Agenda – Council – October 26, 2023

Report – Standing Policy Committee on Water, Waste and Environment – September 8, 2023

Item No. 1 Residential Food Waste (RFW) Pilot Results and Recommendations

EXECUTIVE POLICY COMMITTEE RECOMMENDATION:

On October 17, 2023, the Executive Policy Committee did not concur in the recommendation of the Standing Policy Committee on Water, Waste and Environment and submitted the following to Council:

1. That the concept and development of a city-wide green cart program for single-family residential dwelling units, where residential food waste is processed at a merchant facility, be approved.

2. That $500,000 be approved for Professional Consulting Services - Organics as a 2024 capital project, outside of the regular budget process, to assist in the development of the green cart program and complete a market sounding, to be funded from the Waste Diversion Reserve.

3. That the Public Service, as part of market soundings and industry engagement, seek options from potential service providers on how they would begin processing approximately 26,000 tonnes of food waste as soon as Q2 2026, if the City can begin implementation of service delivery by that time.

4. That the Public Service report back in June 2024 on the progress of the program development, including: the results of discussions with potential service providers, opportunities for earlier implementation, results of market soundings, identification of possible interim service enhancements, program variations including collection frequency, seasonal variations or levels of service, future program level of service variants, and funding approaches for collection and processing contracts.

5. That the Public Service seek out all opportunities for external funding available to assist operations and implementation of the program.

6 That the Public Service continue to administer the Financial Incentives for Compost Grant until a city-wide green cart program is operational.

7. That the appropriate labour representatives for the staff at Brady Road be consulted to discuss what impacts any food waste composting program would have on the current yard waste composting program.

Report – Standing Policy Committee on Water, Waste and Environment – September 8, 2023

EXECUTIVE POLICY COMMITTEE RECOMMENDATION (continued):

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

Agenda – Council – October 26, 2023

Report – Standing Policy Committee on Water, Waste and Environment – September 8, 2023

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Report – Standing Policy Committee on Water, Waste and Environment – September 8, 2023

DECISION MAKING HISTORY (continued):

EXECUTIVE POLICY COMMITTEE RECOMMENDATION (continued):

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

David Grant submitted a communication with respect to the matter.

On September 21, 2023, the Executive Policy Committee laid over the matter for 30 days.

The following persons submitted communications in support of the matter:

- Andee Penner
- Sandra Schonwetter
- Vicky Pham
- Tricia Barnabe
- Alex Loeppky, Divisional Compost Coordinator, on behalf of the Seven Oaks School Division
- Tamara Rae Biebrich
- Bronagh Nazarko
- Douglas Hemmerling

David Grant submitted a communication with respect to the matter.

STANDING COMMITTEE RECOMMENDATION:

On September 8, 2023, the Standing Policy Committee on Water, Waste and Environment passed the following motion:

WHEREAS City Council's Strategic Priorities Action Plan – item No. 32 states the City will "develop and implement a city-wide residential food waste collection (green cart) and processing program";

AND WHEREAS the Public Service is recommending development start on a green cart program similar to the Residential Food Waste Collection pilot project;

AND WHEREAS implementation of the full program may take up to 7 years and requires development of a funding structure;

Report – Standing Policy Committee on Water, Waste and Environment – September 8, 2023

DECISION MAKING HISTORY (continued):

STANDING COMMITTEE RECOMMENDATION (continued):

AND WHEREAS the Public Service is seeking out all opportunities to accelerate the schedule and identify an equitable funding structure, including any available external funding sources;

AND WHEREAS the current composting facility located at Brady Road is run by unionized staff;

THEREFORE BE IT RESOLVED that the recommendation of the Winnipeg Public Service be concurred in, with the following amendments:

- Delete Recommendation 2 in its entirety and replace with the following:

  "2. That the Public Service report back in June 2024 on progress of the program, including: opportunities for earlier implementation, results of market soundings, identification of possible interim service enhancements, program variations including collection frequency, seasonal variations or levels of service, future program level of service variants, and funding approaches for collection and processing contracts."

- In Recommendation 3, delete the words "at a merchant facility"

- Add the following new recommendations and renumber the remaining accordingly:

  "8. That the appropriate labour representatives for the staff at Brady Road be consulted to discuss any impacts the resulting program would have on their members.

  9. That the Winnipeg Public Service be directed to report back to the Standing Policy Committee on Water, Waste and Environment in June of 2024, with information on the ability for the City to charge a fee based on the assessed value of the property."

and forwarded to the Executive Policy Committee and Council.

The following persons submitted communications with respect to the matter:

- David Grant
- Sara Rempel
- Kelly Janz, Winnipeg Food Council Research and Policy Subcommittee

ADMINISTRATIVE REPORT

Title: Residential Food Waste (RFW) Pilot Results and Recommendations

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

AUTHORIZATION

Author	Department Head	CFO	CAO
M. Gordichuk, CCLP, Manager, Solid Waste Services	T. W. Shanks, M. Eng., P. Eng., Director, Water and Waste Department	J. Hall (acting)	M. Jack

EXECUTIVE SUMMARY

In December 2019, Council directed the public service to deliver a two-year pilot for the curbside collection of Residential Food Waste (RFW) from single family dwellings. The purpose of the pilot was to gauge the level of customer support for a RFW collection program, measure participation rates, and gather sufficient data to define a program that would work for Winnipeg residents.

The pilot results, included in this report, demonstrate citizen interest in a curbside RFW program. The Public Service is recommending the implementation of a RFW program which responds to Council's Strategic Priorities Action Plan No. 32 - which reads: "develop and implement a city-wide residential food waste collection (green cart) and processing program."

Pilot Results

The Pilot Project, which ran from October 2020 to September 2022, provided weekly curbside collection of expanded residential food waste (fruits, vegetables, meats, bones, dairy, etc.) and included 4,061 households across five areas of the City. The project measured participation and satisfaction during the pilot.

