Agenda – Executive Policy Committee – April 22, 2015

Report – Standing Policy Committee on Infrastructure Renewal and Public Works – April 14, 2015

Item No. 1 2014 Comprehensive Integrated Waste Management Strategy Annual Report

STANDING COMMITTEE RECOMMENDATION:

On April 14, 2015, the Standing Policy Committee on Infrastructure Renewal and Public Works concurred in the recommendation of the Winnipeg Public Service and submitted the following to Council:

1. That the report be received as information.

Agenda – Executive Policy Committee – April 22, 2015

Report – Standing Policy Committee on Infrastructure Renewal and Public Works – April 14, 2015

DECISION MAKING HISTORY:

STANDING COMMITTEE RECOMMENDATION:

On April 14, 2015, the Standing Policy Committee on Infrastructure Renewal and Public Works concurred in the recommendation of the Winnipeg Public Service and submitted the matter to the Executive Policy Committee and Council.

ADMINISTRATIVE REPORT

Title: **2014 Comprehensive Integrated Waste Management Strategy (CIWMS) Annual Report**

Critical Path: **Standing Policy Committee on Infrastructure Renewal and Public Works – Executive Policy Committee – Council**

AUTHORIZATION

Author	Department Head	CFO	CAO
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RECOMMENDATION

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

The Annual Report to Council summarizes the accomplishments and financial results for 2014 (the second full year of implementation of CIWMS), as well as the plan and objectives set for 2015.

This report describes in further detail:

1. Program Accomplishments – 2014
2. Waste Diversion Results
3. Financial Results – 2014
4. 2015 Implementation Plan

2014 Comprehensive Integrated Waste Management Strategy (CIWMS) Annual Report

1. Program Accomplishments – 2014

2014 was the second year of the Near Term phase of CIWMS, which is the first five-year plan (2012 to 2017) of the strategy. 2014 Program Accomplishments are outlined below.

Diversion Rate Surpasses Target

With the continued implementation of CIWMS, Winnipeg is surpassing the targeted diversion rate. The diversion rate target for 2014 was 25%.

The waste diversion rate for 2014 was 29.7%, which is:

- an increase of 1.6 percentage points from the 2013 diversion rate of 28.1%, and
- an increase of 11.6 percentage points from the 2011 diversion rate of 18.6% (the year before the new CIWMS programs were implemented).

Improved Collection Service

There was a 47% reduction in reports to 311 of missed collection as compared to 2013. This represents a significant improvement in both contractor performance and customer understanding of the cart collection program.

Abandoned Waste Declining

There was a 60% reduction in reports to 311 of abandoned garbage in 2014 as compared to 2013.

In consultation with neighbourhood community groups, the City arranged for over 600 tonnes of abandoned garbage to be collected at over 12,000 properties in the core area of the city from May to October in an attempt to proactively reduce the risk of arson and help keep the neighbourhood safe. Collections were focused primarily around the beginning and end of the month, to coincide with move in/move out periods.

A Strategy for the Future of Organics

A Request for Proposals was issued to develop the Organics Diversion Strategy, which will identify a framework and potential options to manage all types of organic material that arrive at the Brady Road Resource Management Facility, including kitchen waste, leaf and yard waste, biosolids, landscaping waste, animal waste, and wood waste. Organics diversion programs will be necessary in order to reach the goal of 50% residential waste diversion. Organics make up approximately 40% of Winnipeg's residential waste stream.

Greenhouse Gas Reduction

In its first full year of operation, the new landfill gas system at the Brady Road Resource Management Facility captured and flared 109,740 tonnes of carbon dioxide. This is equivalent to avoiding the carbon dioxide emissions of 23,046 passenger cars.

