

Long Term Waste Management Strategy – Terms of Reference

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| Date: | June 4, 2013 |
| To: | Public Works and Infrastructure Committee |
| From: | General Manager, Solid Waste Management Services |
| Wards: | All |
| Reference Number: | P:\2013\Cluster B\SWM\June\007PW (AFS#17438) |

SUMMARY

This report is in response to the Public Works and Infrastructure Committee’s request for a follow up report on the proposed terms of reference and process for the development of a Long Term Waste Management Strategy. The report provides a summary of the proposed statement of work, guiding principles, scope, key deliverables, public consultation, costs, and timelines of the study.

Solid Waste Management Services staff will develop the Long Term Waste Management Strategy, in consultation with members of the public and community stakeholders. Solid Waste Management Services staff will issue a Request for Proposals for a consultant to assist with the preparation of the Strategy.

RECOMMENDATIONS

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

1. City Council adopt the Terms of Reference in principle, as outlined in this report and authorize the General Manager of Solid Waste Management Services to proceed with a Request for Proposals for a consultant to assist with the development of the Long Term Waste Management Strategy; and,
2. Solid Waste Management Services report back to the Public Works and Infrastructure Committee with updates on development of the Long Term Waste Management Strategy at key milestones, and that the resultant final draft Long Term Waste Management Strategy is submitted to City Council for approval.

Financial Impact

The funding required to carry out a study to develop a Long Term Waste Management Strategy has been provided for in the approved 2013 Capital Budget of Solid Waste Management Services under the project Mechanical and Biological Treatment Facility/Solid Waste Management Master Plan (Account CSW013).

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

DECISION HISTORY

At its meeting of June 19, 20 and 22, 2007, City Council adopted the recommendations in EX9.1 entitled “Proposed Initiatives and Financing Model to Get to 70% Solid Waste Diversion by 2010”, as amended.

City Council Decision document can be viewed at:

<http://www.toronto.ca/legdocs/mmis/2007/cc/decisions/2007-06-19-cc10-dd.pdf>

At its meeting of November 27, 28 and 29, 2012, City Council – Item EX25.10 entitled “2013 Rate Supported Budgets - Solid Waste Management Services and Recommended 2013 Solid Waste Rates (Item BU31.2)”, request the General Manager, Solid Waste Management in consultation with the Acting Deputy City Manager and Chief Financial Officer to report to the Public Works and Infrastructure Committee and the Budget Committee early in 2013 to reconfirm City Council’s commitment to continue with the 70% Waste Diversion Program and to recommend a supporting Multi-Year Rate Strategy.

City Council Decision document can be viewed at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2012.EX25.10>

At its meeting of March 19, 2013, Public Works and Infrastructure Committee, Item PW21.1 entitled “Long Term Waste Management Strategy” requested the General Manager, Solid Waste Management Services, to 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

Public Works and Infrastructure Committee Decision document can be viewed at:

<http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2013.PW21.1>

ISSUE BACKGROUND

Solid Waste Management Services staff is committed to achieving 70% diversion by 2016, which would extend the life of the Green Lane Landfill until 2036. However, there will still be a need for disposal capacity beyond that date and into the future. Solid Waste Management Services needs to look beyond 2036 and explore other long-term sustainability measures for management of the City's residual waste.

Solid Waste Management Services staff is initiating the development of a Long Term Waste Management Strategy for Toronto. The Strategy will guide the Division's decision making for the next 30 to 50 years. This report outlines the Study's proposed guiding principles, scope, deliverables, and stakeholder consultation, as well as the costs and timelines in which the work is to be completed.