Results from both the pilot participants and city-wide surveys indicate strong support for the creation of a city-wide RFW program; 89 percent of city-wide survey respondents and 94 percent of pilot participants support RFW collection. In addition, a majority of residents (66 percent of pilot participants; 60 percent of city-wide survey respondents) indicated a willingness to pay a new fee for this service.

Recommended Program

- Every single-family residential dwelling unit will receive a 120-litre green cart and a 7-litre kitchen pail to use for transferring food waste from their kitchens to their green carts.

- Collection will be weekly, on the same day as garbage and recycling collection.

- Acceptable materials for the green carts will include fruits and vegetables (including peelings), meat, bones, and dairy, as well as paper towels, tissues and soiled cardboard boxes (e.g. pizza boxes). The program will not include pet waste or diapers.

- Residents will be permitted to use Biodegradable Products Institute (BPI) certified compostable liner bags in their kitchen pails.

The green cart program requires a processing facility, additional curbside collection service, green carts, and administrative support staff. A processing facility is the most critical component, and an acceptable facility (in terms of capacity and technology) does not currently exist in the Winnipeg region.

Based on cost, schedule, and the current status of the organics processing market in Canada, at this time the Public Service recommends a merchant facility (privately owned and operated) to service a city-wide green cart program for Winnipeg, similar to the existing recycling processing facility.

An increase to the annual Waste Diversion Fee (WDF) of $8.00 per residential dwelling unit, starting in 2024, is recommended to build equity in the Waste Diversion Reserve for the initial deployment and management of green carts and kitchen pails. Any further increases required to fund the Waste Diversion Reserve will be requested through the future multi-year budget process. Under the assumed merchant model, it is estimated that the annual WDF would be increased by $88.00 per single family residential unit in 2030 to pay for the operational costs of the residential food waste program, for a total estimated WDF increase of $96.00 annually per single family residential dwelling unit. The projected rate does not factor in any potential funding from other levels of government or any possible revisions to the type of procurement.

Based on a jurisdictional review of green cart programs in Canadian municipalities and the current capacity to process acceptable green cart materials, it is projected that a green cart program could be operational by 2030.

The Public Service recommends a new 2024 capital project for professional consulting services to assist in the development of a service contract for green cart materials processing and to conduct a robust market sounding to ensure that the procurement method results in a competitive process. Additional budget of $500,000 in 2024 is required to start this work, and it is anticipated to take about 48 months. Funding for this capital project is available within the Waste Diversion Reserve.

Approval of this report will provide the Public Service authorization to begin implementation of a city-wide residential green cart program to help meet waste diversion and greenhouse gas (GHG) reduction targets in OurWinnipeg 2045, the Winnipeg Climate Action Plan, and the Community Energy Investment Roadmap (CEIR).

RECOMMENDATIONS

1. That the development of a city-wide green cart program for single-family residential dwelling unit, based on the Residential Food Waste collection pilot project design, be approved.

2. That, via the 2024-2027 multi-year budget process, approval be provided to increase the annual Waste Diversion Fee by $8.00 per single-family residential dwelling unit, starting July 1, 2024, and that the resulting $8.00 per single-family residential dwelling unit increase in funds be transferred annually to the Waste Diversion Reserve, to fund the purchase and management of green carts and kitchen pails for the new green cart program. Any further increases required to fund the Waste Diversion Reserve will be requested through future budget process.

3. That $500,000 be approved for Professional Consulting Services - Organics as a 2024 capital project, outside of the regular budget process, to assist in the development of a service contract for green cart materials processing at a merchant facility and complete a market sounding, to be funded from the Waste Diversion Reserve.

4. That any further increases required to fund the operational costs and staffing equivalents of the program will be requested through that year's multi-year budget process.

5. That the Public Service seek out all opportunities for external funding available to assist with the program.

6. That the Public Service continue to administer the Financial Incentives for Compost Grant until a city-wide green cart program is operational.

7. That the Public Service seek opportunities to accelerate implementation of the full green cart program, and also assess the feasibility of incremental organics diversion projects in advance of the full program.

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

REASON FOR THE REPORT

On December 12, 2019, Council concurred in the recommendation of the Standing Policy Committee on Water and Waste, Riverbank Management and the Environment and adopted the following:

3) That the Public Service implement a residential food waste collection pilot project and report back to Council with recommendations regarding a city-wide program by 2023.

This report summarizes the results of the pilot project and provides recommendations for the next steps in establishing a city-wide program.

IMPLICATIONS OF THE RECOMMENDATIONS

Subject to the Recommendations being approved:

1. A new 2024 capital project budget of $500,000, Professional Consulting Services - Organics, will be introduced and funded by the Waste Diversion Reserve.

2. The 2024 Solid Waste operating budget would recommend:

    a) An increase to the Waste Diversion Fee of $8.00 per year per single family residential dwelling unit, effective July 1, 2024, for all residential properties.

    b) A transfer in the amount collected via the $8.00 increase to the Waste Diversion Reserve, to fund the initial deployment and management of green carts and kitchen pails.

Any financial implications regarding potential changes to City resources will be considered as part of a future report.

HISTORY/DISCUSSION

Background

On October 19, 2011, Council approved the Comprehensive Integrated Waste Management Strategy (CIWMS), which included a waste diversion target rate of 50 percent. CIWMS was developed through an extensive public engagement process, where more than 2,500 people participated over a six-month period.

On March 22, 2017, Council directed the Public Service to undertake a review of CIWMS which included additional opportunities to reduce the amount of waste going into the landfill.

On September 20, 2018, Council adopted Winnipeg's Climate Action Plan, which further affirmed the importance of diverting organic waste from landfill in order to achieve Winnipeg's sustainability goals.

On June 20, 2019, the review of CIWMS was received by Council and identified the waste diversion target rate of 50 percent could not be achieved without a Residential Food Waste (RFW) collection program and other investments in Winnipeg's waste management system. At this meeting, the 50 percent waste diversion target was deferred by Council until recommendations could be brought forward through the completion of a RFW Collection Pilot Project and a ten-year financial plan for the solid waste utility.

