2020

CIF 977: EPR Financial Analysis Template

FINAL REPORT

Prepared for:

Resource Productivity and Recovery Authority
Continuous Improvement Fund

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Executive Summary

The purpose of this project was to develop an activity-based costing methodology and template to complete a financial analysis of the Blue Box portion of the municipal solid waste stream. Key features include using a methodology and approach to allocate costs that are currently attributed to the residential Blue Box. This work will aid in the preparation for the transition of the Blue Box Program to the new Provincial Extended Producer Responsibility (EPR) regulation under the *Resource Recovery and Circular Economy Act, 2016* (RRCEA) that will see the transfer of operational and financial responsibilities to the producers of packaging, paper and product-like packaging. The project focused on the following areas:

• Program Implications: Identify any potential impacts to the City of Toronto's (Toronto's) integrated waste management system that may be experienced as a result of the Blue Box regulation (including program cost, contract and municipal service provider implications).

• Rate Based Implications: Quantify, in terms of both cost and tonnes, the amount of Blue Box materials that are currently being managed through other non-Blue Box waste streams (e.g. how much perpetual landfill care costs should be allocated to Blue Box materials and residue?).

As a result of this project, Toronto's consultant, KPMG, developed a financial modelling template, including instructions, to assist municipalities in the transition of their Blue Box program to EPR. The activity-based costing methodology was developed to calculate true cost of service delivery. It allows users to input detailed fixed and variable costs related to their Blue Box programs in order to determine the current state and also to assist in estimating costs with any program or operational changes.

1. Introduction

The City of Toronto is the largest city in Canada with a diverse population of more than 2.9 million people. The Solid Waste Management Services Division (SWMS) manages four collections yards, one maintenance yard, seven transfer stations, six household hazardous waste depots, two organics processing facilities, Green Lane Landfill, 160 former landfills, over 750 fleet assets and over 1.5 million bins and carts. Toronto diverts about 112,000 tonnes of Blue Box material annually collected from a mix of properties including single family residential, multi-residential buildings, small non-residential establishments (i.e. commercial, charities, institutions, and religious organizations), schools and City divisions, agencies and corporations.

In June 2016, the Legislative Assembly of Ontario passed the *Waste-Free Ontario Act*, comprising the *RRCEA* and the *Waste Diversion Transition Act*. Under the new regulation, the province is moving toward a circular economy framework with an aim of reducing or eliminating waste by establishing a producer responsibility regime. Under this EPR regime, producers would be responsible for the end-of-life management of their packaging, paper and packaging-like products by taking responsibility for the program costs and operations associated with the collection, transportation, recycling, and disposal of the waste that their products generate. This includes the transition of the Blue Box Program Plan to an EPR regulation under the RRCEA.

The anticipated impact to municipalities from transitioning to an EPR system can be derived from regulatory elements in the *Waste-Free Ontario Act, 2016*. The Act establishes the scope of materials that producers could be responsible for, as well as the service delivery levels and standards. Producers may decide to contract out certain waste management services to third party service provider(s). It is anticipated that as part of these transition efforts, the producers can approach municipalities to potentially act as service providers.

Toronto is working with the Province and its stakeholders (including other municipalities) in formulating these new regulations in order to protect Toronto's rate payers and residents' interests. To prepare for developing any potential new agreements with producers, staff required analysis of the impact to operational costs and funding as a result of a transition from the current waste system (in which Toronto collects, processes, and shares costs of municipal residential Blue Box recycling services with producers) to an EPR system.

As part of the development of Toronto's Long Term Waste Management Strategy (Waste Strategy), KPMG was engaged to conduct a financial analysis and develop a financial model (Cost Model) to provide a detailed analysis of Toronto's solid waste system costs, the current customer base and the rates charged to customers. The Cost Model was developed to allocate net operating expenditures (i.e. gross operating expenses less non-rate based revenues) of the SWMS division to Toronto's residential and non-residential customers in order to calculate a full cost recovery rate per customer. The Cost Model supports staff in understanding the potential financial implications of a transition to an EPR system, where a greater allocation of Blue Box-related costs and operational responsibilities will be borne by the producers. More specifically, the analysis identifies Blue Box-related expenditures that would no longer be incurred by Toronto as a result of the transition to EPR and identifies Blue Box-related expenditures that would continue to be incurred by Toronto even if it was no longer responsible for delivering Blue Box recycling services to eligible sources. This analysis was supported through the development and use of the Cost Model.

