

Welcome Back!





The Changing Mix of the Ontario Blue Box: What Does This Mean for Municipalities?

Dr. Calvin Lakhan

York University, Faculty of Environmental Studies

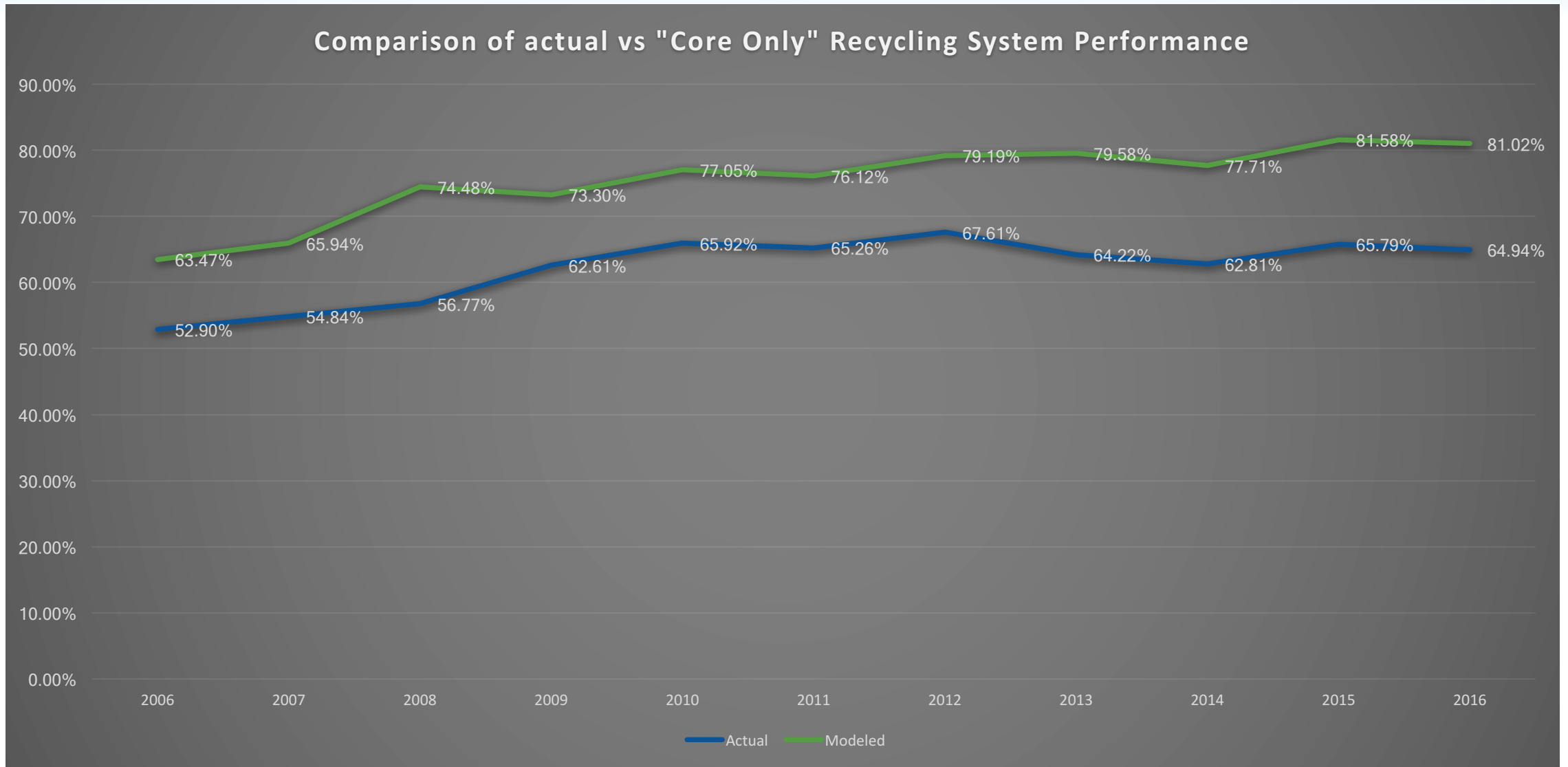
Wastewiki.info.yorku.ca | lakhanc@yorku.ca

416-736-2100 ext: 22612

The Packaging Mix is Changing

- Light weight packaging making up an increasingly larger share of the Blue Box program
- Difficult to manage:
 - low recyclability rates
 - low revenues
 - poor end markets
- What is the impact on programs?

A Tale of Two Systems (1)

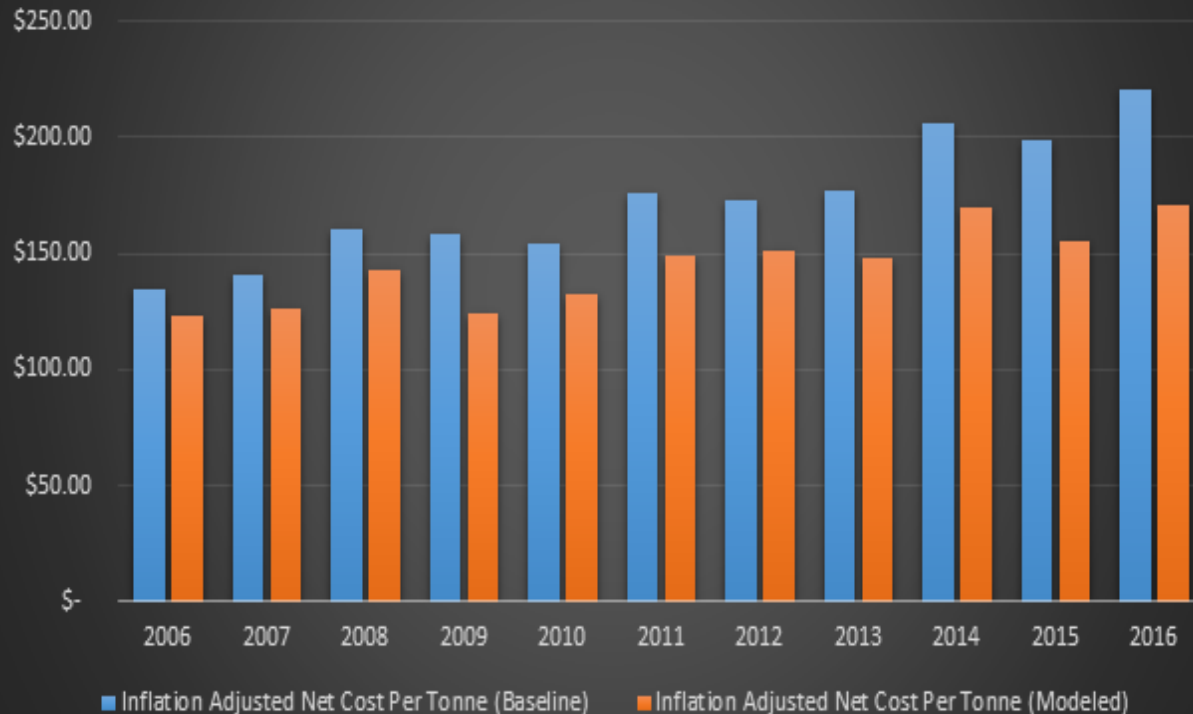


A Tale of Two Systems (2)