On December 12, 2019, Council directed the Public Service to develop a RFW Collection Pilot Project and report back to Council by 2023 with recommendations regarding a city-wide green cart program.

On April 21, 2021, Executive Policy Committee concurred in the recommendation of the Winnipeg Public Service:

1) That single source negotiations be approved for, and that the City award, enter into, execute and deliver, a contract with HDR Corporation to provide Professional Consulting Services for the review and evaluation of organic waste processing facility options for the City of Winnipeg at an estimated cost of $160,000.00, GST and MRST extra as applicable.

The original recommendation from CIWMS states that a RFW collection program is necessary to significantly increase waste diversion in Winnipeg. Implementing a city-wide green cart

collection program will assist the City in meeting the waste diversion and greenhouse gas (GHG) reduction targets (i.e. net zero emissions by 2050) identified in OurWinnipeg 2045 and the Community Energy Investment Roadmap (CEIR). In addition, a new Landfill Methane Recovery and Destruction protocol is being established by the Federal government, which will provide a regulatory requirement to manage landfill gases.

On January 27, 2022, Council approved an introduction of an annual compost support program of up to a total of $65,000 in cash and/or in-kind advertising credits through News Media Canada for qualified residential food waste collection service providers. Council's approval required recipients of the compost support grant to provide food waste collection services that were equivalent to those provided through the City's own Residential Food Waste Collection Pilot Program and that the annual support payments be in place as an interim solution, until such time as Council has decided on the direction of a City-wide residential food waste collection program.

1. Pilot Program results

1.1. Jurisdictional Scan

Green Cart (RFW) programs exist in most large cities across Canada. Winnipeg is one of the few large cities in Canada without a curbside Green Cart program. As part of the RFW Collection Pilot Project, Green Cart programs in other Canadian cities were researched through data review and interviews with the public service professionals who developed and now manage these programs for their respective cities. Experience from other Canadian municipalities was applied to the Pilot Project, and adapted for Winnipeg. Some of those consulted had recently completed Green Cart pilot projects of their own, and stressed the importance of the Pilot Project reflecting the intended final Green Cart program that the city envisions for itself. The following is a list of cities/groups that were consulted:

City of Chilliwack
City of Brandon
City of Lethbridge
Halifax Regional Municipality
Region of Peel
City of Mississauga
Metro Vancouver
Solid Waste Association of North America
Compost Council of Canada
City of Surrey
City of Barrie
City of St John's
City of Calgary
City of Edmonton
City of Regina
City of Saskatoon
Compost Winnipeg

Table 1, below, presents a summary of comparable Green Cart programs, highlighting some of the main program attributes:

City	Green Cart Program Initiation	Materials Accepted in Green Cart	Separate Leaf and Yard Waste Program	Green Cart Collection Frequency	Charge Mechanism	Ownership Model
City of Brandon	2012	Vegetative Food Waste	No. LYW collection is provided to those that do not opt-in to the program	Weekly	Subscription	City-owned^
City of Calgary	2017	Expanded Food Waste + Pet Waste	No	Weekly; Bi-Weekly in winter	Utility Fee	Design-Build-Finance-Operate-Maintain (DBFOM)
City of Edmonton	2021	Expanded Food Waste	Yes. Separate LYW collection during summer and fall. Collected with green cart in other months, but not encouraged.	Weekly; Bi-Weekly in winter	Utility Fee	Merchant Facilities / Service Contracts
Halifax Regional Municipality	1998	Expanded Food Waste	Yes. Separate LYW collection during summer and fall. Collected with green cart in other months.	Weekly; Bi-weekly in winter	Tax*	Design-Build Own-Operate-Transfer (DBOOT)
City of Ottawa	2010	Expanded Food Waste + Pet Waste	Yes. Separate LYW collection during summer and fall. Collected with green cart in other months.	Weekly	Tax	Merchant Facility / Service Contract
City of Saskatoon	2023	Expanded Food Waste	Yes	Bi-weekly	Utility Fee	Merchant Facility / Service Contract

References: Municipal Benchmarking Network Canada, National Solid Waste Benchmarking Initiative.

^ Small-scale passive outdoor windrow system

* To be confirmed by Halifax Public Service

Table 1: Summary of Comparable Green Cart Programs

1.2. Pilot Project Design

The Public Service designed a two-year RFW Collection Pilot Project that provided collection of RFW to 4,061 households across five pilot areas. Collection took place between October 2020 to September 2022, and occurred weekly, on the same day as garbage and recycling;120-litre green carts were used, which are half the size of standard garbage and recycling carts. The size was selected as the minimum size that is compatible with the current fleet of collection vehicles, which uses both semi-automated and automated tipping systems.

The City retained technical support for the development and implementation of the Pilot Project and its public engagement activities. The project team was comprised of representatives from the City's Solid Waste Services Division and the Office of Public Engagement, as well as subject matter experts from Dillon Consulting Limited, Landmark Planning and Probe Research.

The Pilot Project included data collection, communication and education, and a three-phase public engagement strategy to evaluate residents' participation in and satisfaction with RFW collection, highlight opportunities to implement a comprehensive city-wide RFW collection program, and identify barriers to participation for residents.

A summary of the Pilot Project goals and associated measurement tools is presented in Table 2 below. Household participation in the Pilot Project was voluntary., Throughout the Pilot Project, pilot participant experiences were solicited and documented. Non-participating Winnipeg residents' opinions were also solicited through scientific surveys, project website and email.

<u>Pilot Project Goals</u>

The goals of the Pilot Project included:

- Measuring participation in the Pilot Project.
- Measuring general public support for a RFW collection program.
- Understanding the waste diversion potential of RFW collection and its effect on garbage and recycling streams.
- Understanding the effectiveness of the communications and education materials that were provided to pilot households.

