Winnipeg
Water and Waste Department

BIOSOLIDS MASTER PLAN
PUBLIC PARTICIPATION REPORT

March 2014

For more information on this report, please contact:

Tiffany Skomro
Public Consultation & Research Officer
1199 Pacific Ave

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BACKGROUND

In January 2014, the City of Winnipeg initiated a public engagement process to receive input on the options being considered for managing biosolids, as part of the Biosolids Master Plan.

Information about the Biosolids Master Plan was available on the website: http://wwdengage.winnipeg.ca/biosolids/

PUBLIC FEEBDACK

Public feedback was collected from January 2 – 27, 2014:

- Comments on the website – 16 comments
- Direct emails (incl. via web form) – 4 emails
- Two public meetings:

Date	Attendees
Tuesday, January 14, 2014	37
Wednesday, January 15, 2014	39

- Feedback forms and dotmocracy sheets:

	Feedback Forms	Dotmocracy (varied per option)
Public meetings	26	25-34
Online on our website	3	2-8

Public feedback was also collected from:

- An omnibus phone survey
  - February 2014
  - 479 respondents
- A Stakeholder Advisory Committee
  - October 2013 – February 2014
  - 10 members

Reports from the various methods of feedback are listed under Attachments at the end of this report.

PROMOTION

Several methods were used to inform stakeholders of the engagement process:

- Public meeting invites were mailed out – 115 invites
- Water & Waste eNewsletters were mailed out

Date	Total emails Sent	Total emails Opened	No. of Click-throughs
January 6, 2014	1,893	1,052 (55%)	193
January 15, 2014	1,944	1,073 (55%)	159
January 23, 2014	1,988	1,154 (58%)	120

- A print advertisement was placed in the Winnipeg Free Press on January 11, 2014
- Press releases with a few news stories ran
- Posts on the City of Winnipeg's Facebook page
- Tweets from the City of Winnipeg's Twitter account

METHODOLOGY

Responses from the public meetings and website are based on self-selecting respondents who are more likely to respond because they would like to express an opinion on the topic at hand. While these opinions are valuable, they cannot be viewed as representative of all Winnipeggers. Instead, the omnibus phone survey results are a more representative reflection of the opinions of Winnipeggers.

SUMMARY OF FINDINGS

Reviewing the feedback received throughout the public engagement process, some themes emerged:

Health impacts are a concern, but so is the need to reuse nutrients.

> *"No proposal should be adopted that effectively destroys the valuable resources available in biosolids."*
>
> *"If there are unknowns re-the pharmaceuticals etc. in the biosolids, I don't think we should be considering using them on land that we are using to produce food. In my opinion, it would be best to apply the precautionary principle in this circumstance."*

When gauging support for the various options, composting was the most supported. In the omnibus survey, when asked what the most important concern was, most responded health impacts.[1]

When considering options for managing biosolids, those that reuse nutrients are also more likely to have potential health impact concerns. This makes trying to choose a preferred option more challenging, as the two are incongruent.

Look beyond a plan just for biosolids. Consider the entire organics stream.

> *"It can be helpful to look at all organic waste stream components together and look for linked solutions rather than segment by segment."*
>
> *"Keep an open mind and look at all options. Consider a larger plan than perhaps just biosolids."*

Some comments emerged around a broader context for biosolids management. Developing a long-term plan should allow for innovation and potentially drive other activities in the department.

There was also considerable dialogue about composting as an option, along with the need to have a wider approach to managing organics. Comments included integrating kitchen waste and looking at anaerobic options.

[1] Due to the complexity and the need to provide a base level of information for each option, opinions of the options were not sought in the omnibus poll.

Cost is not as much of a concern.

> *"I strongly feel it would be better for the city of Winnipeg to not go the cheaper route and really follow a longer-term initiative."*

The consistent message in the feedback received was that cost was not as much of a concern in developing a biosolids master plan. This tied in with the need to take the time to invest in a sustainable long-term solution.

ATTACHMENTS

For further detail, please refer to the specific reports available online at wwdengage.winnipeg.ca/biosolids/

- Summary of Comments and Responses
- Feedback Form and Dotmocracy Report
- Stakeholder Advisory Committee: What Was Heard
- Omnibus Biosolids Master Plan Research Report

Also available online are the materials used during the public engagement process:

- Public Meeting Presentation
- Public Meeting Storyboards

APPENDIX A

LIST OF ATTENDEES

LIST OF BIOSOLIDS PUBLIC MEETING ATTENDEES

1. Winnipeg Centre Green Party (x2)
2. CBC (x2)
3. Pronto Energy ROC
4. Climate Change Connection/50 by 30
5. Terratec (x5)
6. Stantec Consulting (x4)
7. Myera Group
8. MEIA
9. Aquatic Life
10. KGS Group (x3)
11. Council of Women of Winnipeg
12. AANDC
13. UW
14. Winnipeg Free Press
15. KAP
16. MCAC
17. U of W/Green Party of Canada
18. NRI University of Manitoba
19. DLF Consulting
20. MB Conservation & Water Stewardship (x4)
21. Univ.de Saint-Boniface
22. Consulate NL
23. CDEM (x2)
24. World Trade Centre Winnipeg
25. N-Viro Systems Canada
26. Mulder Construction
27. Lake Winnipeg Foundation (x2)
28. Samborski Environmental Ltd (x2)
29. BDM Projects
30. CAC Manitoba
31. AECOM (x2)
32. Tervita
33. Green Action Centre (x3)
34. Orgaworld (x2)
35. WSP Canada (former Genivar)
36. CWS
37. PCL Constructors
38. Yes! Winnipeg
39. Province of MB
40. Citizen (x7)

