Agenda – Council – June 20, 2019

Report – Standing Policy Committee on Water and Waste, Riverbank Management and the Environment – June 5, 2019

Item No. 1 2018 Comprehensive Integrated Waste Management Strategy (CIWMS) Annual Report

STANDING COMMITTEE RECOMMENDATION:

On June 11, 2019, 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 – June 5, 2019

DECISION MAKING HISTORY:

EXECUTIVE POLICY COMMITTEE RECOMMENDATION:

On June 11, 2019, 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 matter to Council.

STANDING COMMITTEE RECOMMENDATION:

On June 5, 2019, 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.

ADMINISTRATIVE REPORT

Title: 2018 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
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EXECUTIVE SUMMARY

The Annual Report to Council summarizes the accomplishments and financial results for 2018 relative to the Comprehensive Integrated Waste Management Strategy (CIWMS) approved by City Council on October 19, 2011.

2018 was the sixth full year of implementation of the Comprehensive Integrated Waste Management Strategy (CIWMS) since beginning in 2012.

Program accomplishments in 2018 include:

- increase in the residential waste diversion rate to 33.0% (from 32.1% in 2017)
- decrease to per capita residential garbage disposal of 2.6%
- decrease to overall per capita residential waste generation of 1.2%
- opening of the third 4R Winnipeg Depot on Panet Road
- increase of 41% in the number of visits to the 4R Winnipeg Depots

Per capita garbage generation has decreased 22.3% since 2011.

While waste diversion is and will continue to be the overarching objective of the CIWMS, the public service will recommend an updated action plan in the Comprehensive Integrated Waste Management Strategy Five-Year Review.

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.

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, for a diversion rate of about 15%, 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, with consultation from 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.

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.

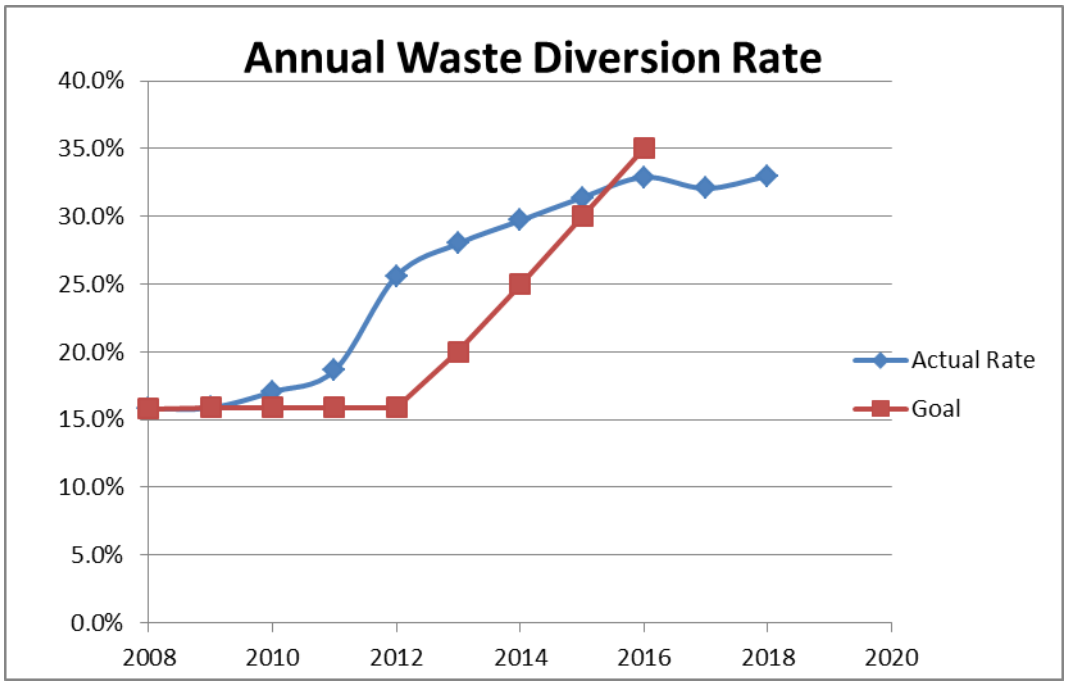
Program Accomplishments – 2018

1. Residential Waste Diversion

The residential waste diversion rate increased from 32.1% in 2017 to 33.0% in 2018. The increase is primarily due to the leaf and yard waste (LYW) composting program.

