



Staff Report

Operations Department

Report To: Special Committee of the Whole
Meeting Date: September 29, 2020
Report Number: CSOPS.20.060
Subject: Town Disposal Site Update
Prepared by: Jeffery Fletcher, Manager of Solid Waste and Special Projects

A. Recommendations

THAT Council receive Staff Report CSOPS.20.060, entitled "Town Disposal Site Update";

AND THAT Council receive the Landfill Presentation and materials contained in Attachment # 1 of this report for information purposes;

AND THAT Council approve the expenditure of \$25,000 for the addition of insulation and heat to the existing leachate system to be funded by Gas Tax.

B. Overview

The purpose of this report is to request the use of funds for the addition of insulation and heat tracing to the existing leachate system at the Town's Disposal Site. Included with this report is a presentation (Attachment 1) with an overview of the Town's Disposal Site.

C. Background

The leachate generated at the Town Disposal Site developed significant odour and dangerous hydrogen sulphide levels in 2018. Staff installed a temporary system of aeration and chemical dosing that was somewhat effective but challenging to operate.

In 2019 Town Council approved the installation on a new leachate pre-treatment system. This system was tested on a smaller scale and was found to be successful in reducing odours and hydrogen sulphide levels, which was the source of the odour. Installation of the full scale system was completed in April of 2020. The system has proven effective at reducing odours and conforming to the performance based rental agreement with the system provider.

Now that the trial system has proven effective and is fully operational. Staff recommend continued year round use of the system. Winterization of the system was considered during the initial set-up but was not included to reduce costs prior to the full system being proven. Use of the system through the winter months will require the addition of insulation and heat tracing.

D. Analysis

This new pre-treatment system has created significant improvements over the previous system. Improvements include: reduced operating costs, eliminated odours, reduced staff time associated with treatment and remediated safety concerns. Attachment 1 on slide 9 and 11 show images of the pre-2020 system and the current system, respectively.

The trial system did not include winterization, however leachate generation does continue throughout the winter (close to half the annual volume is moved from November to March). Staff recommend that the new pre-treatment system have heat tracing and insulation installed to allow continued use of the system in the winter months.

If winterization is not added to the system pre-treatment of leachate in cold weather will not be possible. Without insulation and heating the outdoor tank system will be subject to freezing which would damage to the system and create interruptions in timely leachate haulage.

E. Strategic Priorities

1. Communications and Engagement

We will enhance communications and engagement between Town Staff, Town residents and stakeholders.

2. Organizational Excellence

We will continually seek out ways to improve the internal organization of Town Staff and the management of Town assets.

3. Community

We will protect and enhance the community feel and the character of the Town, while ensuring the responsible use of resources and restoration of nature.

4. Quality of Life

We will foster a high quality of life for full-time and part-time residents of all ages and stages, while welcoming visitors.

F. Environmental Impacts

The new pre-treatment system has eliminated hydrogen sulphide and sulphide from the leachate. These two molecules are associated with odour. Elimination of these compounds in the leachate being delivered to the Craighleith Lift Station and ultimately the Wastewater Treatment Plant has improved the air environment for residents in the area and Wastewater Staff.

The addition of insulation and heat tracing to the system will allow for continued pre-treatment in the winter and the continued elimination of odour generating compounds in the leachate.

G. Financial Impact

Winterization of the leachate system would be a new capital expense for 2020. The estimated cost of insulation and heat tracing for materials and installation is \$25,000. This expense will be funded from Gas Tax.

H. In Consultation With

Sam Dinsmore, Deputy Treasurer/Manager of Accounting and Budgets
Shawn Carey, Director of Operations
Shawn Everitt, CAO

I. Public Engagement

The topic of this Staff Report has not been subject to a Public Meeting and/or a Public Information Centre as neither a Public Meeting nor a Public Information Centre are required. Comments regarding this report should be submitted to Jeffery Fletcher, ManagerSolidWaste@thebluemountains.ca.

J. Attached

1. Attachment 1 – PowerPoint Presentation of Town Disposal Site Update

Respectfully submitted,

Jeffery Fletcher
Manager of Solid Waste and Special Projects

Shawn Carey
Director of Operations

For more information, please contact:
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519-599-3131 extension 238

Town Disposal Site Update

September 29, 2020

Jeffery Fletcher, Manager of Sustainability and Solid Waste



Overview

1. History of Town Landfill
2. Leachate
3. Phase 2 Expansion
4. Infrastructure
5. Budget and Costs
6. Staffing and Operations
7. Curbside System
8. Next Steps

History of Existing Site

- Closure of Thornbury Site ~ 1976
- Site Open for landfilling in 1976 – 340,000m³
- Begin Environmental Screening for new landfill capacity – 2010
- Approval of Mining Expansion 100,000m³ and Vertical Expansion 100,000m³ - 2013
- Construction begins on Phase 1 (50%) of approved new capacity – Spring 2014
- Construction complete – Fall 2015
- Landfilling operations conducted by Town - 2016





Waste Excavation 2015

New Cell Construction 2015



Leachate Haulage 2015

- Actual volume was 3x Anticipated volume
 - Limited waste in the cell
 - High water table and relatively wet years
 - Further investigation identified termination berm was required to limit groundwater flow
- Fast track of Forcemain design
 - Received funding for construction from Provincial level for GHG reductions
 - Funding cancelled
 - Some barriers – Cost of 3 phase power, treatability study, equalization
- Berm installed October 2017
 - continuous pumping of water away from berm
 - Reduced generation by half in 2018

Leachate Generation

Year	Cubic Metres/Millimetre	Total Hauled (m3)
2016	20.41	25,060
2017	17.95	25,458
2018	10.14	10,934
2019	6.85	8,192
2020 (Jan – Aug)	7.47	4,839

