



STAFF REPORT ACTION REQUIRED

Final Long Term Waste Management Strategy

Date:	June 2, 2016
To:	Public Works and Infrastructure Committee
From:	General Manager, Solid Waste Management Services
Wards:	All
Reference Number:	P:2016\ClusterB\SWM\June\008PW(AFS#20276)

SUMMARY

The purpose of this report is to present the final Long Term Waste Management Strategy (Attachment 1) to the Public Works and Infrastructure Committee and City Council for consideration and approval. The final Long Term Waste Management Strategy (“Waste Strategy”) consists of the following elements:

- Policy, program and facility recommendations and an implementation plan;
- Key Performance Indicators and targets; and,
- Financial implications required to fund the recommendations.

The Waste Strategy is recommending program and facility options as well as implementation tools within the next 10 years at a total capital and operating cost of approximately \$144 million. Accompanying the Waste Strategy are sustainable rate model scenarios that have been developed to generate the necessary revenue to sustainably fund Solid Waste Management Services existing programs, services and required reserve contributions for the next 10 years and to support the Waste Strategy implementation.

In response to feedback received during Phase 3 consultations (occurring from March 29 to April 27, 2016), many 3Rs options are being recommended for implementation sooner than originally planned. As a result, implementation planning for many of the 3Rs options will begin in 2016. The Waste Strategy, as proposed in its entirety, is anticipated to divert an additional 200,000 tonnes of material by 2026 from all City serviced and non-City serviced sources (both residential and non-residential). Based on current projections, this will extend the life of Green Lane Landfill until approximately 2040.

The final Waste Strategy recommends the inclusion of a new aspirational goal to work towards a circular economy and zero waste future, which will be measured by a new key performance indicator: waste generation rate per capita. A circular economy shifts the way waste management is viewed and approached, looking to prevent waste generation and maximize resource recovery.

This report also provides public consultation details/feedback received on the draft Waste Strategy (Attachment 2). All Waste Strategy Technical Memorandums and Public Consultation Reports are available on the project website: www.toronto.ca/wastestrategy.

RECOMMENDATIONS

The General Manager, Solid Waste Management Services, recommends that:

1. City Council approve the Long Term Waste Management Strategy, including recommended options and implementation plan, as presented in Attachment 1.
2. City Council authorize the General Manager, Solid Waste Management Services, to negotiate and enter into any and all agreements and amending agreements necessary, subject to available funding, to implement the first five years of the Long Term Waste Management Strategy, as adopted by Council, on terms and conditions satisfactory to the General Manager, Solid Waste Management Services, and in a form satisfactory to the City Solicitor.
3. City Council endorse a 70 per cent waste diversion rate target by Year 10 (2026) for City managed residential customers.
4. City Council endorse a goal of 70 per cent diversion of materials collected (Green Bin organics, Blue Bin recycling, garbage) by Year 10 (2026) from Industrial, Commercial & Institutional customers that receive City collection services.
5. City Council endorse an aspirational goal to work towards a circular economy and zero waste future to align with the Provincial goal as part of the new *Waste Free Ontario Act*.
6. City Council direct the General Manager, Solid Waste Management Services to work with the Director of the Environment & Energy Division on the feasibility of developing a new Waste Diversion Community Investment Program for outreach and educational programming, funded as part of the Waste Strategy.
7. City Council direct the General Manager, Solid Waste Management Services to develop a plan to phase out the use of the extra large garbage bin for single family homes and report back to the Public Works and Infrastructure Committee on the phase-out plan and implementation schedule.

Financial Impact

Approved capital funding in the amount of \$2.495 million is available for completion of the Waste Strategy under the project Long Term Waste Management Strategy (Account CSW013-01-01).

The financial impact associated with the Waste Strategy recommendations and implementation plan for the full planning period (2016-2052) is approximately \$703 million. The 10 year impact (2016-2026) is approximately \$144 million, representing \$114 million in Capital funding and \$30 million in Operating funding. This information is summarized in Table 1 below.

Table 1: Capital and Operating Funding

Year	Total Funding
2017	\$5,060,000
2018	\$6,716,000
2019	\$8,337,000
2020	\$9,672,000
2021	\$14,781,000
2022	\$22,128,500
2023	\$24,913,500
2024	\$16,456,000
2025	\$17,056,000
2026	\$18,626,000
10 Year Total	\$143,916,000
2027-2031	\$155,000,000
2032-2036	\$255,000,000
2037-2041	\$100,000,000
2042-2046	\$50,000,000
2047+	\$0
Planning Period Total	\$703,916,000

Solid Waste Management Services' 2016-2025 Capital Plan has \$500 million allocated for the implementation of the Waste Strategy. During development of the 2016-2025 Capital Plan, work on the Waste Strategy was still underway with final option recommendations not yet having been evaluated. With the Waste Strategy recommendations and implementation plan now complete, the \$500 million that was allocated in the 2016-2025 Capital Plan will be reallocated and revised to \$144 million dollars to fund the first 10 years of the Waste Strategy. The difference of \$356 million in the 2016-2025 Capital Plan will be deferred to years 2026-2052 of the Waste Strategy. These monies may still be required to potentially fund significant capital expenditures to build a Mixed Waste Processing Facility with Organics Recovery and to sustain adequate reserve contributions. As part of the 2017 Budget submission, Solid Waste Management Services will be revising the operating and capital budget allocation to reflect

annual funding requirements to sustain current services, adequately fund reserve contributions for past and present capital expenditures as well as the Waste Strategy.

To develop the Sustainable Rate Model as part of the Waste Strategy, a full cost accounting exercise was undertaken to update the integrated waste management system cost allocations for service by customer type. The development of the Sustainable Rate Model was undertaken by KPMG. The model considers operating costs, forecasted customer changes and future tonnes managed. Solid Waste Management Services current Operating costs and Capital Plan as well as the costs of the Waste Strategy in years 2017-2052 were included in the costing model.

