Minutes – Executive Policy Committee – July 15, 2020

Report – Standing Policy Committee on Water and Waste, Riverbank Management and the Environment – July 8, 2020

Item No. 1 2019 Comprehensive Integrated Waste Management Strategy (CIWMS) Annual Report

EXECUTIVE POLICY COMMITTEE RECOMMENDATION:

The Executive Policy Committee concurred in the recommendation of the Standing Policy Committee on Water and Waste, Riverbank Management and the Environment and submitted the following to Council:

1. That this report be received as information.

Report – Standing Policy Committee on Water and Waste, Riverbank Management and the Environment – July 8, 2020

DECISION MAKING HISTORY:

Moved by Councillor Gillingham,

That Rule 10(3) of The Procedure By-law No. 50/2007 be suspended in order that the following item, which was received less than four business days preceding the committee meeting, be considered by Committee.

Carried

Moved by Councillor Mayes,

That the recommendation of the Standing Policy Committee on Water and Waste, Riverbank Management and the Environment be concurred in and forwarded to Council.

Carried

STANDING COMMITTEE RECOMMENDATION:

On July 8, 2020, the Standing Policy Committee on Water and Waste, Riverbank Management and the Environment concurred in the recommendation of the Winnipeg Public Service and submitted the matter to the Executive Policy Committee and Council.

COUNCIL DECISION:

On June 20, 2019, Council concurred in the recommendation of the Standing Policy Committee on Water and Waste, Riverbank Management and the Environment and adopted the following:

1. That the Public Service report back to Council annually on the amount of residential waste created (generation) per capita, sent to a landfill (disposal) per capita, and recycled/composted/etc. (diverted) per capita as measures of performance.

2. That the Public Service develop a source separated organics pilot program and report back to Council with recommendations for the pilot project.

3. That the Public Service report back to Council by the third quarter of 2020 with a ten-year financial plan for the Solid Waste Utility, including recommendations for waste diversion programs.

Report – Standing Policy Committee on Water and Waste, Riverbank Management and the Environment – July 8, 2020

DECISION MAKING HISTORY (continued):

COUNCIL DECISION (continued):

4. That the development of the multi-family waste diversion fee be included with the ten-year financial plan (Recommendation 3).

5. That the 50% waste diversion target, as approved by Council on October 19, 2011, be deferred so that Public Service can recommend a revised waste diversion target after completion of the recommended source separated organics pilot program (Recommendation 2) and ten-year financial plan (Recommendation 3).

6. That the Proper Officers of the City be authorized to do all things necessary to implement the intent of the foregoing.

ADMINISTRATIVE REPORT

Title: 2019 COMPREHENSIVE INTEGRATED WASTE MANAGEMENT STRATEGY (CIWMS) ANNUAL REPORT

Critical Path: Standing Policy Committee on Water and Waste, Riverbank Management and the Environment – Executive Policy Committee – Council

AUTHORIZATION

Author	Department Head	CFO	CAO
Michael Gordichuk, CCLP, Manager of Solid Waste Services	M. L. Geer, CPA, CA, Director, Water and Waste Department	N/A	M. Ruta, Interim CAO

EXECUTIVE SUMMARY

The Annual Report to Council summarizes the activities and financial results for 2019.

2019 was the seventh full year of implementation of the Comprehensive Integrated Waste Management Strategy (CIWMS) since beginning in 2012.

2019 program results include:

- decrease in the residential waste diversion rate to 31.9% (from 33% in 2018)
- decrease to overall per capita residential waste generation of 1.0%
- increase to per capita residential garbage generation of 0.1%
- increase in the number of visits to 4R Winnipeg Depots by 22.4%
- 62% of City biosolids diverted from landfill through City programs, including composting, the Biosolids Soil Fabrication Pilot Project, and land application.

RECOMMENDATIONS

That this report be received as information.

REASON FOR THE REPORT

On October 19, 2011, Council approved the Comprehensive Integrated Waste Management Strategy (CIWMS). Recommendation No. 28 of the CIWMS requires: “That the Winnipeg Public Service publish an annual report on the status of the Master Plan.”

IMPLICATIONS OF THE RECOMMENDATIONS

There are no implications associated with the recommendation of the report. Subsequent to the report period end date, the COVID-19 pandemic has emerged. The COVID-19 pandemic has the potential to affect the programming in 2020 but has no implications on the recommendations of this report. This risk will be monitored and its potential impacts will be determined as the situation continues to evolve.

HISTORY / DISCUSSION

In 2009, Winnipeggers landfilled in excess of 283,000 tonnes of residential garbage, and recycled and composted approximately 54,000 tonnes of residential material - a diversion rate of about 15% which was one of the lowest in Canada. At the same time, the Public Service was recommending changes to the garbage and recycling collection systems based on feedback from collectors, industry trends and other municipalities in North America.

As a result, in June 2010, Council directed the Public Service to create a waste diversion strategy in consultation with the public, to increase the waste diversion rate, explore options for material collection and provide uniform service for the citizens of Winnipeg. Working with a consultant and through extensive public consultations, a made-for-Winnipeg plan was developed.

