

**Highland Creek Treatment Plant Public Information Session
Biosolids Master Plan Update
Response to Questions Submitted
October 3, 2011**

The following table presents a consolidated list of questions received from the public and stakeholders and answers prepared by the City regarding the Highland Creek Treatment Plant Public Information Session held for the Biosolids Master Plan on October 3, 2011.

| Topic | Question | Project Team Response |
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| Environmental Assessment Process | <ul style="list-style-type: none"> Since the risk to human health from direct and indirect exposures from near field on-site and far-field emissions from contaminants in sludge in the environment (water, soil, food) from the “beneficial use” option has not been established, should not that important information gap necessitate a Class C EA? | <ul style="list-style-type: none"> The Ontario Ministry of the Environment (MOE) and the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) have expended a great deal of resources on investigating the use of biosolids on land. Additionally, the US Environmental Protection Agency, the Water Environment Federation and the University institutions such as the University of Guelph and numerous other academic institutions worldwide have conducted extensive research over the last several decades regarding biosolids management methods and the use of biosolids on land. All this information was used in the Biosolids Master Plan (BMP) Update when weighting and ranking various biosolids management options. They have concluded that when practiced responsibly and in accordance with the regulations, land application of biosolids is beneficial and poses minimal health and environmental risk. A number of studies have been referenced and reviewed as part of the BMP and the City will continue to review available materials regularly to ensure that all beneficial uses comply with the latest and most comprehensive regulations. <p>Also of note, the City of Toronto has a stringent Sewer Use Bylaw in places which is constantly reviewed and updated to ensure the City works towards limiting contaminants that enter the sewer which in turn improves the quality of the City's biosolids. This bylaw ensures that the City's biosolids can be maintained at the high quality required for beneficial use.</p> |
| | <ul style="list-style-type: none"> Should the new facility be classified as a Schedule ‘C’ project under the Municipal Class Environmental Assessment? | <ul style="list-style-type: none"> The truck loading facility is considered a Schedule "A" project under the Environmental Assessment Act, and requires no further EA studies or EA work in order to proceed to construction. |

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| HCTP Biosolids Beneficial Use Management-Logistics | <ul style="list-style-type: none"> • What time of day can the trucks be expected to pass through the Community? | <ul style="list-style-type: none"> • Operators hauling biosolids from Highland Creek Treatment Plant (HCTP) will have access to the facility 7 days a week, 24 hours a day. The times at which trucks are expected to pass through the community are dependent on where the material will be managed once it leaves the plant, the plant's operational needs and posted truck restrictions. At Ashbridges Bay Treatment Plant (ABTP) trucks load throughout the day with the majority loading early in the morning. |
| | <ul style="list-style-type: none"> • Will the trucks be sealed to reduce odours and leakage? • Will the trucks be odorous, and will they leak toxic materials onto the streets? | <ul style="list-style-type: none"> • As is currently the situation with the biosolids management contracts we have for the ABTP, all operators hauling biosolids for the City are required to have tightly fitting canvas covers on their vehicles to minimize odour impacts and potential biosolids spills while on route. In addition, during loading operators are required to wash down their wheels and their trucks before leaving the treatment plant. |
| | <ul style="list-style-type: none"> • It is reported that five truck loads will be moved through the community every weekday. How many trucks per day would there be on the day after a long weekend? • Why is there variation on the number of trucks after a weekend? | <ul style="list-style-type: none"> • The number of trucks required for hauling biosolids will vary based on the day of the week and month. The average number of trucks required to accommodate biosolids generated at HCTP would be 4 to 5 large tractor trailers per day. End use management sites usually only operate on weekdays while biosolids are generated 7 days a week. In order to haul away weekend backlog, additional trucks would be needed on Mondays and Tuesdays, which would see an average of 6 to 7 trucks a day of biosolids leaving the treatment plant on these days. |
| | <ul style="list-style-type: none"> • Can you confirm which route will be used by the sludge trucks through our neighbourhood, if the beneficial use option is implemented? | <ul style="list-style-type: none"> • Council directed that Coronation Drive should be used for biosolids trucks entering and leaving the treatment plant. A preliminary investigation for two possible routes using Coronation Drive was completed, in one case Manse Road is assumed for north bound access to Lawrence Avenue and in the other case Morningside Avenue was assumed. The investigation took into consideration general pavement conditions, road geometry, school and pedestrian safety and potential neighbourhood impacts indicating both routes would be possible. As the completion of the facility is a number of years away, the feasibility of alternate routes may be reviewed in the future. It is expected that the appropriateness of haul routes will be periodically reviewed thereafter. |

