

Biosolids Master Plan Update

Date:	October 19, 2009
To:	Public Works and Infrastructure Committee
From:	General Manager, Toronto Water
Wards:	All
Reference Number:	P:\2009\Cluster B\TW\pw09023

SUMMARY

This report summarizes the findings contained in the Biosolids Master Plan (BMP) Update and recommends formal approval of the Plan. The purpose of the BMP Update is to plan for the future management of biosolids from each of the City's four wastewater treatment plants in a manner that is sustainable, reliable, environmentally sound, cost effective and flexible. Biosolids are the fully treated organic material generated from the biological treatment of wastewater solids.

The BMP Update was undertaken as a Class Environmental Assessment to fulfill the requirements of Phase 1 and 2 of the Municipal Engineers Association Class Environmental Assessment Master Planning process. The BMP Update was released for a 30 day public review beginning on October 1, 2009 and ending on October 30, 2009.

RECOMMENDATIONS

The General Manager of Toronto Water recommends that:

1. City Council approve the Biosolids Master Plan Update Environmental Assessment and direct staff to implement the biosolids management strategies contained in the Master Plan for each of the City's four wastewater treatment plants.
2. Subject to the adoption of the recommendation in (1) above, the General Manager, Toronto Water, be authorized to procure additional beneficial use and landfill disposal services for biosolids from the Ashbridges Bay Treatment Plant (ABTP) on a sole source basis and on such terms and conditions as he considers appropriate until

such time that staff are able to secure competitively bid long term contracts and services to further beneficially use biosolids from ABTP as outlined in the Biosolids Master Plan Update.

3. Subject to the adoption of the recommendation in (2) above, the General Manager, Toronto Water, be authorized to execute one or more contracts and/or agreements on terms and conditions satisfactory to him and in a form satisfactory to the City Solicitor.
4. Subject to the adoption of the recommendation in (1) above, staff be directed to relinquish the Ontario Ministry of the Environment Certificate of Approval for the existing multiple hearth incinerators at Ashbridges Bay Treatment Plant, and
5. This report be forwarded to the Board of Health for information.

FINANCIAL IMPACT

There are no financial implications resulting from the adoption of this report as there is funding available in the approved Toronto Water 2009 Capital Budget and 10 year forecast.

DECISION HISTORY

At its meeting on March 8, 2005, Works Committee requested that the General Manager of Toronto Water, together with the Medical Officer of Health, undertake a peer review of the decision model and methodology used to determine the recommended management options in the Biosolids and Residuals Master Plan (BRMP).

<http://www.toronto.ca/legdocs/2005/minutes/committees/wks/wks050308.pdf>

At its May 26, 2005 meeting, the Works Committee approved the model to undertake the peer review proposed by staff and requested that staff develop a Terms of Reference for the hiring of a facilitator to undertake a peer review of the BRMP and that the Terms of Reference be presented to the Works Committee prior to its release. City Council subsequently endorsed this recommendation at its meeting on June 14, 15 and 16, 2005.

<http://www.toronto.ca/legdocs/2005/minutes/committees/wks/wks050526.pdf>

At its July 11, 2005 meeting, the Board of Health requested that this report be prepared jointly by Toronto Water and the Medical Officer of Health and that it be presented to both the Board of Health and the Works Committee for consideration.

<http://www.toronto.ca/legdocs/2005/minutes/committees/hl/hl050711.pdf>

At its meeting on April 25, 26 and 27, 2006, City Council amended and approved the Draft Terms of Reference for the Peer Review of the Biosolids and Residuals Master Plan Decision Making Model.

<http://www.toronto.ca/legdocs/2006/agendas/council/cc060425/cofa.pdf>

At its meeting on July 15, 16 and 17, 2008, City Council approved The Terms of Reference to update and finalize the Biosolids Master Plan taking into consideration the findings of the Peer Review Report.

<http://www.toronto.ca/legdocs/mmis/2008/pw/reports/2008-06-27-pw17-cr.pdf>

ISSUE BACKGROUND

In the fall of 2002, the City of Toronto initiated a Biosolids and Residuals Master Plan (BRMP) that was to provide direction on the future management of biosolids and water residuals generated by the City's water and wastewater treatment plants to the year 2025. The BRMP was undertaken in accordance with the Class Environmental Assessment process as defined in the *Environmental Assessment Act*. A draft of the BRMP was released for 30-day public comment on September 16, 2004. The public comment period was subsequently extended by Works Committee.