OurWinnipeg also identified the need to carry out a comprehensive waste management strategy, to integrate and optimize the service level and efficiency of all facets of the solid waste management system, while minimizing environmental impacts. Winnipeg's Climate Action Plan further supports actions to increase waste diversion efforts and minimize the environmental impacts associated with landfilling waste.

On October 19, 2011, Council approved the Comprehensive Integrated Waste Management Strategy (CIWMS) with the overall strategy of the plan being to increase Winnipeg's diversion rate to 35% by 2016 and to greater than 50% by 2020 and thereafter. Implementation of the plan began in 2012.

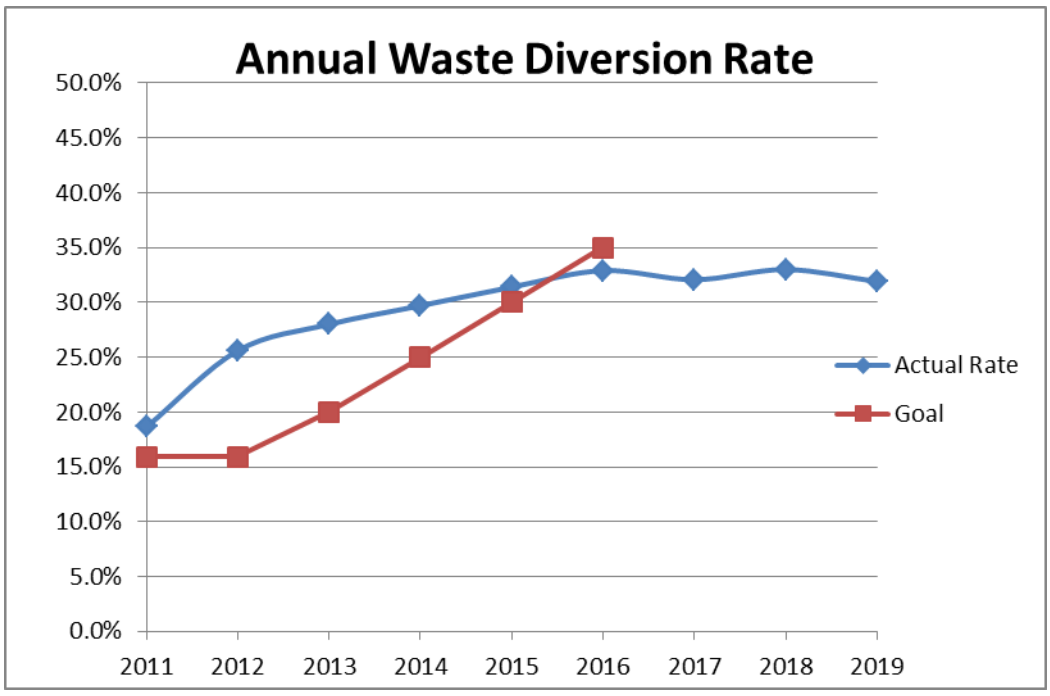
PROGRAM RESULTS – 2019

1. Residential Waste Diversion

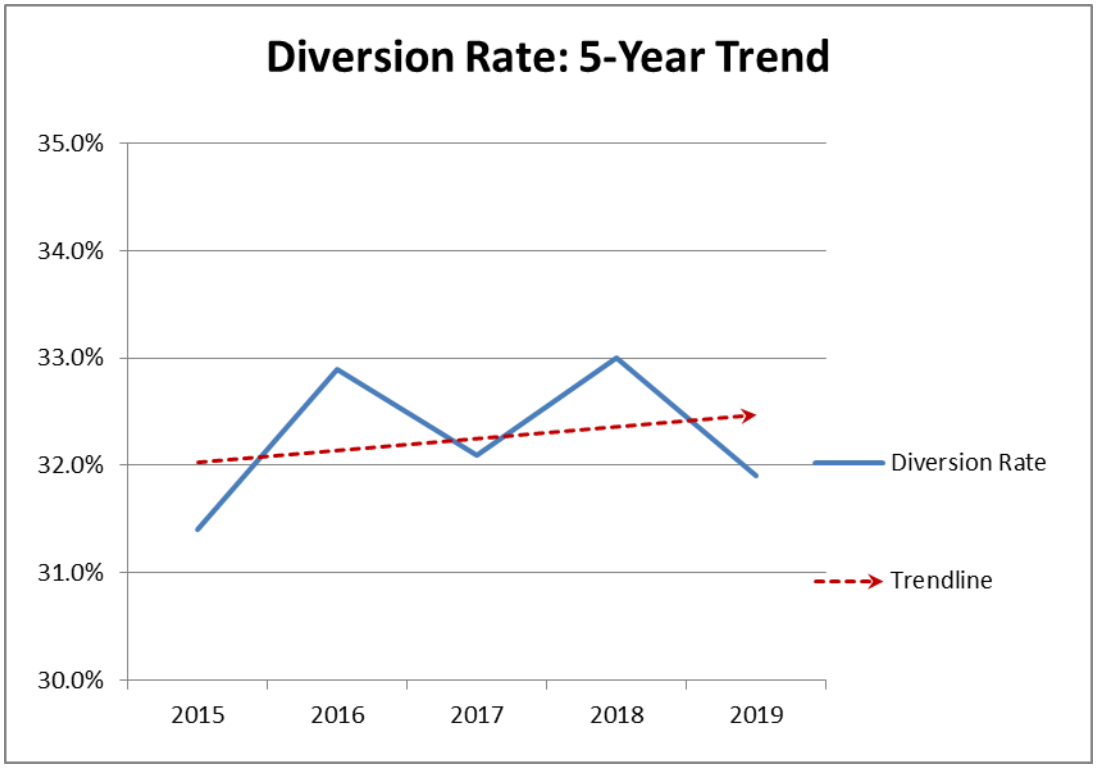
The residential waste diversion rate decreased to 31.9% in 2019 from 33.0% in 2018.