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| | <ul style="list-style-type: none"> • How much of the biosolids from the HCTP will go to landfill and how much will go to land application? | <ul style="list-style-type: none"> • Presently, all of the available biosolids beneficial use capacity is allocated to the biosolids generated at Ashbridges Bay Treatment Plant (ABTP). In 2010, approximately 35% of the biosolids generated at the ABTP were landfilled. Any additional beneficial use capacity that becomes available over the next number of years will be allocated to the ABTP in order to further reduce its reliance on landfill disposal. HCTP biosolids would be hauled and disposed of at a variety of landfill sites until such time that new as yet undetermined, beneficial use capacity becomes available. |
| | <ul style="list-style-type: none"> • Will it be 5 years before construction starts? • How long will the incinerator repairs be going on for? | <ul style="list-style-type: none"> • During the preparation of the BMP, the existing HCTP incinerators were found to be in need of urgent repair. To ensure their continued and safe operation within applicable regulatory standards, staff immediately developed a major maintenance and refurbishment program of these incinerators. This work is underway and will extend the service life of the facility for a maximum of 10 years. Based on the available budget, detailed design of the truck loading and odour control facilities to be completed by 2015 prior to construction commencing in 2015 or 1016 We expect the facility to be operational by 2018/19. |
| | <ul style="list-style-type: none"> • Why is rail not considered for truck haulage? • Why not send the biosolids on rail to the Ashbridges Bay facility and then have it trucked out of there because it is not as dense of a community? | <ul style="list-style-type: none"> • Rail was looked at in great detail and would require the construction of a rail spur line as well as dedicated cars and infrastructure at the destination where biosolids would be managed. Given the high capital costs, unknown operating costs, unknown biosolids destination(s), significant operational and logistical constrains, rail haulage is not a feasible alternative. Truck haulage has the benefit of being highly flexible with respect to haulage schedule and destinations. |
| Odour Control | <ul style="list-style-type: none"> • It is true that the maximum level of odour control permitted at the Highland Creek Plant will be less stringent than that being applied to the Ashbridges Bay Treatment Plant? • Will our community be faced with increased odours from the proposed truck loading facility? | <ul style="list-style-type: none"> • No the proposed facilities for HCTP will be similar to those already in place at Ashbridges Bay Treatment Plant (ABTP). In order to mitigate the potential of odours being released, the biosolids truck loading design for HCTP would be a covered facility that would allow trucks to drive in and be filled from storage hoppers in an enclosed and controlled environment. Air collected from this facility would be directed to an odour control facility, such as a biofilter, before being released into the environment. In addition, all biosolids trucks leaving the HCTP will be required to have tight fitting coverings over their biosolids loads in order to minimize odours while in transit. |

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| <p>Biosolids Management-General</p> | <ul style="list-style-type: none"> • It has been suggested by City Council that the Green Lane landfill is available as a back-up destination for Highland Creek sludge. However, the Green Lane Landfill is designed to accept municipal solid wastes (garbage), and it is reported that it can only absorb a limited quantity of sewage sludge, and that that amount is fully used up with Ashbridges Bay sludge. Can the city please tell us exactly where the Highland Creek sludge will go? • There currently is insufficient land available to absorb even the sludge from Ashbridges Bay, and this shortage of land is likely to get worse, so is it true that there really is no beneficial use opportunity available for the sludge from Highland Creek? In this case, how can the City truthfully say that it will apply the Highland Creek sludge to beneficial uses? | <ul style="list-style-type: none"> • The Biosolids Master Plan (BMP) recognized that there is a shortage of beneficial use capacity available to the City. This has been well documented over the past few years as the City has been able to minimize the amount of biosolids disposed through landfill but has been unable to meet Council's target of 100% beneficial use of biosolids generated at the Ashbridges Bay Treatment Plant (ABTP). Any additional beneficial use capacity that becomes available over the next number of years will be allocated to the ABTP in order to further reduce or eliminate reliance on landfill disposal. Solid Waste Management staff has indicated that Green Lane landfill can in future continue to accept up to 6 truckloads of biosolids per day, five days per week. Due to increased site odour concerns and operational challenges at Green Lane, HCTP biosolids may be hauled and disposed of at a variety of landfill sites in New York State in addition to Green Lane landfill. |
| | <ul style="list-style-type: none"> • I would like to know if anyone has assessed the probability of the proposed truck shipping of biosolids from this plant as a possible pathway for further dispersing this greatly unwanted exotic ant? In a related concern, is there any fill leaving this area from the construction site at the nearby water treatment plant? It could also act as a means of spreading this exotic/alien ant. | <ul style="list-style-type: none"> • As part of the Biosolids Master Plan, the potential environmental impact of shipping construction material (soil) was considered but fire ants were not specifically considered. In regard to the biosolids composition, the biosolids are anaerobically digested prior to haulage and ants would be unable to survive that treatment process. |
| | <ul style="list-style-type: none"> • Is it true that Humber and North Toronto treatment plants direct effluent to Ashbridges Bay treatment plant through the sewer? • What other management methods are currently used at the other three plants? | <ul style="list-style-type: none"> • Biosolids generated at Humber Treatment Plant and North Toronto Treatment Plant are discharged into the Mid Toronto Intercept and Coxwell sewer trunks respectively where they travel to Ashbridges Bay Treatment Plant to be co-managed with the biosolids generated there. Effluent treated at these treatment plants is discharged into Lake Ontario and the Don River. |