Odour Issue

- As waste in cell increased odour became a significant problem at lift station and Craigleith Wastewater Treatment Plant
- Various methods attempted by Staff
 - Aeration in collection system
 - Chemical addition to haulage tanks
 - Hired MTE Engineering to find solution
 - Staff developed a batch system of aeration and addition of the chemical imine
 - Worked to lower the H₂S gas level to zero from over the limit of detection



Aeration System Pre-2020



Continued to Research

- Visited other systems
- Met with Hamid Salsali of EPS – proposed to trial his technology
 - Laboratory and in-field testing
- Designed a full scale system based on lessons learned and our needs
 - Performance based contract
 - Safety
 - Capacity
 - H₂S level

Odomatic System 2020 Install



Leachate Odour Control

Leachate Perimeter	H2S (Liquid phase)	BOD	COD	Sulphide
Raw (untreated)	10.75	428	686	45
Aerated	0.62	863	1620	23
Treated	<0.2 to <0.02	87.5	622.5	<0.2

- New pre-treatment system has eliminated H2S in liquid and gas phase
- Also appears to be a reduction in biological and chemical oxygen demand
- No odour complaints at lift station or Wastewater Treatment Plant related to leachate since new system installed

Treatment System Cost

- Extended Hydro installed under budget in 2019 (Budget \$50,000 and final cost \$47,600)
- Previous Tanker Aeration System Cost
 - \$10,716/month
 - \$128,600 per year
- New Treatment System Cost
 - \$7,170/month
 - \$86,000 per year
 - 20 cents of Hydro per m³ treated = \$2,000 per year for 10,000m³
- Other Consideration
 - Automated system – no related overtime
 - Remediated worker safety concerns
 - Eliminated on-site and off-site odour

Treatment System Capacity

- Estimated Generation per year
 - 8,000 to 10,000 m³
 - Generation tied to rain/melt event
- Rate of Treatment (capacity)
 - 60 m³ per day max. with extended hours a lift station
 - 4 days a week = 12,480 m³
 - Extension of lift station hours from 4:30 pm to 6:00 pm will avoid the need for onsite storage and additional expense (second tank and pump)
- Need for winterization of system existing tank
 - Staff recommend that Council approve a 2020 capital expense of \$25,000 to add insulation and heat to the existing leachate treatment system

Recommendation contained in Staff Report # CSOPS.20.060

THAT Council approve the expenditure of \$25,000 for the addition of insulation and heat to the existing leachate system to be funded by Gas Tax.

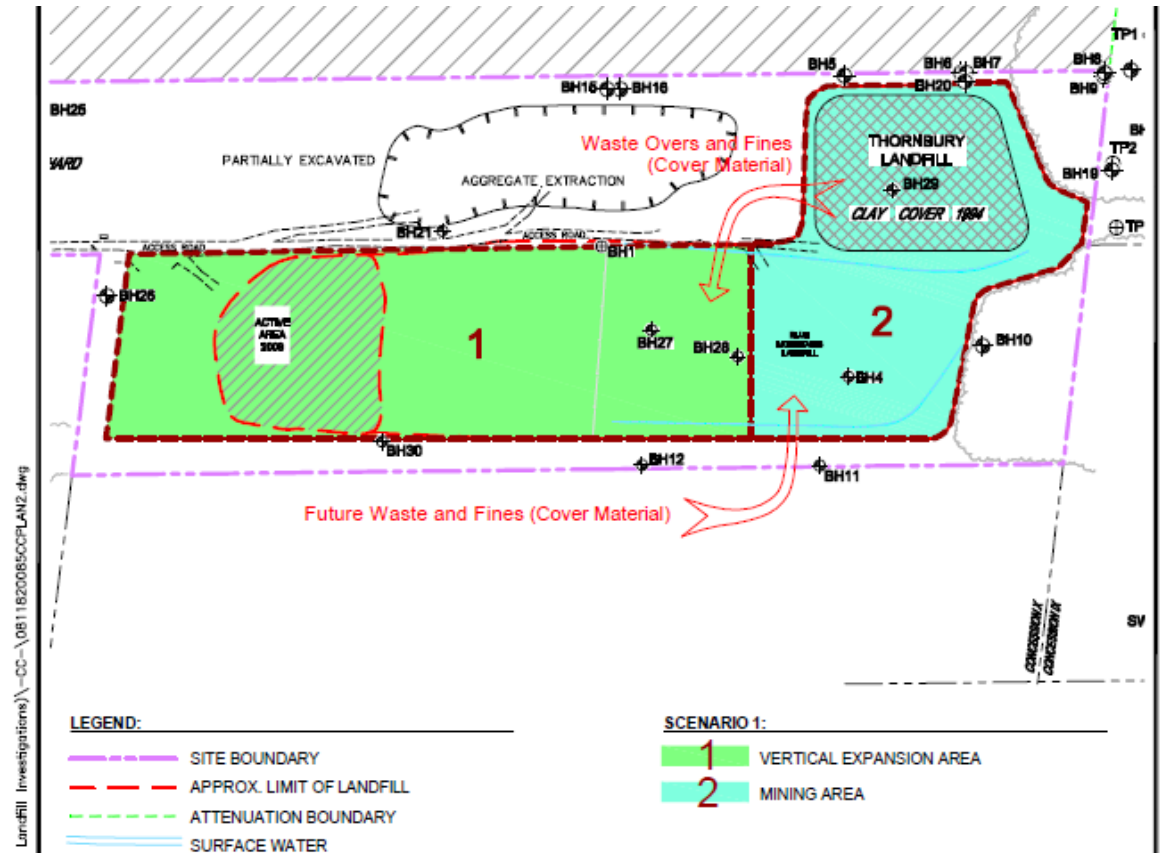
Next Phase of Expansion

	2018	2019	2020 Estimate
Curbside Garbage Landfilled	1644	1582	2359
Other Landfilled (Commercial and Residential)	3582	3075	1516
Total	5226	4657	3875