Working with KPMG, rate scenarios that would generate the required revenue to support continued provision of waste services and the Waste Strategy recommendations were developed. The rate scenarios that were developed include 1 – Average annual rate increase for 2017 to 2026 by customer type, 2 – Uniform rate increase that sees a single annual growth rate applied equally across all customer types, and 3 – One-time adjustment to 'true-up' costs in 2017 and an average rate increase thereafter. The annual rate increases are subject to change based on any new budgetary directions from City Council which may impact base operating budgets for the Division.

The Sustainable Rate Model and annual rate increase includes 2.5 per cent annual inflation, debt servicing expenditures for current capital projects, annual contributions to the capital reserve for state of good repairs of capital assets and contributions towards funding for the perpetual care of landfills.

Further input on the proposed rate scenarios will be sought from stakeholders in the Summer of 2016. The final recommended rates will be presented to City Council during the 2017 budget process.

The Deputy City Manager & Chief Financial Officer has reviewed this report and agrees with the financial impact information.

DECISION HISTORY

At its meeting on March 19, 2013, the Public Works and Infrastructure Committee considered item PW21.1 entitled “Long Term Waste Management Strategy” and requested that the General Manager, Solid Waste Management Services, report to the Public Works and Infrastructure Committee on June 19, 2013 with the proposed Terms of Reference and process for the development of a Long Term Waste Management Strategy, including the proposed principles, scope, statement of work, key deliverables, consultation, costs and timelines of the study, prior to initiating the Request for Proposal for a consultant.

The Public Works and Infrastructure Committee Decision document can be viewed at: <http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2013.PW21.1>.

At its meeting on October 7, 2015, the Public Works and Infrastructure Committee considered Item PW8.3 entitled “Solid Waste Collection Across the City of Toronto” and requested the General Manager, Solid Waste Management Services to report to the Public Works and Infrastructure Committee in the fourth quarter of 2016 on the feasibility of changing how the City collects solid waste in certain areas of the City by asking residents to place their bins on only one side of the street.

The Public Works and Infrastructure Committee Decision document can be viewed at:
<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2015.PW8.3>

At its meeting on December 9 and 10, 2015, City Council considered item EX10.24 entitled “2016 Rate Supported Budgets – Solid Waste Management Services and Recommended 2016 Solid Waste Rates” and requested that the General Manager, Solid Waste Management Services report on the feasibility of a Community Grant model to leverage accelerated waste reduction and diversion education, in time for the 2017 Budget process.

The City Council Decision document can be viewed at:
<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2015.EX10.24>.

At its meeting on February 17, 2016, City Council considered item EX12.2 entitled “2016 Capital and Operating Budgets” and requested that the General Manager, Solid Waste Management Services report to the Public Works and Infrastructure Committee in Fall 2016 on the consideration and required implementation plan to phase out the Extra Large Bin.

The City Council Decision document can be viewed at:
<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2016.EX12.2>.

At its meeting on March 1, 2016, the Public Works and Infrastructure Committee considered item PW11.3 entitled “Update: Draft Long Term Waste Management Strategy” for information.

The Public Works and Infrastructure Committee Decision document can be viewed at:
<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2016.PW11.3>.

ISSUE BACKGROUND

The City of Toronto delivers a comprehensive integrated waste management system. It provides support and services from the initial generation of waste (or avoidance of generation) through to the monitoring of closed landfill sites, long after the final residual waste has been disposed and the site has been closed. This system is a comprehensive network of programs, services, trucks, transfer and drop-off facilities, processing facilities, and residual waste management sites. The system provides services to a wide range of customers and is financially supported through a rate based model which includes a number of funding and revenue sources.

Solid Waste Management Services (SWMS) initiated the development of a Waste Strategy for Toronto in 2014 to guide the Division’s decision making for the next 30 to 50 years. The Waste

Strategy was undertaken to examine options for the long term management of Toronto's waste and to recommend policies and programs, including how to manage the City's remaining garbage even after reducing, reusing, and recycling. It also included the development of a sustainable rate model to fund the future system needs and Waste Strategy implementation.

Since 2014, the City has been working through a comprehensive technical evaluation process supported by widespread public and stakeholder engagement activities to develop the final Waste Strategy. Policies, programs and technological options and best practices for new and emerging waste reduction, diversion and disposal methods were considered and evaluated. The Waste Strategy recommends waste reduction, reuse, recycling, recovery and residual disposal policies and programs, in that order, that are cost-effective, socially acceptable and environmentally sustainable for the long term.

The final Waste Strategy is being presented to Public Works and Infrastructure Committee and City Council for review and approval.

COMMENTS

Through the development of the Waste Strategy, it was recognized that the City of Toronto Solid Waste Management Services operates a world class integrated waste management system. This is particularly true when comparing the size and variability of its customer base (e.g. approximately 50 per cent of the City's population resides in multi-residential buildings), materials collected, and complexity in the system. It is one of the largest municipal solid waste management operations in North America, based on tonnes managed and customer base. The Waste Strategy presents options that will enhance and build upon the current system to reduce the amount of waste generated and to increase the amount of waste diverted from landfill.

The Waste Strategy first places emphasis on waste reduction, reuse and recycling activities to promote greater performance out of the current and revised integrated waste management system in the first ten years. This includes the rollout of several new programs with supporting promotion and education in combination with enhancing existing programs and services, and an improved strategic approach to enforcement of solid waste by-laws.

One of the primary goals of the development of the Waste Strategy was to identify means to reduce the amount of waste being sent to landfill in the future. This can be accomplished by reducing the amount of waste being generated, reusing materials, and increasing diversion of recyclable materials including organics. To effectively and accurately measure performance, a number of new metrics and key performance indicators to better track system initiatives have been recommended, such as a per capita waste generation rate. In addition to the new performance metrics and key performance indicators, the Waste Strategy has set the following targets for Year 10 (2026):

- 70 per cent waste diversion rate for residential waste managed by the City;

- 70 per cent diversion of materials collected from Industrial, Commercial & Institutional customers that receive City collection services; and,
- Additional diversion of 200,000 tonnes of materials from all City serviced and non-City serviced sources (residential and non-residential).

Accomplishing these targets in addition to technical factors (such as the increased settlement rates in the landfill based on updated information and changing composition of waste materials) and some redirection of waste will extend the life of Green Lane Landfill until approximately 2040.