COMMENTS

Statement of Work

The initial Target 70 report to City Council in 2007 only focused on residential waste and diversion. Residential waste only accounts for 53% of the waste that goes into the Green Lane Landfill. The other 47% comes from non-residential sources (including Agencies, Boards, Commissions, Corporations, schools, commercial establishments, institutions, commercial paid tonnes at transfer stations, paid private tonnes at Green Lane Landfill and other municipalities' waste) and is accepted at Green Lane Landfill. The Long Term Waste Management Strategy will focus on all waste generators, not just residential, and will provide a framework for solid waste management policy decisions for the next 30 to 50 years.

The Strategy will recommend waste management policies and programs, including the management of post diversion residual waste, which are environmentally sustainable, socially acceptable and economically viable. All existing and new and emerging diversion and disposal options will be reviewed and considered in this process.

Guiding Principles

There are five guiding principles which will be used to define the development of the long term strategic direction for the management of Toronto's waste. They include:

- Consideration of options which support waste reduction, reuse, recycling and recovery before final disposal.
- Consideration of all other environmentally approved disposal options to extend the life of the Green Lane Landfill.
- An open and transparent review of the options.

- Innovation and flexibility to adapt to emerging technologies and changes to the regulatory environment.
- Development of policies and opportunities for collaboration.

Key Deliverables

The following is a listing of key deliverables of the Long Term Waste Management Strategy:

- A consultant will be retained through a "Request for Proposals" process to assist with the research, development, and drafting of the Strategy to be presented to City Council.
- A thorough literature review of all new and emerging technologies to effectively deal with residual waste.
- A jurisdictional review of other municipalities and countries to determine best practices.
- Development of various policy statements and long term directives to guide future decision making.
- Development of a suite of potential capital investments that will assist the City in reducing residual waste and final disposal of residual waste.
- A high level cost/benefit analysis of various options to determine the best value for money.
- Development of a 10 to 20 year capital infrastructure requirements document, along with a long term sustainable rate model to finance these expenditures.
- A Triple Bottom Line (social, environmental and economic) evaluation of options or combinations of options to ensure sustainability.
- A Public Consultation Plan will be developed, in collaboration with the consultant, and will include stakeholder identification, outreach tools and engagement methods.
- A Communications Plan will be prepared to outline how the study will be promoted.
- Regular status updates will be provided to the Public Works and Infrastructure Committee at key milestones of the Study.

- The final draft of the Long Term Waste Management Strategy will ultimately be submitted to City Council for review and discussion. It will contain recommendations for future programs, policies, capital investments and other options, as well as the social, environmental and economic implications for the management of Toronto's waste for the next 30 to 50 years.

Scope

In developing the Long Term Waste Management Strategy, Solid Waste Management Services staff and a consultant who will be hired to assist with the Strategy will undertake a review of all potential options for the management of Toronto's waste for the next 30 to 50 years.

Some of the Options that will be explored are:

A comprehensive review of any new and emerging source separation techniques

This option includes techniques that encourage the separation of waste and recyclables prior to and after curbside collection. Solid Waste Management Services staff will continue to focus on waste diversion practices that will extend the life of Green Lane Landfill for as long as possible.

Mechanical Biological Treatment and other waste treatment technologies

Mechanical Biological Treatment describes a variety of processes that could be used to treat residual waste (garbage) by using both mechanical separation and biological treatment technologies. A Mechanical Biological Treatment facility will recover recyclables and organics, generate a low grade (Class B) compost that can be used for restricted beneficial land application, and produce a biogas that can possibly be used for energy/electricity.

Energy from Waste

There are various new and emerging technologies that claim to successfully treat and reduce the volume of municipal solid waste, primarily energy from waste technologies. These thermal applications include incineration with energy recovery, pyrolysis, gasification, plasma arc gasification, waste-to-fuel and pellets. A short description of these technologies follows:

- Incineration with Energy Recovery – The use of incineration to convert municipal waste to energy is popular in countries, such as Japan, where land is a scarce resource. There are different types of energy recovery facilities. Denmark and Sweden use the energy generated from incineration to support district heating schemes. Examples in Ontario include the Algonquin Power in Peel Region and the new Covanta Energy facility currently under construction in Durham Region.