- Curbside trending up but overall waste delivered to landfill is down for 2020
- Benefit to long term capacity addition of 1.6 years, current phase capacity to 2028
- Addition of 5 years to total Site capacity, final capacity by 2050

Phasing

- Phase 1 – 100,000m³
 - to gain 50,000m³ cell
- Phase 2 – 100,000
 - To gain another 50,000m³ cell
- Vertical expansion of 100,000m³
- Total gain of 200,000 m³ by 2050
- Long term next step could include mining and lining vertical expansion area or lining aggregate area to the north



Cost of new landfill Construction

New Landfill (Phase One Cost)

Cost = \$3.3 Million

Phase One Expansion Volume = 100,000m³

Cost per m³ = \$33

Cost per Tonne = \$19.47

Construction cost includes
\$400k in long term debit

- For every tonne of waste diverted approximately \$20 in construction cost is deferred
- Waste diverted in 2019 was 2,790 tonnes = \$55,800
- Initial construction budget was \$4.6 million, final contract award was \$3.7 million and final cost was lower than award

- Waste Management Review Coordinator 2002
- Scale (\$38K) and scale house (\$25K) with hydro, water and septic constructed in 2003
- New Loader 2003
- Compost pad 2004
- Operations building with extension of hydro, water and septic constructed in 2006
- Hazardous waste pad 2008
- Receiving area constructed in 2010



Site Improvements Continued

- Landfill mining and lining 2014 and 2015
- New waste compactor 2016
- Hazardous waste roof constructed in 2017
- New loader 2018
- Leachate system pad, tank and extension of hydro 2019/20



Solid Waste Budget

- Solid Waste accounts for 7% of the total tax levy for 2020

2020 Budgets	Landfill	Garbage	Waste Diversion
Total Tax Support Expenses and Transfers	\$970,411	\$341,039	\$771,297
Total Revenues	\$760,400	\$20,000	\$184,924
Total Tax Levy	\$210,011	\$321,039	\$586,373

Total Waste Managed

Cost per Tonne

Landfill Site

	2018	2019
Total Site Expenses	\$958,788	\$977,091
Total Waste Managed	5,973 tonne	6,252 tonne
Cost per Tonne	\$160	\$156
Revenue Short Fall	\$409,876	\$434,811

- Integrated system cost is approximate \$160 per tonne which is consistent with current tipping rate
- Total Waste Managed is all streams of waste diverted, composted or landfilled

Landfilling Cost Per Tonne

Based on 2019	Landfilling
Total Operational Cost	\$977,091
Diversion Activity	40%
Landfill Activity	60%
Related Landfilling Operational Cost	\$586,255 (\$977,091 x 60%)
Tonnes Landfilled in 2019	4,657
Landfilling Cost Per Tonne	\$125
Plus Cost of New Landfill	\$20
Total Cost of Landfilling	\$145

Based on 2019	Diversion
Total Operational Cost	\$977,091
Diversion Activity	40%
Landfill Activity	60%
Related Diversion Operational Cost	\$390,836 (\$977,091 x 40%)
Tonnes Diverted in 2019	2,790
Diversion Cost Per Tonne	\$140
Total Cost of Diversion	\$140

User Rates

Item	2019 Per Tonne	May 2020 Per Tonne
Residential Waste	\$150	\$160
Mixed Residential Waste	\$300	\$320
Commercial Waste	\$150	\$320
Mixed Commercial Waste	\$300	\$640
Residential Drywall, Shingles, Metal, Wood, Concrete	\$75	\$90
Commercial (Drywall), Shingles, Metal, Wood, Concrete	\$75	(\$140) \$90
Residential Yard Waste	\$0	\$0
Commercial Yard Waste	\$75	\$90
Mattress	\$150	\$20 Each

- Following increase in fees in 2020, Site expenses not decreased with reduction of unsorted loads. Unsorted loads historically landfilled not processed by Staff or other. However, new fees have reduced number of commercial, construction and unsorted loads.

No Charge materials

Material	Tonnes Managed 2019
Residential Waste Curbside	1582
Town Departments Waste	26
Residential Yard Waste Curbside	113
Residential Yard Waste Depot	458
Town Departments Brush	75
Recycling Depot	80
Household Hazardous Waste	23
Electronic Waste	18
Tires	15
Bottles for Beaver Valley Outreach	8
Christmas Trees	7
Textiles	2
Curbside Batteries	1.5
TOTAL	2,408.5

There are no fees charged for these materials, this is to provide incentive for sorting loads and to remove small but difficult materials like hazardous waste out of the landfill and into the recycle stream or containment landfill

