

# Compliance Plan

## Otter Lake Waste Processing & Disposal Facility

Submitted to NS Environment and Climate Change

### Prepared by:

Halifax Regional Municipality

Mirror Nova Scotia

June 29, 2022



**HALIFAX**

# Executive Summary

On March 22, 2022 Nova Scotia Environment and Climate Change (NSECC) issued an updated Municipal Approval (2008-065580-07) for the Otter Lake Waste Processing & Disposal Facility (Otter Lake) allowing the Front End Processor and Waste Stabilization Facility (FEP/WSF) to be deactivated upon the submission and acceptance of a Compliance Plan in accordance with the Approval requirements.

This Compliance Plan has been prepared to address the following Performance Targets outlined in Approval Condition 12 which states:

## 12. Performance Targets

- a. *The Performance Targets for this Facility include:*
  - i. *Compostable waste shall not exceed ten percent (10%) of total amount of municipal solid waste landfilled, by mass;*
  - ii. *White Goods and bulky wastes that can be recycled and that can be safely removed from the solid waste delivery vehicle or the RDF tipping face shall be removed and stored in accordance with the approved Operations and Maintenance Manual;*
  - iii. *Dangerous/Waste Dangerous Goods/Household Hazardous Wastes that are visible and can be safely removed from the solid waste delivery vehicle or the RDF tipping face shall be removed and stored in accordance with the approved Operations and Maintenance Manual.*
- b. *As per Condition 3.a.iii), the Approval Holder(s) shall operate the facility in accordance with any new Standard adopted by the Department regarding compliance with landfill disposal of banned materials.*

In order to characterize the current composition of Compostable Waste in the incoming residential waste stream and to assess compliance with Performance Targets set in the Approval, a standard Performance Audit process was established. The purpose of the audits is to quantify the Compostable Waste banned from landfill disposal being received at the facility. The Approval defines Compostable Waste as:

### 1. Definitions

- g. *Compostable wastes means food wastes, perishables, corrugated cardboard, newsprint, leaf/yard wastes, and all other organic wastes listed in Schedule 'B' – Designated Materials Banned from the Destruction or Disposal in Landfills and Incinerators in the Solid Waste-Resource Management Regulations, as amended from time to time.*

The initial Performance Audit was completed in May 2022. Representative samples were collected from each of the eight residential curbside collection areas and from condos over the period of May 12 to May 16, 2022. Overall, Compostable Waste was determined to be 8.01%, in

compliance with the Performance Target of 10%. It is noted that a minimum of four quarterly Performance Audits are needed to fully baseline the composition of Compostable Waste, to address sample variation including temporal and seasonal considerations, and to fully assess compliance with the Performance Target. Regardless, focusing on reducing the composition of Compostable Waste is key in ensuring long-term compliance with the Performance Targets.

HRM plans to bring awareness to the importance of keeping Compostable Waste out of the garbage stream through public promotion of waste reduction and diversion options. Additionally, a new category will be introduced on the curbside residential collection education rejection stickers specifically related to Compostable Waste in the garbage stream and HRM will work with contracted haulers to inspect for the presence of these banned materials in the garbage stream.

The table below summarizes the activities identified in this Compliance Plan, including timelines, to support meeting all Approval Performance Targets.

**Table E.1: Compliance Plan Summary and Timelines**

Initiative	New/ Modified Initiative	Details	Timeline
<b>Public Education</b>			
Campaign to reduce and divert Compostable Waste (Food Isn't Garbage)	New	Campaign focused on reducing and diverting Compostable Waste. Will include social media, print, radio ads and media interviews.	Start: July 2022 Run: 2022 and 2023
Feedback Monitoring by HRM Education Team (i.e., education targeted to individual dwellings)	Modified	Currently complete Feedback Monitoring based on Curbside Monitoring Program <sup>1</sup> . To complete additional feedback monitoring based on Curbside Enforcement and Landfill Operations.	Ongoing
HSW Promotion/Education	Modified	Campaign specifically addressing disposal options for left over paint (including aerosol containers), batteries, propane cylinders, and used motor oil.	Start: July 2022 Run: 2022 and 2023
<b>Curbside Enforcement</b>			
Implement new stickering category - Compostable Waste	New	Create new category on education rejection stickers for Compostable Waste. Used for curbside collection enforcement.	Implement by October 3, 2022

<sup>1</sup> To better understand residential waste collection participation rates and set out habits, Curbside Monitoring has been performed annually since 2015. Each year, neighbourhoods in six to eight electoral districts are monitored for an eight-week period by HRM Solid Waste Education Team staff.

Initiative	New/ Modified Initiative	Details	Timeline
Curbside Monitoring by HRM Operations Team	Modified	Previous monitoring focused on operational aspects such as health and safety. Modified initiative to periodically audit routes for hauler performance in applying education rejection stickers.	Implement by October 3, 2022
<b>Landfill Operations</b>			
Inspection of Incoming Loads/Tipped Loads and Rejections/Issuance of Waste Discrepancy Reports.	Modified	Continuation of inspection program at Otter Lake. Modified to reflect deactivation of the FEP/WSF with loads being directly tipped at the landfill.	Modified procedures to coincide with deactivation of the FEP/WSF
<b>Compliance Plan</b>			
Provide update to Compliance Plan after four Performance Audits are completed.	New	<p>The initial Performance Audit completed in May 2022 showed Compostable Waste to be 8.01%, in compliance with the Performance Target of 10%. Four quarterly Performance Audits are needed to fully assess and baseline the composition of Compostable Waste.</p> <p>Within 30 calendar days of completing four Performance Audits, HRM and Mirror NS propose an update to this Compliance Plan be submitted to NSECC, specifically assessing audit results against the Compostable Waste Performance Target of 10% and identifying timelines/milestones to meet the Performance Target (if required).</p>	<p>Performance Audits planned for:</p> <p>May 2022 Aug 2022 Nov 2022 Feb 2023</p> <p>Update to Compliance Plan to be submitted withing 30 calendar days to NSECC upon completing the fourth Performance Audit.</p>

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## Section 1 – Introduction

On March 22, 2022 Nova Scotia Environment and Climate Change (NSECC) issued an updated Municipal Approval (2008-065580-07) for the Otter Lake Waste Processing & Disposal Facility (Otter Lake) allowing the Front End Processor and Waste Stabilization Facility (FEP/WSF) to be deactivated upon the submission and acceptance of a Compliance Plan in accordance with the Approval requirements.

This Compliance Plan has been prepared in accordance with Approval Condition 13.a. which states:

### **13. Site Specific Conditions**

- a. *Prior to the discontinuation of the use of the FEP and WSF, the Approval Holder(s) shall submit to the Department a Compliance Plan detailing how the facility will achieve its Performance Targets, complete with dates, as stated in Section 12, on or before July 02, 2022, or as amended in writing by the Administrator.*
  - i. *At the direction of the Department, the Approval Holder(s) shall revise the Compliance Plan until accepted by the Department.*
  - ii. *The FEP and WSF shall continue to be required components of the operation of the Facility until written notification is received by the Approval Holder(s) from the Department confirming acceptance of the Compliance Plan.*

Approval Condition 12 states:

### **12. Performance Targets**

- c. *The Performance Targets for this Facility include:*
  - i. *Compostable waste shall not exceed ten percent (10%) of total amount of municipal solid waste landfilled, by mass;*
  - ii. *White Goods and bulky wastes that can be recycled and that can be safely removed from the solid waste delivery vehicle or the RDF tipping face shall be removed and stored in accordance with the approved Operations and Maintenance Manual;*
  - iii. *Dangerous/Waste Dangerous Goods/Household Hazardous Wastes that are visible and can be safely removed from the solid waste delivery vehicle or the RDF tipping face shall be removed and stored in accordance with the approved Operations and Maintenance Manual.*
- d. *As per Condition 3.a.iii), the Approval Holder(s) shall operate the facility in accordance with any new Standard adopted by the Department regarding compliance with landfill disposal of banned materials.*

The purpose of the Compliance Plan is to address the requirements of Approval Condition 13.a. including:

- Assessing the current composition of Compostable Waste in the incoming residential stream.
- Assessing current HRM solid waste program and landfill operations measures related to capturing/diverting Compostable Waste, recyclable white goods/bulky waste, and household special waste (HSW).
- Identifying new measures to improve capturing/diverting materials noted above.
- Providing implementation timelines for activities identified in this Compliance Plan.

## Section 2 – Performance Audits

### 2.1 Background

Performance Audits are to be completed in accordance with Approval Condition 13.e. which states:

#### **13. Site Specific Conditions**

- e. *The Approval Holder(s) shall conduct Performance Audits of the incoming Municipal Solid Waste, noting specifically the volumes at the RDF tipping face, to track compliance with the Facility's Performance Targets and Compliance Plan.*
  - I. *The Approval Holder(s) shall conduct Performance Audits at a minimum frequency of once per quarter.*
  - II. *The Approval Holder(s) shall conduct the first Performance Audit within ninety (90) days of the effective day of this approval.*
  - III. *As per Condition 3.j.) the Approval Holder(s) shall immediately notify the Department of a non-compliance determination from a Performance Audit.*
  - IV. *At the direction of the Department, the Approval Holder(s) shall retain the services of a third-party to conduct the Performance Audits.*

In order to characterize the current composition of Compostable Waste in the incoming residential waste stream and to assess compliance with Performance Targets set in the Approval, a standard Performance Audit process has been established. The purpose of the audits is to quantify the Compostable Waste banned from landfill disposal being received at the facility. The Approval defines Compostable Waste as:

#### **2. Definitions**

- h. *Compostable wastes means food wastes, perishables, corrugated cardboard, newsprint, leaf/yard wastes, and all other organic wastes listed in Schedule 'B' – Designated Materials Banned from the Destruction or Disposal in Landfills and Incinerators in the Solid Waste-Resource Management Regulations, as amended from time to time.*

For further clarity, the material sub-categories from the Divert NS 2017<sup>2</sup> Waste Audit and HRM 2016/2017 Waste Characterization reports have been compared and used to define the categories of Compostable Waste to be used in the Performance Audits for the incoming residential waste stream per discussions with NSECC staff, as outlined in the table below.