Covanta Energy also has other energy recovery incineration facilities in North America that convert municipal solid waste into renewable energy such as electricity.

- **Pyrolysis** – Pyrolysis consists of the thermo-chemical decomposition of carbon-based materials in an oxygen deficient atmosphere, using heat to produce a synthetic gas. With pyrolysis, oxygen is not used in the reaction and no direct burning takes place. There are seven large scale municipal waste pyrolysis plants in operation around the world that Solid Waste Management Services staff is aware of.
- **Gasification** – Gasification involves the heating of organic waste (Municipal Solid Waste) to produce a syngas. The syngas produced can then be used off-site or on-site in a second thermal combustion stage to generate heat and/or electricity. Several gasification facilities are in operation in Asia.
- **Plasma Arc Gasification** – Plasma arc gasification is a technology that uses electrical energy and high temperatures created by an electric arc gasifier to break down waste into gas in a device called a plasma converter. The City of Ottawa has negotiated a long-term agreement with a plasma arc gasification company.
- **Waste-to-Fuel** – The process of transforming waste into fuels is based on the concept that instead of using the syngas produced through gasification as a source of energy, the syngas is used as a feedstock to generate various liquid fuels that can be used. A large scale municipal waste-to-biofuel facility is being constructed in the City of Edmonton.
- **Pellets** – Mixed waste is processed and the resulting product is fuel pellets that can be sold to facilities to be used as an alternative fuel source. The Dongara Plant in York Region is an example of such a facility.
- There are potentially some viable technologies that are currently available in the marketplace as well as some new and emerging technologies not yet operational at a commercial scale that may be available to the City of Toronto to treat municipal solid waste.

Alternative disposal options such as redirecting waste to the other landfills

In 2011, Toronto entered into alternative disposal contracts with three Ontario landfills. The contracts allow for the acceptance of up to a total of 325,000 tonnes of Toronto's waste per year for a five year period with an option to extend for an additional five years. City Council authority allows for the redirecting of 150,000 tonnes of waste per year to these three other landfills (50,000 tonnes per site per year). To date, we have not redirected any waste to these landfills.

The Strategy will consider the impact of redirecting waste away from Green Lane Landfill and therefore extending its operating capacity. The three existing contracts, as well as the possibility of similar future contracts, will be examined.

Expansion of Green Lane Landfill

The feasibility of expanding Green Lane Landfill will be explored and include consideration of the Ministry of the Environment's approval process for landfill expansion, while also taking into account the impacts to the host community and First Nations.

Public/Private partnerships

The Strategy will investigate the possibility of a municipal partnership(s) with privately owned and operated diversion and/or disposal facilities. This option will primarily look at the possibility to partner on potentially large capital expenditures such as Energy from Waste or Mechanical Biological Treatment.

Partnerships with other municipalities

This option will explore the possibility of partnering with other municipalities to improve the economies of scale for new waste management facilities. Similar to the Public/Private partnership listed above, this option will primarily look at the possibility to partner on potentially large capital expenditures such as Energy from Waste or Mechanical Biological Treatment. This could also include the possibility of partnering on diversion facilities or even the purchase or operation of new landfills.

Purchase of another Landfill

As was done with the purchase of Green Lane Landfill in 2007, the Strategy will examine the feasibility of procuring an additional existing and operational landfill. This option will address the number of landfills in Ontario that would meet Toronto's needs, what are their current capacities, and what is the current market conditions related to private or publically owned landfills.

All waste managed by the City, not just residential, will be included in the study

Since 47% of waste that is disposed of in Green Lane Landfill comes from non-residential sources (including Agencies, Boards, Commissions, Corporations, schools, commercial establishments, institutions, commercial paid tonnes at transfer stations, paid private tonnes at Green Lane Landfill and other municipalities' waste), the management of waste from all generators will be included in the Strategy.