The residential waste diversion rate is calculated as a percentage of the total diverted residential tonnage divided by the total residential tonnage of material landfilled and diverted. The methodology was updated in 2018 to align with the *Generally Accepted Principles for Calculating Municipal Solid Waste System Flow* manual. This aligns the City's methodology with the other cities that participate in Municipal Benchmarking Network Canada. The methodology reflected minor changes to the calculation of backyard composting, bottle deposit returns (beer bottles and cans), and residuals tonnages.

The following graph shows the near-term waste diversion goals (2011 to 2016) established by CIWMS, as well as the actual rate since 2011. Overall, the diversion rate has remained stable since 2015, with a five-year average (2015-2019) of 32.3%.



A significant increase to the waste diversion rate is not expected without the introduction of a new, city-wide, Residential Food Waste Collection and Composting programs. The following graph illustrates that although the 2019 diversion rate is slightly lower than the five-year average, the general trend is a slow increase in waste diversion.



2. Waste Generation

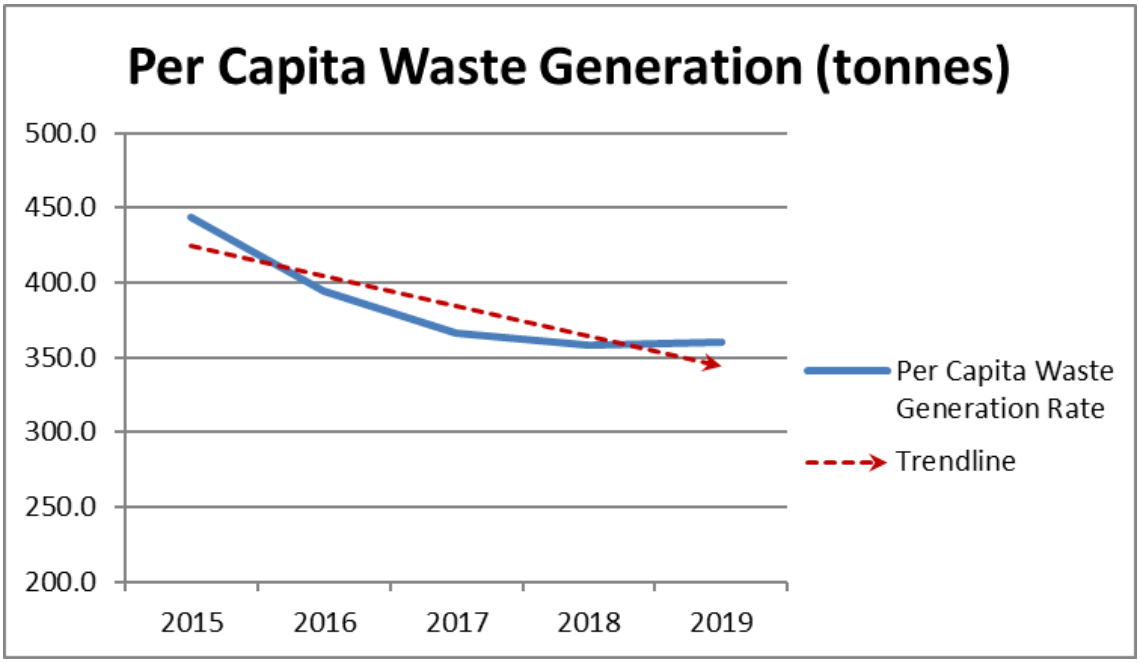
Waste generation is an indicator of system performance and provides additional detail to the waste diversion rate. In 2019, the amount of residential waste managed by the City was 275,200 tonnes compared to 274,400 tonnes in 2018, an increase of 0.3%. During this time, Winnipeg's population grew from 753,400[1] people to 763,900 people, with an increase of 1.4%.