Cost of Collection

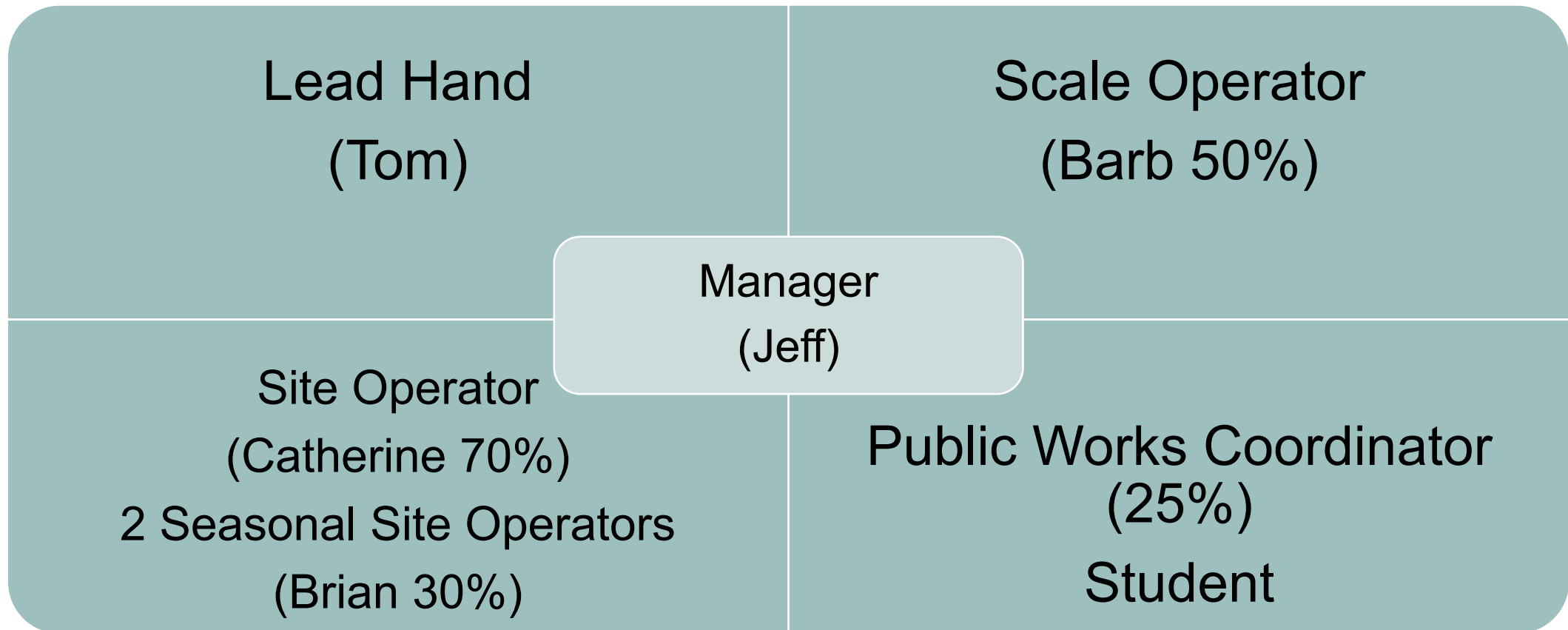
	Cost	Tonnage	Cost/Tonne
2018			
Garbage	\$284,000	1,644	\$173
Recycle, Organics, Yard	\$521,000	1,403	\$371
2019			
Garbage	\$292,000	1,582	\$185
Recycle, Organics, Yard	\$547,000	1,497	\$365
2020 Jan - Aug			
Garbage	\$213,000	1,376	\$155
Recycle, Organics, Yard	\$502,000	1,380	\$364

- Increase in all streams compared to January – August in 2019
 - Garbage 23%
 - Blue Box 32%
 - Organics 29%
 - Yard 57%

Long Term Financial Liability

- Ontario regulation 232/98 includes associated guidelines to ensure privately operated landfills have the financial means to close, maintain and monitor Site when filling is complete.
- Municipalities must calculate the anticipated financial liability but it can be unfinanced
- Significant increase in 2020 within the context of leachate haulage vs forcemain
- Cost of annual haulage and pre-treatment becomes part of long term liability
- Contaminate life span is 100 years during that time the municipality will need to haul and treat the associated leachate