Overview of Waste Strategy Recommendations & Implementation Plan

The majority of recommendations in the Waste Strategy have been organized by a 5Rs (Reduce, Reuse, Recycle, Recovery, and Residual Disposal) waste hierarchy, which first places emphasis on options that enhance reduction, reuse and recycling before considering recovery and residual disposal options. Additional information is provided on options pertaining to: promotion, education and enforcement; overall system considerations; operational considerations; and system financing and funding.

Table 2 below provides a summary of the recommended options for each category of the 5Rs waste hierarchy, overall system considerations, and operational considerations. Table 2 also indicates when planning will begin for the implementation of the recommended options during the first 10 years (2016-2026).

Details on each recommendation are outlined in the Waste Strategy (Attachment 1).

Table 2: Summary of Recommended Options

System Component	Recommended Options	Initiate Planning of Option
Reduction & Reuse		
Reduction & Reuse	Food Waste Reduction Strategy	2017
	Textile Collection and Reuse Strategy	2017
	Sharing Library	2017
	Support Reuse Events	2017
	Explore Opportunities for Waste Exchange	2017
Recycle		
Drop-off Depots	Mobile Drop-off Depots ¹	2019
	Neighbourhood Drop-off Depots ²	2021

¹ Formerly referred to as “ Develop a Mobile Drop-off Service”

² Formerly referred to as “ Develop a Network of Permanent Neighbourhood Depots”

System Component	Recommended Options	Initiate Planning of Option
Multi-Residential Services	<i>Planning, Policies & Enforcement:</i> <ul style="list-style-type: none"> Multi-residential By-Laws and Enforcement Updates to Current Multi-residential Development Standards 	2017 2017
	<i>Organics Management:</i> Support for Community Composting ³	2021
	<i>Waste Collection Methods:</i> Data Management and Accessibility ⁴	2019
Industrial, Commercial & Institutional (IC&I)	Expand Yellow Bag Program to More Businesses ⁵	2017
	Explore Mandatory Approaches to IC&I Waste Diversion	2018
Construction, Renovation & Demolition (CRD)	Depots and Policies for Home Renovation Waste ⁶	2018
	Disposal Bans for Some CRD Materials ⁷	2022
Incentive Based Options	Incentive Based Drop-off System (e.g. Reverse Vending Machines)	2021
Recovery		
Materials & Energy Recovery	Mixed Waste Processing with Organics Recovery Facility Development	2017 (testing) 2022 (full scale)
Residual		
Residual Waste Disposal	<u>Near Term Recommendations (2016-2026)</u>	
	Review and Adjust Tipping Fees or Changes to Customer Base	2016
	Securing Disposal Capacity to Preserve Long Term Landfill Capacity at Green Lane Landfill	2016
	<u>Long Term Options (post 2026)</u>	
	A range of options have been provided with respect to the appropriate next steps and timing associated with the next steps to address these future considerations.	2021 & 2026 (5-year reviews)
Overall System Consideration		

³ Formerly referred to as “Community/Mid-Scale Composting”

⁴ Formerly referred to as “ Container Management”

⁵ Formerly referred to as “ Expand City of Toronto Share of IC&I Waste Management Market To Provide Diversion Opportunities to More Commercial Businesses in City of Toronto”

⁶ Formerly referred to as “Depots, Processing, and Policies to Divert CRD Waste”

⁷ Formerly referred to as “ CRD Material Disposal Ban”

System Component	Recommended Options	Initiate Planning of Option
Unit for Research, Innovation & a Circular Economy	Unit for Research, Innovation & a Circular Economy	2017
Operational Considerations		
Recycling & Processing	Future Blue Bin Processing Capacity	2020
	Future Green Bin Processing Capacity	2017
Commissioners Transfer Station	Relocation of Transfer Station within the Port Lands Area	2016

A range of tools have been identified to support the implementation of the recommended options. These implementation tools were not evaluated, but will be considered for use when implementing the recommended options (e.g. an implementation tool will support the implementation of a recommended program or facility). Table 3 below highlights the system financing and funding and promotion, education and enforcement implementation tools.

Table 3: Implementation Tools

System Component	Recommended Options	Initiate Planning of Option
Implementation Tools		
System Financing and Funding	<p>A range of implementation tools have been identified to support the financing and funding of new infrastructure and services to be implemented as part of this Waste Strategy:</p> <ul style="list-style-type: none"> • Fully Independent Utility • Public-Private Partnerships for major capital works • Debt financing • Increase Solid Waste Management Services customer base • Allocating costs for waste management to applicable waste streams • Alternative revenue generation opportunities • Performance based incentives 	Ongoing
Promotion, Education and Enforcement	<p>A range of implementation tools have been identified to support the promotion and education of new programs and services to be implemented as part of this Waste Strategy.</p> <ul style="list-style-type: none"> • Interactive Online Waste Management Tool 	Ongoing

System Component	Recommended Options	Initiate Planning of Option
	<ul style="list-style-type: none"> • Environmental Impacts Calculator • Expanding social media presence • Providing additional tools and/or resources to the 3Rs Ambassadors and other volunteer programs • Incentivizing 3Rs Ambassadors and other volunteer programs • Targeted group communications • Multi-residential workshops and other outreach for buildings not receiving City waste collection services • Community Partnership Unit within Solid Waste Management Services Division • Targeted outreach and education campaign to reduce waste • City to assume role of facilitator to encourage Industrial, Commercial and Institutional waste diversion • Develop an advocacy strategy • Establish a Circular Economy/Waste Reduction Advisory Group to Inform Ongoing Waste Planning/Implementation Process • Establish a Multi-Residential Waste Diversion Advisory Group 	
	City explores mechanisms to introduce City-wide controls over waste management	2017

Increasing Waste Diversion from Multi-Residential Buildings

The Waste Strategy recognizes the challenges facing the City, as multi-residential buildings make up approximately 55 per cent of the dwelling units in Toronto. This number is forecasted to increase over time as the population grows. The Waste Strategy also identifies the need for increased waste diversion in the multi-residential sector to support the City’s diversion targets and reduce the amount of material currently sent to landfill.

