# CIF Centre of Excellence

Carrie Nash

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# Centre of Excellence

- July 2011 MIPC directed CIF to develop & operate a knowledge based centre of expertise focused on:
  - Program cost savings opportunities
  - Stakeholder Advisory Services (strategic program decisions)
  - BP compliance, BP development & data call management
  - RFPs, tenders &recycling plan support
  - Training opportunities
  - Problematic Materials Management
  - Performance Auditing

# Implementation

- Outreach
  - Individual & group meetings, consultations, ORWs, round tables & training & support
- Electronic Communication
  - Connections, P&E shop, contracts database, WRS templates, how-to guides & tool kits
- 360° feedback

# Round Table Series

- Current recognized BPs are in need of replacement with more meaningful practices
- Round Tables are an example of CIF's improved efforts to evaluate project results, identify key learnings, develop tools & resources & engage stakeholders
- Round Table findings will aid in the identification & development of new Better Practices

# Monitoring & Measuring

- Effective monitoring & measuring is critical to ensuring programs are performing as anticipated
- Many municipalities struggle with tracking & evaluating the results of their projects & overall programs
- The October 2013 course will focus on developing practical, easy-to-use measuring & monitoring plans

# Contract Management

- Effective Contract Management
  - Can present significant savings, limit liability & maximize diversion potential
- Contract Management Plans
  - Eliminates guess work, improve responsiveness & ability to resolve issues

# 2013 & 2014 Activity Schedule

- Round Table Series
  - Six sessions are anticipated throughout 2013
- Contracts Management
  - April 10, Kingston
- Benchmarking & Measurement
  - October 2013
- Fundamental Principles in Recycling Planning
  - Early 2014

# Speakers

- Cheryl Crawley, Niagara Region
  - Managing Curbside Collection for Niagara Region
- Danielle Luciano, Durham Region
  - Managing Curbside Collection for City of Oshawa & Town of Whitby
- Michele Slater, District of Muskoka
  - Two-Stream Recycling Collection in Muskoka

# Managing Curbside Collection for Niagara Region

Cheryl Crawley

Niagara Region

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# Contract Management Course

- Goal:
  - Gain knowledge & understanding of Niagara Region waste & recycling contract
- Anticipated impacts of Contract Management Course:
  - Assist with day to day dealings
  - Able to contribute to management discussions & future improvements
- More information:
  - cheryl.crawley@niagararegion.ca/www.niagararegion.ca

# Contract Description

- Collection Contract:
  - Weekly curbside collection of 2-stream residential BB recycling in Niagara Region
  - Contract term: February 28, 2011 to March 2, 2018

# Impacts If Issues Are Not Managed (1)

| Issue Type | Impact Example | Who Does it Affect? | Why Does this Happen? |
|---|---|---|---|
| Service Related | Late or missed collection of waste & recycling | Residents, staff, contractor | • Untrained contractor staff<br>• No contingency plan in place |

# Impacts If Issues Are Not Managed (2)

| Issue Type | Impact Example | Who Does it Affect? | Why Does this Happen? |
|---|---|---|---|
| By-Law Related | Improper bin placement, over the limit collection, not tagging properly | Residents, staff, contractor | • Untrained or inattentive contractor staff<br>• Communication gaps between staff & contractor |

# Impacts If Issues Are Not Managed (3)

| Issue Type | Impact Example | Who Does it Affect? | Why Does this Happen? |
|---|---|---|---|
| Liability Related | Insurance &/or performance bond not in place | Residents, staff, contractor | • Communication gaps between staff & contractor<br>• Inattentive contractor staff |

# Course Benefits & Behavioural Changes

- Expanded knowledge & understanding of Niagara Region waste & recycling contract
- Time saved when dealing with contractor issues by knowing where to reference in contract
- Ability to communicate with staff & contractor on advanced level

# Managing Curbside Collection for City of Oshawa & Town of Whitby

Danielle Luciano

The Regional Municipality of Durham

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# Contract Management Course

- Goal: Improve understanding & management of current curbside recycling contract
- Anticipated impacts:
  - Better understanding of roles & responsibilities of contract administrator & contractor
  - Obtain new tools to organize & manage current & future contracts
- More information:
  - danielle.luciano@durham.ca/www.durham.ca/waste

# Contract Description

- Collection Contract:
  - Weekly curbside collection of 2-stream residential BB recycling in City of Oshawa & Town of Whitby
  - Contract term: July 1, 2007 to June 30, 2014 (options end date - June 30, 2016)
  - Number of stops: 83,835 (Oshawa & Whitby)

# Impacts If Issues Are Not Managed

- Potential Impacts:
  - Decreased efficiency in delivering service
  - Increased complaints from area residents
  - Escalation of issues due to repeated complaints
    - Involvement of local councillors, Regional Chair, Director of Waste
  - Poor relations between Region & contractor

# Take Away (1)

| Take Away | Staff Impact | Example |
|---|---|---|
| Improved communication & strategic planning | Regular meetings<br>• review complaint logs<br>• discuss concerns<br>• plan corrective actions | • Cardboard & Heavy BB<br>• Meet to resolve issues with oversized cardboard & overweight BB |