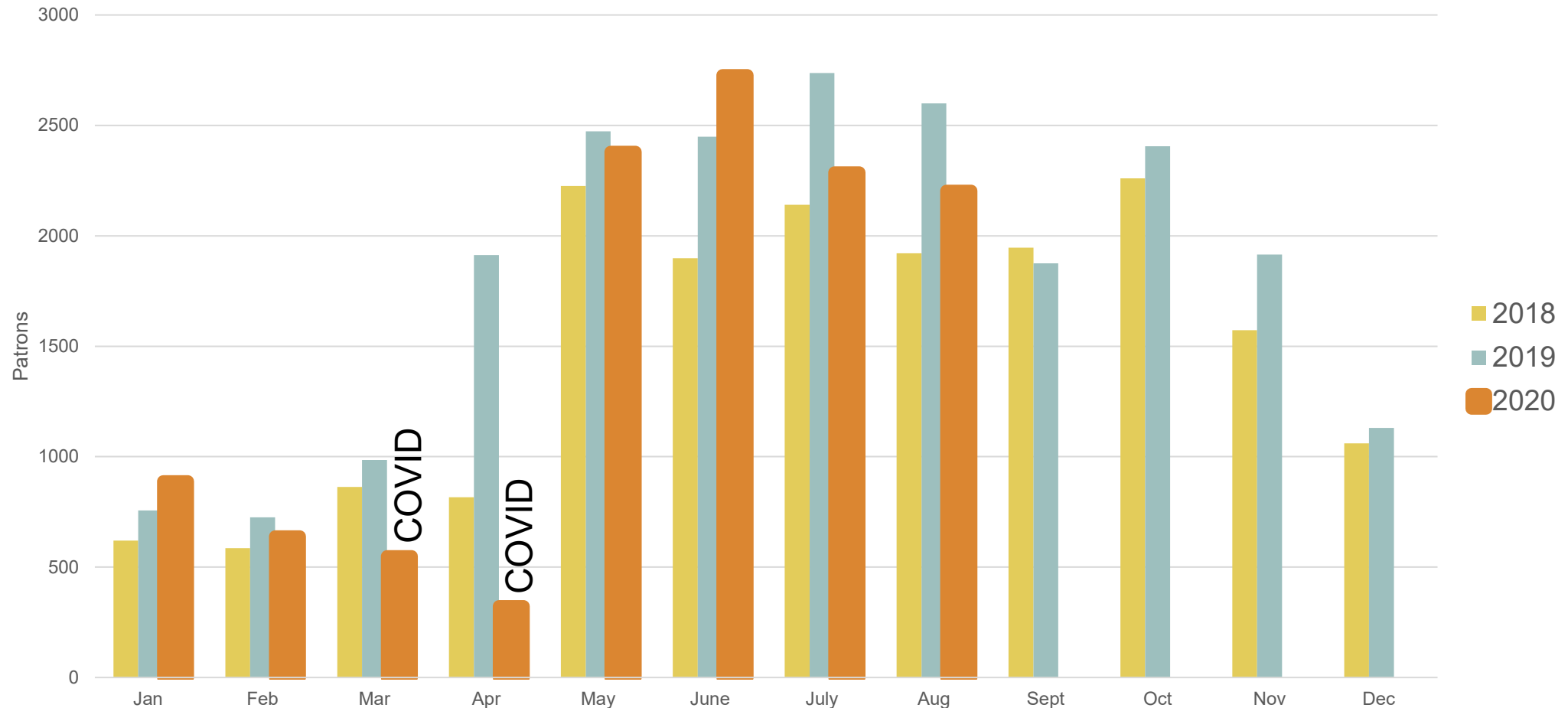
Staffing and 2020 Operations



Timeline 2020 and Covid-19 update

- January – February: Pre-COVID
- March 18 – Closure due to COVID-19, Site closes
 - Curbside waste continues as usual
 - March 23 Lead Hand on self-isolation and STD by March 30
 - Part-time Operator continues with spring clean up, leachate and compaction of commercial and curbside waste
 - Decision made by Operations in consultation with Human Resources not to bring on selected summer student
- March 30 – Site re-opens Mondays for commercial haulers only (9am – 3pm)
 - Seasonal operator starts April 6
- April 28 – Site re-opens to public with Monday as an extra open day
- May 01 – New fees begin and new diversion programs
 - New Lead Hand starts May 11
- August 08 – Saturday all day (9am – 3pm) pilot begins and closed on Mondays
- September 01 – Increase in daily hours 8am – 3pm
 - Increase Site Operator to full time
 - Increased Seasonal Operator hours
 - Due to time of mini-budget decision not to hire budgeted second seasonal operator for 2020 but increase existing seasonal hours
- October 31 - Pilot to end
 - Decision to continue full day Saturday will be part of 2021 Budget. If approved full day Saturday to commence in June 2021.

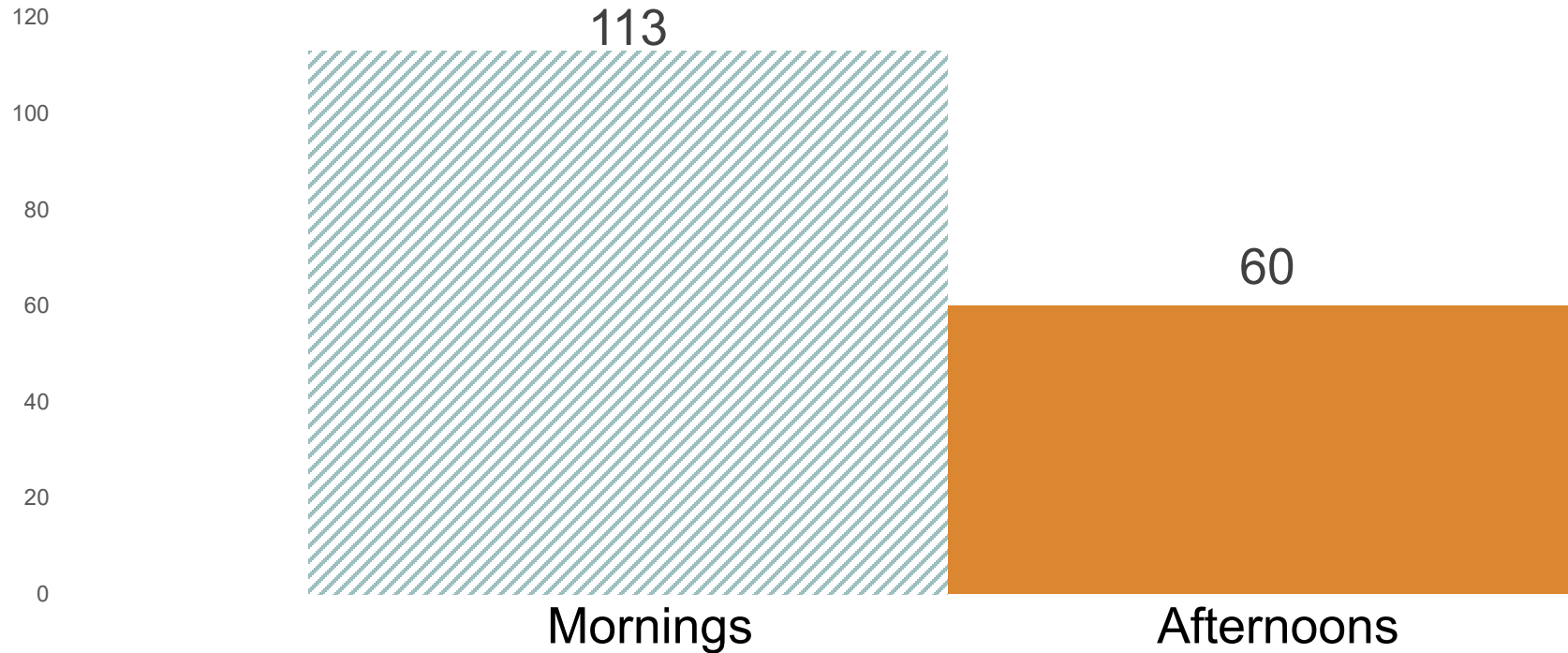
Vehicles over scale



- Number of patrons down overall in 2020, but trending up since May re-open
- January to August 2020 = 11,998
- January to August 2019 = 14,639
- January to August 2018 = 11,071