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. For 2018, the methodology was updated 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 chart shows the near-term waste diversion goals (2012 to 2016) established by CIWMS, as well as the actual rate since 2008. The rate in 2018 increased to 33.0% from 32.1% in 2017. The decrease in the diversion rate in 2017 was primarily attributed to low precipitation which resulted in a decline of LYW tonnages.



2. Waste Generation

Waste generation is an indicator of system performance and provides additional detail than the waste diversion rate. Overall, the amount of residential waste managed by the City increased from 271,800 tonnes in 2017 to 274,400 tonnes in 2018 (1.0%). During this time, Winnipeg's population grew from 749,500 people in 2017 to 765,800 people in 2018, an increase of 2%.

On a per capita basis from 2017 to 2018, the total amount of residential waste managed by the City decreased by 1.2%. Per capita garbage generation decreased by 2.6%, recycling decreased by 3.8%, and composting increased by 13.2%. Notably, per capita garbage generation has decreased 22.3% since 2011.

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

	2011	2017[1]	2018	2018 vs 2011
Population[2]	677,800	749,500	765,800	+13.0%
Garbage	309.4	246.6	240.6	-22.3%
Recycling	67.6	77.2	74.3	+9.9%

[1] Revised from previous annual report
[2] Population figures have been restated from the 2016 Annual Report using the City of Winnipeg population estimate, March 2018 (http://winnipeg.ca/cao/pdfs/population.pdf)

Leaf & Yard Waste Composting	13.5	38.2	43.2	+218.9%

3. Recycling Program (Curbside and Community Recycling Depots)

The total amount of residential recycling cart type material collected from all City of Winnipeg programs decreased by 2.8% in 2018. Per capita, the weight of recyclable material collected at the curb decreased by 4.9% and the amount collected at depots decreased by 10.7% from 2017.

The 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	
2018	52,553	
2017	54,177	
2016	55,010	
2015	55,697	
2014	54,465	
2013	53,606	
2012	48,087	CIWMS Implemented
2011	45,835	

4. Leaf and Yard Waste Collection and Composting

From 2017 to 2018, the amount of residential material collected for composting increased by 15.6% (4,500 tonnes). Per capita, the increase was 12.6% for curbside collection and 25.8% for self-haul.

Collection and Self-Haul

More than 24,680 tonnes of yard waste was collected curbside and over 8,200 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). Another 120 tonnes of material were delivered from other public sources, including the City's Retention Pond Weed Harvesting Program.

Composting

In 2018, over 33,000 tonnes of LYW waste was composted at the BRRMF. This represents an increase of 15.6% from 2017. The finished compost continues to meet the standards established by the Compost Quality Alliance and the Canadian Council of Ministers of the Environment. Finish compost is used as top dressing on finished areas of the landfill and provided to other City departments. Over 20,700 cubic metres of compost was sold as surplus goods and, in celebration of Earth Day, a compost giveaway was held on May 6, 2018 at all

[3] Includes clean lumber

three 4R Winnipeg Depots. Approximately 100 cubic metres of compost was distributed at the event.

Year	LYW Tonnes Composted	
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

The third 4R Winnipeg Depot opened on Panet Road in February 2018. Combined, the Brady, Pacific and Panet 4R Winnipeg Depots managed over 9,800 tonnes of material, an 11% increase over the amount managed in 2017 by the Brady and Pacific 4R Winnipeg Depots. Approximately 155,000 vehicles visited the depots in 2018, a 41% increase (44,912 visits) over 2017.