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<sup>2</sup> <https://divertns.ca/sites/default/files/researchreportsfiles/2021-09/WasteAudit2017.pdf>

**Table 2.1: Compostable Waste Material Categories and Past Audit Results**

<b>Material Type/Sub-category</b>	<b>HRM 2016/17 Characterization</b>	<b>Divert NS 2017 Waste Audit</b>
Organics <ul style="list-style-type: none"> <li>Whole Perishables</li> <li>Leftover Scraps</li> <li>Yard Waste</li> </ul>	9.92% <sup>1</sup>  0.62%	0.74% 7.69% 2.12%
Fibre <ul style="list-style-type: none"> <li>Newsprint - Dailies/Weeklies</li> <li>Corrugated Cardboard</li> </ul>	1.35% 0.88%	1.83% 0.34%
<b>Total Compostable Waste</b>	<b>12.77%</b>	<b>12.72%</b>

<sup>1</sup>The HRM Characterization included Whole Perishables and Leftover Scraps as a combined category – 'Food Waste'.

## 2.2 Performance Audit Methodology

The methodology described herein reflects best practices identified in the Divert NS Waste Audit Manual and Field Procedures Guide (2017), as well as site specific processes established by HRM. Both Divert NS and HRM methodologies were developed with reference to the Recommended Waste Characterization Methodology for Direct Waste Analysis Studies in Canada by SENES Consultants for CCME (1999).

### Sample Load Identification

Residential curbside collection is divided into eight collection areas in HRM, the geographic descriptions of which are described in the table below. Condominium properties are also considered to be residential and are provided with a commercial style multi-unit collection service.

To establish a baseline, an initial Performance Audit was completed in May 2022 and consisted of collecting one sample from each of the eight curbside collection areas and one sample from condos. Sampling of each collection area and condos will be repeated for the next three quarterly audits to further baseline the composition of Compostable Waste, to address sample variation including temporal and seasonal considerations, and to fully assess compliance with the Performance Target.

After one year of data has been collected, subsequent quarterly Performance Audits will consist of sorting a minimum of one sample from four different collection areas (including condos). As shown in Table 2.1, a minimum number of samples per collection area and for condos has been

identified to ensure adequate spatial and population density representation over the course of subsequent years.

**Table 2.2: Collection Area Descriptions and Minimum Sample Frequency**

Collection Area	Area Description	# of Samples (annual minimum <sup>1,2</sup> )
1	Halifax (former city limits), Spryfield	3
2	Dartmouth (former city limits)	3
3	Bedford, Hammonds Plains, Pockwock	2
4	Beechville-Timberlea, Herring Cove and all areas west (Prospect, Peggy's Cove, St. Margaret's Bay to Hubbards)	1
5	Sackville, Beaver Bank, Fall River, Waverley, Wellington, Dutch Settlement	2
6	Cole Harbour, Westphal, Cherry Brook, Eastern Passage, Cow Bay and Area	2
7	Porters Lake, Lawrencetown, Chezzetcook, Lake Echo, Prestons and Area	1
8	Middle Musquodoboit, Elderbank, Musquodobit Harbour, Sheet Harbour and Eastern Shore	1
Condos	Multi-residential style properties located in various communities.	1
Total Minimum # of Samples		16

<sup>1</sup>For the first year, all quarterly Performance Audits will consist of one sample from each of the eight curbside collection areas and one sample from condos. For subsequent years, the total minimum number of samples to be collected is outlined in the table.

<sup>2</sup>Garbage collection curbside occurs bi-weekly, with Areas 1, 5 and 6 collected one week and Areas 2, 3, 4, 7 and 8 collected on the alternate week. As such it is likely that quarterly audits will alternate on the same basis.

Based on records of known tip times of vehicles from specific collection areas compared to the scheduled audit time, sample loads will be selected ahead of time by HRM staff. A random number generator will be used to choose which vehicle will be sampled. The selected loads will be visually inspected on the tip floor or at the tip face upon arrival and pictures taken. The following information will be recorded for each load:

- Collection vehicle and route numbers
- Date/Time of arrival
- Date/Time sample taken

- Gross and tare weight of truck (used to establish net weight of material)
- Weight of sample
- The number/type of bulky items observed
- Names of persons taking the sample
- Date/Time of sorting

### Sample Size

The SENES methodology suggests a sample size of 90 to 135 kg for residential samples, therefore 135 kg will be the target.

Once the load has been emptied from the collection vehicle, multiple sections of the load will be selected to draw a sample that is representative of the load. Each sample should contain a mix of clear and black bags and avoid sections containing significant amounts of construction waste or bulky items.

To ensure an adequate sample weight is taken, all sample material will be weighed using a commercial floor scale.

### Material Categories

Samples will be sorted into Compostable Waste categories consistent with Divert NS 2017<sup>3</sup> Waste Audit and HRM 2016/2017 Waste Characterization reports, as shown in the table below. Materials which do not fall into one of these categories will be sorted, weighed, and categorized as other garbage.

**Table 2.3: Compostable Waste Sorting Categories**

Category /Material Type	Sub-Category	Examples
FIBRE	Newsprint/Paper	Herald, The Coast, Masthead News, The Cobequid/Dartmouth/Cole Harbour Wire, flyers, printed paper, paper plates
	Corrugated Cardboard/Boxboard	Boxes for consumer items (TVs, appliances), storage, filing, shipping (Amazon), boxboard

<sup>3</sup> <https://divertns.ca/sites/default/files/researchreportsfiles/2021-09/WasteAudit2017.pdf>

Category /Material Type	Sub-Category	Examples
ORGANICS	Food Waste	Whole vegetables, fruit, meat, fish  Leftover food waste, egg shells, peels, oils, bones, fat  Food in packaging is included if most of it consists of food
	Yard Waste	Grass clippings, leaves, brush, branches, wood chips, soil

## Sorting Procedures

The sorting team will consist of two to four people. Staff shall be briefed on sorting protocols, including familiarity with example materials for each sorting category. One person shall be designated as 'Lead' and will be responsible for quality control and data collection. An independent consultant has been retained to act as the Lead and independent observer of the Performance Audits for the first year of baseline data collection.

The audit space will be set up with tables for sorting materials, containers clearly labeled for each of the waste sub-categories and scales for weighing the materials. The containers used for sorting are all weighed prior to starting and recorded on the data sheet.

Each collection areas audit sample (~135 kgs) will be stored in a larger container, moved using a forklift and weighed using a commercial floor scale. A smaller scale will also be utilized for samples weighing less than 1.5 kg (including the container).

To maintain consistency, the Lead shall be designated to weigh and record data on the provided data collection sheets each time a container becomes full.

This process will continue until the sample has been sorted and weighed.

## 2.3 May 2022 Performance Audit Results

The initial Performance Audit was completed in May 2022. Representative samples were collected from each of the eight curbside collection areas and from condos over the period of May 12 to May 16, 2022. The samples were sorted into the respective categories noted in Table 2.3. Strum Consulting acted as the Lead in overseeing the Performance Audit, with Mirror NS staff completing the sampling and sorting activities. HRM representatives also observed Performance Audit activities. An Initial Performance Audit report is presented as Appendix 1.

The table below presents a summary of Compostable Waste for each sample. Overall, Compostable Waste was determined to be 8.01%<sup>4</sup>, in compliance with the Performance Target of 10%. It is noted that a minimum of four quarterly Performance Audits are needed to baseline the composition of Compostable Waste, to address sample variation including temporal and seasonal considerations, and to fully assess compliance with the Performance Target.

**Table 2.4: May 2022 Performance Audit Results**

Collection Area	Area Description	Compostable Waste (%)
1	Halifax (former city limits), Spryfield	15.40 %
2	Dartmouth (former city limits)	10.44 %
3	Bedford, Hammonds Plains, Pockwock	3.86 %
4	Beechville-Timberlea, Herring Cove and all areas west (Prospect, Peggy's Cove, St. Margaret's Bay to Hubbards)	3.26 %
5	Sackville, Beaver Bank, Fall River, Waverley, Wellington, Dutch Settlement	6.34 %
6	Cole Harbour, Westphal, Cherry Brook, Eastern Passage, Cow Bay and Area	3.39 %
7	Porters Lake, Lawrencetown, Chezzetcook, Lake Echo, Prestons and Area	3.96 %
8	Middle Musquodoboit, Elderbank, Musquodobit Harbour, Sheet Harbour and Eastern Shore	6.90 %
Condos	Multi-residential style properties located in various communities.	10.38 %
Overall % Compostable Waste <sup>1</sup>		8.01 %

<sup>1</sup>The overall composition of Compostable Waste was determined by weighing the sample result based on the tonnage historically collected from a collection area divided by the overall residential tonnage collected. See Appendix 1 for details.

<sup>4</sup> The overall composition of Compostable Waste was determined by weighing the sample result based on the tonnage historically collected from a collection area divided by the overall residential tonnage collected. See Appendix 1 for details.

## Section 3 Current Diversion Measures Related to Performance Targets

HRM's solid waste system includes facilities dedicated to the diversion of organics, recyclables and HSW. Additionally, HRM has a robust education and enforcement program to support diversion initiatives. The following sections will provide an overview of current program elements related to:

- Public Education
- Curbside Monitoring
- Hauler Education / Curbside Stickers Enforcement
- White Goods / CFC Removal Program
- HSW Program

### 3.1 Public Education

HRM's Solid Waste Resources Department employs five full-time Waste Resource Education Officers, which are funded by Divert NS through a yearly education contract. The Education Team delivers over 4,000 hours of education each year, which includes various programs and initiatives to educate the public and private sectors about proper waste management.

The Education Team has a suite of presentations that are offered to the public and can be delivered both in-person and virtually. A list of presentations that can be requested by residents of HRM through the "3 Rs Online" webpage include topics ranging from a basic "What Goes Where" presentation to in-depth sessions about backyard composting and waste reduction. The primary role of all education initiatives is to reduce the amount of banned materials going to landfill.



**3 Rs  
ONLINE**

FREE ONLINE LEARNING FROM  
HALIFAX SOLID WASTE RESOURCES

REGISTER FOR AN ONLINE WORKSHOP  
Visit: [halifax.ca/3rsonline](http://halifax.ca/3rsonline) or email: [wasteless@halifax.ca](mailto:wasteless@halifax.ca)

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For residents that want to go beyond the basics, the Education Team offers the Master Composter Recycler Program, which is a five-week program where participants can get an in-depth understanding of waste programs and facilities in HRM, ways to reduce waste at home, how to make and use their own compost, and diversion initiatives that go beyond Halifax's municipal programs. Since 2019, 137 participants have graduated from the Master Composter Recycler program.

Educators also deliver presentations in schools to discuss the importance of proper sorting and waste diversion. Children are taught from a young age how to participate in proper waste management through in-class workshops, facility tours, and Divert NS lesson plans for classroom engagement.

Residents of HRM can find information about waste programs through the Halifax Recycles App, the Halifax Recycles Facebook page, and the [Halifax.ca/Recycle](https://halifax.ca/Recycle) webpage. The app has over 113,000 users who can search items in the waste wizard and receive collection day notices and other important reminders. The Halifax Recycles Facebook page has over 8,600 subscribers and is used to promote the department's education initiatives, share helpful tips, and relay important service updates. Collection calendars and sorting guides (in five different languages) are available for download from [Halifax.ca/recycle](https://halifax.ca/recycle).