Saturday Pilot August 2020

(Daily Average)



- The morning continues to see more traffic than the afternoon, 60 patrons was the average in the afternoon for August
- Average per day in August 2019 was 182 (mornings only) vs. 173 for August in 2020
- Pilot has helped spread out Site usage which decreases wait times and traffic flow

Site Activities and Work

During Public Open Hours

- Assisting Site Patrons
- Maintaining waste and sorting area ie:
 - loading mattresses into bin
 - magnet for nails
 - removing contamination
- Receiving HHW
- Covering and compacting waste
- Maintaining access to tipping area
- Operation of leachate pre-treatment

During Closed Hours

- Shuttling waste to active area and cleaning bin areas
- Building and equipment checks and maintenance
- Sorting HHW
- Cover and compaction of waste
- Moving cover
- Completing reporting and record keeping
- Turning compost
- Taking measurements and samples
- Responding to dumping and service requests

Curbside System

Services

- Garbage Collection
 - (1 free and 1 tagged)
- Recycling
 - Blue and Grey Box
- Organics
 - Green Cart
- Seasonal Yard Waste 8 weeks
 - Spring and Fall
- Christmas Tree
- Battery Collection
 - September



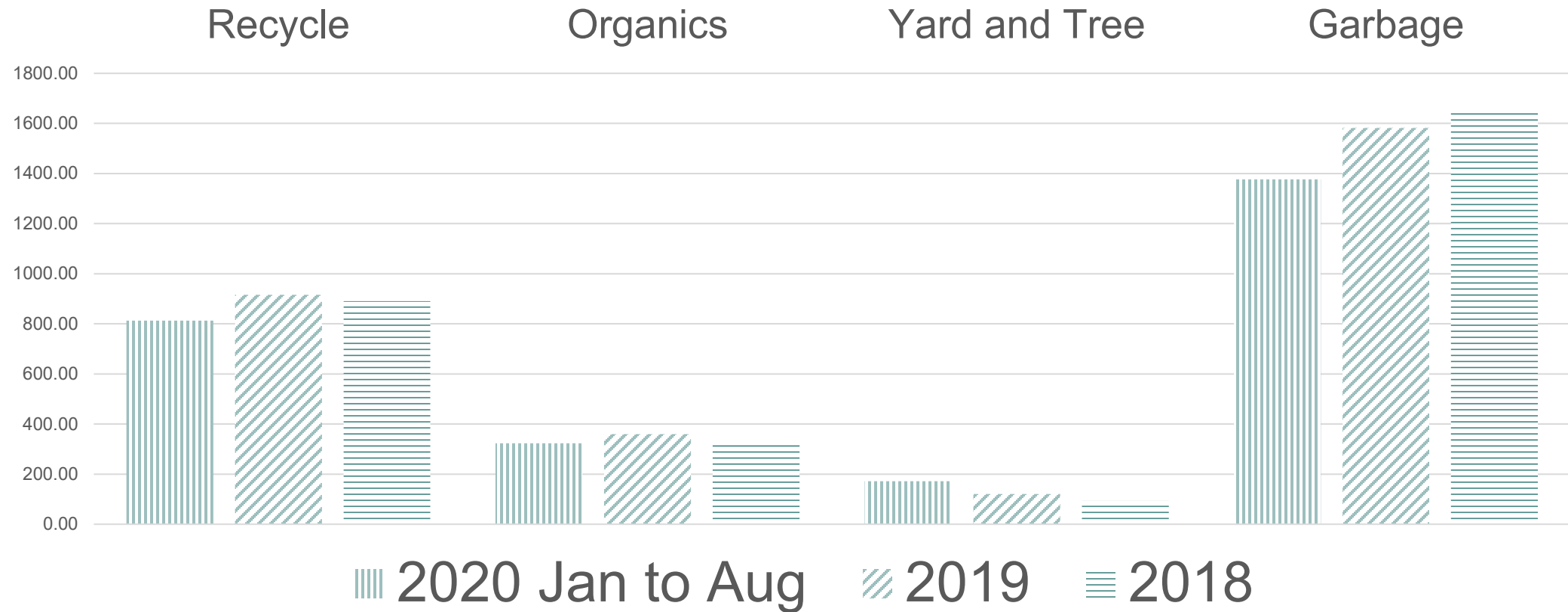
Download the new app for The Blue Mountains garbage and recycling services.

- **Collection and events calendar**
- **Waste wizard (what goes where)**
- **Electronic reminders**