Of the 9,800, tonnes of residential material managed in 2018, 7,600 tonnes were diverted into recycling or composting programs. The remaining 2,200 tonnes collected at the depots consisted of clean fill[4] which was used throughout the BRRMF for daily operations.

The increase in the amount of material managed and number of visits can be attributed to the opening of the third depot on Panet Road in February 2018 and to the facilities becoming more popular and familiar to residents.

Tonnes of Material Managed at 4R Winnipeg Depots

Material	2017	2018	Material	2017	2018
Batteries	33	49	Glass	71	87
Bicycles	11	6	Lumber	185	202
Ceramics and Concrete	1,803	1,970	LYW	2140	2,583
Clean Fill	2527	2,225	Appliances	111	180
Electronics	530	570	Recyclable Material	296	523
HHW	341	594	Scrap Metal	619	607
Oil	32	60	Tires	146	165
			Total	**8,845**	**9,821**

6. Residential Curbside Garbage Collection and Disposal

The weight of residential garbage collected[5] at the curb and landfilled decreased by 0.1% (168 tonnes) in 2018 despite a population growth of 2.2%. This is consistent with the improvements

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

to waste diversion expected with the expansion of the 4R Winnipeg Depot program and continued maturity of existing waste diversion programs.

The chart below shows that residential garbage collected and landfilled in 2018 has decreased by 18.0% since 2011.

Year	Residential Curbside Garbage Tonnage	
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	

Reports of Abandoned Waste decreased by 7.4% and requests to 311 for Large Item Pickups decreased by 1.3% in 2018 compared to 2017. The number of residents using the Extra Garbage Pickup service has steadily decreased.

Requests to 311	2018	2017	2016
Abandoned Waste reports	779	841	1,708
Large Item pickup[6]	12,934	13,098	12,636
Extra Garbage pickup	236	395	512

7. Curbside Collection Performance

The overall number of garbage, recycling, and LYW collection deficiencies decreased in 2018 compared to 2017. An increase in the number of deficiencies in the last quarter of 2017 coincided with the transition of collection contractors in October 2017. After an initial learning period for the new contractors in 2017, the number of reported service deficiencies has declined significantly in 2018.

Collection	Approximate No. of Locations Collected Weekly[7]	311 Reports of Missed Collection		
		2018	2017	2016
Garbage carts	203,000	8,009	17,724	13,200
Recycling carts	203,000	6,097	15,524	11,338
Yard waste (April to November)	101,500	3,137	10,326	5,183
Total		**17,243**	**43,574**	**29,721**

[6] Includes pickups of bulky waste and appliances with ozone depleting substances
[7] As of December 2017

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. Biosolids Composting and Soil Fabrication

In 2018, approximately 8,500 tonnes of biosolids were diverted by the Solid Waste Services Division. 1,500 tonnes of biosolids were composted and the material is being used as part of the final cover at the BRRMF. A biosolids soil fabrication pilot project at Summit Landfill began in 2018 after a successful trial at the BRRMF in 2017-2018. The project is assessing the use of biosolids, combined with waste generated from other City operations (e.g., wood waste, and street sweepings) to fabricate topsoil suitable for use as final cover on closed landfill cells. The project diverted approximately 7,000 tonnes of biosolids in 2018. This pilot project will be complete at the end of 2020.

9. Lime Mud Berm Construction

In mid-December 2014, work began to build a new berm along the boundary of the BRRMF to provide an aesthetically pleasing boundary along Brady Road, the Perimeter Highway and Waverley Street. Work on the berms facing Brady Road and Waverley Street are substantially complete, and the berm along the Perimeter Highway is expected to be completed in 2019. The Department is partnering with Public Works to vegetate the berms with trees and native grasses.