Operating Licence for Brady Road Resource Management Facility
On April 23, 2014, the Province of Manitoba issued an updated Environmental Act licence to the City of Winnipeg for the operation of the Brady Road Resource Management Facility. By the end of 2014, the City had submitted the following plans to the Province, in compliance with its licence requirements:

- an operating plan that outlines how the facility will be operated, including waste type parameters and limitations, organic and biosolids composting parameters and procedures, and dust and litter controls,
- a landfill gas collection and flaring system operating plan,
- a surface water management system design plan,
- a groundwater monitoring, sampling and analysis plan,
- a leachate management plan, and
- a landscaping plan that outlines how visual and physical buffers will be used to protect adjacent properties from facility operations.

4R Winnipeg Depots

- The 4R Winnipeg Depots are expected to divert up to 10 percent of currently landfilled materials by diverting more material away from the landfill, and either finding alternative secondary use for the materials, or ensuring that they are disposed of safely (in the case of hazardous waste).
- A contract was awarded for the construction of the first 4R Winnipeg Depot at Brady Road Resource Management Facility.
- Preliminary design was completed for the second depot site on Pacific Avenue.
- Work continued to develop agreements with various product stewards for the collection and handling of materials at these depots for the opening of the first 4R Winnipeg Depot.

Completed Construction of a Pilot Biosolids Composting Facility
Construction was completed on a new three-hectare pilot facility at the Brady Road Resource Management Facility that will compost about 20% of the more than 50,000 tonnes of the nutrient-rich end product of sewage treatment (biosolids) produced each year at the City's three sewage treatment plants.

This pilot facility is expected to:

- be operational in early 2015, and
- produce over 300 cubic metres of compost per week for use as a final cover at Brady.

Lime Mud Berm Construction
Starting mid-December 2014, a nine-month project began at the Brady Road Resource Management Facility to build a new berm along the boundary of the Brady facility. The berm is being 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,
- allowing the native earth at the Brady facility to be used for future phases of development, and
- generating surplus clay material excavated for the berm that can be used as landfill cover for existing and future landfill disposal cells.