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| | <ul style="list-style-type: none"> It was not made clear to the audience from the posters or in the presentations, that the 2009 BMP Update identified fluidized bed incineration as the preferred option for Highland Creek. The motion to Council re: beneficial use" was also coached in unclear language – giving the impression the BMP preferred option for HC was "beneficial use". It is clear that the city has a major problem now with finding disposal sites. This will become a crisis if "beneficial use" is found to be polluting wells, food and the air. | <ul style="list-style-type: none"> The BMP was clear in terms of the recommended solution and indicated that the highest two ranking management options for HCTP were fluidized bed incineration followed by truck haulage with beneficial use using landfill as a contingency option should beneficial use not be available. In the province of Ontario, beneficial use of biosolids on land is a heavily regulated practice by the Ontario Ministry of the Environment and the Ontario Ministry of Agriculture, Food and Rural Affairs. Regulations are in place to ensure that the application of biosolids to land is done in a manner that protects human health and is environmentally sound. |
| | <ul style="list-style-type: none"> Information provided was good; however, I do not understand how city council can overturn publicly announced preferred option in Class EA. City need to go through process again to get consensus. Majority of residents at the meeting favoured the Class EA preferred option. Why did the City overturn the recommendation from the BMP? | <ul style="list-style-type: none"> In Ontario both practices (incineration and beneficial use) are heavily regulated and both are considered to be viable alternatives within the regulatory environment. The difference in scores between the 2 management options following the BMP process was small enough that City Council put a premium on the land application option and overturned the EA recommendation. Ultimately City Council makes the final decision based on what they feel most benefits the City and its residents as a whole and provides direction to City staff how to proceed. |
| Incineration | <ul style="list-style-type: none"> How much more ash would be produced with 2 fluidized bed incinerators, than with the current incineration practices? | <ul style="list-style-type: none"> No additional ash would be generated from what is currently generated by the two multiple hearth incinerators currently being operated at the Highland Creek Treatment Plant (HCTP). |
| | <ul style="list-style-type: none"> If fluidized bed incineration were to be implemented at the HCTP, would flows to the HCTP be increased? | <ul style="list-style-type: none"> No the choice of biosolids technologies is unrelated to the flows received at HCTP. the latest wastewater treatment plant facility forecast for HCTP has not indicated the need for a plant expansion in the near future. |
| | <ul style="list-style-type: none"> Why is incineration considered an on-site solution when the air emissions leave the community and affect other communities? | <ul style="list-style-type: none"> An on-site solution refers to the on-site processing of the biosolids and the infrastructure required for processing. Two elements leave the site; emissions after scrubbing and ash that is hauled to landfill. |
| Biosolids Beneficial Use-Land | <ul style="list-style-type: none"> Do they test biosolids before they are put on a truck and how | <ul style="list-style-type: none"> Beneficial use of biosolids applied to land is regulated under the Ontario Nutrient |