2. Background

2.1. Community Profile

Toronto is a focal point of development and expansion, and the heart of the Greater Toronto Area (GTA). SWMS has one of the most comprehensive integrated waste management systems in North America and provides services to approximately 462,000 single family homes, 400,000 multi-residential units and 7,500 non-residential establishments and collects waste from approximately 10,000 street litter/recycling bins, and 10,000 bins located in Toronto parks. The system collects over 900,000 tonnes of waste annually from all customer types. Table 1 below outlines the inbound tonnages managed by SWMS in 2019.

Table 1 – 2019 City of Toronto Collected Materials

Material	**Inbound Tonnages**
Garbage	454,503
Recycling	176,979
Organics	171,608
Yard Waste	93,097
Depot and Other Products	11,340
Total	**907,527**

In 2019, the combined residential diversion rate for Toronto was 53%, compared to 52% in 2018. This breaks down into 64% for single family residential homes and 28% for multi-residential buildings (with nine units and above).

Toronto continues to redirect small quantities of Blue Box recycling to landfill that are too contaminated to process at the material recovery facility and would not have been accepted by recycling markets.

2.2. Waste Management System

SWMS provides the collection of Blue Bin recycling, Green Bin organics, garbage, oversized items, yard waste, electronics, and Household Hazardous Waste. It also provides collection of items at drop-off depots and through Community Environment Days. Garbage material is disposed of at Green Lane Landfill while diverted materials are managed by processors under contract with Toronto.

Toronto's waste collection program is an "all-or-nothing" service. A property on city-provided collection service must participate in the diversion programs as per the *Toronto Municipal Code, Chapter 844, Waste Collection, Residential Properties and Chapter 841, Waste Collection, Commercial Properties.* If a property opts out of garbage collection, it will not be eligible for collection of any of the other materials. Eligible services include garbage, Blue Bin recycling, Green Bin organics, yard waste, electronic waste, household hazardous waste and oversized and metal items.

Toronto operates a waste utility program (user pay). Property owners pay a fee based on the overall volume of garbage the property generates during a billing period. Fees vary amongst the differing customer types and type of collection service (e.g. Front-end bulk, curbside bin or bag collection). An annual fee of $15.90 (2020 approved fee) is charged per home or multi-residential unit for the collection of oversized and metal items. Fees are also charged at transfer stations for the drop off of various

materials and there are also fees for the clean-up of special events (e.g. clean-up of street events and rental and collection of waste bins).

Daytime curbside collection routes are comprised mainly of single-family residential customers. Multi-residential buildings on curbside collection and some non-residential customers are also picked up on these routes. Nighttime curbside collection routes are comprised mainly of small commercial establishments and residential units above commercial units. The curbside locations are collected by a mix of contractors (West of Yonge) and municipal staff (East of Yonge). There are separate routes for the collection of parks and litter bins. Front-end bulk collection routes are made up of predominantly multi-residential customers, but also include schools, small commercial businesses, and other non-residential customers such as religious organizations. Front-end collection services are delivered by a contractor under contract to Toronto.

2.3. Operating a Sustainable Waste System

As part of the Toronto's Corporate Strategy Plan that includes a priority for financial sustainability, SWMS has a mandate to achieve and maintain operation of a sustainable utility rate program to cover costs for the long-term management of waste. The user fees charged to customers need to cover the costs of providing all collection, disposal and processing services and many variables can impact the revenues received from SWMS customers. This includes changes in the number of customers, changes in recycling markets, and program and policy changes internally or externally through governmental regulation. To assist Toronto and other municipalities in determining their current state of operations and how any changes to variables (i.e. resulting from the transition of the Blue Box Program to EPR) may impact their costs, an activity-based costing exercise needs to be undertaken. This is required to establish a baseline cost before a financial analysis of various transition scenarios can be performed.

3. Approach

3.1. Work Plan Set Up and Assumptions

This project was initiated in 2017 and completed in 2018, following the release of the *Waste-Free Ontario Act, 2016* but prior to the release of the draft Blue Box regulation in 2020. Assumptions on the implications of the future EPR regulation for the transition of the Blue Box Program from municipalities to producers were based on the information that was available at the time. In the absence of a regulation and specific details, the following assumptions were used to analyze the potential financial impact to Toronto's waste system:

- At a minimum, producers would be financially and operationally responsible for what is eligible under the Blue Box Program (i.e. what is reported into the Resource Productivity and Recovery Authority annual Datacall).
- Toronto will continue to provide Blue Box services to ineligible sources including small commercial locations, city facilities, and charities, institutions and religious organizations.
- The list of acceptable materials in Toronto's Blue Bin Recycling Program will remain the same (see Appendix A).