### 3.2 Curbside Monitoring

To better understand residential waste collection participation rates and set out habits, Curbside Monitoring has been performed annually since 2015. Each year, neighbourhoods in six to eight electoral districts are monitored for an eight-week period by Education Team staff.

Data is collected and evaluated for four solid waste measured categories: participation rates, set out sizes (e.g., number of bags), weekly generation, and set out methods. Participation rates report the percentage of residences that set out material for collection each week. Set out sizes and frequencies provide further details on household sorting and collection habits. Bag type distributions and receptacle usage show what set out methods are preferred by residents. When evaluated as a complete set, these results provide insights into residential waste behaviours and inform educational initiatives and policy decisions across diverse districts.

Curbside Monitoring results allow the Education Team to identify specific geographical areas that need targeted waste education based on low participation in recycling and organic streams. Educators return to these areas for Feedback Monitoring, wherein they visually inspect set outs for improper sorting or limit exceedances and provide education packages directly to residents. Examples include:

- 17 packages delivered to residents in Oakmount in March 2021 (Collection Area 3)
- 15 packages delivered in Stonington Park in March 2021 (Collection Area 3)
- 11 packages delivered in Woodside in February 2021 (Collection Area 2)
- 55 packages were delivered in Dartmouth in February 2019 (Collection Area 2)

- 54 packages were delivered in Eastern Passage in December 2018 (Collection Area 6)
- 24 packages were delivered in Cole Harbour in October 2018 (Collection Area 6)

Furthermore, the data collected as part of Curbside Monitoring has also been used to identify improvements to the Municipality's stickering enforcement program, which is further discussed below.

### **3.3 Hauler Education / Curbside Stickering Enforcement**

Contracted curbside collection haulers play a role in enforcing proper preparation, source-separation, and placement of residential waste. They issue education rejection stickers when residents do not comply with regulations outlined in HRM bylaws. The rejected material will have a sticker affixed with the reasons for rejections shown on the sticker. Some typical reasons for rejection of materials include improperly sorted waste (e.g., organics in garbage stream, plastics in the green cart), black bags in excess of the one bag limit, garbage bags or bulky items exceeding the allowed limit, and incorrectly bundled or contained items.

The hauler keeps a daily log indicating where education stickers have been placed, the type of education sticker placed (e.g. garbage, organics or recyclables) and why the materials were rejected. The total number of curbside education stickers issued for garbage and reported for all collection areas of HRM in Fiscal 2020/2021 was 13,883; and in Fiscal 2021/2022 was 10,208.

Based on a review of Fiscal 2020/21 and 2021/22 data, the most common reasons garbage is stickered and rejected at the curb are:

- Garbage being over the limit: either in excess of the black bag limit (one bag) or in excess of the limit for total number of garbage bags (e.g., six bags for single detached dwelling).
- Garbage – Other: includes placement of unacceptable items such as car parts or tires, placement of renovation materials that are too big, etc.
- Garbage not contained: loose materials.
- Bulky items over the limit: one large bulky item can be placed curbside with each garbage collection period.

Periodically the stickering data is reviewed to identify program improvements and to reinforce proper use of the education stickers by the haulers. Recent examples have included:

- Educating the hauler staff to more consistently use all the sticker categories (i.e., resulting in less use of the Other categories).
- Training the hauler customer service staff to note late placements in the appropriate area of the daily collection route logs.
- Advertising campaigns such as:
  - "Recycle Right" focused on ensuring recyclable material (such as fibre) is properly recycled.
  - "What Goes Where" Wednesdays posts where proper recycling is emphasized.

- “What Goes Where” and “Master Composter Recycler” presentations that explain proper recycling stream by stream.

The HRM Solid Waste Education and Operations Teams jointly deliver Hauler Workshops to haulers front-line staff, supervisors, and managers, generally one to two times annually, to reinforce procedural expectations and address collection challenges. Stickers data and findings from Curbside Monitoring are used in support of providing feedback to the haulers. Topics for Hauler Workshops in the past year have included rejections for black bag limit exceedances, the importance of accurate hauler route logs, and health and safety.

Additionally, HRM has provided the haulers a training video on HRM’s solid waste program. The training video includes a brief overview of Halifax’s Solid Waste Resources Management System, information on collection procedures and limits, sticker procedures, waste processing facilities, and hauler duties and responsibilities. All haulers’ staff are expected to complete the training video.

### **3.4 White Goods / CFC Removal Program**

The Education Team has several initiatives to aid the diversion of bulky items (e.g., couches) and white goods (e.g., refrigerators) from the landfill. Reuse culture is a primary educational message that is promoted through presentations, workshops, and social media posts. Many bulky items and white goods that may end up in the landfill can be donated or offered for trade or giveaway. Twice a year, HRM holds a Curbside Giveaway Event, in which residents can place gently used items to the curb for others to claim.

As part of the residential curbside collection program, residents are allowed to place one bulky item or white good out with each garbage collection cycle. Additionally, HRM provides a CFC (refrigerant) removal service from white goods prior to collection at no cost to residents. Residents contact 311 for eligible white goods (e.g., refrigerators, freezers, dehumidifiers, window air conditioners) and a contractor arranges to remove the CFCs and places a confirmatory sticker on the white good. The resident then places the white good curbside for garbage collection. The hauler then collects the white goods with a separate collection vehicle and delivers the items to Otter Lake where they are unloaded in a dedicated area for metal recycling.

Between 2018 and 2021, approximately 650-1,000 tonnes of metal was recovered and recycled each year, with the majority being white goods collected as part of the residential curbside collection program. Deactivation of the FEP/WSF will not impact the separate collection and diversion of white goods as part of the residential curbside collection program.

### **3.5 HSW Program**

HRM provides a Household Special Waste (HSW) program to capture special wastes that are generated in homes. The program consists of one permanent HSW Depot located at the Materials Recovery Facility (MRF), 20 Horseshoe Lake Drive in the Bayer’s Lake Business Park. It is open on most Saturdays from 9:00 am to 4:00 pm. Additionally, the Municipality hosts mobile HSW

Depot events each year to service residents in communities across HRM. Mobile events are located in areas of the Municipality that are further away from Bayer's Lake to provide easier access to the program. The Municipality initially rolled out mobile events starting in 2002 with two events. The number of mobile events has increased to 9, 10 and 11 in 2016, 2017, and 2018, respectively. In 2021/2022, Halifax Regional Council increased the number of mobile events from 11 to 17. This increased level of service will continue for 2022/2023.

Items that are accepted include (but are not limited to):

- batteries
- leftover paint and empty paint cans
- corrosive cleaners
- gasoline
- used motor oil and fuel
- solvents and thinners
- medications
- aerosol cans containing hazardous substances
- propane tanks and cylinders
- residential fire extinguishers
- compact fluorescent light bulbs

HSW Depots are promoted through the Halifax Recycles App, the Halifax webpage, social media, and print media. Information about the importance of proper disposal of hazardous waste is provided in educational presentations and residential visits. Many items that are accepted at the HSW Depots can be taken to alternative locations for disposal which may be more convenient for residents. These alternative options are provided through the What Goes Where Wizard on the Halifax Recycles App and website.

Some HSW has historically been recovered in the FEP, in the order of 14 to 20 tonnes annually (e.g., camping cylinders, batteries, household chemicals such as paint), as shown in table below. By comparison, HRM's HSW program (i.e., HSW Depots) captures in the order of 500 to 900 tonnes of HSW annually. In 2018, 2019, and 2021 HRM's HSW program captured over 40 times the quantity of HSW captured by the FEP. Due to Covid-19, Mobile HSW Depots were cancelled in 2020, which resulted in a somewhat lower recovery.

**Table 3.1: Household Special Waste (HSW) recovered in the FEP and HSW Program**

HSW Categories	Quantities of HSW Recovered in FEP (estimated in tonnes)				Quantities of HSW Recovered from HSW Permanent and Mobile Depots (estimated in tonnes)			
	2018	2019	2020	2021	2018	2019	2020	2021
Cylinders (e.g., camping cyclinders)	8.8	10.6	11.1	10.0	36.5	36.7	17.2	52.8
Batteries	3.3	3.8	4.8	2.8	8.9	12.6	8.8	28.8
Household Chemicals (e.g., paint, oil, bulbs)	2.5	2.8	4.1	3.1	466.9	503.4	307.5	822.0
<b>Total</b>	<b>14.5</b>	<b>17.2</b>	<b>20.0</b>	<b>15.9</b>	<b>512.3</b>	<b>552.6</b>	<b>333.5</b>	<b>903.6</b>

## Section 4 – New Diversion Measures to Meet Performance Targets

The updated Municipal Approval requires that the Compliance Plan address how the Performance Targets will be met as outlined in Approval Condition 12 which states:

### **12. Performance Targets**

- a. *The Performance Targets for this Facility include:*
  - i. *Compostable waste shall not exceed ten percent (10%) of total amount of municipal solid waste landfilled, by mass;*
  - ii. *White Goods and bulky wastes that can be recycled and that can be safely removed from the solid waste delivery vehicle or the RDF tipping face shall be removed and stored in accordance with the approved Operations and Maintenance Manual;*
  - iii. *Dangerous/Waste Dangerous Goods/Household Hazardous Wastes that are visible and can be safely removed from the solid waste delivery vehicle or the RDF tipping face shall be removed and stored in accordance with the approved Operations and Maintenance Manual.*

As noted in Section 2, based on the initial Performance Audit completed in May 2022, Compostable Waste was determined to be 8.01%, in compliance with the Performance Target of 10%. It is noted that a minimum of four quarterly Performance Audits are needed to baseline the composition of Compostable Waste, to address sample variation including temporal and seasonal considerations, and to fully assess compliance with the Performance Target. Regardless of the initial Performance Audit results, focusing on reducing the amount of Compostable Waste is key in ensuring long-term compliance with the Performance Targets.

HRM plans to bring awareness to the importance of keeping Compostable Waste out of the garbage stream through promoting waste reduction and diversion options. Additionally, a new category will be introduced on collection education rejection stickers specifically related to Compostable Waste in the garbage stream and HRM will work with contracted haulers to inspect for the presence of these banned materials.

### **4.1 Public Education**

HRM plans to build on existing public education diversion initiatives such as the 3 Rs Online, What Goes Where Presentations and Master Composter Recycler Program, to create and promote a new *Food Isn't Garbage* campaign focused on reducing and diverting Compostable Waste. The campaign will be promoted via multi-media such as social media, print, and radio and media interviews on this topic will be pursued. This messaging will also be incorporated into presentations at schools, community events, and our "What Goes Where" Wednesday Posts.