# Take Away (2)

| Take Away | Staff Impact | Example |
|---|---|---|
| Improved ability to understand liquidated damages | Consider incentives for contract compliance | • Move from arbitrary $$ amounts to substantiated $$ |

# Take Away (3)

| Take Away | Staff Impact | Example |
|---|---|---|
| Improved awareness of planning & timeframes | Document issues & deficiencies in contract for new tenders/RFPs | • Permits time to develop tender<br>• Lead to improvements in next contract |

# Benefits of Improved Contract Management

- Progress to date/results/findings
  - Better understanding of contract administrator & contractor's roles & responsibilities
  - Improved communication between all parties
  - New tools to organize & manage current & future contracts


# Two-Stream Recycling Collection in Muskoka

Michele Slater

The District Municipality of Muskoka

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# Contract Management Course

- Goal:
  - Improve knowledge of collection contract
  - Better guide my working relationship with contractor for curbside collection of BB materials
- Anticipated impacts:
  - Better understanding of role/responsibility in managing collection contract to improve value of service for customers & ratepayers
  - Use knowledge & experience toward future contracts tendering & management
- More information:
  - mslater@muskoka.on.ca/www.muskoka.on.ca

# Contract Description

- Weekly door to door collection of residential BB recycling for eligible areas in District of Muskoka
- Contract Information:
  - Term: November 19, 2002 to November 18, 2017
  - Number of winter season stops: 26,500
  - Number of summer season stops: 37,000
  - Eligible materials: specified within contract

# Impacts To Municipality If Contract is Not Managed

- Potential impacts:
  - Customer confusion & uncertainty
    - may result in less participation & more garbage
  - Increased resident complaints when material left behind
    - may result in escalation to council & upper management to correct
  - Poor relations between District & contractor
  - Decreased material collected & delivered to recycling facility toward municipal revenues

# Take Away (1)

| Course Take Away | Behaviour Change | Specific Example |
|---|---|---|
| Improved working relationship with contractor due to understanding of:<br>• Roles & Responsibilities<br>• Interpreting Clauses<br>• Ensuring Value for $ | Staff now have<br>• More knowledge & recognize where contractor obligations not met<br>• Prompt cooperation from contractor to resolve issues | Missed pick ups:<br>• Confidence to direct contractor to collect missed pick ups<br>• No reluctance to hold contractor accountable. |

# Take Away (2)

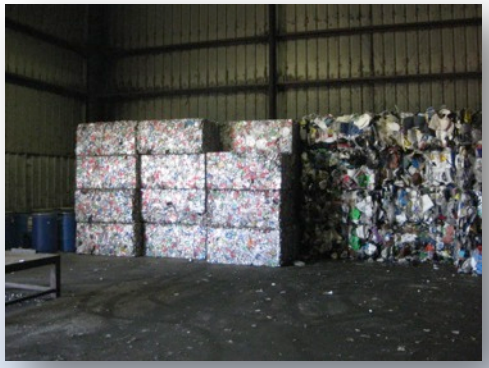
| Course Take Away | Behaviour Change | Specific Example |
|---|---|---|
| Improved ability to anticipate problems:<br>• e.g. seasonal collection staff & population | Staff now:<br>• Consider potential solutions<br>• Work out logistics well in advance of challenges | Contractor Meetings:<br>• Plan to meet with contractor before summer to discuss strategies to manage seasonal residents, contractors & seasonal staff training |

# Take Away (3)

| Course Take Away | Behaviour Change | Specific Example |
|---|---|---|
| Greater ability to recognize opportunities for ongoing improvement | Staff now:<br>• Identify problematic contract clauses or missing clauses<br>• Make plans to change them in next contract. | "Clean up within a 3 m radius of spill":<br>• e.g. of reasonable clause that - difficult to hold anyone accountable to; should be removed before next tender |

# Benefits of Taking the Course

- Progress to date/results/findings
  - Increased knowledge & organization resulted in effective & timely issue resolution
  - Improved value of service for customers & ratepayers
  - Use knowledge & experience toward future contracts tendering & management
  - Better District /contractor communication & relationship



# Questions?

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# Collection to End Markets: Small Changes Yield Significant Improvements

Mike Birett, CIF

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# Successful Diversion = Strong Supply Chains

- Successful diversion requires:
  - Effective recovery
  - Efficient collection
  - Responsive processing
  - Stable markets

# Reality is Challenging

- Volumes are expanding
- Over half the Provincial tonnage originates outside the GTA
- New materials require capital investments
- Market development is fraught with issues

# Speakers

- Mike Mostow, City of Kenora
  - Public Space Recycling, City Of Kenora
- Rick Clow, Quinte Waste Solutions
  - Material Recovery Facility Upgrades
- Martin Vogt, EFS Plastics Inc.
  - EFS-plastics: Sustainable Plastics Processing for Domestic Recycling Programs
- Joseph Hall, CPIA
  - Flexible Film Plastics Packaging Project

# Public Space Recycling
# City Of Kenora

Mike Mostow

City of Kenora

CIF # 637.13

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# #637.13 & Kenora

- Kenora is a small City with a population of 15,772
- Population of Kenora increases to ~45,000 due to visitors in summer
- Kenora is located 2,000 km west of Toronto, 200 km east of Winnipeg