As a result of public concerns regarding the recommended biosolids management strategies identified in the draft BRMP, Works Committee requested that the General Manager of Toronto Water, together with the Medical Officer of Health, undertake a peer review of the decision-making model and methodology used to assess the various biosolids management options in the BRMP.

City staff consulted with other municipalities, industry experts and scientific organizations that regularly undertake peer review processes to establish the best methodology for completing a review of the BRMP. It was determined that the most objective way to undertake a peer review would be to form a panel with selected qualified, independent panel members whose expertise match the specific needs of the project. Panel members were chosen with the help of an independent facilitator, hired by the City through a Request for Proposal (RFP).

The Panel met several times between October and December 2007. The Panel concluded that the decision-making model used in the draft BRMP was a reasonable model that is commonly used in master plans and Environmental Assessments. The report recommended some improvements that could be made to the decision making process in order to provide more clarity to the Master Plan. The Panel's critical comments are summarized as follows:

- Review criteria and criteria weights used in decision-making and clearly document the steps taken to define impacts and assign scores for each management option, so that results can be easily replicated.
- Utilize a statistically valid survey tool to obtain broader public input.
- Review and update industry best practices and viable biosolids management options.
- Change the planning horizon from 20 years to 50 years.

A Terms of Reference to update the BRMP was prepared by staff taking into account the comments and recommendations made by the Peer Review Panel. The City's consultant,

AECOM, completed the work outlined under this Terms of Reference as part of the original BRMP project.

The final Biosolids Master Plan can be viewed at the following web sites:

http://www.toronto.ca/wes/techservices/involved/www/biosolids/pdf/master_plan_report_with_app_a_vol_1_to_m.pdf

http://www.toronto.ca/wes/techservices/involved/www/biosolids/pdf/master_plan_app_a_vol_2.pdf

http://www.toronto.ca/wes/techservices/involved/www/biosolids/pdf/master_plan_app_a_vol_3.pdf

COMMENTS

In light of the recommendations from the Peer Review and changes to biosolids management opportunities, regulations, costs and constraints since the draft BRMP was issued in 2004, a Biosolids Master Plan (BMP) Update was initiated in the fall of 2008. Since regulatory requirements necessitated that the City put in place water residual management options before the BRMP could be completed, individual planning studies for each of the City's four water filtration plants were carried out, and the preferred solutions have, or are being, implemented. Therefore, the BMP Update focuses only on finalizing plans for the management of biosolids and summarizes the water residual management solutions implemented.

The BMP Update addressed the Peer Review recommendations in the following manner:

- ***Peer Review Recommendation #1: Review criteria and criteria weights used in decision-making and clearly documenting the steps taken to define impacts and scores for each management option, so that results can be easily replicated***

In order to make the decision-making process more easily understood, evaluation criteria in the BMP Update fall under three major criteria groups, environmental, social and cost impacts, often referred to as the "triple bottom line". Although in this type of model, weightings are usually evenly distributed between the three criteria groups, for the BMP Update, the environmental impact criteria group was weighed more heavily, followed by the social and cost criteria. This is to reflect the level of importance of each criteria group to the public and consulted stakeholders.

The Toronto Public Health (TPH) Health Study and Ashbridges Bay Treatment Plant Emissions Study completed after the drafting of the BRMP in 2004, were accounted for in the decision making model of the BMP Update for the Ashbridges Bay Treatment Plant. The incineration option was scored lower under the social criteria to capture the ABTP community's opposition to incineration.

- ***Peer Review Recommendation #2: Utilize a statistically valid survey tool to obtain public opinion and preference***

Ipsos Reid Public Affairs was retained to survey public opinion on biosolids management and wastewater treatment in the City of Toronto. The key objective of the survey was to understand the priority of concerns to the public specifically related to plant operation and better understand how the public at large and around each of the four wastewater treatment plants view wastewater treatment plants and the identified biosolids management options.

The results of the survey were used in the decision making process to ensure that the values of Torontonians were reflected and to verify assigned weights to each of the criteria groups.

- ***Peer Review Recommendation #3: Review and update industry best practices and viable biosolids management options***

The 2004 review of biosolids management options available in Canada and around the world completed as part of the original draft BRMP was updated based on the most recent regulations, markets, technologies and industry experience. In addition, an inventory of all publicly available risk assessment data used by regulators to formulate regulations governing biosolids management was reviewed and documented.