Additionally, existing HSW education and promotion will be enhanced by further promoting disposal options specifically related to items typically recovered in the FEP such as left over paint (including aerosol containers), batteries, propane cylinders, and used motor oil. The promotion of this campaign will be conducted through social media as well through paid advertising.

The HRM Education Team will also aim to complete more Feedback Monitoring, providing education packages directly to residents based on curbside warnings or rejections, as noted further in the following section.

## **4.2 Curbside Enforcement**

A new category will be introduced on collection education rejection stickers specifically related to Compostable Waste in the garbage stream. HRM's Operations Team will work with contracted haulers to review inspection protocols for the presence of these banned materials in the garbage stream. The Operations Team will complete curbside audits on the performance of the haulers in appropriately rejecting garbage curbside with a focus on Compostable Waste, bag limits, privacy bag limits, and HSW. Furthermore, there will be a focus on ensuring that recyclable white goods are being collected by a separate vehicle (i.e., for the purposes of diversion at Otter Lake).

These collective efforts will also support identifying dwellings where Feedback Monitoring is warranted.

## **4.3 Landfill Operations**

Otter Lake is operated by Mirror NS and accepts both residential and Industrial, Commercial, and Institutional (ICI) waste streams. Following acceptance of this Compliance Plan by NSECC, residential waste will go directly to the Residual Disposal Facility (RDF) tip face and ICI material will continue to be directed to the Transfer Station and removed from the facility. Existing procedures for waste receiving and unacceptable materials identification will remain largely unchanged with some new steps required to inspect residential waste at the RDF tip face. For the purposes of this this Compliance Plan, unacceptable waste is considered as Compostable Waste, white / bulky goods, and HSW.

Mirror NS works diligently to ensure unacceptable wastes are not delivered to the facility, and if they are delivered, that they are handled appropriately and removed from the waste stream if possible. A sign is maintained at the facility entrance indicating what types of waste are prohibited and regular waste haulers are provided with communications outlining site policy and prohibited wastes. Vehicles containing waste that enter the facility proceed to the scale house where the driver is questioned about the waste source and type. If unacceptable materials are identified at the scale house the load will be rejected or partially rejected (i.e., unacceptable material will not be offloaded).

Waste is also visually inspected once it is unloaded at either the RDF working face or Transfer Station tip floor. Loads containing primarily Compostable Waste (by visual inspection) will be identified and if the waste is segregable the compostable portion may be loaded back into the

haulers vehicle for removal from the site. If the Compostable Waste is not segregable, photos and a warning report will be completed. This information will supplement the Compostable Waste information collected during the Performance Audits and allow HRM to complete targeted education (e.g., feedback monitoring) as required.

Visually identified white goods or bulky wastes that can be recycled and that can be safely removed from the working face will be removed with the use of heavy equipment. Materials that are removed will be temporarily stored close to the working face before being transferred to the White Goods Storage Area. Additionally, white goods or bulky wastes that can be recycled that are received at public drop off are directed to a dedicated roll-off container. Once full, the contents of this roll-off container are transferred to the White Goods Storage Area. Visually identified HSW will be removed from the working face if it can be done safely. Materials removed will be temporarily stored close to the working face before being transferred to the Hazardous Waste Storage Area. From there they will be removed from the site by a third-party contractor.

The following are the response procedures to be used after identification of unacceptable materials. If unacceptable materials are declared by the driver of the delivery vehicle:

- The vehicle will be held at the scalehouse.
- The General Manager or Supervisor or trained employee will be contacted to complete Waste Discrepancy Report (WDR) containing:
  - Drivers name and vehicle license number.
  - Drivers name and vehicle license number.
  - Hauling Company name and address.
  - Type and origin of materials as identified by driver.
  - Provide with WDR and reject load.

If unacceptable materials are identified during unloading:

- Unloading will be stopped.
- The Transfer Station Supervisor or RDF Traffic Spotter will complete a WDR as above.
- The driver will be instructed to re-load unacceptable material for its removal from the Facility.
- Where the driver is unable to re-load the unacceptable material, Mirror NS will aid in this function.
- The load will be rejected

It is acknowledged that WDRs are typically generated for ICI loads given current robust protocols for residential waste which is inspected and rejected curbside, as needed, due to HRM service standards for contracted residential haulers. Regardless, any residential loads that are noted to contain unacceptable materials will be identified and communicated to HRM regularly to allow for further targeted education (e.g., Feedback Monitoring).

## Section 5 – Compliance Plan Summary and Timelines

The updated Municipal Approval requires the following prior to the deactivation of the FEP/WSF as outlined in Approval Condition 13 which states:

### **13. Site Specific Conditions**

- a. *Prior to the discontinuation of use of the FEP and WSF, the Approval Holder(s) shall submit to the Department a Compliance Plan detailing how the facility will achieve its Performance Targets, complete with milestone dates, as stated in Section 12, on or before July 02, 2022, or as amended in writing by the Administrator.*
  - i. *At the direction of the Department, the Approval Holder(s) shall revise the Compliance Plan until accepted by the Department.*
  - ii. *The FEP and WSF shall continue to be required components of the operation of this Facility until written notification is received by the Approval Holder(s) from the Department confirming acceptance of the Compliance Plan.*

As noted in Section 2, based on the initial Performance Audit completed in May 2022, Compostable Waste was determined to be 8.01%, in compliance with the Performance Target of 10%. It is noted that a minimum of four quarterly Performance Audits are needed to baseline the composition of Compostable Waste, to address sample variation including temporal and seasonal considerations, and to fully assess compliance with the Performance Target.

Within 30 calendar days of completing the first four Performance Audits, HRM and Mirror NS propose that an update to this Compliance Plan be submitted to NSECC, specifically assessing meeting the Compostable Waste Performance Target of 10% and identifying timelines/milestones to meet the Performance Target (if required).

The table below summarizes the activities identified in this Compliance Plan, including timelines, to support meeting all Approval Performance Targets.

**Table 5.1: Compliance Plan Summary and Timelines**

Initiative	New/ Modified Initiative	Details	Timeline
<b>Public Education</b>			
Campaign to reduce and divert Compostable Waste ( <i>Food Isn't Garbage</i> )	New	Campaign focused on reducing and diverting Compostable Waste. Will include social media, print, radio ads and media interviews.	Start: July 2022 Run: 2022 and 2023
Feedback Monitoring by HRM Education Team (i.e., education targeted to individual dwellings)	Modified	Currently complete Feedback Monitoring based on Curbside Monitoring Program. To complete additional feedback monitoring based on Curbside Enforcement and Landfill Operations.	Ongoing
HSW Promotion/Education	Modified	Campaign specifically addressing disposal options for left over paint (including aerosol containers), batteries, propane cylinders, and used motor oil.	Start: July 2022 Run: 2022 and 2023
<b>Curbside Enforcement</b>			
Implement new sticker category - Compostable Waste	New	Create new category on education rejection stickers for Compostable Waste. Used for curbside collection enforcement.	Implement by October 3, 2022
Curbside Monitoring by HRM Operations Team	Modified	Previous monitoring focused on operational aspects such as health and safety. Modified initiative to periodically audit routes for hauler performance in applying education rejection stickers.	Implement by October 3, 2022
<b>Landfill Operations</b>			
Inspection of Incoming Loads/Tipped Loads and Rejections/Issuance of Waste Discrepancy Reports.	Modified	Continuation of inspection program at Otter Lake. Modified to reflect deactivation of the FEP/WSF with loads being directly tipped at the landfill.	Modified procedures to coincide with deactivation of the FEP/WSF
<b>Compliance Plan</b>			

Initiative	New/ Modified Initiative	Details	Timeline
Provide update to Compliance Plan after four Performance Audits are completed.	New	<p>The initial Performance Audit completed in May 2022 showed Compostable Waste to be 8.01%, in compliance with the Performance Target of 10%. Four quarterly Performance Audits are needed to fully assess and baseline the composition of Compostable Waste.</p> <p>Within 30 calendar days of completing four Performance Audits, HRM and Mirror NS propose an update to this Compliance Plan be submitted to NSECC, specifically assessing audit results against the Compostable Waste Performance Target of 10% and identifying timelines/milestones to meet the Performance Target (if required).</p>	<p>Performance Audits planned for: May 2022 Aug 2022 Nov 2022 Feb 2023</p> <p>Update to Compliance Plan to be submitted within 30 calendar days to NSECC upon completing the fourth Performance Audit.</p>

## **Attachment 1 – Initial Performance Audit, Strum Consulting**



June 22, 2022

**Mr. Steve Copp**  
**Mirror Nova Scotia Limited**  
600 Otter Lake Drive  
Lakeside, NS B3T 2E2

Dear Mr. Copp,

**Re: Initial Performance Audit**  
**Otter Lake Waste Processing & Disposal Facility**

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In May 2022, Strum Consulting was retained by Mirror Nova Scotia Limited (Mirror) to oversee an Initial Performance Audit at the Otter Lake Waste Processing & Disposal Facility (Otter Lake) located at 600 Otter Lake Drive in Lakeside, NS.

The purpose of the Initial Performance Audit is to establish a baseline for future waste auditing purposes. This letter report provides a summary of the Initial Performance Audit completed on May 19, 2022.

### **Background**

In March 2022, Nova Scotia Environment & Climate Change (NSECC) issued an updated Municipal Approval for Otter Lake, allowing the Front End Processor and Waste Stabilization Facility (FEP/WSF) to be deactivated upon the submission and acceptance of a Compliance Plan in accordance with the Approval requirements.

As per the Approval, the Performance Targets for Otter Lake include (but are not limited to) compostable waste not exceeding ten percent (10%) of the total amount of municipal solid waste landfilled, by mass. Prior to the deactivation of the FEP and WSF, the submitted Compliance Plan must include details of how Performance Targets will be achieved. The Compliance Plan also outlines how Performance Audits will be completed as a means to quantify the presence of compostable waste banned from landfill disposal which is being received at Otter Lake.

Given the above, Performance Audits will be completed to characterize the composition of compostable waste in the incoming residential waste stream and to assess compliance with Performance Targets. To establish a baseline for future Performance Audits, an Initial Performance Audit was completed which is detailed in this report.