# Project Highlights

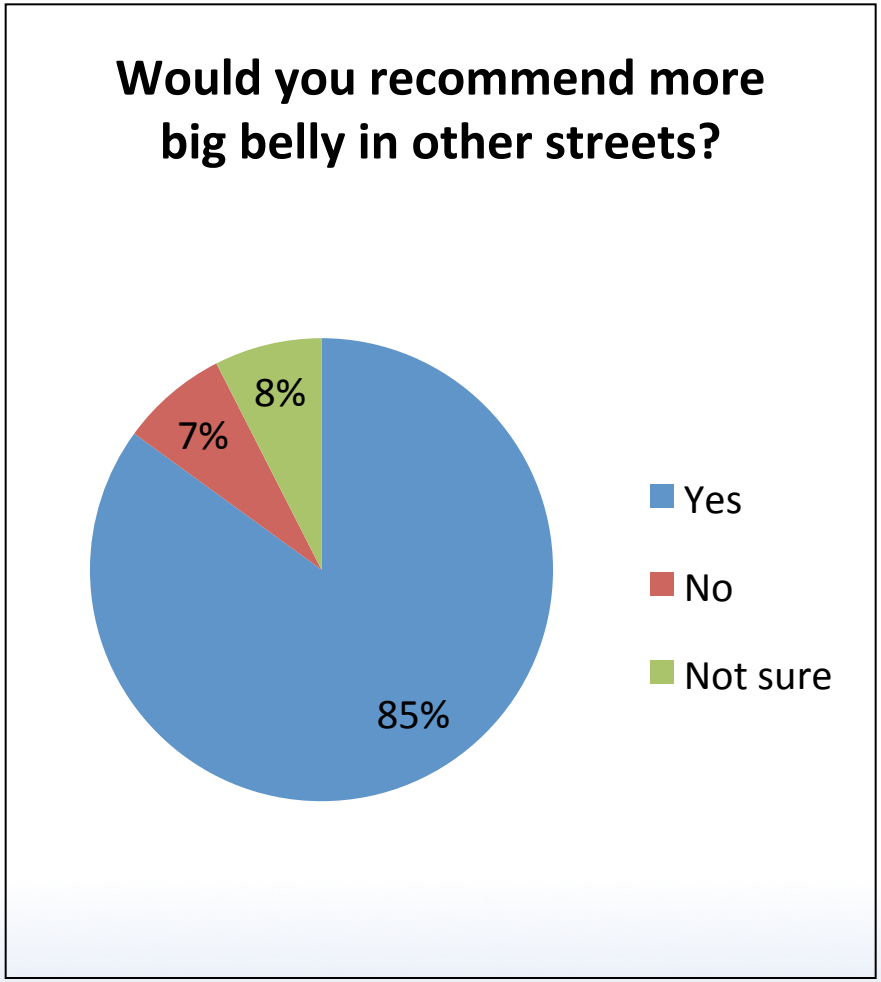
- Project goal:
  - Introduce public space recycling to visitors & residents
- Anticipated impacts:
  - Increase recovery from public spaces & decrease litter in downtown core
- More information:
  - mmostow@kenora.ca/www.kenora.ca
  - mpokharel@kenora.ca/www.kenora.ca

# Project Details

- Installed 16 solar powered units in 2011 for recyclables
  - Capital cost/unit: $5,000
  - Operating cost/unit: 20 Bags
- Big Belly advantages for Kenora:
  - aesthetically pleasing
  - GHG reduction
  - data collection
  - remote scheduling for pick up
  - P&E on side of bins

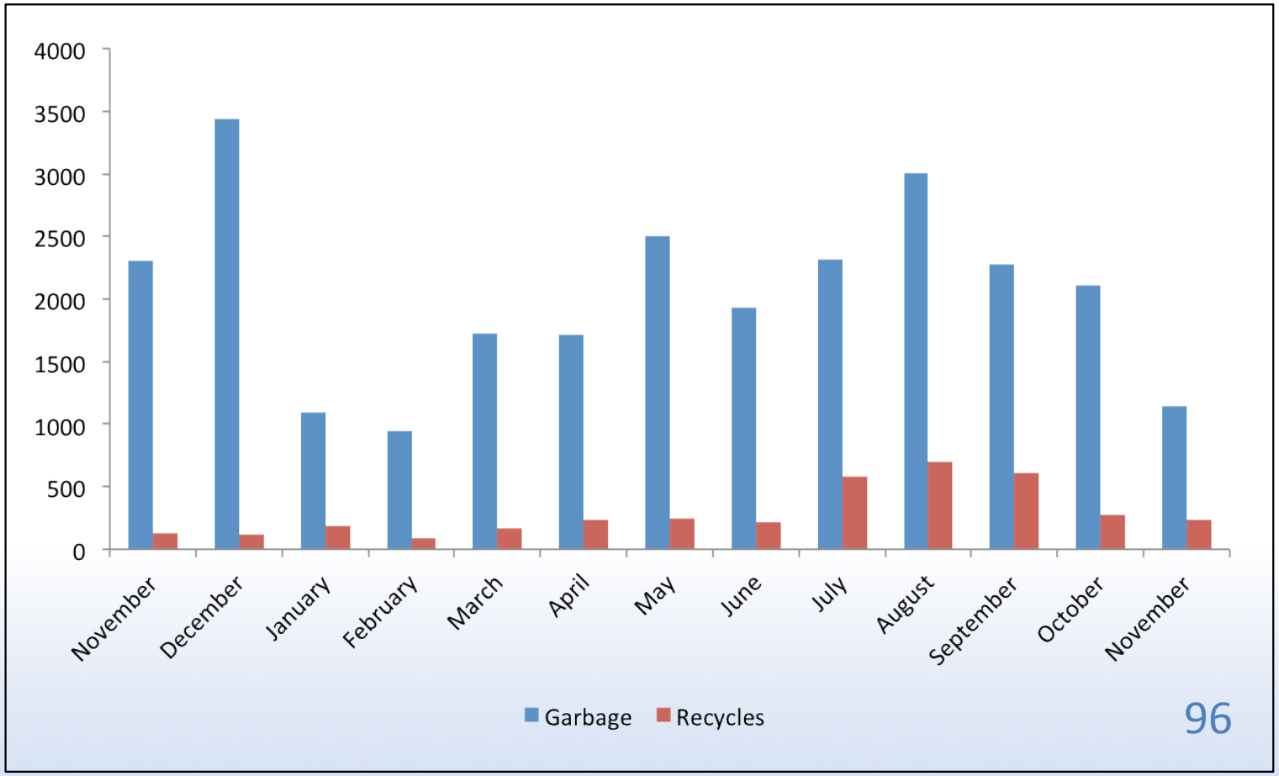
# Why this Project?