3.2. Limitations

All information and data used in the development of the activity-based costing exercise was provided by Toronto staff. The information was continuously reviewed and assessed by Toronto staff throughout the project term as new information became available. The reliability of the results of the activity-based costing exercise is dependent on the input information. The financial outputs are not intended to predict the future. As with any financial projection, there is uncertainty involved and the input assumptions used to develop the forecasts may require updating over time as better information becomes available, such as the release of the final Blue Box Regulation and outcomes of commercial agreements with producers. These changes may have a significant impact on the net operating expenditures allocated to each customer type. Accordingly, the baseline assumptions and costing information should be reviewed annually to reflect updated annual budgets and operating costs.

3.3. Methodology

3.3.1. Establishing a Baseline – Cost Model

This project builds upon existing work completed as part of Toronto's Waste Strategy to develop a sustainable rate model which included undertaking a full cost accounting exercise that led to the development of the Cost Model. The Cost Model allocates the net operating expenditures (operating expenses less non-rate base revenues) of SWMS to Toronto's residential and non-residential customers to calculate a full cost recovery rate per customer. Costs are allocated in the Cost Model according to material type, customer type and frequency of collection and the final outputs from the Cost Model are displayed in net operating cost by customer type and customer/bin breakdown by customer type.

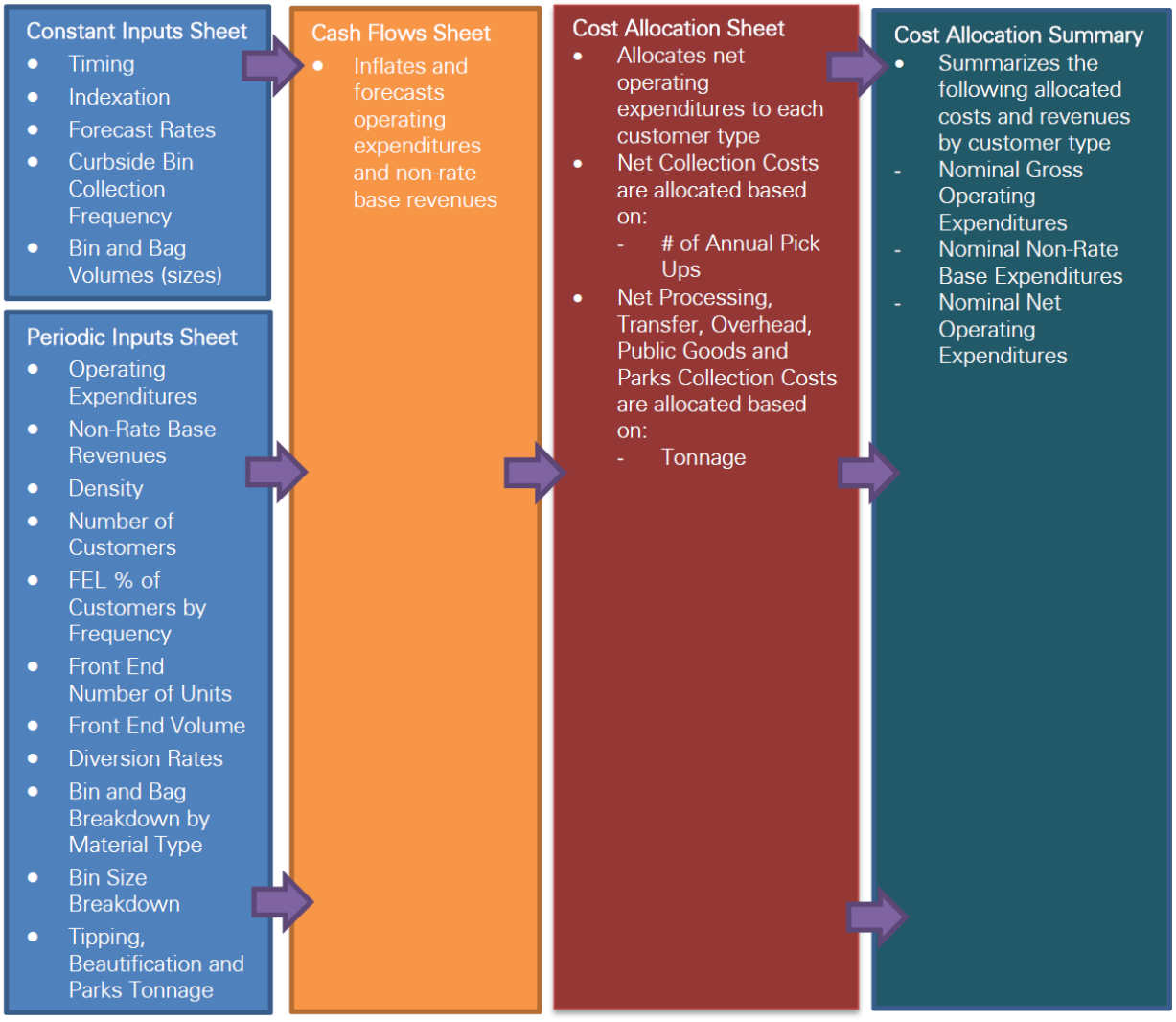
The Cost Model establishes a baseline of the operating costs of Toronto's integrated waste management system. These costs and revenues, allocated by program area (i.e. collection, transfer and haulage, processing, disposal, public goods and overhead) and customer type (i.e. curbside collection, front-end collection, commercial, schools, etc.) form the foundation to assess potential financial impacts resulting