Measuring Tool/ Goal	**Waste Audits**	**Cart Inspections**	**Surveys**	**Open House Webinars**	**Project Website, Email & 311**	**Collection Truck Cart Data**
Participation	✓	✓				✓
Participant Experience and Public Support			✓	✓	✓	
Diversion	✓					
Effectiveness of Communication & Education Materials	✓	✓	✓	✓	✓	

Table 2: Pilot Project Goals and Measurement Tools

Area Selection

Five areas were selected to represent a broad range of Winnipeg households. These were selected by statistically analyzing a variety of demographic and physical characteristics, such as collection day, front street/back lane collection, age of neighbourhood, household income, and household size. Collectively, these areas, located in the following Wards, represent the diverse population of Winnipeg:

AREA	WARDS
Linden Woods/Linden Ridge	River Heights-Fort Garry/Waverley West
St. George	St. Vital
Inkster Gardens	Point Douglas
Mission Gardens	Transcona
Daniel McIntyre	Daniel McIntyre

Project Scope Limitations

Aspects of collection and processing were beyond the scope of the study. The Pilot Project did not test different collection methods (e.g. co-collection, change in collection frequency) or processing methods (e.g. in-vessel composting, anaerobic digestion). In addition, use of the green carts (i.e. participation in the Pilot Project) was not required, meaning that organic materials were not banned from garbage carts in the pilot areas.

Participant Experience and Satisfaction

Participant experience and satisfaction were measured through a three-phase public engagement program that generally coincided with pre-pilot, early pilot, and end-of-pilot schedule. The public engagement program objectives were to:

- Understand how the Pilot Project was working for participants and what could be improved if a city-wide RFW collection program was developed.
- Identify barriers to participation.
- Understand the effectiveness of communication and education material, collection containers, and other project supports for participants.
- Measure change in participants' attitudes over the two-year Pilot Project and compare those attitudes to city-wide sentiments towards a RFW collection program.

A variety of techniques were used to engage participants to understand their experience and satisfaction with the RFW Pilot Project. The public engagement opportunities included pilot participant surveys, city-wide scientific surveys, webinars, and the sharing of Pilot Project information via website updates (including interim Public Engagement Reports).

Four online webinar sessions were held to engage pilot participants in the project and to receive feedback regarding their initial experiences with the RFW collection service. As the timing of this scheduled project activity was at the height of the COVID-19 pandemic, in-person events were not permitted.

A project website and email address were also maintained throughout the Pilot Project to receive feedback from pilot participants and the general public. If 311 was unable to provide

answers related to the Pilot Project or about waste diversion in general, service requests were sent to the City project team to provide responses and collect feedback.

1.3. Participant Experience and Satisfaction Results

More detailed information on Pilot Project public engagement is available in the Public Engagement Summaries (Appendices A to C). A summary of the key information gained through all the public engagement activities collectively is presented below.

- The majority (94 percent) of pilot participants surveyed support the idea of a city-wide RFW collection program.
- The majority (89 percent) of pilot participants surveyed viewed the program as excellent or good.
- Pilot participants' initial concerns towards RFW collection (i.e. odours, rodents) decreased less than two months after the start of the Pilot Project.
- Two-thirds (66 percent) of pilot participants are either "willing" or "can live with" paying a fee for this service.
    - The average annual fee suggested by pilot participants that indicated a willingness to pay was $33.33.
    - The average annual fee suggested by all pilot participants (including those that responded with a $0/year fee) was $26.60. Figure 1 shows the distribution of suggested fees by all pilot participants.
- 60 percent of Winnipeggers who have not tested the service are either "willing" or "can live with" paying a fee for this service.
    - The average annual fee suggested by Winnipeggers who have not tested the service was $31.05.
    - The average annual fee suggested by Winnipeggers (including those who responded with a $0/year fee) was $24. Figure 1 shows the distribution of suggested fees by Winnipeggers, as captured through a city-wide scientific survey.

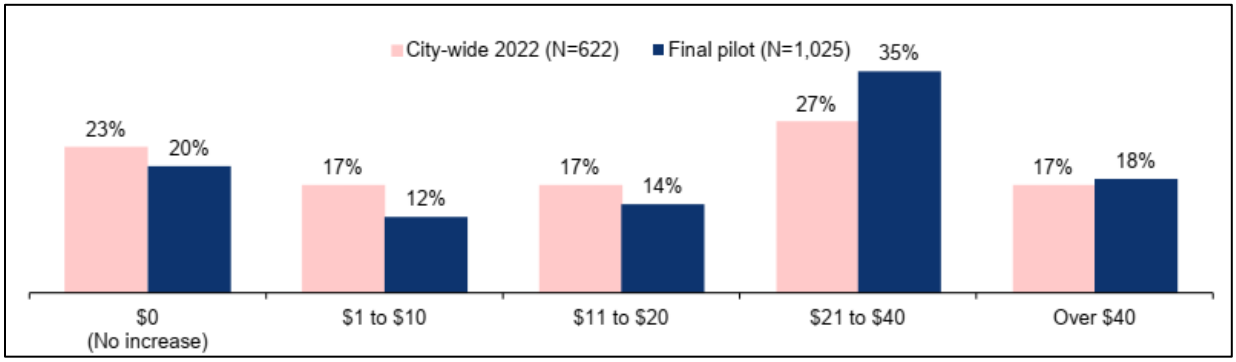

Figure 1: Distribution of Residents' (Pilot Participants, blue; city-wide, pink) Suggested Annual Fee for RFW Collection Program

The willingness to pay for a RFW collection service was well distributed throughout the City. Figure 2 shows the spatial distribution of average values received (including $0) through the follow-up city-wide scientific survey.