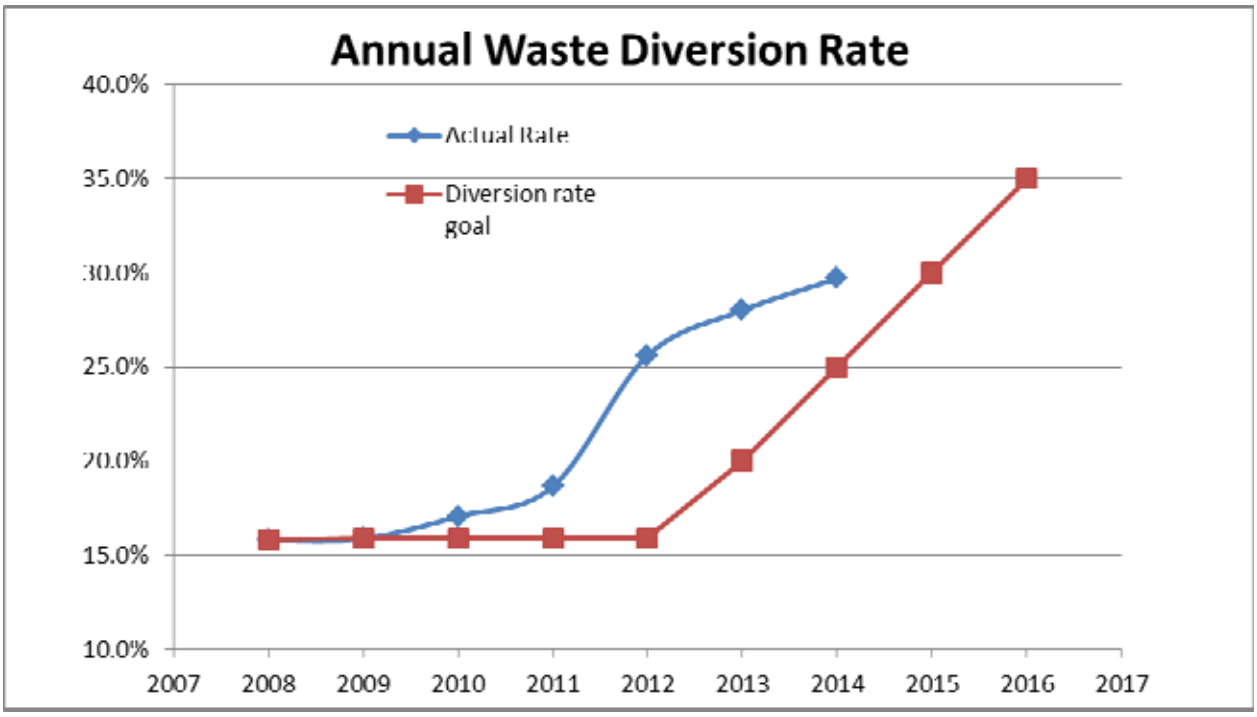
2. Waste Diversion Results

The waste diversion rate is calculated as a percentage of the total diverted tonnage versus total residential tonnage of material accepted at the Brady Road Resource Management Facility (landfilled and diverted material). The following table summarizes the waste diversion rate over the last five years, along with a description of the program status.

Year	Waste Diversion Rate	Program Status
2014	29.7%	Second full year of new program
2013	28.1%	First full year of new program
2012	25.5%	Partial year of new program
2011	18.6%	Original program
2010	16.9%	Original program

Annual waste diversion rate and diversion rate goals

The chart below shows the waste diversion goals established by CIWMS, as well as the actual rate since 2009. The City is approximately one year ahead of schedule of reaching its short-term goal of 35%, as set out in the strategy.



Residential Curbside Garbage Collection and Disposal
The amount of residential garbage collected and landfilled in 2014 increased marginally over 2013 by 2,364 tonnes (a 1.4% increase). This may be attributed to a number of factors, such as new housing starts (based on the requirement to provide 1,500 new dwellings with carts and service).

The chart below shows that the garbage collected and landfilled in 2014 remains 16% below the 2011 tonnage.

Year	Residential Garbage Tonnage	Program Status
2014	176,011	Second full year of new program
2013	173,897	First full year of new program
2012	201,741	Partial year of new program
2011	209,741	Original program
2010	223,106	Original program

Yard Waste Collection and Composting
In 2014, almost 30,000 metric tonnes of yard waste was composted on the new (2013) nine-hectare compost pad. This represents a 28% increase over the full first year of curbside collection (in 2013) and 3.5 times higher than the 2011 tonnage.

New equipment was acquired to enhance the composting process:
- a windrow turner, a machine that assists with the composting process by mixing rows of yard waste, and
- new instrumentation to aid technical staff in monitoring the process.

In October, the first batch of finished compost was applied as top dressing on the finished areas of the landfill.

Year	Yard Waste Tonnage	Program Status
2014	29,754	Second full year of new program
2013	23,223	First full year of new program
2012	10,081	Partial year of new program
2011	6,598	Original program
2010	5,541	Original program

Curbside collection
More than 22,700 tonnes of yard waste was collected curbside from the following properties:
- Single-family homes
- Other residential properties with seven units or less
- Businesses, registered charities and places of worship signed up for cart collection service

Self-haul and depot
About 7,010 tonnes of material were delivered by customers directly to the yard waste composting area at the Brady Road Resource Management Facility:
- 5,000 tonnes from citizens/businesses, and

- 2,010 tonnes from the City's Retention Pond Weed Harvesting Program and from other public sources.

Recycling Collection Program

There was a 1.6% increase in 2014 over last year in the recycling material collected through the curbside, depot and public space collection programs, and an overall increase of 18.8% from 2011.

Year	Recycling Tonnage	Program Status
2014	54,465	Second full year of new program
2013	53,606	First full year of new program
2012	48,087	Partial year of new program
2011	45,835	Original program
2010	46,896	Original program

Collection Statistics

Data indicates that residents continue to embrace the new system.