Engineering • Surveying • Environmental

Head Office  
Railside, 1355 Bedford Hwy.  
Bedford, NS B4A 1C5  
t. 902.835.5560 (24/7)  
f. 902.835.5574

Antigonish Office  
3-A Vincent's Way  
Antigonish, NS B2G 2X3  
t. 902.863.1465 (24/7)  
f. 902.863.1389

Moncton Office  
45 Price Street  
Moncton, NB E1A 3R1  
t. 1.855.770.5560 (24/7)  
f. 902.835.5574

St. John's Office  
#E120 - 120 Torbay Road  
St. John's, NL A1A 2G8  
t. 709.738.8478 (24/7)  
f. 709.738.8494

## Methodology

The methodology followed for the Initial Performance Audit reflects best practices identified in the Divert NS Waste Audit Manual and Field Procedures Guide (2017), as well as site specific processes established by Halifax Regional Municipality (HRM), and is summarized below.

### Sample Load Identification

Residential curbside collection is divided into eight collection areas in HRM and condominium properties which are also considered to be residential. The geographic descriptions of the various areas are described in Table A, below.

**Table A: Collection Area Descriptions**

Waste Collection Area	Area Description
1	Halifax (former city limits); Spryfield
2	Dartmouth (former city limits)
3	Bedford; Hammonds Plains; Pockwock
4	Beechville-Timberlea; Herring Cove; Prospect; Peggy's Cove; St. Margaret's Bay to Hubbards
5	Sackville; Beaver Bank; Rall River; Waverley, Wellington; Dutch Settlement
6	Cole Harbour; Westphal; Cherry Brook; Eastern Passage; Cow Bay
7	Porters Lake; Lawrencetown; Chezzetcook; Lake Echo; Preston
8	Middle Musquodoboit; Musquodoboit Harbour; Elderbank; Sheet Harbour; Eastern Shore
Condos	Multi-residential style properties located in various communities

Based on residential curbside collection schedules for each specific collection areas and the scheduled audit date and time, sample loads are selected ahead of time by HRM staff. A random number generator is used to choose which vehicle would be sampled. One sample from each of the eight curbside collection areas and one sample from condos were assessed as part of the Initial Performance Audit.

The selected loads were visually inspected on the top floor upon arrival and photographs were taken as shown in the attached photo log. The following information was recorded for each load:

- Collection vehicle and route numbers
- Date/Time of arrival
- Date/Time sample taken
- Gross and tare weight of truck
- Weight of sample
- Number/type of bulky items observed
- Names of persons taking the sample
- Date/Time of sorting

### Sample Size

Once emptied from the vehicle, multiple sections of the load were selected in order to draw a sample that was representative of the load. Each sample was to contain a mix of clear and black bags. Sections containing significant amounts of construction waste or bulky items were avoided. Containers shown in Photo 2 (Attachment 1) were used to collect a sample between 90 and 135 kg. This data, as well as dates/times and categorization of materials, were recorded by Strum staff during the Performance Audit.

Photographs (Attachment 1) of the auditing process, records documenting the identifying information of each vehicle sampled (scale tickets - Attachment 2), and the Performance Audit Record field data sheets (Attachment 3) are attached to this report.

### Material Categories

The categories that were used to define the different types of compostable waste are consistent with the Approval and are outlined below in Table B.

**Table B: Compostable Waste Sorting Categories**

Category	Sub-Category	Examples
Fibre	Newsprint/Paper	The Chronicle Herald, The Coast, Masthead News, The Cobequid/Dartmouth/Cole Harbour Wire, flyers
	Corrugated Cardboard/Boxboard	Consumer boxes (e.g., from appliances, storage, filing, and shipping)
Organics	Food Waste	Whole vegetables, fruit, meat, fish, leftover food waste, egg shells, peels, oils, bones, fat, packaged food if most of it consists of food
	Yard Waste	Grass, leaves, brush, branches, wood chips, soil

Materials which did not fall into one of the above noted categories were counted, weighed, and categorized as other garbage.

### Sorting Procedure

The sorting team consisted of three to five Mirror staff. All staff was briefed on the sorting protocols, including familiarity with example materials for each sorting category. Strum staff was designated as "Lead" and was responsible for quality control and data collection.

The audit space consisted of an open area set up with tables for sorting waste materials, containers clearly labeled for each of the waste categories, and digital scales for weighing the waste materials. The containers used for sorting were weighted prior to commencing the audit and recorded on the data sheets to allow for net sample weights to be determined.

To maintain consistency, the Lead was responsible for weighing and recording the data on dedicated data sheets for each area, each time a container was filled. The process continued for each respective area until the full sample was properly sorted and weighed.

### Initial Performance Audit Summary

A summary of the May 2022 Initial Performance Audit completed at Otter Lake is provided below in Table C. As previously mentioned, the Initial Performance Audit field data sheets containing the data collected respective to each waste collection area during the audit are attached to this report as Attachment 3.

**Table C: Initial Performance Audit Results**

Waste Collection Area	Category Percentage (%)					
	Garbage/Residue	Fibre - Newsprint/Paper	Fibre - Corrugated Cardboard	Organics - Food/Putrescible Waste	Organics - Yard Waste	Total Compostable Waste
1	83.97%	1.67%	0.49%	13.07%	0.17%	15.40%
2	88.99%	1.94%	1.41%	7.09%	0.00%	10.44%
3	95.96%	1.07%	1.73%	1.07%	0.00%	3.87%
4	96.37%	0.81%	1.90%	0.56%	0.00%	3.27%
5	93.49%	0.27%	0.14%	5.55%	0.38%	6.34%
6	96.33%	0.73%	1.27%	1.35%	0.04%	3.39%
7	95.67%	0.12%	1.24%	2.60%	0.00%	3.96%
8	92.72%	1.80%	2.30%	2.80%	0.00%	6.90%
Condos	89.64%	0.59%	0.81%	6.80%	2.34%	10.54%

Notes: 1. Total compostable waste percentage based on aggregate of four compostable waste category percentages.

The above-noted data collected during the May 2022 Initial Performance Audit will be utilized to establish a baseline for future waste auditing purposes.

Using the data in Table C above, the total compostable waste percentage ranged from a minimum of 3.27% (Area 4) to a maximum of 15.4% (Area 1), with a mean of 7.12% based on only nine (9) samples being collected during the May 2022 Initial Performance Audit. As additional sampling will be completed during future audits, it is expected that the statistical data will vary as more data becomes available.

### Overall Compostable Waste

As shown in Table D below, given the compostable waste percentage per area calculated during the May 2022 Initial Performance Audit and the three year average of waste tonnage per area, the estimated compostable waste tonnage per year has been calculated. Using the totals of the Estimated Annual Compostable Waste (3,918.84 tonnes) and the three year waste average total (48,923.20 tonnes), the Compostable Waste Percentage is calculated to be 8.01%.

**Table D: Estimated Annual Compostable Waste**

Waste Collection Area	Three Year Waste Average (Tonnes)	Three Year Waste Average (% Total)	Total Compostable Waste % from May 2022 Audit	Estimated Annual Compostable Waste (Tonnes)
1	9918.30	20.27%	15.4%	1527.42
2	6866.42	14.04%	10.44%	716.85
3	4358.45	8.91%	3.87%	168.67
4	5304.70	10.84%	3.27%	173.46
5	8372.02	17.11%	6.34%	530.79
6	5130.17	10.49%	3.39%	173.96
7	2962.13	6.05%	3.96%	117.30
8	3383.67	6.92%	6.90%	233.47
Condos	2627.33	5.37%	10.54%	276.92
TOTAL	48923.20	100.00%	N/A	3918.84
Compostable Waste Percentage = $(3918.84/48923.20) \times 100 = 8.01\%$				

Notes: 1. Data used to calculate three year average provided by Mirror and included tonnage from the fiscal years 2019/2020, 2020/2021, and 2021/2022.

By completing a statistical analysis of the data in Table D above, the Estimated Annual Compostable Waste per area ranged from a minimum of 117.30 tonnes (Area 7) to a maximum of 1527.42 tonnes (Area 1), with a mean of 435.43 tonnes and standard deviation of 454.97 tonnes.

At 95% confidence interval, the Estimated Average Annual Compostable Waste tonnage per area is calculated to be between 85.71 tonnes (lower bound) and 785.15 tonnes (upper bound). The confidence interval was calculated by subtracting/adding the calculated 95% confidence level (349.72) from the mean (435.43 tonnes). By dividing the lower bound (85.71 tonnes) and upper bound (785.15 tonnes) of the 95% confidence interval by the Total Estimated Annual Compostable Waste (3,918.84 tonnes), and multiplying the values by 100, the percentage of Estimated Annual Compostable Waste is calculated to be between 2.19% and 20.04%.

The above noted statistical analysis is based on the nine samples collected during the May 2022 Initial Performance Audit. As additional sampling will be completed during future audits, it is expected that the statistical data will vary as more data becomes available. As noted previously, the data collected during the May 2022 Initial Performance Audit will be utilized to establish a baseline for future waste auditing purposes.

### Closure

This report was prepared by Danielle Graves, B.E.S., Field Coordinator and reviewed by James Foley, P.Geo., Project Manager. Should additional information become available, Strum requests that this information be brought to our attention immediately so that we can re-assess the conclusions presented in this report.

This Report and any use of the Report is subject to the terms herein (see attached Statement of Qualifications and Limitations).

If you have any questions, please contact us.

Thank you,



Danielle Graves, B.E.S.  
Field Coordinator  
[dgraves@stum.com](mailto:dgraves@stum.com)



James Foley, P.Geo.  
Project Manager  
[jfoley@strum.com](mailto:jfoley@strum.com)

## **Statement of Qualifications and Limitations**

This Report (the "Report") has been prepared by Strum Consulting ("Consultant") for the benefit of Mirror Nova Scotia Limited ("Client") in accordance with the agreement between Consultant and Client, including the scope of work detailed therein (the "Agreement").

The information, data, recommendations, and conclusions contained in the Report (collectively, the "Information"):

- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the "Limitations")
- represents Consultant's professional judgement in light of the Limitations and industry standards for the preparation of similar reports
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- has not been updated since the date of issuance of the Report and its accuracy is limited to the time period and circumstances in which it was collected, processed, made or issued
- must be read as a whole and sections thereof should not be read out of such context
- was prepared for the specific purposes described in the Report and the Agreement
- in the case of subsurface, environmental, or geotechnical conditions, may be based on limited testing and on the assumption that such conditions are uniform and not variable either geographically or over time

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ATTACHMENT 1  
PHOTO LOG

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Photo 1: Waste collection vehicle unloading waste collected from HRM collection area 1. Photo taken on May 16, 2022.



Photo 2: Waste audit sample collected from HRM collection area 1. Photo taken on May 19, 2022 during waste audit.



Photo 3: Food Waste bin #1 sorted from HRM collection area 1. Photo taken May 19, 2022 during waste audit.