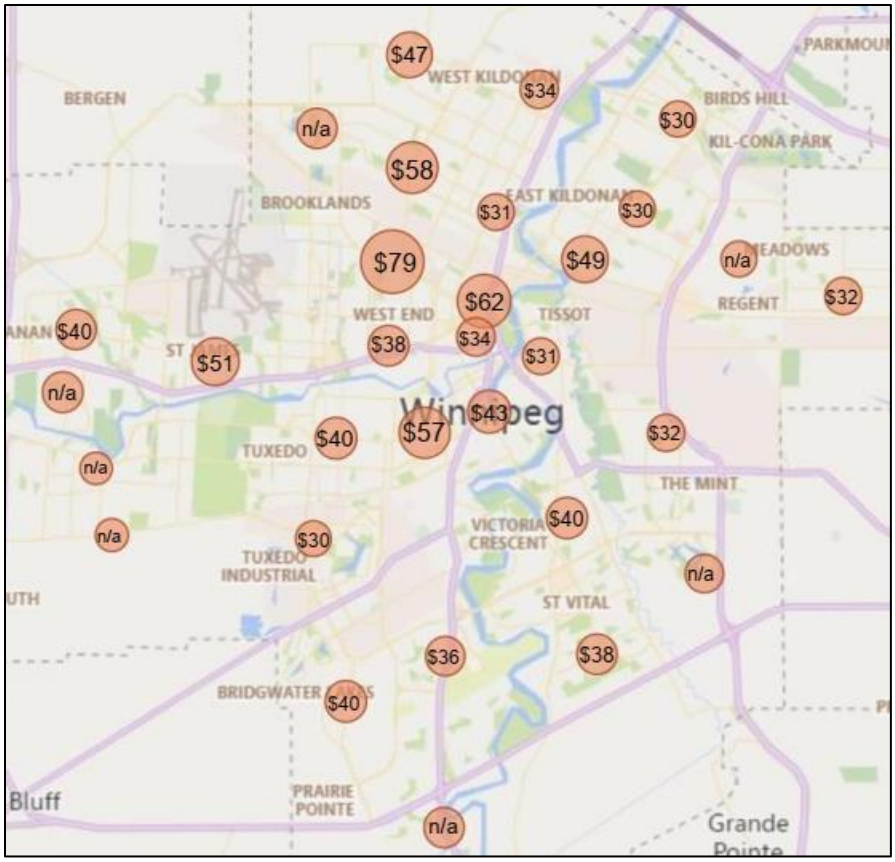

Figure 2: Spatial Distribution of Residents' Suggested Annual Fee for a RFW Collection Program (Note: n/a indicates that less than 10 responses were received in this region)

1.4. Participation and Diversion Rates

Data collection and analysis focused primarily on RFW green cart use to measure participation and overall diversion of waste. This information was collected by conducting three waste audits (pre-pilot, early-pilot, and end-of-pilot) and two visual cart inspections (early-pilot and end-of pilot), as well as reviewing daily cart data obtained through our collection contractors' data capture system. These methods produced data related to how often green carts were set out for collection, the 'full-ness' of the carts that were set out, and how often unacceptable materials were placed in the green carts. In addition, an understanding of the effect of RFW collection on garbage (black/grey cart) and recycling (blue cart), primarily related to change in waste diversion, was gained.

<u>Participation Results:</u>

- On average, approximately 30 percent of green carts were set out on a weekly basis. For context, approximately 80 percent of garbage carts and 70 percent of recycling carts are set out on a weekly basis. A summary of participation rates is presented in Table 3 below.
- Based on the jurisdictional scan, a green cart set out rate of 30 percent is consistent with a voluntary municipal program. Many Canadian municipalities with green cart programs change to bi-weekly garbage collection service to improve diversion via program participation and reduce overall curbside collection service costs.
- Of the pilot participants who indicated they did not put out food waste in the green cart for collection, the top reasons were that non-users felt they did not have enough food

waste (23%), they were concerned about odours/cleanliness (19%), they already have backyard composting (16%), and they tried it but did not like it (15%).

Diversion Results:

- Pilot Project participants reported that the volume and odour of their garbage carts decreased as a result of green cart use.
- The average capture rate of materials in the green cart through the Pilot Project was 34 percent; an additional 25 percent of materials in the black/grey cart was available for diversion into the green cart (for a potential 59 percent capture rate).
- The 120L green carts were typically one quarter full or less on a weekly basis.
- Contamination in the carts was consistently measured below five percent, suggesting that pilot participants had a good understanding of the acceptable and unacceptable materials in the Pilot Project.
- If all households use their recycling, and green carts correctly, approximately 55 to 60 percent of garbage cart materials could be diverted from the landfill.

Area	Collection Day	Average Participation Rate* (September 1, 2020 to September 30, 2022)
Linden Woods/Linden Ridge	Monday	42%
St. George	Tuesday	48%
Inkster Gardens	Wednesday	37%
Mission Gardens	Thursday	44%
Daniel McIntyre	Friday	17%
Average		**38%**

Table 3: Average Participation Rate by Area

* Participation in the Pilot Project was based on participants setting out their carts one week out of four weeks to account for vacations, missed set outs, underfilled carts, etc.

1.5. Communication and Education

Communication and education materials were developed and used to inform participants of the Pilot Project and how to use it. This included information on the Pilot Project-specific City website, such as instructional videos, a welcome package for participants, and material supporting the public engagement program. The welcome package included information pilot participants needed on how to use their green carts – a user guide, a list of acceptable materials, and resources for additional information (project specific email, project website, 311). The data collection (waste audits, contractor cart tipping data) and public engagement components (feedback from residents via surveys, online webinars, and emails) of the Pilot Project informed the project team of the effectiveness of the communication and education materials.

Communication and Education Results:

- Low contamination rates were observed in the green carts, which indicates that pilot participants understood which materials were acceptable via the user guide and list of acceptable materials.
- In pilot participant surveys, when asked what motivated them to use their green cart, respondents indicated that putting less waste into the garbage (66%) and reducing greenhouse gases (18%) were the main motivators.