Current Waste Management Programming in Multi-Residential Buildings

In recent years, Solid Waste Management Services has implemented numerous programs in multi-residential buildings in an effort to work with the building management and staff to increase their waste diversion.

In 2009, Solid Waste Management Services initiated the 3Rs Ambassador Program where a building resident, with support from City staff, can undertake outreach and education campaigns in their building. The type of campaigns can vary from simply putting up information posters in

common areas to undertaking bigger campaigns, such as organizing a clothing drive or a waste-free building event. Currently, there are approximately 300 3Rs Ambassadors actively engaged in their building.

In 2013, SWMS introduced a Customer Service & Waste Diversion Implementation (CSWDI) section with staff dedicated to performing site visits to multi-residential customers to monitor participation in the City's diversion programs and to provide assistance to improve diversion program participation. Since 2013, the primary focus of this group has been implementing the Green Bin organics program in all City-serviced multi-residential buildings.

As part of the Green Bin organics program implementation, CSWDI staff provide recommendations to help improve overall diversion. Continued promotion and education for multi-residential customers is a best practice due to frequent tenant turnover and changes in property managers. This includes communicating regularly to building owners and property managers that the City by-laws mandate participation in all diversion programs (e.g. letters, site visits, free educational materials, workshops etc.).

To support diversion activities, staff conduct presentations and lobby displays to educate residents on how to properly participate in the waste diversion programs. CSWDI staff also closely monitor the set out of Green Bin organics and follow up with building owners/property managers to provide additional assistance to educate the residents and encourage program participation. They also assist in trouble-shooting any challenges being experienced with waste management (i.e. set out, contamination, participation, etc.).

In 2014, staff initiated a pilot program in Toronto Community Housing buildings in an effort to increase tenant and superintendent knowledge of the City's waste diversion programs, thereby increasing the diversion of waste from these buildings.

This year, staff will initiate pilot projects in selected multi-residential buildings to test different waste diversion initiatives and their success rate. In addition, staff are working on the Mayor's Waste Reduction Challenge, which incentivizes building owners, property managers, superintendents and apartment and condominium residents to reduce waste going to landfill through implementation of initiatives that encourage reduce and reuse, and through increased participation in diversion programs. Registered buildings that succeed in the Challenge, reducing their garbage volume and engaging in activities to change the attitudes and/or behaviours of residents, will be formally recognized for their efforts.

Long Term Waste Management Strategy Options for Multi-Residential Buildings

The Long Term Waste Management Strategy has identified options that are specific to the multi-residential customer base. These options have been grouped into three main categories: organics management; waste collection methods; and planning, policies and enforcement. The planning, policies and enforcement recommendations are expected to elicit the greatest impact to increase diversion from this particular sector. A significant element of these recommendations include extensive promotion, education and enforcement to the residents, property managers and superintendents to ensure program comprehension and compliance.

It is important to note that in addition to the multi-residential specific options, the full scope of reduction, reuse, recycling and recovery options presented above will also help to reduce waste and increase recovery of resources from this sector. In particular, the intent of the Mobile Drop-off Depots is to establish collection points in high density areas (generally areas with a large proportion of multi-residential buildings), which will attract a large customer base and improve diversion from those that may not have easy access to a drop-off depot.

While all the promotion and education implementation tools will be useful in increasing waste diversion from this sector, there are several that are particularly earmarked for multi-residential customers, including those outlined in Table 4 below.

Table 4: Key Promotion & Education Implementation Tools for Multi-Residential Buildings

Implementation Tool	Summary
Providing additional tools and/or resources to the 3Rs Ambassadors and other volunteer programs	Creation of an Ambassador forum on the website to facilitate connections with Ambassadors in other neighbourhoods, form community hubs to collaborate on outreach initiatives, and provide a forum for Ambassadors to share ideas, resources and initiatives.
Incentivizing 3Rs Ambassadors and other volunteer programs	Consideration of the introduction of incentives for Ambassadors/volunteers to expand the program's reach in multi-residential buildings. Incentives could include a small honorarium, monthly draws for prizes, recognition awards for outstanding or long-term performance, or passes to City of Toronto events, etc.
Targeted group communications	The City of Toronto has a diverse population and it is challenging to reach customers, particularly for those whom English is not their first language and those that have recently become City residents. This new tactic would focus on new and alternative communications to ensure that more Toronto residents and stakeholders are reached.
Multi-residential workshops and other outreach for buildings not receiving City waste collection services	Coordination of on-site workshops/seminars/outreach or waste reduction challenges to buildings that are currently not receiving City collection services to encourage participation in diversion programs, improve program participation, and reduce contamination.
Targeted outreach and education campaign to reduce waste	Development of more audience specific and targeted outreach and education campaigns

	designed to encourage people to think about the impact of their purchasing and consumption choices.
Establish a Multi-Residential Waste Diversion Advisory Group	This Advisory Group will be established to provide advice and feedback on the Waste Strategy's multi-residential related options to increase diversion from this sector. Membership will likely consist of multi-residential industry, community not-for-profit groups and property management representatives.

Should the Mixed Waste Processing with Organics Recovery Facility be deemed necessary by the future business case, the primary source of material for the facility is anticipated to be from multi-residential sources since this provides the greatest opportunity for resource recovery.

Development of a Multi-Year Multi-Residential Waste Reduction Strategy

As previously stated, the Waste Strategy recognized the substantial opportunity to improve waste diversion through the multi-residential sector. This will become a primary focus of the Division in the years ahead. This year, staff are developing a Multi-Year Multi-Residential Waste Reduction strategy to build upon and expand existing programs and those options identified in the Waste Strategy. The Multi-Year Multi-Residential Waste Reduction Strategy will provide for a greater focus on waste diversion programming, comprehensive education, and enhanced enforcement where required. A dedicated program area will be created within the Division and sufficient staffing resources will be required to ensure the multi-residential sector is targeted appropriately and effectively. This unit will also communicate with Members of Council to learn about initiatives in their community that are successfully diverting waste from landfill. Staff would also like to continue leveraging existing Councillor communications, such as newsletters and listservs, to reach as many people as possible.