- ***Peer Review Recommendation #4: Change the planning horizon from 20 years to 50 years***

In view of the official planning process for the City and the multitude of new opportunities, technologies and biosolids management markets that are expected to emerge in the coming years, the BMP Update opted instead to plan for a shorter term period which allows for regular review and updating of the document every 5 to 10 years.

Based on these changes, the BMP Update has been completed and provides recommendations for the future management of biosolids generated from the treatment of wastewater at each of the City's four wastewater treatment facilities. The strategies recommended for each of the treatment plants are as follows:

Treatment Plant	Recommended Strategy	Rationale and Benefits of Strategy
Ashbridges Bay	<ol style="list-style-type: none"> 1. Continue operation of the Pelletizer Facility. 2. For the remaining biosolids, maximize beneficial use of dewatered biosolids cake through a variety of outlets such as agricultural land application. Explore opportunities for land rehabilitation and tree farming. 3. Use Green Lane landfill and other landfills as needed, as a contingency measure when the supply of biosolids exceeds the capacity of the available beneficial use outlets. 	<ul style="list-style-type: none"> • Makes use of infrastructure already in place. • No immediate construction or capital funding required and therefore a relatively quick implementation schedule is possible. • Seeking competitive bids and negotiating long-term pricing for alternate beneficial use and disposal options provides better cost predictability. • Long-term contracts ensure a more reliable program with less service interruptions and therefore reduced environmental and community impacts. • Supports City's long-term vision of the waterfront
Humber	<ol style="list-style-type: none"> 1. Continue to discharge liquid biosolids into the sanitary sewer system for final processing and management at Ashbridges Bay Treatment Plant 	<ul style="list-style-type: none"> • Takes advantage of existing infrastructure and past capital investments at Humber and Ashbridges Bay Treatment Plants. Capacity of digestion and dewatering process at Ashbridges Bay already sized to accept Humber Treatment Plant biosolids. • Space at Humber Treatment Plant is limited for any new biosolids treatment/handling facilities.

Highland Creek	<ol style="list-style-type: none"> 1. Maintain existing biosolids management strategy and replace aging multiple hearth incinerators with energy efficient fluidized bed incinerators. Upgrade to new state of the art scrubbing technology and include energy recovery to off-set plant utility costs. 	<ul style="list-style-type: none"> • Public consultation process confirmed residents in areas surrounding Highland Creek Treatment Plant oppose biosolids truck traffic through the community. • Existing incinerators are approaching the end of their service life (estimate 5 – 10 year useful life left) • Recommended solution makes use of existing infrastructure already in place at the plant. • New incinerator and scrubbing technology offers cleaner, more cost efficient and more reliable performance than is currently achieved.
North Toronto	<ul style="list-style-type: none"> • Continue to discharge liquid biosolids into the sanitary sewer system for management at Ashbridges Bay Treatment Plant 	<ul style="list-style-type: none"> • North Toronto Treatment Plant has a small footprint and is not easily accessible therefore capital costs to implement a separate management option at this facility are prohibitive. • Biosolids volumes are small and only adds 2% to the amount already managed at Ashbridges Bay Treatment Plant

Ashbridges Bay Treatment Plant (ABTP) Certificate of Approval

Final approval of the BMP, which includes the confirmation of a beneficial use strategy for the Ashbridges Bay Treatment Plant (ABTP), creates the opportunity to demolish the existing incineration facility at the ABTP and relinquish the existing MOE Certificate of

Approval. The area occupied by the decommissioned incinerators would then be reclaimed as part of a future capital works project.

Public Consultation

A multi faceted and extensive approach to public consultation was undertaken during the drafting of the BRMP document as well as the BMP Update. For both the BRMP and the BMP update, a dedicated website was maintained and updated regularly, project newsletters and a dedicated email and phone line to contact the City at anytime was established. During the drafting of the BRMP, a Biosolids and Residuals Master Plan Advisory Committee was formed and met monthly with representation that included interested stakeholders and various regulatory bodies.

In addition to the public consultation components discussed above, a total of 18 Public Information Sessions were held during the drafting of the BRMP and the BMP Update. These sessions were held around each of the treatment plants as well as in rural areas where Toronto biosolids are agriculturally land applied. Sessions were advertised in local community papers, the Toronto Star, in newsletters and mail outs and on the City's website. Meeting minutes and a consolidated list of questions asked by the public at these meeting with responses by the Project Team were posted on the website and mailed to those attending the Public Information Sessions.

CONTACT

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SIGNATURE

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ATTACHMENTS

Attachment 1 - Executive Summary