1.6. Collections/Technical Considerations

Pilot participants' experiences as related to collecting materials (primarily, kitchen pails and green carts) were measured via feedback received through surveys, emails, phone calls, and webinars, as well as cart inspections. Highlighted results are presented below. Results from these feedback mechanisms are provided in the Public Engagement Summaries (Appendices A to C).

Collection/Technical Considerations Results:

- Collecting from three carts on the same day was not identified as a concern, neither from the pilot participants' perspectives, nor our collection contractors.
- The seven-litre kitchen pail supplied with the green cart was big enough for the majority of pilot participants.
- Pilot participants preferred to use film-based certified compostable liner bags over paper liner bags in their kitchen pails.
- The size of the green cart provided more capacity than pilot participants needed for weekly collection of food waste.
- The size of the green cart was compatible with both front street (automated) and back lane (semi-automated) collection trucks.

1.7. Lessons Learned

- Day-to-day experience with food waste collection tends to boost support for a permanent, city-wide program.
- A continuous promotion and education program are essential to increase participation and green cart use.
- Concerns of bugs, rodents, and odours decreases with program use/experience.
- Pilot participants' perception of the amount of materials available for diversion into their green cart changes with program use/experience.
- Carts (120-litre) and kitchen pails (7-litre) are appropriately sized.
- Use of compostable liner bags are important to participation rates (reduces the "ick" factor).

1.8. Pilot Project Budget

The Pilot Project was completed within the budget of $1.8 million and was funded from the Waste Diversion Reserve.

2. RFW/Green Cart Program Recommendations

2.1. City-Wide Green Cart Program

Based on the results of the RFW Collection Pilot Project, the Public Service recommends the implementation of a green cart program, to provide city-wide curbside RFW collection service to single-family residential dwelling unit. The recommended green cart program is consistent with the RFW Pilot Project design. It considers lessons learned through the Pilot Project and will work as follows:

- Every single-family residential dwelling unit will receive a 120-litre green cart and a 7-litre kitchen pail to use for transferring food waste from their kitchens to their green carts.
- Collection will be weekly, on the same day as garbage and recycling collection.

- Acceptable materials for the green carts will include fruits and vegetables, meat, bones, and dairy, as well as paper towels, tissues and soiled cardboard boxes (e.g. pizza boxes). The program does NOT include pet waste or diapers.
- Residents will be permitted to use BPI certified compostable liner bags in their kitchen pails.

To implement a city-wide green cart program, the following is required:

1. Organic waste processing facility.
2. Curbside collection service.
3. Green cart supply, maintenance and management.
4. Organics Diversion Branch staff for green cart program management.

2.2. Organic Waste Processing Facility

An organic material processing facility is the most critical component of a city-wide green cart program, and must be constructed and commissioned before a program can be implemented. This type of facility is required to transform the diverted organic material into a beneficial resource, while managing environmental outputs (e.g., odour). These facilities include specialized technologies such as Covered Aerated Static Pile (CASP) composting using geotextile covers, and In-Vessel Composting using negatively aerated concrete tunnels. No facilities within the City of Winnipeg currently have the capacity to manage organic material collected through a city-wide green cart program, which is estimated to be up to 42,000 tonnes per year of material. This means an organic material processing facility must first be constructed and commissioned before a city-wide green cart program can be operationalized.

After analyzing the costs and implementation schedules associated with a City-owned and operated facility versus a merchant facility, a merchant facility project delivery model is recommended.

The City retained professional consulting services through MMR 233-2021 (HDR Corporation and Altus Group), to review and evaluate organic material processing facility options and develop a conceptual design to support the preparation of a Class 4 cost estimate for a City-owned facility. In addition, a review of ownership and service delivery options was conducted, including implementation schedules and estimated ongoing operational costs.

The HDR report (Appendix D) determined a City-owned compost facility would require a large initial capital investment, resulting in an estimated increase to the WDF of at least $55 per single family residential dwelling unit, starting in 2024. This is based on an implementation schedule for a City-owned facility, which would be operational in 2033. Once the facility was operationalized, the estimated increase to the WDF to fund operations would be $146 per single family residential dwelling unit.

Alternate project delivery models for an organic material processing facility to support a City of Winnipeg green cart program were also reviewed, including the recent industry trend towards merchant facilities. Recent Canadian municipal green cart programs have been supported by privately owned and operated processing facilities (i.e., merchant facilities) or a Build-Own-Operate (BOO) project delivery model.

Under the merchant facility project delivery model, the City would serve as a feedstock supplier, similar to that of the Material Recovery Facility (MRF) for our recycling program. This model provides the City with an expedited schedule, and eliminates the initial capital cost of constructing a facility. The City would benefit from emission reductions through organic waste

diversion from landfilling, and the environmental attributes and revenue associated with the merchant facility would be negotiated with the vendor. The City would solicit vendors and negotiate a contract for organic material processing, typically based on dollars per tonne processed, with a minimum annual tonnage and defined contract duration.

A merchant facility would involve a long-term processing/feedstock-supply contract, but no capital investment, meaning that an increase to the WDF for processing only would not be required until the program was operationalized. The cost of processing is estimated to be about $15 per single family residential dwelling unit, and would be included in an overall increase to the WDF, starting in 2030. The Public Service will confirm that this is the preferred procurement strategy before launching a request for proposals for a processing contract.

2.3. Weekly Curbside Collection of Green Cart Materials

Weekly curbside collection costs were estimated based on the current residential collection contract payment structure. Budgetary estimates were obtained from the current collection contractors, projected to the estimated starting year of a green cart program (2030). The cost of curbside collection of green carts is estimated to be about $66 per single family residential dwelling unit, and would be included in an overall increase to the WDF, starting 2030. Future garbage and recycling collection contracts are expected to include green cart collection, and will be coordinated appropriately.

2.4. Green Cart Supply, Delivery, Maintenance and Management

Green carts will need to be purchased and deployed to each single-family residential dwelling unit to support curbside collection, with the current fleet of semi and fully automated collection trucks.