In addition, staff will establish a Multi-Residential Waste Diversion Advisory Group to provide advice and feedback to staff on multi-residential programming and policies to increase diversion from this sector. Membership will likely consist of multi-residential industry, community not-for-profit groups and property management representatives.

Changes Made to the Draft Waste Strategy Since Presented to Public Works and Infrastructure Committee on March 1, 2016

The draft Waste Strategy was presented to the Public Works and Infrastructure Committee in March 2016 and to the public and stakeholders in March and April 2016. The Waste Strategy has been revised to reflect changes made as a result of public and stakeholder consultation, including the following:

Acceleration of Select Recommended Options in the Implementation Schedule

There was strong public interest to implement more 3Rs options sooner than originally planned. The planning for the following options has been moved up in the implementation timeline: Textile Collection & Reuse Strategy; Sharing Library; Support Reuse Events; Explore Opportunities for Waste Exchange; Updates to Current Multi-Residential Development Standards; Expand Yellow Bag Program to More Businesses; Depots and Policies for Home Renovation Waste; Mixed Waste Processing with Organics Recovery testing; and the Unit for Research, Innovation & a Circular Economy.

Refinement of Approach for Managing Processing of Construction, Renovation & Demolition Waste

The original option for Construction, Renovation and Demolition (CRD) waste included a processing component intended to “close the loop” on the options to divert CRD materials. However, it was recommended that the City not include the establishment of a processing facility in the Waste Strategy due to the following reasons: recently failed private CRD processing facilities; difficulty in finding markets for CRD materials; and uncertainty regarding the *Waste Free Ontario Act*. Therefore, this option has been refined to include new CRD diversion opportunities through existing depot enhancements and introducing new policies/by-laws. The public strongly supported having an outlet to divert these types of materials. Staff will continue to investigate opportunities to effectively divert this material, which may include small batch testing of processing CRD materials with private facilities.

Introduction of a Circular Economy and Zero Waste Goal

In response to input received from the Stakeholder Advisory Group, the Phase 3 consultation process considered the addition of a circular economy and zero waste visionary goal to the Waste Strategy. Zero waste prioritizes waste prevention to minimize the amount of waste requiring disposal and focuses on conserving resources and building a circular economy.

Progress towards zero waste was strongly supported through consultation in the development of the Waste Strategy and represents a shift in thinking from the traditional linear approach to waste management and disposal to innovative ways to conserve and recover resources. Consequently, a circular economy and zero waste aspirational goal has been added to the City’s Waste Strategy. The Waste Strategy makes a commitment to minimize wasted resources, through an investment in programs targeting waste reduction and reuse, and an aspirational goal of working towards a circular economy with a zero waste future.

Mixed Waste Processing Facility with Organics Recovery Testing

The details of the Mixed Waste Processing Facility with Organics Recovery option have not changed. However, to clarify, testing of this option will be conducted on the residual waste stream during the first five years of implementation of the Waste Strategy. The purpose of testing is to assess different potential facility components and types of equipment for the recovery of recyclables and to better understand the quality of the recovered materials for

potential markets. Findings from the preliminary testing will also help inform the future business case review in years four/five of the Waste Strategy and in longer term decision making on whether or not to pursue a full-scale facility and the appropriate timing.

By-law Enforcement

The City has in place services that allow residents, small businesses and organizations to easily participate in convenient waste diversion programs. Recent waste audit studies indicate that there is an opportunity to improve participation in diversion programs as a significant amount of divertible materials are still found in the garbage stream. The Waste Strategy recommends increasing funding for waste diversion communication, promotion and education. To support and compliment this recommendation, greater enforcement of existing by-laws is also being recommended in parallel. This includes having additional dedicated resources to oversee and strategically manage enforcement efforts as well as increasing the number of by-law staffing resources to more comprehensively support existing and new Waste Strategy recommendations.

SWMS will work collaboratively with Municipal Licensing & Standards (ML&S) to develop an approach to educating customers and enforcing compliance of waste related by-laws. This will include development of a divisional service level agreement that will include annual reporting of activities undertaken by ML&S and the outcome of their enforcement activities as well as an assessment of appropriate enforcement related staffing levels in general. It will also include development of multi-year enforcement plans. The plans will be structured to address improvement of participation in existing diversion programs and services as well as any new programs being introduced through the Waste Strategy. An inter-divisional working group will also be established to discuss target issues and develop an annual enforcement and communications plan to address the areas of focus.

Phasing Out the Extra Large Garbage Bin for Single Family Customers

Recent waste audits have indicated that single family customers have an opportunity to improve their waste diversion as a significant quantity of divertible materials remain in the garbage stream. On average, 66 per cent of material in the single family garbage bin could have been diverted through existing programs. As part of the 2016 Budget process, City Council directed Solid Waste Management Services to investigate the feasibility of phasing out the extra large garbage bin.

Phasing out the extra large garbage bin could further encourage residents to properly sort their waste and recyclables into the appropriate streams. If residents require an increase in capacity for garbage, they would either need to purchase tags/bags or subscribe to an additional garbage bin. Both of these scenarios would result in the homeowner incurring a greater user fee. This further supports financial incentive to reduce waste as larger capacity Blue Bin for recycling or additional Green Bin organics diversion are provided at no additional cost. Rather, these costs are included in the base rate user fee.

The phase out will only apply to single family homes and will not impact collection from the following customers: commercial, residential units above commercial, and multi-residential

curbside (small multi-residential customers collected curbside). On a case-by-case request basis, Solid Waste Management staff will consider and investigate single family homes that may be exempted from the phase out. This could possibly include homes with large families, legal triplexes, etc.

In conjunction with the phase out program, staff will undertake increased waste diversion program education. In addition to education, enforcement of the City's by-laws will also be considered where necessary.

Staff will develop a phase out implementation plan and report back to the Public Works and Infrastructure Committee in the Fall of 2016.

New System Performance Metrics for Solid Waste Management Services– Key Performance Indicators (KPIs)

Monitoring the performance of the current integrated solid waste management system, as well as new options that may be added, is important to measure progress and ensure efficiency of the overall system. Understanding the performance of the system allows for the identification of potential areas for improvement, future trends to consider, and return on investment as new programs or facilities are implemented.