from the transition of the Blue Box Program to EPR. Once the baseline costs for operations were established, using various transition assumptions, the costs were adjusted to reflect any system changes in order to provide a basis for comparing estimated costs and revenues.

3.3.2. Data Inputs for the Cost Model

KPMG undertook an activity-based costing exercise to establish the Cost Model using data and information received from the Toronto SWMS staff. The main sources of data are: operating budgets, year-end operating costs and revenues, volumes of materials based on number and size of bins and bags, collection frequency, number of customers, and tonnage information. The model structure is shown in Table 2 below:

Table 2 - Cost Model Structure



Other considerations for municipalities for inputting data into the Cost Model are:

- Direct and indirect gross operating expenditures
- Inflation rates

- Assumed diversion rate changes
- Projected tonnage changes
- Projected changes to the customer base
- Projected staffing changes and salary increases

3.3.3. Application of the Cost Model for EPR Analysis

The EPR analysis leveraged data and methodologies that were established and used in previous work related to the development of the Cost Model. For example, the EPR analysis uses customer data (i.e. volume of waste generated, number of bins and bags, bin sizes and frequency of collection) to assess the cost per customer of delivering Blue Box recycling services. The EPR analysis also uses gross operating expenditures and non-rate base revenues that are allocated to each customer type, which is an output of the Cost Model. As was the case with the Cost Model, gross operating expenditures include direct operating costs incurred by Toronto to service each customer, as well as costs that are not directly incurred by Toronto's solid waste customers, including public goods and overhead costs.

The EPR analysis required a more detailed analysis of the Blue Box-specific expenditures currently incurred by SWMS than the original Cost Model provided. This was determined by working with staff to review and identify Blue Box services that could be impacted by a transition to an EPR system. In order to estimate the financial impact on the SWMS budget of removing these services, additional analysis was undertaken.

To refine the allocation of Blue Box-specific operational costs, a workshop was held with staff to review each of the cost centres in the SWMS operating budget, identify the Blue Box-related program costs, and determine if those costs are fixed or variable. Fixed costs are costs which will continue to be incurred under an EPR transition scenario where a municipality is no longer responsible for delivering the Blue Box recycling service. Examples of fixed costs include costs associated with the continued operations of Toronto's transfer stations, as municipalities will still be required to transfer non-Blue Box materials (i.e. garbage and organics). Variable costs are costs which the municipality is not expected to incur under the same scenario. Examples of variable costs include the Blue Box processing costs, as this responsibility will be fully borne and transitioned to producers.

The components of the EPR analysis are:

- Net Operating Expenditure by Cost Driver – Identify the portion of gross expenditures and non-rate base revenues related to Blue Box activities, to estimate the net operating Blue Box cost by customer type and by cost driver (e.g. number of pickups or tonnage).

- Stewardship Funding – Analysis of funding allocated to each customer type by activity (i.e. collection, processing, disposal, etc.) and identify the allocation of stewardship funding related to Blue Box materials.