Photo 4: Food waste bin #2 sorted from HRM collection area 1. Photo taken May 19, 2022 during waste audit.



Photo 5: Fiber-OCC sorted from HRM collection area 1.  
Photo taken May 19, 2022 during waste audit.



Photo 6: Fiber- Newspaper/Paper bin #1 sorted from HRM collection area 1.  
Photo taken May 19, 2022 during waste audit.



Photo 7: Fiber- Newspaper/Paper bin #2 sorted from HRM collection area 1.  
Photo taken May 19, 2022 during waste audit.



Photo 8: Garbage/Residue sorted from HRM collection area 1.  
Photo taken May 19, 2022 during waste audit.



Photo 9: Waste pile from HRM collections area 2.  
Photo collected May 13, 2022



Photo 10: Waste audit sample from HRM collection area 2.  
Photo collected May 13, 2022.



Photo 11: Waste audit sample collected from HRM collection area 2.  
Photo taken on May 19, 2022 during waste audit.



Photo 12: Food waste bin sorted from HRM collection area 2.  
Photo taken May 19, 2022 during waste audit.



Photo 13: Fiber – Newspaper/ Paper bin sorted from HRM collection area 2.  
Photo taken May 19, 2022 during waste audit.



Photo 14: Fiber – OCC bin sorted from HRM collection area 2.  
Photo taken May 19, 2022 during waste audit.



Photo 15: Weighing of Garbage/Residue bin sorted from HRM collection area 2.  
Photo taken May 19, 2022 during waste audit.



Photo 16: Waste audit sample collected from HRM collection area 3.  
Photo taken on May 19, 2022 during waste audit.



Photo 17: Waste collection vehicle unloading waste collected from HRM collection area 3. Photo taken on May 12, 2022.



Photo 18: Waste audit sample from HRM collection area 3. Photo collected May 12, 2022.



Photo 19: Food waste bin sorted from HRM collection area 3. Photo taken May 19, 2022 during waste audit.



Photo 20: Fiber – Newspaper/ Paper bin sorted from HRM collection area 3. Photo taken May 19, 2022 during waste audit.



Photo 21: Fiber – OCC bin #1 sorted from HRM collection area 3.  
Photo taken May 19, 2022 during waste audit.



Photo 22: Fiber – OCC bin #2 sorted from HRM collection area 3.  
Photo taken May 19, 2022 during waste audit.



Photo 23: Weighing of Garbage/Residue bin sorted from HRM collection area 3.  
Photo taken May 19, 2022 during waste audit.



Photo 24: Waste audit sample collected from HRM collection area 4.  
Photo taken on May 19, 2022 during waste audit.



Photo 25: Waste collection vehicle unloading waste collected from HRM collection area 4. Photo taken on May 13, 2022.



Photo 26: Waste audit sample from HRM collection area 4. Photo collected May 13, 2022.



Photo 27: Food waste bin sorted from HRM collection area 4. Photo taken May 19, 2022 during waste audit.



Photo 28: Fiber – Newspaper/ Paper bin sorted from HRM collection area 4. Photo taken May 19, 2022 during waste audit.



Photo 29: Fiber – OCC bin #1 sorted from HRM collection area 4.  
Photo taken May 19, 2022 during waste audit.



Photo 30: Fiber – OCC bin #2 sorted from HRM collection area 4.  
Photo taken May 19, 2022 during waste audit.



Photo 31: Weighing of Garbage/Residue bin sorted from HRM collection area 4.  
Photo taken May 19, 2022 during waste audit.



Photo 32: Weighing of waste audit sample collected from HRM collection area 5.  
Photo taken on May 19, 2022 during waste audit.



Photo 33: Waste collection vehicle unloading waste collected from HRM collection area 5. Photo taken on May 16, 2022.



Photo 34: Waste audit sample from HRM collection area 5. Photo collected May 16, 2022.



Photo 35: Food waste bin separated from HRM collection area 5. Photo taken May 19, 2022 during waste audit.



Photo 36: Fiber – Newspaper/ Paper bin sorted from HRM collection area 5. Photo taken May 19, 2022 during waste audit.



Photo 37: Fiber – OCC bin sorted from HRM collection area 5.  
Photo taken May 19, 2022 during waste audit.



Photo 38: Yard waste bin sorted from HRM collection area 5.  
Photo taken May 19, 2022 during waste audit.



Photo 39: Garbage/Residue bin sorted from HRM collection area 5.  
Photo taken May 19, 2022 during waste audit.



Photo 40: Weighing of waste audit sample collected from HRM collection area 6.  
Photo taken on May 19, 2022 during waste audit.



Photo 41: Waste collection vehicle unloading waste collected from HRM collection area 6. Photo taken on May 16, 2022.



Photo 42: Waste audit sample from HRM collection area 6. Photo collected May 16, 2022.



Photo 43: Food waste bin separated from HRM collection area 6. Photo taken May 19, 2022 during waste audit.



Photo 44: Fiber – Newspaper/ Paper bin sorted from HRM collection area 6. Photo taken May 19, 2022 during waste audit.



Photo 45: Fiber – OCC bin sorted from HRM collection area 6.  
Photo taken May 19, 2022 during waste audit.



Photo 46: Yard waste bin sorted from HRM collection area 6.  
Photo taken May 19, 2022 during waste audit.



Photo 47: Garbage/Residue bin sorted from HRM collection area 6.  
Photo taken May 19, 2022 during waste audit.



Photo 48: Weighing of waste audit sample collected from HRM collection area 7.  
Photo taken on May 19, 2022 during waste audit.



Photo 49: Waste collection vehicle unloading waste collected from HRM collection area 7. Photo taken on May 12, 2022.



Photo 50: Waste audit sample from HRM collection area 7. Photo collected May 12, 2022.



Photo 51: Food waste bin separated from HRM collection area 7. Photo taken May 19, 2022 during waste audit.



Photo 52: Fiber – Newspaper/ Paper bin sorted from HRM collection area 7. Photo taken May 19, 2022 during waste audit.



Photo 53: Fiber – OCC bin #1 sorted from HRM collection area 7.  
Photo taken May 19, 2022 during waste audit.



Photo 54: Fiber – OCC bin #2 sorted from HRM collection area 7.  
Photo taken May 19, 2022 during waste audit.



Photo 55: Garbage/Residue bin sorted from HRM collection area 7.  
Photo taken May 19, 2022 during waste audit.



Photo 56: Weighing of waste audit sample collected from HRM collection area 8.  
Photo taken on May 19, 2022 during waste audit.



Photo 57: Waste collection vehicle unloading waste collected from HRM collection area 8. Photo taken on May 12, 2022.



Photo 58: Waste audit sample from HRM collection area 8. Photo collected May 12, 2022.



Photo 59: Food waste bin separated from HRM collection area 8. Photo taken May 19, 2022 during waste audit.



Photo 60: Fiber – Newspaper/ Paper bin sorted from HRM collection area 8. Photo taken May 19, 2022 during waste audit.



Photo 61: Fiber – OCC bin #1 sorted from HRM collection area 8.  
Photo taken May 19, 2022 during waste audit.



Photo 62: Fiber – OCC bin #2 sorted from HRM collection area 8.  
Photo taken May 19, 2022 during waste audit.



Photo 63: Garbage/Residue bin sorted from HRM collection area 8.  
Photo taken May 19, 2022 during waste audit.



Photo 64: Weighing of waste audit sample collected from HRM collection area 9.  
Photo taken on May 19, 2022 during waste audit.



Photo 65: Waste collection vehicle unloading waste collected from HRM collection area 9. Photo taken on May 13, 2022.



Photo 66: Waste audit sample from HRM collection area 9. Photo collected May 13, 2022.



Photo 67: Food waste bin separated from HRM collection area 9. Photo taken May 19, 2022 during waste audit.



Photo 68: Fiber – Newspaper/ Paper bin sorted from HRM collection area 9. Photo taken May 19, 2022 during waste audit.



Photo 69: Fiber – OCC bin sorted from HRM collection area 9.  
Photo taken May 19, 2022 during waste audit.



Photo 70: Yard waste bin sorted from HRM collection area 9.  
Photo taken May 19, 2022 during waste audit.



Photo 71: Garbage/Residue bin sorted from HRM collection area 8.  
Photo taken May 19, 2022 during waste audit.



Photo 72: Empty waste audit collection bin. Photo taken May 19, 2022  
after successful completion of waste audit waste audit.

ATTACHMENT 2  
SCALE TICKETS

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**Halifax Regional Municipality**

Vehicle ID: RE1044  
License Plate: 57-424-D  
Waste Type: residential  
Origin: 1 HALIFAX  
Invoice: 0400927  
Royal Environmental Group

Scale Slip: 075699  
05/16/2022 11:33:03  
Clerk: JLC

Gross Weight: 21,910 (kg)  
Tare Weight: 16,630 (kg)  
Net Weight: 5,280 (kg)

Total: \$0.00  
\$0.00

**Halifax Regional Municipality**

Vehicle ID: RE2091  
License Plate: PR41474  
Waste Type: residential  
Origin: 2 DARTMOUTH  
Invoice: 0400927  
Royal Environmental Group

Scale Slip: 075649  
05/13/2022 11:02:24  
Clerk: JLC  
Gross Weight: 23,580 (kg)  
Tare Weight: 16,140 (kg)  
Net Weight: 7,440 (kg)  
Total: \$0.00  
\$0.00

**Halifax Regional Municipality**

Vehicle ID: RE2105  
License Plate: 44-096-D  
Waste Type: residential  
Origin: 3 BEDFORD/HAMMONDS PLAINS  
Invoice: 0400927  
Royal Environmental Group

Scale Slip: 075606  
05/12/2022 11:57:46  
Clerk: JLC  
Gross Weight: 24,630 (kg)  
Tare Weight: 16,070 (kg)  
Net Weight: 8,560 (kg)  
Total: \$0.00  
\$0.00

**Halifax Regional Municipality**

Vehicle ID: GFL007  
License Plate: 45362D  
Waste Type: residential  
Origin: 4 WESTERN COUNTY  
Invoice: 0402150  
GFL Environmental Inc

Scale Slip: 075656  
05/13/2022 11:56:04  
Clerk: JLC  
Gross Weight: 25,600 (kg)  
Tare Weight: 16,880 (kg)  
Net Weight: 8,720 (kg)  
  
Total: \$0.00  
\$0.00

**Halifax Regional Municipality**

Vehicle ID: RE1035  
License Plate: 55-579-D  
Waste Type: residential  
Origin: 5 SACKVILLE/FALL RIVER  
Invoice: 0400927  
Royal Environmental Group