The current method used to measure diversion from landfill (the residential diversion rate) is not comprehensive enough to measure the actual impact of waste diversion programs. Since the residential diversion rate relies on a weight-based calculation, waste reduction and reuse efforts are generally not taken into account in the calculation because they are managed outside of the City's collection system. Therefore, new measurements are required to account for the reduction efforts.

The Waste Strategy is recommending a number of metrics to measure performance of new Waste Strategy options. The performance metrics presented in the Waste Strategy have been separated into two categories: those specific to measuring the success of the Waste Strategy and those that are operational in nature. In several cases, a baseline will first need to be determined prior to the establishment of targets.

On a yearly basis, Solid Waste Management Services will produce an annual report to highlight the results of key performance metrics and to assess the progress made in achieving the recommendations set forth in the Waste Strategy's implementation plan. This report will be placed on the Division's website and aim to be released along with annual diversion reporting.

Further details on key performance indicators is in Section 13 of the Waste Strategy (Attachment 1).

Establishment of new Reduction and Diversion Advisory Groups

To assist with the implementation of the Waste Strategy recommendations, Solid Waste Management Services will establish two advisory groups: a Multi-Residential Waste Diversion

Advisory Group and a Circular Economy Waste Reduction Advisory Group. Both Advisory Groups would provide advice and input and would report directly to the General Manager of Solid Waste Management Services.

Multi-Residential Waste Diversion Advisory Group

From the mid-2000s until 2011, Solid Waste Management Services consulted with multi-residential industry representatives through the Multi-Unit Residential Advisory Working Group (initially known as the Apartment Working Group). This Advisory Group provided valuable feedback on the implementation of multi-residential programs and policies. It is recommended that a similar Advisory Group be established to provide advice and feedback on the Waste Strategy's multi-residential related options to increase diversion from this sector. Membership will likely consist of multi-residential industry, community not-for-profit groups and property management representatives.

Circular Economy Waste Reduction Advisory Group

A Circular Economy Waste Reduction Advisory Group will be established to provide input into ongoing waste reduction planning processes, specifically those identified in the Waste Strategy. This Advisory Group will support the City's efforts to reduce waste and support innovation, with a specific focus on the development and implementation of efforts that support a circular economy. Invitations to participate will first be extended to those organizations that currently comprise the Waste Strategy's Stakeholder Advisory Group and may be extended to other organizations.

Feedback and Input from Phase 3 Public and Stakeholder Consultation & Engagement

The third and final phase of public consultation and engagement events, undertaken from March 29 to April 27, 2016, provided an opportunity for the public and stakeholders to comment on the recommended options in the draft Waste Strategy and information related to implementation. The following represents a summary of the key input received from the Phase 3 consultation events, survey #4, and Stakeholder Advisory Group discussions. An in-depth account of the feedback received can be found in Attachment 2.

Adoption of a Zero Waste Goal for Toronto's Waste Management System

Residents support the inclusion of a visionary goal, "to work towards a Zero Waste future," in the Waste Strategy. This aligns with the Provincial goal outlined in the *Waste Free Ontario Act Draft Strategy for a Waste Free Ontario*.

Support and Acceleration of All 3Rs Programs Identified in the Waste Strategy

Participants in the consultation and engagement activities in Phase 3 supported the following 3Rs program implementation: Mobile Drop-off Depots; the Textile Collection and Reuse Strategy; and the Food Waste Reduction Strategy. Comments received indicated that Torontonians are looking for an earlier implementation of many 3Rs programs being

recommended. Establishing appropriate metrics to be able to monitor progress on 3Rs programs was also identified as an important consideration.

Establishing Exchange & Sharing Opportunities in the City

Torontonians want to share and borrow various household items. Suggestions provided included having the City coordinate sponsored “swap-days/yard sales” and leverage the City website and Councillor newsletters to communicate where and when swap events and yard sales are taking place in neighbourhoods. Residents would also like the City to leverage Community Environment Days that include exchange and sharing opportunities.

Perspectives and Feedback on Waste Reduction & Minimizing Food Waste

Residents find food waste generated most in: grocery stores, homes, offices and restaurants. Residents want the City to help foster a food waste reduction culture through promotion and education that communicates benefits of reduction and the impacts of wasting food.

Strong Support for Increasing Focus on Diverting Waste in Apartments and Condos

Torontonians see a significant opportunity for waste diversion improvements in apartments and condominiums. Feedback received on diverting waste in apartments and condominiums focused on increasing convenience through education, infrastructure improvements, and where necessary, greater enforcement.

Waste Diversion Opportunities for Businesses & Out of Home

The public’s perception is that commercial businesses (e.g. restaurants, malls, offices) have the greatest opportunity to improve their diversion programs. Residents feel that businesses have a pivotal role in managing and diverting their waste and supporting future reduction programs. In general, Torontonians expressed a desire for consistency across the city in how waste is managed on-site and diverted.

Waste Recovery and Residual Feedback Supports Continued Efforts for Waste Diversion

Torontonians are supportive of a 3Rs first approach that reduces waste and preserves space at Green Lane Landfill. Minimizing significant capital expense on recovery and residual options until after the Waste Strategy has been in place for a few years and the *Waste-Free Ontario Act* is implemented, resonated with most participants.

Support for Enhanced Promotion and Education for Waste Management Programs to further Waste Reduction and Diversion

Participants felt that it is important to raise awareness of waste reduction and proper waste management with improved communications through clear information posters, better use of City websites to promote understanding and positive action, improved bin design, and building-

specific waste management actions to better enable the resident's participation in diverting waste.

Development and Establishing Partnerships with Community Organizations

Torontonians expressed interest in the use of internal and external partnerships for the delivery of waste reduction programs. In particular, the following internal City facilities and external organizations were most frequently highlighted:

- Internal: City of Toronto Community Centres, City of Toronto Libraries
- External: Toronto Environmental Alliance (TEA), Canadian Diabetes Association, and Furniture Bank.

Enforcement Strategies are Required to Support Existing and New Waste Diversion Programs and Policies

Many participants indicated that a change in behaviour is needed to improve diversion. Understanding the motivations of people's behaviours was noted as an important step in establishing the best method to encourage change. Enforcing existing and future by-laws was raised frequently as a means to encourage proper participation.