The berm is constructed of lime mud, a natural by-product of the sugar refining process from a former Manitoba sugar beet processing plant. This initiative benefits the landfill, neighbouring properties and the environment by:

- reusing hundreds of thousands of cubic metres of material that would otherwise be landfilled
- helping to buffer visibility of the landfill
- generating surplus clay material (excavated for the berm), that can now be used as landfill cover for existing and future landfill disposal cells

10. Landfill Gas Capture/Green House Gas Reduction

In its fifth full year of operation, the landfill gas (LFG) system at the BRRMF captured and flared 11.5 million cubic metres of gas, resulting in a GHG reduction equivalent to 78,602 tonnes of carbon dioxide. The 2018 amount is equivalent to avoiding the annual carbon dioxide emissions of 16,688 passenger cars[8]. This is a 9.2% decrease from the amount captured in 2017 (85,819 tonnes). The decline in LFG production was anticipated due to the age of the system, as gas production from decomposing waste typically peaks within the first few years of disposal then gradually declines over the next several decades. An expansion and upgrade to the LFG wellfield was completed in late 2018.

[8] Based on USA Environmental Protection Agency Greenhouse Gas Equivalencies Calculator

11. Public Engagement

The Community Liaison Committee for the Brady Road Resource Management Facility, established in 2014 as part of the requirements of the new Environment Act Licence, had two meetings in 2018. Committee members provided advice on:

- a plan for landscaping finished areas of the landfill
- a plan for monitoring noise and odour
- 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 2018, as the Department is undergoing a review of the CIWMS. The committee will resume once the review is complete and has been presented to Council.

12. Financial Results

City Council's adoption of the CIWMS also included the introduction of the annual Waste Diversion Fee. Effective January 1, 2018, this fee was charged at an annual rate of $57.50 (2017 - $57) per dwelling unit to residential properties (properties with seven or less dwellings as defined by the Solid Waste By-law). These monies are used to fund waste diversion programs. The total revenue collected in 2018 was $11.6 million, comparable to $11.3 million in 2017.

Operating Cost Highlights

Contract Costs (in Millions)	2018	2017	2016
Garbage Cart Collection[9]	$10.3M	$9.1M	$7.7M
Recycling Cart Collection[10]	$11.5M	$6.7M	$4.5M[11]
Recyclable Material Processing	$9.3M	$8.2M	$7.8M
Leaf and Yard Waste Collection	$2.9M	$2.8M	$3.0M
Leaf and Yard Waste Composting	$.8M	$1.2M	$0.9M

Collection Costs

The costs for cart collection have increased with the new residential solid waste collection contract (RFP No. 302-2016) as they reflect current markets rates for service. The 2017 costs for recycling cart, garbage cart, and LYW collection reflect nine months of the previous contract and three months of the new contract. All reported collection costs are net of penalties.

Processing and Marketing of Recyclable Material

In April 2017, Council approved single source negotiations to extend the current contract (Tender No. 162-2002) for the processing and marketing of recyclables from September 15, 2017 to September 30, 2019. The extension was finalized in June 2017.

In February 2018, Council approved a contract over-expenditure for the processing and marketing of recyclables of $1.23 million for 2018 and 2019 due to more stringent quality standards required for the old newspapers and mixed paper collected in City recycling

[9] Excludes multi-family properties that use garbage bins
[10] Includes multi-family properties that use recycling carts
[11] Restated from 2016 and 2015 Annual Reports as it included front-end recycling bin collection

programs. A downturn in the global recycling market for paper and plastics brought on by new standards imposed by China has resulted in a decrease of revenues from $5.534 million in 2017 to $1.792 million in 2018.

Carts
The department spent approximately $432,000 for the purchase of garbage and recycling carts for new housing developments and for the replacement of damaged carts.

Waste Diversion Reserve Fund

At December 31, 2018, the balance in the Waste Diversion Reserve was $5.188 million. The Panet 4R Winnipeg Depot was funded out the Waste Diversion Reserve, decreasing the balance of the reserve by over $2.0 million from 2017. The balance of the Waste Diversion Reserve will be used towards funding future waste diversion initiatives. There was no transfer to the reserve in 2018 as there was no surplus in Recycling and Waste Diversion due to higher program costs.