APPENDIX B

PUBLIC MEETINGS
QUESTIONS & RESPONSES

PUBLIC MEETINGS QUESTIONS & RESPONSES

1. **What steps are you taking to address the chemicals and pharmaceuticals that end up in biosolids and compost?**
   - Emerging substances of concern (ESOC) are a relatively new science in biosolids management that is currently being researched. We follow these studies closely.
   - Compost and biosolids end products have different levels of regulatory approval. Our testing process will confirm the quality and safety of the compost.
   - More information on ESOCs are available on the Canadian Council of Ministers for the Environment (CCME) website at:
     www.ccme.ca/assets/pdf/pn_1448_biosolids_esoc_final_e.pdf
     www.ccme.ca/assets/pdf/pn_1440_contam_invt_rvw.pdf

2. **How long does it take to break down woodchips in compost?**
   - Approximately 40% of woodchips are returned for reuse in the composting process and the remaining 60% of the woodchips end up in the final product and take about 6 weeks to be fully composted.
   - These numbers will be refined during the pilot program.

3. **How long does it take to create dried pellets versus compost? What is the implication in cost?**
   - Pellets are created in a matter of hours, whereas compost requires approximately six weeks to be completed.
   - Composting has a higher cost ($$$) compared to pelletization ($$).

4. **What is the status with the planning and capital budget process? Why is it taking so long?**
   - Funds are only approved in the year they plan to be spent.
   - The budgeted funds we have presented are subject to Council approval.

5. **What environmental parameters do you test at the landfill?**
   - We test for a number of environmental parameters, including metals, bacteria, and organics in the groundwater and surface water. We also monitor for nuisance odour and litter.

6. **Why are you removing nitrogen in addition to phosphorous from the wastewater?**
   - Biological phosphorous removal provides an opportunity for nitrogen removal as an added benefit.
   - Ammonia, which is made of nitrogen, is toxic to fish in aquatic environments and we will be treating it to improve the quality of the treated wastewater that is released to the rivers.

7. **Are the cost comparisons of the different options based on operational and/or capital costs? Are monitoring costs included in these costs?**
   - The cost comparisons are based on a Net Present Value which takes into account both operational (including monitoring costs) and capital costs.

8. **To what extent do you consider environmental factors in your planning process?**
   - We use CCME and provincial regulations for guidance on environmental factors (e.g., greenhouse gas emissions, utilization of nutrients, long term sustainability, cost, pathogen reduction).
   - We are also seeking public input on how these factors should be considered in the Biosolids Master Plan.
   - Information on biosolids management practices and relevant environmental factors are on the CCME's website: http://www.ccme.ca/ourwork/waste.html?category_id=137

9. **How did you come up with these treatment options?**
   - We consulted with CCME regulations, researched best practices elsewhere (e.g., Canada, North America, Europe) and issued a Request for Information to gauge private sector interest.

10. **Land application of biosolids is an option for forested lands. What is the likelihood of this happening in Manitoba?**
    - Applying biosolids to forested lands generally occurs in regions where there is logging and a requirement for reforestation.
    - The opportunities for land application on forested land in Manitoba are limited.

11. **How are you using the concept of sustainability within your evaluation criteria? What factors are you considering?**
    - We are using the definition provided by CCME for sustainable use of biosolids. These guidelines include factors such as carbon footprint, adherence to provincial regulations, and end product usability.
    - More information on sustainable reuse of biosolids is on the CCME website at: www.ccme.ca/assets/pdf/pn_1473_biosolids_guidance_eng_1.0.pdf

12. **How are pathogens in biosolids addressed in land application programs?**
    - Wastewater sludge is treated and stabilized in a process called anaerobic digestion to reduce pathogens in biosolids, which can then be safely handled and applied to land.

13. **Your website indicates you produce biosolids at the north end sewage treatment plant. Are biosolids produced or treated at your other two sewage treatment plants?**
    - All sludge from the City's two other sewage treatment plants are transported to

the north end plant for treatment.

- The biosolids generated at the north end plant represent the biosolids from all the treatment processes at the three sewage treatment plants.

14. Is it sustainable to truck sludge from the west end and south end plants to the north end sewage treatment plant?

- We studied the option of building new sludge treatment facilities at the south end plant and found that there are significant economies of scale to treat all the sludge at the north end plant.