www.thebluemountains.ca

Curbside System Tonnage

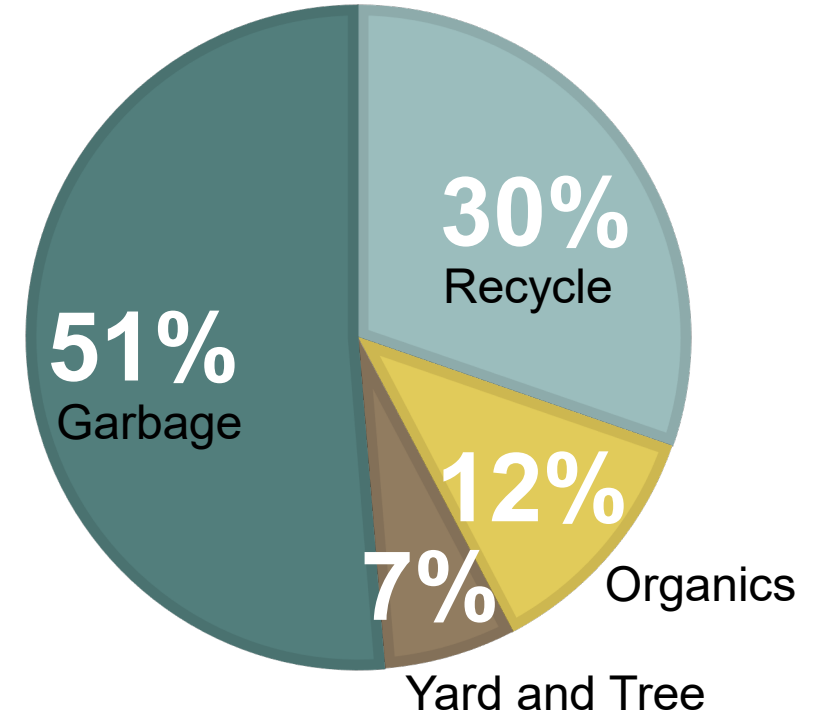


- All collection waste streams trending higher in 2020 than previous years, this will also increase costs related to collection