The Long Term Waste Management Strategy will consider the impacts to Green Lane Landfill on more aggressive policies and programs to reduce these waste streams and improve on diversion from these other sources.

Reduce or eliminate paid private waste by increasing tipping fees at Green Lane

Currently, Green Lane Landfill accepts approximately 112,000 tonnes of paid private waste per year. This amounts to over \$6 million in revenues. By increasing tipping fees, a large portion of these customers may choose to dump at other landfills; hence, extending the life of Green Lane. The Long Term Waste Management Strategy will explore the price elasticity of its current private customer base and determine the level of fees that would balance revenues with the need to extend the life of the landfill.

Extended Producer Responsibility and Amendments to the Waste Diversion Act, 2002

The Ontario Government is currently reviewing the *Waste Diversion Act, 2002* and it is anticipated that they will be releasing a major overhaul to the Act in the coming weeks. The amendments, if passed, will have a dramatic impact on municipalities and specifically to the Extended Producer Responsibility concept that has been discussed extensively over the last number of years. There will be a major shift towards full Extended Producer Responsibility, which may affect the decisions, policies and capital expenditures that municipalities make in the years ahead.

The Long Term Waste Management Strategy will review these proposed changes and will incorporate any legislative changes that are made into the final document and future decisions and policies that the City may consider.

Issues and Items NOT in Scope

The Long Term Waste Management Strategy will be a high level decision making document that will be used to guide staff and City Council in the coming years. The document will not deal with any issues around site locations of potential facilities; any Environmental Assessments that may be required to develop some of the potential options; equipment or technology vendor selection for any options identified; or, pre-designs or conceptual designs of any facilities or options identified in the study.

Triple Bottom Line Evaluation

The Triple Bottom Line sustainability framework will be employed to evaluate the options or combination of options. Triple Bottom Line incorporates three areas of performance: social (e.g. location of facilities in neighbourhoods, human health); environmental (e.g. air and water emissions, resource savings); and economic (e.g. facility capital costs, ongoing operating costs).

Solid Waste Management Services staff, the consultant, and involved stakeholders will work together to develop a weighting system and evaluation formula that takes into account the social, environmental and economic factors. The preferred option or combination of options for the Sustainable Long Term Waste Management Strategy will

be based on the results of this evaluation and presented to Council before any final decisions are made.

Stakeholder and Public Consultation

Solid Waste Management Services is committed to developing a Sustainable Long Term Waste Management Strategy in consultation with community stakeholders. The consultation goal is to develop a strategy that is supported by the community and takes their concerns, ideas and feedback into account.

The Project Team (Solid Waste Management Services staff and consultants) will lead the development of the Stakeholder and Public Consultation Plan. Updates on the status of the study and consultation will be provided to the Public Works and Infrastructure Committee at key milestones, and a summary of all consultation activities, including feedback received, will be presented in the final study report.

A detailed public consultation plan will be designed and delivered by The Project Team and will include the following elements:

Stakeholder Identification

The Long Term Waste Management Strategy will focus on the management of waste that is generated from residential and non-residential sources. A broad range of stakeholders and waste generators have been identified and include:

- City Council
- Residents (single and multi-family)
- Agencies, Boards, Commissions and Corporations
- School Boards
- Small commercial business
- Environmental non-governmental organizations
- Ministry of the Environment
- Other municipalities
- Other stakeholders to be determined as study progresses

Although some of the waste accepted at Green Lane Landfill is generated by customers located outside the City of Toronto, the focus of the stakeholder and public consultations will be on engaging Toronto stakeholders. Partnership opportunities with other municipalities will be explored by the Project Team through one-on-one sessions or

specific and targeted workshops. Once a long term strategy is reached, there may be a need to carry out consultations outside of Toronto with stakeholders that may be impacted by the City's decisions (e.g. location of a new facility).