Scale Slip: 075715  
05/16/2022 14:40:48  
Clerk: JLC  
Gross Weight: 24,210 (kg)  
Tare Weight: 16,530 (kg)  
Net Weight: 7,680 (kg)  
Total: \$0.00  
\$0.00

**Halifax Regional Municipality**

Vehicle ID: RE1041

License Plate: 57-421-D

Vaste Type: residential

Origin: 6 COLE HARBOUR/EASTERN PASSAGE

Invoice: 0400927

Royal Environmental Group

Scale Slip: 075700

05/16/2022 12:06:08

Clerk: JLC

Gross Weight: 26,090 (kg)

Tare Weight: 16,600 (kg)

Net Weight: 9,490 (kg)

Total:

\$0.00

\$0.00

**Halifax Regional Municipality**

Vehicle ID: MW6830  
License Plate: 56483D  
Waste Type: residential

Origin: PRESTON/LAWRENCETOWN/LAKE ECHO

Invoice: 0188466  
MILLER WASTE SYSTEMS

Scale Slip: 075621  
05/12/2022 14:48:58  
Clerk: JLC  
Gross Weight: 20,590 (kg)  
Tare Weight: 19,610 (kg)  
Net Weight: 980 (kg)  
Total: \$0.00  
\$0.00

**Halifax Regional Municipality**

Vehicle ID: ES4038  
License Plate: 48770D  
Waste Type: residential  
Origin: 8 EASTERN COUNTY  
Invoice: 0028092

**EASTERN SHORE CARTAGE**

Scale Slip: 075626  
05/12/2022 15:33:51  
Clerk: JLC  
Gross Weight: 20,770 (kg)  
Tare Weight: 15,700 (kg)  
Net Weight: 5,070 (kg)  
Total: \$0.00  
\$0.00

**Halifax Regional Municipality**

Vehicle ID: MW4117  
License Plate: 50123D  
Waste Type: residential

Origin: BEDFORD SACKVILLE CONDOS

Invoice: 0188466  
MILLER WASTE SYSTEMS

Scale Slip: 075648  
05/13/2022 10:56:33  
Clerk: JLC

Gross Weight: 19,660 (kg) MAN WT  
Tare Weight: 17,360 (kg)  
Net Weight: 2,300 (kg)

Total: \$0.00  
\$0.00

ATTACHMENT 3  
FIELD DATA SHEETS

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## PERFORMANCE AUDIT RECORD

WASTE COLLECTION AREA 1  
 DATE Thursday, May 19, 2022  
 TIME 9 AM - 9:45 AM

SUPERVISOR NAME Patrick Avery (Strum)  
 SORTER NAMES George Brown  
 Dez Smith  
 Patrick Barringer

GROSS SAMPLE WEIGHT (KG) 193.50  
 BIN WEIGHT (KG) 50.00  
 TRASH SAMPLE NET WEIGHT (KG) 143.50  
 # OF BULK WASTE OBSERVED 0

MATERIAL	EMPTY BIN WEIGHT (KG)	GROSS TOTAL SEPARATED SAMPLE WEIGHT (KG)		NET SAMPLE WEIGHT (KG)
		BIN 1	BIN 2	
Garbage/Residue	1.) 38.00    2.) 50.00	125.00	83.50	120.50
Fibre - Newsprint/Paper	1.10	2.75	1.85	2.40
Fibre - Corrugated Cardboard	1.10	1.80	N/A	0.70
Food/Putrescible Waste	1.10	16.50	4.45	18.75
Yard Waste	1.10	1.35	N/A	0.25

MATERIAL	GROSS SAMPLE WEIGHT (KG)	TOTAL WEIGHT OF BINS (KG)	NET SAMPLE WEIGHT (KG)	WASTE (%)
Garbage/Residue	208.50	88.00	120.50	<b>83.97</b>
Fibre - Newsprint/Paper	4.60	2.20	2.40	<b>1.67</b>
Fibre - Corrugated Cardboard	1.80	1.10	0.70	<b>0.49</b>
Food/Putrescible Waste	20.95	2.20	18.75	<b>13.07</b>
Yard Waste	1.35	1.10	0.25	<b>0.17</b>
		LOST MASS UPON FINAL WEIGH-IN (KG)	0.90	<b>0.63</b>

**FIELD NOTES:** One bag had an abundance of food waste. Two different sized empty bins used for garbage/residue.

### Weighscale Ticket Information

Truck Number/ID RE1044  
 Collection Area 1 Halifax  
 Date 5/16/2022  
 Ticket Time 11:33:03  
 Gross Weight (kg) 21,910  
 Tare Weight (kg) 16,630  
 Net Weight (kg) 5,280

## PERFORMANCE AUDIT RECORD

WASTE COLLECTION AREA 2  
 DATE Thursday, May 19, 2022  
 TIME 10:55 AM - 11:15 AM

SUPERVISOR NAME Patrick Avery (Strum)  
 SORTER NAMES Aaron Deveau  
 George Brown  
 Dez Smith  
 Patrick Barringer

GROSS SAMPLE WEIGHT (KG) 165.00  
 BIN WEIGHT (KG) 51.50  
 TRASH SAMPLE NET WEIGHT (KG) 113.50  
 # OF BULK WASTE ITEMS 0

MATERIAL	EMPTY BIN WEIGHT (KG)	GROSS TOTAL SEPARATED SAMPLE WEIGHT (KG)		NET SAMPLE WEIGHT (KG)
		BIN 1	BIN 2	
Garbage/Residue	50.50	151.00	N/A	101.00
Fibre - Newsprint/Paper	1.10	3.30	N/A	2.20
Fibre - Corrugated Cardboard	1.10	2.70	N/A	1.60
Food/Putrescible Waste	1.10	9.15	N/A	8.05
Yard Waste	1.10	1.10	N/A	0.00

MATERIAL	GROSS SAMPLE WEIGHT (KG)	TOTAL WEIGHT OF BINS (KG)	NET SAMPLE WEIGHT (KG)	WASTE (%)
Garbage/Residue	151.00	50.50	101.00	88.99
Fibre - Newsprint/Paper	3.30	1.10	2.20	1.94
Fibre - Corrugated Cardboard	2.70	1.10	1.60	1.41
Food/Putrescible Waste	9.15	1.10	8.05	7.09
Yard Waste	1.10	1.10	0.00	0.00
LOST MASS UPON FINAL WEIGH-IN (KG)			0.65	0.57

### Weighscale Ticket Information

Truck Number/ID RE2091  
 Collection Area 2 Dartmouth  
 Date 5/13/2022  
 Ticket Time 11:02:24  
 Gross Weight (kg) 23,580  
 Tare Weight (kg) 16,140  
 Net Weight (kg) 7,440

## PERFORMANCE AUDIT RECORD

WASTE COLLECTION AREA 3  
 DATE Thursday, May 19, 2022  
 TIME 11:18 AM - 11:40 AM

SUPERVISOR NAME Patrick Avery (Strum)

SORTER NAMES Aaron Deveau  
 George Brown  
 Dez Smith  
 Patrick Barringer

GROSS SAMPLE WEIGHT (KG) 187.00  
 BIN WEIGHT (KG) 51.00  
 TRASH SAMPLE NET WEIGHT (KG) 136.00  
 # OF BULK WASTE ITEMS 0

MATERIAL	EMPTY BIN WEIGHT (KG)	GROSS TOTAL SEPARATED SAMPLE WEIGHT (KG)		NET SAMPLE WEIGHT (KG)
		BIN 1	BIN 2	
Garbage/Residue	51.50	182.00	N/A	130.50
Fibre - Newsprint/Paper	1.10	2.55	N/A	1.45
Fibre - Corrugated Cardboard	1.10	2.10	2.45	2.35
Food/Putrescible Waste	1.10	2.55	N/A	1.45
Yard Waste	1.10	1.10	N/A	0.00

MATERIAL	GROSS SAMPLE WEIGHT (KG)	TOTAL WEIGHT OF BINS (KG)	NET SAMPLE WEIGHT (KG)	WASTE (%)
Garbage/Residue	182.00	51.50	130.50	95.96
Fibre - Newsprint/Paper	2.55	1.10	1.45	1.07
Fibre - Corrugated Cardboard	2.10	1.10	2.35	1.73
Food/Putrescible Waste	2.55	1.10	1.45	1.07
Yard Waste	1.10	1.10	0.00	0.00
LOST MASS UPON FINAL WEIGH-IN (KG)			0.25	0.18

### Weighscale Ticket Information

Truck Number/ID RE2105  
 Collection Area 3 Bedford/Hammonds Plains  
 Date 5/12/2022  
 Ticket Time 11:57:46  
 Gross Weight (kg) 24,630  
 Tare Weight (kg) 16,070  
 Net Weight (kg) 8,560

## PERFORMANCE AUDIT RECORD

WASTE COLLECTION AREA 4  
 DATE Thursday, May 19, 2022  
 TIME 11:40 AM - 12:00 PM

SUPERVISOR NAME Patrick Avery (Strum)

SORTER NAMES Aaron Deveaux  
 George Brown  
 Dez Smith  
 Patrick Barringer

GROSS SAMPLE WEIGHT (KG) 175.00  
 BIN WEIGHT (KG) 51.00  
 TRASH SAMPLE NET WEIGHT (KG) 124.00  
 # OF BULK WASTE ITEMS 0

MATERIAL	EMPTY BIN WEIGHT (KG)	GROSS TOTAL SEPARATED SAMPLE WEIGHT (KG)		NET SAMPLE WEIGHT (KG)
		BIN 1	BIN 2	
Garbage/Residue	51.00	170.50	N/A	119.50
Fibre - Newsprint/Paper	1.10	2.10	N/A	1.00
Fibre - Corrugated Cardboard	1.10	2.40	2.15	2.35
Food/Putrescible Waste	1.10	1.80	N/A	0.70
Yard Waste	1.10	1.10	N/A	0.00

MATERIAL	GROSS SAMPLE WEIGHT (KG)	TOTAL WEIGHT OF BINS (KG)	NET SAMPLE WEIGHT (KG)	WASTE (%)
Garbage/Residue	170.50	51.00	119.50	96.37
Fibre - Newsprint/Paper	2.10	1.10	1.00	0.81
Fibre - Corrugated Cardboard	4.55	1.10	2.35	1.90
Food/Putrescible Waste	1.80	1.10	0.70	0.56
Yard Waste	1.10	1.10	0.00	0.00
		LOST MASS UPON FINAL WEIGH-IN (KG)	0.45	0.36

### Weighscale Ticket Information

Truck Number/ID GFL007  
 Collection Area 4 Western County  
 Date 5/13/2022  
 Ticket Time 11:56:04  
 Gross Weight (kg) 25,600  
 Tare Weight (kg) 16,880  
 Net Weight (kg) 8,720