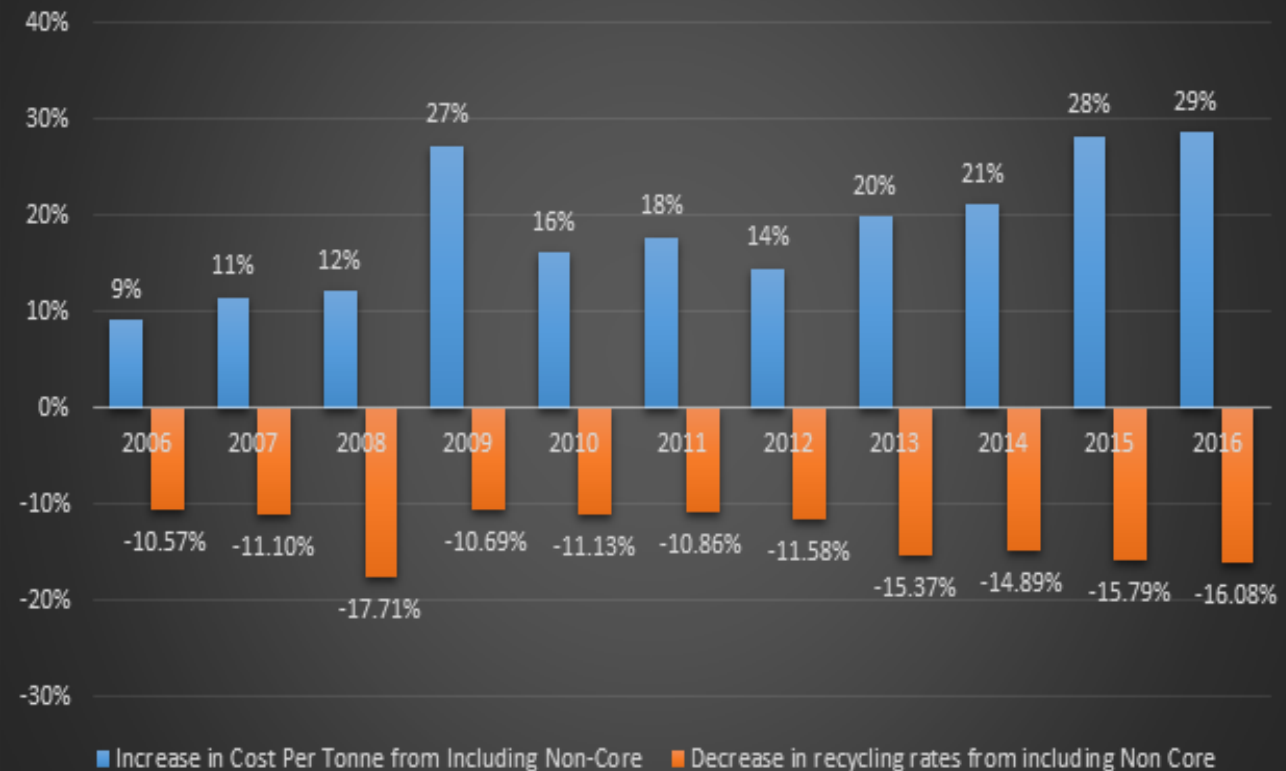
Net Cost Per Tonne:

Impact of Light Weight Packaging:

Comparison of Baseline vs. Modeled Inflation Adjusted Net Cost Per Tonne (2002 \$CAD)



Impact of Including Non Core Materials



What Does It Mean?

- Light weight packaging creates significant cost increases over time
- Endogeneity Hypothesis: The **presence** of light weight packaging increases the cost of managing other materials within the system
- Toronto Case Study: (95% interval) – More than 70% of increases in Toronto's net costs are explained by increased light weight materials

Considerations for Municipalities when Collecting Audit Data

- Collecting data without consideration of meaning or context, does not tell us very much
- To ensure data collected can be used to facilitate credible data analysis, need to develop sampling strategies that take into account representation & stratification
- Municipalities should collaborate with academic institutions when designing studies to collect waste audit data
 - *a little planning goes a long way!*

Today's Speakers

- Bradley Cutler, CIF
 - Co-Ordinated Waste Composition Studies Update
- Bradley Whitelaw, Niagara Region
 - 5 Year Waste Composition Trends in Niagara Region
- Renée Dello, City of Toronto
 - Toronto Waste Audits Trend Analysis - CIF Project # 944
- Gary Everett, City of Toronto
 - Continuous Improvement at “thecif.ca”

Co-Ordinated Waste Composition Studies Update

Bradley Cutler, Project Coordinator
CIF

CIF & SO Coordinated Waste Composition Studies

- Single Family (SF) and Multi-Residential (MR)
 - Composition
 - Generation rates
 - Typical capture rates
- Accurate, concise and robust data
 - Standardized
 - Comparable



What Results Are Used For

- Assess Blue Box material generation rates
- Development of a public dataset
- Measure performance of existing programs
- Validate best practice assumptions



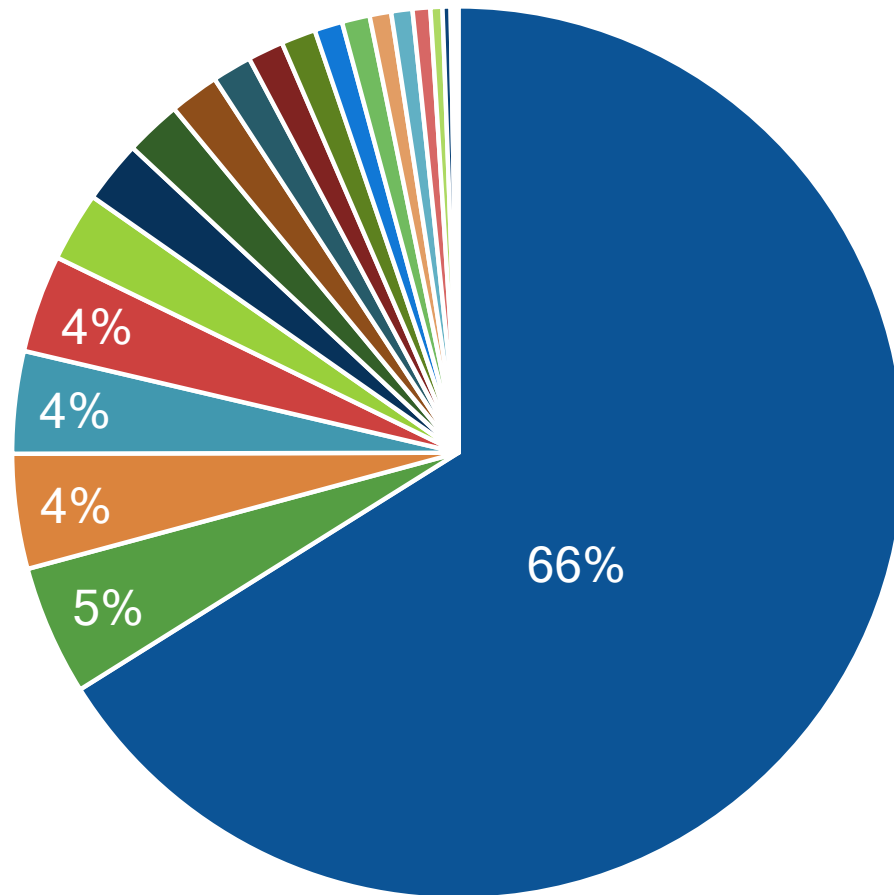
Photo courtesy of NiagaraRegion.ca

Where Are the Studies at Today



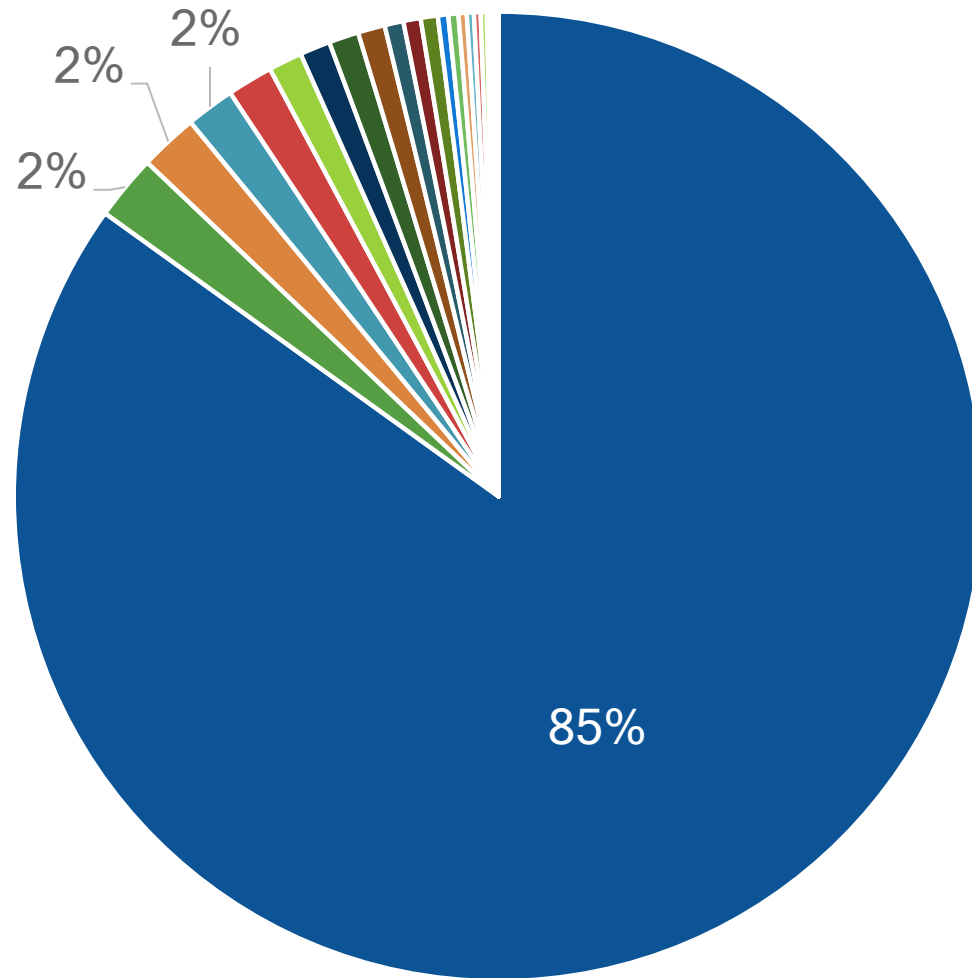
- Year 1 Studies now Complete
- Year 1 Data Analysis – August 2017
- Year 2 Studies to launch – Summer 2017