An account of all Phase 3 public consultation and engagement details, including a summary of the feedback received, are outlined in Attachment 2.

Five Year Reviews of Waste Strategy Implementation

The Waste Strategy is intended to be a living document and will be reviewed, revised and updated every five years as appropriate. Solid Waste Management Services will conduct a review of the progress towards implementing the Waste Strategy recommendations approved by City Council, the impact of new Provincial waste legislation (if applicable), the rate structure, and a plan for the following five years. These reviews will occur at years five (2021) and ten (2026) and the results will be reported back to Committee and City Council.

Other Waste Strategy Implementation Considerations

This section of the report highlights several initiatives, policies, programs and proposed provincial legislation that will be taken into consideration and incorporated during the implementation of the Waste Strategy.

Collaboration with Climate Change reporting through TransformTO & Greenhouse Gas Emissions Monitoring

Solid Waste Management Services is coordinating and collaborating with the Environment and Energy Division (EED) in the preparation of the Waste Strategy. EED is leading TransformTO: Climate Action for a Healthy, Equitable, and Prosperous Toronto, a project that will update the City's Climate Action Plan and seeks to optimize public health outcomes, economic

opportunity, and social equity in its proposed transformative strategies to achieve a low-carbon future and reduce greenhouse gas emissions by 80 per cent in Toronto by the year 2050. Both TransformTO and the Waste Strategy have adopted long-range planning horizons in an effort to align decision-making today with Toronto's long-term goals and objectives. EED will report back on the TransformTO project to City Council in Q4 2016.

One component of TransformTO is a technical analysis of the relative greenhouse gas emission reduction potential of different strategies and measures. SWMS is collaborating with the Environment and Energy Division to analyze the greenhouse gas (GHG) implication of various waste management strategies and options, aligning with the evaluation criteria established in the Waste Strategy consultation process. In addition, efforts will be made to standardize the methodology by which GHG reductions would be measured and reported, as a result of the Waste Strategy. SWMS and EED are also coordinating consultation and outreach efforts, sharing the outputs of public input as relevant to the respective strategies.

The City currently reports GHG emissions related to waste management using the Global Protocol for Cities. The protocol focuses on disposal related GHG emissions and currently does not account for recycling upstream emissions.

It is anticipated that the Waste Strategy will reduce greenhouse gas emissions related to waste management in the City because less material will go to landfill and waste reduction initiatives will achieve lower GHG emissions overall.

Inclusion of Equity, Diversity & Accessibility Considerations during Waste Strategy Implementation

Equity and accessibility was a cornerstone of the Waste Strategy public consultation process from the beginning. All project documents, including display panels, presentations, Stakeholder Advisory Group meeting notes, Project Updates, Technical Memorandums, and staff reports to Public Works and Infrastructure Committee have been posted on the project website in compliance with the *Accessibility for Ontarians with Disabilities Act*. In addition, all public meetings were held in fully accessible locations with near proximity to public transit. For Phase 2 and Phase 3 consultations, special accommodation and translation services were available to those that requested the service in advance of the public meeting.

During the Phase 3 consultation process, Solid Waste Management Services staff met with staff from the Equity, Diversity & Human Right Division to provide an overview of the Waste Strategy development, evaluation process and draft recommendations. Specific attention and discussion occurred on how the equity indicator ("Potential for unequal impacts/benefits to specific groups") was applied to the options during the evaluation process.

Solid Waste Management Services will work closely with Equity & Diversity staff to conduct an equity impact analysis during the implementation of the recommended options. In addition, Solid Waste Management Services staff will meet with the Disability, Access and Inclusion Advisory Committee and the Aboriginal Affairs Advisory Committee later this year to discuss the recommendations once approved by City Council.

Considerations of Waste-Free Ontario Act

The *Waste-Free Ontario Act* passed on June 1, 2016. This new waste legislation could have significant impacts on how waste is managed by the City. The City will need to assess potential legal and technical implications of these changes once more information is available through regulations released as part of the pending new legislation. A report on the then-proposed *Waste-Free Ontario Act* was brought forward to the Public Works and Infrastructure Committee meeting of March 1, 2016 and endorsed by City Council at their March 30 – April 1, 2016 meeting.

Greenhouse Gas Regulations: Provincial Cap & Trade Program

The Solid Waste Management Services Division is supportive of measuring environmental performance and is encouraged that the Province has decided to formally implement a price on carbon through its upcoming Ontario Cap and Trade Program.

Solid Waste Management Services is currently examining a number of projects and initiatives that could potentially offset significant amounts of greenhouse gas emissions thereby generating green revenue. These projects include the conversion of the diesel collection fleet to renewable natural gas, electricity generation developments, and a number of other projects.

Recommendations included in the Waste Strategy consider environmental outcomes and the upcoming Cap and Trade Program that will play a significant role in future planning. While the Cap and Trade Program is currently still under development and its final design and implementation are still subject to change, Solid Waste Management Services will continue to provide comments to the Province and closely monitor Cap and Trade Program updates.

Feasibility of a Community Investment Program to Enhance Waste Reduction and Diversion

City Council requested Solid Waste Management Services to report on the feasibility of establishing a mechanism to financially support community-driven initiatives that can accelerate waste reduction and diversion through education and outreach programming.

Solid Waste Management Services staff met with Environment & Energy Division staff to discuss the former Live Green Toronto Community Grant program that was in place for eight years and concluded in 2015. Initial discussions between the two Divisions identified that opportunities and efficiencies exist to work together to develop a new Waste Diversion Community Investment Program.

Through public consultation, staff were made aware of many organizations interested in working with the City to increase waste diversion from landfill. Not only would such collaborations increase waste diversion, they could also create synergies with other City projects, thus creating further community building benefits. Such synergies would leverage and encourage the better use systems currently available and could potentially result in community and environmental benefits (e.g. a reduction in greenhouse gases) and cost savings for the City due to a decrease in waste landfilled.

The Waste Strategy could provide financial support for the Program. A portion of funding from the Waste Strategy Promotion and Education budget could be dedicated for waste reduction and diversion outreach and educational programming.