On a per capita basis from 2018 to 2019, the total amount of residential waste managed by the City decreased by 1%. Per capita garbage generation increased by 0.1%, recycling decreased by 4.6%, and leaf and yard waste decreased by 4.2%. Notably, per capita garbage generation has decreased by approximately 21% since 2011.

Residential Waste Managed by City of Winnipeg Programs per Capita (KG)

	2011	2018	2019	2019 vs 2011
Population[2]	677,800	753,400	763,900	+12.7%
Garbage	309.4	244.5	244.7	-20.9%
Recycling	67.6	69.8	66.6	-1.5%
Leaf & Yard Waste Composting	13.5	43.9	42.0	+211.1%

The following graph illustrates a gradual decrease in the per capita waste generation rate over the last five years, with a five-year average of 385 tonnes. Over the past three years the City's per capita waste generation rate has shown signs of plateauing.



[1] Population figures have been restated from the 2018 Annual Report using the City of Winnipeg population estimate, February 2020 (http://winnipeg.ca/cao/pdfs/population.pdf)

3. Recycling Program (Curbside and Community Recycling Depots)

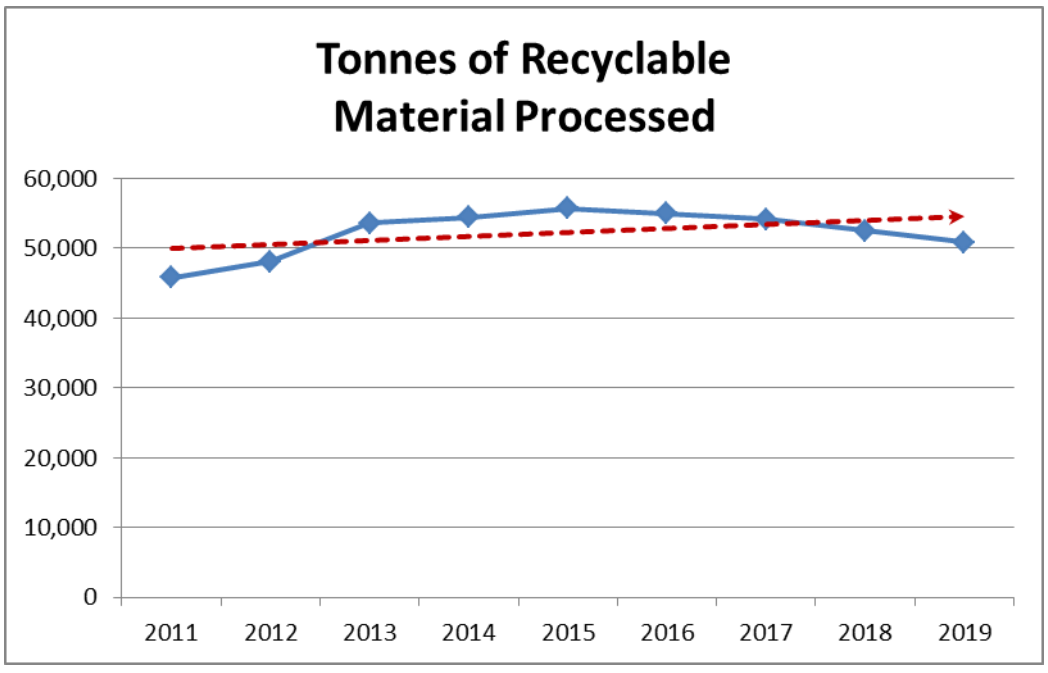
The per capita amount of residential recycling cart-type material collected from all City programs decreased by 4.6% in 2019 from 2018. The per capita weight of recyclable material collected at the curb decreased by 4.8%, and the per capita amount collected at depots increased by 3.5%.

The consistent decrease in the weight of recyclable material collected since 2016 likely reflects ongoing changes occurring in the recycling industry. Known as the "evolving tonne", recyclable material is shifting in composition away from heavier and denser material (e.g. glass, metal, and newsprint) to lighter and bulkier material (e.g. plastic, corrugated cardboard).

Year	Tonnes Recyclable Material Processed
2019	50,856
2018	52,553
2017	54,177
2016	55,010
2015	55,697
2014	54,465
2013	53,606
2012	48,087
2011*	45,835

*CIWMS Implemented

The five-year average for tonnes of recyclable material processed is 53,700. 2019 results are approximately 3,000 tonnes below this average. The following graph highlights that since the establishment of CIWMS in 2011, there is a trend of a gradual increase in tonnes of recyclable material being produced by Winnipeg residents.



4. Leaf and Yard Waste Collection and Composting

From 2018 to 2019, the total amount of residential compost material that was diverted decreased by 4.2% (1,500 tonnes). Per capita, there was a decrease of 4.5% for curbside collection and 9.3% decrease for self-haul. Leaf and yard waste (LYW) collection and composting numbers fluctuate from year to year due to weather conditions. For example, in October 2019 a significant storm event occurred that reportedly damaged 30,000 trees. This occurred at a time when many trees still had their leaves. However, the lower than average levels of precipitation in the spring and early summer months, could be the contributing factor to overall lower LYW numbers in 2019.