Capital Costs

4R Winnipeg Depots
- The 4R Winnipeg Depot located at the BRRMF opened in February 2016 and was completed at a cost of $5.13 million. The Pacific Avenue 4R Winnipeg Depot opened in January 2017 and was completed at a final cost of $4.81 million. The Panet Road 4R Winnipeg Depot opened in February 2018 at an estimated final cost of $4.58 million.

BRRMF Site Improvements
- Improvements are required at the site of the BRRMF under the site's Environment Act Licence. Paving of the primary roadway (Charette Road) and associated drainage took place in 2018. The estimated final cost of this project is $1.8 million.

BRRMF Administration Building
- The tender to construct a new administration building for the BRRMF at 1777 Brady Road was awarded in September 2017. Completion of the building is expected in the second quarter of 2019 at an estimated cost of $3.3 million.

Landfill Gas
- Expansion of the landfill gas capture system took place in 2017 and 2018 with the drilling of 21 wells, installation of 3,500 metres of piping, and installation of associated infrastructure. The estimated total cost of the project is approximately $1.65 million.
- The City will continue to assess the feasibility of converting landfill gas to energy with its partners. $200,000.00 was approved in the 2016 Capital Budget for this project.

BRRMF – Master Infrastructure Plan Development and Cell Design and Construction
- The infrastructure master plan for the BRRMF was completed in 2018. This plan includes placement of future disposal cells, roadways, and leachate and landfill gas infrastructure. An updated lifespan estimate and clay balance of the site will also be developed. The contract also includes engineering design and construction administration services for the next three disposal cells. The anticipated total cost of this project is $900,000.00.

- Disposal Cell 31 was constructed in 2017, and a leachate storage tank was installed in 2018 to improve the efficiency of the leachate collection system. The estimated cost of the cell construction, leachate tank and associated infrastructure is $3.54 million.

13. 2019 Implementation Plan

CIWMS 5-Year Review
The 5-Year review of the CIWMS has been mandated by Council. The review assesses CIWMS's goals and timelines, including whether they are appropriate and sustainable. The review addresses Council's April 2016 motion on organic waste and effectiveness of service delivery. A Request for Proposals (RFP) to conduct the review was posted in September 2017 and awarded in October 2017 to HDR Corporation. The Department will report back to Council on the review in 2019.

In-House Multi-Family Garbage Collection Pilot Project
On February 22, 2018, Council directed the Department to conduct a two-year pilot project of multi-family garbage collection using City staff. The Department will work collaboratively with CUPE Local 500 and others to implement the pilot project which is scheduled to begin in 2020.

Processing and Marketing of Recyclable Material
The current contract for the processing and marketing of recyclable material expires September 30, 2019. An RFP (No. 767-2017) was posted in 2017 for the processing and marketing of recyclable materials from October 2019 to July 2029. The RFP closed in January 2018 and was awarded by Council in April 2018. The Department will be working with the successful proponent throughout 2019 to ensure the implementation of this contract.

Biosolids Soil Fabrication Pilot Project
A pilot project will continue to divert biosolids and other materials to fabricate topsoil for use as final cover at Summit Landfill. The project will coordinate with Public Works to utilize street sweepings and wood waste generated by their operations. This project aims to demonstrate the safe and effective use of biosolids in this manner, providing an additional long-term beneficial use option for biosolids.

Landfill Gas
The Public Service will study and develop a Business Case for the beneficial reuse of landfill gas.

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
- Using temporary summer staff to educate residents through home visits during the summer months
- Participating in public events, such as the Winnipeg Home and Garden Show
- Continued public education through social and traditional media (newspaper, radio ads, community newsletters)

FINANCIAL IMPACT

Financial Impact Statement **Date:** 2-May-19

Project Name:

2018 Comprehensive Integrated Waste Management Strategy (CIWMS) Annual Report

COMMENTS:

2018 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”

SUBMITTED BY

Department: Water and Waste
Division: Solid Waste Services
Prepared by: Justin Lee, MCIP, RPP; Melissa Bunkowsky, CPA, CGA
Date: May 2, 2019
File No.: G-101