	2014	2013
Abandoned waste reports*	851	2,119
Large item pickup**	13,339	13,295
Extra garbage pickup	1,136	1,500

*Based on customer requests to 311

**Includes pickups of bulky waste and appliances with ozone depleting substances.

Curbside Garbage, Recycling and Yard Waste Collection Performance

Collection	Approximate no. of locations collected weekly	Reports to 311 2014	Reports to 311 2013
Garbage carts	190,000	13,341	26,031
Recycling carts	190,000	11,995	18,882
Yard waste (April to November)	95,000	3,773	10,098
Total		**29,109**	**55,011**

The numbers noted above reflect reports to 311 of missed collection.

Note: The total number of reports of missed collection is not 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.

Landfill Gas Capture and Flaring System
The new landfill gas system, which became operational in 2013, captured and flared 109,740 tonnes of carbon dioxide in 2014. This is equivalent to avoiding the carbon dioxide emissions of 23,046 passenger cars (based on the US EPA Greenhouse Gas Equivalencies Calculator).

Landfill Gas Capture and Flaring Operation	2014	2013 – Partial Year (Start up on July 8)
Tonnes of carbon dioxide from the flare	109,470 tonnes	50,945
Average cubic feet per minute	900	1026
Average methane content	49%	49.6
Average oxygen content	1.5%	2.2
Average temperature	900 degrees Celsius	884 degrees Celsius

Public Engagement
On January 23, 2014, an open house was held at St. Norbert Community Centre to provide an opportunity for residents to learn about the new 4R Winnipeg Depot and other improvements at the Brady Road Resource Management Facility.

In fall 2014, a Community Liaison Committee was established for the Brady Road Resource Management Facility as part of the requirements of the new Environmental Licence issued by the Province. Committee members are providing advice on:
- a plan for landscaping finished areas of the landfill,
- a plan for monitoring noise and odour, and
- ways to reduce the impact of landfill activities (e.g., construction, operations) on the local environment.

The committee, including citizen representatives from Winnipeg and two neighbouring municipalities, had two meetings in 2014.

Public Education
In addition to the routine communication efforts, a new public education campaign was implemented to help residents understand some of the cart basics. Summer students visited residential properties throughout the summer months in all areas of the city and provided approximately 2,000 courtesy notices to reinforce the following messages and help prevent service deficiencies:
- “Keep me safe” – return carts to the property as soon as possible after collection and store them in a safe place on your property
- “You’re early” – yard waste is placed out ahead of schedule, collection schedule reminder
- “Give us space” – allow at least one an arm’s length space all around the carts
- “Blue carts are bag free” – plastic bags are not accepted in the recycling program

3. Financial Results

City Council’s adoption of the CIWMS also included the introduction of the annual Waste Diversion Fee of $50 per dwelling unit (properties with seven or less dwellings as defined by the Solid Waste By-law). These monies are used to fund waste diversion programs. The revenue in 2014 was $9.9 million and comparable to 2013 results of $9.8 million.

Operating Costs

Program	2014	2013
Garbage Collection	$7.9 million	$8.4 million
Recycling Collection	$5.4 million	$5.6 million
Recycling Processing	$8.7 million [1]	$7.8 million
Leaf and Yard Waste Collection	$2.7 million [2]	$2.1 million
Leaf and Yard Waste Composting	$0.8 million [2]	$0.5 million

[1] The recycling material processing facility, owned and operated by Emterra, was expanded in 2012-13 to accommodate the processing needs of the additional tonnage of recycling material collected. The expansion costs translated into a new, increased per tonne operating costs for the City.

[2] 2014 was the first full year that the leaf and yard waste composting facility was operational, and there was a marked increase in the volume of material collected and composted.

Capital costs

Carts
In 2014, total capital costs in the amount of $221,000 were incurred for the purchase of carts for new housing developments and for the replacement of damaged or stolen carts.

4R Winnipeg Depots (Community Resource Recovery Centres)
The first 4R Winnipeg Depot is scheduled to open in the summer of 2015 at the Brady Road Resource Management Facility. To date, the department has incurred costs of $669 thousand towards detailed design and bin purchases. The facility has an estimated capital cost of $4.9 million.