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| <p>Application</p> | <p>often are they tested?</p> <ul style="list-style-type: none"> • Also since dioxins are persistent, will dioxins be monitored in soil post-treatment? • Is beneficial use permitted on crops produced for human consumption? • Why is beneficial use being marketed as nutrient rich as a fertilizer when it contains 500 toxins? • Is it possible for toxins from biosolids to leach into food/groundwater? | <p>Management Act. Land application has been proven safe within the parameters of the Act. Under this Act, the City of Toronto is required to sample its biosolids twice a month for a list of heavy metals and pathogens. Testing is also done at the field the material will be applied to by a certified agronomist to make sure the material is spread at the correct agronomic rate.</p> <p>Additionally, the US Environmental Protection Agency, the Water Environment Federation and the University institutions such as the University of Guelph and numerous other academic institutions worldwide have conducted extensive research over the last several decades regarding biosolids management methods and the use of biosolids on land. All this information was used in the Biosolids Master Plan (BMP) Update when weighting and ranking various biosolids management options. The analysis concluded that when practiced responsibly and in accordance with the regulations, land application of biosolids is beneficial and poses minimal health and environmental risk. A number of studies have been referenced and reviewed as part of the BMP and the City will continue to regularly review available research and regulatory materials to ensure that all beneficial uses comply with the latest and most comprehensive regulations.</p> <p>Also of note, the City of Toronto has a stringent Sewer Use Bylaw in places which is constantly reviewed and updated to ensure the City works towards limiting contaminants that enter the sewer which in turn improves the quality of the City's biosolids. This bylaw ensures that the City's biosolids can be maintained at the high quality required for beneficial use.</p> |
| <p>Cost</p> | <ul style="list-style-type: none"> • What were the relative 25-year blended capital and operating costs for on-site thermal destruction, beneficial use and landfill? • The total present value costs are close so please elaborate on the uncertainties relating to cost? • Is it true that on-site thermal reduction had the lowest 25-year cost of the three alternatives evaluated? • Was this additional cost for odour control included in cost estimates to the budget committee of City Council for the "beneficial use" infrastructure for HCTP? | <ul style="list-style-type: none"> • The capital cost associated with fluidized bed incineration is based on a recent tender of Fluidized bed Incineration facilities recently built in the Region of Durham. The capital cost of the fluidized Bed incinerator is estimated at \$57.7 million for the first unit and \$61.7 million for the second unit. <p>The capital cost of the truck loading facility was determined based on the Ashbridges Bay truck loading facility escalated to 2011 dollars. The capital cost of the facility is estimated to be \$97.2M. The variance between the two options is in the long term operating costs (i.e. tipping fees at landfill and potential beneficial use outlets). As these are preliminary and not based on detailed concepts, further revisions will be made as the preferred concept is further developed.</p> <p>A detailed breakdown of capital and operating costs for both options over a 20 year period</p> |

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| | <ul style="list-style-type: none"> • Has the cost of landfilling 100% of biosolids at the start been factored into the overall costs of the two alternatives? | <p>can be found in a staff report that went forth to Council in May:</p> <p>http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2011.PW3.4</p> |
| Emissions | <ul style="list-style-type: none"> • Much discussion has taken place on the potential release of mercury and dioxins from the thermal reduction at Highland Creek, however no information has been provided on the presence of mercury and dioxins in the dewatered sludge to be spread on land, or from the exhaust emissions from the trucks used to transport the sludge. Can the City provide a complete mass balance of the mercury and dioxins for both the thermal reduction and beneficial use options, starting from the plant influent to its ultimate disposal? | <ul style="list-style-type: none"> • Incoming plant influent contains dioxins. Dioxins are a semi-volatile chemical compound that are captured and bind with wastewater solids (sludge). In the case of state-of-the-art incineration all dioxins will be destroyed in the incineration process. However the incineration process also generates a small quantity of dioxins that are captured by air pollution equipment. In the case of mercury, as part of the wastewater process most of the mercury is precipitated and bound within the wastewater solids. In the case of state-of-the-art incineration most of the mercury from the biosolids would be captured by the air pollution equipment. |
| Ashbridges Bay Wastewater Treatment Plant | <ul style="list-style-type: none"> • Is it true that while the pelletizer plant is not operational, only about 40% of the Ashbridges Bay sludge is being applied to beneficial uses? • It was recently reported in the press that the pelletizer plant at Ashbridges Bay had yet another fire, which has forced the shut-down of the plant. How long will the pelletizer be out of operation, what is the availability factor for the pelletizer plant, and at what percentage of its design capacity has the plant been operating at in the last three years? | <ul style="list-style-type: none"> • In September of 2011, the pelletizer plant suffered a fire that resulted in a shutdown of the facility until the cause of the fire could be investigated. Up until the end of October for 2011, approximately 50% of the biosolids generated at Ashbridges Bay Treatment Plant were being pelletized, approximately 73% of all biosolids generated at ABTP were directed to various beneficial use outlets and 23% of the material was directed to landfill. Each year, staff prepares a summary report for Council that outlines how the biosolids generated from Ashbridges Bay Treatment Plant were managed that year. The 2010 report can be found at the following link: <p>http://app.toronto.ca/tmmis/viewAgendaItemHistory.do?item=2011.PW2.8</p> |
| BMP-General | <ul style="list-style-type: none"> • It is now many years since most of the detailed technical studies were undertaken for the original Biosolids Master Plan. Since that time much has changed in respect of available technologies. While the City has recognized and incorporated some of these changes in respect of the newly improved air emissions control technologies, less emphasis has been given to the recent developments in alternative thermal reduction technologies, such as plasma arc, steam reformation and other emerging systems. These emerging | <ul style="list-style-type: none"> • The Biosolids Master Planning process was a 10 year process that went through two iterations and a detailed peer review. The last update of the BMP was completed in 2009, and recently in 2011 with additional information being incorporated for both incineration and beneficial use options. During the BMP process, a total of 19 Public Information Sessions were held in addition to the formation of a Biosolids Master Plan Advisory Committee with representation that included interested stakeholders, community members, City Councillors and various regulatory bodies. This committee met monthly to review information from the consultant and provide input into the process. |