- Breakdown of Non-Rate Base Revenues and Operating Expenditures by Type of Recycling Material –The Cost Model estimates the operating expenditures and non-rate base revenues allocated to specific Blue Box materials, including tires, municipal hazardous or special waste, and electronic waste.

- Breakdown of Operating Expenditures by Variable vs. Fixed costs – In order to estimate the financial impact to a municipality if it is no longer responsible for delivering Blue Box services, operating expenditures were categorized as variable costs and fixed costs.

3.3.4. Completing the Analysis

The following steps were undertaken to analyze the financial impact of transitioning the Blue Box Program to EPR:

- The Cost Model was updated with the most recent data related to Toronto's customer base (i.e. volume of waste generated, number of bins and bags, bin sizes and frequency of collection).

- Blue Box recycling-related gross operating expenditures for each activity (i.e. collection, processing, disposal, transfer, and overhead and public goods) by customer type and material type were calculated using the Cost Model. Collection costs have been allocated based on the frequency of curbside pickups and estimated tonnage from front-end loads. Curbside collection costs have been allocated by collection area, based on the number of pickups per customer type in each collection area. Costs associated with processing and transferring materials, disposal of garbage materials at landfills, system overhead costs and public goods costs have been allocated to all customers based on the estimated tonnage generated by each customer type.

- Non-rate base revenues for each activity by customer type and material type were calculated using the Cost Model. Non-rate base revenues were allocated based on tonnage. Specifically, stewardship funding was allocated based on tonnage to all residential customers and non-residential customers that are located on residential collection routes.

- Net expenditures were calculated by subtracting the non-rate base revenue from the total gross operating expenditures for each material, activity, and customer type.

- The gross expenditure, non-rate revenue and net expenditure per cost driver was calculated by dividing the total cost/revenue by the applicable cost driver for the activity, customer and material type.

- In order to estimate the financial impact to Toronto of no longer delivering Blue Box services, operating expenditures were categorized as variable costs and fixed costs. It was assumed that all variable costs would no longer be incurred if Toronto ceased providing Blue Box services, while the fixed costs would continue to be incurred, regardless of whether Blue Box services were provided.

- Gross operating expenditures were assessed on this basis by identifying the cost centres which would remain or be removed if Blue Box operations were transferred to producers.

- Non-rate base revenues, such as stewardship funding, which would no longer be received by SWMS if Blue Box operations were transferred to producers were also identified.

4. Project Outcomes

4.1. Project Results

The outputs from the Cost Model provide municipalities with a basis to estimate the potential financial impact on its overall operating budget of no longer providing residential Blue Box recycling services. The key output is the gross operating expenditures allocated to Blue Box recycling-related activities, broken down by the proportion of costs that would continue to be incurred or no longer incurred depending on whether the municipality is responsible for managing Blue Box recycling services. In addition, the activity-based costing exercise can assist in estimating the Blue Box recycling-related non-rate base revenues (including stewardship funding) that would no longer be received under a scenario where the municipality no longer provides Blue Box recycling services, which would partially offset any potential cost reductions to the operational budget.

4.2. Model outputs and findings for the City of Toronto

In summary, the activity-based costing exercise resulted in the following outputs:

- The total breakdown of Toronto's estimated recycling-related gross operating expenditures and non-rate based revenues.
- The amount of fixed costs that would remain with the City and the amount of variable costs that would no longer be incurred as a result of transition (as in percentage split between fixed and variable costs for each customer type).

With the outputs generated above, the City noted that the majority of recycling costs were incurred by residential customers (e.g. single-family households and multi-residential buildings) compared to other customer types (e.g. commercial, City facilities, schools and other non-residential sources). Additionally, following the transition of eligible costs to producers, Solid Waste Management Services' will have to consider potential changes to the solid waste rate model structure.

While it's too early to fully understand the cost implications of EPR for Toronto, it is estimated that the transition of Toronto's blue box program to producers will save the City approximately $15 million each year. This approximate figure is based on transitioning eligible costs (i.e. managing and processing blue box materials) to producers.

4.3. Lessons Learned

4.3.1. Properly Formatted Inputs and Establishing a Baseline

An established baseline using the most recent data is essential for the initiation of any projected financial analysis. Furthermore, the inputs that are used to establish a financial baseline through a full-cost accounting exercise should be formatted properly to minimize any potential field errors in an Excel-based costing template with formulas.