What's At the Curb



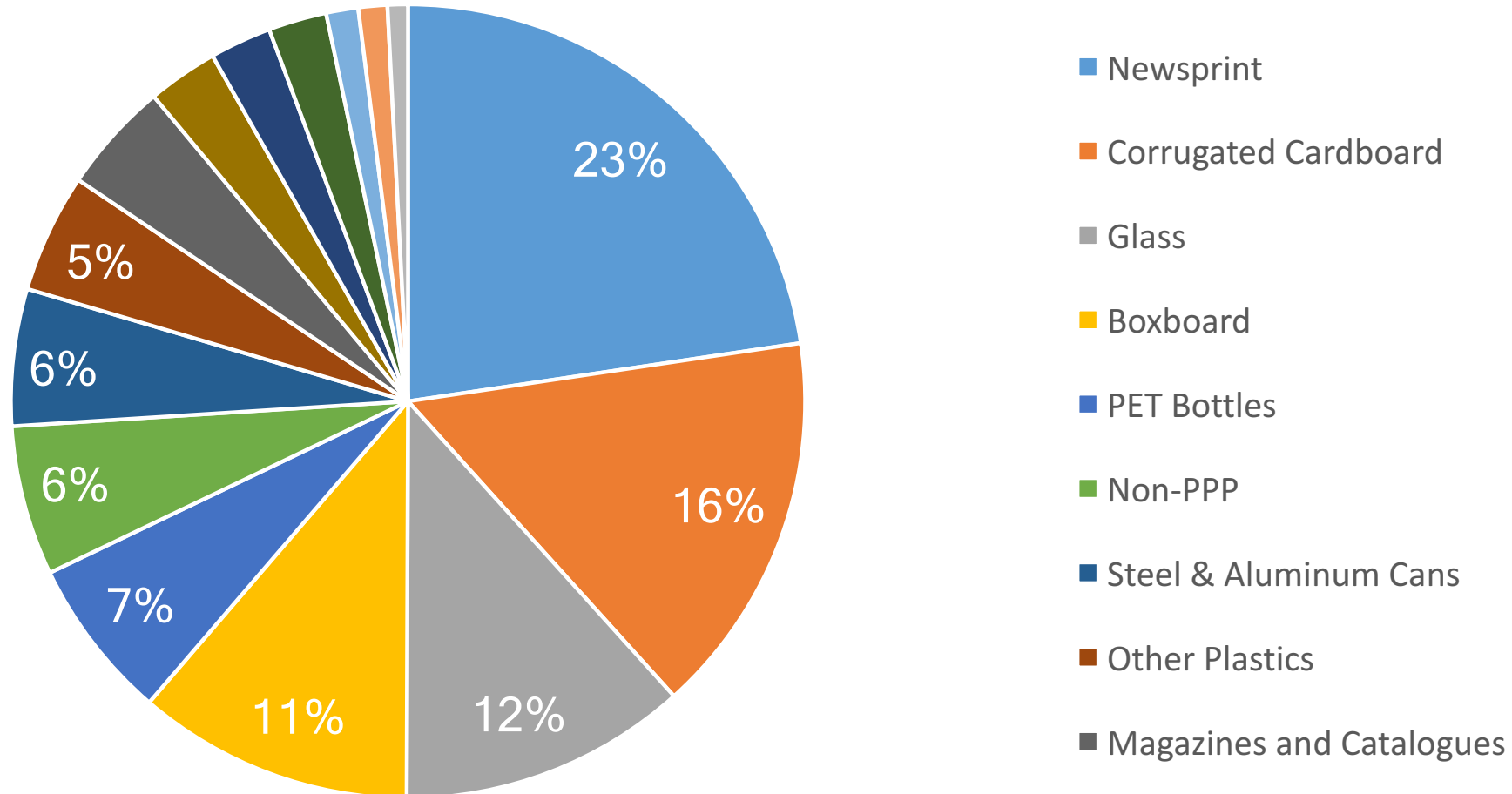
- Non-PPP
- Corrugated Cardboard
- Boxboard
- Newsprint - Non-CNA/OCNA
- Glass
- Newsprint - CNA/OCNA
- Other Plastics
- PET Bottles
- Plastic Film
- Other Printed Paper
- Magazines and Catalogues
- Plastic Laminants
- Paper Laminants
- Steel Food & Beverage Cans
- HDPE Bottles
- Aluminum Food & Beverage Cans
- Polystyrene

What's In the Garbage

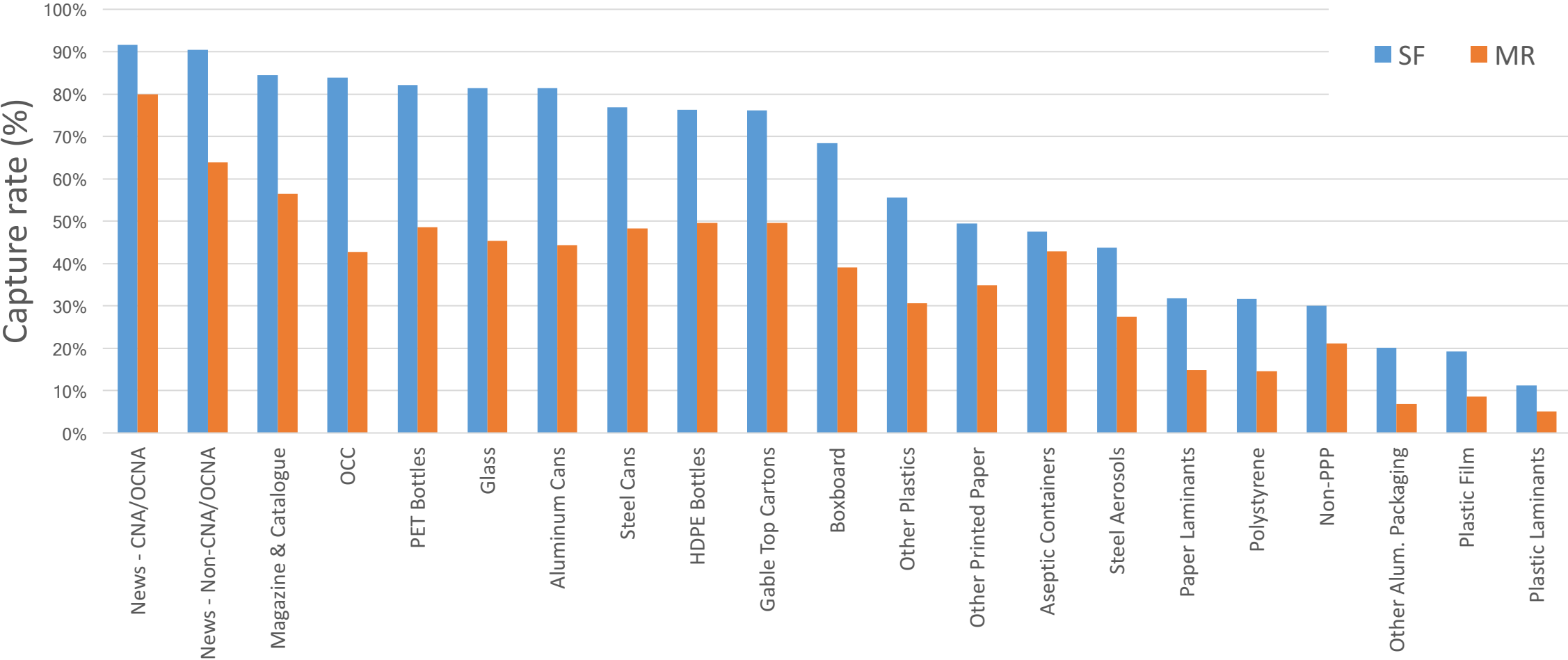


- Non-PPP
- Plastic Film
- Boxboard
- Plastic Laminants
- Other Plastics
- Corrugated Cardboard
- Other Printed Paper
- Paper Laminants
- Coloured Glass
- Polystyrene
- Newsprint - Non-CNA/OCNA