Solid Waste Management Services staff will continue conversations with the Environment & Energy Division on the development of a Waste Diversion Community Investment Program.

Feasibility of One Side of the Street Collection for Consideration as part of Coordinated and/or Alternative Collection Contract Option

The Public Works and Infrastructure Committee requested staff, as part of the Waste Strategy, to consider the feasibility of asking residents to place their bins on only one side of the street for collection. Currently, Solid Waste Management Services utilizes alternative collection arrangements where it is deemed to be operationally feasible and efficient. For example, a central collection point for townhouse complexes or small cul-de-sacs has been implemented in certain instances to improve operational efficiency.

The Waste Strategy considered collection on one side of the street through its addition to the “Coordinated and/or Alternative Contracts” option. Research was completed as part of the development of the Waste Strategy in consultation with Legal Services and Equity, Diversity & Human Rights. Results are highlighted below.

- To mandate one-side of the street collection in designated parts of the City, Council would need to adopt a by-law requiring residents in those areas to cross the roadway with their bins to receive waste collection services. Moreover, to avoid conflicting with the *Ontario Highway Traffic Act* and be consistent with Chapter 950 of the Toronto Municipal Code, the by-law would likely need to make clear that such roadway crossing with the bins occur only at street corners and/or marked pedestrian crossovers. In other words, for mid-block properties, a resident might need to walk the bin along one side of the street to the corner, then cross with the bin, and then come down the other side of the street with the bin to the location that is directly across the roadway from his or her property.
- Such waste collection service changes may cause significant equity impacts and accessibility concerns for vulnerable communities, such as those with mobility, cognitive or vision disabilities and seniors. These impacts are further exemplified by requesting residents to wheel their bins (at least two waste streams are collected weekly) and only cross the street at a marked crossover or corner.
- Seasonal challenges, especially during the winter months, could make it quite challenging for residents to navigate their bins to the new collection location. This is of particular concern in snow and ice conditions where set-out space can be very limited.
- With these competing concerns, residents may choose not to cross the road at crossings or corners, thereby raising substantial pedestrian and vehicular safety concerns.

Moreover, having residents move bins up, down, and across streets and/or leave bins in front of other properties for longer than permitted can lead to increased street and sidewalk litter, as well as stranded, lost, and stolen bins.

As a result of these considerations, staff recommend that the current collection operations remain the same in that residents continue to place their bins at the curb, in front of their property, for collection. However, staff will continue to explore opportunities to improve operational efficiencies.

Development of a Sustainable Rate Financing Model for Full System Cost Recovery and Waste Strategy Implementation

A financial analysis of costs of the City's current waste management system and the impact of the Waste Strategy was conducted to develop a rate model that would support the financial requirements of the future waste system. It involved the development of a financial model (the Model) that allowed the City to estimate the net operating and capital expenditures required to provide services to the City's residential and non-residential customers. The Model also identifies all other operating costs that are not directly applicable to servicing the City's rate-paying customers. These were defined and allocated in the Model as "public goods services" that benefit the entire City of Toronto population and businesses (e.g. litter collection along major streetscapes and collection and management of litter/recycling from City Parks).

The Model was developed to identify the total net operating cost (both direct and indirect) incurred by Solid Waste Management Services to provide services to customers and allocate those costs to each customer type. Collection costs are allocated based on collection frequency for curbside customers or estimated tonnages from centrally collected customers (i.e. bulk collection from multi-residential buildings). The costs associated with processing, disposing and transferring materials, system overhead costs, public goods services, parks collection costs and beautification (e.g. litter cleanup) costs were allocated to all customers based on the estimated tonnage generated by each customer type.

The Model assumes a forecast period of 10 years (to 2026). The net operating expenditures are forecasted over this period by an assumed inflation index⁸ and include the incremental operating costs assumed to be incurred from implementing the recommended options in the Waste Strategy. In addition, the forecast considers projected changes to the customer base (single family and multi-residential customers), as well as the projected annual incremental tonnage and increased diversion rate from implementing the Waste Strategy. The incremental cost and waste tonnage assumptions from the Waste Strategy have been phased into the Model in accordance with the proposed timing outlined in the Waste Strategy for each recommended option.

⁸ An inflation index of 2.5 per year has been assumed in the Model. This assumption reflects the estimated annual inflation in costs, plus any additional cost increases based on the City's existing contracts with third party service providers.

Using the forecasted net expenditures, the Model estimates utility rates for each customer type based on the total cost allocated to that customer type and the total number of customers serviced by Solid Waste Management Services. This is in congruence with the City of Toronto User Fee Policy, adopted by City Council in September 2011 that promotes recovery of the full cost of services for which user fees are charged. The calculated utility rates are set to cover contributions to capital reserves to fund the City's capital costs included in the Toronto 2016 Capital Budget and the incremental capital costs identified in the Waste Strategy. It was determined that the Solid Waste Management Services' 2016 budgeted contributions to capital reserves are sufficient to cover the incremental capital costs from the Waste Strategy, and will be projected forward at a rate of 2.5 per cent. The calculated rates in the Model are also set to cover 100 per cent of the Solid Waste Management Services' forecasted net operating expenses, including incremental operating costs incurred from implementing the Waste Strategy, to support the City in transitioning towards a fully sustainable utility model.

Next Steps

Pending City Council approval of the Long Term Waste Management Strategy, Solid Waste Management Services staff will begin to implement the recommendations according to the implementation plan in Fall 2016.

CONTACTS

Vincent Sferrazza, Director, Policy, Planning & Support, Solid Waste Management Services, Telephone: 416-392-9095, Fax: 416-392-4754, E-mail: vsferra@toronto.ca

Annette Synowiec, Manager, Waste Management Planning, Policy, Planning & Support, Solid Waste Management Services, Telephone: 416-392-8506, Fax: 416-392-4754, E-mail: asynowi@toronto.ca

SIGNATURE

Jim McKay
General Manager
Solid Waste Management Services

ATTACHMENTS

Attachment 1 – Final Long Term Waste Management Strategy

Attachment 2 – Phase 3 Public Consultation & Engagement Overview & Record