- Numerous requests from residents & visitors
  - Daily emptying of garbage receptacles
  - Collected waste materials included high recycle content
  - Free up staff for other tasks



# Impacts in 2012

- Collected
  - 24,000 kg of garbage from public spaces receptacles
  - 4,000 kg of recycle; emptied 1.6 times/month (average)
- Other impacts:
  - Staff collection time cut in half; increased ad space



# Collection to Processing

- Materials collected are largely recyclables
  - pop cans, paper, coffee cups & lids, small cardboard boxes, PET single serve bottles
- Sent to comingled area of transfer station
  - materials such as liquids & styrofoam are sent to landfill
- Significant cost savings compared to other public spaces containers in labour & trucking
  - $8,125 in labour costs
  - ~436 km (plus fuel & GHG emissions)

# Next Steps

- Let's expand
  - With such easy public participation, plan to install more
  - Kenora will install another 10 combination units in 2013
  - Eliminates scavenging

# Safety?

- Staff safety is important
  - Needle stick punctures are a health hazard
  - Soft tissue injuries are common in the collection industry
  - Overflowing receptacles are unsightly & unhealthy

# Best Practice

- 4,000 kg may not be much, but…
  - The City saved $8,000 the first year in staff collection cost & reduced GHG emission
  - Contamination rates are low
  - Results available from CIF Report #637.13



I'M HUNGRY FOR RECYCLING
YUM YUM
I'M HUNGRY FOR RECYCLING
I'M POWERED BY THE SUN. I COMPACT YOUR RECYCLABLES AND CAN HOLD 5X MORE THAN A REGULAR GARBAGE BIN.
DO YOUR PART. FEED THE BIG BELLY!
I'M HUNGRY FOR RECYCLING
I'M POWERED BY THE SUN. I COMPACT YOUR RECYCLABLES AND CAN HOLD 5X MORE THAN A REGULAR GARBAGE BIN.
Waste Diversion Ontario
CIF
YUM YUM
KENORA'S CUTTING EDGE RECYCLE BINS ARE ON THE STREET & READY TO USE!
DO YOUR PART & FEED THE BIG BELLY.


BigBelly
YUM YUM
I'M HUNGRY FOR RECYCLING
DO YOUR PART. FEED THE BIG BELLY!

# Material Recovery Facility Upgrades

Rick Clow

Quinte Waste Solutions

CIF Project #137

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# Project Highlights

- Project goal: upgrade/update aging MRF to respond to increased tonnages & new materials
- Anticipated impacts: increase capacity, efficiency & revenues
- More information:
  - rick@quinterecycling.org/quinterecycling.org

# Background (1)

- Centre & South Hastings Waste Services Board provides waste diversion services to 68,000+ HH
- Original MRF section built in 1990
- 'Blue box 2000 plus' original annual through-put estimate: 8,000 mt
- Fibre line upgrades to bunkers pre – 2000
- Tipping floor expansion & baler replacement 2002

# Background (2)

- Current annual throughput: ~14,000 – 16,000 mt
- Tipping floor backlogs due to:
  - Combining OCC in fibre compartment for existing tender/ contract savings resulted in uptake conveyor slowdowns
  - Substantial increase in plastic containers
  - Downtime due to:
    - Container line sorting cage changes
    - Repair aging equipment

# Tipping Floor Backlogs

Fibre Side

Container Side

# Former Uptake Conveyors

# Project

- Replaced fibre line uptake conveyor,
- Enhanced fibre sort line: belts, stations
- Rebuilt container line:
  - New, relocated, uptake conveyor
  - Extended sort line length, added pre-sort stations
  - Added “eddy current” to increase aluminum capture
  - Raised height of line added bunkers
    - no more cages!