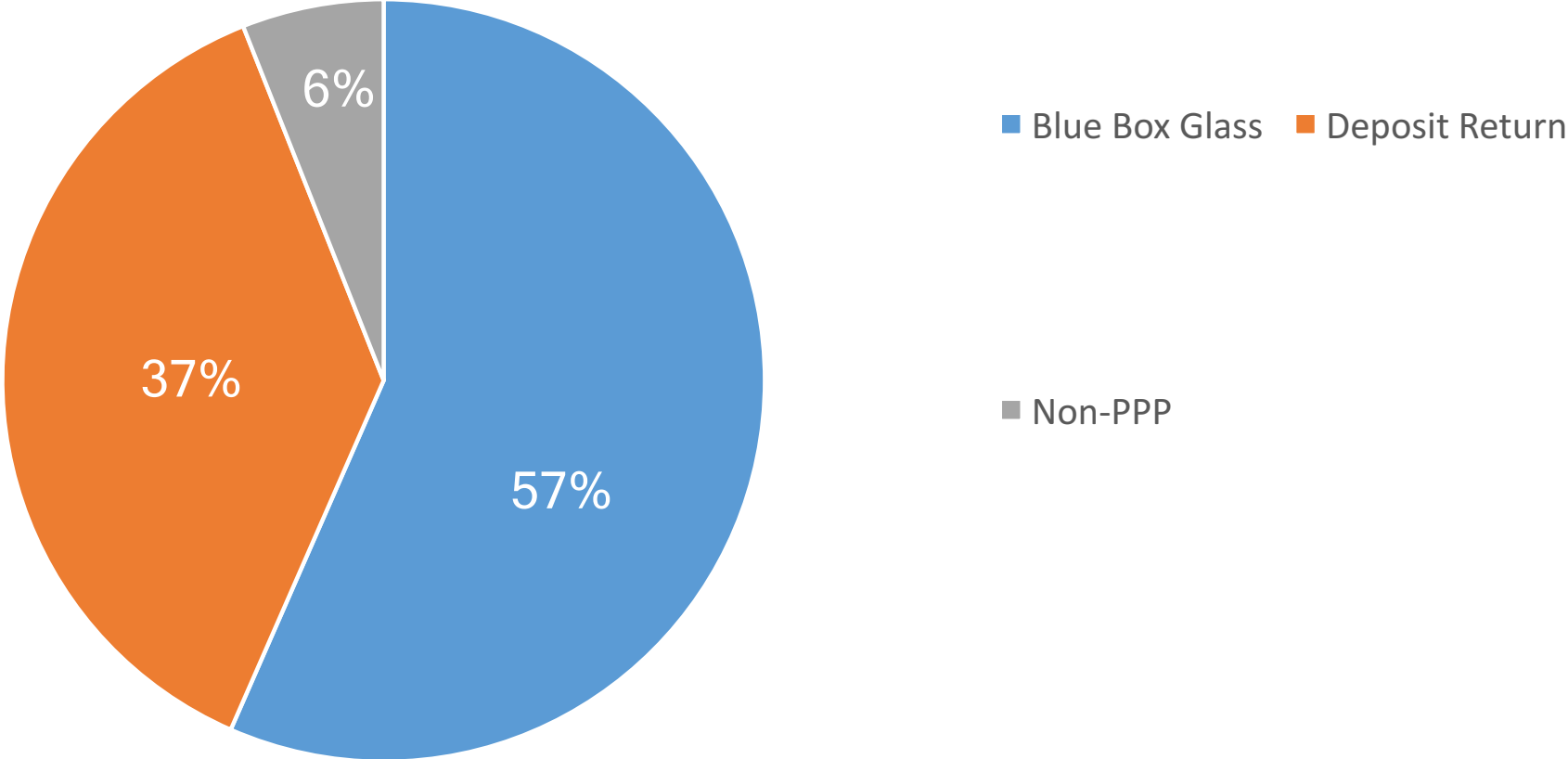
What's In the Blue Box



Capture Rates



Blue Box vs. Deposit Return vs. Other



What Are the Next Steps



Photo courtesy of StewardshipOntario.ca

- Interim → Final results
 - Analysis
 - Reports to partners
 - Published summary dataset
- Determine Year 3 Partner Municipalities
 - REOI applications
 - Other interested parties

5 Year Waste Composition Trends in Niagara Region

Brad Whitelaw

Program Manager, Niagara Region

CIF Project 859 Highlights

- **Project Goal:** Assess current recycling trends and service level improvements from Niagara's 2010-15 Blue Box Program Plan (BBPP)
- **Impact:** Identify critical information for development of 2016-21 BBPP
- **More Information:**
 - brad.whitelaw@niagararegion.ca
 - (905) 980-6000 ext. 3316
 - www.niagararegion.ca

Background

- **Baseline - 2010-11 Waste Composition Study**
 - 170 Single-Family Households (SFH)
 - 12 Niagara municipalities
- **Collection Service Level Improvements**
 - Weekly co-collection of Grey & Blue Boxes
 - One garbage container limit with partial user pay
 - 37% increased capacity of recycling containers
 - Additional recyclable materials accepted (e.g. Mixed Rigid Plastics)
 - Targeted Promotion & Education (e.g. “Odd Couple” Plastic Bag Campaign)



CIF Project 859

- **Comparison with 2010/11 Waste Composition Study Results**
 - Consistent study periods, households, & material categories
 - Focuses (i.e. program performance measures)
 - Waste generation rates
 - Participation & set-out rates
 - Capture & contamination rates
 - Identify trends and forecast future changes



Waste Generation Rates

Performance Measures	2010-11	2015-16	% Change
Overall Waste Generation (kg/hh/yr):	701.68	619.16	11.73% ▼
- Garbage Stream	341.88	319.29	6.54% ▼
- Green Bin Organics Stream	127.49	104.15	18.25% ▼
- Recycling Stream (combined)	232.32	195.72	15.80% ▼
- Grey Box	152.38	119.63	21.49% ▼
- Blue Box	79.93	76.09	4.80% ▼

Recycling Participation & Set-out Rates

Performance Measures	2010-11	2015-16	% Change
Recycling Participation Rate (% of households)	72.76%	82.15%	12.90% ▲
- Grey Box	64.13%	72.80%	13.52% ▲
- Blue Box	69.17%	78.40%	13.34% ▲
Set-Out Rate (# recycling items/household/week):	1.30	1.45	11.48% ▲
- Grey Box	0.80	0.71	11.25% ▼
- Blue Box	0.89	0.73	17.98% ▼
Set-Out Rate (# full container equivalents/set-out):	1.67	1.82	9.08% ▲
- Grey Box	1.17	1.02	12.82% ▼
- Blue Box	1.21	1.02	15.70% ▼

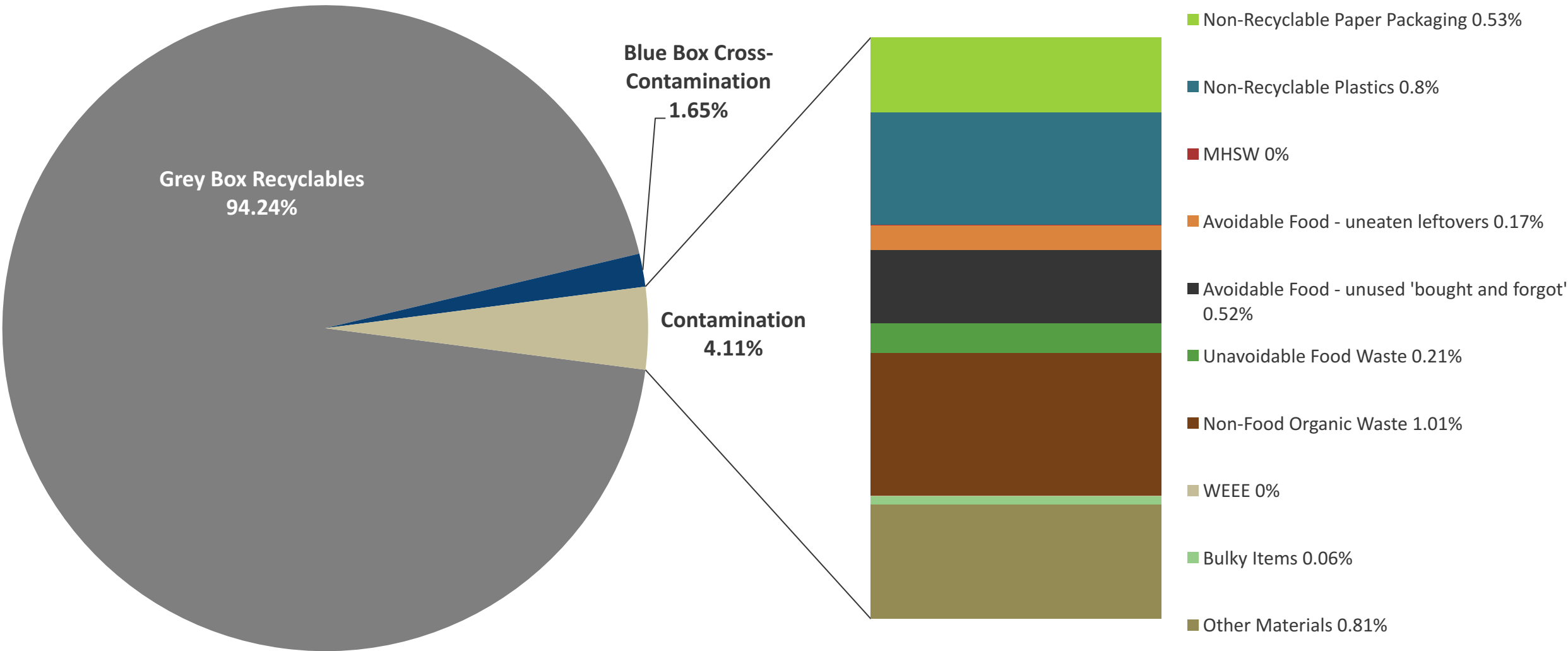
Recycling Capture and Contamination Rates