Collection and Self-Haul

Almost 24,000 tonnes of yard waste were collected curbside and just under 8,000 tonnes of LYW[3] were dropped off at the 4R Winnipeg Depots and directly to the yard waste composting area at the Brady Road Resource Management Facility (BRRMF). An additional 4,700 tonnes of material were delivered from other public sources, including the City's Retention Pond Weed Harvesting Program.

Composting

In 2019, over 31,500 tonnes of LYW waste was composted at the BRRMF. This represents 4.7% decrease from 2018. The finished compost continues to meet the standards established by the *Compost Quality Alliance* and the *Canadian Council of Ministers of the Environment*. Finished compost is used as top dressing on finished areas of the landfill and provided to other City departments. Approximately 11,450 m^3 of compost was sold as surplus goods. An additional 530 m^3 of compost was distributed to approximately 2200 customers during a compost giveaway to kick-off Compost Awareness week, which was held on May 5, 2019 at all three 4R Winnipeg Depots.

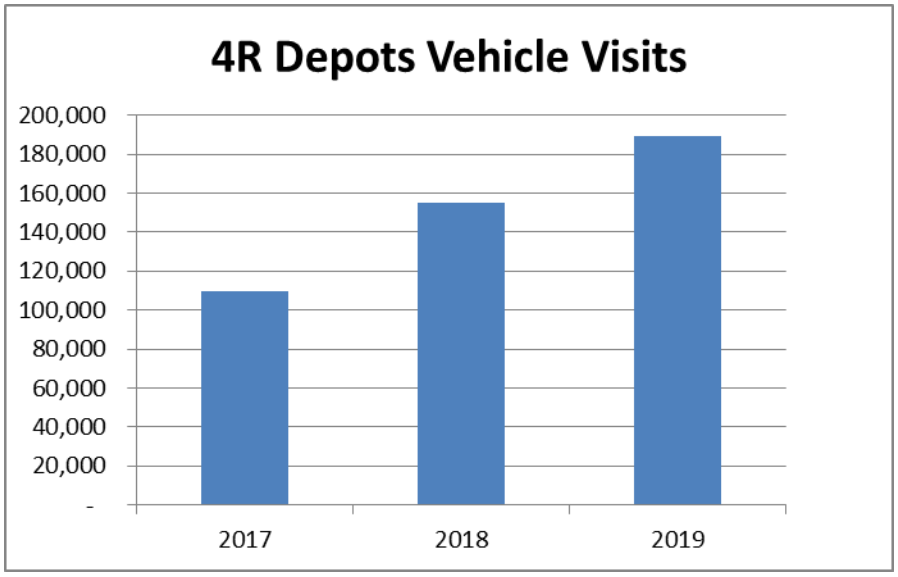
Year	LYW Tonnes Composted	
2019	31,525	
2018	33,041	
2017	28,528	
2016	34,123	
2015	33,474	
2014	29,754	
2013	23,223	
2012	10,081	*CIWMS Implemented
2011	6,598	

5. 4R Winnipeg Depots

Combined, the Brady, Pacific and Panet 4R Winnipeg Depots managed over 11,600 tonnes of material, a 19% increase over the amount managed in 2018. Of the 11,600 tonnes of residential material managed in 2019, 6,600 tonnes were diverted into recycling or composting programs. The remaining 5,000 tonnes collected at the depots consisted of clean fill[4] and concrete/ceramic, which was used throughout the BRRMF for daily operations.

[3] Includes clean lumber

[4] Clean fill typically consists of clay or soil. These are materials that are not originally intended for disposal and therefore not considered diverted material.



Approximately 190,000 vehicles visited the depots in 2019, a 22% increase (34,633 visits) over 2018. This is a 72.4% increase from 2017 – the year 4R depots began tracking vehicle visits.

The increase in the amount of material managed and number of visits suggests the facilities are becoming more popular and familiar to residents. This can be partially attributed to increased promotion and advertising, which in 2019 included targeted advertising for fall and spring clean-ups; specific electronics promotion during Black Friday, Cyber Monday, and the Christmas season; and regular communications methods used in years past.

The storm of October 2019 resulted in considerable damage to trees (residential, park and open spaces) and property. It is likely that this contributes to the 12.6% increase of residential leaf and yard waste managed at 4R depots.