15. You estimate that biosolids production could increase by 50% by the year 2037. How did you calculate this number?

- The 50% increase accounts for:
  - population growth of approximately 35%,
  - industry growth, and
  - increased wastewater flows through our Combined Sewer Overflow Program.
- This is an estimate that is used for planning purposes and is subject to change with wastewater infrastructure upgrades.

16. What are biosolids made of? How much does toilet paper influence this?

- Biosolids are primarily made up of water and carbon. They also include metals and nutrients (e.g., nitrogen, phosphorous).
- The contribution of toilet paper to the makeup is unknown because we have not specifically studied this at our sewage treatment plants. Also, we are not aware of any such studies being undertaken elsewhere. However, it is reasonable to conclude that the contribution will primarily be organic carbon.
- Details on our biosolids and their constituents are included in our yearly biosolids compliance reports: http://www.winnipeg.ca/waterandwaste/sewage/WPCClicenseMonitor.stm

17. Are you considering lime stabilization or alkaline technologies? Why or why not?

- We are not considering lime stabilization at this time.
- Soils in Manitoba tend to be basic (high pH) and applying lime stabilized sludge may further raise the pH.

18. How do other cities treat their biosolids? Are there examples of cities that are doing a good job managing their biosolids?

- Other cities will use one or more treatment options depending on a number of factors specific to their region (e.g., social, economic, environmental). Information on biosolids management in other regions is on our website at: http://wwdengage.winnipeg.ca/biosolids/presentation/
- To determine whether or not a city is doing a “good job” of managing biosolids, a number of local factors must be considered, including:

- population density in the region,
- compounds entering the sewer system, many of which will depend on local industry,
- land availability,
- regulations and effectiveness of regulatory enforcement on the discharges.

- Generally, certainly in North America and most of Europe, if the biosolids program is meeting regulatory licence requirements, it is reasonable to conclude that the city is doing a "good job".

19. What is anaerobic digestion and how is it used to create biosolids?

- The solids from all three sewage treatment plants are treated at the north end plant (our largest), in a process known as anaerobic digestion.
- In the anaerobic digestion process, the solids are heated to approximately 35 - 37° C in tanks that do not contain oxygen (i.e., anaerobic) where bacteria break down (i.e., digest) the solids.
- The solids left after anaerobic digestion are called biosolids.
- Anaerobic digestion is useful because it:
  - decreases the final mass of (bio) solids,
  - produces energy that can be used by the north end plant, and
  - reduces pathogens in the (bio) solids.

20. Can you provide additional technical information on anaerobic digestion? Why are we not considering the expansion of these systems as an option?

- There is a description of anaerobic digestion at http://www.epa.gov/agstar/anaerobic/
- We are considering expanding the existing anaerobic digestion systems at the north end plant, as part of the Biosolids Master Plan.

21. Are you considering other organics, such as food waste, as part of your biosolids master plan? Why not consider the entire organic waste stream?

- We do not have a program to collect other organics at this time.
- We may reconsider including other organics, such as food waste, in the future.

22. Is source separated organics going to be considered in the future?

- We will consider the option of source separated organics as part of the Garbage and Recycling Master Plan.

23. Who owns and operates the City's biosolids management program? In the future, is there interest in working with business?

- The three sewage treatment plants, including the biosolids program, are City-owned and operated.
- As part of the Biosolids Master Plan, we are open to exploring opportunities to partner with the private sector.

24. What is your Request for Information (RFI) and is it still open to submissions?

- We issued the RFI document to explore private sector interest in biosolids and biosolids management. You can see the RFI 518-2013 at: http://www.winnipeg.ca/MatMgt/FolderContents.asp?FOLDER_NAME=518-2013&YEAR=2013
- This RFI is closed, but we are open to receiving information through our biosolids feedback webpage at http://wwdengage.winnipeg.ca/biosolids/

25. Will the results of your RFI be made public?

- We will post a summary on our website after we finish reviewing all the submissions, and include this evaluation in our Biosolids Master Plan.

26. In comparison, it appears that composting is the most expensive treatment option. Why is this?

- Composting costs are higher because of the high cost of woodchips and labour.
- Woodchips are required to provide carbon and space for air to ensure composting reactions are complete.

27. Are you considering alternatives to woodchips (e.g., straw, paper, yard waste) in your composting pilot?

- To gain experience with composting biosolids in Winnipeg's climate, we will only be using woodchips.
- After the pilot program, we may explore other additives (e.g., leaf and yard waste) to optimize the process.

28. What is the fate of the compost for your pilot? How is this different than land application?

- The licence for the two-year pilot program does not allow for the composted material to leave the site.
- We will use the compost from the pilot program on-site as landfill cover and as a soil revitalization material.
- This is different than "land application" in that land application consists of applying biosolids to agricultural land.

29. Are there uses for compost outside of the landfill?

- Before we can distribute to a market off-site, we must first be able to demonstrate that the finished compost material is pathogen free and qualifies a "Class A" product.

30. Would paper from the recycling program be able to be used in composting?

- No. We already have a successful reuse program paper recycling paper, which is the preferred option.