Performance Measures	2010-11	2015-16	% Change
Capture Rate (%): Recycling Stream (combined Grey & Blue Box)	81.22%	80.18%	1.28% ▼
Contamination Rate (%): Recycling Stream (combined Grey & Blue Box)	10.57%	7.69%	27.23% ▼

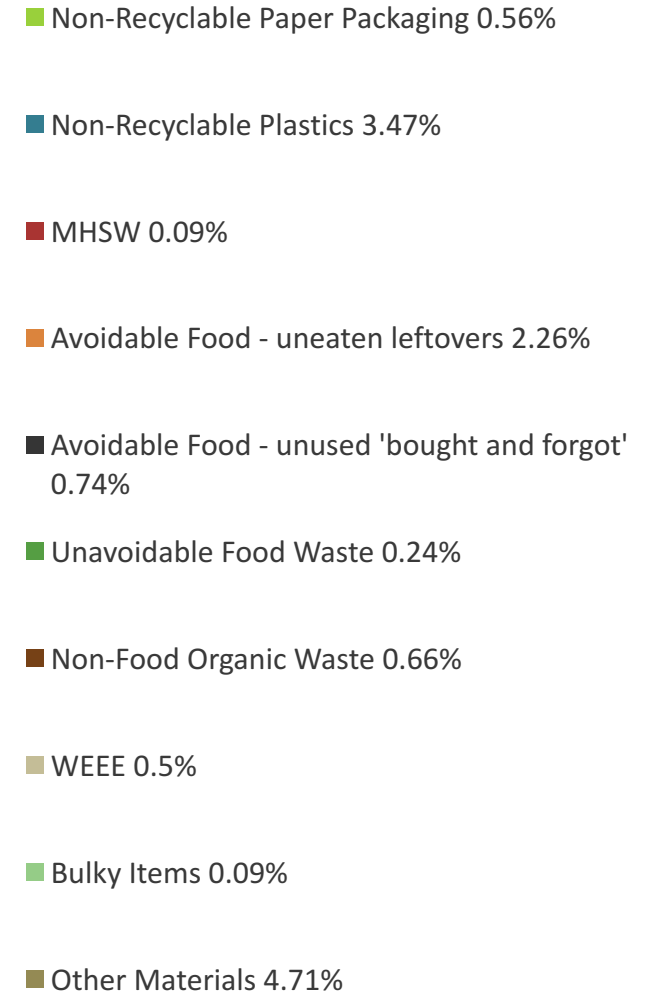
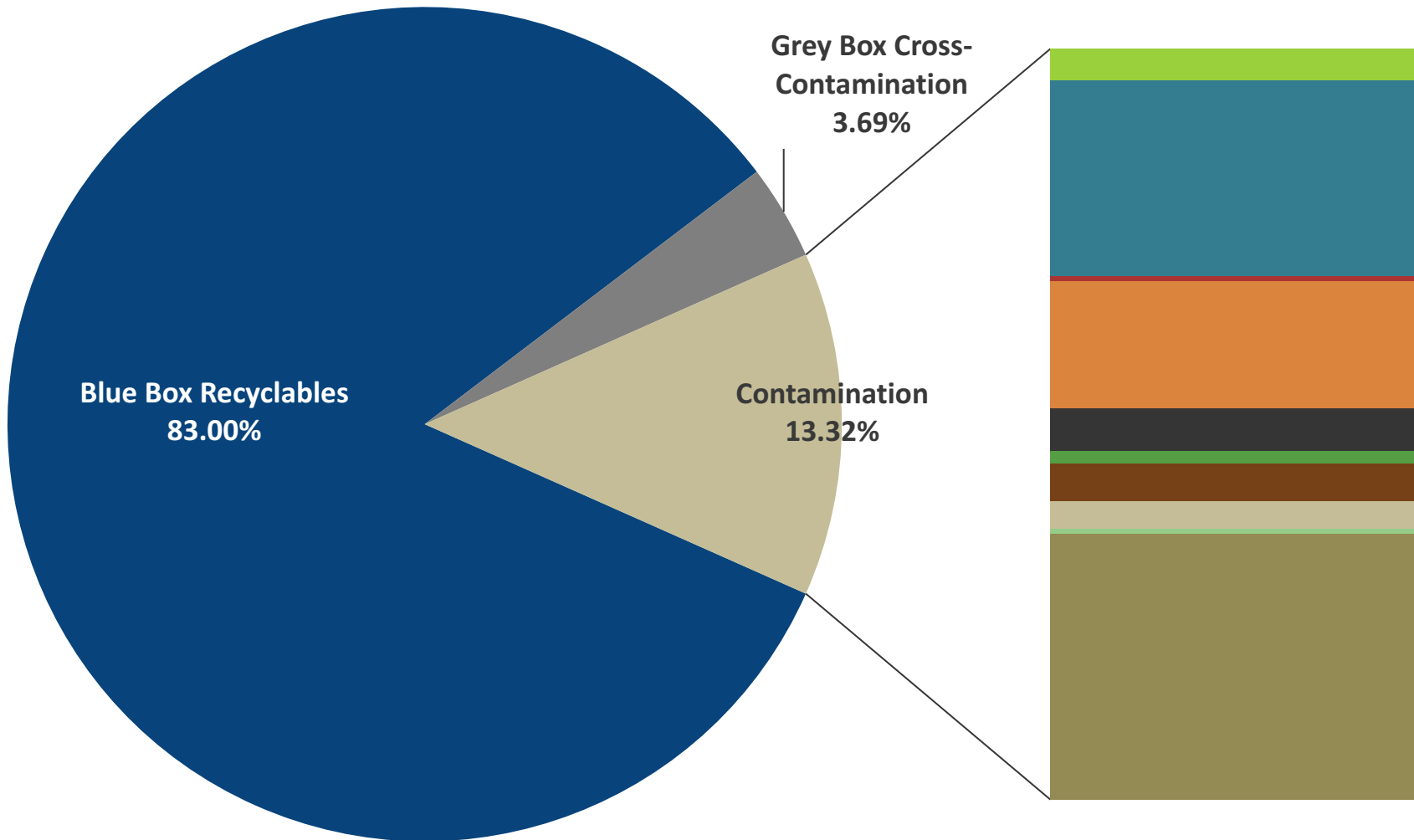
2015-16 Cross-Contamination of Recycling Streams

Material	Accepted Recycling Stream	% In Correct Stream	% in Incorrect Stream
Flexible Film Plastic – LDPE & HDPE	Grey	63.91% ✓	36.09% ✗
Gable Top Containers	Blue	69.82% ✓	30.18% ✗
Spiral Wound Containers	Blue	83.76% ✓	16.24% ✗
Aseptic Containers (excluding alcoholic beverages)	Blue	84.94% ✓	15.06% ✗
#6 PS - Expanded Polystyrene	Blue	88.44% ✓	11.56% ✗

2015-16 Grey Box Composition (119.63 kg/hh/yr)