Solid Waste Management Services staff will reach out to stakeholders that identified their interest in the City's "Getting to 70%" initiatives and are part of that mailing list. In addition, staff will inform and invite stakeholders to participate through city newsletters, the website, social media outreach, and via communications to the various waste generators and City Councillors.

Stakeholder Advisory Group

A Stakeholder Advisory Group will be developed and will be made up of key stakeholders with a broad representation of the various waste generators and those with an interest in the waste that Solid Waste Management Services manages. The role of the Stakeholder Advisory Group is to provide advice and feedback to the Project Team at key points in the development of the Long Term Waste Management Strategy and prior to consulting with the broader community.

Key Stakeholder Meetings

The Project Team will engage specific governmental (e.g. the Ministry of the Environment, and other municipalities) and non-governmental organizations, as required, through one-on-one meetings.

Public Information Centres

For broader public engagement, Solid Waste Management Services staff will hold several Public Information Centres at key stages of the study. Locations will be selected that are easily accessible and convenient for the vast majority of stakeholders to attend.

The first Public Information Centre will focus on providing background information on the City's waste management programs and challenges as well as presenting an overview of the study purpose, options, timeline and opportunities for public involvement. The Project Team will seek feedback on the long list of options to manage residual waste and on ways to improve the current diversion strategies. The subsequent Public Information Centres will focus on presenting a screened shortlist of options and ask participants to help prioritize them.

A variety of tools and approaches will be used to disseminate information and collect input. The tools and strategy will be refined in the public consultation plan and may include video presentation of background information, display boards, discussions with the Project Team and other meeting participants, feedback forms, facilitated discussions, and other interactive activities at the public events. Feedback will be reported in a transparent manner that will allow the public to see how their input contributed to the Long Term Strategy.

Digital Consultation and Engagement

Solid Waste Management Services staff will rely on appropriate digital engagement tools to alert the public of the study, provide updates on the study's progress, and solicit and collect feedback. Digital tools will be selected that best support the consultation efforts, and will include the use of the City's project website, Twitter, project e-mail list, online survey tools and others.

All information presented at Public Information Centres will be available online and on the project website in order to engage and solicit feedback from stakeholders unable to attend a Public Information Centre in person.

In addition to online information and the use of digital tools to gather feedback, Solid Waste Management Services staff will also use a project mailing list for those without e-mail and receive input via phone, e-mail, fax and mail.

Communications Plan

A Communications Plan will outline how the study launch and key milestones will be communicated to public and stakeholders. In addition to digital communications and engagement previously mentioned, communications will also include:

- Media releases
- Print media advertisements
- Distribution of information at Civic Centres, Libraries and City events such as Environment Days

Estimated Costs

Until proposals are received in response to the Request for Proposals that will be issued, it is uncertain what the overall cost will be to engage a consultant for the development of the Long Term Waste Management Strategy. Recent waste management strategy studies in other nearby Ontario municipalities have ranged from \$200,000 to \$1.3 million. Staff's current estimate for the study is \$800,000 to \$950,000. Every effort will be made to utilize in-house public consultation, communications and research staff, and working together with the consultant in order to minimize the cost of the consultant.

Timeline of the Study

Based on the development experience of other municipal long-term waste strategies, it is anticipated that Toronto's Strategy will be completed in approximately 1 to 1.5 years, once a consultant has been retained. Below is a brief timeline of the Long Term Waste Management Strategy:

- Adoption of Terms of Reference by City Council – July 16-18, 2013
- Issue Request for Proposal to hire consultant – Late July 2013
- Request for Proposal close and review proposals – August 2013
- Kick off meeting with Consultant and staff team – September 2013
- Initial stakeholder engagement – November 2013
- Analysis of initial list of options and strategies – February 2014
- Ongoing Public Consultation – April 2014
- Update to Public Works and Infrastructure Committee – June 2014
- Finalization of strategy and final public consultation – November 2014
- Final report to City Council for adoption – February 2015

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