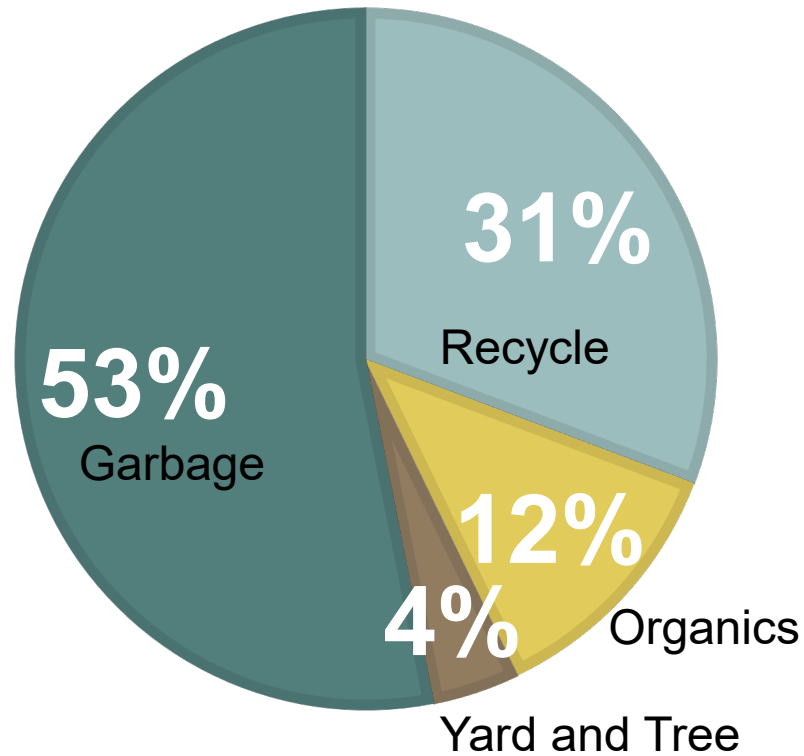
Curbside System

Waste Streams

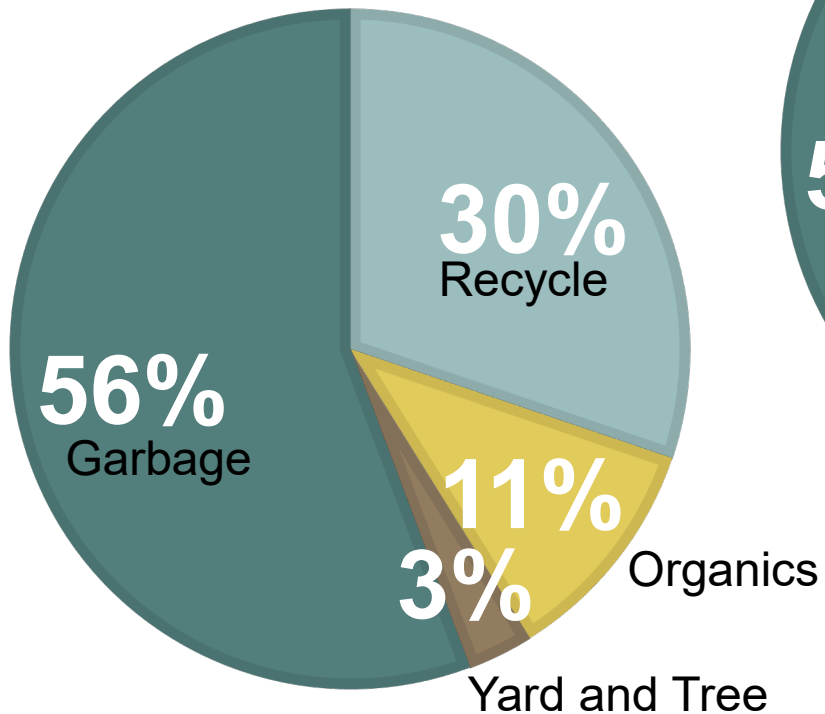
2020 CURBSIDE COLLECTION



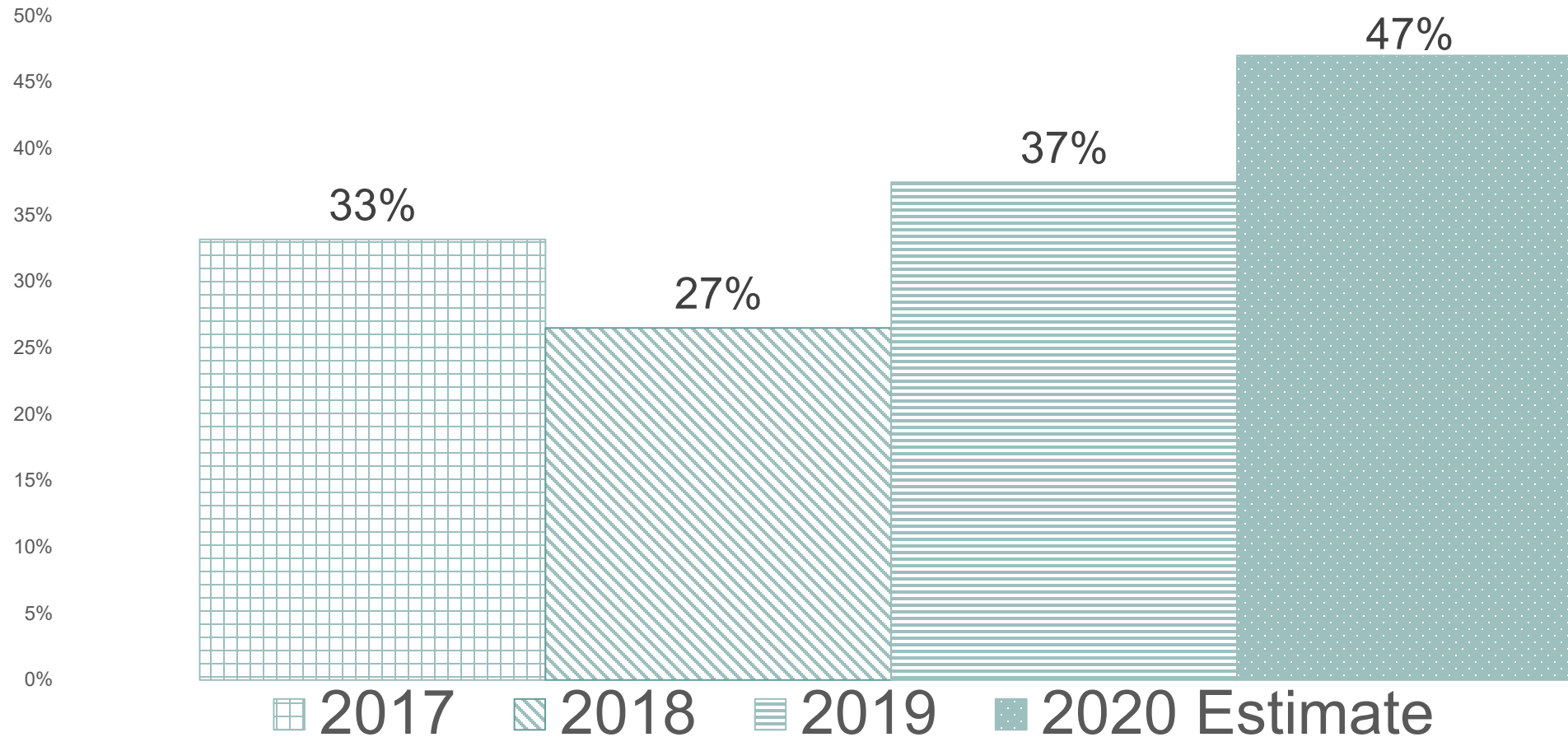
2019 CURBSIDE COLLECTION



2018 CURBSIDE COLLECTION



Overall Diversion Rate



- Higher diversion rate trending for 2020, initial rate of 47%

Surrounding Municipal Programs

Service	Simcoe Country	Meaford	Grey Highlands	The Blue Mountains
Curbside	Garbage/Green/Blue	Garbage/Green/Blue	Garbage/Blue	Garbage/Green/Blue
Bi-weekly	Garbage and Blue	Garbage	Blue	None
Bag Limit	2 Bi-weekly	3 Bi-weekly	1 per week	1 per week
Bag Fee	\$3	\$3	\$2.50	\$3 on second
Yard Waste	Seasonal Pick up and Depot	Seasonal Drop off Depot	Depot	Seasonal Pick up and Depot
Battery Collection	One week	Depot	Depot Owen Sound	Month of September
Landfill/Depot	8 (2 to 5 days/week)	No – Private Owen Sound	3 (1 to 4 days/week)	3 days/week
HHW Depot	Selected Depots	Limited Saturday Depot	Depot Owen Sound	Seasonal Depot

Promotions and Education

- Mass mailing of paper quick guide \$2,250
- Quick guide for counter walk-ups and landfill
- Electronic quick guide for mailing
- Waste Resource App \$4,780
- Google Places, Twitter, email blasts, app push notices
- Notice stickers
- Paper Ads \$450
- Battery Bags \$1,000
- Boxes, bins and carts
- Members of Council tour Site
 - valuable opportunity to answer questions provide insight

Blue Box Transition 2023

- Stewardship Ontario will take over residential blue box collection from municipalities
 - Stewardship Ontario will operate and be fully financially responsible for residential collection, could be contracted to a company like Miller Waste Systems or Stewards could form a service provider (ex: BC Recycle)
 - Directive from Province to maintain the existing standard of service for the residential program
- Plan needs to be considered for orphaned institutional, commercial and industrial blue box collection, that are currently collected in the Town system
 - Do nothing
 - User pay (combined with organics)
 - Cart system
 - Regional approach
- Transition aligns well with current contract but this could significantly impact non-residential programs
- Continued communications role for local municipalities
- Coordination with other streams

Next Steps

- Winterize leachate pre-treatment system, with Council approval - 2020
- Site study leading to conceptual Site layout and operations plan - 2021
- Continued implementation of innovative diversion programs with financial benefits related to both revenue and expense - ongoing
- Proposal for post residential blue box transition - 2021