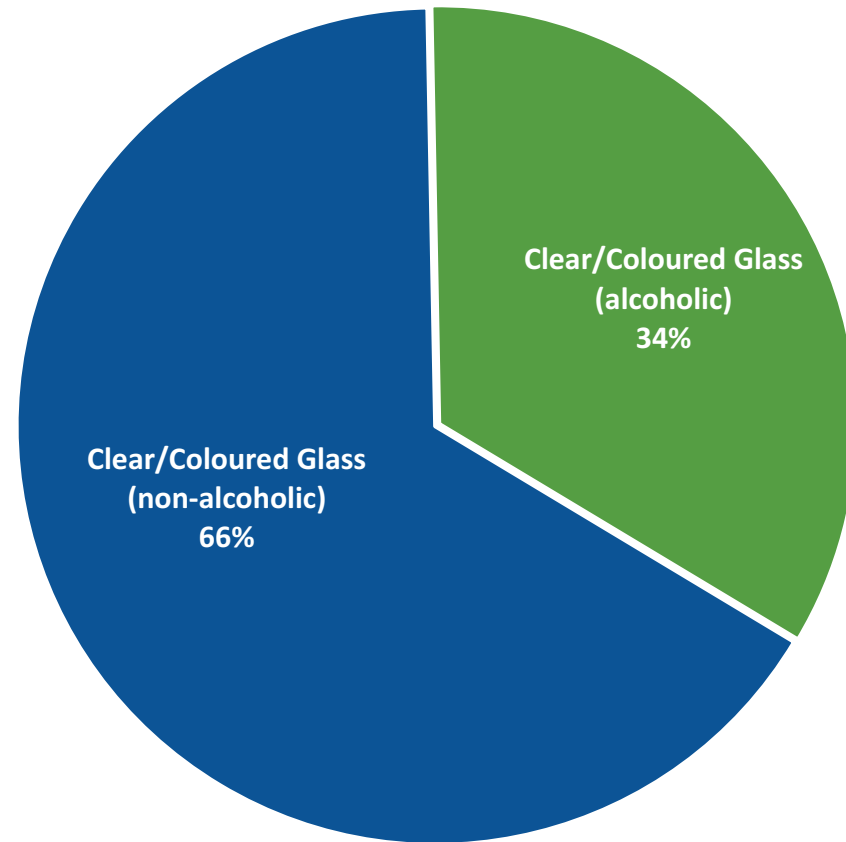


2015-16 Blue Box Composition (76.09 kg/hh/yr)



2015-16 Glass Audit Results

Glass Materials in Blue Box Stream



Summary of Study Comparisons

- Generation rates are declining:
 - Capture rates remain constant, due to packaging shifts:
 - Daily and weekly newspapers (↓ 42%)
 - Laminated/other plastic bags (↑ 96%)
- Recycling program participation is improving:
 - Set-out rates are increasing
 - Contamination declining

General Market Trends

- Light-weighting trends are expected to continue
- Producers are catering to the “on-the-go” lifestyle:
 - Opting for smaller packaging sizes
 - Greater use of flexible, light-weight packaging
 - This packaging is not readily recyclable
- “Brown” is said to be the new “green”:
 - These products create confusion for residents
 - PLAs do not recycle well
 - Bioplastics do not compost well

Next Steps

■ Key learnings

- Studies represent a “snapshot” in time
- Study data provides the necessary basis for informed collection planning, P&E
- Study results confirmed trends in material set-out

■ Considerations for Niagara’s 2016-21 BBPP

- Develop P&E to achieve optimal paper product/packaging recovery
- Develop targeted P&E by municipal area (i.e. demographics)
- Consider policy changes (e.g. bi-weekly garbage collection)



Toronto Waste Audits Trend Analysis CIF Project # 944

Renée Dello
City of Toronto

Project Highlights

- Project Goal: Statistical examination to determine how mix of materials has changed over time
- Impacts:
 - Changes in the composition of Toronto's collected waste are statistically significant
 - Lightweight materials are increasing
- More information:
 - renee.dello@toronto.ca

Why This Project?

- Use audit data to statistically verify impact of lightweighting
- Targets require updating to better reflect the changing nature of waste
- Open discussions on different ways of looking at data & measuring performance



Source: Vadlo.com (157)

Project Steps

- Review available audit/datacall data from 2002 to 2016
- Categorical transformation to ensure consistency with SO material categories
- Statistical analysis involved standardizing existing curbside audit data followed by data comparison using acceptable statistical techniques to identify trends



**It started out as a simple analysis,
but piled up to information overload.**

Development of New Lightweight Trend Analysis Approach

- Audit data review, certain materials grouped using allocation matrix
 - Toronto audits sorted 69 to 100 items compared to SO 23 categories
- Methodology allowed standardized results for better comparison
- Method allows for clearer analysis of municipal performance
- No consistent method previously existed, suggest this approach as new Best Practice for Lightweight Trend Analysis.

Challenges/Unexpected Issues

- Deficiencies in dataset (audit samples too small)
- Lack of data consistency (same households (HH) over duration, different seasons, different auditors, different focus)
- Lightweighting can occur in 1 of 3 ways



Findings/Observations

General Findings

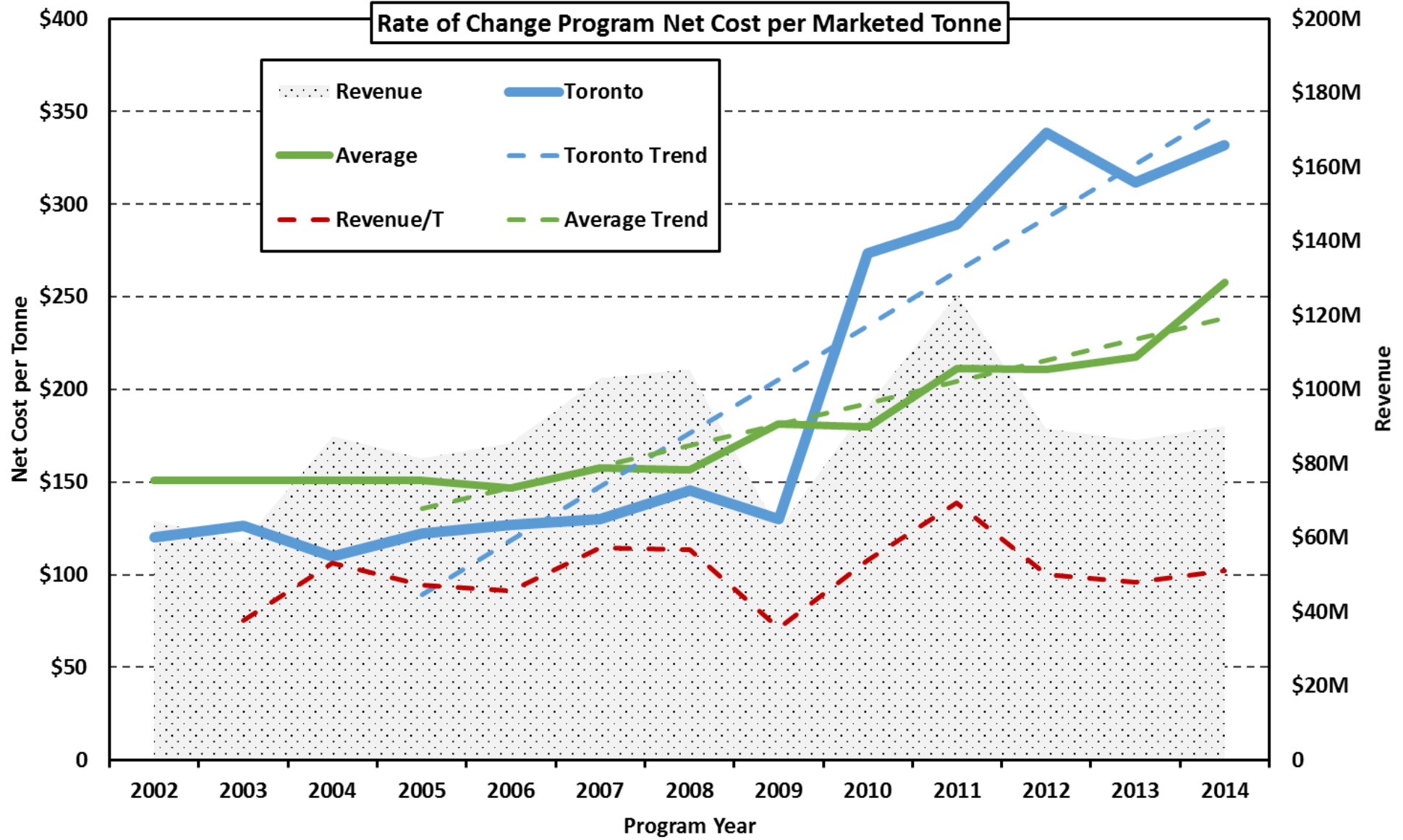
- Composition changes **statistically significant**
- Lightweight plastics, laminated paper materials = **increasing volume of Blue Bin**
- Observable trend towards **higher costs & greater effort** to recover recyclables
- Further study needed on drivers for packaging & consumption choices

Findings/Observations

Large Municipal Datacall Comparison

- Relative to other municipalities HHs in Toronto generate more lightweight materials
- Toronto generates significantly less newsprint
- Toronto generates less aluminum (due to scavenging?)