Single-family residential dwelling (SFD) units will receive similar materials to those used for the RFW Pilot Project. To facilitate program participation, each SFD unit will receive a 120-litre green cart and a seven-litre kitchen pail, along with a user guide, quick reference sticker of acceptable items, and other ‘starter’ items as part of their green cart delivery.

Within the green cart program, carts will need to be repaired or replaced on occasion due to damage from misuse or vandalism, and additional carts will be required for new builds.

The cost for green carts, kitchen pails, and supporting program start materials and management will be incurred prior to the start of the service, and are estimated at $16.9 million. To fund these costs, an increase of $8.00 per single-family residential dwelling unit is required, starting July 1, 2024. Annual operating costs of $1.3 million are projected to support green cart management, once the program is operationalized in 2030.

2.5. Organics Diversion Branch Staff

Additional staffing will be required to form an Organics Diversion Branch within the Solid Waste Services Division to support the new service (e.g., supervisor, waste audit and cart service technicians, by-law officers).

A communication, education and inspection program are essential to implement and support a successful green cart program. Asking residents to separate their waste materials into different containers according to the green cart program guidelines will require ongoing staff attention, both before and in the early years of the new green cart program.

Based on RFW Pilot Project results, the general support for a green cart program (~90%) was not reflected in green cart use throughout the RFW Pilot Project (~34%). The communication, education and inspection program will work to improve the gap between program support and green cart use.

The inspection component of the program will identify improper use of green carts, and educate those residents on corrective actions. These efforts are necessary to optimize the waste diversion potential of the green cart program.

An estimated annual operating budget for the Organics Diversion Branch was developed and is expected to cost about $14.00 per single-family residential dwelling unit per year.

2.6. Funding Strategy

Based on the estimated capital and ongoing operational costs set out above, a conservative green cart program budget was developed and applied to the funding strategy. This budget assumes no external funding.

The green cart program will be funded through increases to the existing WDF, which is applied to single-family residential dwelling units through utility billing, and through debt financing.

To accumulate the necessary funds to purchase and manage the green carts and kitchen pails, a fee increase of $8.00 per year per single-family residential dwelling unit would be introduced effective July 1, 2024.

Once the green cart program is fully operationalized, it is estimated that the annual WDF would be increased by $88.00 per single-family residential dwelling unit to pay for the operational costs of the new service, as well as for capital borrowing costs (see Table 4 below).

Program Components	**Initial Capital Costs (2030)**	**Annual Operating Costs (2030)**	**Proposed Increase to the WDF – per SFD unit (2024-2029)**	**Estimated Increase to WDF – per SFD unit (2030)**
Deployment & Management of Green Carts and Kitchen Pails	$ 16,900,000		$ 8.00	
Processing		$ 3,500,000		$ 15.00
Curbside Collection		$ 15,400,000		$ 66.00
Organics Diversion Branch (salaries, benefits, operating costs)		$3,200,000		$ 14.00
Capital Borrowing Costs		$ 20,000		$ 1.00
Total Estimated Increase to Waste Diversion Fee			**$8.00**	**$ 96.00**

Table 4: Estimated Green Cart Program Costs and Annual Waste Diversion Fee Per Residential Dwelling

The revenue collected from increasing the WDF between 2024 and 2029 will be transferred to the Waste Diversion Reserve, with the balance being funded by equity within the reserve.

As the program schedule is confirmed and program launch dates are firmed up, the estimated increase to the WDF will be included in applicable operating budget submissions through the budget process.

The Public Service will seek out all opportunities for external funding, from the federal and provincial governments and Federation of Canadian Municipalities, in available programs,such as: the Manitoba Compost Support Payments (MCSP), Canada Infrastructure Bank, Investing in Canada Infrastructure Program, or the Green Municipal Fund.

2.7. Program Implementation Schedule

An organic waste processing facility must be constructed and commissioned before a city-wide green cart program can be operational. All other components (e.g. green cart delivery to all residences, curbside collection) can be completed within the time required for the construction of a facility.

A jurisdictional scan of green cart programs in other Canadian municipalities was completed to estimate a schedule for Winnipeg's organic waste processing facility construction. The scan identified the required procurement processes and milestones that have to be completed prior to establishing a contract for a merchant facility.

The estimated implementation schedule also considers City protocol/procedures in developing multi-year contracts for City services for the provision of organic waste processing at a merchant facility. Table 5 presents an estimated green cart program implementation schedule for planning purposes.

Starting Date	Action	Details	Duration	Result
Sept 2023	Report submitted to SPC WWE	Council approval required to proceed with the development of a city-wide green cart program.		WDF increases to support green cart program
Q3 2023	Solicit technical support via RFP	Engineering technical advisor is needed to help develop Key Terms for procuring an organic waste processing service contract with a merchant facility.	10 months	Identify preferred engineering technical advisor and Key Terms for procurement.
Q2 2024	Award RFP	Successful proponent selected.		Award RFP for engineering technical advisor.
Q2 2024	Write draft procurement Key Terms to initiate dialog with industry service providers	Market sounding and development of organic waste processing procurement Key Terms, including level of service, performance definitions, and vendor requirements. This activity will also help	10 months	Refined Key Terms for expressions of interest (EOI) /requests for pre-qualifications (RFPQ) and request for proposals (RFP).

		inform procurement model decisions.		
Q1 2025	Report to Council	Public Service seeking Council approval of recommended procurement model and Key Terms.		Authorization to proceed with procurement according to Key Terms.
Q1 2025	Write and issue RFPQ for Merchant Facility	RFPQ will help identify interested and eligible service providers, technologies, and potential locations for a merchant facility.	18 months	Identify short list of qualified bidders, and potential technologies and locations for merchant facility.
Q3 2026	Report to Council	Inform Council of responses to RFPQ.		Short-list of qualified RFP bidders and facility locations.
Q3 2026	Write and tender RFP for merchant facility	Write a request for proposals (RFP) for qualified bidders to Issue, evaluate, and recommend award of service contract for organic waste processing.	18 months	Identify preferred merchant facility service provider, technology, and location. Site location selection will allow for collections planning.
Q1 2028	Report to Council	Council approval required for multi-year contracts.		Authorization to sign contract(s).
Q1 2028	Facility Construction	Process includes finalization of detailed design, and subsequent Provincial licensing.	32 months	Construction of Compost Facility.
Q1 2030	Green Cart Program Promotion	Heavy promotion and education towards the new green cart service that the City will be providing to residents starting in late Fall 2030.	6 months	Engaged and informed residents excited to start using their new green carts.
Q2 2030	Green Cart Distribution	Distribution of green cart program materials to residents.	2 months	Residents will be ready to divert food waste into their green carts.
Q3 2030	Facility Commissioning	Standard operating procedures for a new facility.	2 months	Start city-wide curbside collection of Green Cart materials.