# From Cages to Bunkers

# New Tipping Floor Uptakes

# Results

- Increased through-put & decreased downtime
  - 406 hours to zero
- Increased efficiency for contractor
  - No injuries or second shift since rebuild
- Increased capacity (= revenue) for QWS
- Reduced maintenance costs, contamination & residual
  - down 150 mt/a
- Non-sort loss reduced by $14,000 p.a.

# Cost-sharing

- Total cost: ~$606,000
  - QWS: $163,000 capital plus covered revenue loss, etc.
  - CIF: $142,800 (Project #137)
- Contractor: $300,000 cash, equipment & labour
- Other (QWS):
  - $126,000; baler & uptake conveyor rebuilds
  - $105,000; ramp rebuilds, paving, yard/scale

# EFS-plastics: Sustainable Plastics Processing for Domestic Recycling Programs

Martin Vogt

EFS-plastics Inc.

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# Agenda

Thank you for letting me speak at this event. I would like to take this opportunity to provide you with an update on:

- Project update @ EFS-plastics
- Processing Capacity @ EFS-plastics
- Market Supply Situation (Mixed plastics & Curb Side Film)

# Project Update

Since May 2012 we've invested over $6,000,000 in:

- Our own processing facility with 39,000 sq. ft. & enough real estate for a 160,000 sq. ft. facility
- The infrastructure (waste water, hydro, gas, etc.) for a total of 40,000 ton/year processing capacity
- A new processing line with the capacity of:

  7,000 ton/year mixed plastics

  2,700 ton /year curbside collected film

# Project Update

In 2013 we will be investing another $1,000,000 for:

- a new Film reprocessing line with a capacity of approx. 3600 ton/year
  - Mid May 2013 our new Film Extruder will go into production
  - End of Summer 2013 our new Film Processing Line will go into production

# Why did we invest all this money?

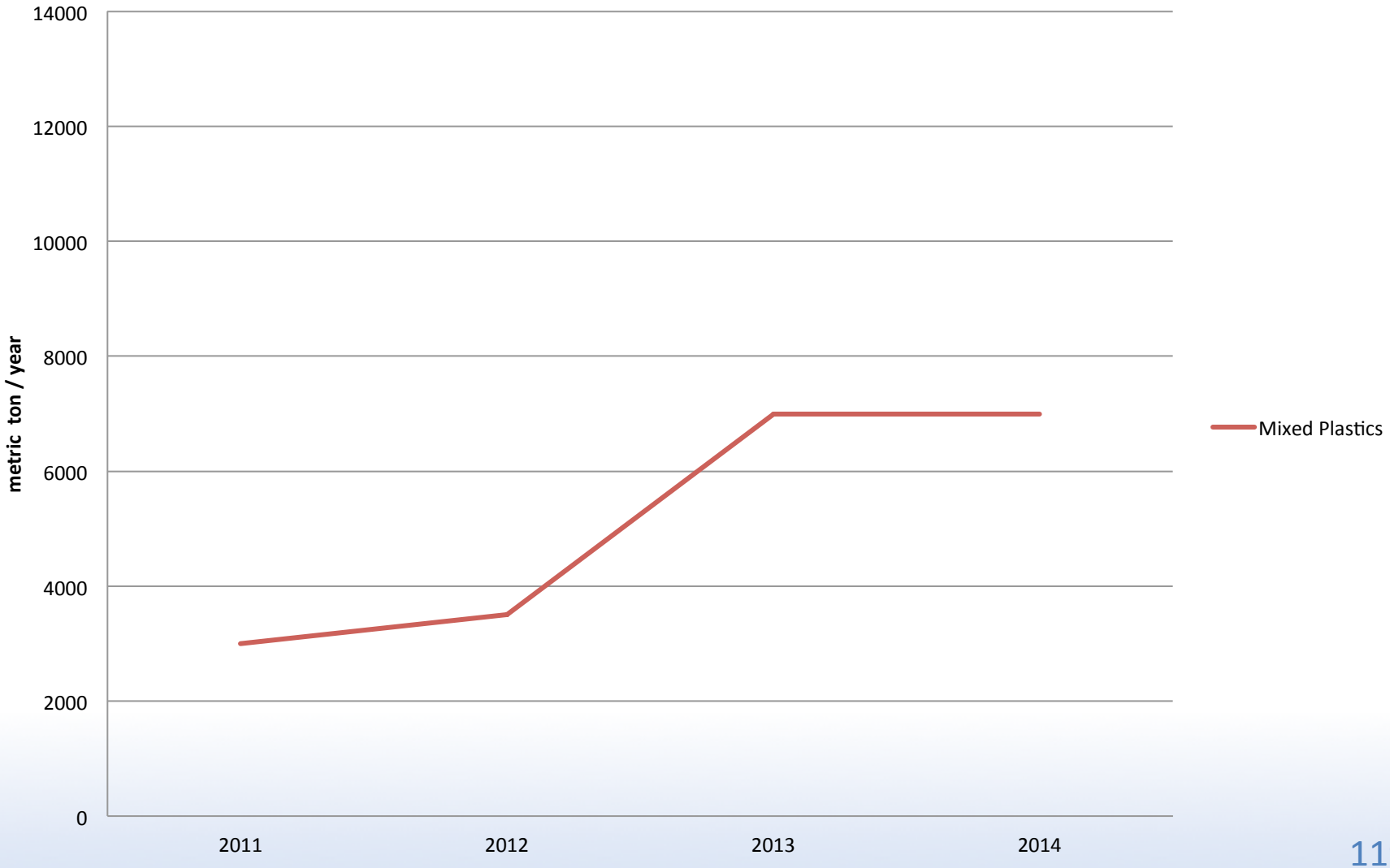
**Because, we believe that Post-Consumer Plastic Recycling is still at an early stage of development, and that's why we needed:**