Data



Key Messages & Take Away

- There is an observable trend in lightweighting & cost increases
- Changes in Toronto's collected materials mix are statistically significant
- Toronto's HH generate more lightweight materials than other large urban municipalities
- Toronto generates less newsprint relative to other comparable municipalities (no readily apparent cause)
- Toronto generates less aluminum relative to other municipalities
- Targets require updating to better reflect the changing nature of waste
- Municipalities need different ways to measure diversion performance

Advice

- Proposed Audit Sampling Strategy to improve data comparability
 - Allocate samples to account for different types of housing
 - Sample HH (based on population density) from different geographic regions
 - Compare samples from previous audits using “like with like” rule – same housing types, same geographic region, same season, etc.
- Using allocation matrix to standardize data permits better comparison

Next Steps

- Open discussions on different ways of looking at data & measuring performance
- Further study needed on drivers for packaging & consumption choices

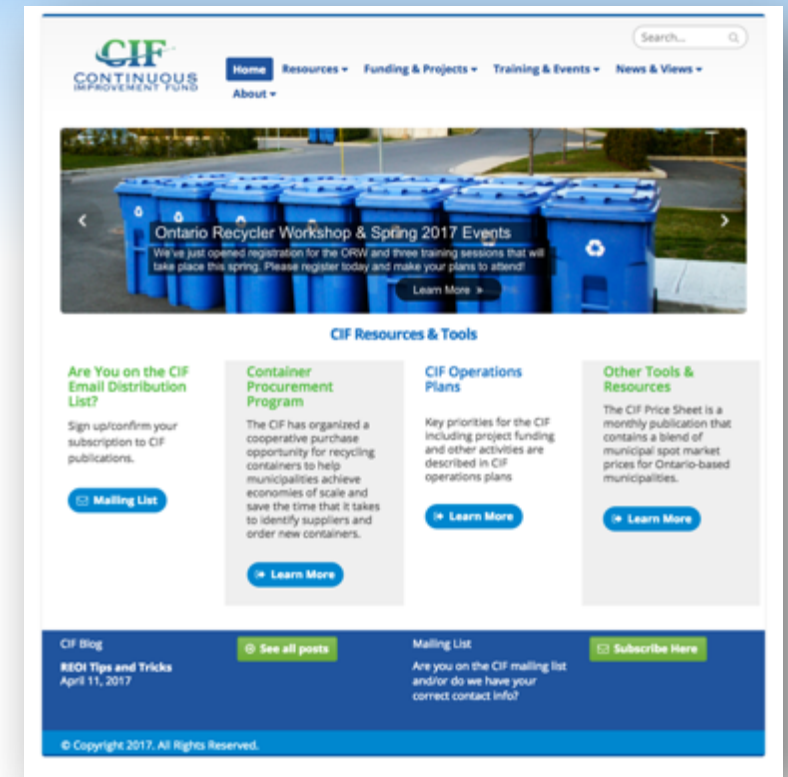


CIF

CONTINUOUS
IMPROVEMENT FUND

Continuous Improvement at “thecif.ca”

Gary Everett
CIF



Background

- thecif.ca is the new and improved home of the CIF online
- WDO previously hosted CIF online
- Transition to RPRA closed the WDO website
- CIF needed a new online home and some Continuous Improvement

Why We Needed Continuous Improvement

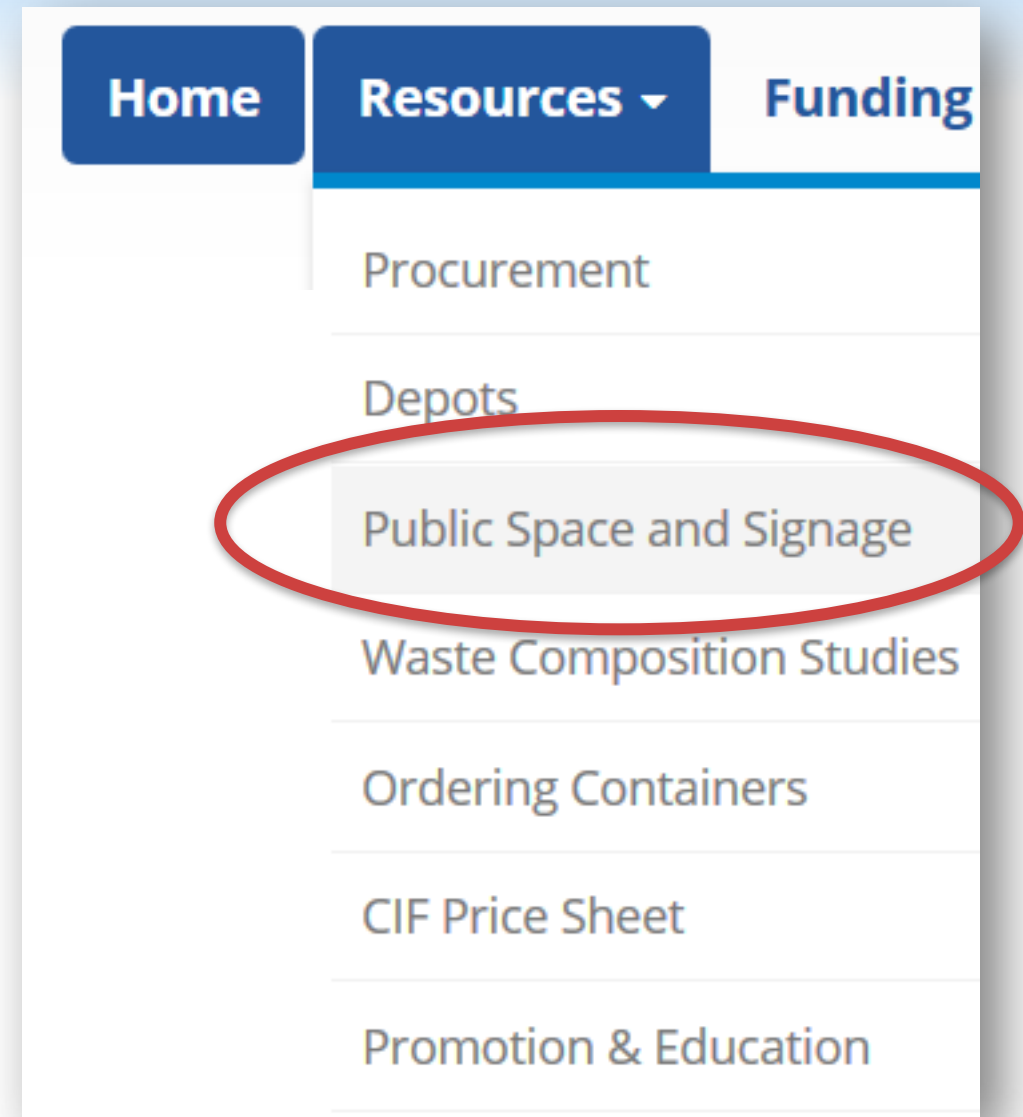
- We listened when you said CIF has over 680 projects - BUT
- Hard to find what you need
- Not organized where you need it
- What does it all mean?



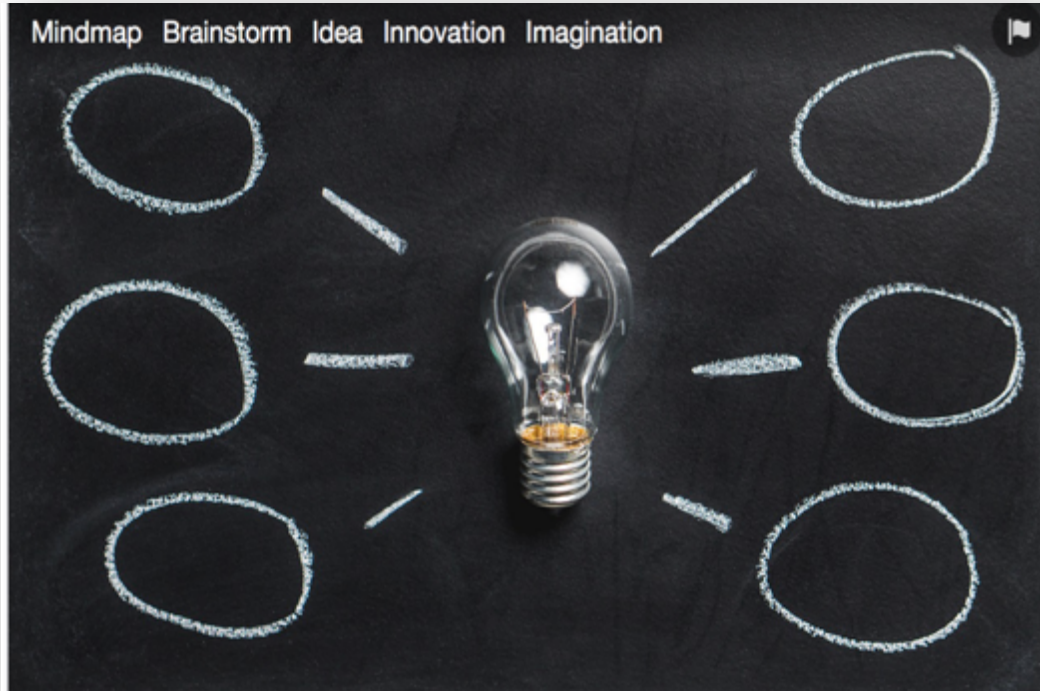
Center of Excellence

Launched 2016 to help you get:

- Distilled value from completed projects
- Learnings – what works & what doesn't
- Tools, tips & tricks

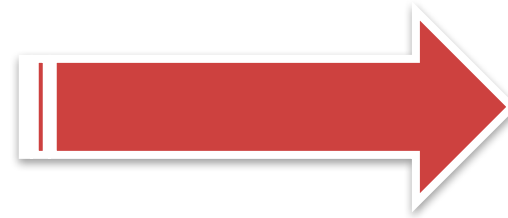


Distilling Essential Information



- You need:
 - Reliable numbers
 - Verifiable information
 - “Nuggets”/Insights
 - Models/timelines
 - Traps & pitfalls
 - **More “How To”**

- Key components of each topic
- Policy & technical info
- Resources
- Projects that exemplify components
- Examples of better & best practices



CoE Pages

- **Depots**
- **Procurement**
- **Public Space & Signage**
- More to come...

Center of Excellence – Public Space & Signage (1)

Start on the CIF home page...



The image shows a screenshot of the Continuous Improvement Fund (CIF) website. At the top left is the CIF logo, which consists of the letters 'CIF' in a stylized font with a swoosh underneath, and the full name 'CONTINUOUS IMPROVEMENT FUND' below it. To the right of the logo is a red arrow pointing towards the navigation menu. The navigation menu includes buttons for 'Home', 'Resources', 'Funding & Projects', and 'Training & Events'. The 'Resources' button is highlighted with a red rounded rectangle. A dropdown menu is open from 'Resources', listing several categories: 'Procurement', 'Depots', 'Public Space and Signage', 'Waste Composition Studies', 'Ordering Containers', 'CIF Price Sheet', 'Promotion & Education', 'Waste Recycling Planning', 'Multi-residential Recycling', and 'Best Practices Compliance'. The 'Public Space and Signage' option is highlighted with a red rounded rectangle. Below the navigation menu is a banner image of blue recycling bins. Overlaid on the bins is a dark blue box with white text that reads: 'Ontario Recycler Workshop' and 'We've just opened registration for the ORW this spring. Please register today and make...'. To the right of the bins, another dark blue box with white text reads 'Events' and 's that will take place'. In the bottom right corner of the page, there are three small blue squares followed by the number '138'.

Center of Excellence – Public Space & Signage (2)

[Home](#)[Resources](#)[Funding & Projects](#)[Training & Events](#)[News & Views](#)[About](#)

[Home](#) / [Public Space and Signage](#)

Public Space and Signage

Better Practices



Signage

Good signage is key to participation and low contamination. Keep messages clear and simple, use recognized colours, pair graphics with text and make it visible.

[Read More](#)

Twinning

Place recycling, garbage (and organics) bins side-by-side to avoid making users travel to sort materials.

[Read More](#)

Location

Place bins in high traffic locations and ensure they are visible with convenient access.

[Read More](#)

Bin Type

Choose the type and size of bins best suited to local conditions to increase use and reduce weather and vandalism damage. Both function and aesthetics are important.

[Read More](#)

Center of Excellence – Public Space & Signage (3)



Twinning Better Practices

Signage ▶

Twinning ▶

Location ▶

Bin Type ▶

Reports

Twinning Better Practices

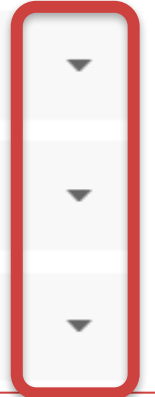
1. Twin the Bins

To reduce cross contamination, place recycling and/or organics with garbage bins. [Read more](#)

2. Place bins side-by-side

3. Replicate the Blue Box program

4. Empty bins regularly



Center of Excellence – Public Space & Signage (4)

Home / Public Space and Signage / Twinning Better Practices

Twinning Better Practices



Signage

Signage Better Practices

Twinning

1. Keep messages clear & simple

Location

2. Use North American (NA) universal colours

Bin Type

3. Pair graphics with text

Reports

4. High visibility

5. Evolution of signage

3. Replicate the Blue Box program

4. Empty bins regularly

/or organics with garbage bins. [Read more](#)

Center of Excellence – Depots

Home / Depots / Siting

Siting



Siting ▶

Depot Design ▶

Depot Operations ▶

Depot Resources

Depot Report Summaries

Siting Better Practices

Siting a new depot involves three key tasks:

1. Location

Convenience and accessibility is critical. The location needs to address available infrastructure, future growth, community impacts and many more requirements. [Read more](#)

2. Public Consultation

3. Economic Assessment



Center of Excellence – Resources (1)

Home / Public Space and Signage / Signage Gallery

Signage Gallery

Signage ▶

Twining ▶

Location ▶

Bin Type ▶

Reports



Center of Excellence – Resources (2)

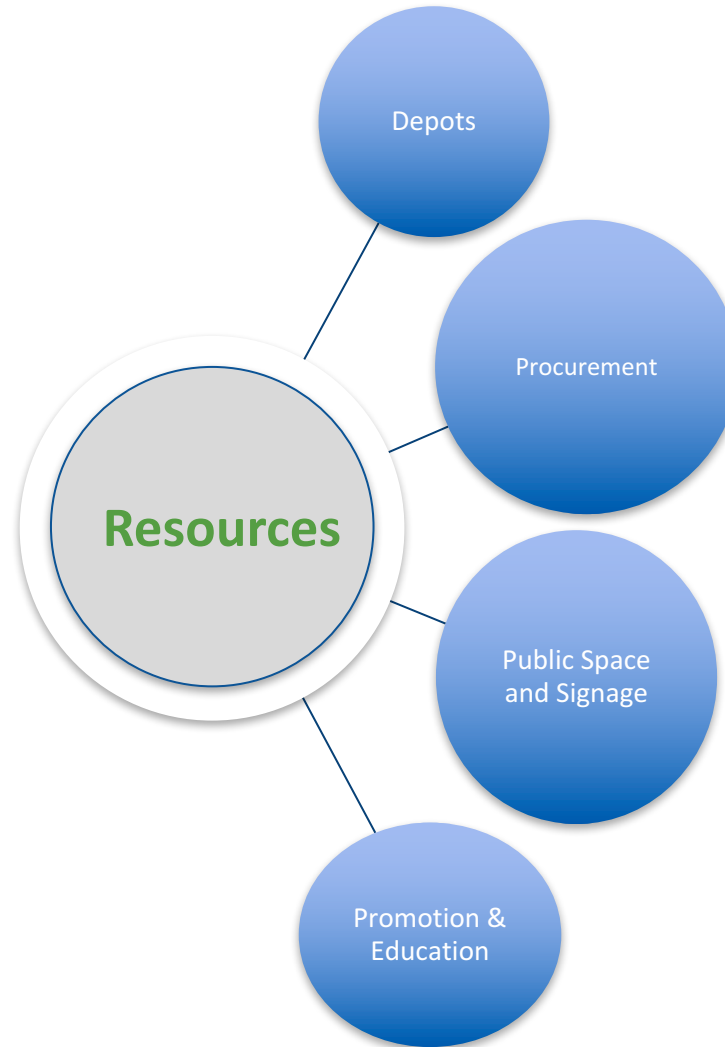
Depots

- 1. Small Municipal Depot Guidebook (with intro to the Depot Costing Model) (June 2016) ▼
- 2. Depot Costing Model ▼
- 3. Signage ▼
- 4. Depot Pre Screening Survey ▼

Procurement

- Procurement Process Frequently Asked Questions
- Annotated RFP
- RFP Templates
- Proposal Evaluation Spreadsheet Template
- Procurement Process Timeline Template
- Relevant Blog Posts

CIF Centre of Excellence Begins with Resources



A Work in Progress



Legend

● Available today

● Coming soon

Continuous Improvement Is Ongoing

- We welcome your feedback
 - what information do you need more of?
 - less of?
 - can you find what you need?
 - are we providing the right resources?

 - Email geverett@thecif.ca

Questions



CIF

CONTINUOUS
IMPROVEMENT FUND

Morning Wrap-Up



Enjoy your lunch

We'll resume at 1:00 p.m.