## PERFORMANCE AUDIT RECORD

WASTE COLLECTION AREA 5  
 DATE Thursday, May 19, 2022  
 TIME 10:05 AM - 10:30 AM

SUPERVISOR NAME Patrick Avery (Strum)

SORTER NAMES Frankie Jackson  
 George Brown  
 Dez Smith  
 Patrick Barringer

GROSS SAMPLE WEIGHT (KG) 196.00  
 BIN WEIGHT (KG) 50.00  
 TRASH SAMPLE NET WEIGHT (KG) 146.00  
 # OF BULK WASTE ITEMS 0

MATERIAL	EMPTY BIN WEIGHT (KG)	GROSS TOTAL SEPARATED SAMPLE WEIGHT (KG)		NET SAMPLE WEIGHT (KG)
		BIN 1	BIN 2	
Garbage/Residue	50.00	186.50	N/A	136.50
Fibre - Newsprint/Paper	1.10	1.50	N/A	0.40
Fibre - Corrugated Cardboard	1.10	1.30	N/A	0.20
Food/Putrescible Waste	1.10	9.20	N/A	8.10
Yard Waste	1.10	1.65	N/A	0.55

MATERIAL	GROSS SAMPLE WEIGHT (KG)	TOTAL WEIGHT OF BINS (KG)	NET SAMPLE WEIGHT (KG)	WASTE (%)
Garbage/Residue	186.50	50.00	136.50	93.49
Fibre - Newsprint/Paper	1.50	1.10	0.40	0.27
Fibre - Corrugated Cardboard	1.30	1.10	0.20	0.14
Food/Putrescible Waste	9.20	1.10	8.10	5.55
Yard Waste	1.65	1.10	0.55	0.38
		LOST MASS UPON FINAL WEIGH-IN (KG)	0.25	0.17

### Weighscale Ticket Information

Truck Number/ID RE1035  
 Collection Area 5 Sackville/Fall River  
 Date 5/16/2022  
 Ticket Time 14:40:48  
 Gross Weight (kg) 24,210  
 Tare Weight (kg) 16,530  
 Net Weight (kg) 7,680

## PERFORMANCE AUDIT RECORD

WASTE COLLECTION AREA 6  
 DATE Thursday, May 19, 2022  
 TIME 10:30 AM - 10:50 AM

SUPERVISOR NAME Patrick Avery (Strum)  
 SORTER NAMES Frankie Jackson  
 George Brown  
 Dez Smith  
 Patrick Barringer

GROSS SAMPLE WEIGHT (KG) 173.00  
 BIN WEIGHT (KG) 50.50  
 TRASH SAMPLE NET WEIGHT (KG) 122.50  
 # OF BULK WASTE ITEMS 0

MATERIAL	EMPTY BIN WEIGHT (KG)	GROSS TOTAL SEPARATED SAMPLE WEIGHT (KG)		NET SAMPLE WEIGHT (KG)
		BIN 1	BIN 2	
Garbage/Residue	50.00	168.00	N/A	118.00
Fibre - Newsprint/Paper	1.10	2.00	N/A	0.90
Fibre - Corrugated Cardboard	1.10	2.65	N/A	1.55
Food/Putrescible Waste	1.10	2.75	N/A	1.65
Yard Waste	1.10	1.15	N/A	0.05

MATERIAL	GROSS SAMPLE WEIGHT (KG)	TOTAL WEIGHT OF BINS (KG)	NET SAMPLE WEIGHT (KG)	WASTE (%)
Garbage/Residue	168.00	50.00	118.00	96.33
Fibre - Newsprint/Paper	2.00	1.10	0.90	0.73
Fibre - Corrugated Cardboard	2.65	1.10	1.55	1.27
Food/Putrescible Waste	2.75	1.10	1.65	1.35
Yard Waste	1.15	1.10	0.05	0.04
		LOST MASS UPON FINAL WEIGH-IN (KG)	0.35	0.29

### Weighscale Ticket Information

Truck Number/ID RE1041  
 Collection Area 6 Cole Harbour/Eastern Passage  
 Date 5/16/2022  
 Ticket Time 12:06:08  
 Gross Weight (kg) 26,090  
 Tare Weight (kg) 16,600  
 Net Weight (kg) 9,490

## PERFORMANCE AUDIT RECORD

WASTE COLLECTION AREA 7  
 DATE Thursday, May 19, 2022  
 TIME 12:35 PM - 12:55 PM

SUPERVISOR NAME Patrick Avery (Strum)

SORTER NAMES Patrick B.  
 Aaron Deveaux  
 Dez Smith  
 George Brown  
 Frankie Jackson

GROSS SAMPLE WEIGHT (KG) 211.50  
 BIN WEIGHT (KG) 50.00  
 TRASH SAMPLE NET WEIGHT (KG) 161.50  
 # OF BULK WASTE ITEMS 0

MATERIAL	EMPTY BIN WEIGHT (KG)	GROSS TOTAL SEPARATED SAMPLE WEIGHT (KG)		NET SAMPLE WEIGHT (KG)
		BIN 1	BIN 2	
Garbage/Residue	51.00	205.50	N/A	154.50
Fibre - Newsprint/Paper	1.10	1.30	N/A	0.20
Fibre - Corrugated Cardboard	1.10	2.60	1.60	2.00
Food/Putrescible Waste	1.10	5.30	N/A	4.20
Yard Waste	1.10	1.10	N/A	0.00

MATERIAL	GROSS SAMPLE WEIGHT (KG)	TOTAL WEIGHT OF BINS (KG)	NET SAMPLE WEIGHT (KG)	WASTE (%)
Garbage/Residue	205.50	51.00	154.50	95.67
Fibre - Newsprint/Paper	1.30	1.10	0.20	0.12
Fibre - Corrugated Cardboard	4.20	2.20	2.00	1.24
Food/Putrescible Waste	5.30	1.10	4.20	2.60
Yard Waste	1.10	1.10	0.00	0.00
		LOST MASS UPON FINAL WEIGH-IN (KG)	0.60	0.37

### Weighscale Ticket Information

Truck Number/ID MW6830  
 Collection Area Preston/Lawrencetown/Lake Echo  
 Date 5/12/2022  
 Ticket Time 14:48:58  
 Gross Weight (kg) 20,590  
 Tare Weight (kg) 19,610  
 Net Weight (kg) 980

## PERFORMANCE AUDIT RECORD

WASTE COLLECTION AREA 8  
 DATE Thursday, May 19, 2022  
 TIME 1:00 PM - 1:10 PM

SUPERVISOR NAME Patrick Avery (Strum)

SORTER NAMES Patrick B.  
 Aaron Deveau  
 Dez Smith  
 George Brown  
 Frankie Jackson

GROSS SAMPLE WEIGHT (KG) 181.00  
 BIN WEIGHT (KG) 50.50  
 TRASH SAMPLE NET WEIGHT (KG) 130.50  
 # OF BULK WASTE ITEMS 0

MATERIAL	EMPTY BIN WEIGHT (KG)	GROSS TOTAL SEPARATED SAMPLE WEIGHT (KG)		NET SAMPLE WEIGHT (KG)
		BIN 1	BIN 2	
Garbage/Residue	50.00	171.00	N/A	121.00
Fibre - Newsprint/Paper	1.10	3.45	N/A	2.35
Fibre - Corrugated Cardboard	1.10	2.20	3.00	3.00
Food/Putrescible Waste	1.10	4.75	N/A	3.65
Yard Waste	1.10	1.10	N/A	0.00

MATERIAL	GROSS SAMPLE WEIGHT (KG)	TOTAL WEIGHT OF BINS (KG)	NET SAMPLE WEIGHT (KG)	WASTE (%)
Garbage/Residue	171.00	50.00	121.00	92.72
Fibre - Newsprint/Paper	3.45	1.10	2.35	1.80
Fibre - Corrugated Cardboard	5.20	1.10	3.00	2.30
Food/Putrescible Waste	4.75	1.10	3.65	2.80
Yard Waste	1.10	1.10	0.00	0.00
		LOST MASS UPON FINAL WEIGH-IN (KG)	0.50	0.38

### Weighscale Ticket Information

Truck Number/ID ES4038  
 Collection Area 8 Eastern County  
 Date 5/12/2022  
 Ticket Time 15:33:51  
 Gross Weight (kg) 20,770  
 Tare Weight (kg) 15,700  
 Net Weight (kg) 5,070

## PERFORMANCE AUDIT RECORD

WASTE COLLECTION AREA      Condos  
 DATE                              Thursday, May 19, 2022  
 TIME                                1:10 PM - 1:30 PM

SUPERVISOR NAME              Patrick Avery (Strum)

SORTER NAMES  
 Patrick B.  
 Aaron Deveau  
 Dez Smith  
 George Brown  
 Frankie Jackson

GROSS SAMPLE WEIGHT (KG)    161.50  
 BIN WEIGHT (KG)                50.50  
 TRASH SAMPLE NET WEIGHT (KG) 111.00  
 # OF BULK WASTE ITEMS        0

MATERIAL	EMPTY BIN WEIGHT (KG)	GROSS TOTAL SEPARATED SAMPLE WEIGHT (KG)		NET SAMPLE WEIGHT (KG)
		BIN 1	BIN 2	
Garbage/Residue	50.50	150.00	N/A	99.50
Fibre - Newsprint/Paper	1.10	1.75	N/A	0.65
Fibre - Corrugated Cardboard	1.10	2.00	3.00	0.90
Food/Putrescible Waste	1.10	8.65	N/A	7.35
Yard Waste	1.10	3.70	N/A	2.60

MATERIAL	GROSS SAMPLE WEIGHT (KG)	TOTAL WEIGHT OF BINS (KG)	NET SAMPLE WEIGHT (KG)	WASTE (%)
Garbage/Residue	150.00	50.50	99.50	89.64
Fibre - Newsprint/Paper	1.75	1.10	0.65	0.59
Fibre - Corrugated Cardboard	2.00	1.10	0.90	0.81
Food/Putrescible Waste	8.65	1.10	7.55	6.80
Yard Waste	3.70	1.10	2.60	2.34
LOST MASS UPON FINAL WEIGH-IN (KG)			-0.20	-0.18

FIELD NOTES: A clean-up of the work area is expected to have caused the additional mass reported.

### Weighscale Ticket Information

Truck Number/ID                MW4117  
 Collection Area                 Bedford Sackville Condos  
 Date                                5/13/2022  
 Ticket Time                       10:56:33  
 Gross Weight (kg)               19,660  
 Tare Weight (kg)                17,360  
 Net Weight (kg)                 2,300