4.3.2. Establishing an Agreed-Upon Set of Assumptions

Prior to undertaking an activity-based costing exercise, a clear set of assumptions should be established. Any unknown specifics and assumptions should be vetted with subject matter experts outside of the municipal solid waste department (e.g. legal, financial planning, etc.) and if possible, supported by an

endorsement from Council. Feedback should also be sought from and validated by operations staff and contract managers to ensure that the assumptions are reasonable in depicting a "likely" scenario. To show the "full picture" of potential financial outcomes, opposite scenarios on each end of spectrum should also be analyzed (i.e. a scenario where the municipality has no role in managing eligible and ineligible sources to a scenario where the municipality will maintain all service deliveries on behalf of the producers). Analyzing a broad spectrum of scenarios will provide staff with a tiered set of options.

5. Project Budget

The Table 3 below outlines the total project budget and cost and the CIF funding received.

Table 3 - Project Funding and Invoicing

Item	Budget	Cost
Total Project	$800,000	$203,585
CIF Funding Percentage/Total	31%	$63,111.35
Total Funding (net of 1.76% non-recoverable taxes)	$250,000	$64,222.11

6. Conclusions

The activity-based costing exercise and User Guide by KPMG has provided Toronto with an easy-to-use financial analysis template to support evaluation into the upcoming transition to EPR under different scenarios. The Cost Model template can be used by any municipality to determine a baseline of current costs and estimate future costs based on different scenarios under an EPR transition and also based on changes to any fixed or variable costs.

This financial analysis will assist Toronto in negotiating the economic impact of transitioning the Blue Box program to full producer responsibility starting in 2023 with full consideration of the various customer types serviced. It will also help identify possible shifts to existing operations including co-collection systems, perpetual landfill costs, administrative/enforcement requirements, and rate-based program adjustments.

Appendix A – 2020 Acceptable Blue Box Materials – City of Toronto

Glass

- Bottles, jars (lids on)

Plastics

- Tubs, lids
- Clear food containers/clamshells
- Disposable plates, cups, berry containers (black items are garbage)
- Detergent, hand soap, shampoo bottles (lids, sprayers, pumps – on tight)
- Beverage bottles (lids on)
- Cat litter tubs with plastic handles
- Plastic paint pails (empty; remove metal handles, handles are garbage)
- Clear compact disk cases (empty; black cases are garbage)

Note: black plastic items cannot be recycled (put in garbage).

Metal

- Aluminum/steel cans
  (place lid in can and pinch closed)
- Aluminum trays, burner liners, pie plates, roasting pans
- Cookie tins
- Aerosol cans (empty; put plastic caps in the garbage)
- Paint cans (empty; remove lids and recycle separately)

Paper

- Bags
- Advertising mail, fine paper, envelopes (including window)
- Newspapers, flyers, directories, magazines, catalogues (remove over-wrap, recycle separately)
- Gift wrap, tissue paper, cards (no ribbons, bows, foil wrap)
- Shredded paper (put in clear plastic bag, tie closed)
- Soft/hard cover books

Cardboard

- Boxboard (e.g. cereal, tissue, detergent, shoe; remove liners, flatten, no freezer boxes)
- Corrugated cardboard (clean, unwaxed, flattened; pizza boxes must be empty; remove over-wrap from water/soft drink cases, recycle separately)
- Rolls (toilet, paper towel, wrapping paper)
- Milk/juice cartons and boxes (straws are garbage)
- Cans (e.g. chips, nuts, frozen juice – place metal end in can and pinch closed; pull-off strips are garbage)

Soft, stretchy plastics

- Milk bags (inner and outer)
- Bread bags (non-foil)
- Zipper lock bags (e.g. for sandwiches, freezer)
- Bulk food/produce bags
- Frozen fruit/vegetable bags (no stand-up pouches)
- Grocery/retail shopping bags
- Dry cleaning bags
- Newspaper/flyer, magazine bags (separate item from bag; recycle separately)
- Garden soil/manure/compost/road salt bags
- Diaper/feminine hygiene outer bags
- Over-wrap from toilet paper, napkins, paper towels, water/soft drink cases

Note: remove product before recycling.

Foam polystyrene

- Foam food and protective packaging
  (e.g. drinking cups, egg cartons, meat trays, takeout food containers, electronic packaging).

Note: black foam items cannot be recycled (put in garbage).