Tonnes of Material Managed at 4R Winnipeg Depots

Material	2018	2019
Batteries	49	74
Bicycles	6	9
Ceramics and Concrete	1,970	2,452
Clean Fill	2,225	2,947
Electronics	570	665
Household Hazardous Waste	594	686
Oil	60	90
Mattresses	0	233

Material	2018	2019
Glass	87	80
Lumber	202	192
LYW	2,583	2,909
Appliances	180	166
Recyclable Material	523	321
Scrap Metal	607	635
Tires	165	164
Total	**9,821**	**11,624**

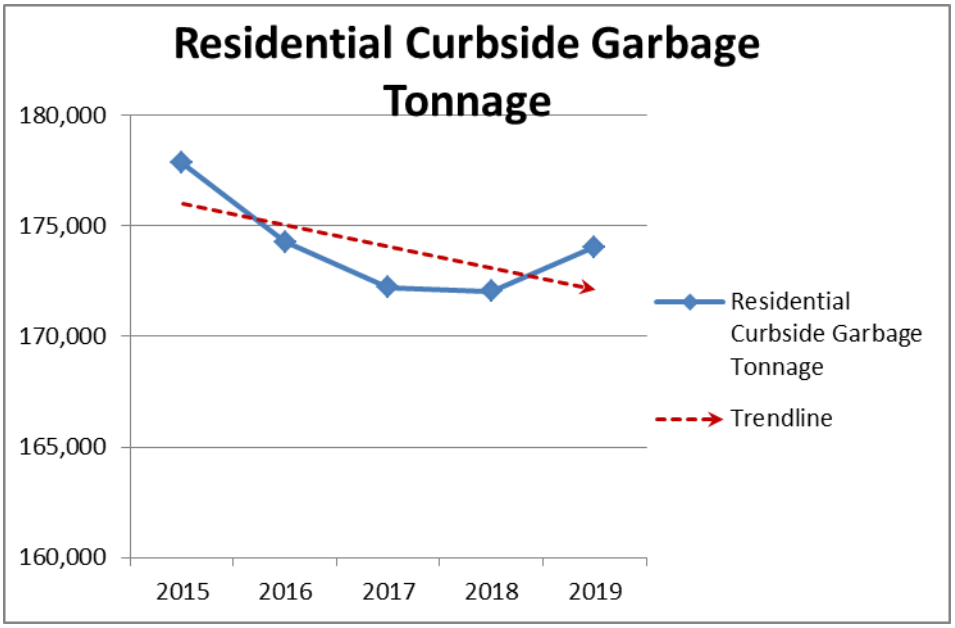
6. Residential Curbside Garbage Collection and Disposal

The weight of residential garbage collected[5] at the curb and landfilled increased by approximately 1.2% (2,000 tonnes), which is consistent with the 2019 population growth of 1.4%.

The chart below shows that residential garbage collected and landfilled in 2019 has decreased significantly since 2011 (by 17%).

Year	Residential Curbside Garbage Tonnage	
2019	174,050	
2018	172,041	
2017	172,209	
2016	174,280	
2015	177,845	
2014	176,011	
2013	173,897	
2012	201,741	*CIWMS Implemented
2011*	209,741	

The five-year average for residential curbside garbage tonnage is 174,085, which is consistent with the 2019 results. The following graph shows, that in spite of a slight increase in tonnages from 2018 to 2019, the five-year trend is a decrease in residential curbside garbage tonnages.



[5] Includes a small amount of waste from municipal facilities and small commercial generators

Requests to 311 for Large Item Pickups increased by 1.3% in 2019 compared to 2018. Reports of Abandoned Waste decreased by 32% in 2019 compared to 2018, and number of residents using the Extra Garbage Pickup service also decreased.

Requests to 311	**2019**	**2018**	**2017**
Abandoned Waste reports	527	779	841
Large Item pickup[6]	13,037	12,934	13,098
Extra Garbage pickup	230	236	395

7. Curbside Collection Performance

The overall number of garbage, recycling, and LYW collection deficiencies decreased in 2019 compared to 2018.

Collection	**Approximate No. of Locations Collected Weekly**	**311 Reports of Missed Collection**		
		2019	**2018**	**2017**
Garbage carts	206,800	6,592	8,009	17,724
Recycling carts	208,300	4,668	6,097	15,524
Yard waste (April to November)	103,400	1,531	3,137	10,326
Total		**12,791**	**17,243**	**43,574**

Note: The total number of reports of missed collection may not be a true indication of contractor performance and penalties. For example, upon investigation by either the City or the contractor, a number of complaints registered as missed collection show:

- there was a valid reason why collection was not done
- the call should have been recorded as a different type of service request

8. Lime Mud Berm Construction

The Lime Berm construction project that began in 2014 is now complete. Berm construction was completed and all areas were seeded with native specifies of grasses and shrubs. It is estimated that over 500,000 cubic metres of lime mud was used in the creation of the berms.

9. Landfill Gas Capture/Green House Gas Reduction

In its sixth full year of operation, the landfill gas (LFG) system at the BRRMF captured and flared 10.3 million cubic metres of gas, which resulted in a GHG reduction equivalent of 79,700 tonnes of carbon dioxide. The 2019 amount is equivalent to avoiding the annual carbon dioxide emissions of 18,556 passenger cars[7]. This is a 1.4% increase in carbon dioxide equivalent avoided compared to 2018 (78,345 tonnes).