Table 5: Green Cart Program Estimated Implementation Timeline

FINANCIAL IMPACT

Financial Impact Statement

Date: June 9, 2023

Project Name: RESIDENTIAL FOOD WASTE (RFW) PILOT RESULTS AND RECOMMENDATIONS

First Year of Program **2024**

	2024	2025	2026	2027	2028
Capital					
Capital Expenditures Required	$ 500,000	$ -	$ -	$ -	$ -
Less: Existing Budgeted Costs	-	-	-	-	-
Additional Capital Budget Required	$ 500,000	$ -	$ -	$ -	$ -
Funding Sources:					
Debt - Internal	$ -	$ -	$ -	$ -	$ -
Debt - External	-	-	-	-	-
Grants (Enter Description Here)	-	-	-	-	-
Reserves, Equity, Surplus	500,000	-	-	-	-
Other - Enter Description Here	-	-	-	-	-
Total Funding	$ 500,000	$ -	$ -	$ -	$ -
Total Additional Capital Budget Required	$ 500,000				
Total Additional Debt Required	$ -				
Current Expenditures/Revenues					
Direct Costs	$ -	$ -	$ -	$ -	$ -
Less: Incremental Revenue/Recovery	-	-	-	-	-
Net Cost/(Benefit)	$ -	$ -	$ -	$ -	$ -
Less: Existing Budget Amounts	-	-	-	-	-
Net Budget Adjustment Required	$ -	$ -	$ -	$ -	$ -

Additional Comments: The new 2024 capital project, Professional Consulting Services - Organics, would be funded by the Waste Diversion Reserve, account number 445-181000-200753-20650018YY.

That via the 2024-2027 multi-year budget process, approval be provided to increase the annual Waste Diversion Fee.

Lucy Szkwarek, CPA, CGA

Lucy Szkwarek, CPA, CGA
Manager of Finance and Administration

CONSULTATION

This Report has been prepared in consultation with:

- Legal Services (as to legal issues)
- Corporate Communications

OURWINNIPEG POLICY ALIGNMENT

This report is in accordance with the OurWinnipeg policies through
OurWinnipeg Goal: Environmental Resilience

Objectives:

- 1. Prioritize the transition to a resilient, low-carbon future through demonstrated organizational and community leadership, and collaborative actions that mitigate and adapt to a changing climate.
- 4. Minimize and divert waste from landfill.

Policies:

2.1 Climate Action Targets

- Meet and exceed greenhouse gas emissions reduction
- targets of 20 percent by 2030, relative to 2011, and net
- zero by 2050, by working towards partnerships with the
- community, businesses, and government bodies including Indigenous, Federal and Provincial governments.

2.15 Circular Economy

- Advance Winnipeg's circular economy to support waste reduction.

2.16 Waste Minimization

- Improve and sustain performance of the waste reduction and diversion system.

OurWinnipeg Goal: Social Equity

Objectives:

- 3. Build social cohesion through community development solutions, coordinated, effective partnerships, and responsive service delivery. Learn from community knowledge and leadership, work to be responsive to community needs, and align government processes, resources and services accordingly

Policies:

5.1 Equitable Service Access

Provide municipal services through an age-friendly lens that promotes equitable access for all, with a focus on the youngest, oldest, and systemically disadvantaged members of the community.

5.6 Equitable Service Access

Welcome and support Indigenous Peoples, newcomers, and those who migrate from rural communities, through strategic collaboration and action that expedites service access and sense of belonging for residents.

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

Community Energy Investment Roadmap

This report aligns with the Community Energy Investment Roadmap recommendations for reducing greenhouse gas emissions associated with the waste management sector, and supports the following priorities and programs:
Section 4: Journey to a Net-Zero Winnipeg
The Big Moves:
Water and Waste: Overall waste generation is reduced and waste diversion to recycling and composting facilities is improved. (p.26)
Section 6: How to Achieve Our Goals:
Waste Management:
l. Organic matter in landfills decays over time, and can continue to release GHGs long after it is deposited in the landfilled. The most effective strategy in reducing these emissions is to reduce the amount of waste entering them. This can be achieved through a combination of waste reduction and waste diversion to composting and recycling facilities.

Program Area #9
9.1 A Circular Economy Strategy:
The City will develop a circular economy strategy that focuses on the ideas of zero landfill waste and using waste as a resource.

WINNIPEG POVERTY REDUCTION STRATEGY ALIGNMENT

One of the guiding principles of the Poverty Reduction Strategy is to promote and maintain the welfare of all residents. By introducing a green cart program, the City is encouraging more waste diversion, which subsequently reduces landfilled waste and harmful emissions, and therefore, supports the efforts to clean up the environment and protect the welfare of Winnipeg residents.

SUBMITTED BY

Department: Water and Waste
Division: Solid Waste Services
Prepared by: Ash Raichura, P.Eng.
Date: June 9, 2023
File No: G-271

Attachments:

Appendix A – Phase 1 Public Engagement Summary

Appendix B – Phase 2 Public Engagement Summary

Appendix C – Phase 3 Public Engagement Summary

Appendix D – HDR Report Executive Summary