- To find a new location with lots of potential for future growth
- To have the ability to do more research and development
- To recycle more types of material and therefore increase the recovery rate
- To increase our capacity

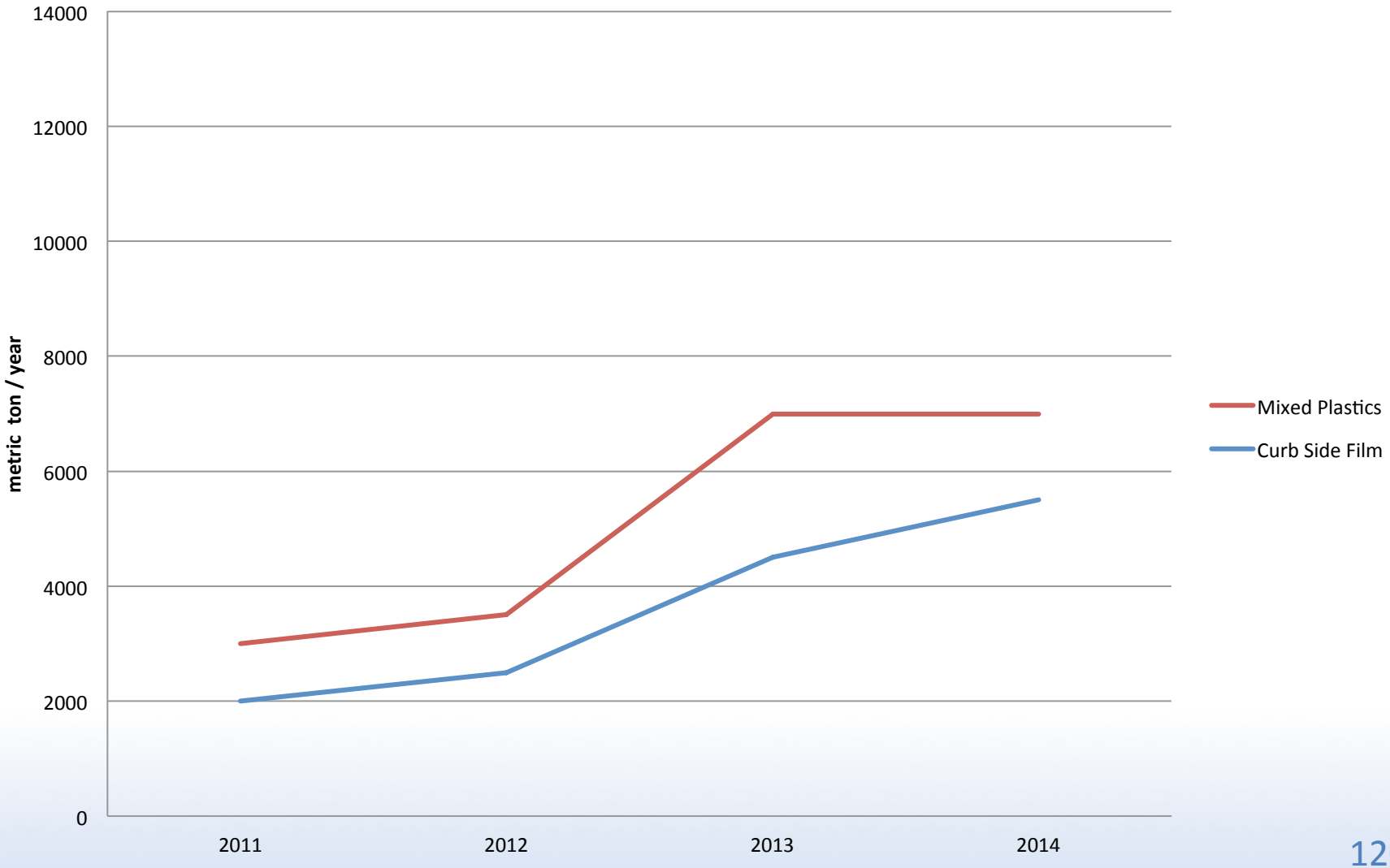
# New Facility

5788 Line 84,  Listowel,  ON,  N4W 3G9

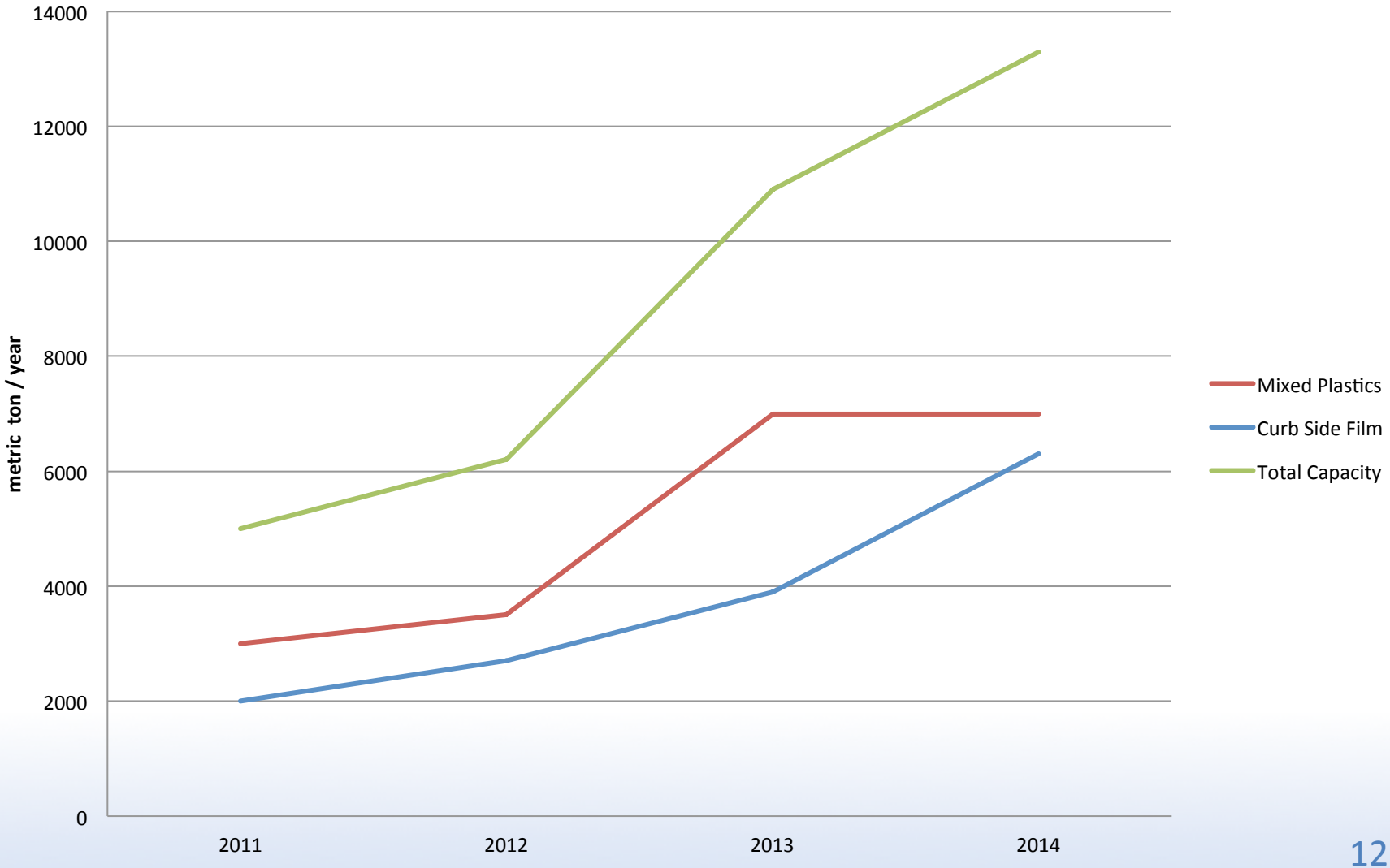
# Processing Capacity



# Processing Capacity



# Processing Capacity



# Market Supply Situation

**Facts:**

- The North American Blue Box Recycling systems rely on overseas end markets
- Overseas markets changed import regulations of plastic waste to reduce pollution (mixed rigid & film plastics).
- North America has limited domestic processing capacity for recyclable plastics - especially mixed plastics & film.
- The US is just starting to collect recyclable materials, which means that we can expect even higher volumes of those materials on the market
- With the increase of shell gas production in the US, it is predicted that the price for PE and PP will drop in approx. 3-4 years, therefore the price for repro resins as well.

# Potential Market Impact

- Pricing for mixed rigid & film plastics may drop
- Some collected/sorted plastics unlikely to find home
- US/Canada municipalities will have to clean up plastic streams
  - sorting costs may increase while recovery rates drop
- Potential impact on plastic recycling reputation
  - if limited processing capacity results in material being shipped to landfills

# Overseas (Chinese) Import Regulations: How long?

- No change in immediate future