[6] Includes pickups of bulky waste and appliances with ozone depleting substances
[7] Based on USA Environmental Protection Agency Greenhouse Gas Equivalencies Calculator

10. Public Engagement

The Community Liaison Committee for the Brady Road Resource Management Facility was established in 2014 as part of the requirements of the new Environment Act Licence. Two Committee meetings were held in 2019 (June and October). Committee members received a tour of BRRMF and provided updates and commented on:

- landscaping activities on finished areas of the landfill
- noise and odour considerations
- seagull management
- ways to reduce the impact of landfill activities (e.g., construction, operations) on the local environment

The Waste Diversion Advisory Committee did not meet in 2019, due to the ongoing five-year review of CIWMS.

11. Financial Rate Model Study

A request for proposal (RFP 388-2019) to develop a 10-year financial rate model was awarded on August 15, 2019. Work was undertaken throughout 2019 and a report on its findings is planned to be presented to Council in the third quarter of 2020.

12. CIWMS Five-Year Review

On June 20, 2019, Council approved the five-year review of CIWMS, which recommended that the Public Service report back to Council annually on the following measures of performance:

- amount of residential waste created (generated) per capita;
- amount of residential waste sent to a landfill (disposal) per capita; and,
- amount of residential waste recycled / composted, etc. (diverted) per capita.

At this time, Council also instructed the Public Service to develop a source separated organics pilot program, complete a 10-year financial plan for the Solid Waste Utility, and develop a multi-family waste diversion fee to be included with the financial plan. As part of this direction, Council moved to defer the 50% diversion target so that the Public Service can recommend a revised target after the completion of the recommended source separated organics pilot project and the ten-year financial plan.

13. Biosolids Composting and Soil Fabrication

The purpose of the 2018-2020 Biosolids Soil Fabrication Pilot Project is to examine the viability of utilizing biosolids and other residuals generated from City operations (primarily wood waste and street sweepings) to fabricate topsoil to complete the cap system at Summit Landfill. In 2019, approximately 20,000 tonnes of biosolids were beneficially used to make soil as part of this three-year pilot project. Based on outcomes of the pilot project to date, Solid Waste Services plans to submit an Environment Act licence proposal for an annual biosolids soil fabrication program starting in 2021.

14. OCTOBER 2019 STORM

The resilience and adaptability of City's waste management systems were tested during a major storm event that occurred in October 2019, which caused major power outages and reported

damage to approximately 30,000 trees. Existing wood waste drop off sites at the 4R depots, and the leaf and yard waste operations at BRRMF extended operating hours to assist in absorbing the high volumes of wood waste that was generated from the storm. Also, a temporary drop-off site at Summit Road Landfill was created to assist residents, private contractors, and other City departments in the disposal of excess yard waste created by the storm.

15. FINANCIAL RESULTS

City Council's adoption of the CIWMS also included the introduction of the annual Waste Diversion Fee. Effective April 1, 2019, this fee was charged at an annual rate of $63.00 (2018 - $57.50) per dwelling unit to residential properties (properties with seven or fewer dwellings as defined by the Solid Waste By-law). These monies are used to fund waste diversion programs.

The total revenue collected in 2019 was $12.4 million, comparable to $11.6 million in 2018.

Operating Cost Highlights

Contract Costs (in Millions)	2019	2018	2017
Garbage Cart Collection[8]	$10.9M	$10.3M	$9.1M
Recycling Cart Collection[9]	$12.1M	$11.5M	$6.7M
Recyclable Material Processing	$8.3M	$9.3M	$8.2M
Leaf and Yard Waste Collection	$2.9M	$2.9M	$2.8M
Leaf and Yard Waste Composting	$0.7M	$0.8M	$1.2M

Processing and Marketing of Recyclable Material

An RFP (No. 767-2017) for the processing and marketing of recyclable materials from October 2019 to July 2029 was awarded by Council on April 26, 2018. The Department worked with the proponent throughout 2018 and 2019 to ensure the implementation of this contract was up to the City's specifications and requirements. This included the construction and operation of a new materials recovery facility (MRF), which commenced operations in October 2019.

Strict import standards imposed by China has continued to affect the recycling industry's commodity standards and prices, worldwide. The continued depression in global recycling markets for paper and plastics contributed to a decrease of revenues from $1.792 million in 2018 to $0.892 million in 2019.

Carts

The department spent approximately $454,000 for the purchase of garbage and recycling carts for new housing developments and for the replacement of damaged carts.

Waste Diversion Reserve Fund

As of December 31, 2019, the balance in the Waste Diversion Reserve was $5.221 million. The balance of the Waste Diversion Reserve will be used towards funding future waste diversion initiatives, such as the Residential Food Waste Collection Pilot Project. There was no transfer to the reserve in 2019 as there was no surplus in Recycling and Waste Diversion due to higher program costs.

[8] Excludes multi-family properties that use garbage bins
[9] Includes multi-family properties that use recycling carts

CAPITAL COSTS

Residential Food Waste Collection Pilot Project (Source Separated Organics)

On December 12, 2019, Council authorized $1,800,000 from the Waste Diversion Reserve fund in 2019 for a Source Separated Organics contract procurement for a curbside pilot project. A request for proposal (607-2019) for the Consultant services for this pilot project was posted in December 2019 following authorization. Implementation of the pilot project will commence in 2020.