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| | <p>technologies may provide a better opportunity for increased energy recovery and greater reduction of toxic emissions. If the City implements beneficial use, it means that the City forfeits its opportunity to maintain diversity in its sludge disposal options, and means that 100 % of the City's sludge will be dependent on the availability of agricultural land or landfills within a reasonable proximity to the City; otherwise the annual operating costs could escalate significantly. While there is strong support in the community for continued disposal via incineration, this support is less evident at the political level. Because the whole Environmental Assessment process has taken so long, the City has been forced to spend additional emergency funds to refurbish the existing multiple hearth furnaces, so that they can be operated successfully for another 5 to 10 years. I think that it would be prudent for the City take advantage of the window of opportunity that this expenditure provides, and ensure that we avoid making a quick decision now, that we will all regret for years to come. It is for this reason that I think the City should take the time now to undertake a new Environmental Assessment for the Highland Creek Biosolids, which will fully address the technological changes which have taken place since the BMP was commenced, and which will involve a more inclusive public consultation process, involving all the various interested groups, and most importantly that will fully consider the all the opinions of the local community. Will the City agree to this suggestion?</p> | <p>Numerous technologies/management options were considered in the formation of the Master Plan that are documented in detail in Section 8 and Appendix L of the document. An electronic version of the BMP can be found at:</p> <p>http://www.toronto.ca/wes/techservices/involved/wws/biosolids/report.htm</p> |
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| <ul style="list-style-type: none"> • Where in the Master Plan can we find information on other incineration technologies that were reviewed? Are there any comparisons that can be made with the technologies that neighbouring municipalities are using? • Different emissions are emitted from beneficial use and truck haulage and fluidized bed incineration, these are not comparable. Do we have comparable figures? • Has a comparison been made between the air emissions expected, both at the plant and at the disposal sites, from the on-site thermal reduction option, the land spreading and landfill options and if so, what were the findings? | <ul style="list-style-type: none"> • Section 8 of the Biosolids Master Plan Update (BMP) outlines in detail the long list of management options considered. An electronic version of the BMP can be found at: http://www.toronto.ca/wes/techservices/involved/wws/biosolids/report.htm |
| <ul style="list-style-type: none"> • Will the City agree to conduct a definitive health impact study of truck haulage and beneficial use for the community adjacent to the current HCTP and to where the biosolids will be spread? • We were told that a health study was carried out in that neighbourhood. Was this health study conducted before or after Ashbridges Bay went to the "beneficial use" process? • The recent report from the Medical Officer of Health discussed many issues related to both the on-site thermal reduction and beneficial use options, but, because of a lack of information, was unable to draw any definitive conclusions. Will the City therefore agree to perform a definitive Health Impact Study considering the specific health impacts adjacent to the Highland Creek plant, along the proposed truck routes and at the site of the proposed land spreading operations? It is not acceptable or appropriate to say that a health study undertaken many years ago at Ashbridges Bay, negates the need for a specific Highland Creek Study. | <ul style="list-style-type: none"> • A health study was completed for the Ashbridges Bay Treatment Plant and concluded that truck haulage and beneficial use does not contribute any health impacts in the community. Another Health Assessment is costly and a long-term initiative, which is not currently planned. In the province of Ontario, beneficial use of biosolids on land is a heavily regulated practice by the Ontario Ministry of the Environment and the Ontario Ministry of Agriculture, Food and Rural Affairs. Regulations are in place to ensure that the application of biosolids to land is done in a manner that protects human health and is environmentally sound. The City strictly adheres to and is well within compliance of these regulations when applying biosolids to land. |