- Fact is, that only registered recyclers (the ones complying with the environmental regulations) will be allowed to import in the future.
- Some Brokers are trying to ship material to other overseas countries.
- Despite the small volume that could move this way, it is still **not a sustainable solution**.

# What is a sustainable Solution?

- To collect and recycle more materials in a sustainable way
- To build more local processing capacity of mixed plastics and curb side collected film
- To have the capacity built over the next 2-3 years before margins drop to a minimum due to shell gas production in the US.

# Solutions to Increase local Capacity

Municipalities, Cities and the Provinces need to show their support not only by collecting and sorting, but by signing long-term agreements to guarantee feed stock for processors.

**The industry needs supply agreements to attract investors.**

**No processor is investing $4-5 million dollars without knowing, feedstock is guaranteed.**

# Why would you not support a local solution?

- local end markets are always available
- local end markets are able to offer long term agreements
- local end markets create jobs
- local end markets lower the carbon foot print
- local end markets help to improve recovery rates by doing more research and development
- local end markets pay market price

# Local end markets are creating:

Local end markets are creating products you are using daily with local workforce

# Conclusion

- We know the technology
- We have a local and sustainable process
- We have the end markets
- We have proven to be an honest and reliable partner to the Industry, Cities and Municipalities over the past 6 years.