Waste Diversion Reserve Fund
As of December 31, 2014, the Waste Diversion Reserve Fund had a balance of $1.3 million, up from $950 thousand from 2013. The reserve is funded from surplus monies collected from the Waste Diversion Fee and is dedicated to waste diversion programs, as approved by City Council.

4. 2015 Implementation Plan

4R Winnipeg Depots
The first depot will be located at the Brady Road Resource Management Facility. Construction is expected to get underway in spring 2015, and is expected to open in late summer.

The second depot will be located on Pacific Avenue between McPhillips and Weston Streets. Design work should be completed in 2015, with construction beginning in 2016.

These depots will:

- provide residents with an opportunity to drop off materials that could be resold, recycled, composted, or reused instead of landfilled,
- keep more garbage out of the landfill, which means less harmful landfill gas,
- help ensure that hazardous materials are disposed of safely.

According to the CIWMS, the diversion of material through 4R Depot Program should contribute about a 10% increase towards the overall waste diversion goal.

Organics Diversion Strategy
The Organics Diversion Strategy will be undertaken in 2015, with a report to Council expected in early 2016. The strategy will consider the long-term management of organic material generated within Winnipeg, including kitchen waste, biosolids and animal waste.

Work will continue toward developing public awareness of the benefits of composting and grasscycling (mulching). Staff will also continue to be involved in community events to promote the program and answer questions from the public. Feedback from these events has been positive and well received by staff and the public.

Finished compost will continued to be used as top dressing on finished areas of the landfill. The finished product will also be tested for conformance with Canadian Council of Ministers of the Environment and Compost Quality Alliance guidelines before being made available to the public.

Pilot Biosolids Composting Facility
The newly constructed pilot biosolids composting facility at the Brady Road Resource Management Facility will be commissioned in 2015.

Waste Characterization Study
A waste characterization study will be undertaken to determine the composition of Winnipeg's waste. This will be the first characterization study the City has undertaken since the implementation of CIWMS. The study will be conducted regularly by a third party consultant and used to help assess the performance of Waste Diversion Programs and to inform/assist long term planning.

Waste Diversion Advisory Committee
Pursuant to Council direction, a Waste Diversion Advisory Committee is expected to be formed in 2015. The role of the committee will be "to provide advice and recommendations for the completion, implementation, and continual improvement of the Garbage and Recycling Master Plan". In its first year, the committee is expected to provide input into the development of the Organics Diversion Strategy.

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 an a reusable bag which contains an information package on new collection services, a 2015/2016 calendar with their new collection day and two sample paper yard waste bags

- Using summer students to educate residents through home visits during the summer months
- Participating in public events, such as Home Expressions Show, Take Pride Winnipeg's Sustainability Day and Team Up to Clean Up
- Continued public education through social and traditional media (newspaper, radio ads, community newsletters)

HISTORY

In 2009, Winnipeggers landfilled in excess of 340,000 tonnes of residential garbage per year 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.

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.

Council adopted the Comprehensive Integrated Waste Management Strategy on October 19, 2011, with the overall strategy of the plan being to increase the diversion rate to 35% by 2016 and to greater than 50% by 2020 and thereafter. Implementation of the plan began in 2012.

FINANCIAL IMPACT

Financial Impact Statement **Date:** February 25, 2015

Project Name: 2014 Comprehensive Integrated Waste Management Strategy Annual Report

COMMENTS:
This report is submitted for information only and as a result there is no financial impact associated with this report.

"Original signed by M. L. Geer, CA"
Moira Geer, C.A.
Manager of Finance & Administration

CONSULTATION

In preparing this report there was consultation with:

SUBMITTED BY

Department: Water and Waste
Division: Solid Waste Services/Finance and Administration
Prepared by: R. Park/D. Strandberg/L. Fisher
Date: February 25, 2015
File No. G101