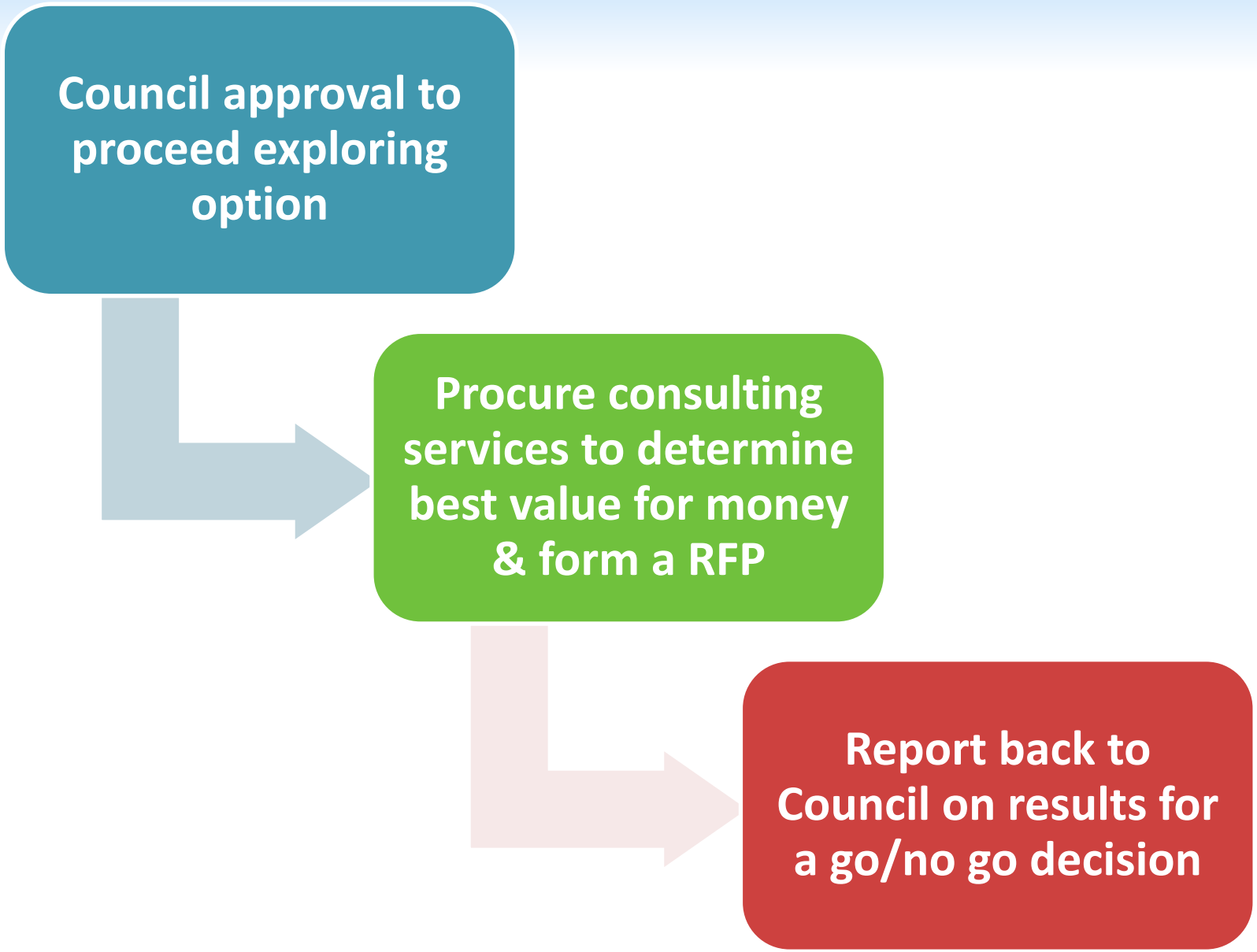
Results:

- Shortfall of municipal tonnage
  - Additional tonnage from IC&I sector or external companies necessary
- Est. expansion cost of $7.6M
- Municipalities are interested
- $5M in 2018 capital
  - $2.6M shortfall of funds
  - Kingston will need to find a partner solution at the design/build stage
- Corporate management and Council support for expansion
- Status quo approach leads to exit from business

Approach/Action:

- Continue to explore the preferred expansion option

Next Steps


Council approval to proceed exploring option
Procure consulting services to determine best value for money & form a RFP
Report back to Council on results for a go/no go decision

CIF
CONTINUOUS
IMPROVEMENT FUND

Closing Remarks

CIF
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Thank you!

Please complete ORW survey next week

See ORW slides & webcast archive:
thecif.ca/ontario-recycler-workshop-orw/

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