**Without the support from Municipalities, only very small steps can be taken and it will take a long time until enough processing capacity is available.**

Thank you

# Flexible Film Plastics Packaging Project

Joseph Hall
Plastics Post – Use Recovery Consultant
Canadian Plastics Industry Association

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# Funding Stakeholders & Team Members

- Funding Consortium
  - Stewardship Ontario
  - Continuous Improve Fund
  - Canadian Plastics Industry Association
- Project Advisor
  - PAC Next: Material Optimization Committee
- Consultant Team
  - Reclay StewardEdge
  - With Resource Recycling Systems & Moore Recycling Associates

# Project Scope

**Examined**

- Film & multi-layered packaging composition & trending
- Current & Future reprocessing markets
- Sorting Technologies
- Collection & processing methodologies
- Conversion & Energy Recovery technologies
- LCA & alternative designs

# Defining Film

- < 10 mils & bags ≥ 85% plastic
- Focused on packaging films categorized as:
  - PE carryout bags
  - PE film
  - Biodegradable
  - Laminates – Beverage
  - Laminates/Other & Bags


# Current Film Diversion

| Film Type | Ontario Residential | | |
|---|---|---|---|
| | Generation (tonnes) | Recycling (tonnes) | Recycling Rate |
| Polyethylene carryout bags | 14,900 | 2,400 | 16% |
| Polyethylene film | 37,400 | 2,800 | 7% |
| Biodegradable film | 250 | Negligible | 0% |
| Plastic laminates – beverage | 440 | Negligible | 0% |
| Laminated/Other plastic film & bags | 34,700 | Negligible | 0% |

# Trends

- Film packaging in Ontario declined
  - ~4.9 kg/person (‘05) -> ~3.8 kg/ person (’11)
- Stand-up pouch will grow: 2016 about 5 – 11%
- Biodegradables – growth projections moderated
- Multi-laminates continued growth over single resin films

# PE Film Collection – Pre-Final DRAFT Costs

| Recovery System Model | Annual Tonnes | Collection Cost (millions) | Processing Cost (millions) | Market Value (millions) | Net Cost (millions) | Net Cost per Tonne |
|---|---|---|---|---|---|---|
| RC –baling | 10,084[1] | $2.8[8] | $2.3[9] | $2.8[10] | $2.3 | $225 |
| RC - free – back haul | 10,084[1] | $2.8[8] | $0.8[11] | $2.8[10] | $0.8 | $75 |
| Curb –mod | 10,084[1] | $0.1[2] | $3.8[4] | $0.3[5] | $3.6 | $357 |
| Curb-high | 15,126[3] | $1.4[6] | $5.6[4] | $0.4[5] | $6.7 | $440 |

RC = return centre

# Non-PE Film Collection – Pre-Final DRAFT Costs

| Recovery System Model | Annual Tonnes | Collection Cost (millions) | Processing Cost (millions) | Market Value (millions) | Net Cost (millions) | Net Cost per Tonne |
|---|---|---|---|---|---|---|
| Curb - mod | 10,084[1] | $0.1[2] | $3.8[4] | $(0.4)[7] | $4.3 | $422 |
| Curb - high | 15,126[3] | $1.4[6] | $5.6[4] | $(0.6)[7] | $7.6 | $505 |
| RC - baling | 10,084[1] | $2.8[8] | $2.3[9] | $(0.4)[7] | $5.4 | $540 |
| RC – free back haul | 10,084[1] | $2.8[8] | $0.8[11] | $(0.4)[7] | $3.9 | $390 |

RC = return centre

# Market Capacity

- PE Film in Ontario recycled into new film & sheet
- U.S. PE film used in durable goods such as lumber
  - PE Recycling market capacity available for clean streams
  - PE curbside markets are developing
- Multi-laminates
  - No recycling option available
  - Contaminant in PE stream
  - Disposed or used for low value applications

- >14 reclaimers planning upgrades to equipment/capacity – want specific grades
  - Market pricing – already changed since first draft of report

# MRF Processing & Reprocessors

- MRF Sorting Approaches
  - Manual
  - Film Grabber
  - Air Separators
  - Optical Sorting
  - Robotic

- Overview of reprocessing that includes:
  - Shredding
  - Optical Sorting
  - Washing
  - Drying

# Recovery Options

- Recovery converts material resources into energy or chemicals – not back to polymers & is less desired due to loss of material properties.
- Report reviews technology, markets, specifications & financial terms for:
  - Pyrolysis
  - Gasification
  - Engineered Fuel
  - Industrial Uses
  - Energy from Waste

# Film LCA

- Documents the benefits of laminates from an LCA perspective
- Report reviews 8 design elements & recycling opportunities
- Design suggestion of note:
  - Limit fillers to 10% or less in film carry out sacks

# Next Steps & Questions

- Report available soon - in finalization process now
- Assess conclusions & determine potential actions & projects
  - actions & projects will vary based on stakeholder interest/ viewpoint

# Questions?

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# In Summary…

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# Enjoy your Lunch!

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