BRRMF Cell Design and Construction

Disposal Cell 32, complete with a leachate collection system and associated infrastructure, was constructed in 2019 at an estimated cost of $1.9 million.

BRRMF Site Improvements

Improvements are required at the site of the BRRMF under the site's Environment Act Licence. Landscaping and revegetation activities took place between May and October, and included planting of willows to enhance the vegetative buffer on the north border of the site along the south perimeter highway.

BRRMF Administration Building

Construction on the new BRRMF administration building was completed June 2019, at which time the Solid Waste Services Division gained occupancy. Landscaping components of the project will be completed in 2020 for an estimated cost of $80,000. The total cost of the project is $3.3 million.

Landfill Gas Expansion Project

In 2019, funding for landfill gas and leachate collection system expansion was secured through the Canada Low Carbon Economy Fund. This project includes expansion of the LFG well field and the conversion to dual-purpose wells for landfill gas and leachate collection. This will improve the LFG collection efficiency of the system to as high as 75%. The design for the project was completed 2019, and construction is expected to be completed in 2020, pending all necessary approvals and agreements.

16. 2020 IMPLEMENTATION PLAN

Residential Food Waste Collection Pilot Project (Source Separated Organics)

A request for proposal (607-2019) to retain subject matter experts to assist to implement a two-year residential food waste collection and public engagement pilot project was posted in December 2019. Implementation of the pilot project will commence in 2020. It will include three phases of public engagement as well as weekly food waste collection service to approximately 4,000 households along five waste collection routes. Collections are expected to commence in the third quarter of 2020. The purpose of the pilot is to gauge homeowner interest and participation in a program that diverts and collects food waste separately from the traditional waste stream. Information obtained from this project will determine the feasibility of a city-wide program and develop a business case for the implementation.

Biosolids Soil Fabrication Pilot Project

Year three of the Biosolids Soil Fabrication Pilot Project will take place in 2020. This includes the all-season fabrication of soil to supplement City topsoil requirements. The soil fabrication process uses city residuals, such as biosolids, street sweepings from winter road operations (sand and grit) and woodchips, to fabricate topsoil. This is then spread and seeded with native

prairie species at Summit Landfill. Operations include ongoing environmental monitoring. As part of 2020 activities, an Environment Act licence proposal will be prepared and submitted to Manitoba Conservation and Climate for the implementation of a full-scale program in 2021.

Landfill Gas Beneficial Use Feasibility Study – Alternative Energy Project
The Department is communicating with Manitoba Hydro, the University of Manitoba, and other partners to study and assess the feasibility of beneficial reuse of landfill gas. An RFP (1370-2019) was posted in December 2019 to undertake a feasibility study for the beneficial use of BRRMF landfill gas and make recommendations for an alternative energy project. The contract was awarded and work is expected to be completed by the third quarter of 2020.

Communication Strategy
The City will continue to use a multi-pronged approach to communicate its recycling and garbage programs and services, as well as its waste reduction/diversion efforts. Examples of different communication activities include:

- Providing new dwellings with a reusable bag which contains an information package on new collection services, and two sample paper yard waste bags.
- Continued public education through social and traditional media (newspaper, radio ads, community newsletters).

FINANCIAL IMPACT

Financial Impact Statement **Date:** May 26, 2020

Project Name:

2019 COMPREHENSIVE INTEGRATED WASTE MANAGEMENT STRATEGY (CIWMS) ANNUAL REPORT

COMMENTS:

2019 financials are reported for information. Known and estimated future year costs have been incorporated in budget submissions.

"Original signed by L. Szkwarek, CPA, CGA"
Lucy Szkwarek, CPA, CGA
Manager of Finance and Administration

CONSULTATION

In preparing this report there was consultation with:

N/A

OURWINNIPEG POLICY ALIGNMENT

This report is in accordance with the OurWinnipeg policies through:

OurWinnipeg Reference: Section 02-2 Environment – “set long range goals for solid waste diversion”

WINNIPEG CLIMATE ACTION PLAN ALIGNMENT

This report is in accordance with Winnipeg’s Climate Action Plan through Strategic Opportunity #6 Waste Reduction and Diversion, and supports the following key directions:

6.1 Reduce Consumption and Increase Waste Diversion from Residential, Commercial and Industry (Primary Responsibility: Water and Waste Department).

6.2 Advance Winnipeg’s Circular Economy to Support Waste Reduction (Primary Responsibility: Water and Waste Department)

6.3 Utilize Biosolids In Agriculture and Landscaping Industries (Primary Responsibility: Water and Waste Department)

6.4 Support Integrated Resource Recovery Opportunities (Primary Responsibility: Water and Waste Department)

SUBMITTED BY

Department: Water and Waste
Division: Solid Waste Services
Prepared by: Richard Bolton, MNRM; Melissa Bunkowsky, CPA, CGA
Date: June 1, 2020
File No.: G-101